COUNTY OF	ITEM NO.	SHEET NO.

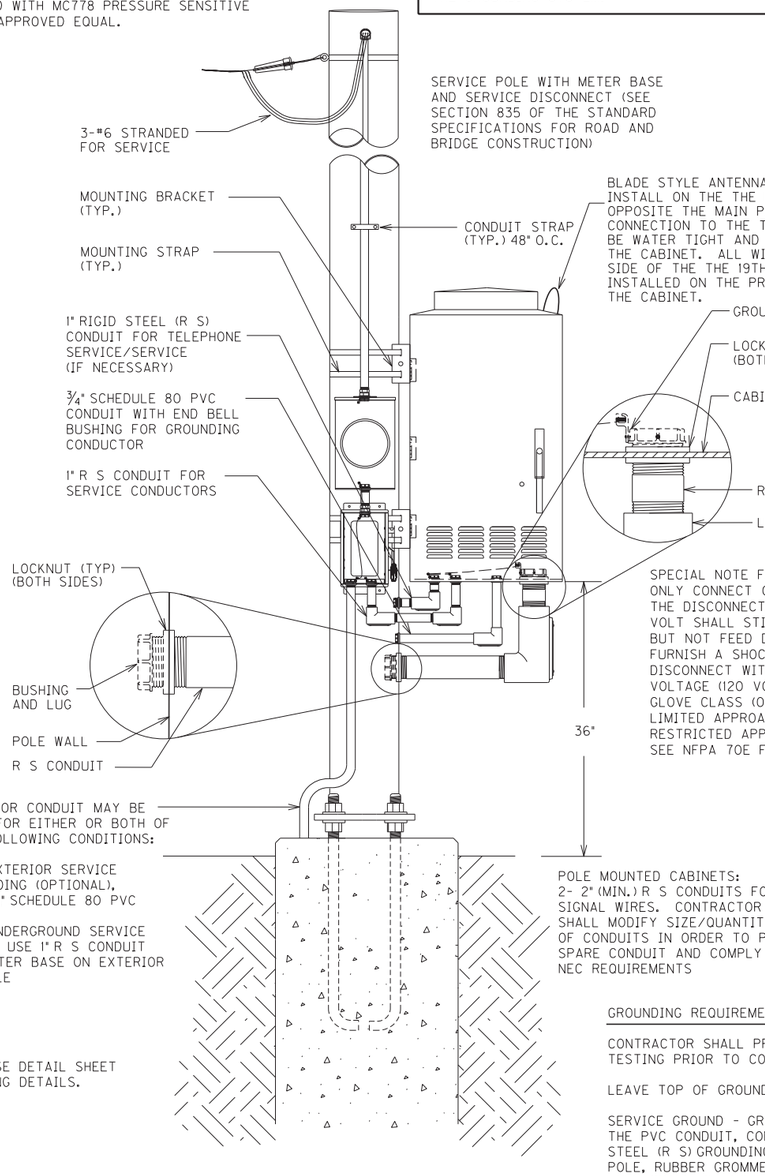
SPECIAL NOTE:
DISCONNECTS (SAFETY SWITCH) AND METER BASE SHALL BE UL RATED FOR COMMERCIAL USE. DISCONNECTS (SAFETY SWITCH) AND METER BASE SHALL BE ALUMINUM ENCLOSURE. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALCULATED THE MAXIMUM AVAILABLE FAULT CURRENT FOR THE SERVICE EQUIPMENT THAT IS INSTALLED. THE CONTRACTOR SHALL SUPPLY A STICKER THAT WILL BE INSTALLED IN THE DISCONNECT WITH THE SYMMETRICAL RMS AMPERES AND THE DATE THAT THIS FAULT CURRENT IS CALCULATED. THE STICKER SHALL BE 4" LONG AND 4" WIDE AND BE METALCRAFT PLY425 PREM STYLEMARK LABEL (OR APPROVED EQUAL) WITH .007 THICKNESS, WITH UV WHITE POLYCARBONATE MATERIAL, AND WITH MC778 PRESSURE SENSITIVE ADHESIVE OR APPROVED EQUAL.

NOTES:

ALL CONDUITS USED FOR THE TELEPHONE, GROUNDING, SPARES, AND SERVICE (INCLUDING FLEX CONDUIT IF IT IS RUN INSIDE THE POLE) THAT ARE INSTALLED ON THE POLE AND/OR IN THE CABINET BASE ARE INCIDENTAL TO BID ITEM "4931". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE CONCRETE PAD.

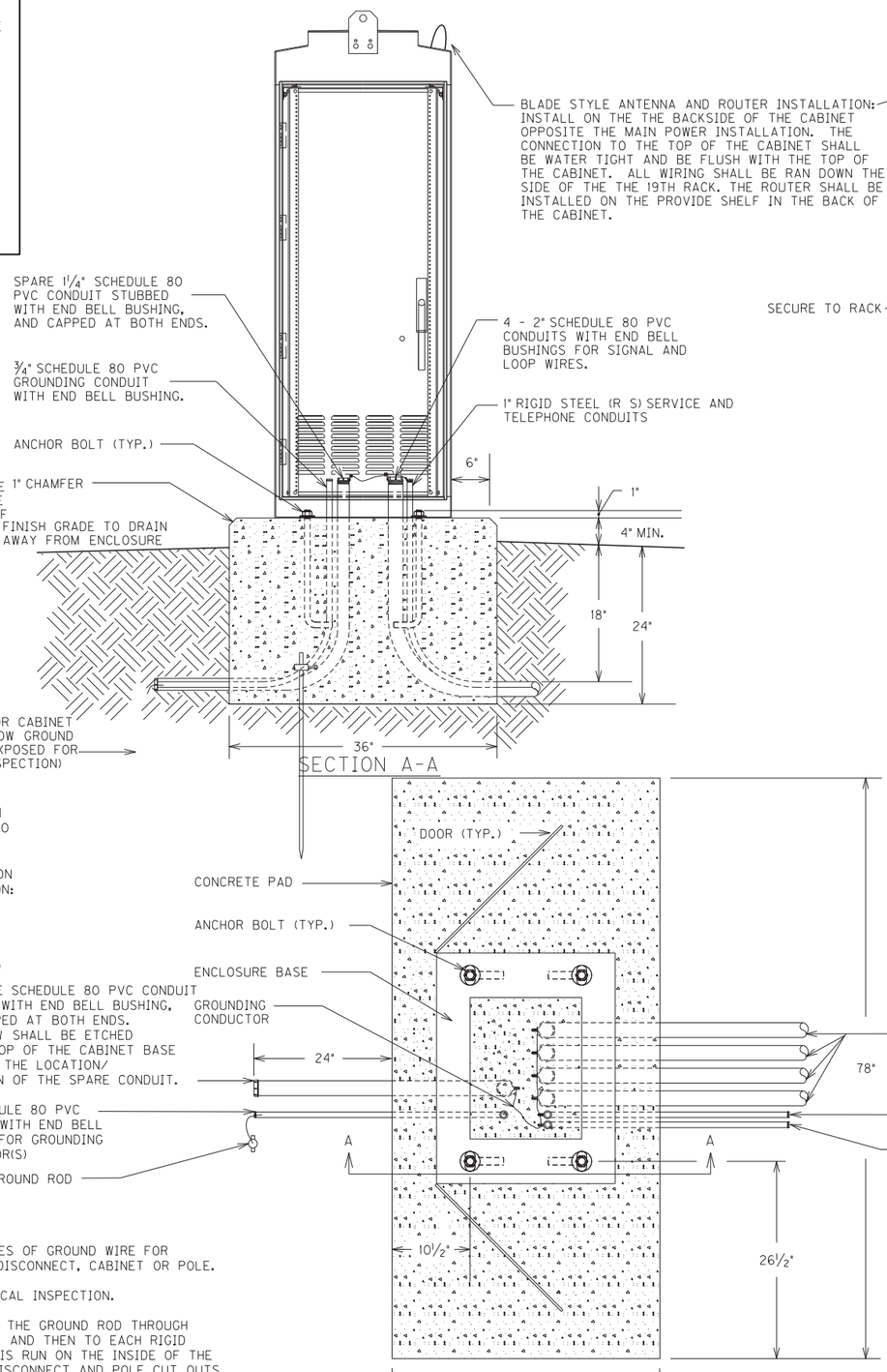
ALL CONDUITS SHALL BE INSTALLED BETWEEN 4 TO 6 INCHES ABOVE THE CONCRETE PAD, AND THEY CANNOT EXCEED THE 6 INCH HEIGHT.

SERVICE WIRES FOR BASE MOUNTED CABINETS MAY BE INSTALLED IN FLEXIBLE CONDUIT FROM THE DISCONNECT TO THE 1" RIGID STEEL CONDUIT INSIDE THE POLE BASE. USE THE PROPER CONNECTIONS FOR TRANSITION FROM FLEXIBLE CONDUIT TO R S CONDUIT. FLEXIBLE CONDUIT SHALL NOT BLOCK THE HAND HOLE OR THE ABILITY TO ACCESS THE GROUNDING SYSTEM.



SEE POLE BASE DETAIL SHEET FOR GROUNDING DETAILS.

STEEL POLE MOUNT ENCLOSURE



SECTION A-A

TOP VIEW

PAD MOUNT ENCLOSURE

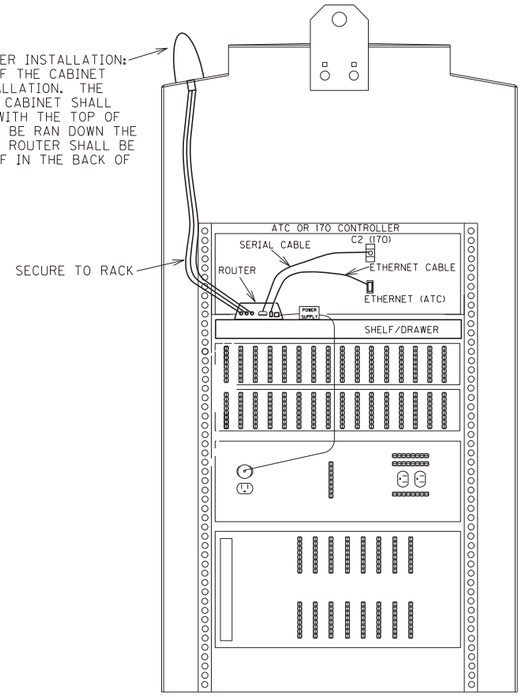
GROUNDING REQUIREMENTS:

CONTRACTOR SHALL PROVIDE A MINIMUM OF 6 INCHES OF GROUND WIRE FOR TESTING PRIOR TO CONNECTING THE WIRE TO ANY DISCONNECT, CABINET OR POLE.

LEAVE TOP OF GROUND RODS EXPOSED FOR ELECTRICAL INSPECTION.

SERVICE GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE DISCONNECT AND THEN TO EACH RIGID STEEL (R S) GROUNDING BUSHING. IF GROUND WIRE IS RUN ON THE INSIDE OF THE POLE, RUBBER GROMMETS SHALL BE PROVIDED AT DISCONNECT AND POLE CUT OUTS. THEY SHALL BE INCIDENTAL TO BID ITEM "4931".

CABINET GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE CABINET GROUND BUS.



ROUTER INSTALLATION
(REAR OF CABINET)

CONTROLLER CABINET AND ANTENNA/ROUTER DETAIL

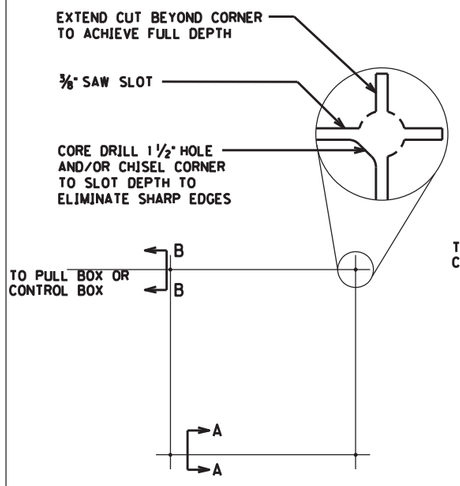
1/24/2020

MicroStation v8.11.7.443 | E-SHEET NAME: | USER: ted.swansegar DATE PLOTTED: January 24, 2020 | FILE NAME: C:\PWWORK\TED.SWANSEGAR\DMS28756\03-CABINET BASE (CA).DGN

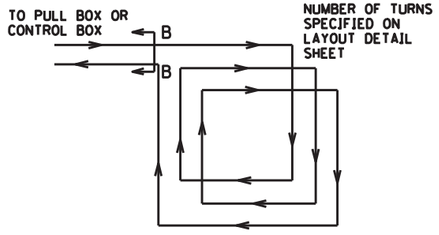
COUNTY OF	ITEM NO.	SHEET NO.

TWIST UNSHIELDED LOOP WIRES (IMSA 51-7) WITH 3 TO 5 TURNS PER FOOT FROM THE START OF THE HOMERUN TO THE JUNCTION BOX, CABINET, OR POLE. SLOT CAN BE WIDEN TO 1/2" to 5/8" TO HELP WITH THE INSTALLATION OF THE TWISTED WIRE.

SECTION B-B (TWIST NOTE)
-FOR CANCELING OUT CROSSTALK

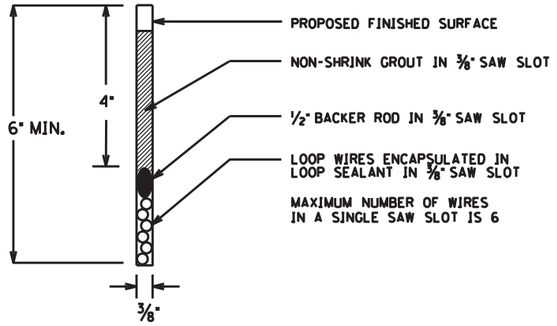


SAW CUT PLAN

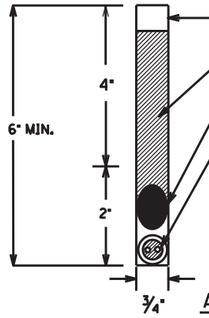


LOOP WIRE PLAN

6'X6' LOOP



SECTION A-A (SAW SLOT DETAIL)



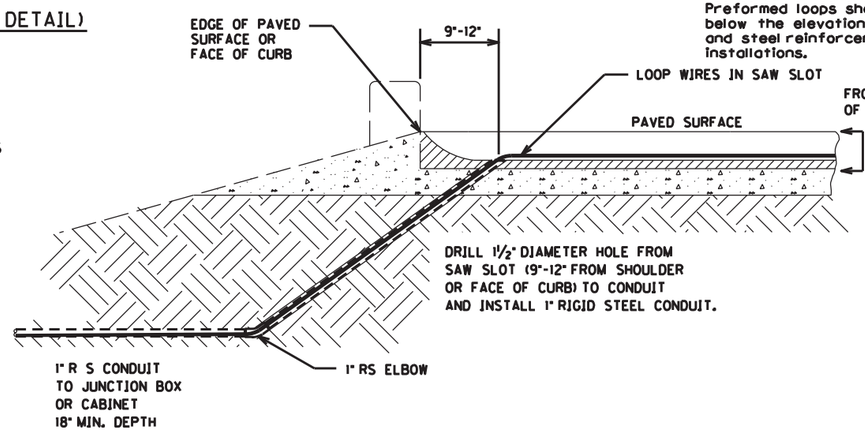
PREFORMED LOOPS SHALL BE CONSTRUCTED WITH 11/16" OR SMALLER HEAVY DUTY REINFORCED RUBBER HOSE (CLASS A OIL RESISANT). THE TEE SHALL BE CONSTRUCTED OF HEAVY DUTY HIGH TEMPERATURE SYNTHETIC RUBBER. STANDARD WIRE SHALL BE WATER RATED #16 THWN OR TFFN.

MAXIMUM NUMBER OF WIRES IN A TUBE PER SLOT IS 4.
MAXIMUM NUMBER OF TUBES PER SLOT IS 1.

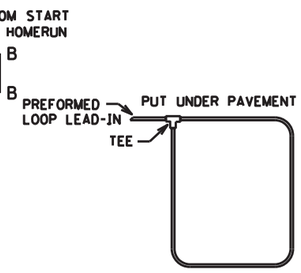
ASPHALT SAW SLOT DETAIL FOR PREFORMED

Use detail for concrete application if concrete is 4" or less. Preformed loops shall not be installed more than twelve inches below the elevation of the final pavement surface. Concrete joints and steel reinforcement shall be located to avoid the preformed loop installations.

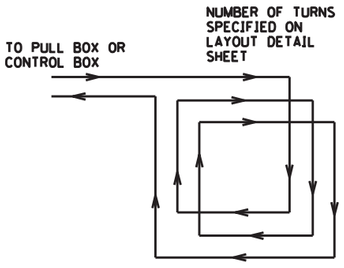
PREFORMED LOOP CROSS SECTION



SAW SLOT EDGE OF PAVEMENT TRANSITION

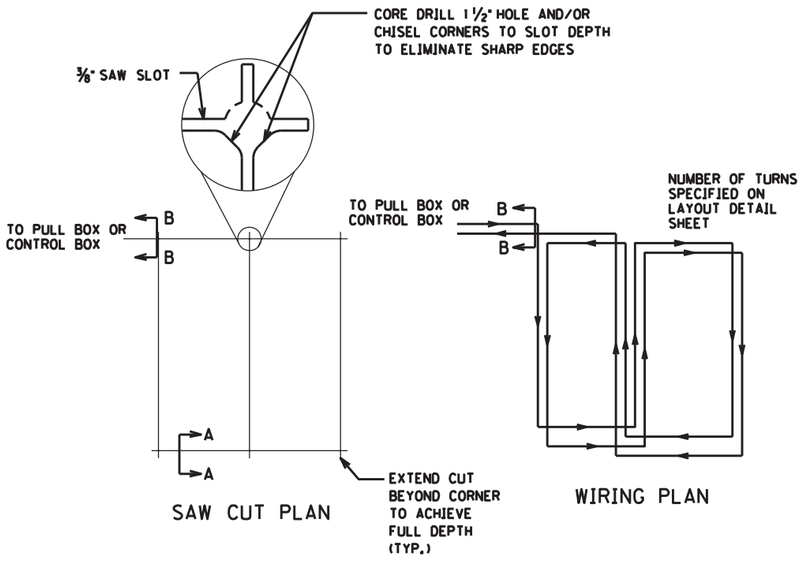


PREFORMED LOOP DIAGRAM



LOOP WIRE PLAN

6'x6' PREFORMED LOOP



SAW CUT PLAN

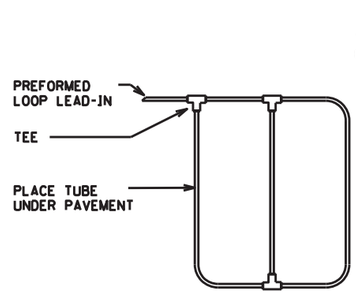
WIRING PLAN

6'X30' QUADRAPOLE LOOP

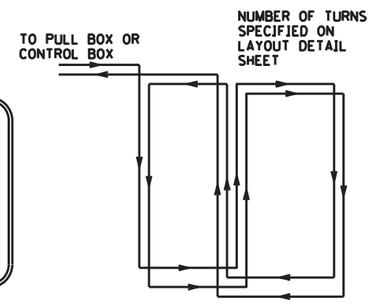
CONSTRUCTION DETAILS FOR LOOP SAW SLOT AND FILL BID ITEM:
THE FOLLOWING IS A TYPICAL STEP BY STEP PROCEDURE FOR THE INSTALLATION OF A LOOP.

- CAREFULLY MARK THE SLOT TO BE CUT, PERPENDICULAR TO THE FLOW OF TRAFFIC AND CENTERED IN THE LANE.
- MAKE EACH SAW-CUT 3/8 INCH WIDE AND AT A DEPTH SUCH THAT THE TOP OF THE BACKER ROD IS A MINIMUM OF 4 INCHES BELOW THE SURFACE OF ASPHALT PAVEMENT.
- DRILL A 1 1/2 INCH CORE HOLE AT EACH CORNER AND USE A CHISEL TO SMOOTHE CORNERS TO PREVENT SHARP BENDS IN THE WIRE.
- CLEAN ALL FOREIGN AND LOOSE MATTER OUT OF THE SLOTS, DRILLED CORES, AND WITHIN 1 FOOT ON ALL SIDES OF THE SLOTS USING A HIGH PRESSURE WASHER.
- COMPLETELY DRY THE SLOTS, DRILLED CORES, AND WITHIN 1 FOOT ON ALL SIDES OF THE SLOTS.
- MEASURE 9-12 INCHES FROM THE EDGE OF THE PAVED SURFACE (SHOULDER BREAK OR FACE OF CURB) AND DRILL A 1 1/2 INCH HOLE ON A 45 DEGREE ANGLE TO THE CONDUIT ADJACENT TO THE ROADWAY.
- CLOSELY INSPECT ALL CUTS, CORES, AND SLOTS FOR JAGGED EDGES OR PROTRUSIONS PRIOR TO THE PLACEMENT OF THE WIRE. ALL JAGGED EDGES AND PROTRUSIONS SHALL BE GROUND OR RE-CUT AND CLEANED AGAIN.
- INSTALL 1" RIGID STEEL CONDUIT IN 45 DEGREE DRILLED SLOT. CONNECT CONDUIT TO 1" RIGID STEEL CONDUIT ADJACENT TO THE ROADWAY WITH RIGID STEEL ELBOW.
- PLACE THE LOOP WIRE SPLICE-FREE FROM THE TERMINATION POINT. SEE SECTION B-B NOTE.
- PUSH THE WIRE INTO THE SAW SLOT WITH A BLUNT OBJECT SUCH AS A WOODEN STICK. MAKE SURE THAT THE LOOP WIRE IS PUSHED FULLY TO THE BOTTOM OF THE SAW SLOT. SCREWDRIVERS SHALL NOT BE USED.
- INSTALL DUCT SEALANT TO A MINIMUM OF 1 INCH DEEP INTO THE CORED 1 1/2 INCH HOLE.
- APPLY LOOP SEALANT FROM THE BOTTOM UP AND FULLY ENCAPSULATE THE LOOP WIRES IN THE SAW SLOT. THE WIRE SHOULD NOT BE ABLE TO MOVE WHEN THE SEALANT HAS SET.
- COVER THE ENCAPSULATED LOOP WIRE WITH A CONTINUOUS LAYER OF BACKER ROD ALONG THE ENTIRE LOOP AND HOME RUN SAW SLOTS SUCH THAT NO VOIDS ARE PRESENT BETWEEN THE LOOP SEALANT AND BACKER ROD.
- FINISH FILLING THE SAW CUT WITH NON-SHRINKABLE GROUT PER MANUFACTURER'S INSTRUCTIONS. ALLEVIATE ALL AIR POCKETS AND REFILL LOW SPACES. THERE SHALL BE NO CONCAVE PORTION TO THE GROUT IN THE SAW SLOT. ANY EXCESS GROUT SHALL BE CLEANED FROM THE ROADWAY TO ALLEVIATE TRACKING.
- CLEAN UP THE SITE AND DISPOSE OF ALL WASTE OFF THE PROJECT.
- ENSURE THAT THE GROUT HAS COMPLETELY CURED PRIOR TO SUBJECTING THE LOOP TO TRAFFIC. CURING TIME VARIES WITH TEMPERATURE AND HUMIDITY.

PREFORMED LOOP LEAD-IN SHALL BE TWISTED WITH THREE TO FIVE TURNS PER FOOT UNTIL TERMINATED AT FIELD CONNECTIONS IN THE CABINET OR CONNECTED TO SHIELDED CABLE.



PREFORMED LOOP DIAGRAM



LOOP WIRE PLAN

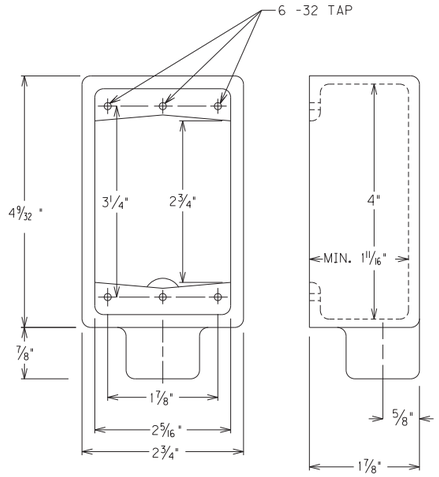
6'x30' QUADRAPOLE PREFORMED LOOP

10/25/2021

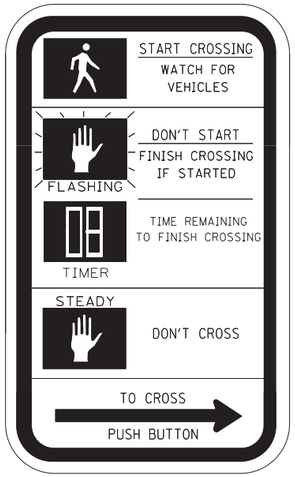
LOOP DETAILS

FILE NAME: C:\PWWORK\TED.SWANSEGAR\DMS28756\04-LOOPS (LP).DGN
USER: Ted.Swansegar
DATE PLOTTED: December 2, 2021
E-SHEET NAME:
Power InRoads v8.11.9.397

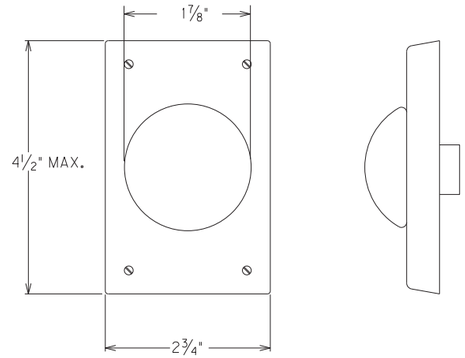
COUNTY OF	ITEM NO.	SHEET NO.



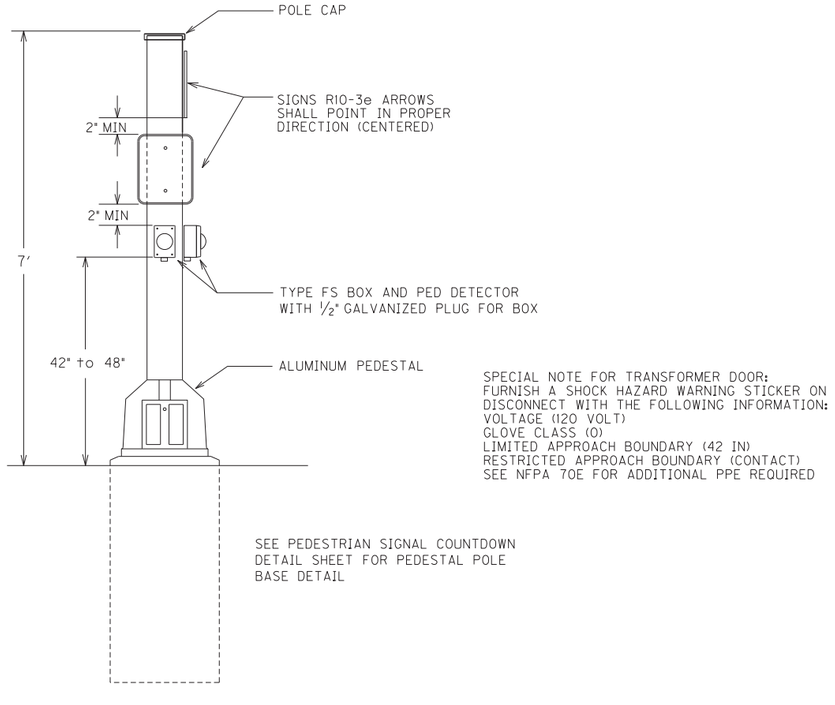
TYPE FS BOX FOR PED DETECTOR FOR USE WITH STEEL STRAIN POLE, WOOD POST, PEDESTAL, AND WOOD POLE



R10-3e SIGN (9" X 15") FOR COUNTDOWN ONLY

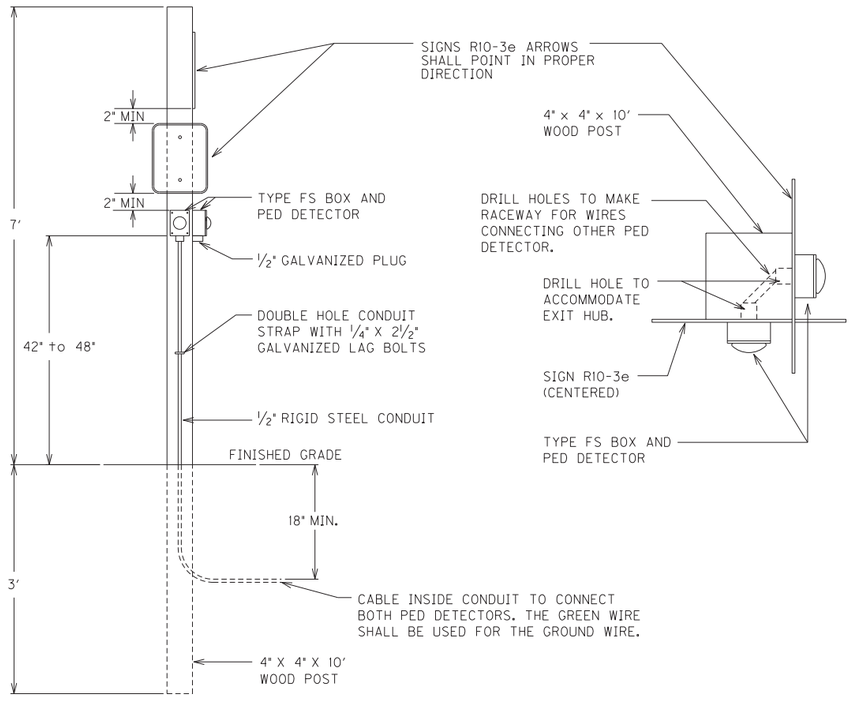


PED DETECTOR



PEDESTAL POST DETAIL FOR PED DETECTORS & SIGNS

#9 X 1 1/2" PAN HEAD OR ROUND HEAD WOOD SCREWS TO SECURE BOX TO POST. MINIMUM OF 2 SCREWS FOR EACH BOX. SCREWS SHALL BE INSTALLED DIAGONALLY.

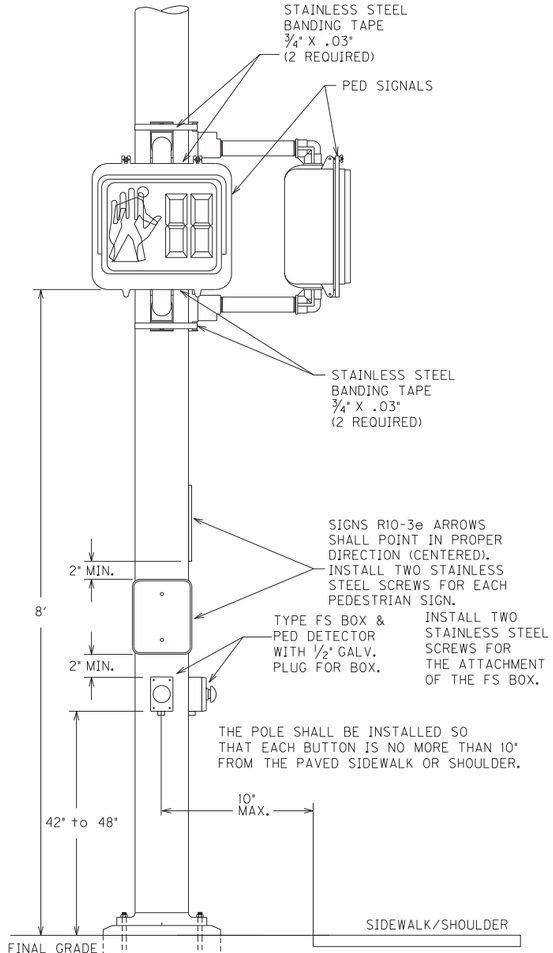


PED DETECTOR ON WOOD POST DETAIL

PEDESTRIAN DETECTOR DETAIL

8/3/2021

COUNTY OF	ITEM NO.	SHEET NO.



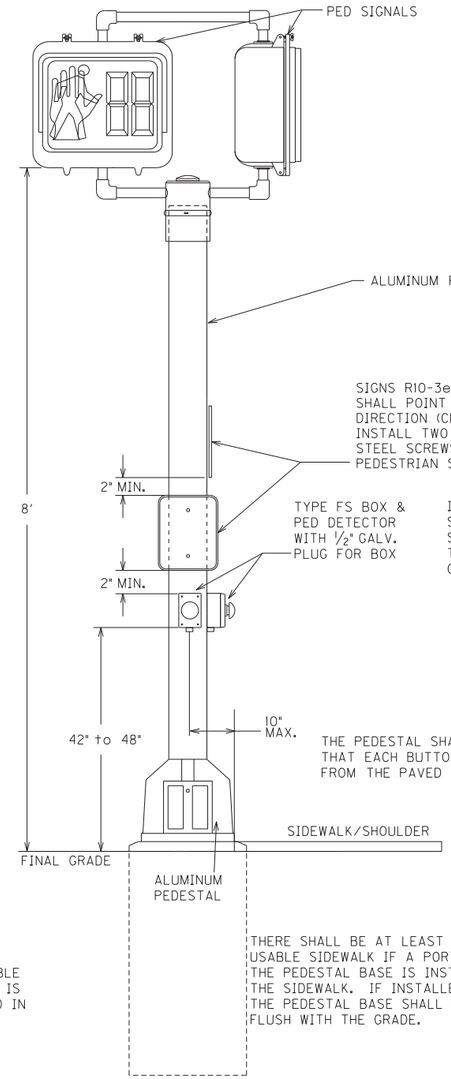
CONTRACTOR SHALL DRILL HOLES IN THE STEEL STRAIN POLE AND THE TYPE FS BOX NOT EXCEEDING ½" IN DIAMETER. CONTRACTOR SHALL USE A ROUND FILE TO REMOVE ALL BURRS AND SHARP EDGES FORM THE HOLES. WIRES SHALL BE PROTECTED WITH HEAT SHRINK TUBING OR VINYL TAPE WHERE THEY PASS THROUGH THE HOLES.

STEEL STRAIN POLE DETAIL FOR PED DETECTORS AND PED SIGNALS

NOTE:

ALL GROUNDING AND SPARE CONDUITS THAT ARE INSTALLED IN THE CONCRETE PEDESTAL POLE BASE ARE INCIDENTAL TO BID ITEM "23222EC". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE CONCRETE BASE. AN ARROW SHALL BE ETCHED INTO THE TOP OF THE PEDESTAL BASE TO SHOW LOCATION AND DIRECTION OF THE SPARE CONDUIT.

THERE SHALL BE A 2.5' (MIN.) X 4' (MIN.) CLEAR SPACE AT ALL PEDESTRIAN BUTTONS PER SECTION 404 OF PROWAG REQUIREMENTS.



CONTRACTOR SHALL DRILL HOLES IN THE PIPE AND THE TYPE FS BOX NOT EXCEEDING ½" IN DIAMETER. CONTRACTOR SHALL USE A ROUND FILE TO REMOVE ALL BURRS AND SHARP EDGES FROM THE HOLES. WIRES SHALL BE PROTECTED WITH HEAT SHRINK TUBING OR VINYL TAPE WHERE THEY PASS THROUGH THE HOLES.

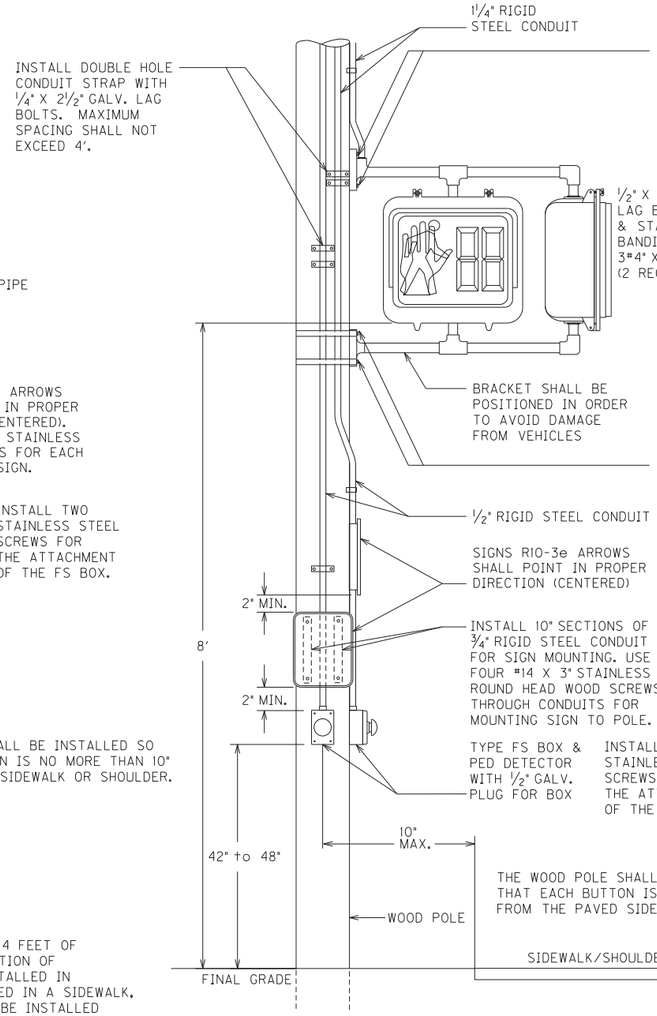
PEDESTAL POLE DETAIL FOR PED DETECTORS AND PED SIGNALS

GROUNDING REQUIREMENTS:

CONTRACTOR SHALL PROVIDE A MINIMUM OF 6 INCHES OF GROUND WIRE FOR TESTING PRIOR TO CONNECTING THE WIRE TO THE TRANSFORMER BASE.

LEAVE TOP OF GROUND RODS EXPOSED FOR ELECTRICAL INSPECTION.

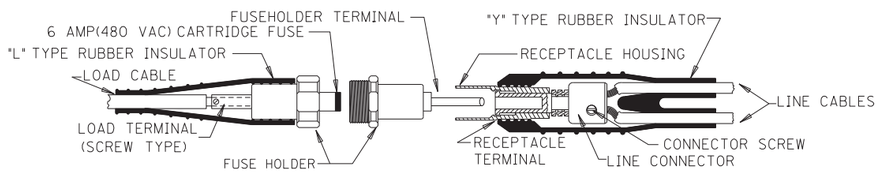
PEDESTAL POLE GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO A GROUND LUG ON THE TRANSFORMER BASE AND THEN TO EACH RIGID STEEL GROUNDING BUSHING.
ALL GROUND RODS SHALL BE 24" FROM THE CONCRETE POLE BASE.



#9 X 1½" STAINLESS STEEL PAN HEAD OR ROUND HEAD WOOD SCREWS SHALL BE USED TO SECURE TYPE FS BOX TO POLE. A MINIMUM OF 2 SCREWS PER BOX, INSTALLED DIAGONALLY, SHALL BE USED.

WOOD POLE DETAIL FOR PED DETECTORS AND PED SIGNALS

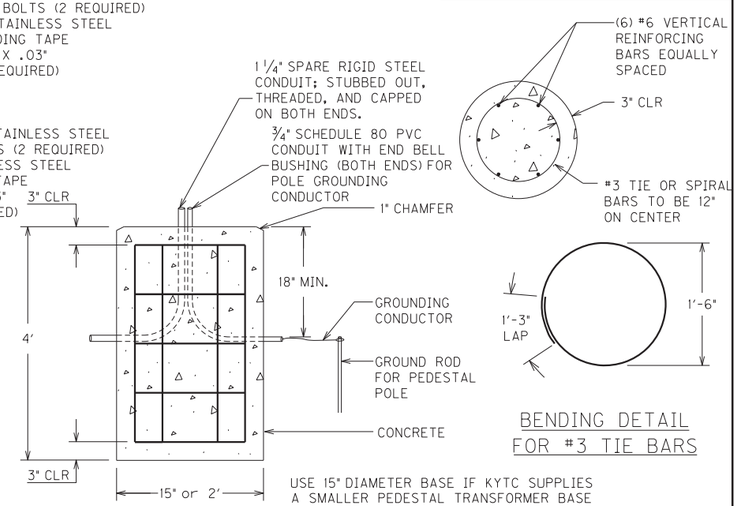
BREAKAWAY FUSE CONNECTOR KIT



DETAILS OF TYPE HEB-JW-RYC CONNECTOR

TYPE HEB-JW-RYC CONNECTOR SHOWN

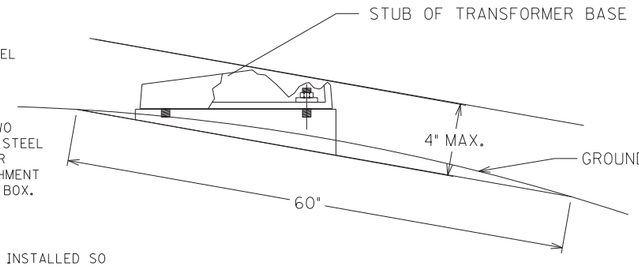
SPECIAL NOTE FOR THE TRANSFORMER BASE: FUSED CONNECTOR KITS SHALL BE INSTALLED FOR ALL 120 VOLT WIRING IN TRANSFORMER BASES. THIS WILL ONLY BE NEEDED FOR PEDESTRAIN HEADS AND SIGNALS HEADS. PEDESTRAIN DETECTORS DO NOT REQUIRE FUSED CONNECTOR KITS. CONTRACTOR CAN USE ONE KIT FOR A COMMON NEUTRAL FOR ALL DEVICESIN THE TRANSFORMER BASE. THERE SHALL BEA METAL LUG INSTALLED IN THE NEUTRAL WIRE KIT INSTEAD OF A FUSE.



BENDING DETAIL FOR #3 TIE BARS

USE 15" DIAMETER BASE IF KYTC SUPPLIES A SMALLER PEDESTAL TRANSFORMER BASE

PEDESTAL POLE BASE DETAIL



THE ANCHOR BOLTS AND CONDUITS SHALL NOT BE PROJECTED MORE 4 INCHES ABOVE A GROUND LINE BETWEEN THE STRADDLING WHEELS OF A VEHICLE.

BREAKAWAY SUPPORT STUB HEIGHT MEASUREMENT

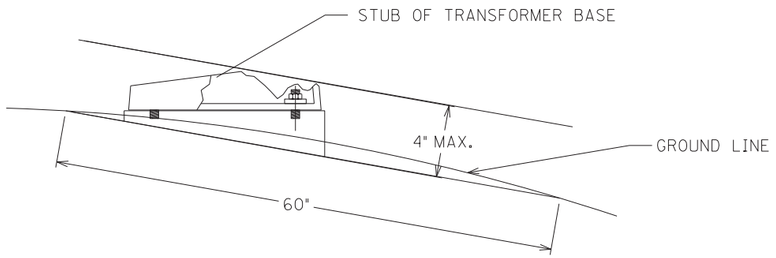
NOTE:
THE PEDESTAL BASE DOOR SHALL HAVE A 4" BY 6" SHOCK HAZARD WARNING STICKER (IF SMALLER TRANSFORMER BASE IS INSTALLED USE A 2" BY 3" INSTEAD). INSTALL 3" FROM THE TOP OF THE DOOR. THE STICKER SHALL BE METALCRAFT PLY695 PREM STYLEMARK LABEL WITH .007 THICKNESS, WITH UV WHITE POLYCARBONATE MATERIAL, AND WITH MC53FL PRESSURE SENSITIVE ADHESIVE OR APPROVAL EQUAL. THIS SHALL BE INCIDENTAL TO THE PROJECT.

SPECIAL NOTE FOR THE TRANSFORMER BASE:
FURNISH A SHOCK HAZARD WARNING STICKER ON DISCONNECT WITH THE FOLLOWING INFORMATION:
VOLTAGE (120 VOLT)
GLOVE CLASS (0)
LIMITED APPROACH BOUNDARY (42 IN)
RESTRICTED APPROACH BOUNDARY (CONTACT)
SEE NFPA 70E FOR ADDITIONAL PPE REQUIRED

8/19/2021

PEDESTRIAN SIGNAL COUNTDOWN DETAIL

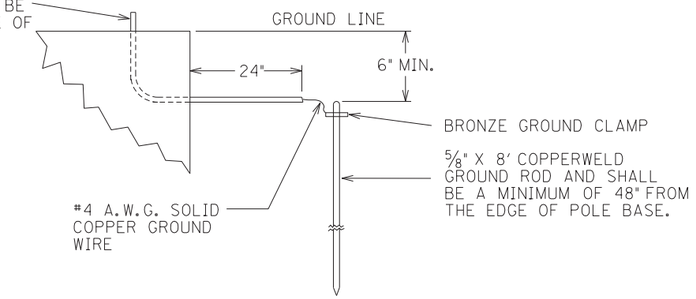
COUNTY OF	ITEM NO.	SHEET NO.



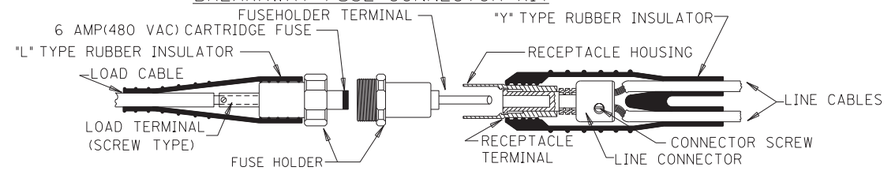
THE ANCHOR BOLTS AND CONDUITS SHALL NOT BE PROJECTED MORE 4 INCHES ABOVE A GROUND LINE BETWEEN THE STRADDLING WHEELS OF A VEHICLE.

BREAKAWAY SUPPORT STUB HEIGHT MEASUREMENT

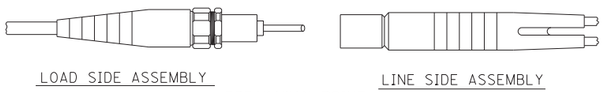
GROUNDING DETAIL



BREAKAWAY FUSE CONNECTOR KIT

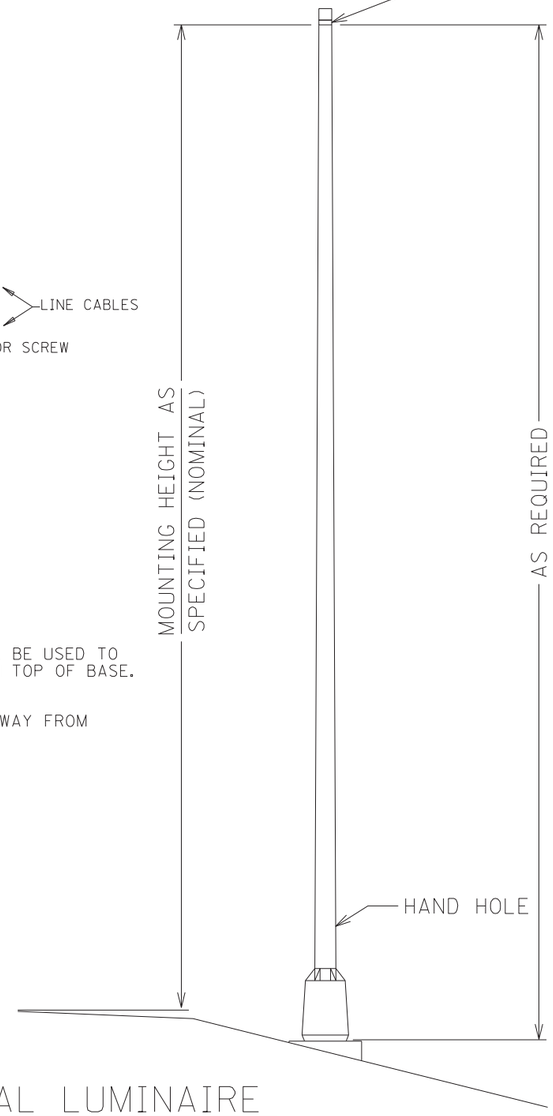


DETAILS OF TYPE HEB-JW-RYC CONNECTOR



TYPE HEB-JW-RYC CONNECTOR SHOWN

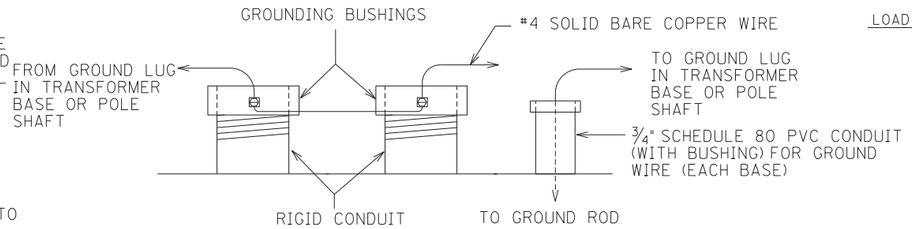
ALUMINUM POLE CAP WITH STAINLESS STEEL SET SCREWS



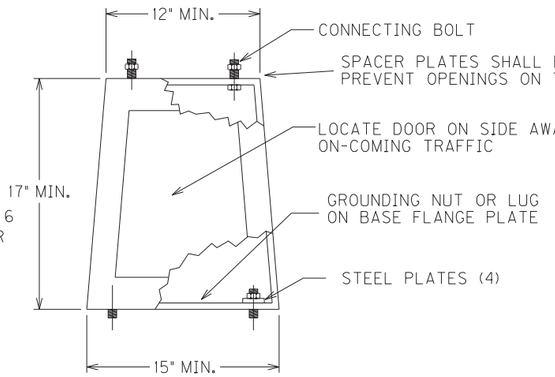
SIGNAL LUMINAIRE

DUCTED CABLE INSTALLED THROUGH 3" CONDUIT CROSSINGS TO LUMINAIRE POLE BASE: INSTALL DUCTED CABLE INTO THE POLE BASE. THE DUCT SHOULD BE EXTENDED 1" ABOVE THE CONDUIT. THE CONDUIT SWEEP SHOULD BE INSTALL ACCORDING TO THE MANUFACTURER OF THE DUCTED CABLE TO PREVENT THE DUCTED CABLE FROM CRIMPING.

IF DUCTED CABLE INSTALLED BETWEEN POLE BASES:
INSTALL RIGID STEEL/DUCTED CABLE COUPLING. USE BONDUIT CONDUIT ADHESIVE OR APPROVED EQUAL TO CONNECT THE RIGID STEEL TO DUCTED CABLE. RACEWAYS SHALL BE THE SAME SIZE AS THE DUCTED CABLE WHICH ATTACHS TO THE RIGID STEEL CONDUIT. ALTERNATELY IF DUCTED CABLE IS USED, THE CONTRACTOR CAN INSTALL RIGID STEEL CONDUIT TWO TIMES THE SIZE OF THE DUCT AND RUN THE DUCT INSIDE THIS CONDUIT. THE SWEEP FOR THE CONDUIT SHALL BE INCREASED TO ADHERE TO THE BENDING RADIUS RECOMMENDED BY THE MANUFACTURER OF THE DUCT.



TYPICAL GROUNDING DETAIL



GROUNDING REQUIREMENTS:

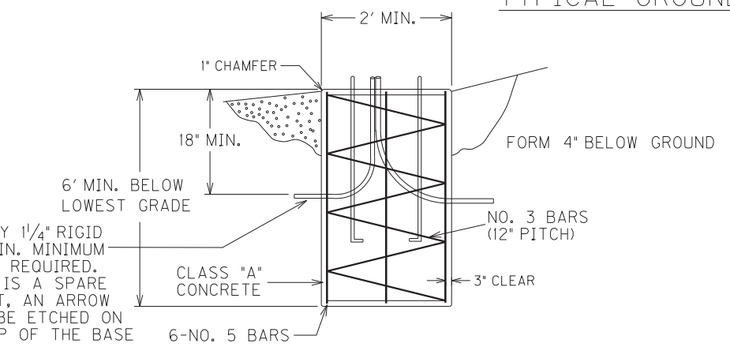
CONTRACTOR SHALL PROVIDE A MINIMUM OF 6 INCHES OF GROUND WIRE FOR TESTING PRIOR TO CONNECTING THE WIRE TO TRANSFORMER BASE.

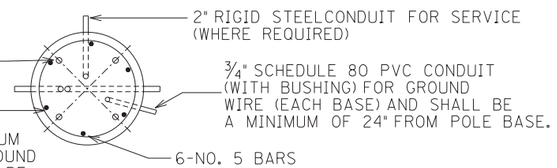
POLE/TRANSFORMER BASE GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE TRANSFORMER BASE/POLE AND THEN TO EACH RIGID STEEL GROUNDING BUSHING.

NOTES:

ALL CONDUITS USED FOR THE GROUNDING, SPARES AND CONDUCTORS THAT ARE INSTALLED IN THE POLE BASE ARE INCIDENTAL TO BID ITEM "4740". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE POLE BASE.

CONCRETE BASES SHALL BE POURED LEVEL. NO MORE THAN A ⅜" GAP SHALL EXIST BETWEEN CONCRETE BASE AND TRANSFORMER BASE WHEN THE POLE IS PLUMBED.





ALL POLE BASES SHALL HAVE A MINIMUM OF TWO CONDUITS (NOT INCLUDING GROUND CONDUIT). THE SPARE CONDUIT SHALL BE 180 DEGREE FROM THE CONDUIT FOR THE CONDUCTORS.

NOTE: PRECAST CONCRETE BASES ARE NOT ACCEPTABLE

FOUNDATION DETAIL

TYPICAL CAST ALUMINUM TRANSFORMER BASE

NOTE:
THE TRANSFORMER BASE DOOR SHALL HAVE A 4" BY 6" SHOCK HAZARD WARNING STICKER INSTALL 3" FROM THE TOP OF THE DOOR. THE STICKER SHALL BE METALCRAFT PLY695 PREM STYLEMARK LABEL WITH .007 THICKNESS, WITH UV WHITE POLYCARBINATE MATERIAL, AND WITH MC53FL PRESSURE SENSTIVE ADHESIVE OR APPROVAL EQUAL. THIS SHALL BE INCIDENTAL TO PROJECT.

SPECIAL NOTE FOR THE TRANSFORMER BASE:
FURNISH A SHOCK HAZARD WARNING STICKER ON DISCONNECT WITH THE FOLLOWING INFORMATION:
VOLTAGE (120 VOLT)
GLOVE CLASS (0)
LIMITED APPROACH BOUNDARY (42 IN)
RESTRICTED APPROACH BOUNDARY (CONTACT)
SEE NFPA 70E FOR ADDITIONAL PPE REQUIRED

SIGNAL
TRANSFORMER BASE DETAIL

1/30/2020

COUNTY OF	ITEM NO.	SHEET NO.

NOTES:

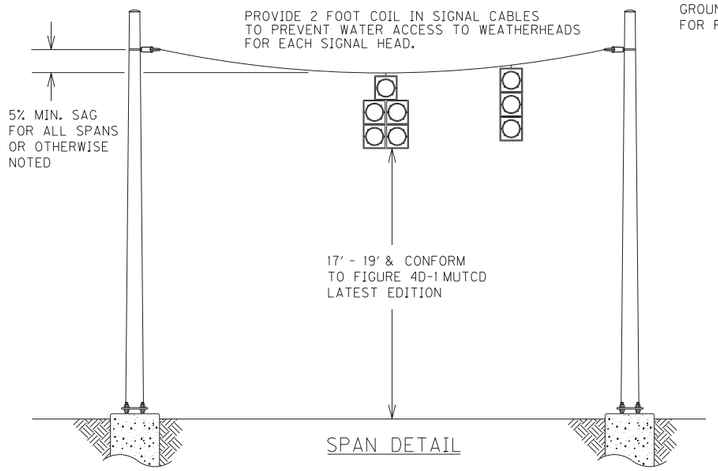
ALL CONDUITS USED FOR THE TELEPHONE, GROUNDING, SPARE, AND SERVICE THAT ARE INSTALLED IN THE POLE BASE ARE INCIDENTAL TO BID ITEM "23157EN". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE CONCRETE POLE BASE.

ALL CONDUITS SHALL BE INSTALLED BETWEEN 4 TO 6 INCHES ABOVE THE CONCRETE PAD, AND THEY CANNOT EXCEED THE 6 INCH HEIGHT.

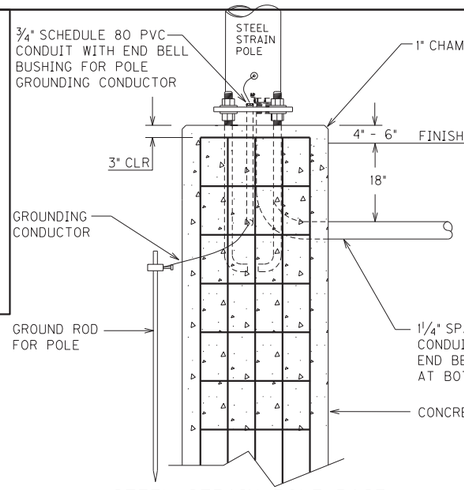
FOR POLE BASE DEPTH SEE CHART IN SECTION 723 OF THE KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

OVERHEAD SERVICE WIRES SHALL BE INSTALLED ON THE EXTERIOR OF THE POLE IN A 1" RIGID STEEL CONDUIT WITH WEATHERHEAD, OR ON THE INSIDE THE STEEL STRAIN POLE IN FLEXIBLE CONDUIT.

UNDERGROUND SERVICE WIRES SHALL BE INSTALLED IN 1" RIGID STEEL CONDUIT AS SHOWN ON THE CONTROLLER CABINET DETAIL SHEET.

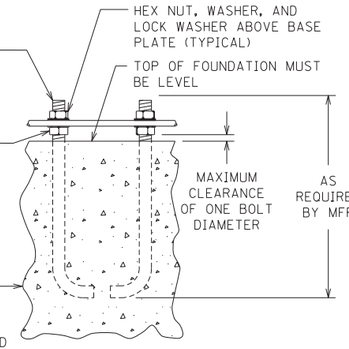


SPAN DETAIL



STEEL STRAIN POLE BASE WITH POLE GROUND DETAIL

NOTE:
THE STEEL STRAIN DOOR SHALL HAVE A 4" BY 6" SHOCK HAZARD WARNING STICKER INSTALL 3" FROM THE TOP OF THE DOOR. THE STICKER SHALL BE METALCRAFT PLY695 PREM STYLEMARK LABEL WITH .007 THICKNESS, WITH UV WHITE POLYCARBONATE MATERIAL, AND WITH MC53FL PRESSURE SENSTIVE ADHESIVE OR APPROVED EQUAL. THIS SHALL BE INCIDENTAL TO THE PROJECT.



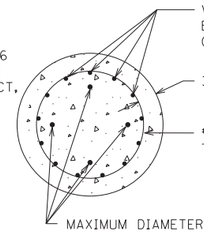
GROUNDING REQUIREMENTS:

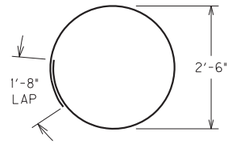
CONTRACTOR SHALL PROVIDE A MINIMUM OF 6 INCHES OF GROUND WIRE FOR TESTING PRIOR TO CONNECTING THE WIRE TO ANY DISCONNECT, CABINET OR POLE.

LEAVE TOP OF GROUND RODS EXPOSED FOR ELECTRICAL INSPECTION.

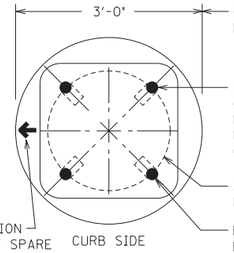
POLE GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE POLE AND THEN TO EACH RIGID STEEL GROUNDING BUSHING.

ALL GROUND RODS SHALL BE 24" FROM THE CONCRETE POLE BASE.

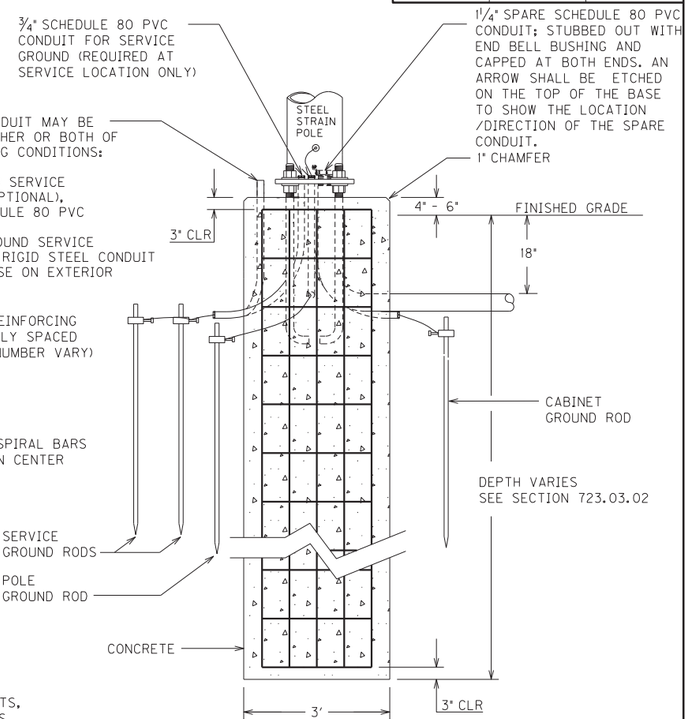




BENDING DETAIL FOR TIE BARS



IF ANCHOR BOLTS ARE STRAIGHT NOT BEND, THE METAL TEMPLATE SHALL BE INSTALLED FOR STRUCTURAL INTEGRITY.



STEEL STRAIN POLE BASE WITH SERVICE, POLE, AND POLE MOUNTED CABINET GROUNDING DETAILS

CLAMP ASSEMBLY SPECIFCATIONS

CLAMP ASSEMBLIES MUST BE DESIGNED IN ACCORDANCE TO THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, SIXTH EDITION 2013. ADDITIONAL DESIGN PROVISIONS NOT ADDRESSED IN THE AFOREMENTIONED CODE SHALL BE OBTAINED FROM THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES (2002). CLAMP ASSEMBLIES SHALL CONFORM TO SECTION 835.07.01 AND THE DRAWINGS SHOWN ON THIS STANDARD.
MATERIALS:

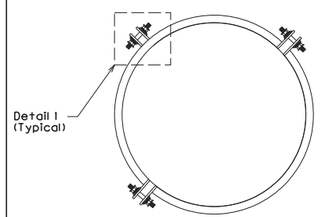
CLAMP/CLEVIS- ASTM A36 (GRADE 36)/ASTM A572 (GRADE 50)

BOLTS (EXCEPT U- BOLTS)- HIGH STRENGTH ASTM A325,
ASTM A449, OR ASTM A490

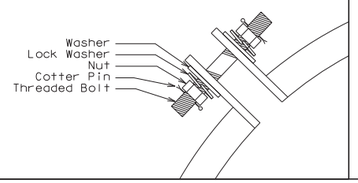
U- BOLTS- MINIMUM ASTM A36

GALVANIZING- ASTM A153

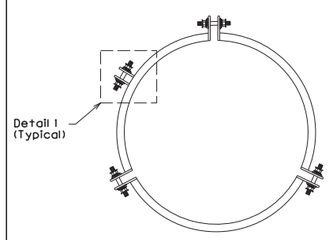
Clamp Assembly Alt. 1



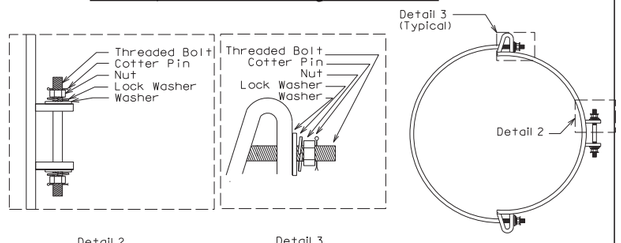
Detail 1



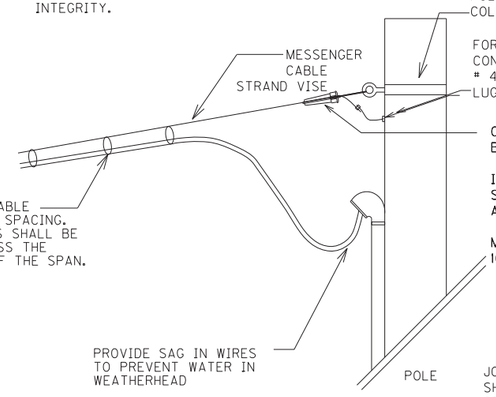
Clamp Assembly Alt. 2



Clamp Assembly Alt. 3

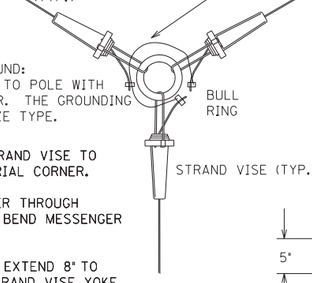


Detail 2 Detail 3



SPAN WIRE DETAIL

SPECIAL NOTE FOR POLE DOOR:
FURNISH A SHOCK HAZARD WARNING STICKER ON DISCONNECT WITH THE FOLLOWING INFORMATION:
VOLTAGE (120 VOLT)
GLOVE CLASS (0)
LIMITED APPROACH BOUNDARY (42 IN)
RESTRICTED APPROACH BOUNDARY (CONTACT)
SEE NFPA 70E FOR ADDITIONAL PPE REQUIRED



DROP BOX AERIAL CORNER DETAIL

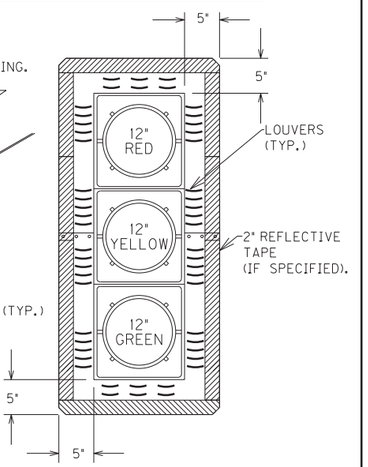
JOHNNYBALLS OR STRAIN ISOLATORS SHALL NOT BE USED ON THE ATTACHMENT OF THE SPAN WIRE TO THE POLE.

INSTALL MESSENGER THROUGH STRAND VISE AND BEND MESSENGER AT EXIT POINT.

MESSENGER SHALL EXTEND 8" TO 10" BEYOND THE STRAND VISE YOKE.

THERE SHALL BE A SEPARATE COLLAR USED FOR EACH SPAN.

FOR EQUIPMENT GROUND:
CONNECT SPAN WIRES WITH # 4AWG BARE COPPER AT BULL RING. THE GROUNDING LUG SHALL BE BRONZE TYPE.



BACKPLATE DETAIL

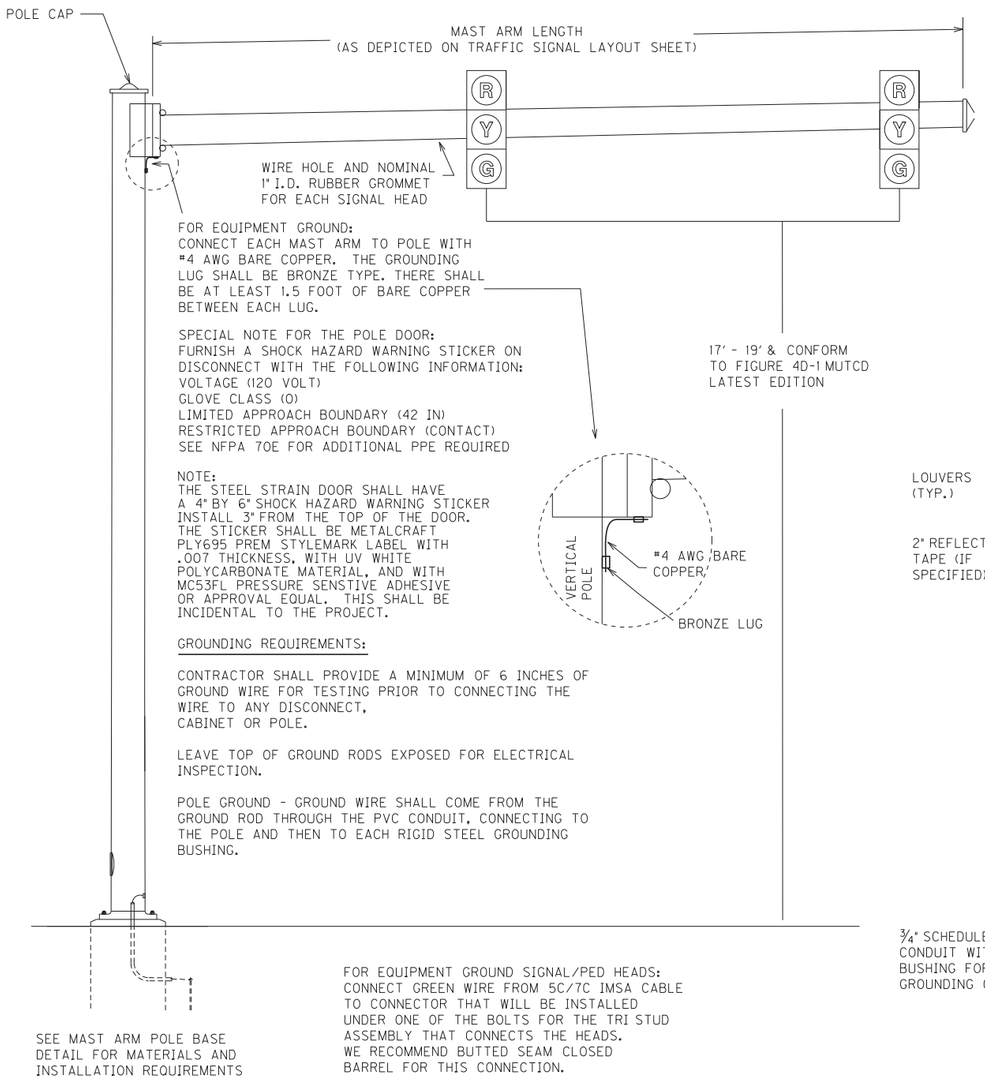
FOR EQUIPMENT GROUND SIGNAL/PED HEADS:
CONNECT GREEN WIRE FROM 5C/7C IMSA CABLE TO CONNECTOR THAT WILL BE INSTALLED UNDER ONE OF THE BOLTS FOR THE TRI STUD ASSEMBLY THAT CONNECTS THE HEADS. WE RECOMMEND BUTTED SEAM CLOSED BARREL FOR THIS CONNECTION.

POLE BASE/SIGNAL HEAD DETAILS

4/15/2021

FILE NAME: C:\PWWORK\TED.SWANSEGAR\D1914903\07-POLES (POL).DGN
USER: Ted.Swansegar
DATE PLOTTED: April 15, 2021
E-SHEET NAME:
MicroStation v8.11.9.832

COUNTY OF	ITEM NO.	SHEET NO.



MONOTUBE MAST ARM POLE DETAIL

NOTES:

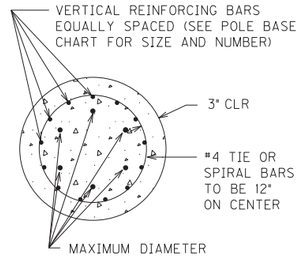
ALL CONDUITS USED FOR THE TELEPHONE, GROUNDING, SPARE, AND SERVICE THAT ARE INSTALLED IN THE POLE BASE ARE INCIDENTAL TO BID ITEM "23157EN". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE CONCRETE POLE BASE.

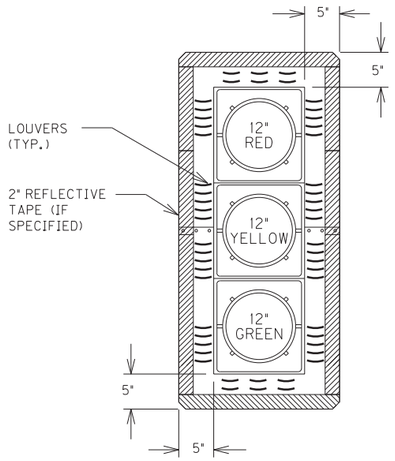
ALL CONDUITS SHALL BE INSTALLED 6 INCHES ABOVE THE CONCRETE POLE BASE.

FOR POLE BASE DEPTH SEE CHART IN SECTION 723 OF THE KENTUCKY STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.

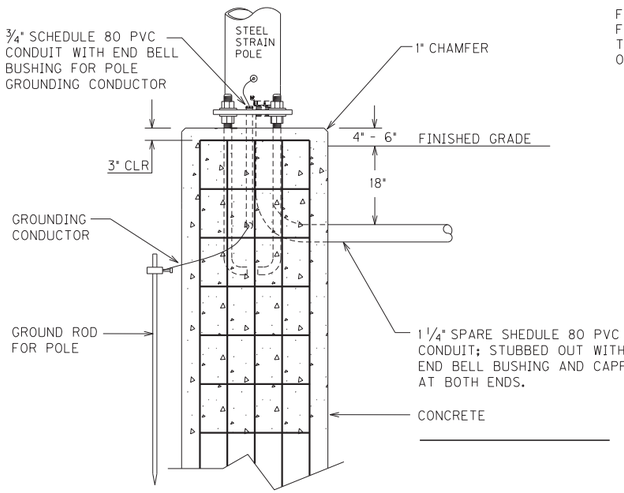
OVERHEAD SERVICE WIRES SHALL BE INSTALLED ON THE EXTERIOR OF THE POLE IN A ¾" RIGID STEEL CONDUIT WITH WEATHERHEAD, OR ON THE INSIDE THE STEEL STRAIN POLE IN FLEXIBLE CONDUIT.

UNDERGROUND SERVICE WIRES SHALL BE INSTALLED IN ¾" RIGID STEEL CONDUIT AS SHOWN ON THE CONTROLLER CABINET DETAIL SHEET.

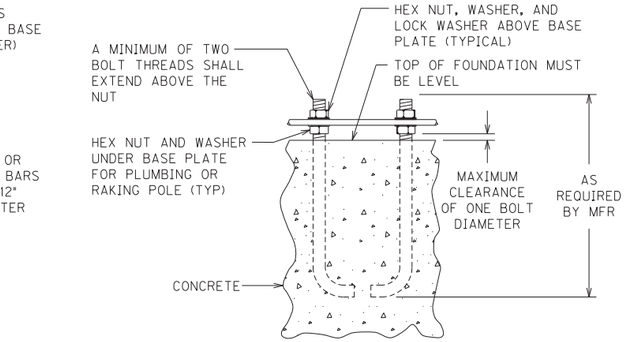


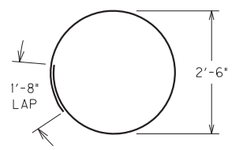


BACKPLATE DETAIL

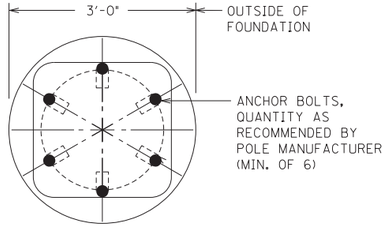


MAST ARM POLE BASE
WITH POLE GROUND DETAIL

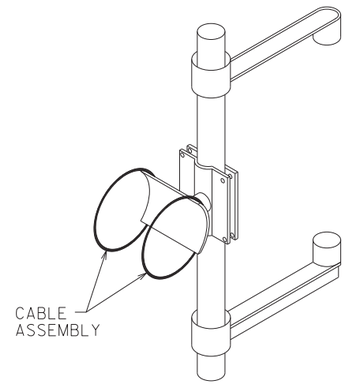




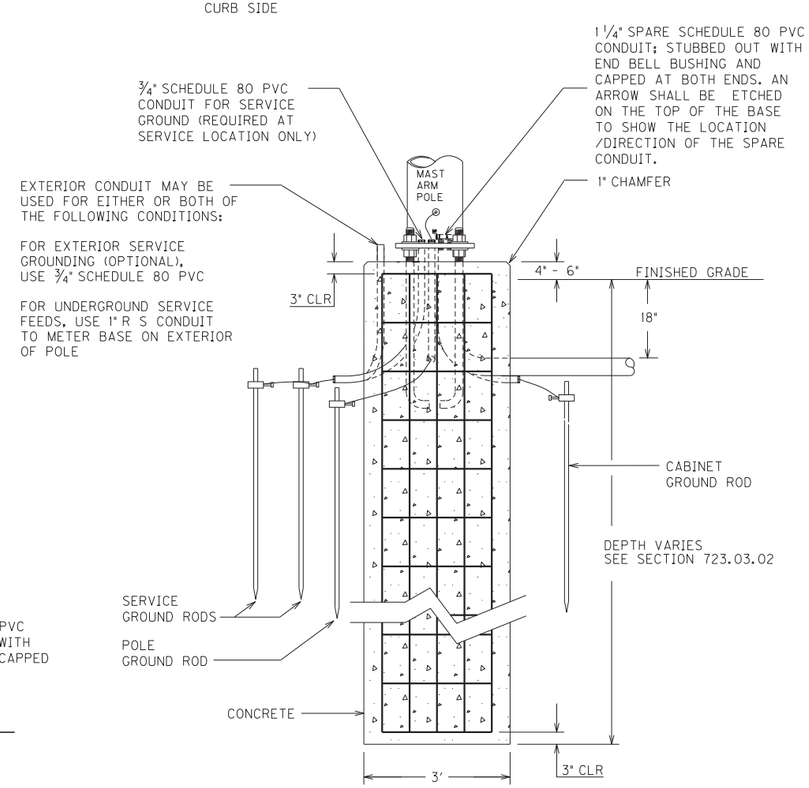
BENDING DETAIL
FOR TIE BARS



CURB SIDE



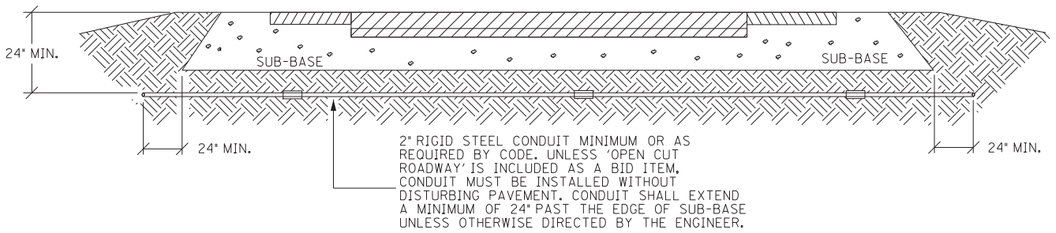
BRACKET ASSEMBLY FOR MOUNTING
SIGNAL HEADS ON MAST ARMS



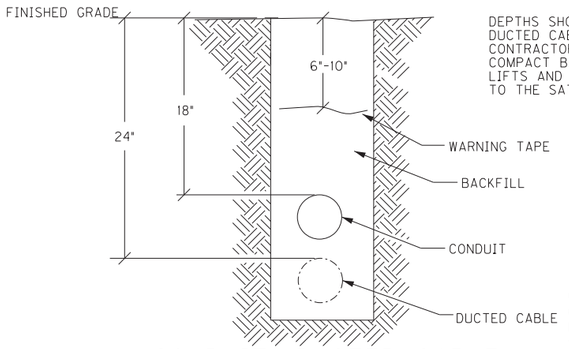
MAST ARM POLE BASE WITH SERVICE, POLE,
AND POLE MOUNTED CABINET GROUNDING DETAILS

MAST ARM POLE DETAILS

8/31/2021



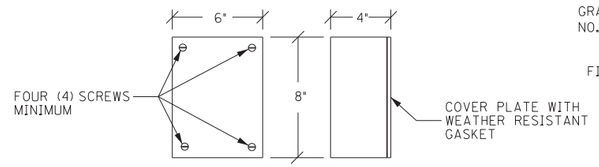
CONDUIT INSTALLATION UNDER EXISTING PAVEMENT DETAIL



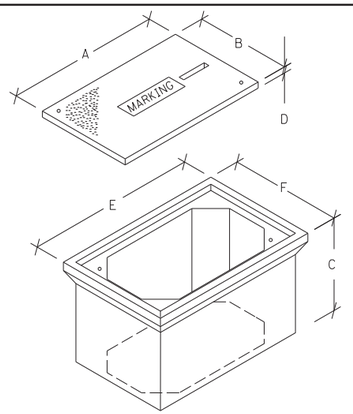
DEPTHS SHOWN FOR CONDUIT AND DUCTED CABLE ARE MINIMUMS. CONTRACTOR SHALL PLACE AND COMPACT BACKFILL IN 9" MAXIMUM LIFTS AND RETORE DISTURBED AREA TO THE SATISFACTION OF THE ENGINEER,

CONDUIT, DUCTED CABLE, AND WARNING TAPE TRENCH

ABOVE GROUND BOX SHALL BE FABRICATED FROM MINIMUM 12 GAUGE STEEL AND GALVANIZED AFTER FABRICATION. BOXES SHALL HAVE NO KNOCKOUTS AND SHALL BE PROVIDED WITH A PLATE COVER WITH A WEATHER RESISTANT GASKET AND A MINIMUM OF FOUR SCREWS FOR ATTACHING THE PLATE COVER TO THE BOX. CABLE CLAMPS SHALL BE PROVIDED FOR CABLES ENTERING AND EXITING THE BOX.

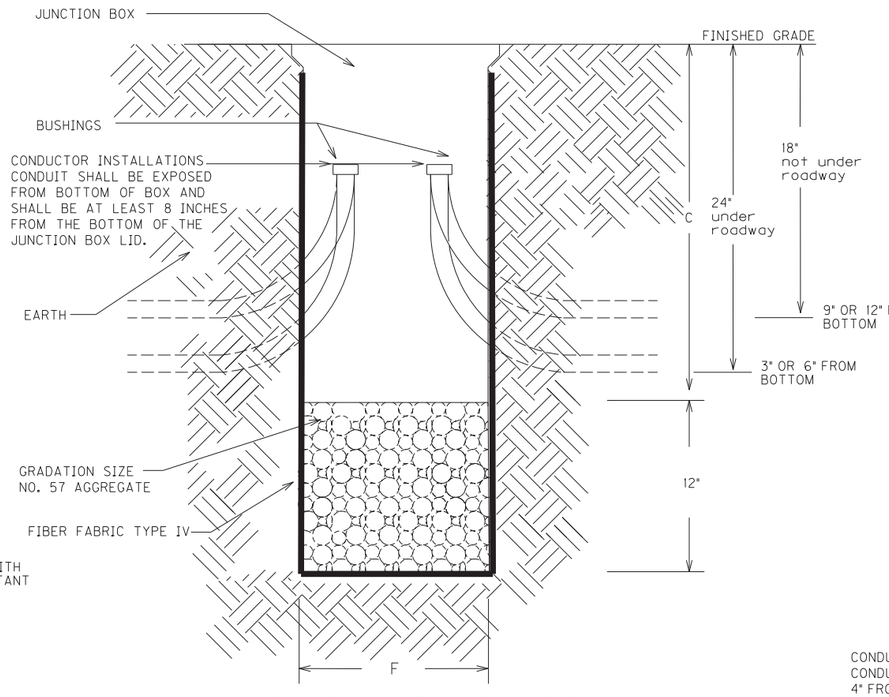


ABOVE GROUND BOX



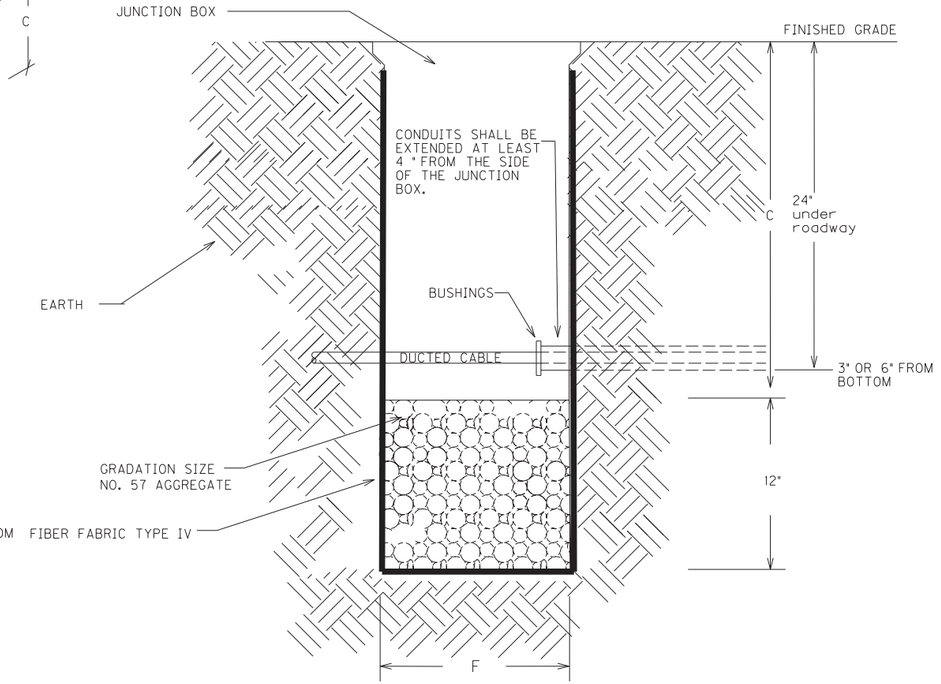
JUNCTION BOX DIMENSIONS (NOMINAL)						
	A	B	C	D	E	F
TYPE A	23"	14"	27"	2"	25"	15"
TYPE B	18"	11"	12"	1¾" •	20"	13"
TYPE C	36"	24"	30"	3"	38"	26"

• MINIMUM
NOTE: STACKABLE BOXES ARE PERMITTED

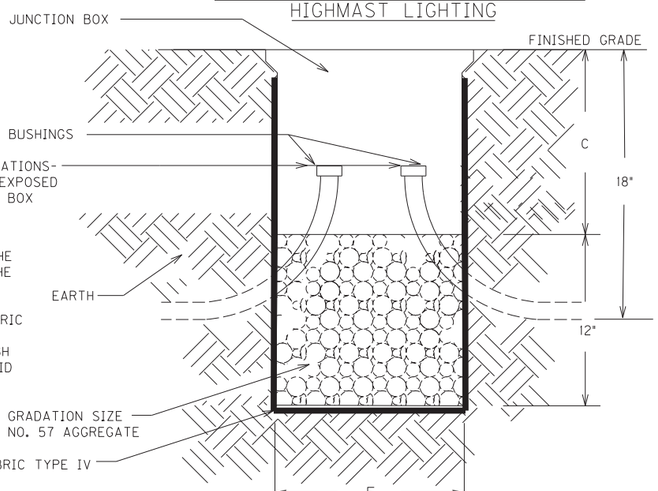


JUNCTION BOX INSTALLATION FOR CONVENTIONAL LIGHTING

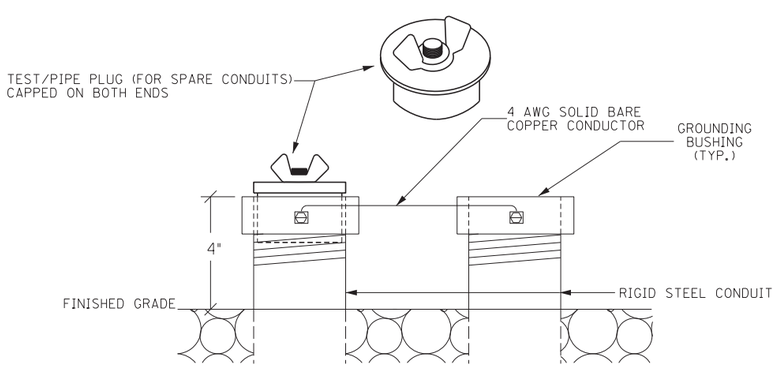
BEFORE THE INSTALLATION OF THE #57 AGGREGATE AND JUNCTION BOX, THE CONTRACTOR SHALL INSTALL GEOTEXTILE FILTER FABRIC TYPE IV IN THE HOLE. THE FABRIC SHALL EXTEND TO JUST BELOW THE LIP OF THE JUNCTION BOX AND SHALL BE CONTINUOUSLY ADHERED TO THE EXTERIOR OF THE BOX WITH ADHESIVE. ANY LOCATIONS WHERE CONDUITS ENTER THE BOX, THE FABRIC SHALL BE "X CUT" ONLY AS MUCH AS NECESSARY TO ALLOW PASSAGE OF EACH INDIVIDUAL CONDUIT THROUGH THE FABRIC. THE FABRIC SHALL BE INCIDENTAL TO BID ITEMS 4811, 2039INS835, OR 20392NS835.



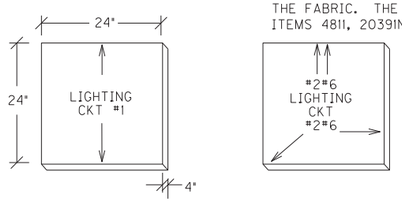
JUNCTION BOX INSTALLATION FOR HIGHMAST LIGHTING



JUNCTION BOX INSTALLATION FOR TRAFFIC SIGNALS



TEST/PIPE PLUG(FOR SPARE CONDUITS) AND GROUNDING DETAIL



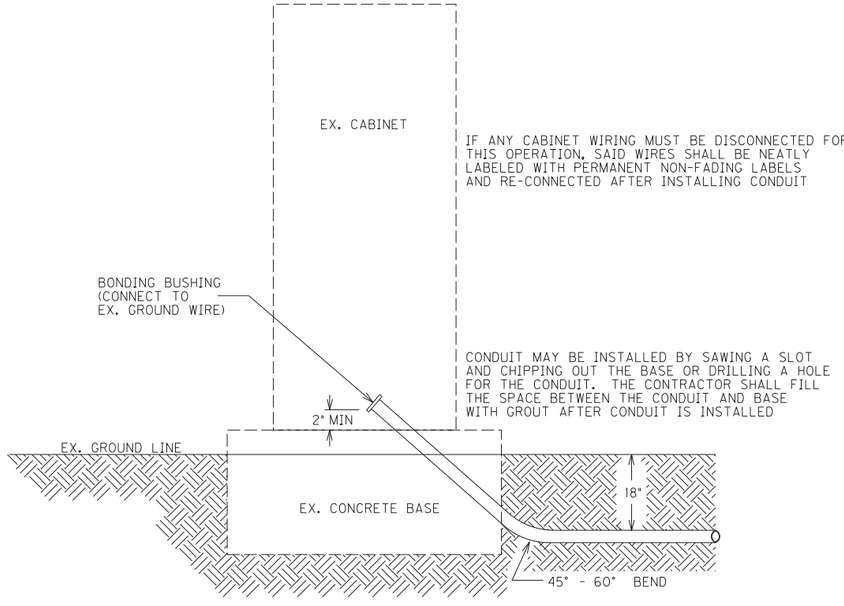
CONCRETE CABLE MARKERS

COUNTY OF	ITEM NO.	SHEET NO.

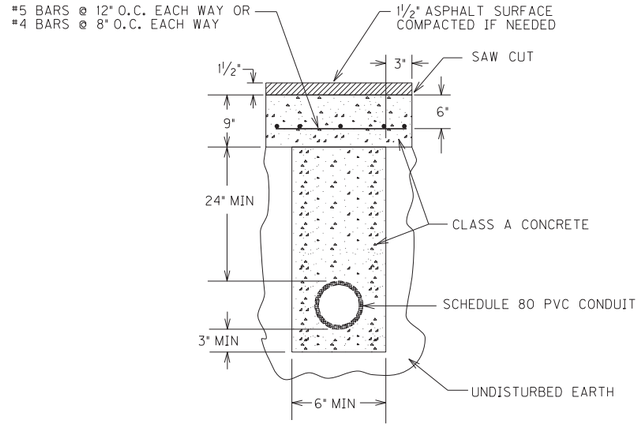
TRAFFIC SIGNAL AND ROADWAY LIGHTING JUNCTION BOX AND CONDUIT DETAILS

3/13/2017

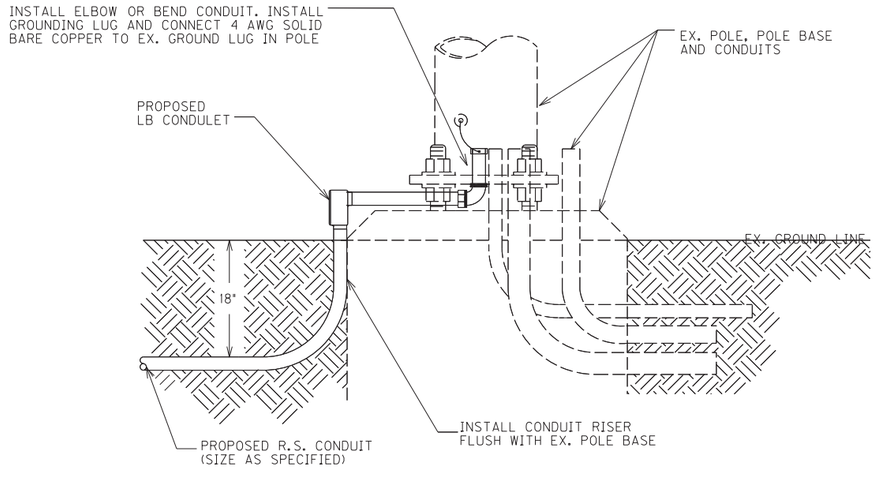
COUNTY OF	ITEM NO.	SHEET NO.



CONDUIT INSTALLATION IN EX. CABINET BASE



OPEN CUT PAVEMENT DETAIL

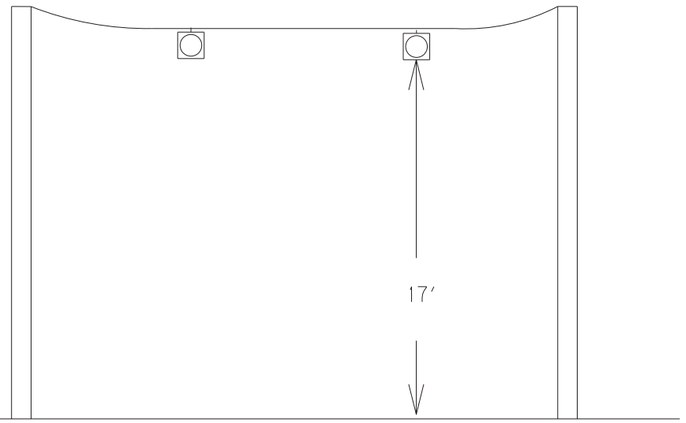


CONDUIT INSTALLATION IN EX. POLE BASE

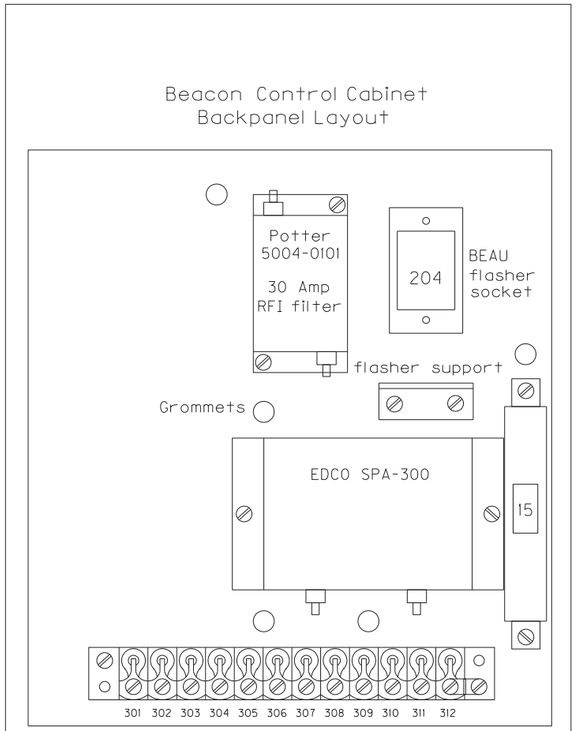
CONDUIT INSTALLATIONS IN EXISTING LOCATIONS

3/10/2017

COUNTY OF	ITEM NO.	SHEET NO.



BEACON FLASHER SPAN DETAIL

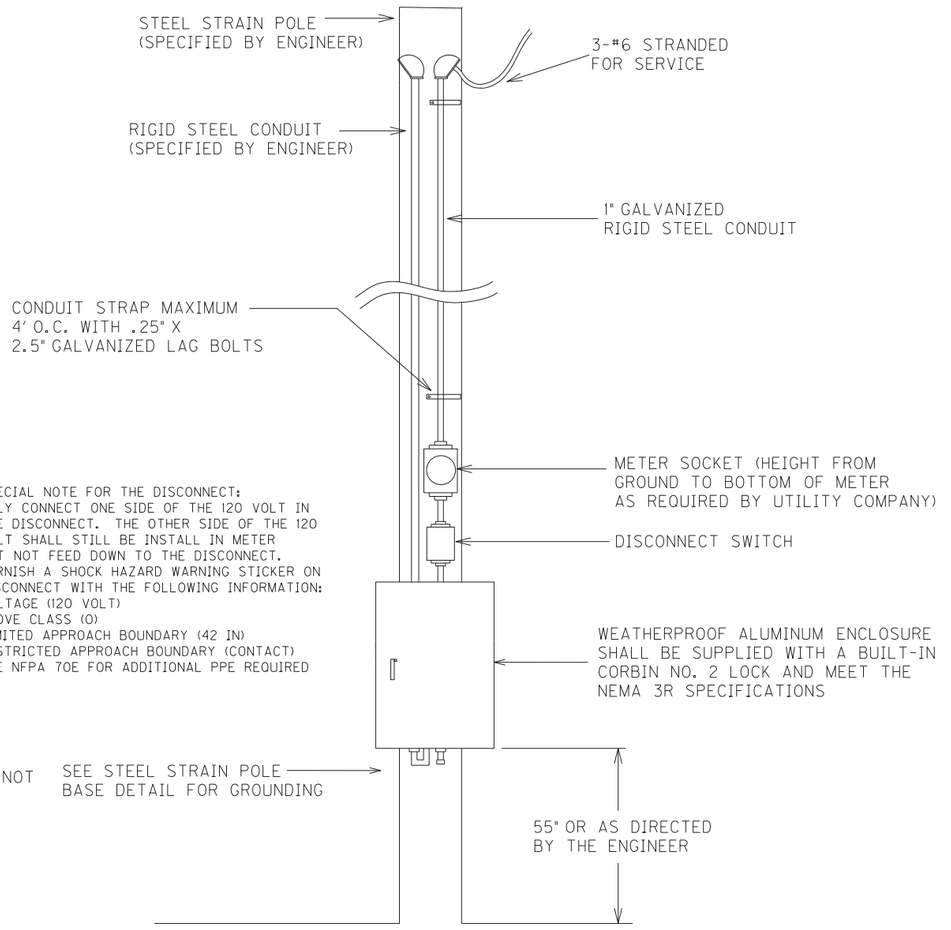


NOTES:

ALL CONDUITS USED FOR THE TELEPHONE, GROUNDING, SPARES, AND SERVICE (INCLUDING FLEX CONDUIT IF IT IS RUN INSIDE THE POLE) THAT ARE INSTALLED ON THE POLE AND/OR IN THE CABINET BASE ARE INCIDENTAL TO BID ITEM "4931". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE CONCRETE PAD.

ALL CONDUITS SHALL BE INSTALLED BETWEEN 4 TO 6 INCHES ABOVE THE CONCRETE PAD, AND THEY CANNOT EXCEED THE 6 INCH HEIGHT.

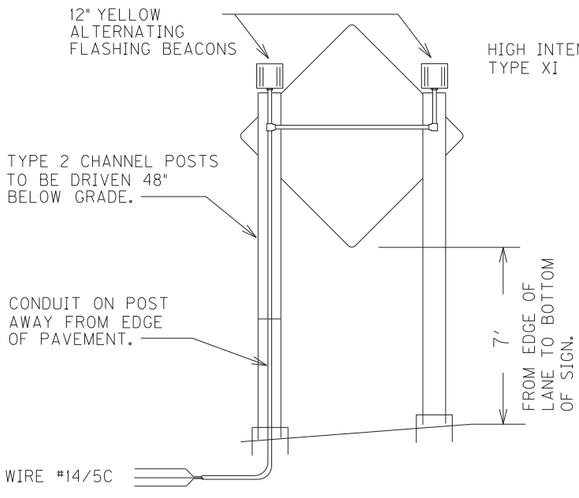
SERVICE WIRES FOR BASE MOUNTED CABINETS MAY BE INSTALLED IN FLEXIBLE CONDUIT FROM THE DISCONNECT TO THE 1" RIGID STEEL CONDUIT INSIDE THE POLE BASE. USE THE PROPER CONNECTIONS FOR TRANSITION FROM FLEXIBLE CONDUIT TO R S CONDUIT. FLEXIBLE CONDUIT SHALL NOT BLOCK THE HAND HOLE OR THE ABILITY TO ACCESS THE GROUNDING SYSTEM.

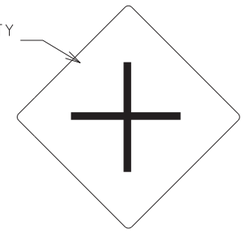


BEACON FLASHER CONTROL CABINET DETAIL

SPECIAL NOTE:
DISCONNECTS (SAFETY SWITCH) AND METER BASE SHALL BE UL RATED FOR COMMERCIAL USE. DISCONNECTS (SAFETY SWITCH) AND METER BASE SHALL BE ALUMINUM ENCLOSURE. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALCULATED THE MAXIMUM AVAILABLE FAULT CURRENT FOR THE SERVICE EQUIPMENT THAT IS INSTALLED. THE CONTRACTOR SHALL SUPPLY A STICKER THAT WILL BE INSTALLED IN THE DISCONNECT WITH THE SYMMETRICAL RMS AMPERES AND THE DATE THAT THIS FAULT CURRENT IS CALCULATED. THE STICKER SHALL BE 4" LONG AND 4" WIDE AND BE METALCRAFT PLY425 PREM STYLEMARK LABEL (OR APPROVED EQUAL) WITH .007 THICKNESS, WITH UV WHITE POLYCARBONATE MATERIAL, AND WITH MC778 PRESSURE SENSITIVE ADHESIVE OR APPROVED EQUAL.

SPECIAL NOTE FOR THE DISCONNECT:
ONLY CONNECT ONE SIDE OF THE 120 VOLT IN THE DISCONNECT. THE OTHER SIDE OF THE 120 VOLT SHALL STILL BE INSTALL IN METER BUT NOT FEED DOWN TO THE DISCONNECT.
FURNISH A SHOCK HAZARD WARNING STICKER ON DISCONNECT WITH THE FOLLOWING INFORMATION:
VOLTAGE (120 VOLT)
GLOVE CLASS (0)
LIMITED APPROACH BOUNDARY (42 IN)
RESTRICTED APPROACH BOUNDARY (CONTACT)
SEE NFPA 70E FOR ADDITIONAL PPE REQUIRED





W2-1
48" x 48"
.125 GA. ALUM.

ADVANCE WARNING BEACON DETAIL

THE BOTTOM HEIGHT OF THE LOWER SIGNAL FACE HOUSING SHALL NOT BE LESS THAN 17' AND NOT MORE THAN 19' ABOVE THE PAVEMENT GRADE OF THE CENTER OF THE ROADWAY.

GROUNDING REQUIREMENTS:

CONTRACTOR SHALL PROVIDE A MINIMUM OF 6 INCHES OF GROUND WIRE FOR TESTING PRIOR TO CONNECTING THE WIRE TO ANY DISCONNECT, CABINET OR POLE.

LEAVE TOP OF GROUND RODS EXPOSED FOR ELECTRICAL INSPECTION.

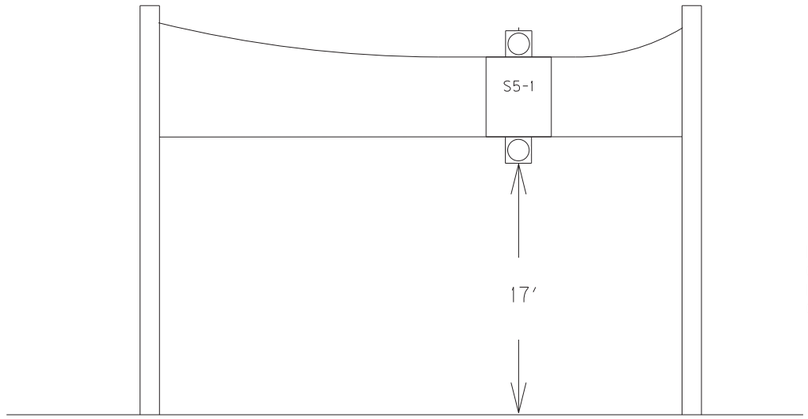
SERVICE GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE DISCONNECT AND THEN TO EACH RIGID STEEL (R S) GROUNDING BUSHING. IF GROUND WIRE IS RUN ON THE INSIDE OF THE POLE, RUBBER GROMMETS SHALL BE PROVIDED AT DISCONNECT AND POLE CUT OUTS. THEY SHALL BE INCIDENTAL TO BID ITEM "4931".

CABINET GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE CABINET GROUND BUS.

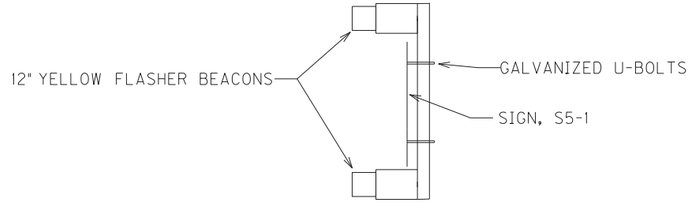
4/27/2020

BEACON DETAIL

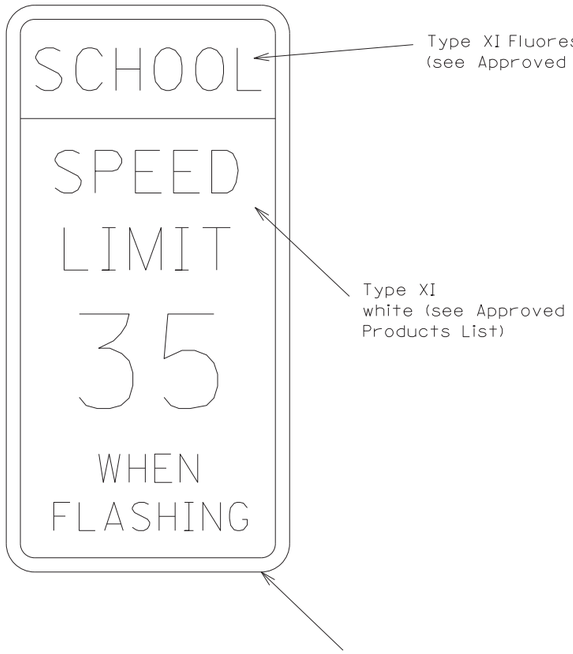
COUNTY OF	ITEM NO.	SHEET NO.



SCHOOL FLASHER SPAN DETAIL



THE BOTTOM HEIGHT OF THE LOWER SIGNAL FACE HOUSING SHALL NOT BE LESS THAN 17 FEET ABOVE THE PAVEMENT GRADE OF THE CENTER OF THE ROADWAY. THE TOP HEIGHT OF THE UPPER SIGNAL FACE HOUSING SHALL NOT BE MORE THAN 26 FEET ABOVE THE PAVEMENT GRADE OF THE CENTER OF THE ROADWAY.



Type XI Fluorescent Yellow Green
(see Approved Products List)

Type XI
white (see Approved
Products List)

S5-1
24" X 48" or 36" X 72"
(see Special Note for size)
.125 GA. ALUM
HIGH INTENSITY

Special Note:

Size of sign shall be noted on the plan sheet.

36" X 72" for four or more lanes with normal posted speed of 40 mph or greater.
24" X 48" for all other conditions.

SPECIAL NOTE:
DISCONNECTS (SAFETY SWITCH) AND METER BASE SHALL BE UL RATED FOR COMMERCIAL USE. DISCONNECTS (SAFETY SWITCH) AND METER BASE SHALL BE ALUMINUM ENCLOSURE. THE CONTRACTOR SHALL BE RESPONSIBLE TO CALCULATED THE MAXIMUM AVAILABLE FAULT CURRENT FOR THE SERVICE EQUIPMENT THAT IS INSTALLED. THE CONTRACTOR SHALL SUPPLY A STICKER THAT WILL BE INSTALLED IN THE DISCONNECT WITH THE SYMMETRICAL RMS AMPERES AND THE DATE THAT THIS FAULT CURRENT IS CALCULATED. THE STICKER SHALL BE 4" LONG AND 4" WIDE AND BE METALCRAFT PLY425 PREM STYLEMARK LABEL (OR APPROVED EQUAL) WITH .007 THICKNESS, WITH UV WHITE POLYCARBONATE MATERIAL, AND WITH MC778 PRESSURE SENSITIVE ADHESIVE OR APPROVED EQUAL.

GROUNDING REQUIREMENTS:

CONTRACTOR SHALL PROVIDE A MINIMUM OF 6 INCHES OF GROUND WIRE FOR TESTING PRIOR TO CONNECTING THE WIRE TO ANY DISCONNECT, CABINET OR POLE.

LEAVE TOP OF GROUND RODS EXPOSED FOR ELECTRICAL INSPECTION.

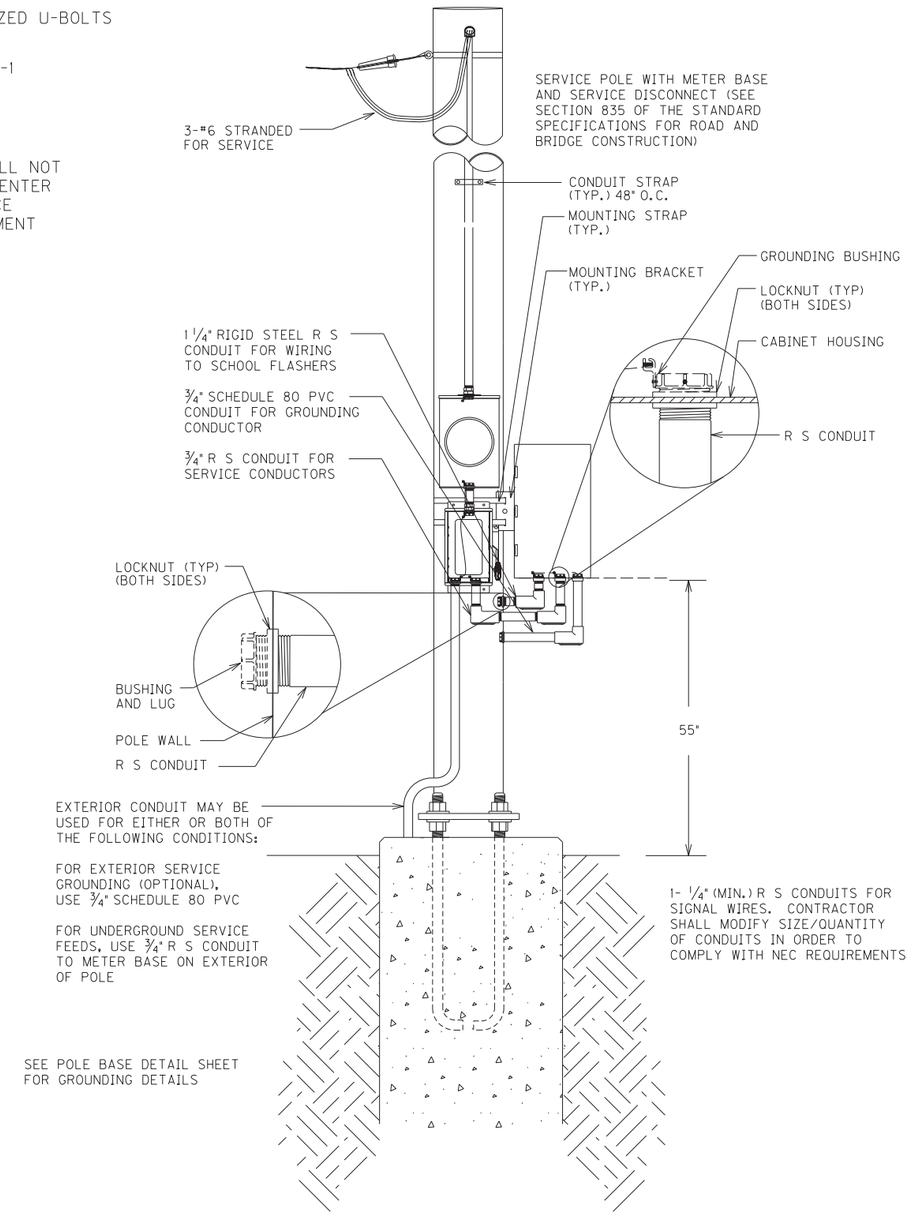
SERVICE GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE DISCONNECT AND THEN TO EACH RIGID STEEL (R S) GROUNDING BUSHING. IF GROUND WIRE IS RUN ON THE INSIDE OF THE POLE, RUBBER GROMMETS SHALL BE PROVIDED AT DISCONNECT AND POLE CUT OUTS. THEY SHALL BE INCIDENTAL TO BID ITEM "24526ED".

CABINET GROUND - GROUND WIRE SHALL COME FROM THE GROUND ROD THROUGH THE PVC CONDUIT, CONNECTING TO THE CABINET GROUND BUS AND THEN TO EACH R S GROUNDING BUSHING.

NOTES:

ALL CONDUITS USED FOR THE TELEPHONE, GROUNDING, AND SERVICE (INCLUDING FLEX CONDUIT IF IT IS RUN INSIDE THE POLE) THAT ARE INSTALLED ON THE POLE CABINET ARE INCIDENTAL TO BID ITEM "24526ED". THIS INCLUDES PROVIDING A MINIMUM OF 24 INCHES OF CONDUIT PAST THE EDGE OF THE CONCRETE PAD.

SPECIAL NOTE FOR THE DISCONNECT:
ONLY CONNECT ONE SIDE OF THE 120 VOLT IN THE DISCONNECT. THE OTHER SIDE OF THE 120 VOLT SHALL STILL BE INSTALL IN METER BUT NOT FEED DOWN TO THE DISCONNECT.
FURNISH A SHOCK HAZARD WARNING STICKER ON DISCONNECT WITH THE FOLLOWING INFORMATION:
VOLTAGE (120 VOLT)
GLOVE CLASS (0)
LIMITED APPROACH BOUNDARY (42 IN)
RESTRICTED APPROACH BOUNDARY (CONTACT)
SEE NFPA 70E FOR ADDITIONAL PPE REQUIRED



STEEL POLE MOUNT ENCLOSURE

4/27/2020

SPAN MOUNTED SCHOOL FLASHER DETAIL