

TRAFFIC SIGNAL NOTES

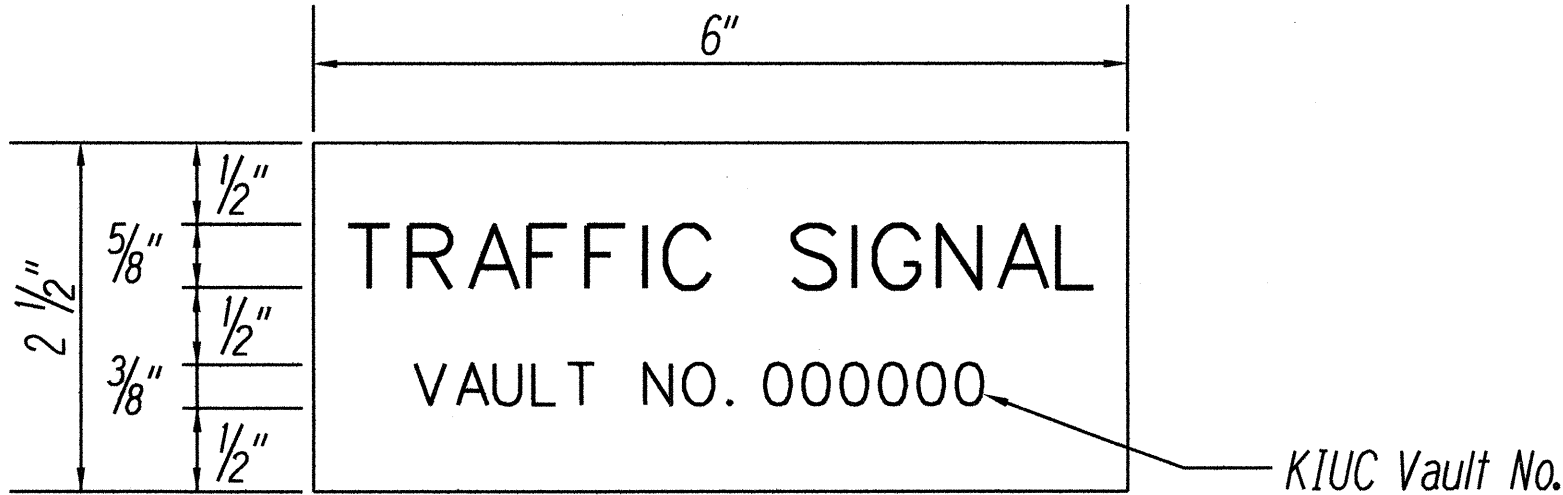
1. All traffic signal controller equipment shall be completely wired in the cabinet and shall control the traffic signals as called for in the plans.
2. Signal indications during clearance interval:
- A. If a signal is G or ~~←G~~ and will remain G or ~~←G~~ during the next phase, it shall be G or ~~←G~~ during the clearance interval.
- B. If a signal is G or ~~←G~~ and will become R or extinguished during the next phase, it shall be Y or ~~←Y~~ during the clearance interval.
- C. If a signal is R and will remain R or becomes G during the next phase, it shall remain R during the clearance interval.
3. The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans. Cost for the loop amplifier shall be incidental to the installation of the loop detector.
4. A solid #8 bare copper wire shall be pulled with the traffic control cable for equipment ground. Cost shall be incidental to the installation of the control cable.
5. Conduits, cables, and pullbox locations as shown on the plans are schematic and may be used for estimating purposes. The Contractor shall remove and replace all conductor cables found within the pull boxes and signal standards, except as specifically noted on the plans as "existing to remain".
6. The Contractor shall install new controller and cabinet in the indicated location.
7. All work for the installation or modification of the traffic signal system shall conform to the latest revisions of the "Hawaii Standard Specifications for Road and Bridge Construction, 2005" and the "Standard Plans" of the Department of Transportation, Highways Division, 2008, and as shown on these drawings.
8. All taps shall be done in the pullboxes.
9. Furnishing and installing the conduit stubouts (pullboxes to edge of pavement) will not be paid for separately but shall be considered incidental to the various contract items.
10. Should any defect be encountered during the warranty period, the manufacturer will be notified and he shall promptly correct such defect. Service call (by factory qualified representative) during the warranty period for repairs or other maintenance shall be answered within 24 hours and shall be done at no expense to the State. All repairs shall be done as soon as possible.

KAUAI ISLAND UTILITY COOPERATIVE UNDERGROUND CONSTRUCTION NOTES

1. These notes are not intended to be used in place of KIUC's Service Installation Manual; please refer to the Service Installation Manual for all service issues.
2. Contractor shall contact Kauai Island Utility Cooperative's ("KIUC") Construction Coordinator prior to start of work on KIUC facilities, and for scheduling site inspections. (Westside: 246-2323; Eastside: 246-4343).
3. Contractor shall contact KIUC's Distribution Planning Coordinator at 246-2373 for design approvals, standard detail drawings, and any items not addressed in these notes or drawings.
4. All contractors entering KIUC facilities must be approved by KIUC and have proper licensing and insurance coverage. Contact KIUC Legal Coordinator at 246-4369 for details.
5. All trenches and pullboxes must be inspected by KIUC prior to backfilling and concrete-encasing operations. For detailed trenching and backfilling requirements refer to KIUC's Service Installation Manual.
6. The Contractor shall provide a Poly-Line 200 lb. test line or equivalent as a pulling wire in all 1", 2", 3", and 4" diameter conduits. In 5" and 6" diameter conduits, the Contractor shall install NEPTCO WPI800 muletape as a pulling line.

7. All conduits, pullboxes, handholes, and manholes shall be cleaned and free from objectionable materials. Conduit ends shall be adequately covered until the conductor is installed by the electric company. (Covers shall be Carlon Plug with Pull Tab series P258 equivalent or better.)
8. For all conduits other than services, refer to conduit schedule on drawings.
9. For all services where the conductor is 1/0 or less, the distance from KIUC's handhole and Customer's meter is less than 125 feet, and not crossing any driveways or roads, the conduit shall be 2" diameter Sch. 40 PVC. For services greater than 125 feet, contact KIUC planner for field verification and underground service requirements. Any deviations will require KIUC written approval.
10. Primary and secondary conduits for new line extensions shall be Sch. 40 PVC (Carlon P&C Duct Type DB equivalent or better). Under driveways and roadways, the conduits shall be encased in a minimum of 3 inch concrete jacket extending 12" outside the edge of pavement.
11. Sch. 80 PVC conduit may be substituted for the concrete encased Sch. 40 PVC for service conduit only crossing under unpaved private driveways and roadways from KIUC pole/handhole to customer's meter. If concrete driveway will be built over service conduit immediately after conduit is installed, then Sch. 40 PVC may be used provided that it meets with Note #21.
12. All primary and secondary conduits which are crossing State or County roadways shall be Sch. 40 PVC encased in a minimum of 3 inch concrete jacket which shall extend a minimum of 12 inches outside the edge of pavement.
13. Electrical supply ducts, when installed near communication cables, shall be separated from communication duct systems and buried communication cables or conductors by not less than 3 inches of concrete or 12 inches of earth when paralleling or crossing.
14. Chairs shall be installed and spaced at a minimum of 5 feet separation when concrete encasing conduit.
15. All conduits shall enter boxes at a 90 degree angle, perpendicular and flush to the wall with bell ends to prevent cable damage.
16. 90 degree conduit bends shall be factory made, with a minimum radius of 3 feet in trench runs.
17. Conduit bends exceeding 90 degrees will not be accepted.
18. A 36 inch minimum horizontal clearance shall be maintained when running KIUC conduits parallel to water and sewer lines. If clearance is less than 36 inches, KIUC conduit shall be concrete encased.
19. No foreign pullboxes, handholes, manholes, concrete slabs/boxes, structures etc. are to be installed over KIUC facilities with the exception of HTCO, CATV, or waterline conduit crossings. Such crossings must be approved by KIUC's Service Assurance Department and KIUC conduit to be concrete encased. Concrete encasement must be minimum of 3 inch encasement and extend a minimum of 1 foot beyond crossing conduit or pipe.
20. Yellow marker tape to be placed 1 foot above electrical conduits in the trench during backfilling. (E-Z CODE WBT 6 inch wide 4 Mil polyethylene Protect-A-Line warning tape NA-0708"ELCTRIC LINE" in yellow, equivalent or better).
21. Unless otherwise noted, the top of all conduits shall be at a depth of 24 inches.

22. All handholes, pullboxes, and manholes shall be Walker Industries type or approved equal. Contact KIUC prior to ordering underground boxes for vendor approval. Customer to submit manufacturer's shop drawings if substituting from Walker Industries type.
23. Typically, the top of all electrical utility boxes shall be 1 inch above finish grade, single phase transformer pads shall be 2 inches above finish grade, and three phase transformer pads shall be 4 inches above finish grade unless otherwise noted. (Special conditions may apply to sidewalks, roadways, etc. see specific location notation.)
24. At no time shall cement mortar, wood or any other material be used between precast sections of KIUC pullboxes, handholes, or manholes. The permanent installation of wooden wedges to level or raise the precast sections shall not be permitted.
25. A minimum of 6 inches thick of #3 crushed rock shall be placed loosely beneath the bottom section of handholes, and pullboxes. Crushed rock or other foreign materials are not to be placed inside handholes and pullboxes.



NOTES

1. Use 3-Ply laminated flexible plastic, black-white-black
Thickness: Black Cap Sheet - 0.010", White Base Sheet - 0.052", Black Base Sheet - 0.010".
2. Attach to meter socket using Scotch 3M Brand Very High Bond (VHB) Double Coated Acrylic Foam Tape or equivalent.
3. Letters/Numbers shall be 1/16" stroke, (white in color).
4. Letters/Numbers area inscribed by cutting through "Black Cap Sheet" to expose white letters/numbers.

METER I.D. TAG DETAIL
Not to Scale

[Signature] 3/23/14
Distribution Engineer, Kauai Island Utility Cooperative Date

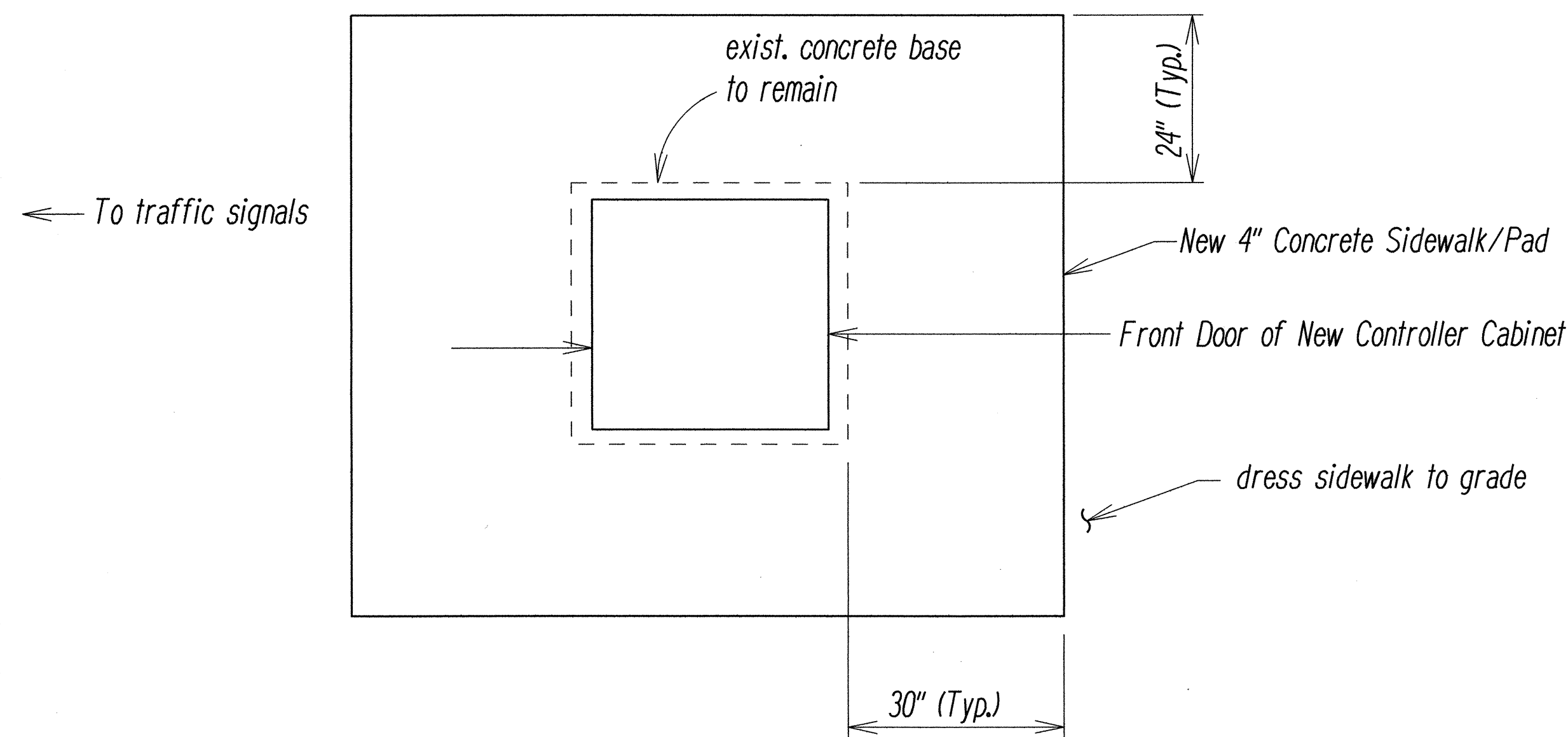
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL
ELECTRICAL DETAILS & NOTES

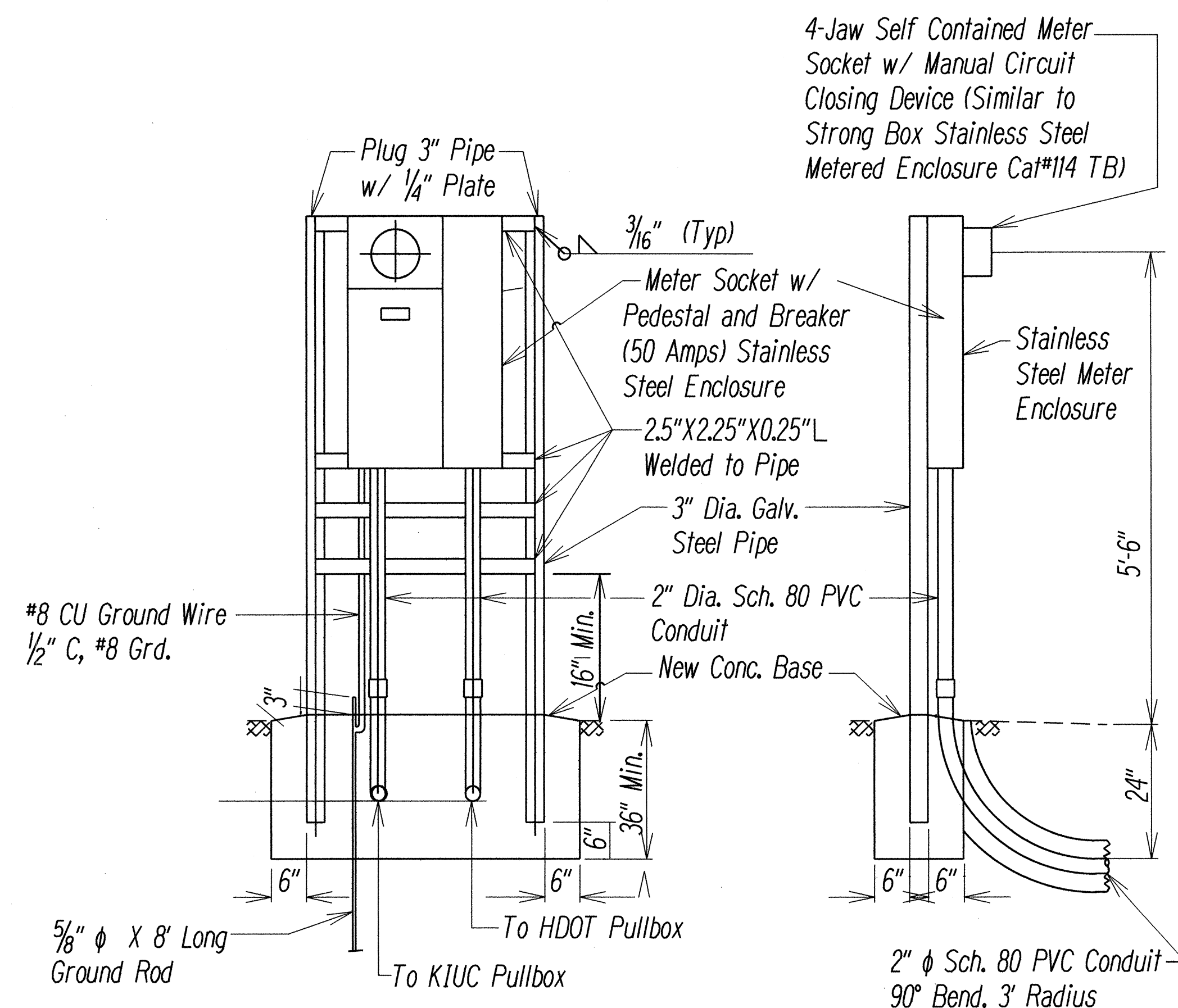
Traffic Signal Rehabilitation at
Various Locations, Kauai
Project No. HWY-K-01-15M
Date: Feb, 2016

SHEET No. 1 OF 3 SHEETS

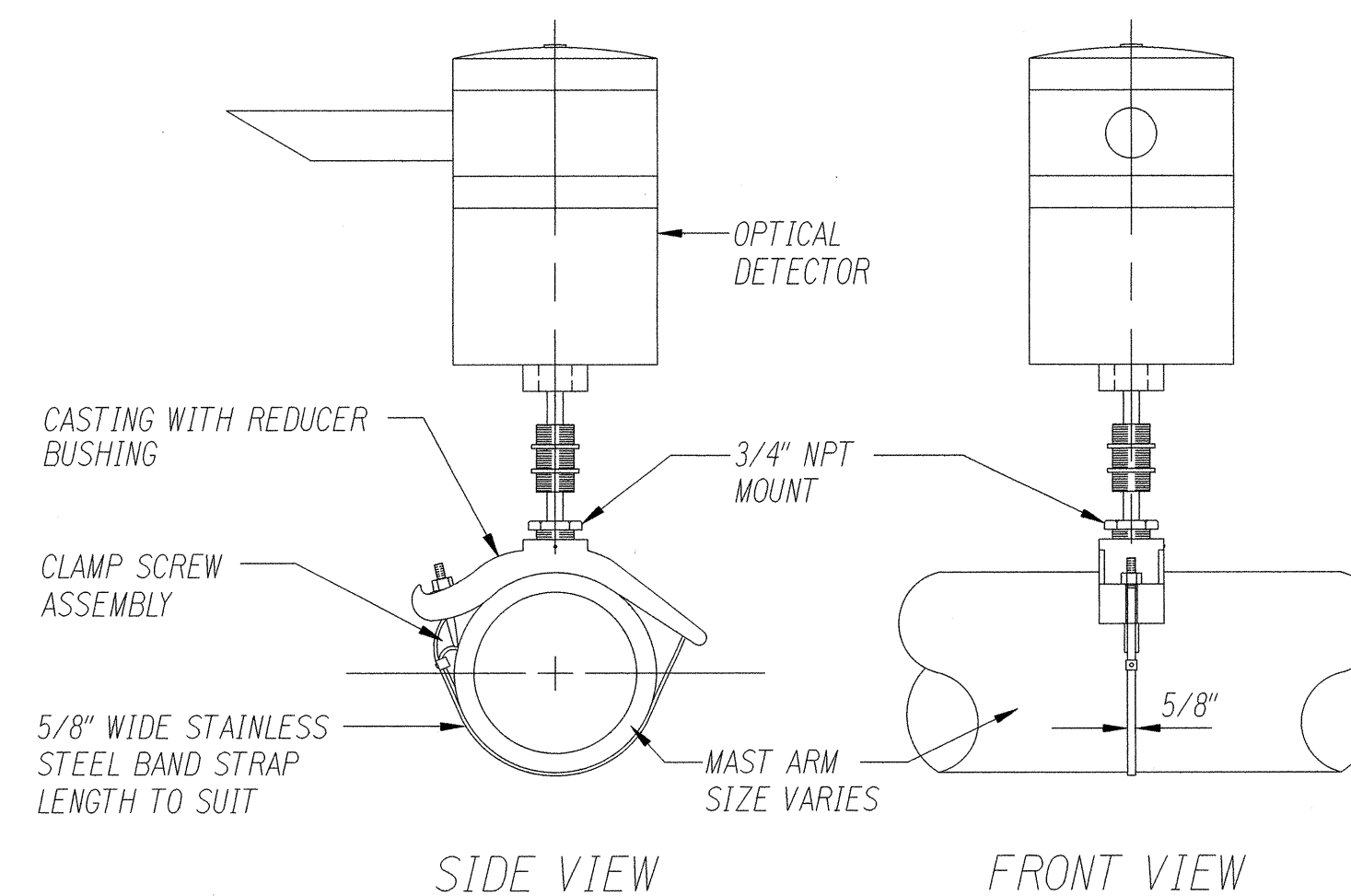
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-K-01-15M	2016	8	20



PLAN
NEW CONCRETE PAD AT CONTROLLER CABINET
Not to Scale

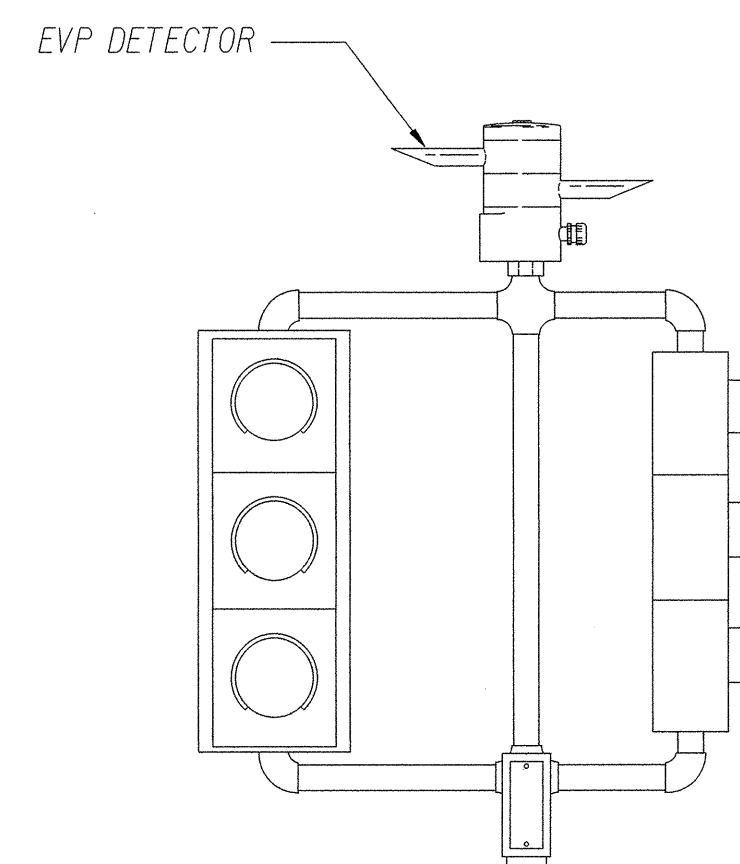


FRONT ELEVATION
SIDE ELEVATION
METER PEDESTAL FOR UNDERGROUND SERVICE
Not to Scale

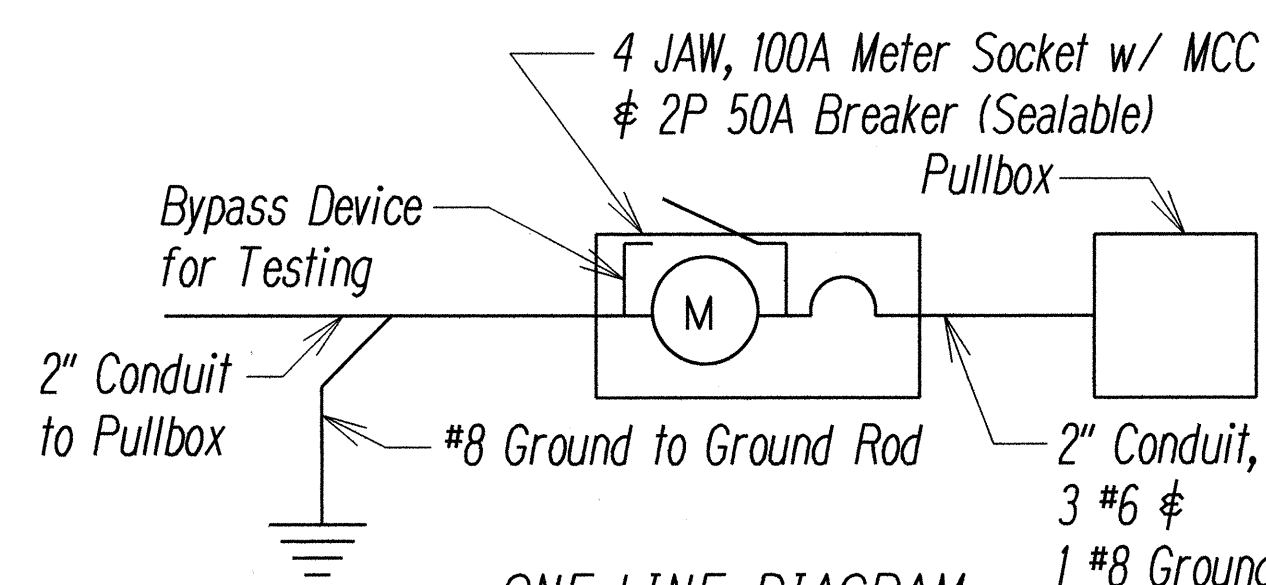


- NOTES:
- OPTICAL DETECTOR SHALL BE "OPTICOM M7H OPTICAL DETECTOR", OR APPROVED EQUAL, UNLESS NOTED OTHERWISE IN THE SPECIAL PROVISIONS.
 - SUPPORT SADDLE ASSEMBLY SHALL BE "ASTRO MINI-BRAC, AB-0132-29", OR APPROVED EQUAL, UNLESS NOTED OTHERWISE IN THE SPECIAL PROVISIONS.

OPTICAL DETECTOR FOR
MAST ARM MOUNTING
NOT TO SCALE



POST TOP TP-EVP MOUNTING
NOT TO SCALE



- Service Data
- Service Voltage: 1 Phase, 3 Wire 120/240 V
 - Load Data: Connected - 5 KVA, Estimated Demand - 2 KVA

TRAFFIC SIGNAL LEGEND

- Remove and Install New Traffic Signal Head Mounted on Existing Type II Signal Standard
- Remove and Install New 12" RYG Standard Traffic Signal Head
- New Replacement Traffic Signal Heads Mounted on Existing Type II Signal Standard, Arm Spread Shown 26' and Distance Between Signal Heads shown is 12'
- Remove and Install New 12" RYG Traffic Signal Bi-Modal LED Head for Left Turn
- Remove and Install New 12" RY Traffic Signal Head
- Remove and Install New EVP Detector (Opticom)
- Existing Pullbox to remain
- Remove Existing, and Install New Type "A" Traffic Pullbox
- Remove Existing, and Install New Type "B" Traffic Pullbox
- Remove Existing, and Install New Type "C" Traffic Pullbox
- Remove Existing, and Install New Controller and Cabinet on Existing Concrete Base to be widened per detail this sheet
- Existing Loop Detectors to remain
- Aldis Traffic Detector Camera to remain
- Remove and Install New Pedestrian Push Button Post on Existing Footing
- Remove and Install New Meter Housing, Pedestal, and Concrete Base
- Remove and Install Warning Sign and Flashing Beacon

- NOTES:
- Pedestal and riser conduits shall be new, hot-dipped galvanized after fabrication.
 - All fastening bolts, nuts, and washers shall be new, stainless steel. All hardware shall be brass, bronze, or stainless steel.
 - Concrete base for meter pedestal shall be new. Remove portions of conduits, re-route to new pedestal with new conduit splices. Remove and demolish old pedestal and concrete base, backfill and compact immediately following removal.
 - Provide 4 feet minimum clearance in front of meter.
 - Install new pull box in the same location and on the same day as removal of old pull box.
 - Contractor shall notify KIUC at least 5 days in advance to schedule disconnect/reconnect of meter socket. Please call 246-4334 to schedule work.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL NOTES,

LEGEND & DETAILS

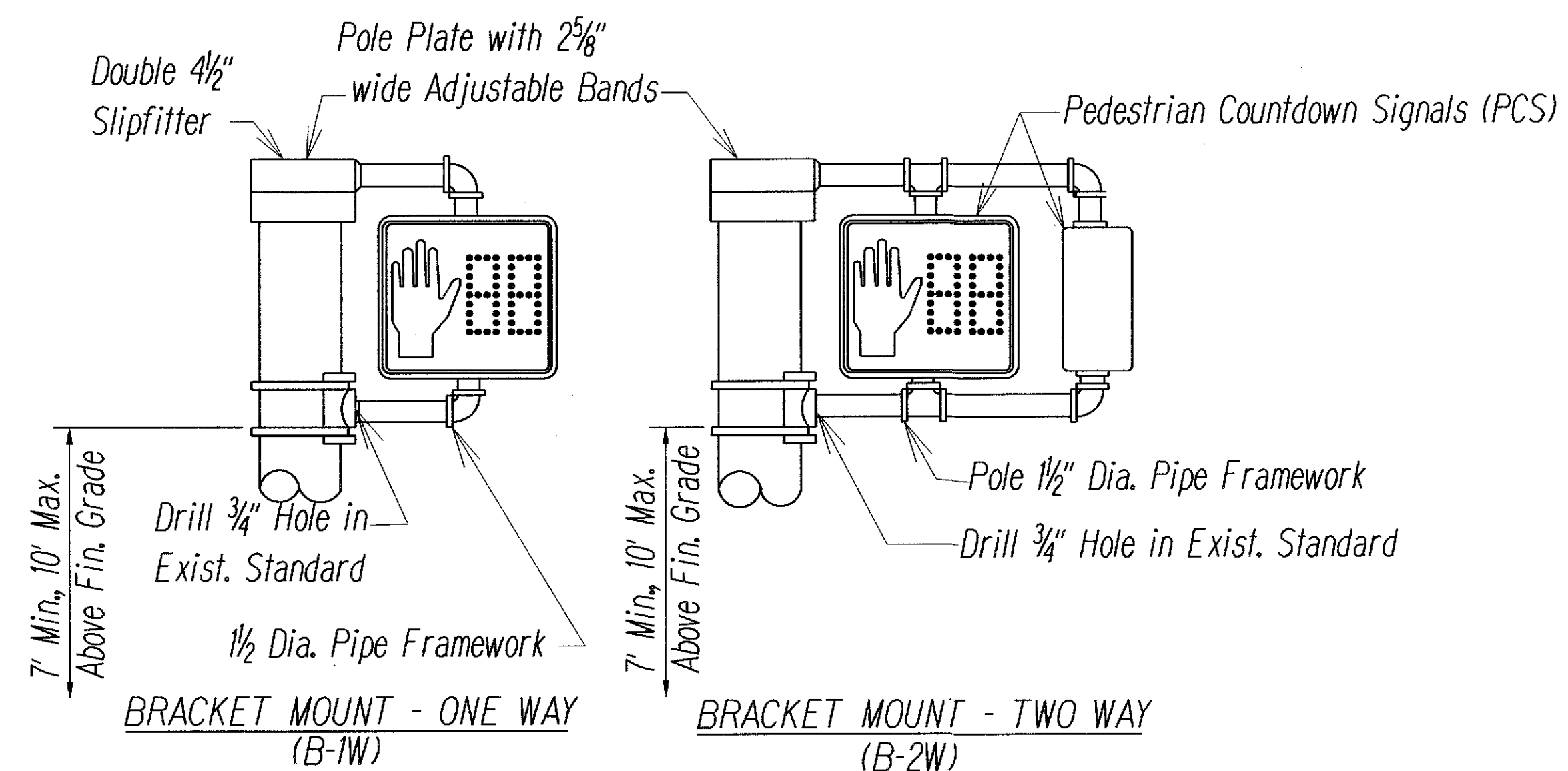
Traffic Signal Rehabilitation at

Various Locations, Kauai

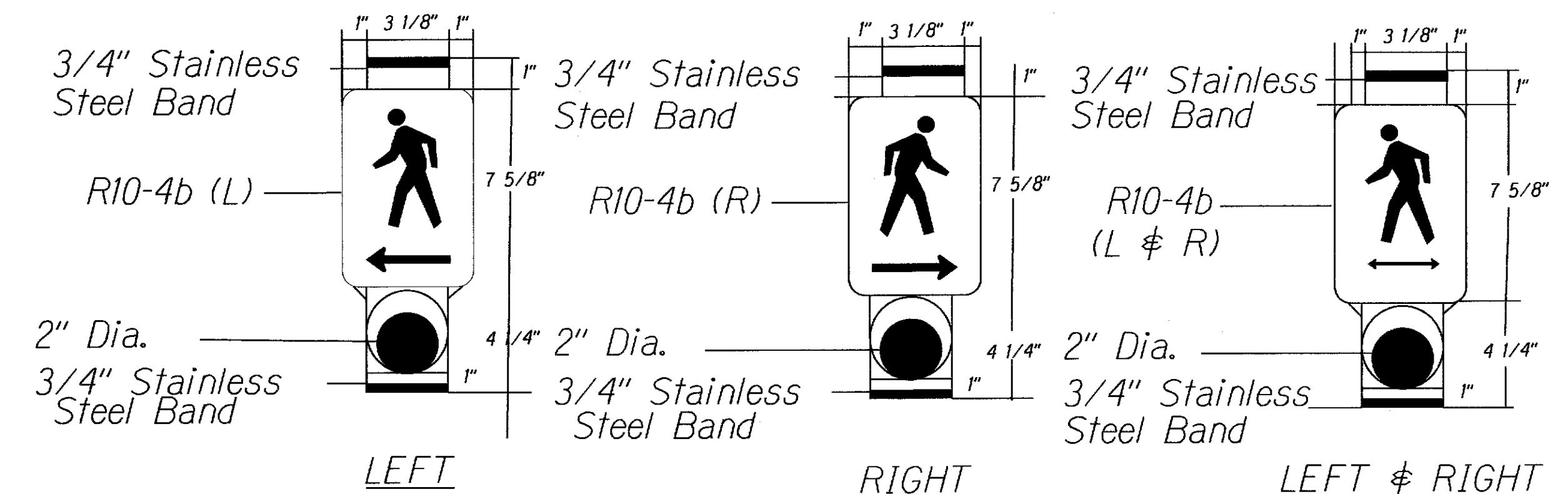
Project No. HWY-K-01-15M

Date: Feb., 2016

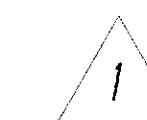
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-K-01-15M	2016	ADD. 9	20



PEDESTRIAN SIGNAL MOUNTING DETAILS

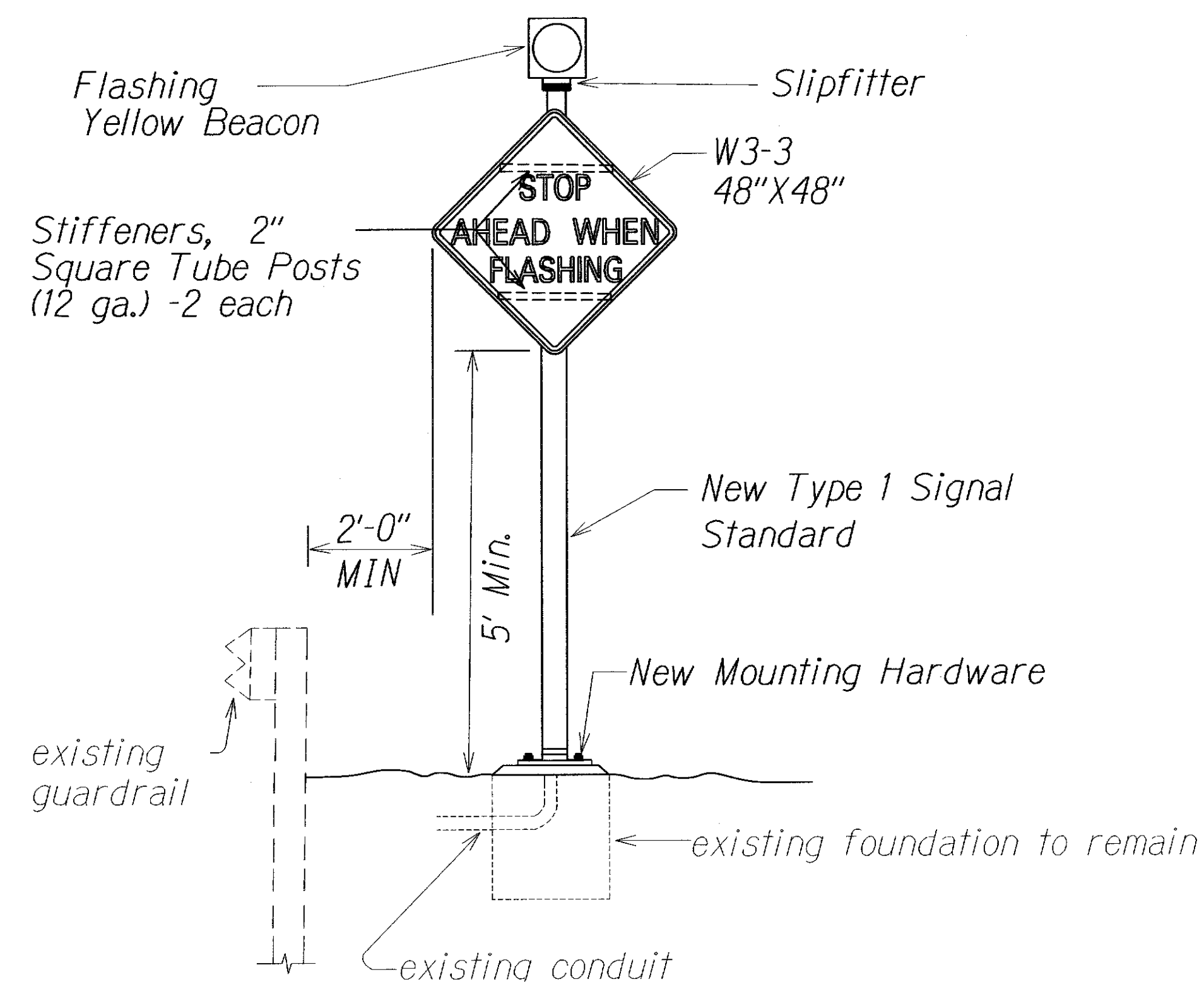


PEDESTRIAN PUSH BUTTON




NOTES:

1. The pedestrian push button shall meet operational and reach requirements of the American with Disabilities Act Accessibility Guidelines (ADAAG):
 - a) Forward Reach. The maximum height for forward reach shall be 48".
 - b) Side Reach. The maximum height for side reach shall be 48".
 - c) Operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.
2. There shall be a 30" x 48" level ground surface (2% max. cross slope, both directions) for a forward or side approach, as appropriate, to a pedestrian push button.
3. Refer to HDOT Standard Plans TE-32 for additional requirements.



WARNING SIGN WITH
FLASHING YELLOW BEACON

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK 182947	DRAWN BY _____
182947	TRACED BY _____
182947	DESIGNED BY _____
182947	QUANTITIES BY _____
182947	CHECKED BY _____

DATE	REVISION
4/13/16	 Added Notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS

Traffic Signal Rehabilitation at
Various Locations, Kauai
Project No. HWY-K-01-15M

Scale: *Not to Scale* Date: Feb. 2016

SHEET No. 3 OF 3 SHEETS