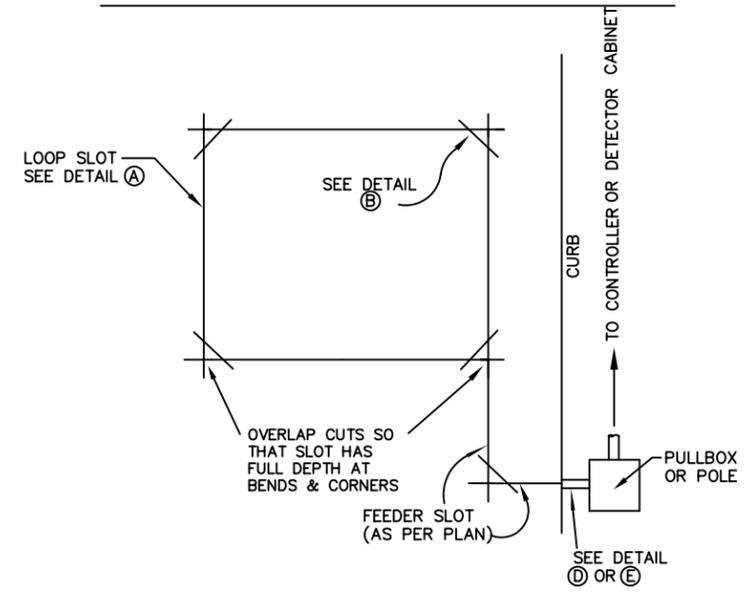


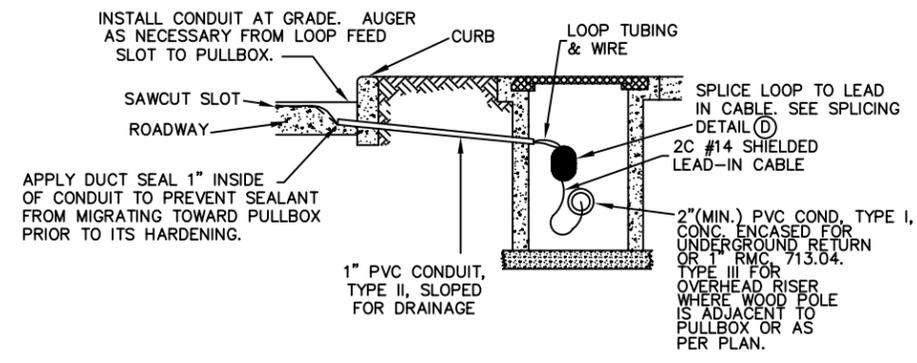
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		



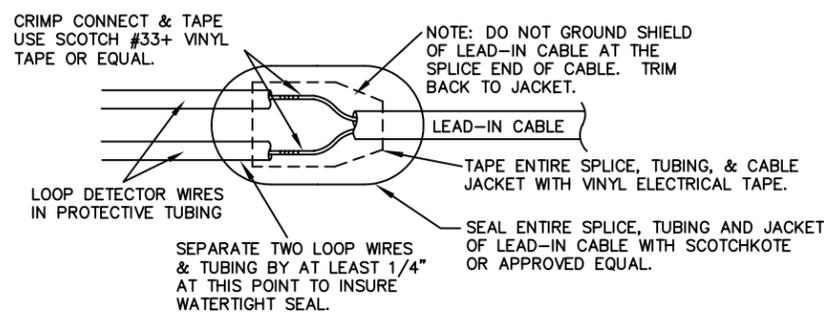
TYPICAL LOOP SLOT CONSTRUCTION



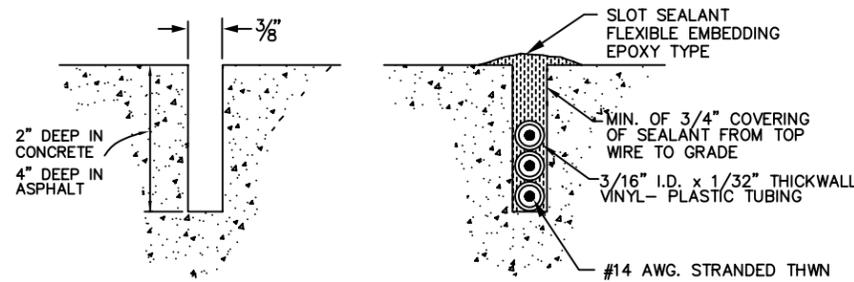
CONNECTION FROM SLOT TO PULLBOX DETAIL (C)



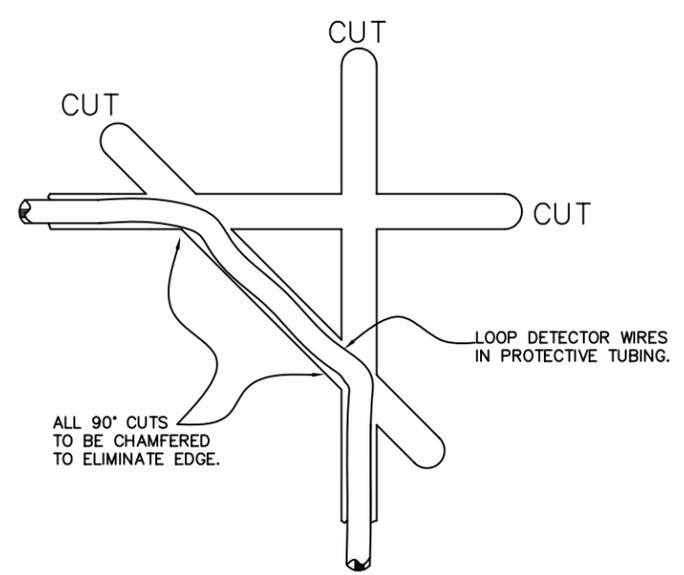
LOOPWIRE TO LEAD-IN CA. SPLICE DETAIL (D)



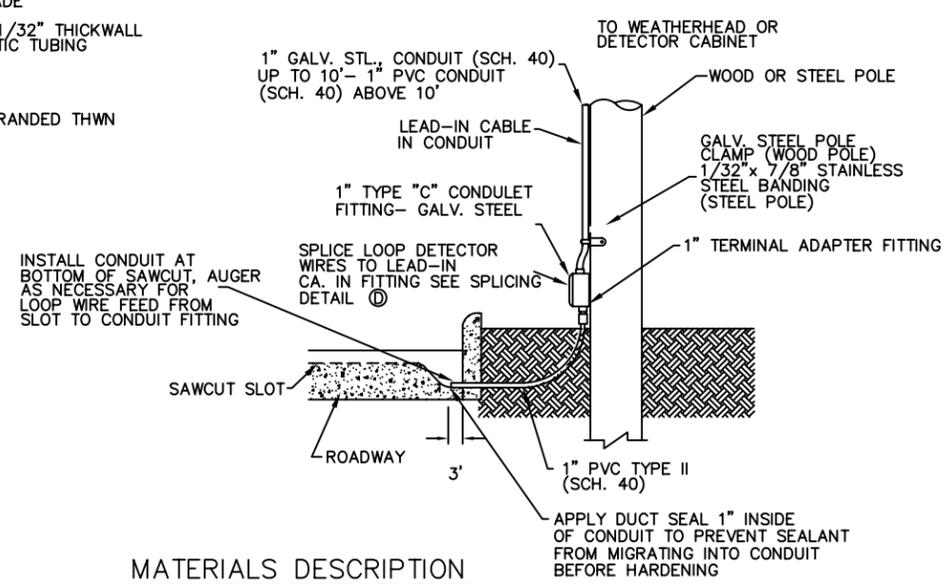
LOOP DETECTOR SLOT DETAIL (A)



BEND & CORNER HOLE DETAIL (B)



CONNECTION FROM SLOT TO CONDUIT FITTING ON POLE DETAIL (E)



MATERIALS DESCRIPTION

DETECTADUCT LOOP DETECTOR WIRE - #14 AWG. THWN, STRANDED
 LOOP DETECTOR WIRE PROTECTIVE TUBING - FLEXIBLE VINYL PLASTIC TUBING 3/16" I.D., 1/32" WALL THICKNESS, 1/4" O.D. RESISTANT TO WATER, SALT, OILS, SOLVENTS & HIGHLY ABRASIVE RESISTANT.
 LEAD-IN CABLE - 2C#14 AWG. STRANDED, SHIELDED, TWISTED- PAIR, POLYETHYLENE INSULATED, CROME VINYL JACKETED, RATED 750 VOLTS
 LOOP SLOT SEALANT- FLEXIBLE EMBEDDING EPOXY TYPE, "GOLDFLEX" AS MANUFACTURED BY PRECO OR DETECTA
 LOOP SEALANT BY 3M OR APPROVED EQUAL.
 SPLICE KITS - PERMANENT WATER RESISTANT- COMPLIANCE WITH ANSI C119.1, SCOTCHKOTE OR APPROVED EQUAL.

LOOP DETECTOR AMPLIFIER CABLE CONNECTIONS DETAIL (F)

PIN	FUNCTION
A	117 VOLT A.C. COMMON
B	CALL RELAY COMMON
C	117 VOLT A.C.
D	LOOP CONNECTION
E	LOOP CONNECTION
F	CALL RELAY- N.O. CONTACTS
G	CALL RELAY- N.O. CONTACTS
H	EQUIPMENT GROUND
I	SPARE
J	SPARE



INSTALLATION NOTES

- LAYOUT LOOP ON STREET AS PER PLAN SHEET. CHECK LAYOUT TO SEE THAT THE SAWCUT LINE IS FREE FROM OBSTRUCTIONS SUCH AS MANHOLES, PARALLEL CONSTRUCTION JOINT RUNS CLOSER THAN 2' FROM CUT, PATCHES IN PAVEMENT, CRACKED OR BROKEN OUT AREAS AND OTHER SUCH OBSTRUCTIONS OR MATERIAL CONFLICTS. IF SUCH CONFLICTS ARISE, THE LOOP SHALL BE RELOCATED OR ALTERED AS DIRECTED BY THE ENGINEER.
- CHISEL CORNERS AFTER SAW CUTTING. BEND SHALL BE FULL DEPTH OF THE SAWCUT.
- MAXIMUM DEPTH OF SAWCUT SHALL BE DETERMINED BY THE ROADWAY CONSTRUCTION.
 (A) CONCRETE - SAWCUT SLOT DEPTH MIN. OF 2" SHALL BE REQUIRED.
 (B) ASPHALT - SAWCUT SLOT DEPTH MIN. OF 4" SHALL BE REQUIRED.
- AFTER SAWCUTTING, THE SLOT SHALL BE COMPLETELY CLEAN OF DUST AND DEBRIS AND THOROUGHLY DRY BEFORE INSTALLATION OF WIRE AND SEALANT.
- THE LOOP DETECTOR WIRE SHALL BE INSTALLED IN A PROTECTIVE FLEXIBLE VINYL PLASTIC TUBING. THE LOOP DETECTOR WIRE AND PLASTIC TUBING SHALL BOTH BE OF A CONTINUOUS LENGTH FROM THE POINT OF SPlicing OF LOOP WIRE TO THE LEAD-IN CABLE WITH THE NUMBER OF TURNS FORMING THE LOOP AS INDICATED ON THE PLAN SHEET OR AS DIRECTED BY THE ENGINEER.
- RESISTANCE OF THE LOOP IN THE SLOT WITH RESPECT TO GROUND SHALL BE MEASURED BEFORE AND AFTER SEALING. RESISTANCE OF LESS THAN 10 MEGOHMS TO GROUND INDICATES A FAULTY LOOP.
- LOOP DETECTOR SLOTS CORNERS SHALL BE SEALED WITH A FLEX-IBLE EPOXY TYPE SEALANT. THE SEALANT SHALL BE MIXED AND PLACED ACCORDING TO MANUFACTURER'S INSTRUCTIONS. THE SLOTS SHALL BE FILLED COMPLETELY AND NO TRAFFIC ALLOWED TO CROSS THE CUTS UNTIL SEALANT IS CURED. IF LOOP WIRE AND SEALANT CANNOT BE INSTALLED AND CURED BEFORE IT MUST BE OPENED TO TRAFFIC, THE SLOT SHALL BE RESAWED, CLEANED AND DRIED BEFORE WIRING AND SEALING.
- SPLICING OF THE LOOP WIRE TO THE LEAD-IN CABLE SHALL BE MADE IN PULLBOX OR CONDUIT ACCESS FITTING ONLY. NO SPlicing SHALL BE PERMITTED IN THE SAWCUT OR CONDUIT.
 (A) SPLICE MADE IN PULLBOX - USE CRIMP TYPE BUTT SPLICE CONNECTIONS BETWEEN THE LOOP WIRE AND THE LEAD-IN CABLE. INDIVIDUALLY TAPE EACH CONNECTION TO HELP INSURE ADEQUATE PROTECTION AGAINST WATER DAMAGE, USE SCOTCH # 33+ VINYL TAPE OR EQUAL. WRAP ENTIRE SPLICE WITH THE SAME VINYL ELECTRICAL TAPE, INCLUDING THE ENDS OF THE PROTECTIVE TUBING AND JACKET OF THE LEAD-IN CABLE. SPLICE SHALL BE SEALED IN A WATERPROOF SPLICE KIT OR COVERED IN A WATERPROOF COATING SUCH AS SCOTCHKOTE. SEE DETAIL (D).
 (B) SPLICE MADE IN TYPE "C" CONDUIT FITTING - CRIMP THE CONNECTIONS TOGETHER WITH A BUTT SPLICE. INDIVIDUALLY WRAP EACH SPLICE TO INSURE ADEQUATE INSULATION AGAINST WEATHER. WRAP THE ENTIRE SPLICE, INCLUDING PROTECTIVE TUBING AND LEAD-IN CABLE JACKET ENDS, WITH SCOTCH VINYL TAPE. FINISH THE SPLICE BY COATING IT WITH SCOTCHKOTE OR A EQUAL WEATHERPROOFING.
- ONE 2C LEAD-IN CABLE SHALL BE RUN FROM EACH LOOP TO THE APPROPRIATE DETECTOR AMPLIFIER, UNLESS SPECIFIED SPlicing OF SEVERAL LOOPS IN A PULLBOX OR A "C" CONDULET FITTING USING ONE LEAD-IN CABLE TO THE LOOP AMPLIFIER. THE LEAD-IN CABLE SHIELD SHALL BE GROUNDED ONLY AT THE LOOP DETECTOR AMPLIFIER END OF THE CABLE.

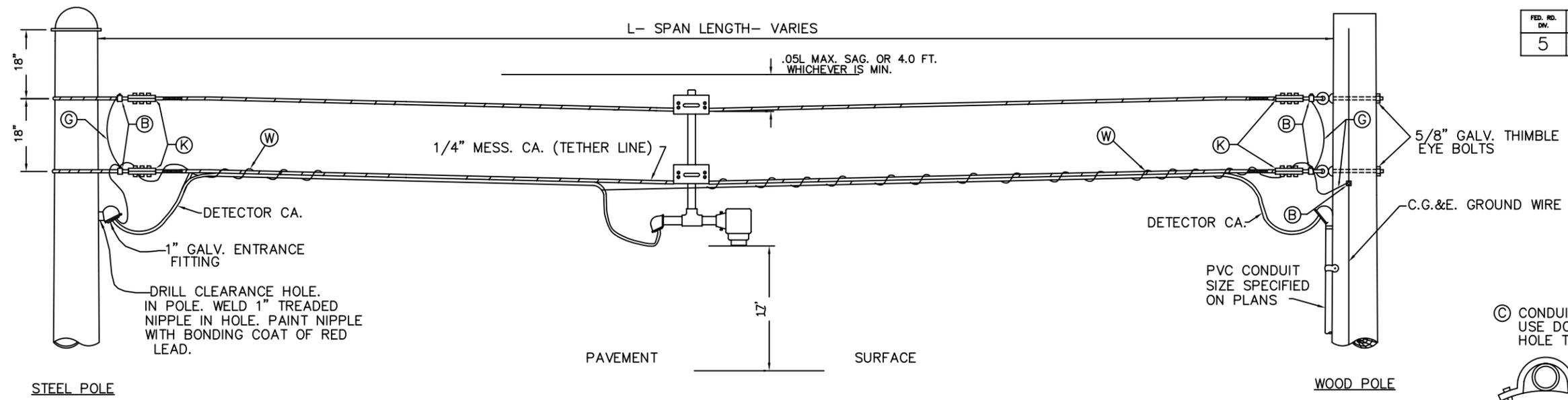
TRAFFIC SIGNAL DETECTORS (ES-4)

LOOP DETECTOR INSTALLATON SAWCUT

CITY OF CINCINNATI
 DEPT. OF TRANSPORTATION & ENGINEERING
 DIV. OF TRAFFIC ENGR.

S.C.H.	<i>Stone Bailey</i>	8/31/04	UPDATE	APPROVED: <i>Stone Bailey</i>	DATE: 3-4-99		
T.E.		3/1/98					
DESIGN	REVISION	DATE	WO #	SCALE	SOURCE	DRAWN	FILE NO.
	APPROVED	9/29/94				VGRD	ES-4-1

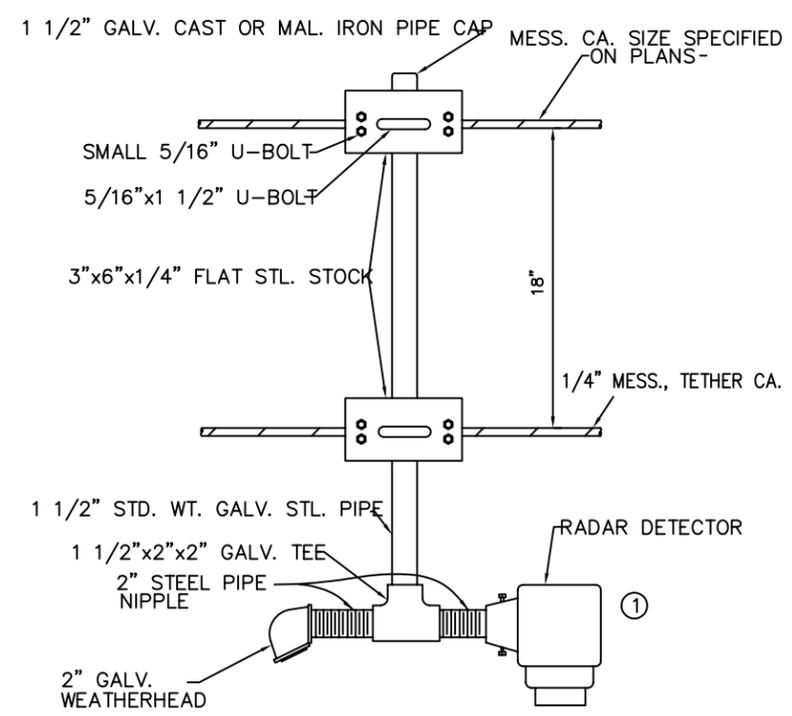
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		



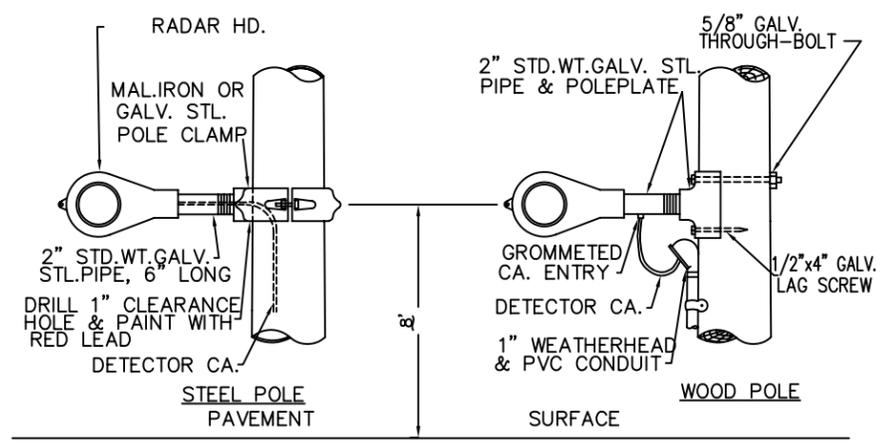
TYPICAL OVERHEAD DETECTOR INSTALLATIONS

© CONDUIT CLAMPS USE DOUBLE HOLE TYPE.

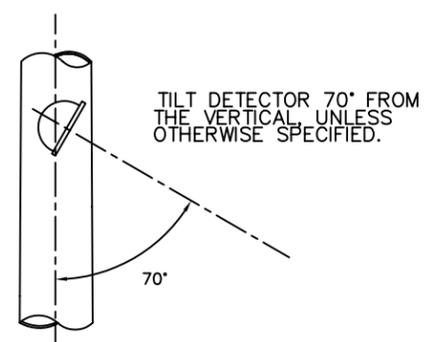
SECURE WITH 2-1/2" LG. GALV. NAILS



RADAR DETECTOR



SIDE FIRE INSTALLATIONS



NOTES

- ① POSITION DETECTOR SENSOR HEAD PERPENDICULAR TO ROADWAY UNLESS OTHERWISE SPECIFIED. MAINTAIN DRIP LOOPS ON ALL WEATHERHEAD ENTRIES WHERE EXTERNAL CONDUIT IS REQUIRED ON A STEEL POLE, CONDUIT SHALL BE RMC 713.04, TYPE III.
 - ⓑ SPLIT BOLT CONNECTOR, DOSSERT, MCGRAW-EDISON, OR APPVD. EQUAL
 - ⓒ #6 AWG BARE COPPER GROUND WIRE
 - Ⓚ 3 BOLT CABLE CLAMP & SERVE WITH 5" TO 7" MAUSS.
 - Ⓦ #14 BARE COPPER LASHING WIRE.
- ALL STEEL PIPE SHALL BE GALV. SCHED. 40, PER ASTM- A-53
ALL PVC CONDUIT SHALL BE TYPE II.

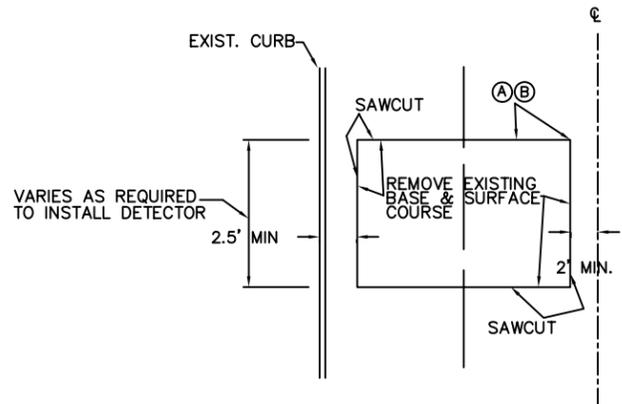


TRAFFIC SIGNAL DETECTORS (ES-4)
OVERHEAD DETECTOR INSTALLATION
CITY OF CINCINNATI
DEPT. OF TRANSPORTATION & ENGINEERING
DIV. OF TRAFFIC ENGR.

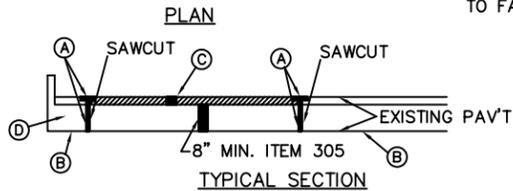
S.C.H.	<i>Steve Bailey</i>	9/1/04	UPDATE	SCALE	SOURCE	DRAWN	FILE NO.
T.E.		3/1/98		N.T.S.		VGDR	ES-4-3
DESIGN	REVISION	DATE	WO #				
	APPROVED	12/15/94					

APPROVED: *Steve Bailey* DATE: 3-4-99

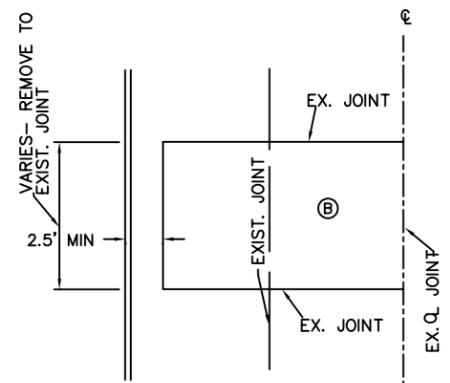
FED. RD. DIV.	STATE	PROJECT	FISCAL YEAR
5	OHIO		



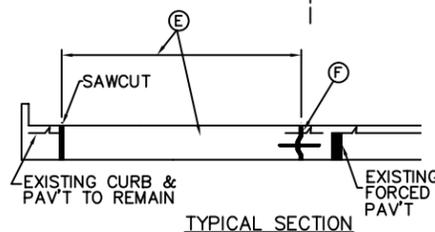
- Ⓐ EDGE OF RESTORATION SHALL BE SEALED WITH ITEM #702.01
- Ⓑ ANY UNDERMINING AT EDGE OF PAV'T TO REMAIN SHALL BE FILLED WITH A DRY CONCRETE MIX & RAMMED UNDER EXPOSED EDGE.
- Ⓒ 2" OF ITEM 446 COMPACTED IN ACCORDANCE WITH ITEM 401.
- Ⓓ SECTION SHOWN IS FOR INTEGRAL CURB WHERE EXISTING CURB IS SEPARATE, PAV'T SHALL BE REMOVED TO FACE OF CURB.



PAVEMENT RESTORATION WHERE EXISTING PAVEMENT SURFACE IS ASPHALT CONCRETE REGARDLESS OF TYPE BASE



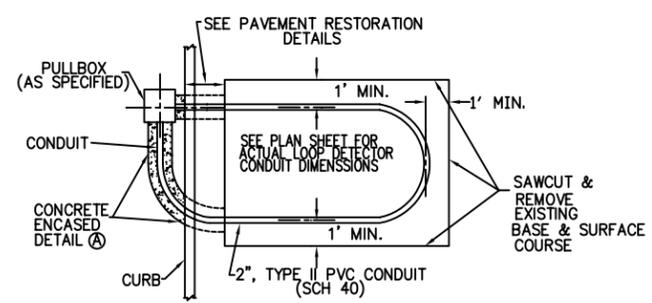
- Ⓔ REMOVE EXIST. PAV'T INSTALL DETECTOR CONDUIT REPLACE WITH 9" MIN. ITEM 452, PLAIN PORTLAND CEMENT CONCRETE PAV'T.
- Ⓕ REMOVE EXIST. PAV'T TO EX. JOINT LEAVING ANCHOR BOLT HOOK INTACT.



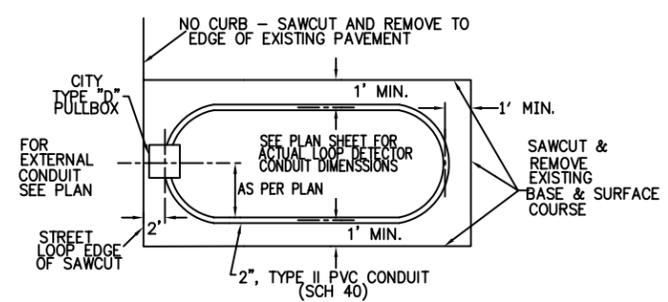
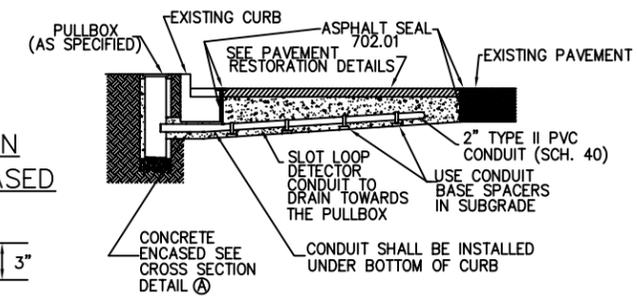
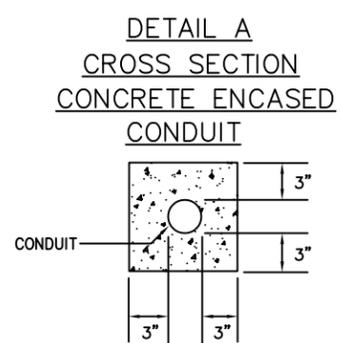
PAVEMENT RESTORATION WHERE EXISTING PAVEMENT SURFACE IS REINFORCED CONCRETE WHICH HAS NOT BEEN RESURFACED

GENERAL NOTES, PAVEMENT RESTORATION

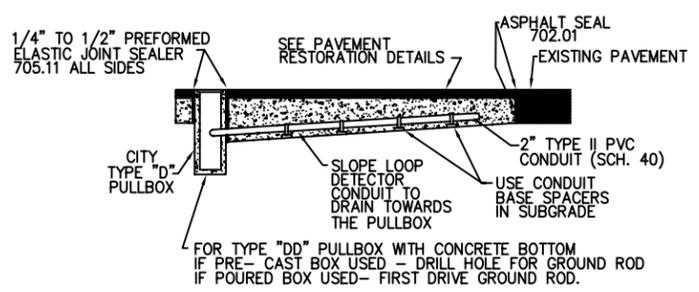
- AFTER PAVEMENT IS REMOVED, THE EXISTING SUB BASE SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER.
- ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE LATEST STATE OF OHIO CONSTRUCTION AND MATERIAL SPECIFICATIONS AND THE CITY OF CINCINNATI SUPPLEMENT, THE MOST RECENT EDITION.
- AT LOCATIONS WHERE EXISTING PAVEMENT SURFACE IS ASPHALT CONCRETE AND WHERE MAINTENANCE OF TRAFFIC IS A PROBLEM, THE ENGINEER MAY ORDER THE PAVEMENT TO BE RESTORED WITH 8" OF ITEM 301 BASE AND 2" OF ITEM 404.



INSTALLATION WITH PULLBOX BEHIND CURB



NO CURB OR STREET TYPE INSTALLATION



MATERIALS DESCRIPTION

LOOP DETECTOR WIRE - 1 CONDUCTOR #14 AWG. TRAFFIC SIGNAL CABLE MEETING THE REQUIREMENTS OF IMSA SPECIFICATION 19- 1 OR 20-1, DETECTADUCT OR APPROVED EQUAL.
 LEAD-IN CABLE - 2C#14 AWG. STRANDED, SHIELDED, TWISTED PAIR, POLYETHYLENE INSULATED, CROME VINYL JACKETED, RATED 750 VOLTS
 SPLICE KITS - PERMANENT WATER RESISTANT- WITH SCOTCHKOTE OR APPROVED EQUAL.

INSTALLATION NOTES

- DETAILS SHOWN ARE FOR REMOVAL OF EXISTING ROADWAY SURFACE & BASE COURSE, INSTALLATION OF LOOP DETECTOR CONDUIT & PAVEMENT RESTORATION. SIMILAR CONDUIT INSTALLATION SHALL BE FOLLOWED WHERE LOOP DETECTOR CONDUITS ARE INSTALLED IN NEW ROADWAY.
 - (A) LOOP DETECTOR CONDUITS SHALL ALWAYS PASS UNDER CURB WITH ENOUGH CLEARANCE FOR THE 3" CONCRETE ENCASEMENT.
 - (B) THE ENTIRE LOOP DETECTOR CONDUIT SYSTEM SHALL BE SLOPED TO DRAIN TOWARDS THE PULLBOX (1/4" PER FT.)
 - (C) THERE SHALL BE NO REINFORCEMENT STEEL USED IN SLAB COVERING THE DETECTOR CONDUIT.
- LOOP DETECTOR SHALL BE LAYED OUT AS PER PLAN OR AS DIRECTED BY ENGINEER. CHECK FOR ANY OBSTRUCTION ALONG THE PROPOSED RUN OF LOOP CONDUIT SUCH AS MANHOLES IN LINE WITH OR CLOSER THAN 2' FROM CONDUIT, VALVE BOXES, ETC. IF CONFLICT ARISES, CONTACT THE ENGINEER FOR ANY MODIFICATION OF THE LOOP DESIGN.
- INVESTIGATE UNDERGROUND BEFORE EXCAVATION.
- THE LOOP DETECTOR CONDUIT SHALL BE 2" TYPE II (SCH. 40) THE CONDUIT SHALL BE FORMED WITH THE SHAPE, RADI & DIMENSIONS AS SPECIFIED ON THE PLAN SHEET OR AS DIRECTED BY THE ENGINEER. THE CONDUIT CAN BE PRESHAPED OR CAN BE FORMED ON SITE. INSTALL A PULL WIRE IN THE LOOP DETECTOR CONDUIT, AS CONDUIT SYSTEM IS BEING FABRICATED.
- THE 2C#14 AWG. LEAD-IN CABLE SHALL BE CRIMPED WITH A BUTT SPLICE CONNECTION. THE ENTIRE SPLICE OF THE LOOP CABLE & THE 2C#14 LEAD-IN CABLE, INCLUDING A PORTION OF THE CABLE JACKETS SHALL BE ENCASED IN A WATERPROOF SPLICE KIT OR OR SEALED WITH SCOTCHKOTE .
- THE LOOP DETECTOR SHALL BE TESTED & INSULATION RESISTANCE SHALL EXCEED 10 MEGOHMS.
- ONE 2C LEAD-IN CABLE SHALL BE RUN FROM EACH LOOP TO THE APPROPRIATE DETECTOR AMPLIFIER, UNLESS SPECIFIED SPLICING OF SEVERAL LOOPS IN A PULLBOX USING ONE LEAD-IN CABLE TO THE LOOP DETECTOR AMPLIFIER IS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. LOOP DETECTOR AMPLIFIER CABLE CONNECTIONS ARE SHOWN DETAIL B.

LOOP DETECTOR AMPLIFIER CABLE CONNECTIONS DETAIL B

CONNECTOR (MS/AN 3102A- 18- 1P)	PIN	FUNCTION
A	117 VOLT A.C. COMMON	
B	CALL RELAY COMMON	
C	117 VOLT A.C.	
D	LOOP CONNECTION	
E	LOOP CONNECTION	
F	CALL RELAY- N.O. CONTACTS	
G	CALL RELAY- N.O. CONTACTS	
H	EQUIPMENT GROUND	
I	SPARE	
J	SPARE	



TRAFFIC SIGNAL DETECTORS (ES-4)

LOOP DETECTOR INSTALLATION IN UNDERGROUND CONDUIT

CITY OF CINCINNATI
 DEPT. OF TRANSPORTATION & ENGINEERING
 DIV. OF TRAFFIC ENGR.

S.C.H.	Stone Bailey	8/31/04	UPDATE	APPROVED	Stone Bailey	DATE	3-4-99
T.E.		3/1/98		DESIGN	REVISION	DATE	WO #
		10/03/94		APPROVED			
				SCALE	SOURCE	DRAWN	FILE NO.
							ES-4-2

