

SCANNED BY
PLANNING

CONSTRUCTION PLANS

FOR

CITY OF ALBUQUERQUE



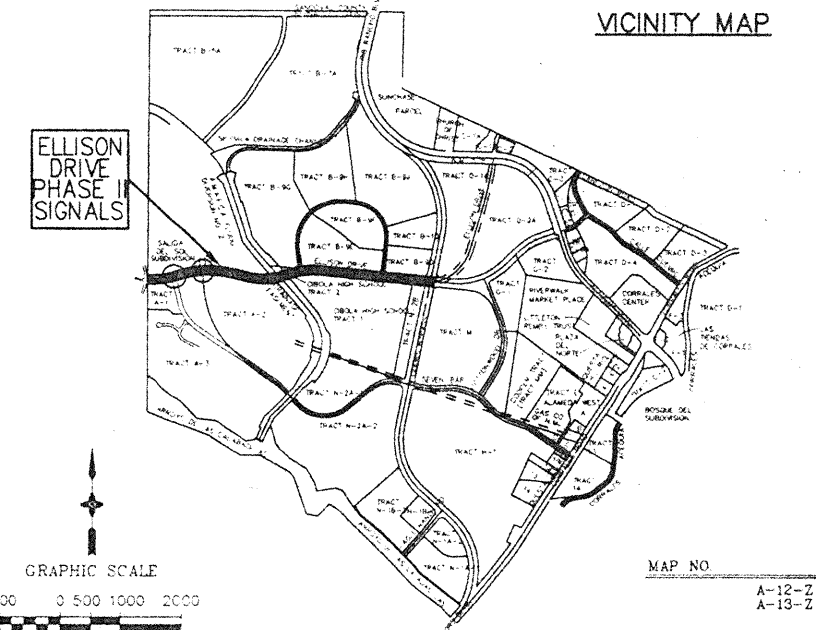
ELLISON DRIVE PHASE II - SIGNALS

GENERAL NOTES

- ALL WORK DETAILED ON THESE PLANS, EXCEPT AS OTHERWISE STATED OR PROVIDED HEREON, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION - 1986 EDITION-AS UPDATED THROUGH AMENDMENT NO. 6.
- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT ONE CALL SYSTEM, INC., 260-1990, FOR LOCATION OF EXISTING UTILITIES. CONTRACTOR SHALL COORDINATE ALL UTILITY WORK INCLUDING CUT OFF OF EXISTING UTILITIES FOR NEW CONNECTIONS (FIRE PROTECTION, DOMESTIC WATER, SEWER, STORM DRAIN, GAS PIPING, ETC.) WITH ENGINEER, OWNER, AND LOCAL UTILITY REPRESENTATIVES.
- THESE DRAWINGS REFLECT INFORMATION ON UTILITIES GATHERED BY SITE INSPECTION, DISCUSSIONS WITH MUNICIPAL OFFICIALS, AND PREVIOUS CONSTRUCTION DRAWINGS. IT IS POSSIBLE THAT THE EXACT LOCATION OF LINES AND UTILITY CONNECTION POINTS IN THE VICINITY OF THE REQUIRED WORK MAY BE DIFFERENT FROM THE LOCATION SHOWN ON THIS DRAWING. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY.
- ALL GAS, ELECTRIC, TELEPHONE LINES, CABLES, AND APPURTENANCES ENCOUNTERED DURING CONSTRUCTION THAT REQUIRE RELOCATION SHALL BE RELOCATED BY THE RESPECTIVE UTILITY. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ALL NECESSARY UTILITY ADJUSTMENTS.
- IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT AND MAINTAIN IN SERVICE ALL EXISTING UTILITIES.
- ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, RULES, AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL REMAIN THE CONTRACTOR'S RESPONSIBILITY.
- ALL EXCAVATION/CONSTRUCTION PERMITS WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN THE CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR PERMITS.
- THE CONTRACTOR SHALL EXERCISE REASONABLE CARE DURING CONSTRUCTION TO PREVENT THE MOVEMENT OF SEDIMENT FROM THE SITE INTO EXISTING STREETS. LOOSE SOIL STOCKPILES DURING CONSTRUCTION ACTIVITIES SHALL BE PROMPTLY CLEANED UP OR PROTECTED FROM BEING CARRIED DOWNSTREAM BY FLOWING WATER.
- DISPOSAL OF ALL WASTE MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AS SPECIFIED IN SECTION 6.14 OF THE GENERAL CONDITIONS IN THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION - 1986 EDITION.
- A DISPOSAL SITE FOR ALL EXCESS EXCAVATION MATERIAL, ASPHALTIC PAVING, CONCRETE CURBS AND SIDEWALKS, ETC., SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE FIELD ENGINEER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL SITE AND HAUL THERE TO SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.
- THE CONTRACTOR WILL BE REQUIRED TO CONFINED HIS WORK WITHIN THE CONSTRUCTION LIMITS AND/OR PUBLIC RIGHT-OF-WAY TO PRESERVE EXISTING VEGETATION AND PRIVATE PROPERTY. THE CONTRACTOR SHALL NOT STORE ANY EQUIPMENT OR MATERIAL WITHIN THE RIGHT-OF-WAY UNLESS THE EQUIPMENT OR MATERIAL IS PROPERLY SHIELDED UTILIZING CURRENT SAFETY DESIGN AND INSTALLATION METHODS. THE SAFETY DESIGN FOR THIS SHIELDING SHALL BE PROVIDED BY THE CONTRACTOR AND MUST BE APPROVED BY THE ENGINEER BEFORE IMPLEMENTING. THERE WILL BE NO DIRECT MEASUREMENT OR PAYMENT FOR THE DESIGN, MATERIALS, INSTALLATION, AND REMOVAL OF THE SAFETY BARRIER.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE WITH NEW MEXICO UTILITIES, INC., A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO IMPLEMENTING THE PROPOSED WATER VALVE SHUT-OFF AND PRIOR TO INITIATING ANY WORK AFFECTING ANY EXISTING PUBLIC UTILITY.
- WHEN ABUTTING NEW PAVEMENT TO EXISTING, SAWCUT EXISTING PAVEMENT TO A STRAIGHT EDGE AND AT A RIGHT ANGLE, OR AS APPROVED BY THE PROJECT ENGINEER, TO REMOVE ANY BROKEN OR CRACKED PAVEMENT. ALL SAWCUT PAVEMENT SHALL BE SPRAYED WITH TACK COAT PRIOR TO INSTALLATION OF ADJOINING ASPHALT PAVEMENT.
- A MINIMUM OF THREE (3) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION SCHEDULE AND A CONSTRUCTION SIGNING AND BARRICADE PLAN TO CONSTRUCTION COORDINATION. TWO (2) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A BARRICADE PERMIT FROM THE TRAFFIC ENGINEERING DIVISION. CONTRACTOR SHALL NOTIFY BARRICADE ENGINEER (768-2551) PRIOR TO OCCUPYING AN INTERSECTION. REFER TO SECTION 19 OF THE SPECIFICATIONS.
- THE CONTRACTOR SHALL PLACE THE PERMANENT PAVEMENT MARKINGS AS SHOWN ON THE DRAWING.
- THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, ARE INTENDED FOR USE ON THIS PROJECT AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF BOHANNAN-HUSTON, INC. IN THE EVENT OF UNAUTHORIZED USE, THE USER ASSUMES ALL RESPONSIBILITY AND LIABILITY WHICH RESULTS.

- CONTRACTOR SHALL NOTIFY THE ENGINEER NOT LESS THAN SEVEN (7) DAYS PRIOR TO STARTING WORK IN ORDER THAT THE ENGINEER MAY TAKE NECESSARY MEASURES TO INSURE THE PRESERVATION OF SURVEY MONUMENTS. CONTRACTOR SHALL NOT DISTURB PERMANENT SURVEY MONUMENTS WITHOUT THE CONSENT OF THE ENGINEER AND SHALL NOTIFY THE ENGINEER AND BEAR THE EXPENSE OF REPLACING ANY THAT MAY BE DISTURBED WITHOUT PERMISSION. REPLACEMENT SHALL BE DONE ONLY BY THE ENGINEER. WHEN A CHANGE IS MADE IN THE FINISHED ELEVATION OF THE PAVEMENT OR ANY ROADWAY IN WHICH A PERMANENT SURVEY MONUMENT IS LOCATED, CONTRACTOR SHALL, AT HIS OWN EXPENSE, ADJUST THE MONUMENT COVER TO THE NEW GRADE UNLESS OTHERWISE SPECIFIED. REFER TO SECTION 44 OF THE SPECIFICATIONS.
- ANY EXCAVATION WORK IN THE AREA OF ALL HIGH PRESSURE GAS LINES SHALL REQUIRE THE PRESENCE OF A GAS COMPANY OF NEW MEXICO REPRESENTATIVE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE GAS COMPANY OF NEW MEXICO REPRESENTATIVE, ERMINIO GURULE, AT 345-1877, EMERGENCY NUMBER 345-6058.
- ~~MANHOLE STEPS WILL BE INSTALLED IN ALL STORM DRAIN MANHOLES AND JUNCTION BOXES AND CATCH BASINS. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO OTHER CONTRACT ITEMS AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.~~
- ~~ALL CONFLICTING EXISTING STRIPING SHALL BE REMOVED BY EITHER GRADING OR WITH APPROVED CHEMICAL PROCEDURES.~~
- ~~REVEGETATION WITHIN POND GRADING AREAS IS CONSIDERED INCIDENTAL TO THE POND GRADING AND WILL HAVE NO SEPARATE BID ITEM.~~
- ~~ALL DISTURBED AREAS WILL BE SEEDED AND PAID FOR UNDER CITY ITEM FROM 61-SEEDING GLASS "A" NATIVE SEEDING MIXTURE WILL BE AS SPECIFIED IN THE SPECIFICATIONS.~~

- [X] ALL UTILITIES AND UTILITY SERVICE LINES SHALL BE INSTALLED PRIOR TO PAVING.
- [X] BACKFILL COMPACTION AND PAVING SHALL BE ACCORDING TO C.O.A. STD. DWG. 2465.
- [] TACK COAT REQUIREMENTS SHALL BE DETERMINED BY THE FIELD ENGINEER.
- [] SIDEWALKS AND WHEELCHAIR RAMPS WITHIN THE CURB RETURNS SHALL BE CONSTRUCTED WHEREVER A NEW CURB RETURN IS CONSTRUCTED.
- [] IF CURB IS DEEPER FOR A HANDICAP RAMP, THE RAMP SHALL BE CONSTRUCTED PRIOR TO ACCEPTANCE OF THE CURB AND GUTTER.
- [] ALL STORM DRAINAGE FACILITIES SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE.



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COMPLETED BY THE CONTRACTOR

REV.	SHEETS	CITY ENGINEER	DATE	USER DEPARTMENT	DATE	USER DEPARTMENT	DATE
ENGINEERS STAMP & SIGNATURE		APPROVALS	ENGINEER	DATE	APPROVED FOR CONSTRUCTION		
		DRG. Checkman	R. B. B. X	12-2-99	APPROVED FOR CONSTRUCTION [Signature] City Engineer Date		
		Transportation	R. B. B. X	12-2-99			
		Water/Wastewater	N/A				
		Hydrology	N/A				
		Paving					
		Const. Mgmt.					
		Const. Coord.					
		City Project No.	6152.81	Sheet		1	Of 23

SIGNAL AND LIGHTING NOTES

- ALL WORK ON THESE PLANS TO BE PERFORMED UNDER THIS CONTRACT SHALL CONFORM TO THE CURRENT NATIONAL ELECTRIC CODE, AND THE STANDARDS OF THE NATIONAL BOARD OF FIRE UNDERWRITERS FOR ELECTRICAL WIRING AND APPARATUS, AND THE CITY'S TRAFFIC ENGINEERING OPERATIONS THIRD DRAFT SPECIFICATIONS (JUNE, 1994).
- LOCATIONS OF CONDUITS, FOUNDATIONS, CONTROL CABINETS, POLES, PULL BOXES, MANHOLES, AND SPLICE CABINETS SHOWN ON THE PLANS ARE SCHEMATIC AND SHALL BE ADJUSTED IN THE FIELD TO MAXIMIZE CLEAR SPACE AVAILABLE FOR PEDESTRIANS AND WHEELCHAIRS TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT. THE CONTRACTOR SHALL MEET WITH THE CITY TRAFFIC ENGINEERING OPERATIONS PERSONNEL IN THE FIELD AT ALL LOCATIONS TO SPOT EQUIPMENT BEFORE BEGINNING THE WORK. ALL SUCH EQUIPMENT SHALL BE INSTALLED WITHIN THE RIGHT-OF-WAY.
- THE CONTRACTOR IS WARNED THAT EXISTING CONDUITS MAY CONTAIN AC POWER AND CAUTION SHALL BE EXERCISED IN INTERCEPTING OR INSTALLING CABLE IN EXISTING CONDUIT.
- THE CONTRACTOR SHALL BORE, DRILL, OR PUSH WHEN CROSSING EXISTING PAVEMENTS AND ANY DRIVEWAYS FOR SIDE STREET CROSSINGS. BEFORE CONDUIT CAN BE BORED, DRILLED, OR PUSHED THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES. THE CONTRACTOR SHALL LOCATE AND EXPOSE GAS LINES WHICH CROSS ANY PROPOSED BORES. THESE EXCAVATIONS SHALL REMAIN OPEN UNTIL AFTER THE BORE IS COMPLETE. CONTRACTOR SHALL REMOVE AND REPLACE IN KIND ANY SIDEWALK OR PAVEMENT REQUIRED TO EXPOSE SUCH LINES. THE CONTRACTOR MAY CUT, TRENCH, AND REPLACE EXISTING PAVEMENT ONLY WHEN APPROVED BY THE PROJECT MANAGER.
- SPLICING OF COMMUNICATIONS CABLE WILL NOT BE PERMITTED IN PULL BOXES. SPLICING OF COMMUNICATIONS CABLE (CONNECTIONS) WILL BE PERMITTED ONLY AT SPLICE CABINETS OR CONTROLLER CABINETS WITH SPLICE BARS. SPLICING FOR TRAFFIC SIGNALS MCC WILL BE PERMITTED IN LARGE PULL BOXES INCLUDING LARGE MEDIAN PULL BOXES.
- ALL LOOP LEAD-IN CABLES SHALL BE TAGGED AT CABINET TO IDENTIFY EACH CABLE BY PHASE AND LOOP NUMBER.
- ALL PULL BOXES SHALL BE REINFORCED POLYMER MORTAR HEAVY DUTY TYPE WITH REINFORCED POLYMER MORTAR HEAVY DUTY COVERS. CONCRETE COVERS, STEEL COVERS, AND CONCRETE PULL BOXES WILL NOT BE ACCEPTABLE.
- THE CONTRACTOR SHALL NOTIFY THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING OPERATIONS (857-8000) TWO WORKING DAYS IN ADVANCE OF ANY ANTICIPATED WORK ON SIGNALS, LIGHTING, AND POWER SERVICES. TRAFFIC ENGINEERING OPERATIONS PERSONNEL WILL ASSIST THE CONTRACTOR IN FIELD LOCATION OF EQUIPMENT, COLOR CODING OF WIRING, AND MUST BE PRESENT WHEN SIGNALS AND LIGHTING ARE SHUT-OFF OR TURNED ON. THE CONTRACTOR SHALL ALSO NOTIFY THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING OPERATIONS EACH TIME A TRAFFIC SIGNAL CONTROL DOOR IS OPENED.
- THE CONTRACTOR SHALL NOTIFY PUBLIC SERVICE COMPANY 30 DAYS IN ADVANCE OF ANTICIPATED POWER SERVICE CONNECTIONS. THE CONTRACTOR SHALL COORDINATE WITH PUBLIC SERVICE COMPANY TO ESTABLISH ELECTRICAL SERVICE IN THE CITY'S NAME.
- THE CONTRACTOR SHALL REMOVE ALL CONFLICTING SIGNING AND DELIVER TO THE CITY YARDS WHEN TRAFFIC SIGNALS ARE PUT INTO OPERATION.
- LIVE UNUSED CONDUCTORS WILL NOT BE ALLOWED AT MASTARM POLES AND PEDESTAL POLES. ALL SUCH UNUSED CONDUCTORS SHALL BE DISCONNECTED AT THE LARGE PULL BOX ADJACENT TO THE POLE.
- IF TRENCH WIDTHS LESS THAN 12" ARE PROPOSED BY THE CONTRACTOR, APPROVED COMPACTION METHODS SHALL BE USED DURING BACKFILL TO PREVENT LATENT TRENCH FAILURES. THE CONTRACTOR SHALL USE GROUT OR LEAN FILL AS APPROVED BY THE PROJECT MANAGER IN LIEU OF EARTH BACKFILL.
- FOR CONDUITS CONTAINING ONLY LOW VOLTAGE COMMUNICATIONS CABLES, THE REQUIREMENTS FOR A SINGLE CONDUCTOR BARE COPPER #8 AWG MAY BE WAIVED WHERE PERMITTED BY THE NATIONAL ELECTRIC CODE.
- THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING OPERATIONS PERSONNEL WILL PROVIDE TRAFFIC SIGNAL TIMING PLANS AND WILL PROGRAM TRAFFIC SIGNAL CONTROLLERS.
- EXISTING CONDUITS TO BE REMOVED OR ABANDONED SHALL HAVE ALL WIRING REMOVED.
- EXISTING CONDUITS SHALL BE REPAIRED, ADJUSTED, OR REPLACED AS DIRECTED BY THE PROJECT MANAGER WHERE ELECTRICAL PULLBOXES OR TRAFFIC MANHOLES ARE INSTALLED OR REPLACED.
- CONTRACTOR SHALL COIL EXCESS INTERCONNECT CABLE AT ALL NEW OR EXISTING TRAFFIC MANHOLES BETWEEN SPLICE CABINET OR CONTROL CABINETS WITH SPLICE BARS. IF MORE THAN ONE MANHOLE EXISTS BETWEEN SPLICE CABINETS OR CONTROL CABINETS WITH SPLICE BARS, THEN COILING IS ONLY REQUIRED AT ONE OF THE MANHOLES. THE FOLLOWING QUANTITIES OF COMMUNICATION CABLE SHALL BE COILED:
12 PAIR - 50 FT.
25 PAIR - 50 FT.
50 PAIR - 25 FT.
75 PAIR - 25 FT.
- THE CONTRACTOR SHALL ARRANGE TO HAVE OFF-DUTY POLICE OFFICERS DIRECT TRAFFIC WHEN SIGNALS ARE TURNED OFF.
- ALL DATA SHOWN HEREIN CONCERNING EXISTING UTILITIES HAS BEEN OBTAINED FROM "AS-BUILT" DRAWINGS AND FROM FIELD OBSERVATIONS WHICH MAY OR MAY NOT BE ACCURATE. THE CONTRACTOR WILL BE RESPONSIBLE FOR EXPLORATORY TRENCHING. IF NECESSARY, TO MORE SPECIFICALLY LOCATE UTILITY LINES. COST OF LOCATING UTILITY LINES INCLUDING EXPLORATORY TRENCHING WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.

INCIDENTAL ITEMS *

- REMOVAL OF EXISTING PULL BOXES, CONDUITS, OR OTHER SIGNAL EQUIPMENT FOR INSTALLATION OF NEW SIGNAL EQUIPMENT.
- CABLE TESTING AND DIAGRAMS.
- BORING, DRILLING, PUSHING, AND TRENCHING, INCLUDING REMOVAL AND REPLACEMENT OF PAVEMENT, SIDEWALKS, DRIVEPADS, VALLEY GUTTERS, WHEELCHAIR RAMPS, CURB & GUTTER, AND LANDSCAPING (INCLUDING SPRINKLERS), FOR INSTALLATION OF PULL BOXES, CONDUITS, AND SIGNAL FOUNDATIONS, EXCEPT AS NOTED ON THE PLANS.
- LOCATION OF UTILITY LINES INCLUDING EXPLORATORY TRENCHING AND EXPOSING OF GAS LINES WHEN BORING.
- DESIGN, MATERIALS, INSTALLATION AND REMOVAL OF SAFETY BARRIER FOR SHIELDING EQUIPMENT OR MATERIAL.
- APPRIISING PUBLIC THROUGH THE LOCAL NEWS MEDIA.
- HAULING OF MATERIAL TO BE DISPOSED TO CITY LANDFILL.
- REMOVAL, SALVAGE, AND TRANSPORTATION OF EXISTING SIGNAL EQUIPMENT TO THE CITY TRAFFIC ENGINEERING OPERATIONS YARD.
- LEAN FILL FOR CONDUIT TRENCHES.
- PULL BOX ADJUSTMENT TO GRADE.
- OFF-DUTY POLICE OFFICER FOR TRAFFIC CONTROL.
- EXPANSION COUPLINGS.

* ITEMS LISTED ARE ONLY A GENERAL DESCRIPTION OF THE REQUIRED WORK AND MATERIALS, AND MAY NOT BE COMPLETE. THIS LIST DOES NOT INCLUDE ANY INCIDENTAL WORK OR MATERIALS REQUIRED BY THE SPECIAL PROVISIONS SERIALS (STANDARD DETAILS), SUPPLEMENTAL SPECIFICATIONS, OR THE STANDARD SPECIFICATIONS.

TRAFFIC SIGNAL EQUIPMENT REQUIREMENTS

- THIS PROJECT IS AN EXTENSION OF AN EXISTING SIGNAL SYSTEM. THEREFORE THE CONTRACTOR SHALL FURNISH AND INSTALL THE FOLLOWING:
A. ALL TRAFFIC SIGNAL CONTROLLERS SUPPLIED FOR THIS PROJECT SHALL BE ECONOLITE ASC 2/2100
B. ALL TRAFFIC SIGNAL CONTROLLER CABINETS SUPPLIED FOR THIS PROJECT SHALL BE ECONOLITE P SIZE, SYSTEM READY.
C. A COMPATIBLE ARTERIAL SYSTEM MASTER WITH MDM AND HARNESSES TO BE LOCATED AT THE INTERSECTION OF NEW COORS BYPASS AND ELLISON DRIVE. THE CONTRACTOR SHALL COORDINATE WITH US WEST COMMUNICATION TO INSTALL THE TELEPHONE SERVICE AT THIS LOCATION.
- INTERCONNECT CABLES SHALL COMPLY WITH REA SPECIFICATION PE-22. INTERCONNECT CABLE SHALL CONTAIN THE NUMBER OF WIRE PAIRS SHOWN ON THE PLANS AND THE INDIVIDUAL CONDUCTORS SHALL BE NO. 19 SOLID.
- 3M "OPTICOM" MODEL 562, PHASE SELECTORS, MOUNTED ON 3M "OPTICOM" MODEL 360 RACKS, OR APPROVED EQUAL. ALL RACKS SHALL BE CAPABLE OF PROVIDING FOUR CHANNELS OF DETECTION. PHASE SELECTOR MODULES SHALL BE CAPABLE OF TWO CHANNELS OF DETECTION EACH. 3M "OPTICOM" MODEL 511, OPTICAL DETECTORS, SINGLE DIRECTION, SIGNAL CHANNEL (1D/1C), OR APPROVED EQUAL. 3M "OPTICOM" MODEL 138, DETECTOR CABLE OR APPROVED EQUAL.

TRAFFIC SIGNAL LEGEND

NEW	EXISTING	ITEM
		PULL BOX
		SERVICE POLE
		METER PEDESTAL
		CONTROLLER CABINET
		CONDUIT RUN (SIGNALS)
		CONDUIT RUN (INTERCONNECT)
		LOOP DETECTOR
		TRAFFIC SIGNAL PEDESTAL POLE
		CONDUIT RUN NUMBER
		POLE WITH MASTARM, TRAFFIC SIGNAL AND BACKPLATE
		PEDESTRIAN PUSH BUTTON (MOUNTED TO SIDE OF POLE WHERE INDICATED)
		PEDESTRIAN SIGNALS (MOUNTED TO SIDE OF POLE WHERE INDICATED)
		SPLICE CABINET
		TRAFFIC MANHOLE

DEFINITIONS

- "ENGINEER" - FOR THE PURPOSES OF THIS PROJECT, THE TERM "ENGINEER" IS SYNONYMOUS WITH THE TERM "PROJECT MANAGER".

CITY OF ALBUQUERQUE PUBLIC WORKS ENGINEERING	
TITLE: TRAFFIC SIGNAL NOTES AND LEGEND	
APPROVALS	ENGINEER
DATE	DATE
TRANSPORTATION	WATER
HYDROLOGY	WASTEWATER
DESIGN	TRAF. OPER.
CITY ENGINEER	CITY ENGINEER
DRAWING NO.	6152.81
MAP NO.	A-13/B-13
SHEET	2 OF 23

SCANNED BY
PLANNING

TRAFFIC SIGNAL ESTIMATED QUANTITIES 						
ITEM NO	ITEM DESCRIPTION	UNIT	LOCATION			TOTAL
			ELLISON 7BAR LOOP NORTH	ELLISON 7BAR LOOP SOUTH	INTER-CONNECT	
4.010	CONSTRUCTION STAKING	LS	LS	LS	LS	LS
6.050	CONSTRUCTION MOBLIZATION	LS	LS	LS	LS	LS
19.010	CONSTRUCTION TRAFFIC CONTROL & BARRICADING	LS	LS	LS	LS	LS
0421.005	SERVICE RISER (SIGNAL)	EACH	1	1	0	2
0421.011	METER PEDESTAL (SIGNAL)	EACH	1	1	0	2
0422.003	TRAFFIC SIGNAL PEDESTAL POLE, 13 FOOT	EACH	5	5	0	10
0422.016	TRAFFIC SIGNAL MASTARM, 30 FOOT ARM, TYPE II, TROMBONE	EACH	1	1	0	2
0422.018	TRAFFIC SIGNAL MASTARM, 35 FOOT ARM, TYPE II, TROMBONE	EACH	1	1	0	2
		EACH	5	5	0	10
0423.001	TRAFFIC SIGNAL FOUNDATION FOR PEDESTAL POLE					
0423.002	TRAFFIC SIGNAL MASTARM FOUNDATION	EACH	2	2	0	4
0423.003	TRAFFIC CONTROLLER FOUNDATION (TYPE P CABINETS)	EACH	1	1	0	2
0424.011	ELECTRICAL CONDUIT, 3"	LIN FT	0	0	4240	4240
0425.003	ELECTRICAL PULL BOX (LARGE)	EACH	0	0	13	13
0425.012	SPLICE CABINET GROUND MOUNT (LARGE)	EACH	0	0	3	3
0425.020	TRAFFIC SIGNAL MANHOLE	EACH	0	0	6	6
0425.101	ELECTRICAL PULL BOX ANY SIZE REMOVE	EACH	9	9	0	18
0426.002	SINGLE CONDUCTOR, 4	LIN FT	525	435	0	960
0426.004	SINGLE CONDUCTOR, 8	LIN FT	655	630	0	1285
0426.010	MULTI-CONDUCTOR CABLE 5	LIN FT	1520	1565	0	3085
0426.011	MULTI-CONDUCTOR CABLE 7	LIN FT	90	90	0	180
0426.014	MULTI-CONDUCTOR CABLE 20	LIN FT	1310	1260	0	2570
0426.020	COMMUNICATION CABLE 6 PAIR	LIN FT	0	0	40	40
0426.021	COMMUNICATION CABLE 12 PAIR	LIN FT	0	0	4340	4340
0427.002	3 SECTION TRAFFIC SIGNAL ASSEMBLY	EACH	10	10	0	20
0427.012	5 SECTION TRAFFIC SIGNAL ASSEMBLY	EACH	2	2	0	4
0427.021	PEDESTRIAN SIGNAL (NEON)	EACH	4	4	0	8
0427.031	3 SECTION BACKPLATE	EACH	4	4	0	8
0428.001	LOOP VEHICLE DETECTOR	EACH	3	3	0	6
0428.010	PEDESTRIAN PUSH BUTTON STATION	EACH	4	4	0	8
0428.021	LOOP DETECTOR WIRE	LIN FT	1533	1533	0	3066
0428.050	LOOP LEAD-IN CABLE	LIN FT	1600	2130	0	3730
0428.060	DETECTOR SAW CUT	LIN FT	499	499	0	998
0428.071	PHASE SELECTOR MODULE, 2 CHANNEL	EACH	2	2	0	4
0428.075	OPTICAL DETECTOR 10/1C	EACH	3	3	0	6
0428.078	OPTICAL DETECTOR CABLE	LIN FT	795	595	0	1320
0429.001	TRAFFIC ACTUATED CONTROLLER	EACH	1	1	0	2
0429.010	SYSTEM MASTER, CIP	EACH	0	0	1	1
0429.021	EIGHT PHASE DUAL RING CONTROLLER CABINET	EACH	1	1	0	2
0441.001	REFLECTIVE PLASTIC PAVEMENT MARKING, 4" WIDE CIP	LIN FT	600	0	0	600
0441.004	REFLECTIVE PLASTIC PAVEMENT MARKING, 12" WIDE CIP	LIN FT	450	0	0	450
0441.005	REFLECTIVE PLASTIC PAVEMENT MARKING, 24" WIDE CIP	LIN FT	90	0	0	90
0450.001	ALUMINUM PANEL SIGN	EACH	2	2	0	4
0450.101	SIGN & POST, REMOVE & SALVAGE, CIP	EACH	2	2	0	4

		CITY OF ALBUQUERQUE PUBLIC WORKS ENGINEERING					
TITLE:							
TRAFFIC SIGNAL ESTIMATED QUANTITIES							
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER
ORC CHAIRMAN			WATER				
TRANSPORTATION			WASTE WATER				
HYDROLOGY			TRAF. OPER.				
	DESIGN		CITY ENGINEER				
DRAWING NO.		6152-81		MAP NO.		SHEET	
				A-13/B-13		3 OF 23	

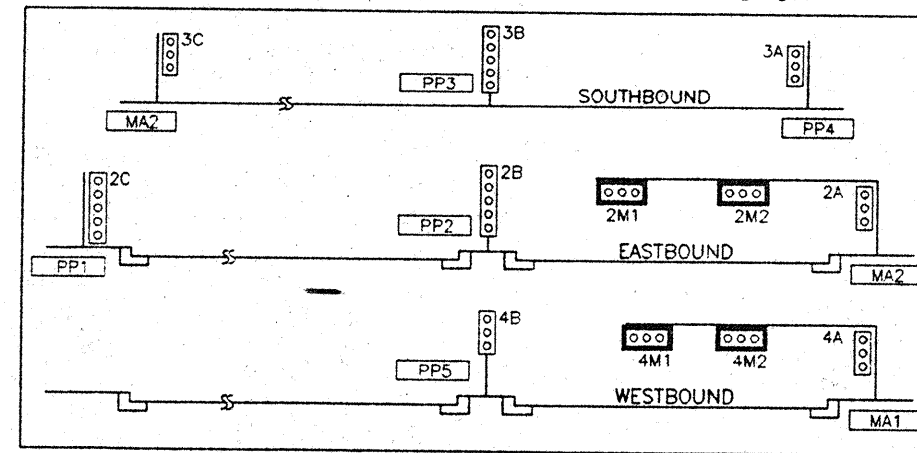
LOOP LEAD-IN CABLE

FROM	TO	CONDUIT TRACE	NO PAIR x LENGTH	TOTAL LENGTH
PB8	CONTROLLER	10+11+12	1 @ 140	140
PB10	CONTROLLER	19+2	2 @ 55	110
PB11	CONTROLLER	20+4+13+2	2 @ 305	610
PB12	CONTROLLER	21+9+10+11+2	2 @ 370	740
TOTAL				1600

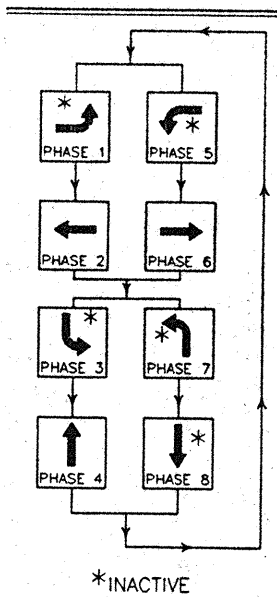
OPTICAL DETECTOR CABLE

FROM	TO	CONDUIT TRACE	NO PAIR x LENGTH	TOTAL LENGTH
MA1	CONTROLLER	MA1+12+2	1 @ 100	100
MA2	CONTROLLER	MA2+15+6+5+4+3+2	1 @ 385	385
PP3	CONTROLLER	PP3+16+8+9+10+11+2	1 @ 310	310
TOTAL				795

TRAFFIC SIGNAL CONFIGURATION BY APPROACH



SIGNAL PHASING



3 SECTION
BACK PLATE

2M1, 2M2
4M1, 4M2

TYPICAL SIGNAL FACE LENS ARRANGEMENTS



(R) (Y) (G)
2M1, 2M2
4M1, 4M2

(R) (Y) (G)
2A, 3A, 3B,
3C, 4A, 4B

(R) (Y) (G)
2B, 2C

FLASH CONDITION

RED BALL → HEADS: 3A, 3B, 3C
RED ARROW → HEADS: 2A, 2B, 2C, 2M1, 2M2,
4A, 4B, 4M1, 4M2

INITIALIZATION

ALL RED, THEN PHASE 2 AND 6 GREEN

NOTES:

- PULL BOXES 1 THROUGH 9 ARE LARGE SIZE, AND PULL BOXES 10 THROUGH 12 ARE STANDARD SIZE.

ALUMINUM PANEL SIGNS

7 BAR LOOP NORTH NW
XXXX 2 EACH
MA1, MA2

FOUNDATION LOCATION DATA

ID NO	STA	OFFSET
MA1	48+20	79' RT
MA2	47+28	60' LT
PP1	47+28	89' RT
PP2	47+09	4' LT
PP3	47+81	62' LT
PP4	48+18	62' LT
PP5	48+49	21' RT

CABINETS

ID NO	TYPE	FOUNDATION
CC2	P	CONTROLLER

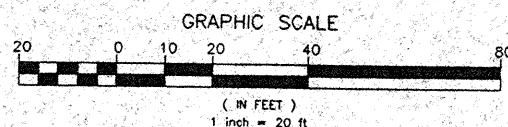
SIGNAL POLES AND MASTARMS

ID NO	TYPE	FOUNDATION
MA1	MASTARM - 35'	MASTARM
MA2	MASTARM - 30'	MASTARM
PP1	PED POLE - 13'	PEDESTAL
PP2	PED POLE - 13'	PEDESTAL
PP3	PED POLE - 13'	PEDESTAL
PP4	PED POLE - 13'	PEDESTAL
PP5	PED POLE - 13'	PEDESTAL

ELLISON DRIVE

ELLISON DRIVE

7 BAR LOOP (NORTH)



ABBREVIATIONS

MA1	MASTARM NUMBER (NEW)
PP1	PEDESTAL POLE NUMBER (NEW)
PPB1	PEDESTRIAN PUSH BUTTON NUMBER (NEW)
CC1	CONTROL CABINET NUMBER (NEW)
SC1	SPLICE CABINET NUMBER (NEW)
PB1	PULL BOX NUMBER (EXISTING)
DL1(1)	DETECTOR LOOP PHASE NO (LOOP NO)(NEW)
1A	SIGNAL HEAD NUMBER (NEW)
P1	PEDESTRIAN SIGNAL NUMBER (NEW)
BP	BACK PLATE (NEW)
EC	EXTENDED CALL (NEW)

SYMBOL KEY

MA1	SIGNAL & CABINET ID (NEW)
99	CONDUIT RUN ID (EXISTING)



AS-BUILT INFORMATION			BENCH MARKS			SURVEY INFORMATION			ENGINEER'S SEAL		
CONTRACTOR	DATE	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE	NO.	DATE
DESIGNED BY	DATE	NO.	DESIGNED BY	DATE	NO.	DESIGNED BY	DATE	NO.	DESIGNED BY	DATE	NO.
CHECKED BY	DATE	NO.	CHECKED BY	DATE	NO.	CHECKED BY	DATE	NO.	CHECKED BY	DATE	NO.
RECORDED BY	DATE	NO.	RECORDED BY	DATE	NO.	RECORDED BY	DATE	NO.	RECORDED BY	DATE	NO.
7-2-99 7-2-99											

CITY OF ALBUQUERQUE PUBLIC WORKS ENGINEERING					
TITLE: ELLISON DRIVE TRAFFIC SIGNAL PLAN ELLISON DRIVE / 7 BAR LOOP (NORTH)					
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DR. CHAIRMAN			WATER		
TRANSPORTATION			WASTE/WATER		
HYDROLOGY			TRAF. OPER.		
DRAWING NO. 6152.81		MAP NO. A-13		SHEET 4 OF 23	

TO BE INSTALLED BY
PROJECT 3727.90

SIGNAL CABLES FOR INDIVIDUAL POLES

CC 6	COMMUNICATION CABLE - 6 PAIR
CC 12	COMMUNICATION CABLE - 12 PAIR
DL	DETECTOR LOOP
MA	MASTARM
MCC	MULTI CONDUCTOR CABLE
PB	PULL BOX
PP	PEDESTAL POLE
PPB	PEDESTRIAN PUSH BUTTON
REC	RIGID ELECTRIC CONDUIT
SCC	SINGLE CONDUCTOR CABLE

		CITY OF ALBUQUERQUE PUBLIC WORKS ENGINEERING			
TITLE:		TRAFFIC SIGNAL CABLES ELLISON/SEVEN BAR LOOP NORTH			
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRC CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY			TRAF. OPER.		
DESIGN DESIGN COMMITTEE			CITY ENGINEER		
DRAWING NO.	6152-81	MAP NO.	A-13/B-13	SHEET	5 OF 2

SCANNED BY
PLANNING

LOOP ID	VEHICLE DETECTOR				LOOP TYPE	LOOP DIMENSIONS				LOOP WIRE	PAVEMENT SAWCUT
	MODE	CALL	UNIT NO	CHANNEL		L	W	S	T		
DL2 (1)	PRESENCE	EXTEND 3	FOUR	CH 1	EC	6'	6'	3'	5'	93'	27'
DL2 (2)	PRESENCE	EXTEND 3	FOUR	CH 1	EC	6'	6'	15'	5'	117'	39'
DL4 (1)	PRESENCE		SIX	CH 1	RECT	40'	6'	3'	5'	292'	95'
DL4 (2)	PRESENCE		SIX	CH 2	RECT	40'	6'	15'	5'	316'	107'
DL5 (1)	PRESENCE		ONE	CH 2	QP	50'	6'	3'	35'	505'	165'
DL6 (1)	PRESENCE	EXTEND 3	FOUR	CH 2	EC	6'	6'	3'	5'	93'	27'
DL6 (2)	PRESENCE	EXTEND 3	FOUR	CH 2	EC	6'	6'	15'	5'	117'	39'
TOTALS										1533 LF	499 LF

QUANTITY ESTIMATING ASSUMPTIONS:

LOOP WIRE																	
6"	X	30"	OP	LOOP =	(8*L)	+	(4*W)	+	(2*S)	+	(2*T)	+	5	=	269	+	2(S+T)
6"	X	40"	OP	LOOP =	(8*L)	+	(4*W)	+	(2*S)	+	(2*T)	+	5	=	349	+	2(S+T)
6"	X	50"	OP	LOOP =	(8*L)	+	(4*W)	+	(2*S)	+	(2*T)	+	5	=	429	+	2(S+T)
6"	X	6"	EC	LOOP =	(6*L)	+	(6*W)	+	(2*S)	+	(2*T)	+	5	=	77	+	2(S+T)
6"	X	6"	SYS	LOOP =	(8*L)	+	(8*W)	+	(2*S)	+	(2*T)	+	5	=	96	+	2(S+T)

PAVEMENT SAWCUT									
6'	X 30'	OP LOOP =	(3 * L)	+	(2 * W)	+	S = 102	+	S
6'	X 40'	OP LOOP =	(3 * L)	+	(2 * W)	+	S = 132	+	S
6'	X 50'	OP LOOP =	(3 * L)	+	(2 * W)	+	S = 162	+	S
6'	X 6'	EC LOOP =	(2 * L)	+	(2 * W)	+	S = 24	+	S
6'	X 6'	SYS LOOP =	(2 * L)	+	(2 * W)	+	S = 24	+	S

WHERE:

L	=	DETECTOR LOOP LENGTH (FROM PLAN)
W	=	DETECTOR LOOP WIDTH (FROM PLAN)
S	=	SAWCUPT LENGTH FROM DETECTOR LOOP TO FACE OF CURB (FROM PLAN)
T	=	LOOP WIRE TERMINAL LENGTH FROM FACE OF CURB TO PULL BOX (FROM PLAN)

DETECTOR RACK ASSIGNMENTS - 8 PHASE DUAL RING 16 POSITION RACK

UNIT NUMBER →	POWER SUPPLY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CHANNEL 1 →		Φ1	Φ2	Φ6	Φ2 EC	Φ3	Φ4	Φ8	Φ4 EC	SD 1	SD 3	SD 5	SD 7	SD 9	P E D I S O L A T I O N	OPTICOM 1	OPTICOM 3
CHANNEL 2 →		Φ5	Φ2	Φ6	Φ6 EC	Φ7	Φ4	Φ8	Φ8 EC	SD 2	SD 4	SD 6	SD 8	SD 10		OPTICOM →	OPTICOM 4
DETECTOR MODULE REQUIRED →	*	✓			✓		✓									✓	✓

* INCIDENTAL TO CONSTRUCTION

FUNCTION CHART - 115 VOLT CIRCUIT

CONDUCTOR			RING 1 - MULTI CONDUCTOR CABLE 20		RING 2 - MULTI CONDUCTOR CABLE 20	
CONDUCTOR NUMBER	BASE COLOR	TRACER	FUNCTION	FIELD CONNECTION	FUNCTION	FIELD CONNECTION
1	BLACK	-	SPARE	SPARE	SPARE	SPARE
2	WHITE	-	SPARE	SPARE	SPARE	SPARE
3	RED	-	PHASE 1 RED	SPARE	PHASE 5 RED	SPARE
4	GREEN	-	PHASE 1 GREEN	SPARE	PHASE 5 GREEN	GREEN LEFT TURN ARROW 2B, 2C
5	ORANGE	-	PHASE 1 YELLOW	SPARE	PHASE 5 YELLOW	YELLOW LEFT TURN ARROW 2B, 2C
6	BLUE	-	SPARE	SPARE	SPARE	SPARE
7	WHITE	BLACK	SPARE	SPARE	SPARE	SPARE
8	RED	BLACK	PHASE 2 RED	RED BALL 2A, 2B, 2C, 2M1, 2M2	PHASE 6 RED	RED BALL 4A, 4B, 4M1, 4M2
9	GREEN	BLACK	PHASE 2 GREEN	GREEN BALL 2A, 2B, 2C, 2M1, 2M2	PHASE 6 GREEN	GREEN BALL 4A, 4B, 4M1, 4M2
10	ORANGE	BLACK	PHASE 2 YELLOW	YELLOW BALL 2A, 2B, 2C, 2M1, 2M2	PHASE 6 YELLOW	YELLOW BALL 4A, 4B, 4M1, 4M2
11	BLUE	BLACK	PHASE 2 WALK	SPARE	PHASE 6 WALK	PEDESTRIAN WALK P2, P3
12	BLACK	WHITE	PHASE 2 DON'T WALK	SPARE	PHASE 6 DON'T WALK	PEDESTRIAN DON'T WALK P2, P3
13	RED	WHITE	PHASE 3 RED	SPARE	PHASE 7 RED	SPARE
14	GREEN	WHITE	PHASE 3 GREEN	SPARE	PHASE 7 GREEN	SPARE
15	BLUE	WHITE	PHASE 3 YELLOW	SPARE	PHASE 7 YELLOW	SPARE
16	BLACK	RED	PHASE 4 RED	RED BALL 3A, 3B, 3C	PHASE 8 RED	SPARE
17	WHITE	RED	PHASE 4 GREEN	GREEN BALL 3A, 3B, 3C	PHASE 8 GREEN	SPARE
18	ORANGE	RED	PHASE 4 YELLOW	YELLOW BALL 3A, 3B, 3C	PHASE 8 YELLOW	SPARE
19	BLUE	RED	PHASE 4 WALK	PEDESTRIAN WALK P1, P4	PHASE 8 WALK	SPARE
20	RED	GREEN	PHASE 4 DON'T WALK	PEDESTRIAN DON'T WALK P1, P4	PHASE 8 DON'T WALK	SPARE

FUNCTION CHART - 24 VOLT CIRCUIT ³

MULTI CONDUCTOR CABLE 5			
CONDUCTOR NUMBER	BASE COLOR	FUNCTION	FIELD CONNECTION
1	BLACK	PHASE 2 PPB	SPARE
2	WHITE	COMMON	PPB1 THRU PPB4
3	RED	PHASE 4 PPB	PPB1 & PPB4
4	GREEN	PHASE 6 PPB	PPB2 & PPB3
5	ORANGE	PHASE 8 PPB	SPARE

ABBREVIATIONS

DL	DETECTOR LOOP
EC	EXTENDED CALL LOOP
L	DETECTOR LOOP LENGTH
W	DETECTOR LOOP WIDTH
S	SAWCUT LOOP TO CURB
T	TERMINAL LENGTH
QP	QUADRAPOLE LOOP
RECT	RECTANGULAR LOOP

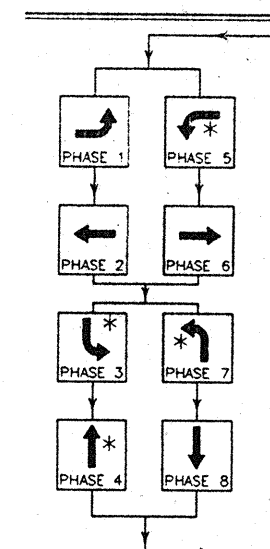
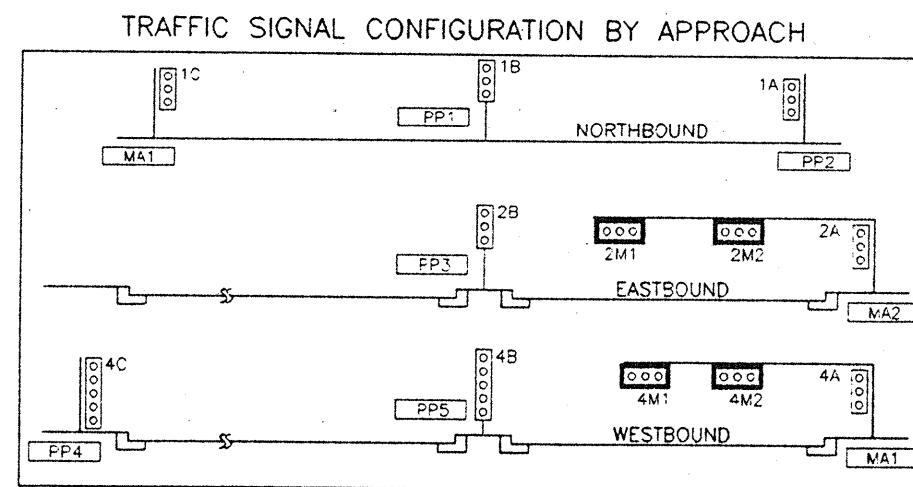
NOTES:

- 1/ IDENTIFY CONDUCTORS LISTED AS "115 VOLTS"
- 2/ WRAP RING 2 CABLE AT EACH SPLICE POINT WITH COLORED ELECTRICAL TAPE. THE IDENTIFICATION MARKING SHALL BE PROVIDED ON EACH RING 2 CABLE AT EACH SPLICE BOX AND LOCATED 6" BACK FROM THE END.
- 3/ IDENTIFY CONDUCTORS LISTED AS "PPB - LOW VOLTAGE" AT EACH SPLICE POINT. FIVE (5) CONDUCTOR CABLE SHALL BE 24 VOLTS AND USED FOR PUSH BUTTONS ONLY.
- 4/ CONDUCTOR CABLE RUNS TO TRAFFIC SIGNALS, PEDESTRIAN SIGNALS, AND PEDESTRIAN PUSH BUTTONS SHALL BE SPLICED INTO THE MAIN CONDUCTORS AT THE NEAREST PULLBOX AND RUN WITHOUT ADDITIONAL SPLICES INTO EACH SIGNAL HEAD OR PUSH BUTTON ASSEMBLY.

		CITY OF ALBUQUERQUE PUBLIC WORKS ENGINEERING			
TITLE: TRAFFIC SIGNAL FUNCTIONS & DETECTORS ELLISON/SEVEN BAR LOOP NORTH					
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRG CHAIRMAN			M. TER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY			TRAF. OPER		
			CITY ENGINEER		
DRAWING NO. 6152-81		MAP NO. A-13/B-13		SHEET 6 OF 23	

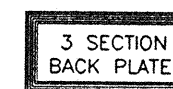
FROM	TO	CONDUIT TRACE	NO PAIR x LENGTH	TOTAL LENGTH
PB4	CONTROLLER	5+4+3+2	1 @ 250	250
PB10	CONTROLLER	20+8+5+10+11+2	2 @ 320	640
PB11	CONTROLLER	21+4+3+2	2 @ 300	600
PB12	CONTROLLER	22+10+11+2	2 @ 320	640
			TOTAL	2130

FROM	TO	CONDUIT TRACE	NO PAIR x LENGTH	TOTAL LENGTH
MA1	CONTROLLER	MA1+12+2	1 @ 90	90
MA2	CONTROLLER	MA2+16+8+9+10+11+2	1 @ 380	380
PP1	CONTROLLER	PP1+13+3+2	1 @ 125	125
			TOTAL	595



* INACTIVE

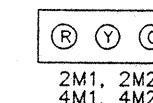
TYPICAL SIGNAL FACE LENS ARRANGEMENTS



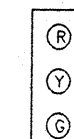
4M1, 4M2



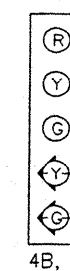
P1.P2.P3.P4



2M1, 2M2
4M1, 4M2



1A, 1B, 1C
2A, 2B, 4A



4B,

FLASH CONDITION

RED BALL → HEADS: 1A, 1B, 1C,
RED ARROW → HEADS: 2A, 2B, 2M1, 2M2,
4A, 4B, 4C, 4M1, 4M2

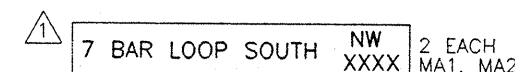
INITIALIZATION

ALL RED, THEN PHASE 2 AND 6 GREEN

NOTES:

1. PULL BOXES 1 THROUGH 9 ARE LARGE SIZE, AND PULL BOXES 10 THROUGH 12 ARE STANDARD SIZE.

ALUMINUM PANEL SIGNS



FOUNDATION
LOCATION DATA

ID NO	STA	OFFSET
MA1	53+04	72' RT
MA2	52+11	65' LT
PP1	52+51	73' RT
PP2	52+09	69' RT
PP3	51+84	12' LT
PP4	52+88	76' LT
PP5	53+04	ON CL

CABINETS

ID NO	TYPE	FOUNDATION
CC3	P	CONTROLLER

ABBREVIATIONS

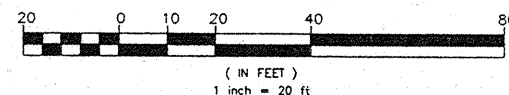
MA1	MASTARM NUMBER (NEW)
PP1	PEDESTAL POLE NUMBER (NEW)
PPB1	PEDESTRIAN PUSH BUTTON NUMBER (NEW)
CC1	CONTROL CABINET NUMBER (NEW)
SC1	SPLICE CABINET NUMBER (NEW)
PB1	PULL BOX NUMBER (EXISTING)
DL1(1)	DETECTOR LOOP PHASE NO (LOOP NO)(NEW)
1A	SIGNAL HEAD NUMBER (NEW)
P1	PEDESTRIAN SIGNAL NUMBER (NEW)
BP	BACK PLATE (NEW)
EC	EXTENDED CALL (NEW)

SYMBOL KEY

MA1	SIGNAL & CABINET ID (NEW)
99	CONDUIT RUN ID (EXISTING)



GRAPHIC SCALE



T94306.10 BEL7BARS.DWG 5-21-95 6-30-99

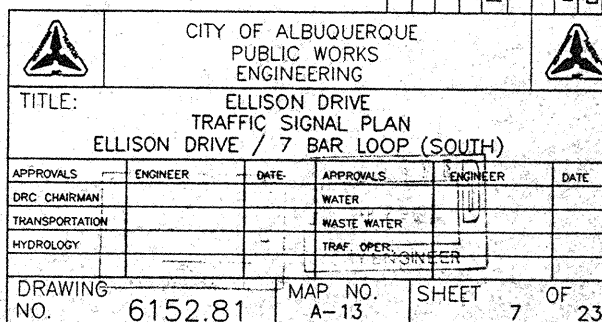
[illegible]

James Jackson
7799

DATE 5-95	DATE 5-95
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DESIGN

DESIGNED BY BHI
DRAWN BY BHI



SCANNED BY
PLANNING

CONDUIT AND CONDUCTOR REQUIREMENTS																
CONDUIT LENGTH, SIZE, AND TYPE						CONDUIT FILL BY CONDUCTOR LENGTH AND TYPE										
RUN ID ▲	SIZE/LENGTH			TYPE	REMARKS	MCC 5	MCC 7	MCC 20	SCC #8	SCC #4	DLIC	CC 6	CC 12	OPTICOM	OTHER	
	1"	2"	3"			(# # ft)	(# # ft)	(# # ft)	(# # ft)	(# # ft)	(# # ft)	(# # ft)	(# # ft)	(# # ft)	(# # ft)	
P1				REC	POWER TO METER					3# 20'						
P2				REC	METER TO CC1					3# 25'						
1				REC	CC1 TO PB1	1# 20'		2# 20'	1# 20'							
2				REC	CC1 TO PB1						7# 20'			3# 20'		
3				REC	PB1 TO PB2	1# 65'		2# 65'	1# 65'	3# 65'				1# 65'		
4				REC	PB2 TO PB3	1# 70'		2# 70'	1# 70'	3# 70'						
5				REC	PB3 TO PB4	1# 95'		2# 95'	1# 95'	1# 95'						
6				REC	PB4 TO PB5	1# 55'		2# 55'	1# 55'							
7				REC	PB5 TO PB6	1# 55'		2# 55'	1# 55'							
8				REC	PB6 TO PB7	1# 60'		2# 60'	1# 60'		2# 60'			1# 60'		
9				REC	PB7 TO PB8	1# 55'		2# 55'	1# 55'		2# 55'			1# 55'		
10				REC	PB8 TO PB9	1# 70'		2# 70'	1# 70'		4# 70'			1# 70'		
11				REC	PB9 TO PB10	1# 85'		2# 85'	1# 85'		4# 85'			1# 85'		
12		20'		REC	PB1 TO MA1	4# 25'								1# 25'		
13		20'		REC	PB2 TO PP1	1# 25'								1# 25'		
14		20'		REC	PB3 TO PP2	3# 25'										
15		10'		REC	PB4 TO PP3	1# 15'										
16		35'		REC	PB6 TO MA2	7# 40'								1# 40'		
17		35'		REC	PB8 TO PP4	2# 40'	1# 40'									
18		15'		REC	PB9 TO PP5		1# 20'									
19		25'		REC	PB6 TO PB11					2# 30'						
20				REC	PB3 TO PB12					2# 145'						
21				REC	PB8 TO PB13					2# 145'						
22				REC	STUB OUT (FLASHER)											
23				REC	STUB OUT (FLASHER)											
				REC	LOOP TERMINATIONS											

TO BE INSTALLED BY
PROJECT 3727.90

CONDUIT AND CONDUCTOR REQUIREMENTS (CONTINUED)															
CONDUIT LENGTH, SIZE, AND TYPE					CONDUIT FILL BY CONDUCTOR LENGTH AND TYPE										
RUN ID A	SIZE/LENGTH			TYPE	REMARKS	MCC 5	MCC 7	MCC 20	SCC#8	SCC#4	DLIC	CC 6	CC 12	OPTICOM	OTHER
	1"	2"	3"			(# ● ft)	(# ● ft)	(# ● ft)	(# ● ft)	(# ● ft)	(# ● ft)	(# ● ft)	(# ● ft)	(# ● ft)	(# ● ft)
MA1					BASE TO 4A	1 ● 15'									
MA1					BASE TO 1C	1 ● 15'									
MA1					BASE TO 4M1	1 ● 50'									
MA1					BASE TO 4M2	1 ● 40'									
MA1					BASE TO OPTICOM									1 ● 45'	
MA2					BASE TO 2A	1 ● 15'									
MA2					BASE TO 2M1	1 ● 55'									
MA2					BASE TO 2M2	1 ● 45'									
MA2					BASE TO P2 & P3	2 ● 15'									
MA2					BASE TO PPB2 & PPB3	2 ● 5'									
MA2					BASE TO OPTICOM									1 ● 50'	
PP1					BASE TO 1B	1 ● 15'									
PP1					BASE TO OPTICOM									1 ● 15'	
PP2					BASE TO 2B	1 ● 15'									
PP2					BASE TO P1	1 ● 15'									
PP2					BASE TO PPB1	1 ● 5'									
PP3					BASE TO 2B	1 ● 15'									
PP4					BASE TO 4C		1 ● 15'								
PP4					BASE TO P4	1 ● 15'									
PP4					BASE TO PPB4	1 ● 5'									
PP5					BASE TO 4C		1 ● 15'								

ABBREVIATIONS

CC 6	COMMUNICATION CABLE - 6 PAIR
CC 12	COMMUNICATION CABLE - 12 PAIR
DL	DETECTOR LOOP
MA	MASTARM
MCC	MULTI CONDUCTOR CABLE
PB	PULL BOX
PP	PEDESTAL POLE
PPB	PEDESTRIAN PUSH BUTTON
REC	RIGID ELECTRIC CONDUIT
SCC	SINGLE CONDUCTOR CABLE

		CITY OF ALBUQUERQUE PUBLIC WORKS ENGINEERING			
TITLE: TRAFFIC SIGNAL CABLES ELLISON/SEVEN BAR LOOP SOUTH					
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
ORC CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY			TRAF. OPER.		
DRAWING NO. 6152-81		MAP NO. A-13/B-13		SHEET 8 OF 23	

DETECTOR LOOPS											
LOOP ID	VEHICLE DETECTOR				LOOP TYPE	LOOP DIMENSIONS				LOOP WIRE	PAVEMENT SAWCUT
	MODE	CALL	UNIT NO	CHANNEL		L	W	S	T		
DL1 (1)	PRESENCE		ONE	CH 1	OP	50'	6'	3'	35'	505'	165'
DL2 (1)	PRESENCE	EXTEND 3	FOUR	CH 1	EC	6'	6'	3'	5'	93'	27'
DL2 (2)	PRESENCE	EXTEND 3	FOUR	CH 1	EC	6'	6'	15'	5'	117'	39'
DL6 (1)	PRESENCE	EXTEND 3	FOUR	CH 2	EC	6'	6'	3'	5'	93'	27'
DL6 (2)	PRESENCE	EXTEND 3	FOUR	CH 2	EC	6'	6'	15'	5'	117'	39'
DL8 (1)	PRESENCE		SEVEN	CH 1	RECT	40'	6'	3'	5'	292'	95'
DL8 (2)	PRESENCE		SEVEN	CH 2	RECT	40'	6'	15'	5'	316'	107'
TOTALS										1533 LF	499 LF

QUANTITY ESTIMATING ASSUMPTIONS:

LOOP WIRE
 6' X 30' OP LOOP = (8*L) + (4*W) + (2*S) + (2*T) + 5 = 269 + 2(S+T)
 6' X 40' OP LOOP = (8*L) + (4*W) + (2*S) + (2*T) + 5 = 349 + 2(S+T)
 6' X 50' OP LOOP = (8*L) + (4*W) + (2*S) + (2*T) + 5 = 429 + 2(S+T)
 6' X 6' EC LOOP = (6*L) + (6*W) + (2*S) + (2*T) + 5 = 77 + 2(S+T)
 6' X 6' SYS LOOP = (8*L) + (8*W) + (2*S) + (2*T) + 5 = 96 + 2(S+T)

PAVEMENT SAWCUT
 6' X 30' OP LOOP = (3*L) + (2*W) + S = 102 + S
 6' X 40' OP LOOP = (3*L) + (2*W) + S = 132 + S
 6' X 50' OP LOOP = (3*L) + (2*W) + S = 162 + S
 6' X 6' EC LOOP = (2*L) + (2*W) + S = 24 + S
 6' X 6' SYS LOOP = (2*L) + (2*W) + S = 24 + S

WHERE:
 L = DETECTOR LOOP LENGTH (FROM PLAN)
 W = DETECTOR LOOP WIDTH (FROM PLAN)
 S = SAWCUT LENGTH FROM DETECTOR LOOP TO FACE OF CURB (FROM PLAN)
 T = LOOP WIRE TERMINAL LENGTH FROM FACE OF CURB TO PULL BOX (FROM PLAN)

DETECTOR RACK ASSIGNMENTS - 8 PHASE DUAL RING 16 POSITION RACK

UNIT NUMBER →	POWER SUPPLY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
CHANNEL 1 →		Ø1	Ø2	Ø6	Ø2 EC	Ø3	Ø4	Ø8	Ø4 EC	SD 1	SD 3	SD 5	SD 7	SD 9	PED ISOLATION	OPTICOM 1	OPTICOM 3
CHANNEL 2 →		Ø5	Ø2	Ø6	Ø6 EC	Ø7	Ø4	Ø8	Ø8 EC	SD 2	SD 4	SD 6	SD 8	SD 10		OPTICOM 2	OPTICOM 4
DETECTOR MODULE REQUIRED →	*	✓			✓			✓							*	✓	✓

* INCIDENTAL TO CONSTRUCTION

FUNCTION CHART - 115 VOLT CIRCUIT

CONDUCTOR			RING 1 - MULTI CONDUCTOR CABLE 20		RING 2 - MULTI CONDUCTOR CABLE 20 2/	
CONDUCTOR NUMBER	BASE COLOR	TRACER	FUNCTION	FIELD CONNECTION	FUNCTION	FIELD CONNECTION
1	BLACK	-	SPARE	SPARE	SPARE	SPARE
2	WHITE	-	SPARE	SPARE	SPARE	SPARE
3	RED	-	PHASE 1 RED	SPARE	PHASE 5 RED	SPARE
4	GREEN	-	PHASE 1 GREEN	GREEN LEFT TURN ARROW 4B, 4C	PHASE 5 GREEN	SPARE
5	ORANGE	-	PHASE 1 YELLOW	YELLOW LEFT TURN ARROW 4B, 4C	PHASE 5 YELLOW	SPARE
6	BLUE	-	SPARE	SPARE	SPARE	SPARE
7	WHITE	BLACK	SPARE	SPARE	SPARE	SPARE
8	RED	BLACK	PHASE 2 RED	RED BALL 2A, 2B, 2M1, 2M2	PHASE 6 RED	RED BALL 4A, 4B, 4C, 4M1, 4M2
9	GREEN	BLACK	PHASE 2 GREEN	GREEN BALL 2A, 2B, 2M1, 2M2	PHASE 6 GREEN	GREEN BALL 4A, 4B, 4C, 4M1, 4M2
10	ORANGE	BLACK	PHASE 2 YELLOW	YELLOW BALL 2A, 2B, 2M1, 2M2	PHASE 6 YELLOW	YELLOW BALL 4A, 4B, 4C, 4M1, 4M2
11	BLUE	BLACK	PHASE 2 WALK	PEDESTRIAN WALK P3, P4	PHASE 6 WALK	SPARE
12	BLACK	WHITE	PHASE 2 DON'T WALK	PEDESTRIAN DON'T WALK P3, P4	PHASE 6 DON'T WALK	SPARE
13	RED	WHITE	PHASE 3 RED	SPARE	PHASE 7 RED	SPARE
14	GREEN	WHITE	PHASE 3 GREEN	SPARE	PHASE 7 GREEN	SPARE
15	BLUE	WHITE	PHASE 3 YELLOW	SPARE	PHASE 7 YELLOW	SPARE
16	BLACK	RED	PHASE 4 RED	SPARE	PHASE 8 RED	RED BALL 1A, 1B, 1C
17	WHITE	RED	PHASE 4 GREEN	SPARE	PHASE 8 GREEN	GREEN BALL 1A, 1B, 1C
18	ORANGE	RED	PHASE 4 YELLOW	SPARE	PHASE 8 YELLOW	YELLOW BALL 1A, 1B, 1C
19	BLUE	RED	PHASE 4 WALK	SPARE	PHASE 8 WALK	PEDESTRIAN WALK P1, P2
20	RED	GREEN	PHASE 4 DON'T WALK	SPARE	PHASE 8 DON'T WALK	PEDESTRIAN DON'T WALK P1, P2

FUNCTION CHART - 24 VOLT CIRCUIT

MULTI CONDUCTOR CABLE 5			
CONDUCTOR NUMBER	BASE COLOR	FUNCTION	FIELD CONNECTION
1	BLACK	PHASE 2 PPB	PPB3 & PPB4
2	WHITE	COMMON	PPB1 THRU PPB4
3	RED	PHASE 4 PPB	SPARE
4	GREEN	PHASE 6 PPB	SPARE
5	ORANGE	PHASE 8 PPB	PPB1 & PPB2

NOTES:

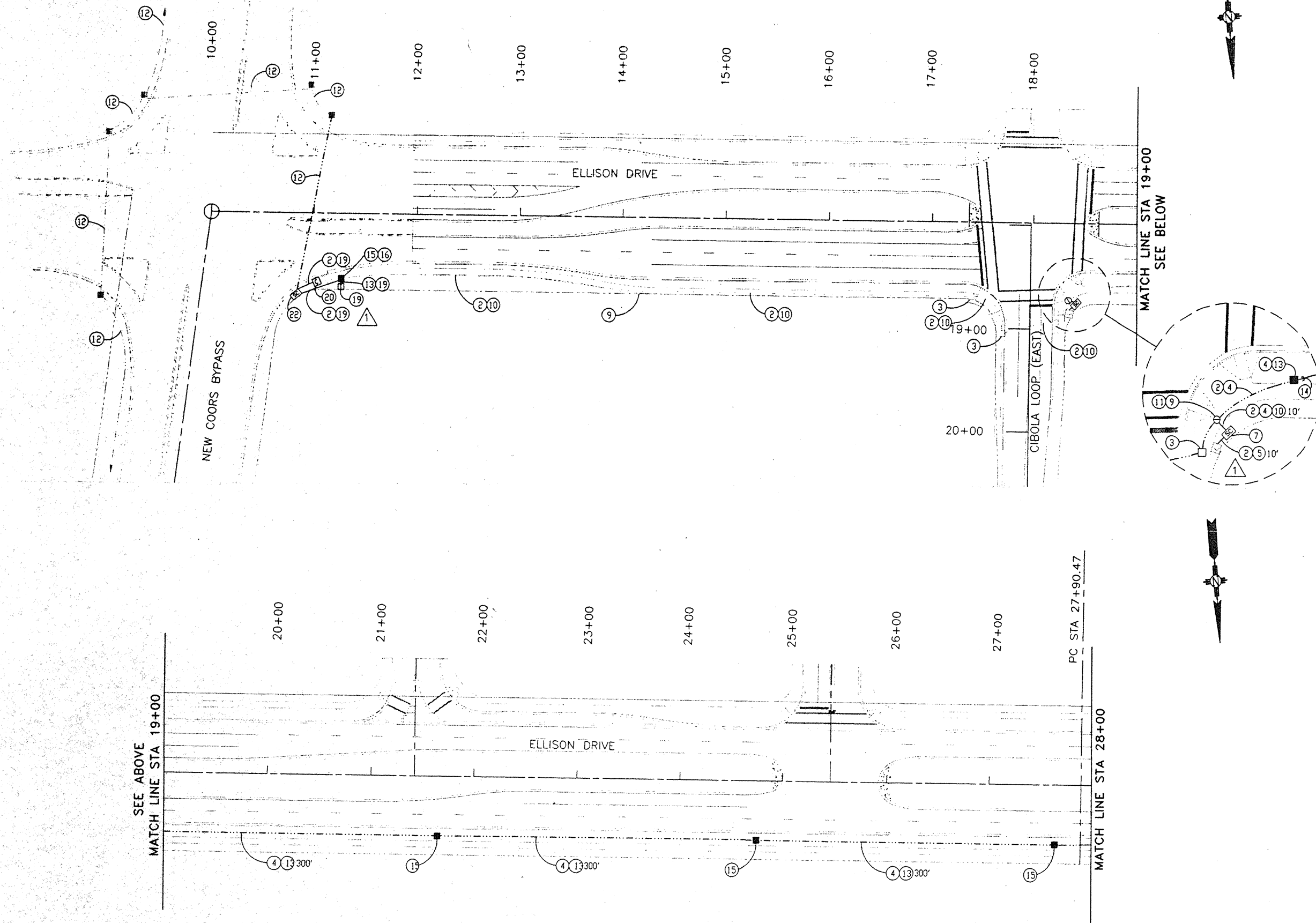
- 1/ IDENTIFY CONDUCTORS LISTED AS "115 VOLTS"
- 2/ WRAP RING 2 CABLE AT EACH SPLICE POINT WITH COLORED ELECTRICAL TAPE. THE IDENTIFICATION MARKING SHALL BE PROVIDED ON EACH RING 2 CABLE AT EACH SPLICE BOX AND LOCATED 6" BACK FROM THE END.
- 3/ IDENTIFY CONDUCTORS LISTED AS "PPB - LOW VOLTAGE" AT EACH SPLICE POINT. FIVE (5) CONDUCTOR CABLE SHALL BE 24 VOLTS AND USED FOR PUSH BUTTONS ONLY.
- 4/ CONDUCTOR CABLE RUNS TO TRAFFIC SIGNALS, PEDESTRIAN SIGNALS, AND PEDESTRIAN PUSH BUTTONS SHALL BE SPLICED INTO THE MAIN CONDUCTORS AT THE NEAREST PULLBOX AND RUN WITHOUT ADDITIONAL SPLICES INTO EACH SIGNAL HEAD OR PUSH BUTTON ASSEMBLY.

ABBREVIATIONS

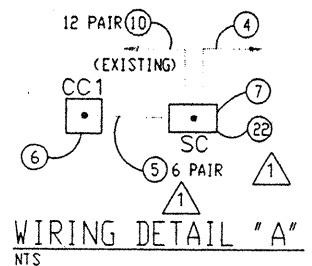
DL DETECTOR LOOP
 EC EXTENDED CALL LOOP
 L DETECTOR LOOP LENGTH
 W DETECTOR LOOP WIDTH
 S SAWCUT LOOP TO CURB
 T TERMINAL LENGTH
 OP QUADRAPOLE LOOP
 RECT RECTANGULAR LOOP

CITY OF ALBUQUERQUE PUBLIC WORKS ENGINEERING					
TITLE: TRAFFIC SIGNAL FUNCTIONS & DETECTORS ELLISON/SEVEN BAR LOOP SOUTH					
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
DRG CHAIRMAN			WATER		
TRANSPORTATION			WASTE WATER		
HYDROLOGY			TRAF. OPER.		
DRAWING NO. 6152-81		MAP NO. A-13/B-13		SHEET 9 OF 23	

SCANNED BY
PLANNING



- KEYED NOTES
- 1 EXISTING RIGID ELECTRICAL CONDUIT - 2" TO REMAIN
 - 2 EXISTING RIGID ELECTRICAL CONDUIT - 3" TO REMAIN
 - 3 EXISTING ELECTRICAL PULL BOX, STANDARD TO REMAIN
 - 4 INSTALL NEW COMMUNICATION CABLE, 12 PAIR
 - 5 INSTALL NEW COMMUNICATION CABLE, 6 PAIR
 - 6 CONNECT NEW COMMUNICATION CABLE TO SPLICE BLOCK INSIDE NEW TRAFFIC CONTROL CABINET.
 - 7 INSTALL NEW SPLICE CABINET, GROUND MOUNT (LARGE). CONNECT COMMUNICATION CABLES TO SPLICE BLOCK IN SPLICE CABINET.
 - 8 EXISTING EXPANSION COUPLING TO REMAIN
 - 9 EXISTING TRAFFIC MANHOLE TO REMAIN
 - 10 EXISTING COMMUNICATION CABLE TO REMAIN
 - 11 COIL 50' OF COMMUNICATION CABLE, 12 PAIR INSIDE NEW MANHOLE.
 - 12 INTERCONNECT LINES TO BE INSTALLED BY SAD 223 PROJECT.
 - 13 INSTALL NEW RIGID ELECTRICAL CONDUIT 3".
 - 14 INTERCEPT THE EXISTING CONDUIT STUB OUT CONNECT NEW 3" CONDUIT.
 - 15 INSTALL NEW ELECTRICAL PULL BOX (LARGE).
 - 16 INTERCEPT THE EXISTING CONDUIT.
 - 17 INSTALL NEW TRAFFIC MANHOLE.
 - 18 INSTALL NEW ELECTRICAL CONDUIT 3" STUB OUT AND CAP (5' EACH).
 - 19 THE CONTRACTOR TO COORDINATE A TELEPHONE SERVICE IN THE CITY'S NAME.
 - 20 INSTALL SYSTEM MASTER IN THE EXISTING CABINET WITH MODEM AND HARNESSSES.
 - 21 CONNECT TO EXISTING CONTROLLER CABINET.
 - 22 EXISTING SPLICE CABINET TO REMAIN.



1		8-99		UPDATED PLAN		BHI	
NO.		DATE		REMARKS		BY	
				REVISIONS			
				DESIGN			
				DESIGNED BY BHI		DATE 5-95	
				DRAWN BY BHI		DATE 5-95	
				CHECKED BY BHI		DATE 5-95	

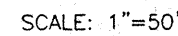
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WIRING DETAIL "A"

NTS

											
CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING GROUP											
TITLE: ELLISON DRIVE PHASE II - SIGNALS											
INTERCONNECT PLAN											
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE						
D.R.C. CHAIR			WATER								
TRANS. DEV.			WASTE WATER								
HYDROLOGY			NMUI								
			CITY ENGINEER								
PROJECT NO.			6152.81			MAP NO.			A-13		
						SHEET			10 OF 23		

SCALE: 1"=50'

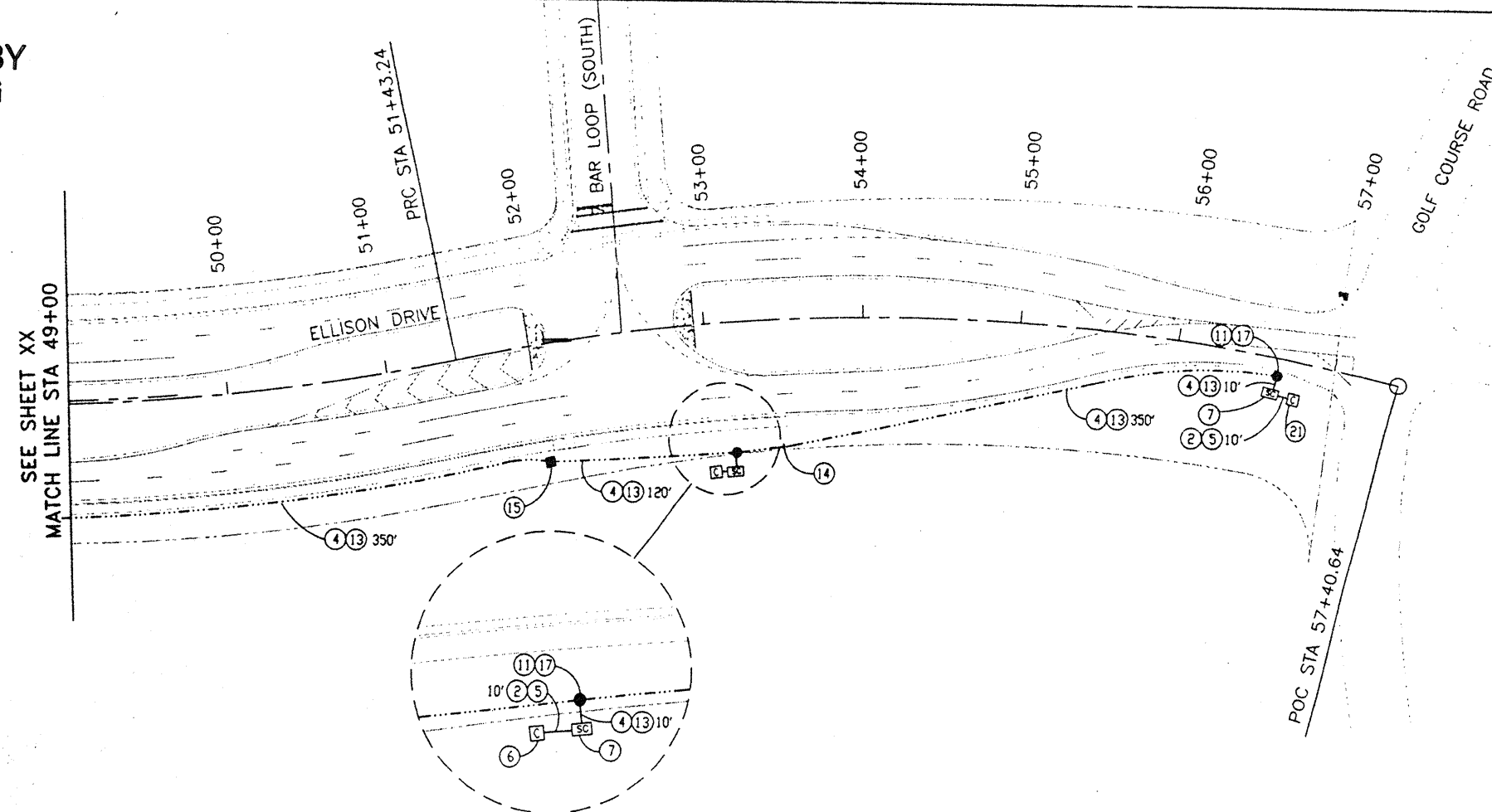


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8-19-99
W. J. J. J.

	CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING GROUP				
TITLE: ELLISON DRIVE PHASE II - SIGNALS					
INTERCONNECT PLAN					
APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. CHAIR			WATER		
TRANS. DEV.			WASTE WATER		
HYDROLOGY			NMUI		
DESIGN			CITY ENGINEER		
PROJECT NO.		6152.81	MAP NO.		A-13
			SHEET		11 OF 23

SCANNED BY
PLANNING



- KEYED NOTES
- ① EXISTING RIGID ELECTRICAL CONDUIT - 2" TO REMAIN
 - ② EXISTING RIGID ELECTRICAL CONDUIT - 3" TO REMAIN
 - ③ EXISTING ELECTRICAL PULL BOX, STANDARD TO REMAIN
 - ④ INSTALL NEW COMMUNICATION CABLE, 12 PAIR
 - ⑤ INSTALL NEW COMMUNICATION CABLE, 6 PAIR
 - ⑥ CONNECT NEW COMMUNICATION CABLE TO SPLICE BLOCK INSIDE NEW TRAFFIC CONTROL CABINET.
 - ⑦ INSTALL NEW SPLICE CABINET, GROUND MOUNT (LARGE). CONNECT COMMUNICATION CABLES TO SPLICE BLOCK IN SPLICE CABINET.
 - ~~⑧ EXISTING EXPANSION COUPLING TO REMAIN~~
 - ⑨ EXISTING TRAFFIC MANHOLE TO REMAIN
 - ~~⑩ EXISTING COMMUNICATION CABLE TO REMAIN~~
 - ⑪ COIL 50' OF COMMUNICATION CABLE, 12 PAIR INSIDE NEW MANHOLE.
 - ⑫ INTERCONNECT LINES TO BE INSTALLED BY SAD 223 PROJECT.
 - ⑬ INSTALL NEW RIGID ELECTRICAL CONDUIT 3".
 - ⑭ INTERCEPT THE EXISTING CONDUIT STUB OUT, CONNECT NEW 3" CONDUIT.
 - ⑮ INSTALL NEW ELECTRICAL PULL BOX (LARGE).
 - ⑯ INTERCEPT THE EXISTING CONDUIT.
 - ⑰ INSTALL NEW TRAFFIC MANHOLE.
 - ~~⑱ INSTALL NEW ELECTRICAL CONDUIT 3" STUB OUT AND CAP (5' EACH).~~
 - ⑲ THE CONTRACTOR TO COORDINATE A TELEPHONE SERVICE IN THE CITY'S NAME.
 - ⑳ INSTALL SYSTEM MASTER IN THE EXISTING CABINET WITH MEDIUM AND HARNESSSES.
 - ㉑ CONNECT TO EXISTING CONTROLLER CABINET.

[illegible]

Charles L. Loh
8-19-99

	8-99	UPDATED PLAN	BHI
	NO. DATE	REMARKS	BY
REVISIONS DESIGN			
DESIGNED BY BHI			DATE 5-95
DRAWN BY BHI			DATE 5-95
CHECKED BY BHI			DATE 5-95

	CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING GROUP	
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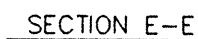
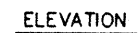
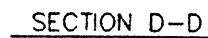
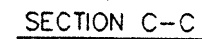
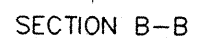
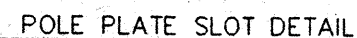
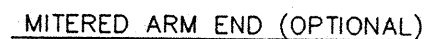
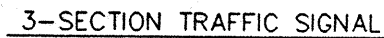
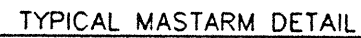
TITLE: ELLISON DRIVE PHASE II - SIGNALS

INTERCONNECT PLAN

APPROVALS	ENGINEER	DATE	APPROVALS	ENGINEER	DATE
D.R.C. CHAIR			WATER		
TRANS. DEV.			WASTE WATER		
HYDROLOGY			NMUL		
	DESIGN			CITY ENGINEER	

PROJECT NO.	6152.81	MAP NO.	A-13	SHEET	12	OF	23
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SCALE: 1"=50'



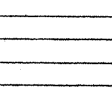
TRAFFIC SIGNAL MASTARM NOTES:

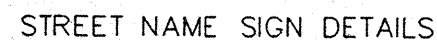
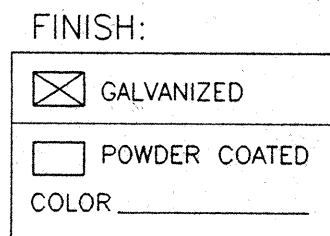
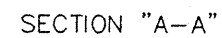
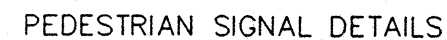
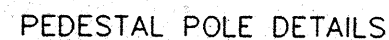
1. DESIGN IN ACCORDANCE WITH 1985 AASHTO SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARIES, AND TRAFFIC SIGNALS FOR AN 80 MPH WIND ZONE.
2. POLES AND MASTARMS SHAFTS SHALL CONFORM TO ASTM A-595 GRADE A (MIN YIELD 55 KSI)
3. BASE PLATE AND SIGNAL ARM CLAMP SHALL BE ASTM A-36 (MIN YIELD 36 KSI).
4. ANCHOR BOLTS SHALL BE ASTM A-36 MOD 55 (MIN YIELD 55 KSI)
5. SIGNAL ARM CONNECTING BOLTS SHALL BE ASTM A-325.
6. WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY SPECIFICATIONS AWS D1.1, LATEST EDITION. ALL WELDS SHALL BE FREE FROM CRACKS, EXCESSIVE UNDERCUT, AND POROSITY. ANY WELD DEFECTS SHALL BE REPAIRED BY REMOVING THE DEFECTIVE MATERIAL AND REPLACING IT WITH SOUND WELD MATERIAL.
7. ALL HOLES SHALL BE DRILLED AND DEBURRED.
8. ALL POLES, MASTARMS, AND BOLTS SHALL BE GALVANIZED TO ASTM A-123 & A-153.
9. MASTARM SHALL BE MARKED TO DESCRIBE WHICH IS TOP AND WHICH IS BOTTOM. POLE PLATE COVER SHALL BE MARKED IN MATED PAIRS. POLE SHAFTS SHALL BE MARKED "ALB" "15-25" OR "30-40", AND DATE OF FABRICATION (MONTH/YEAR).
10. DETAILS SHOWN ARE FOR STEEL POLES. ALUMINUM POLES MAY BE USED ONLY WHEN PRE-APPROVED BY THE CITY OF ALBUQUERQUE TRAFFIC ENGINEERING OPERATIONS DIVISION.
11. BOLTS FOR TYPE III EXTENSIONS SHALL BE FURNISHED BY THE MANUFACTURER FOR ALL POLES INCLUDING TYPE II STANDARDS WITH NO EXTENSIONS.

FINISH:

☐ GALVANIZED

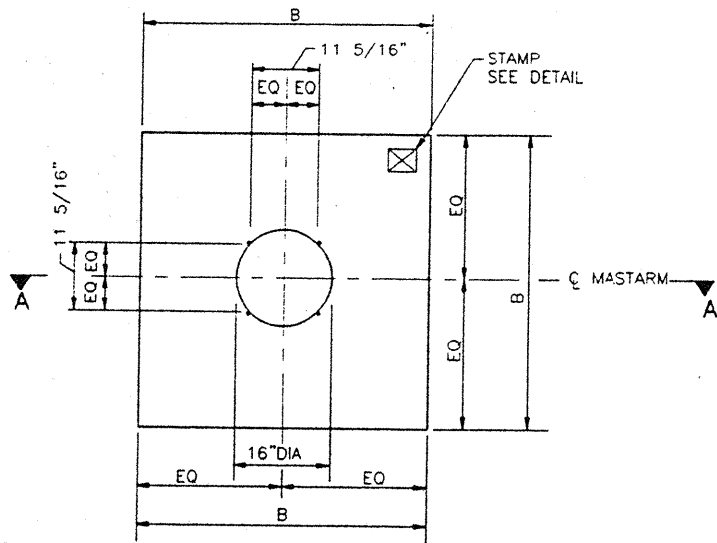
☐ POWDER COATED
COLOR _____

		CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING DEVELOPMENT GROUP	
TITLE:		TRAFFIC SIGNAL MASTARM DETAILS, TYPE II STANDARD	
DESIGN REVIEW COMMITTEE 	CITY ENGINEER APPROVAL 	LAST DESIGN UPDATE 	MO./DAY/YR. 
CITY PROJECT NO. 6152.81		ZONE MAP NO. A-13/B-13	SHEET 13
			OF 23

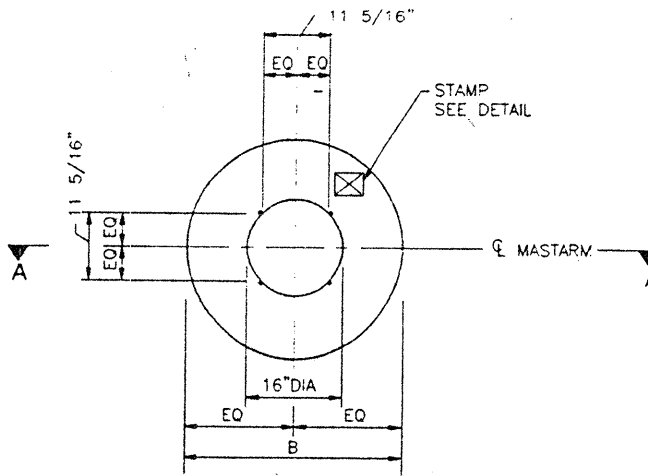


1. STREET NAME SIGNS REQUIRED AS SHOWN ON PLANS.
2. STREET NAME SIGN SHALL BE 16" WIDE WITH 8" SERIES "C" LETTERS. SIGN SHALL BE NO MORE THAN 12 SQUARE FEET TOTAL AREA AND SHALL HAVE HIGH INTENSITY REFLECTIVE LEGEND. 1" BORDER AND BACKGROUND COLORS: WHITE ON GREEN, SIGN PANELS SHALL BE SINGLE SHEET 6061-T6 ALUMINUM .120 MINIMUM THICKNESS.
3. PEDESTRIAN ACTUATED CROSSING SHALL BE A MAXIMUM OF 42" (1065 mm) ABOVE THE FINISHED PUBLIC SIDEWALK. A STABLE, FIRM, AND SLIP-RESISTANT AREA - 30"x48" (915 mm x 1220 mm) - SHALL BE PROVIDED TO ALLOW FOR FORWARD OR A PARALLEL APPROACH TO THE CONTROLS. WHERE A PARALLEL IS PROVIDED, CONTROLS SHALL BE WITHIN 10" (255 mm) HORIZONTALLY OF AND CENTERED ON THE CLEAR GROUND SPACE.
4. FOR INSTALLATIONS WITH ONLY PEDESTRIAN SIGNALS, CUT SHAFT TO 9". USE 15' SHAFT FOR PEDESTAL POLES REQUIRING BOTH 5-SECTION SIGNAL ASSEMBLIES AND PEDESTRIAN SIGNALS.

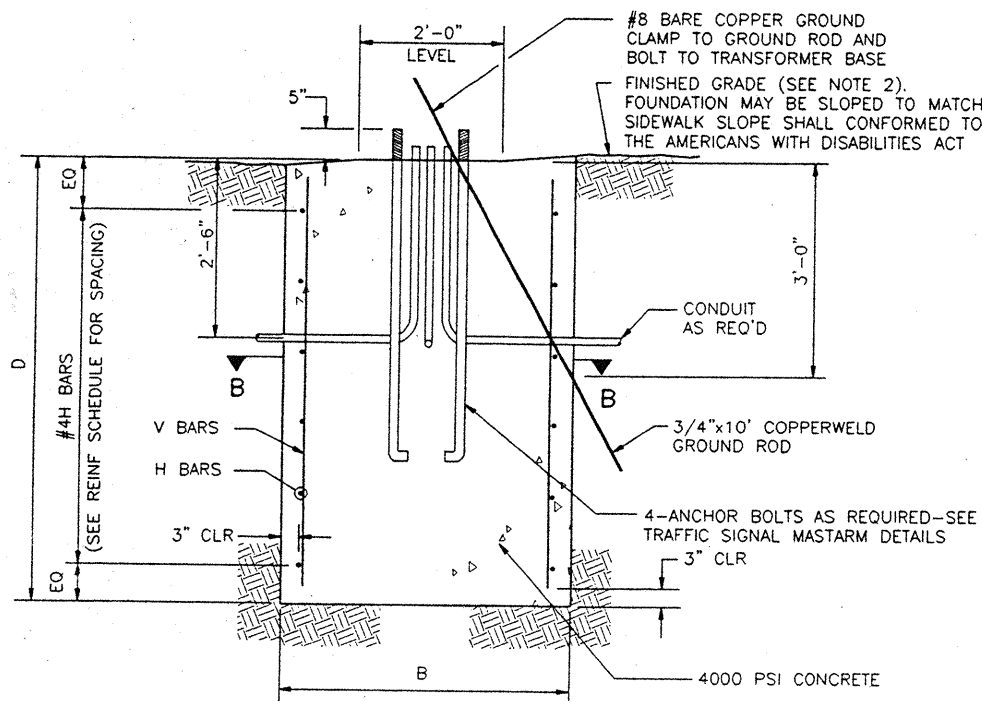
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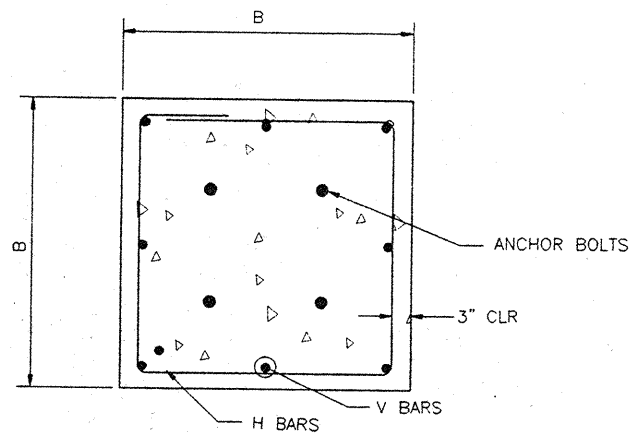
PLAN VIEW (SQUARE)
NO SCALE



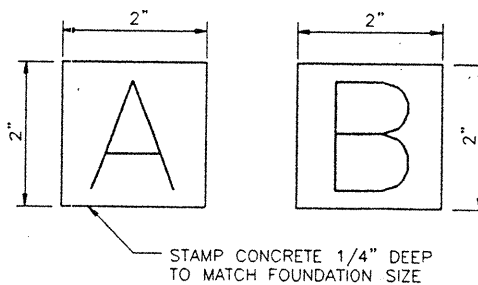
PLAN VIEW (ROUND)
NO SCALE



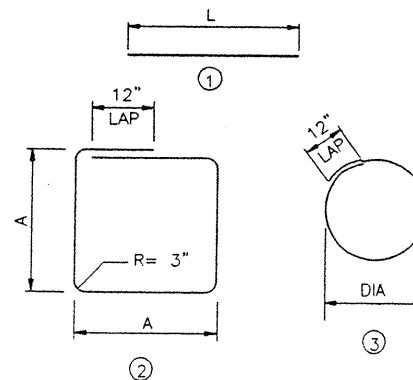
SECTION A-A (ROUND OR SQUARE)
NO SCALE



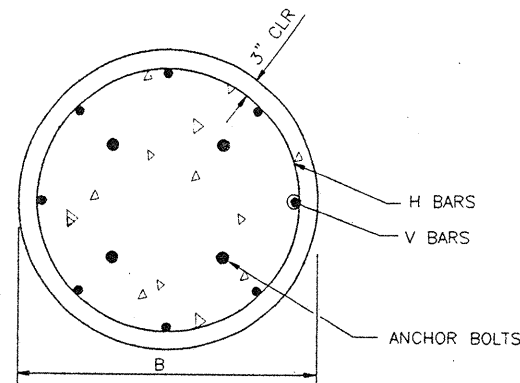
SECTION B-B (SQUARE)
NO SCALE



STAMP DETAIL
NO SCALE



BAR BENDING DIAGRAM



SECTION B-B (ROUND)
NO SCALE

FOUNDATION DIMENSIONS AND QUANTITIES							
FOUNDATION TYPE	SIGNAL ARM SPAN(FT)	DIMENSION		REINFORCING		REBAR POUNDS	4000 PSI CONCRETE CUBIC YARDS
		B (WIDTH)	D (DEPTH)	V BARS MARK	H BARS MARK		
TYPE A (SQUARE)	15	3'-6"	5'-0"	#4V2	#3H2	49.1	2.27
	20	"	"	"	"	"	"
	25	"	"	"	"	"	"
TYPE B (SQUARE)	30	4'-0"	6'-3"	#5V1	#3H1	62.6	3.70
	35	"	"	"	"	"	"
	40	"	"	"	"	"	"
TYPE A (ROUND)	15	2'-6"	8'-6"	#6V4	#3H4	98.1	1.55
	20	"	"	"	"	"	"
	25	"	"	"	"	"	"
TYPE B (ROUND)	30	3'-0"	11'-9"	#7V3	#3H3	179.7	3.08
	35	"	"	"	"	"	"
	40	"	"	"	"	"	"

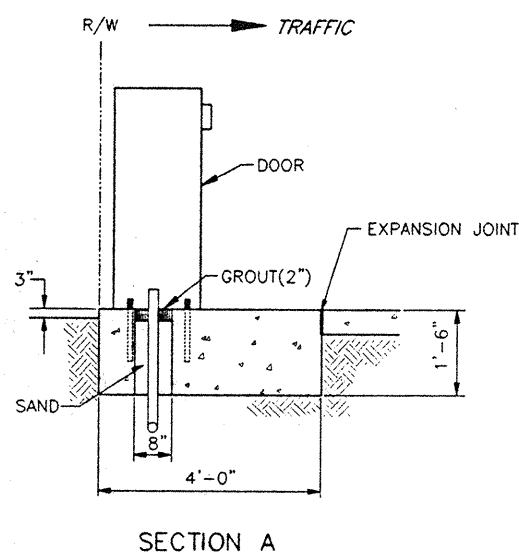
ROUND SHAPE TO BE USED ONLY WHERE SPECIFICALLY NOTED ON PLANS OR WHEN APPROVED BY THE PROJECT MANAGER.

REINFORCING SCHEDULE (GRADE 60 BARS)						
MARK	QUANT	TYPE	SIZE	LENGTH	COMMENTS	
#5V1	8	1	5	5'-9"	A = 42", TIES AT 14" OC A = 36", TIES AT 12" OC DIA = 30", TIES AT 12" OC DIA = 24", TIES AT 12" OC	
#4V2	8	1	4	4'-6"		
#7V3	6	1	7	11'-3"		
#6V4	6	1	6	8'-0"		
#3H1	6	2	3	15'-4"		
#3H2	5	2	3	13'-4"		
#3H3	12	3	3	9'-3"		
#3H4	9	3	3	7'-8"		

TRAFFIC SIGNAL MASTARM FOUNDATION NOTES

- REFER TO THE PLANS FOR LOCATIONS OF TRAFFIC SIGNAL MASTARM FOUNDATIONS.
- FINISHED GRADE FOR THE FOUNDATIONS SHALL BE ESTABLISHED IN THE FIELD BY THE PROJECT MANAGER.
- THE FOUNDATIONS SHOWN HERE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, CURRENT REVISION.
- CONCRETE SHALL BE 4000 PSI FOR EXTERIOR STRUCTURES. REFER TO TABLE 101.C OF THE SPECIFICATIONS.
- REINFORCING STEEL SHALL CONFORM TO ASTM A-615 GRADE 60.
- THE TOP 6 INCHES OF THE FOUNDATION PEDESTAL SHALL BE FORMED TO THE DIMENSIONS SHOWN ON THIS SHEET TO FORM NEAT LINES. CONCRETE BELOW 6 LINES MAY BE CAST AGAINST THE EARTH.
- THE CONCRETE SHALL GAIN 80% OF THE DESIGN STRENGTH PRIOR TO INSTALLING THE TRAFFIC SIGNAL MASTARM.
- ALL FOUNDATIONS SHALL INCLUDE COPPERWELD GROUND RODS. ALL GROUND RODS SHALL BE 3/4" DIA X 10'-0" AND WILL BE CONSIDERED INCIDENTAL TO THE FOUNDATIONS BID ITEMS.
- ALL FOUNDATIONS SHALL BE STAMPED EITHER "A" OR "B" TO SHOW TYPE CONSTRUCTED (SEE STAMP DETAIL).

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING DEVELOPMENT GROUP			
TITLE: TRAFFIC SIGNAL FOUNDATION DETAILS TYPE II AND TYPE III STANDARDS			
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.
DESIGNED BY COA	DRAWN BY COA	CHECKED BY COA	DATE 8-97
CITY PROJECT NO. 6152.81		ZONE MAP NO. A-13/B-13	SHEET 15 OF 23



Technical drawing of a transformer base showing a cross-section and a plan view.

Cross-section details:

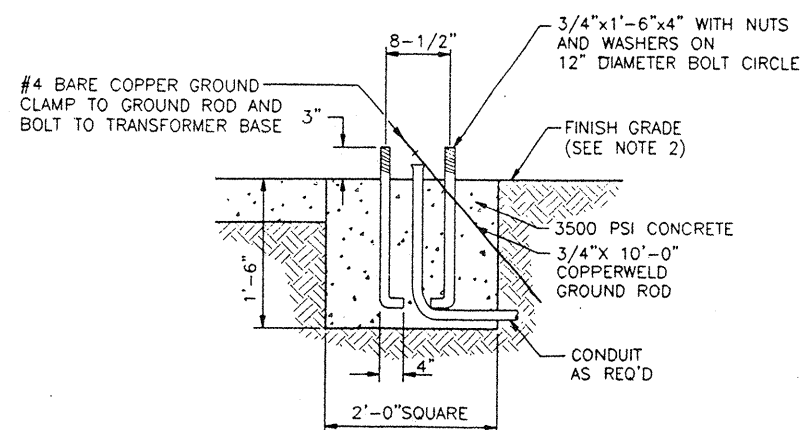
- Base dimensions: 2'-0" SQUARE
- Concrete: 3500 PSI CONCRETE
- Bolts: 3/4"x1'-6"x4" WITH NUTS AND WASHERS ON 12" DIAMETER BOLT CIRCLE
- Grounding: #4 BARE COPPER GROUND CLAMP TO GROUND ROD AND BOLT TO TRANSFORMER BASE
- Reinforcement: #3H BAR, #4V BAR
- Conduit: CONDUIT AS REQ'D
- Ground Rod: 3/4"x 10'-0" COPPERWELD GROUND ROD
- Finish Grade: (SEE NOTE 2)
- Dimensions: 8'-1/2" (bolt circle), 3'-0" (height), 4" TYP (base offset), 3" TYP (base offset)

Plan view details:

- Overall dimensions: 3'-0" x 3'-0"
- Reinforcement: #4V BAR (4 REQ'D), #3H BAR (3 REQ'D)
- Lap: 8"-1/2" V-V LAP
- Offset: 1'-9"

REINFORCING STEEL

PEDESTAL FOUNDATION DETAIL



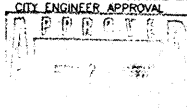
SPLICE CABINET FOUNDATION DETAIL

1. ALL FOUNDATIONS SHALL INCLUDE COPPERWELD GROUND RODS. ALL GROUND RODS SHALL BE 3/4"Ox10"-0" AND WILL BE CONSIDERED INCIDENTAL TO THE FOUNDATION BID ITEMS.
2. FINISHED GRADE FOR ALL FOUNDATIONS TO BE DETERMINED IN THE FIELD BY THE PROJECT ENGINEER. FOUNDATIONS MAY BE SLOPED TO MATCH SIDEWALKS. SLOPES SHALL CONFORM TO THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.

FOUNDATION TYPE	3500 PSI CONCRETE CU YD	REINFORCING BARS POUNDS
PEDESTAL FOUNDATION	0.52	17
CONTROLLER FOUNDATION (TYPE M & P)	0.88	--
SPLICE CABINET FOUNDATION	0.13	--

(FOR CONTRACTORS INFORMATION ONLY)

[illegible]

 CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING DEVELOPMENT GROUP			
TITLE:		TRAFFIC SIGNAL	
CONTROLLER CABINET & PEDESTAL FOUNDATION DETAILS			
DESIGN REVIEW COMMITTEE 	CITY ENGINEER APPROVAL 	LAST DESIGN UPDATE	MO./DAY/YR.
			MO./DAY/YR.
			MO./DAY/YR.
			MO./DAY/YR.
			MO./DAY/YR.
CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
6152.81	A-13/B-13	16	23

NOTE: SEE "CONCRETE COLLAR DETAIL"

IN COMPACTED EARTH

IN ASPHALT PAVEMENTS

IN CONCRETE PAVEMENTS

NEW CONDUIT INSTALLATION

RÉTROFIT INSTALLATION

PULL BOX DETAILS

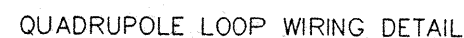
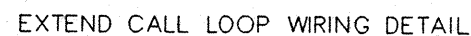
STANDARD PULL BOX

NOTES FOR HEAVY DUTY REINFORCED POLYMER MORTAR PULL BOX AND COVERS

1. MATERIAL TO BE AN AGGREGATE CONSISTING OF SAND AND GRAVEL BOUND TOGETHER WITH A POLYMER AND REINFORCED WITH CONTINUOUS WOVEN GLASS STRANDS. THE MATERIAL MUST HAVE THE FOLLOWING MECHANICAL PROPERTIES: COMPRESSIVE STRENGTH - 11,000 PSI, TENSILE STRENGTH - 1,700 PSI, FLEXURAL STRENGTH - 7,500 PSI.
2. ALL PULL BOX COVERS SHALL BE HEAVY DUTY REINFORCED POLYMER MORTAR, HAVING A SERVICE LOAD OF 22,568 LBS OVER 10" SQUARE (225 PSI).
3. PULL BOX TYPE AND LOGO SHALL BE APPROVED BY THE PROJECT MANAGER.
4. THE DIMENSIONS OF THE PULL BOXES SHOWN ARE NOMINAL DIMENSIONS AND MAY VARY AS TO THE MANUFACTURER'S RECOMMENDATIONS. ALL DIMENSIONS SHALL BE VERIFIED BY THE PROJECT MANAGER.
5. ELECTRICAL PULL BOX (STANDARD) SHALL BE A HEAVY DUTY REINFORCED POLYMER MORTAR PULL BOX AND COVER MEASURING 13 3/4" x 23 1/4" x 2".

[illegible]

	CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING DEVELOPMENT GROUP			
TITLE: TRAFFIC SIGNAL PULL BOX DETAILS				
DESIGN REVIEW COMMITTEE 	CITY ENGINEER APPROVAL  CITY ENGINEER	LAST DESIGN UPDATE	MO./DAY/YR. 	MO./DAY/YR.
CITY PROJECT NO.		ZONE MAP NO.	SHEET OF	
6152.81		A-13/B-13	17	23



TYPICAL LOOP WIRE PLACEMENT DETAILS

1. WIRES MUST BE WOUND IN THE DIRECTION SHOWN.
2. QUADRUPOLE LOOPS SHALL HAVE 2 TURNS.
3. EXTEND CALL LOOPS SHALL HAVE 3 TURNS.
4. SYSTEM DETECTOR LOOPS SHALL HAVE 4 TURNS.
5. LARGE RECTANGLE LOOPS SHALL HAVE 3 TURNS.

1. ALL LOOP DETECTOR WIRE SHALL BE #14 AWG STRANDED COPPER WIRE WITH CROSS-LINKED POLYETHYLENE INSULATION (INDUSTRY TYPE XHHW) CONFORMING TO THE REQUIREMENTS OF IMSA SPECIFICATIONS #51-3 1984. BACKER ROD SHALL NOT BE USED IN THE INSTALLATION OF LOOP (EXCEPT PIECES LESS THAN 12" WHICH MAY BE PLACED OVER THE WIRE AT THE SAW CUT CORNERS TO HOLD THE WIRE. A 1/4" LAYER OF SEALANT SHALL BE PLACED IN THE SAW CUT BEFORE PLACEMENT OF THE WIRE AND THEN THE WIRE SHALL BE ENCAPSULATED WITH SEALANT. HOT-MELT RUBBERIZED ASPHALT LOOP DETECTOR SEALANT MANUFACTURED BY CRAFCO SHALL AN ACCEPTABLE SEALANT ALTERNATE.
2. ALL LOOP LEAD IN CABLES SHALL BE TAGGED AT CABINET TO IDENTIFY. EACH CABLE BY LOOP AND PHASE NUMBER.
3. GROUND LOOP LEAD IN CABLE SHIELDING IN CONTROL CABINET.
4. SEPARATE 1" RIGID ELECTRICAL CONDUITS ARE REQUIRED FOR EACH PAIR OF DETECTOR WIRES.

ABELPDET.DWG 7-1-99

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1. TRAFFIC SIGNAL MANHOLE TO BE CONSTRUCTED IN AREAS NOT NORMALLY ACCESSIBLE TO VEHICULAR TRAFFIC.

ABETSMH.DWG 7-1-99



- SERVICE POLE (SIGNAL)

CONNECTIONS TO BE
PROVIDED AND
INSTALLED BY LOCAL
UTILITY COMPANY



- SERVICE RISER (SIGNAL)

UNIVERSAL SUPPORT BRACKETS

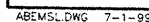
1. BRACKET TO BE FASTENED TO POLE WITH 5/8" GALVANIZED MACHINE BOLTS.
2. BRACKET SUITABLE FOR TWO 2" CONDUITS.
3. TWO HOLE STRAPS ATTACHED AT 30" INTERVALS WITH 2" LAG SCREWS MAY BE USED INSTEAD OF THE SUPPORT BRACKET WHEN THE CONDUIT IS 1" OR LESS. A MAXIMUM OF TWO CONDUITS MAY BE STRAPPED DIRECTLY TO THE POLE.

UNIVERSAL SUPPORT BRACKETS

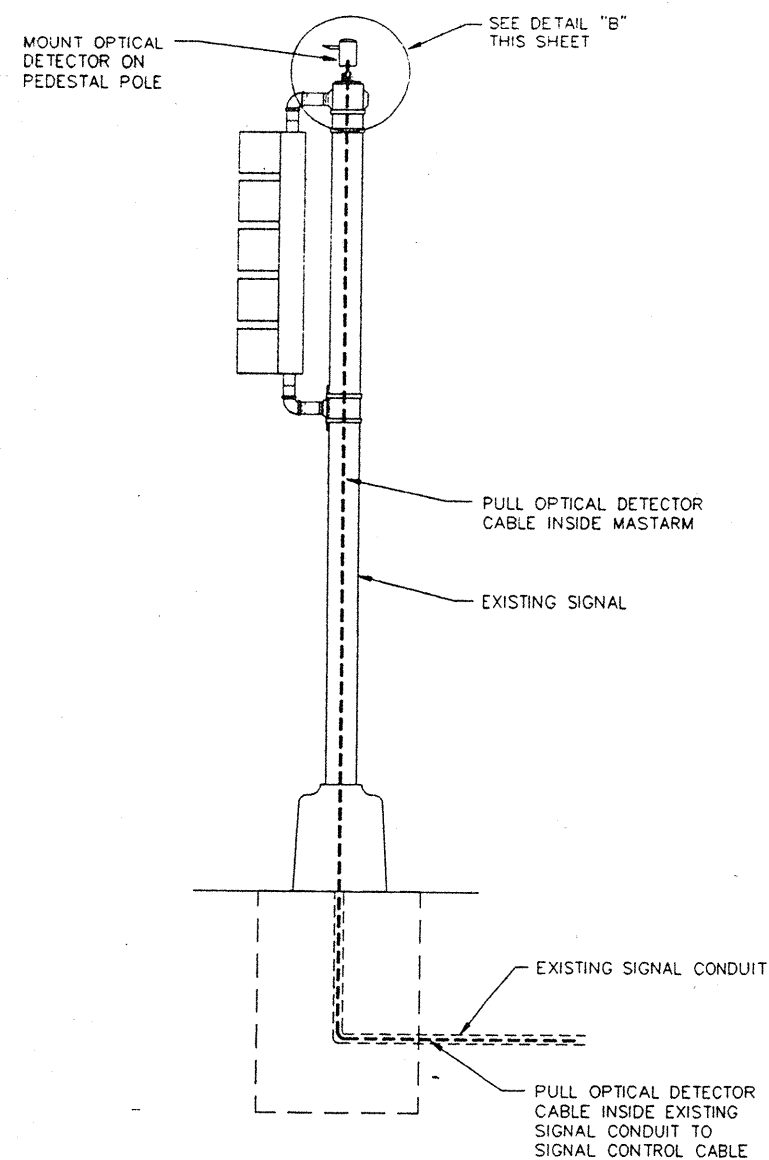
SIGNAL SERVICE NOTES

- [illegible]

ABESGS RV.DWG 7-1-99

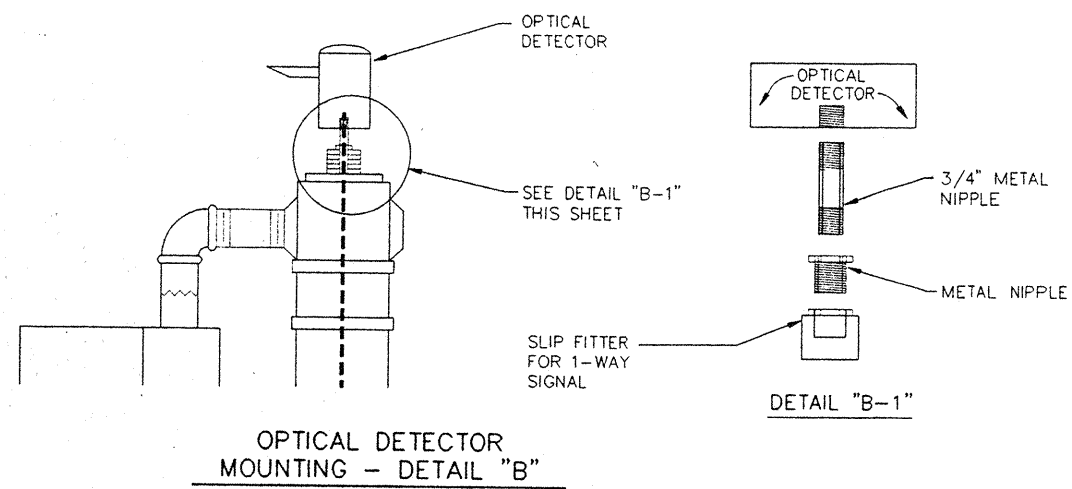


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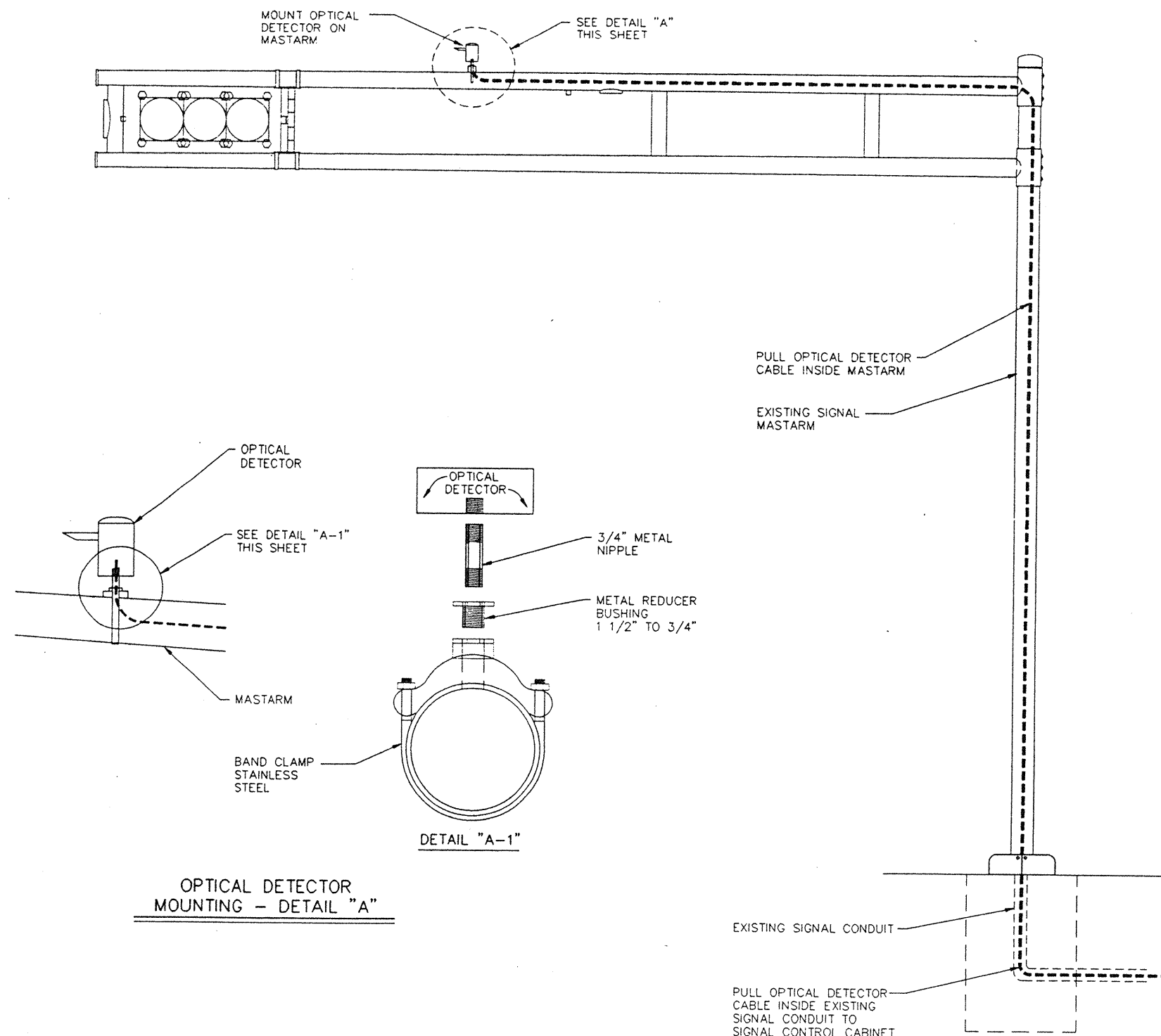


TYPICAL OPTICAL DETECTOR INSTALLATION - PEDESTAL POLE

NOTE: OPTICAL DETECTOR SHALL ONLY BE MOUNTED ON PEDESTAL POLES WHEN THERE IS NO MASTARM.



OPTICAL DETECTOR
MOUNTING - DETAIL "B"



OPTICAL DETECTOR
MOUNTING - DETAIL "A"

NOTES:

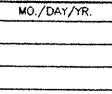
1. ALL OPTICAL DETECTOR MOUNTING HARDWARE SHALL CONFORM TO OPTICAL DETECTOR MANUFACTURER'S REQUIREMENTS.

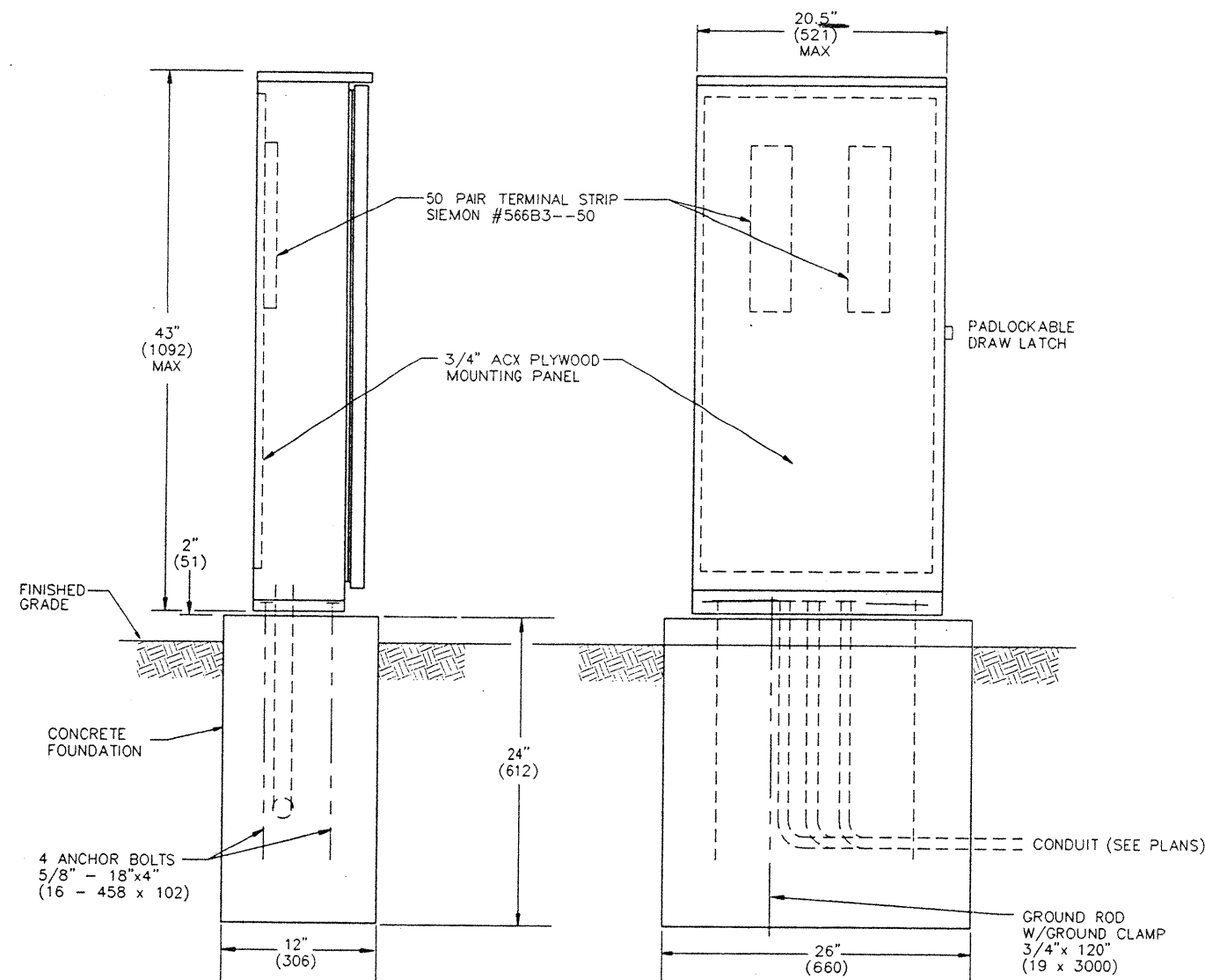
TYPICAL OPTICAL DETECTOR INSTALLATION - MASTARM

ENGINEER'S SEAL		SURVEY INFORMATION		BENCH MARKS		AS-BUILT INFORMATION	
		FIELD NOTES					
NO.	DATE	REMARKS	BY	NO.	BY	DATE	CONTRACTOR
							DATE
							DESIGNED BY
							DATE
							INSPECTOR'S
							FIELD
							DATE
							CONSTRUCTION BY
							DATE
							COMPLETED BY
							DATE
							MICRO - FILM INFORMATION
							RECORDED BY
							DATE
							NO.

DESIGNED BY COA DATE 8-97
 DRAWN BY COA DATE 8-97
 CHECKED BY COA DATE 8-97

7-2-99

		CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING DEVELOPMENT GROUP	
TITLE:		TRAFFIC SIGNAL OPTICAL DETECTOR INSTALLATION DETAILS	
DESIGN REVIEW COMMITTEE 	CITY ENGINEER APPROVAL 	LAST DESIGN UPDATE 	MO./DAY/YR. 
CITY PROJECT NO. 6152.81	ZONE MAP NO. A-13/B-13	SHEET 22	OF 23



CONSTRUCTION MATERIALS AND FINISH	
☒ 12 GA HD GALVANIZED SHEET STEEL	☒ POWDER COATED
☐ 14 GA #304D STAINLESS STEEL SHEET	☐ POWDER COATED COLOR:
	☐ NATURAL
☐ 0.125" ALUMINUM SHEET	☐ POWDER COATED COLOR:
	☐ ANODIZED

POWDER COAT COLORS	
☒ WHITE	☐ RANCH GREEN
☐ MINT GREEN	☐ OTHER _____
☐ CAMEL	

SPLICE CABINET CONSTRUCTION NOTES

- SPLICE CABINET SHALL BE UL LISTED "INDUSTRIAL CONTROL PANEL" PER UL 508.
- CONSTRUCTION SHALL BE NEMA 3R AND 12, RAIN TIGHT AND DUST TIGHT. ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.
- ALL NUTS, BOLTS, SCREWS AND HINGES SHALL BE STAINLESS STEEL. ELECTRICALLY WELDED AND REINFORCED WHERE REQUIRED.
- NUTS, BOLTS, AND SCREWS SHALL NOT BE VISIBLE FROM OUTSIDE OF SPLICE CABINET.
- PHENOLIC NAME PLATES SHALL BE PROVIDED AS REQUIRED.
- ALL POWDER COATED CABINETS SHALL HAVE A CORROSION RESISTANT COATING WHICH INCLUDES A FIVE STEP DIP TANK METAL PREPARATION PROCESS:
 - ALKALINE CLEANER 160° F.
 - CLEAR WATER RINSE.
 - IRON PHOSPHATE APPLICATION 150°.
 - CLEAR WATER RINSE.
 - INHIBITIVE RINSE TO SEAL PHOSPHATED SURFACES 120°.FINISHED WITH AN ELECTROSTATICALLY APPLIED DRY POLYESTER POWDER COATING THEN BAKED @ 380° TO CURE.
- FOUNDATIONS, INCLUDING EXCAVATION, CONCRETE AND ANCHOR BOLTS, COMPLETE IN PLACE AND BACK FILLED, SHALL BE CONSIDERED INCIDENTAL TO THE SPLICE CABINET.

SCALE: NONE
DIMENSIONS ARE - ###". (###) MILLIMETERS

CITY OF ALBUQUERQUE PUBLIC WORKS DEPARTMENT ENGINEERING DEVELOPMENT GROUP			
TITLE: TRAFFIC SIGNAL SPLICE CABINET GROUND MOUNT (LARGE)			
DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	MO./DAY/YR.	MO./DAY/YR.
DESIGNED BY COA	DRAWN BY COA	CHECKED BY COA	DATE 8-97
DESIGNED BY COA	DRAWN BY COA	CHECKED BY COA	DATE 8-97
DESIGNED BY COA	DRAWN BY COA	CHECKED BY COA	DATE 8-97
CITY PROJECT NO. 6152.81		ZONE MAP NO. A-13/B-13	SHEET 23 OF 23