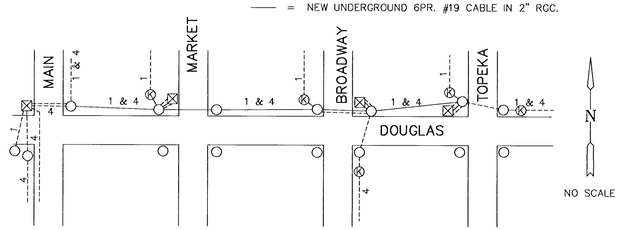
⊗ = KG&E VAULT/MANHOLE
⊠ = TRAFFIC SIGNAL CONTROLLER
○ = SERVICE BOX
---- = EXISTING UNDERGROUND CABLE/CONDUIT
1 = ZONE
—— = NEW UNDERGROUND 6PR. #19 CABLE IN 2" RGC.



SIGNAL COMMUNICATION DIAGRAM

NOTE: SEE WIRING PLANS FOR COMMUNICATION CABLE INSTALLATION INSTRUCTIONS.

TEMPORARY SIGNAL NOTES

1. ALL WIRING INSTALLED SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE AND LOCAL ORDINANCES AND REQUIREMENTS.
2. ALL SIGNAL CABLE AND FEEDER RUNS TO BE CARRIED OVERHEAD ON SPAN WIRE ACROSS ROADWAYS OR IN CONDUIT UNDER THE ROADWAYS.
3. THE OPERATION AND MAINTENANCE OF THE SIGNAL SYSTEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. ALL SIGNAL INDICATIONS, CLEARANCES, AND SEQUENCES SHALL BE IN ACCORDANCE WITH THE CURRENT M.U.T.C.D..
5. THE SPAN WIRE SIGNAL HEADS SHALL BE CENTERED OVER THE EXIT LANES.
6. THE SPAN WIRE SIGNAL HEADS SHALL BE INCLUDED IN THE BID ITEM "TRAFFIC CONTROL LUMP SUM"
7. THE TEMPORARY TRAFFIC SIGNALS SHALL BE SWITCHED ON DURING AN OFF–PEAK HOUR. WHEN SWITCHING SIGNALS, FLAGMEN WILL BE REQUIRED.
8. THE TERMINAL BLOCKS SHALL BE IN A WEATHERPROOF ENCLOSURE.
9. ALL NECESSARY SIGNAL HEAD, CONTROLLER AND POLE RELOCATIONS, WHETHER SPECIFICALLY MENTIONED OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
10. TRAFFIC SIGNAL HEADS WHICH ARE IN PLACE AND NOT IN USE DURING A SPECIFIC STEP SHALL BE REMOVED, OR COVERED WITH AN OPAQUE MATERIAL.
11. SIGNAL PHASING AND TIMING SHALL BE SET AS DIRECTED AND APPROVED BY THE ENGINEER–IN–CHARGE OF CONSTRUCTION.
12. EACH INTERSECTION SHALL HAVE A SIGNAL CONTROLLER CAPABLE OF A STANDARD EIGHT PHASE OPERATION, WITH GREEN INTERVALS ABLE TO BE SET FROM 0 TO 255 SECONDS.
13. THE TRAFFIC SIGNAL CONTROLLER MUST BE CAPABLE OF STORING A MINIMUM OF THREE SEPARATE PHASING/TIMING PLANS, WHICH CAN BE SELECTED ON A TIME–OF–DAY BASIS. EXISTING CONTROLLER MAY BE USED AS A TEMPORARY CONTROLLER
14. IN CASE OF SIGNAL MALFUNCTION, THE CONTRACTOR MUST RESPOND WITHIN ONE HOUR.

MONOPOLE TRAFFIC SIGNAL SYSTEM NOTES

1. LOCATION OF TRAFFIC SIGNALIZATION STRUCTURES SHALL BE COORDINATED WITH OTHER UNDERGROUND UTILITIES. WHERE CONFLICTS ARISE, STRUCTURES SHALL BE PLACED AS DIRECTED BY THE ENGINEER.
2. SIGNAL STRUCTURES SHALL BE IN ACCORDANCE WITH PLANS AND APPLICABLE SPECIFICATIONS. COMPLETE SHOP DRAWINGS SHALL BE SUBMITTED FOR APPROVAL BY THE ENGINEER. EXTERIOR STEEL SURFACES SHALL BE FINISHED PER NOTE 8. THE COLOR OF EXTERIOR SURFACE OF ALL STRUCTURES, SIGNAL HEADS, BRACKETS, EQUIPMENT, CABINETS, COVERS, PANELS AND COMPONENTS SHALL BE MATCHING BLACK, UNLESS OTHERWISE NOTED.
3. ATTACH ELECTRIC METER AND DISCONNECT SWITCH DIRECTLY TO SIGNAL POLE. SEE WIRING REQUIREMENTS ON SERVICE ENTRANCE RISER DIAGRAM.
4. CONTRACTOR SHALL PROVIDE TO THE MANUFACTURER THE LOCATIONS AND SIZES FOR ALL SIGNS, SIGNAL HEADS, CABLE OPENINGS, WIRING ACCESS, AND HANDHOLES, INCLUDING REQUIREMENTS FOR LUMINAIRE AND WIRING BY KG&E.
5. POLE MOUNTED SIGNAL CONTROLLER CABINET MODEL 336A, SHALL BE INSTALLED 30" TO 36" ABOVE FINISHED SIDEWALK.
6. IRRIGATION CONTROLLER SHALL BE INSTALLED WITHIN AN ENCLOSURE AND MOUNTED DIRECTLY TO SIGNAL STRUCTURE. SEE PLANS FOR LOCATIONS. COORDINATE MOUNTING REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
7. ALL CABLING AND WIRING SHALL BE INSTALLED INSIDE THE SIGNAL STRUCTURE.
8. SPECIAL FINISH FOR TRAFFIC SIGNAL STRUCTURES: ALL EXTERIOR SURFACES ARE COATED WITH A ZINC RICH EPOXY POWDER TO A MINIMUM DRY FILM THICKNESS OF 2.0 MILS. THE COATING IS 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 IS COATED WITH AN INTERMEDIATE COAT OF POLYESTER POWDER TO A MINIMUM DRY FILM THICKNESS OF 2.0 MILS. THE COATING IS ELECTROSTATICALLY APPLIED AND CURED BY HEATING THE SUBSTRATE IN A CONVECTION OVEN TO A MINIMUM OF 350 DEGREES AND A MAXIMUM OF 400 DEGREES FAHRENHEIT.

   THE INTERMEDIATE COAT IS TOP COATED WITH ONE COAT OF HIGH–BUILD ACRYLIC POLYURETHANE ENAMEL TO A MINIMUM DRY FILM THICKNESS OF 2.0 MILS. THE COATING IS 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.

TRAFFIC SIGNALIZATION QUANTITIES

ITEM DESCRIPTION	UNIT	MARKET	BROADWAY	TOPEKA			TOTALS
CABLE 1/C NO. 6 (POWER)	L.F.	–	–	–			–
CABLE 1/C NO. 8 (POWER)	L.F.	–	–	–			–
CABLE 5/C NO. 14 (SIGNAL)	L.F.	305	450	400			1,155
CABLE 7/C NO. 14 (SIGNAL)	L.F.	655	795	690			2,140
CABLE 6PR. NO. 19 SHIELDED (COMMUNICATION)	L.F.	870	1,060	865			2,795
CABLE NO. 8 AWG BARE COPPER (GROUND)	L.F.	475	510	500			1,485
CONDUIT 3 IN. RGC IN TRENCH	L.F.	315	345	340			1,000
CONDUIT 2 IN. RGC IN TRENCH	L.F.	340	340	365			1,045
TRENCHING	L.F.	655	685	705			2,045
JOINT USE SIGNAL POLE (STEEL)	EACH	1	–	1			2
JOINT USE SIGNAL POLE W/ MAST ARM (STEEL)	EACH	3	4	3			10
MAST ARM 19 FT. (NOTE 4)	EACH	1	–	–			1
MAST ARM 25 FT. (NOTE 4)	EACH	–	–	1			1
MAST ARM 26 FT. (NOTE 4)	EACH	1	–	–			1
MAST ARM 28 FT. (NOTE 4)	EACH	1	–	1			2
MAST ARM 29 FT. (NOTE 4)	EACH	–	1	–			1
MAST ARM 30 FT. (NOTE 4)	EACH	1	1	–			2
MAST ARM 31 FT. (NOTE 4)	EACH	–	1	1			2
MAST ARM 32 FT. (NOTE 4)	EACH	–	1	–			1
MAST ARM 36 FT. (NOTE 4)	EACH	–	–	1			1
CONCRETE BASE, 7'–0"X30" DIA. (JOINT USE SIG. POLE), W/ GROUND ROD	EACH	1	–	1			2
CONCRETE BASE, 12'–0"X36" DIA. (JOINT USE SIG. POLE W/ MAST ARM), W/ GROUND ROD	EACH	3	4	3			10
12" TRAFFIC SIGNAL 3 HEAD (TYPE A), W/ MOUNTING BRACKET	EACH	8	8	8			24
12" PEDESTRIAN SIGNAL (TYPE L), W/ MOUNTING BRACKET	EACH	8	8	8			24
135 WATT TRAFFIC SIGNAL LAMP	EACH	40	40	40			120
JUNCTION BOX 24 IN. DIAMETER	EACH	1	1	1			3
SERVICE BOX 36 IN. DIAMETER	EACH	4	4	4			12
SIGNAL SYSTEM HARDWARE							
TYPE 170E CONTROLLER (NOTE 5)	EACH	1	1	1			3

NOTES:

1. THE CONTRACTOR SHALL SUPPLY & INSTALL ALL NECESSARY MATERIAL & EQUIPMENT FOR THE COMPLETE OPERATION OF THE TRAFFIC SIGNAL SYSTEM INCLUDING COMMUNICATION CABLE WHETHER SPECIFICALLY MENTIONED OR NOT.
2. THE EXTERIOR COLOR OF ALL COMPONENTS & EQUIPMENT SHALL BE BLACK TO MATCH THE SIGNAL STRUCTURES.
3. THE TRAFFIC SIGNAL INSTALLATION SHALL BE BID AS LUMP SUM.
4. MAST ARM LENGTHS ARE SCALED TO CENTER OF FOUNDATIONS. FABRICATION LENGTHS TO BE VERIFIED BY LAYOUT OF FOUNDATION, LANE DISTANCE & SIGNAL HEAD MOUNTING REQUIREMENTS.
5. TYPE 170E TRAFFIC CONTROLLER SYSTEM TO INCLUDE:

   BROADWAY AND TOPEKA:

   –ONE (1) MODEL 170E CONTROLLER UNIT COMPLETE WITH WAPITI MICRO SYSTEM W4IKS (OR LATEST REVISION) TRAFFIC PROGRAM ON 412B2 SYSTEM MEMORY MODULE & ONE (1) MODEL 400 MODEM.

   MARKET:

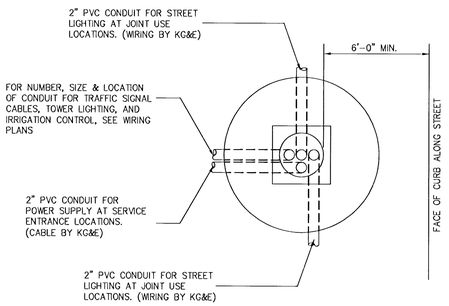
   –ONE (1) MODEL 170E CONTROLLER UNIT COMPLETE WITH WAPITI MICRO SYSTEM W4IKS (OR LATEST REVISION) TRAFFIC PROGRAM ON 470I MEMORY MODULE, ONE (1) STAND ALONE MODEL 400 MODEM & ONE (1) HAYES COMPATIBLE DIAL–UP MODEM.

   MARKET, BROADWAY & TOPEKA:

   –ONE (1) MODEL 336A CABINET (POLE MOUNTED) COMPLETE WITH ALL ACCESSORIES INCLUDING TWO (2) MODEL 204 FLASHER UNITS AND ONE (1) MODEL 210PC CONFLICT MONITOR.

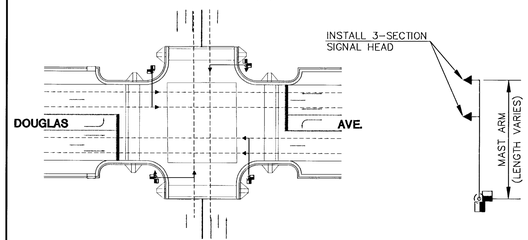
   –THREE (3) MODEL 242 TWO CHANNEL ISOLATORS.

   –FOUR (4) MODEL 200 SWITCH PACKS.



CONDUIT REQUIREMENTS FOR MONOPOLE FOUNDATION

(SEE CONCRETE SIGNAL BASE DETAIL)



SIGNAL HEAD LOCATION DETAIL (TYP. FOR DOUGLAS AVE.)

REVISED 4/99

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STREETSCAPES
PROJECT NAME

MONOPOLE TRAFFIC SIGNAL SYSTEM, NOTES, AND QUANTITIES
SHEET TITLE

DSS/DCH	WNJ	DSS/DCH
DESIGN BY:	DRAWN BY:	CHECKED BY:
DATE	92010 JOB NO.	26 / 61 SHEET/OF

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