FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0340(005)	2020	29	44

ELECTRONIC VEHICLE COUNTING (EVC) SYSTEM NOTES

1. The location of new sensor loops and piezo sensors shall be staked out in the field by the Contractor and approved by the Engineer prior to installation.
2. The Contractor shall inform the Engineer at least three days prior to saw-cutting pavement and installing sensor loops and piezo sensors.
3. Pull in in-bound lanes sensor loop cable and piezo sensor lead cables into conduit, where indicated. Cables shall be tested for acceptance before and after installation into conduit.
4. Piezo lead cables shall be continuous with no splices.
5. The Contractor shall restore all affected areas to their original condition. This item of work shall not be paid for separately, but shall be considered incidental to work of other paid items.
6. The Contractor shall verify the location of the existing utilities and underground structures whether or not it is shown on the plans.
7. The Contractor shall assume that existing underground utilities not shown on the plans may exist. The Contractor shall be responsible for contacting the different utility companies for information and toning.
8. The Contractor shall be held liable for any damages incurred to the existing utilities and underground structures as a result of his operations. All damaged portions shall be replaced in accordance with the standards and specifications of the affected utility company at no cost to the State.
9. Changes to the contract plans and specifications will not be permitted, unless approved by the Engineer in writing.
10. All cables are to be terminated within the EVC cabinet and shall have a minimum 12" additional slack.
11. Highway crossing conduit shall be provided with 36" cover.
12. Saw cuts shall be made by wet cutting only.
13. Clean away collected dust, dirt, and refuse after saw cutting is done. The saw cuts shall be cleared by water applied by pressure washer. Residual water within the saw cuys shall be vacuumed by use of a wet/dry vacuum. The saw cuts shall then be dried by air compressor.
14. After slots are dried, any remaining debris stuck within the slot shall be removed. The saw cuts must be completely clean and dry before inserting the sensors and filling the voids with Epoxy Loop Sealant (for sensor loops) or PU200 Piezo Installation Resin (for piezo sensors).
15. The collected Slurry hall be disposed of appropriately (i.e., either, placed in a Filter Fabric Lined Filtration Box or in a Filter Fabric Lined Dug Up Retention/Percolation Basin, and after Filtration/Percolation, the Filter Fabric and the retained sediments, disposed of appropriately).

SENSOR LOOP LAYOUT NOTES

1. Detector loop shall consist of four turns of 1C #14 cable meeting IMSA Spec 51-3 or equivalent embedded in a 3/8" wide by 4" deep sawcut, except as noted. Detector loop shall be provided a minimum 2" cover.
2. After laying sensor loop in four (4) turns within the 4" deep cut, press 1" long pieces of backer rod in each foot of the loop and the loop lead saw cut, to anchor the wire in the slot before applying the Epoxy Loop Sealant. Backer rod shall be embedded at least 2" below the top of pavement. The backer rod shall be placed into the saw cut with a blunt object, such as a wooden paint stir stick. No sharp objects such as a screw driver shall be used to place the backer rod into the pavement.
3. Sensor loop and lead cable shall be one continuous wire. Lead wires from the same loop shall be twisted in pairs, five twists per foot from the edge of paved shoulder to the pullbox. Do not twist one loop pair with another loop pair.
4. Continuity of sensor loops and lead-in wires shall be tested and warranted for one year from the date of acceptance by the Engineer.
5. Sensor loop lead cables shall be spliced only at the final pullbox to the EVC cabinet. Splice point of cables must be suspended near the top of the pullbox with a j-hook.
6. Splices shall be made by use of a splice kit.
7. All sensor loop lead cables shall be crimped with open end lugs that will fit into the terminal board slots snugly.
8. Stagger sensor loops on roadways with lanes that are less than 12 feet in width.
9. The Contractor shall connect the sensor loop wires on each terminal slot, as shown on plans.
10. The left lane in the direction of traffic flow is designated as lane 1, and the next lane to its right as lane 2 and so on as indicated on plans.
11. All sensor loop lead wires in the EVC cabinet and the pullboxes shall be identified and labeled by direction of traffic flow and lane number as shown on plans.
12. Only one sensor loop shall be placed per saw cut.

ORIGINAL PLAN
SURVEY PLOTTED BY ____ DATE
DRAWN BY ____
TRACED BY ____
NOTE BOOK ____
DESIGNED BY ____
QUANTITIES BY ____
CHECKED BY ____
No. ____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

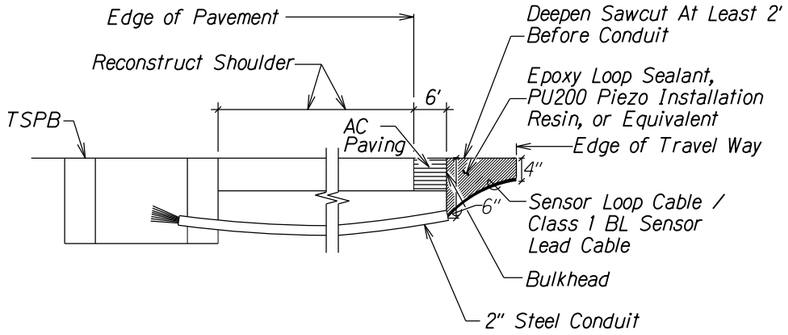
EVC TRAFFIC COUNTING SYSTEM NOTES

KAHEKILI HIGHWAY RESURFACING
Waiehu Beach Road to Camp Maluhia
Federal-Aid Project No. STP-0340(005)

Date: July, 2020

SHEET No. 1 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0340(005)	2020	30	44

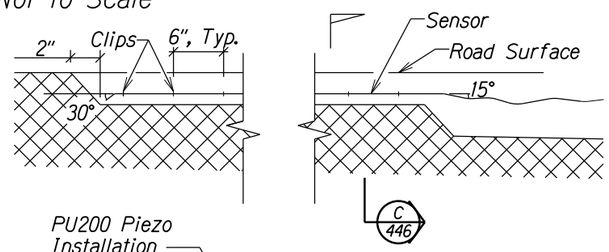


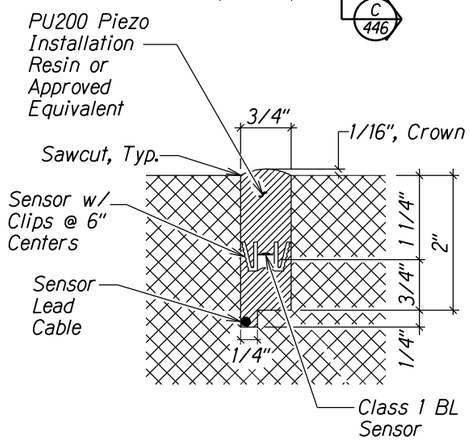
NOTES ON CONSTRUCTION AT END OF SAWCUT:

1. Seal roadway of conduit after installation of conductor.
2. Install bulkhead across conduit trench.
3. Place Epoxy Loop Sealant, PU200 Piezo Installation Resin or Equivalent in sawcut.
4. Backfill over conduit with new AC.
5. Reconstruct curb and gutter as required.

DETAIL OF SENSOR LOOP/CLASS 1 BL SENSOR AT EDGE OF ROADWAY

Not to Scale

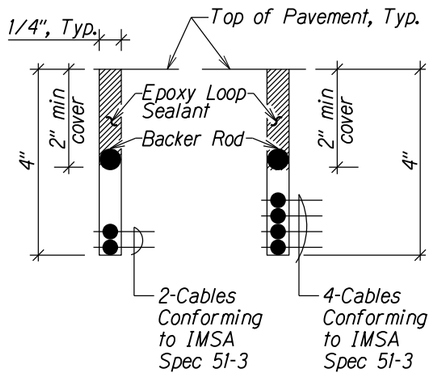




SECTION C 446
Not to Scale

PIEZOELECTRIC SENSOR INSTALLATION DETAIL

Not to Scale

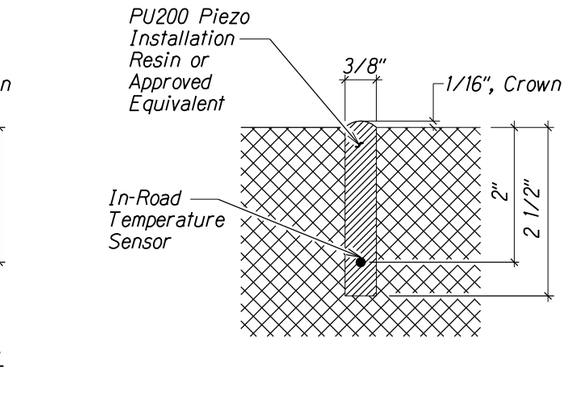


SECTION A 446
Not to Scale

SECTION B 446
Not to Scale

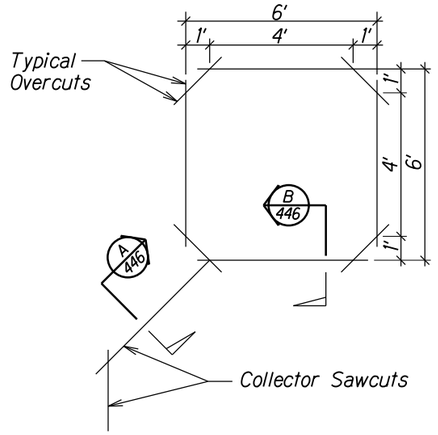
TYPICAL SECTION THROUGH SENSOR LOOP

Not to Scale



IN-ROAD TEMPERATURE SENSOR INSTALLATION DETAIL

Not to Scale

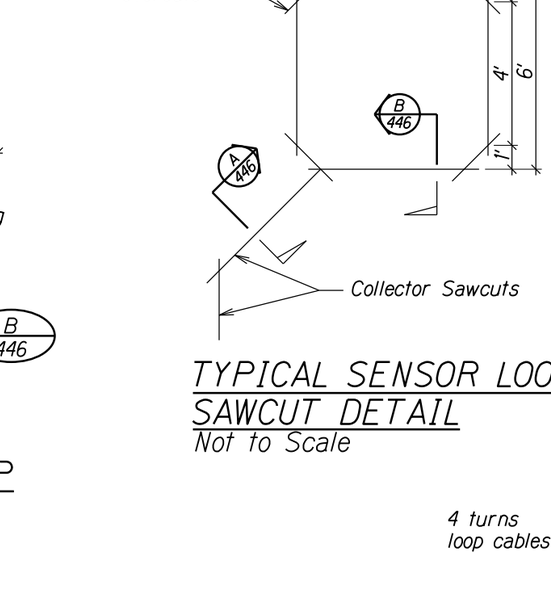


TYPICAL SENSOR LOOP SAWCUT DETAIL

Not to Scale

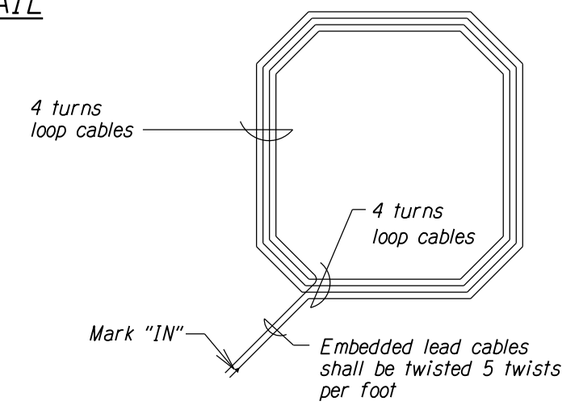
SENSOR LOOP SAWCUT NOTES:

Length of overcuts shall be kept to a minimum. All overcuts shall be backfilled with Epoxy Loop Sealant or equivalent.



TYPICAL SENSOR LOOP BACKER ROD PLACEMENT DIAGRAM

Not to Scale



PLAN

TYPICAL SENSOR LOOP WIRING DIAGRAM

Not to Scale

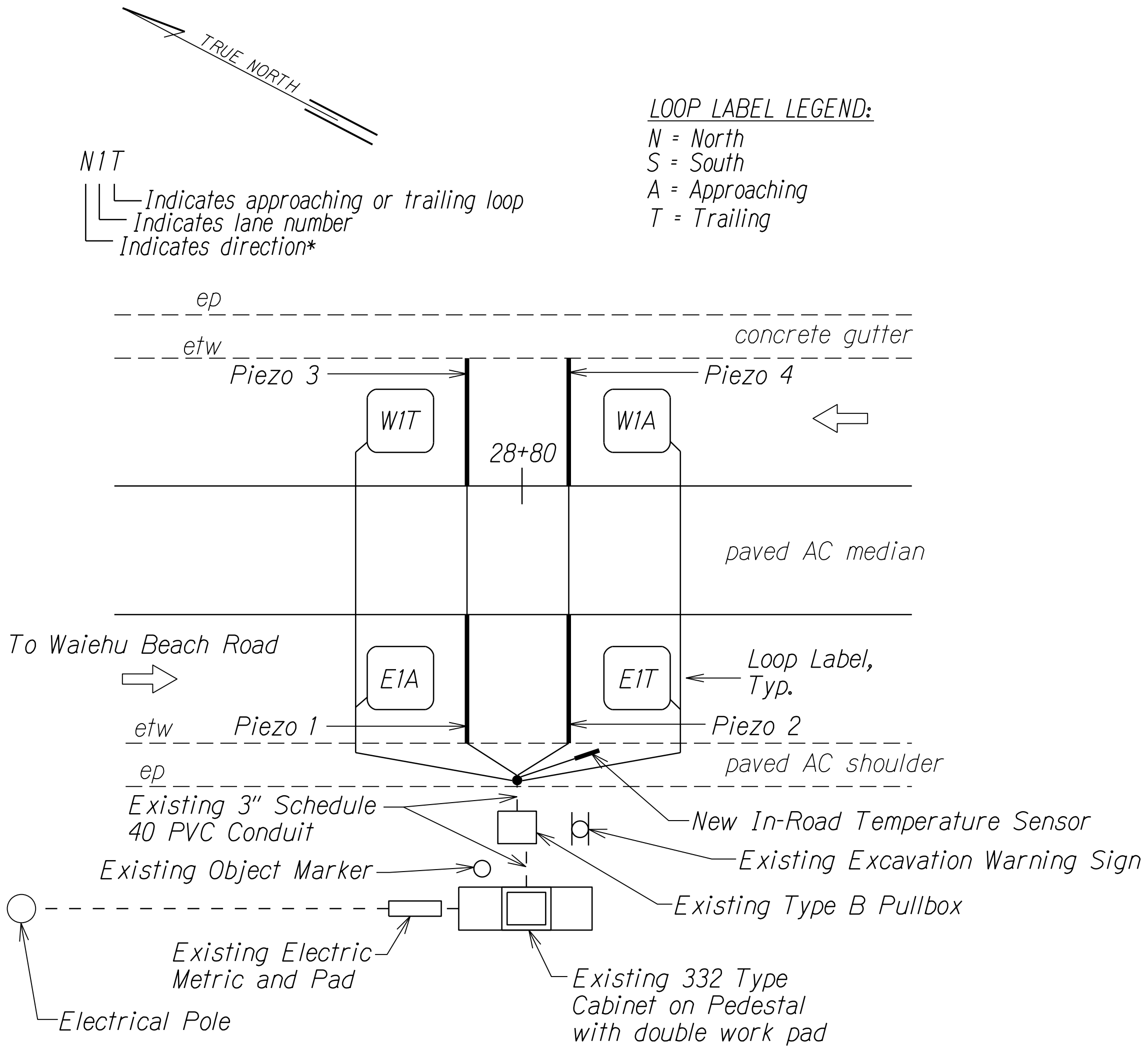
ORIGINAL PLAT	NOTE BOOK	No.	SURVEY PLOTTED BY	DRAWN BY	TRACED BY	DESIGNED BY	QUANTITIES BY	CHECKED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EVC TRAFFIC COUNTING SYSTEM SENSOR DETAILS

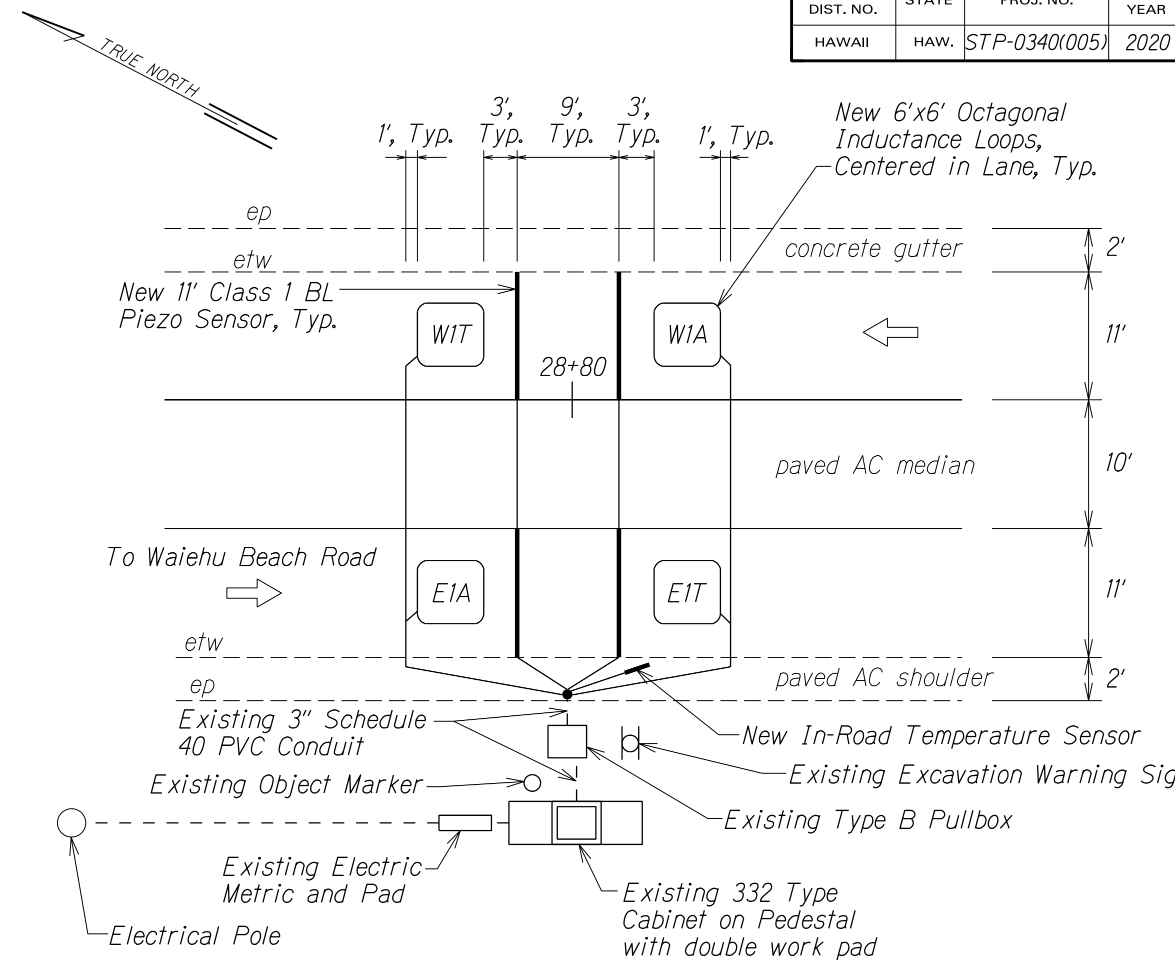
KAHEKILI HIGHWAY RESURFACING
Waiehu Beach Road to Camp Maluhia
Federal-Aid Project No. STP-0340(005)
Scale: NTS Date: July, 2020

SHEET No. 2 OF 3 SHEETS



LABELING OF LOOPS AND PIEZOS

Not to Scale



Conduit "A" Table:

Conduit* #-Size	Class 1 BL Sensor Lead Cables	2C #18 Loop Detector Cable
1 - 2"	4	4

*Conduits under pavement and at utility crossings shall be concrete encased.

*NOTES:

1. All dimensions and callouts are typical unless otherwise noted on plan
2. Contractor shall coordinate service agreements and connections to electrical and communication service. Contractor shall also contact the appropriate State Dept. of Transportation Representative for service agreement. (Highway Planning, Contact, Goro Sulijoadikusumo, P.E., at 587-1839).

EVC COUNTING SYSTEM LAYOUT DETAIL

Not to Scale

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC COUNTING STATION DETAILS

KAHEKILI HIGHWAY RESURFACING
Waiehu Beach Road to Camp Maluhia
Federal-Aid Project No. STP-0340(005)

Scale: As Shown   Date: July, 2020

SHEET No. 3 OF 3 SHEETS

ORIGINAL PLAN
NOTE BOOK mel
No. bhnatlp2.dgn
SURVEY PLOTTED BY
DRAWN BY alex r.
TRACED BY
DESIGNED BY alex r.
QUANTITIES BY
CHECKED BY
DATE 10/16