FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-032-1(9)	2010	22	30

LEGEND

4 each Type A Raised Pavement Markers
Type C Raised Pavement Markers @ 40'-0" o.c.

4 each Type J Raised Pavement Markers
Type D Raised Pavement Markers @ 40'-0" o.c.

8" White Stripe with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)

4" Double Solid Yellow with Type D Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion))

4" Double Solid Yellow Stripes with Type H Raised Pavement Markers @ 20'-0" o.c. (Tape, Type II or Thermoplastic Exrusion))

4" Yellow Edge Stripe with Type H Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion))

4" Double Solid White Stripes with Type C Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)

Lane Change Restriction Marking
4 each Type A Raised Pavement Markers
Type C Raised Pavement Markers @ 20'-0" o.c.
4" White Stripe (Tape, Type I or Thermoplastic Extrusion)

4" or 8" White Edge Stripe with Type C Raised Pavement Markers @ 40'-0" o.c. (Tape, Type II or Thermoplastic Extrusion)

4" White Guide Lines (Tape, Type III or Thermoplastic Extrusion except for bus bays)

Transverse Median Marking (Tape, Type II or Thermoplastic Extrusion)

Transverse Shoulder Marking (Tape, Type II or Thermoplastic Extrusion)

Channelizing Island or Deceleration Lane Gore (Tape, Type II or Thermoplastic Extrusion)

② Crosswalk and Stop Line. All Stop Lines shall be 10'-0" from Crosswalk unless otherwise noted. The circled number indicates the number of lanes for payment (Tape, Type III or Thermoplastic Extrusion)

Pavement Arrow (Tape, Type III or Thermoplastic Extrusion)

STOP — Pavement Word (Tape, Type III or Thermoplastic Extrusion)

4 Each Type J Raised Pavement Markers
Type D Raised Pavement Markers @ 40'-0" o.c.
Type H Raised Pavement Markers (Reflective Surface facing no-passing direction)
4" Single Solid Yellow Stripe (Tape, Type I or Thermoplastic Extrusion)

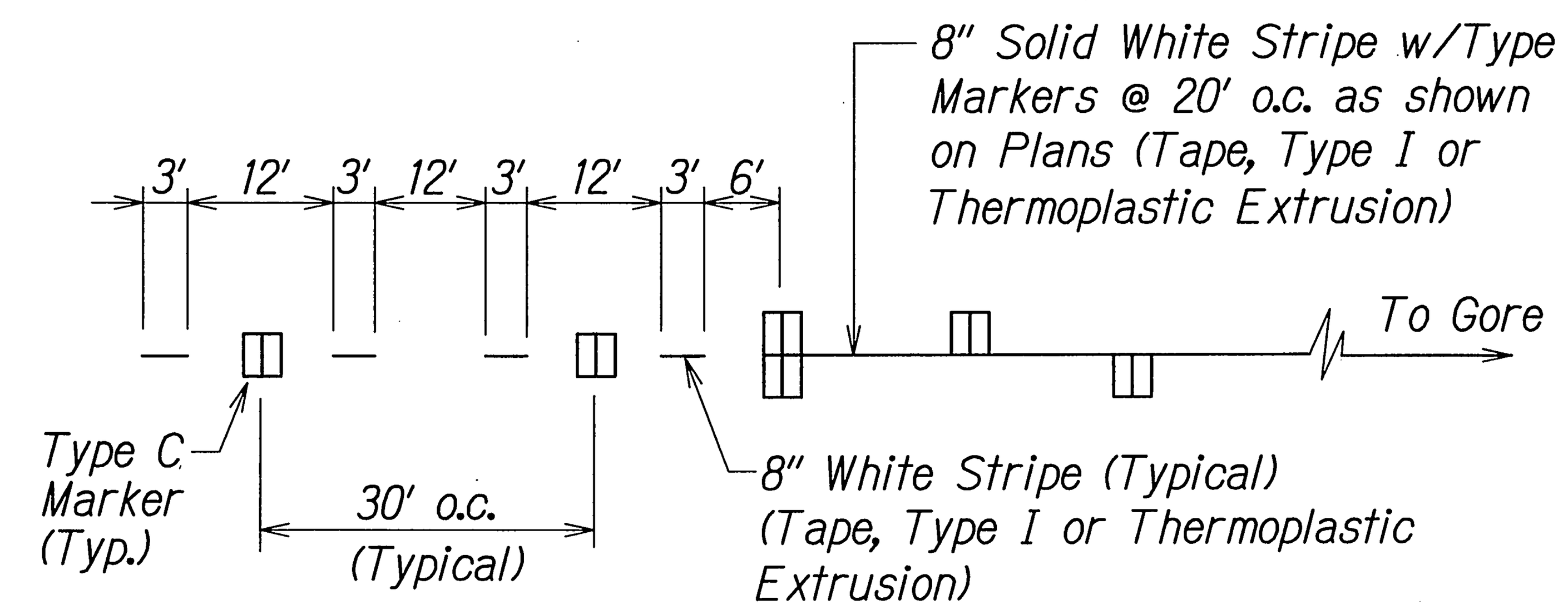
10' 10' 10' 10' — Extension of Edge Line, 4" Wide x 2'-0" Long White Stripe @ 10'-0" o.c. w/Type C Markers @ 40'-0" o.c. (Tape, Type III or Thermoplastic Extrusion)

NOTES

1. Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
2. Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Costs shall be incidental to the various pavement marking items.
3. Final locations of all signs shall be approved by the Engineer prior to any installation work.
4. Existing signs not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans shall be incidental to the various signing items.
5. All pavement striping shall be as noted on the legend or plans.
6. All preformed pavement marking tapes over existing pavement shall be applied with an approved primer as recommended by the tape manufacturer and as approved by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape application.
7. All existing pavement striping not shown that are damaged by Contractors operations shall be repaired by the Contractor at no cost to the State.
8. All pavement striping repairs shall be done in accordance with manufacturer's recommendations.

TRAFFIC CONTROL NOTES:

1. Minimum width of traffic lane through work area is 10'.
2. Relocation and/or removal of temporary signs and posts used for Traffic Control shall be considered incidental to various contract items.
3. Damage to signs, temporary pavement markers, delineators, barricades and lamps caused by the public shall be repaired or replaced by the Contractor as soon as possible, or as directed by the Engineer. This work shall be paid for under Item No. 645.0200 - Police Officers and/or Additional Traffic Control Devices. Damage caused by the Contractor's negligence shall be repaired or replaced at the Contractor's expense.
4. The Type II and Type III Barricades with lamps used during construction shall be considered incidental to various contract items.
5. Work required in the Detour/Traffic Control Plans will be paid under applicable contract items or otherwise specified herein. All other traffic control work shall be in accordance with Section 645 - Traffic Control. Work required for lane closures during the working day will not be paid for but shall be considered incidental to various contract items. Advance Construction Warning Signs as required under Section 645 of the Special Provisions shall be installed on all approaches to construction areas. This work shall be considered incidental to various contract items.
6. The Flashing Arrow Board used during construction shall be considered incidental to various contract items.



LANE DROP MARKING
Not to Scale

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

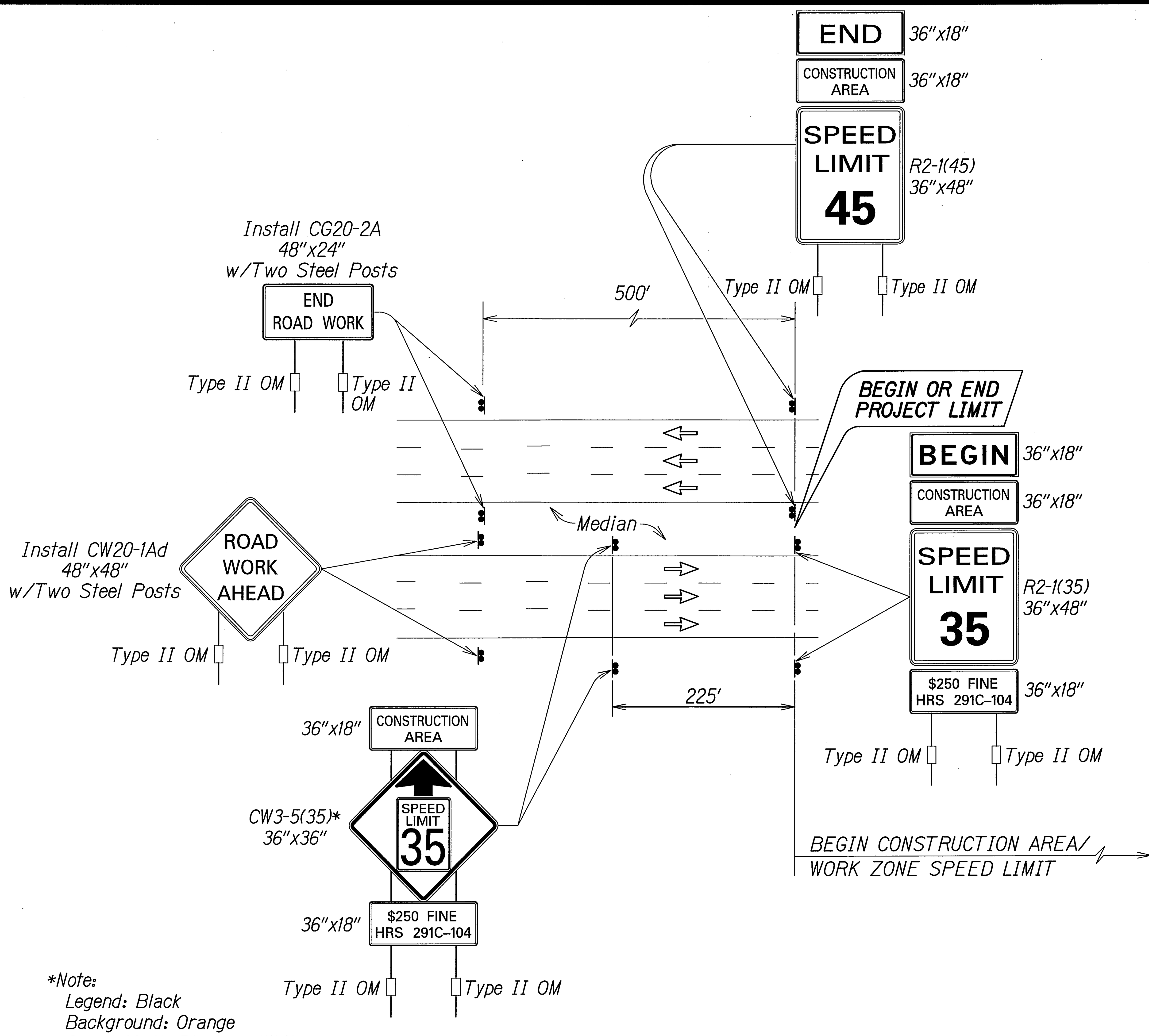
PAVEMENT MARKING LEGEND, DETAILS & NOTES

KAAHUMANU AVENUE
Waiale Road Overpass Repairs
Federal Aid Project No. ARR-032-1(9)

Scale: As Shown   Date: Sept. 2009

SHEET No. T1 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-032-1(9)	2010	23	30

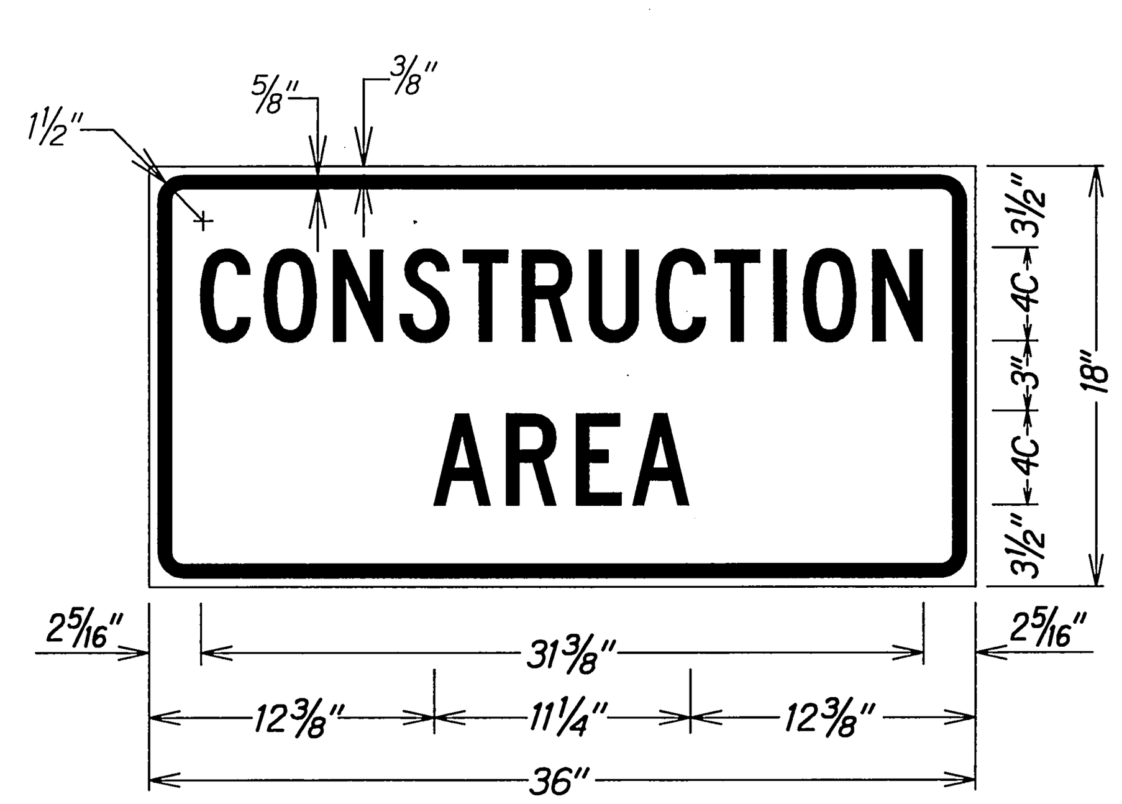


*Note:
Legend: Black
Background: Orange
Speed Limit: Black on White

TYPICAL DETAIL FOR CONSTRUCTION SIGNS ON MULTILANE DIVIDED HIGH SPEED HIGHWAY

Work Zone Notes:

1. This Work Zone Sign Plan is intended for use on long-term stationary work zones/construction phases (3 days or more). All work zones or construction phases less than 3 days duration will use Traffic Control Plans shown in Section 645.
2. All existing regulatory speed limit signs with posts within the work zone/project limits shall be removed and replaced with work zone speed limit sign assemblies (R2-1(35) and CW3-5(35) with "CONSTRUCTION AREA" and "$250 FINE HRS 291C-104" Supplemental Signs).
3. Construction sign assemblies shall be installed on both the approaching and trailing ends of each work zone as shown on this plan.
4. Each construction warning sign and work zone speed limit assembly shall have a minimum of two (2) Type II OM. Installation of each Type II OM shall be considered incidental to Item No. 645.0100 - Traffic Control.
5. Upon the completion of all physical work or as directed by the Engineer, all construction signs and work zone speed limit assemblies shall be removed. All speed limit signs and posts that were existing at the start of the project within the work zone/project limits shall be restored back to their original locations and configurations.
6. Placement of construction signs shall not obstruct the path of pedestrians and bicyclists.
7. The removal and restoration of existing regulatory speed limit signs with new posts along with the installation, maintenance and removal of work zone speed limit sign assemblies shall be considered incidental to Item No. 645.0100 - Traffic Control.



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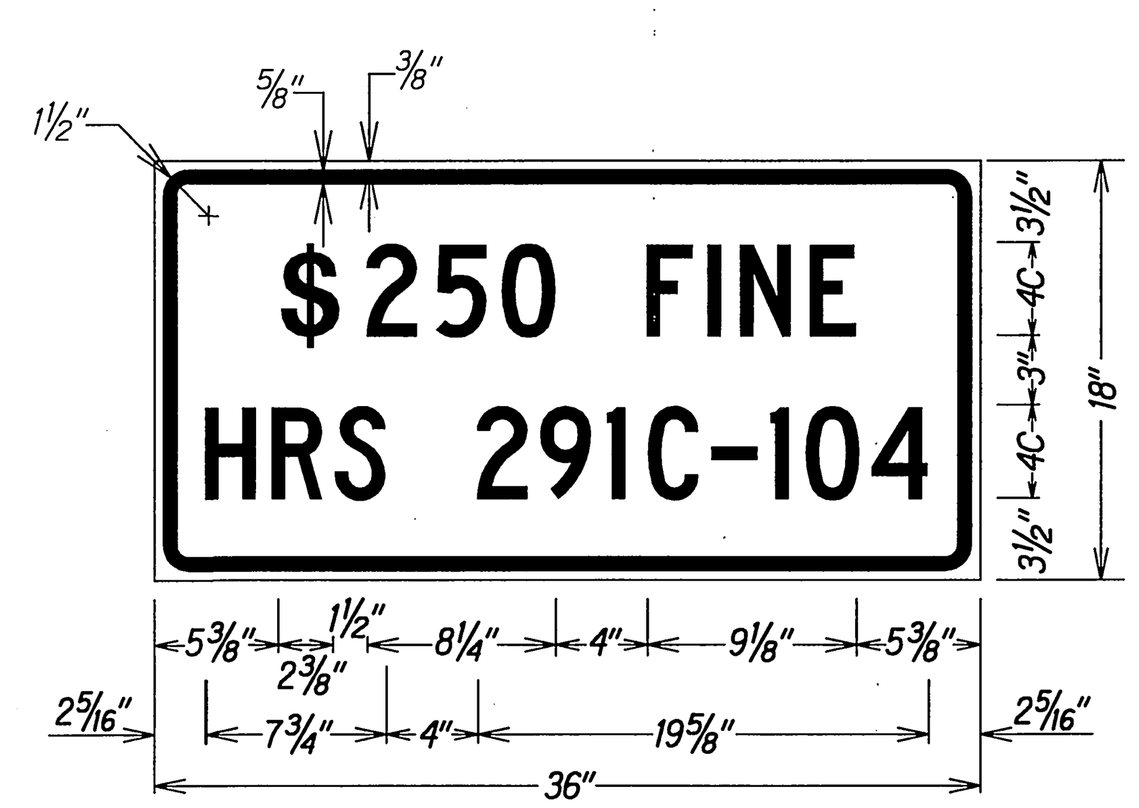
BACKGROUND: ORANGE



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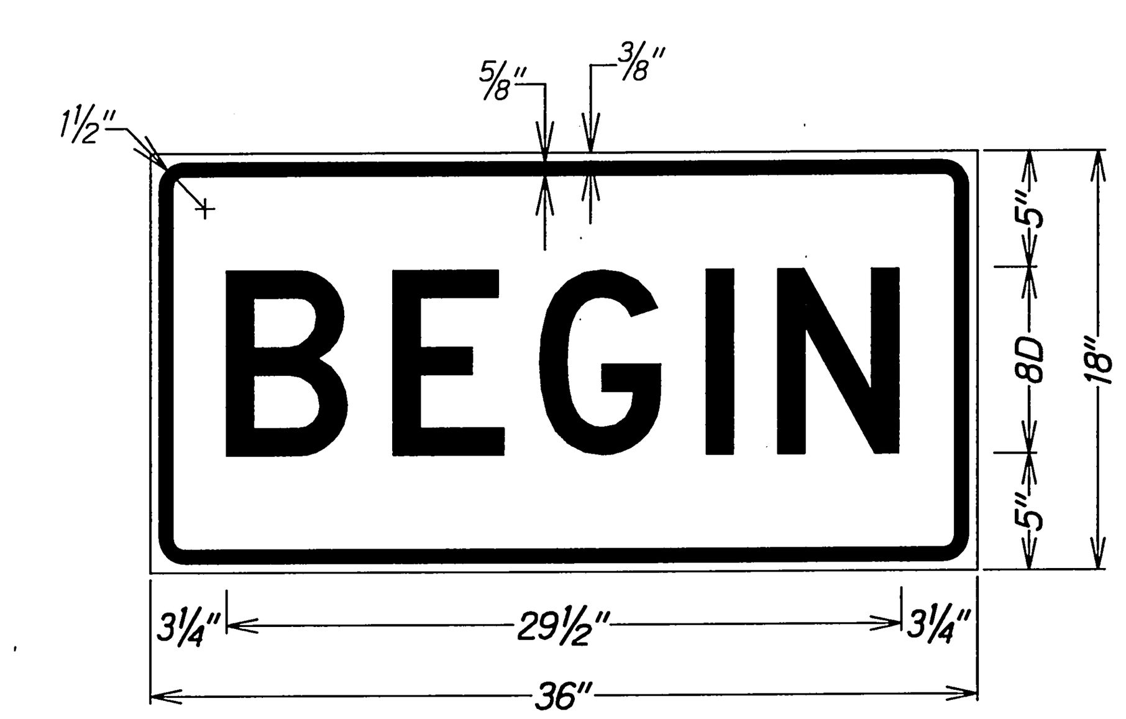
BACKGROUND: WHITE



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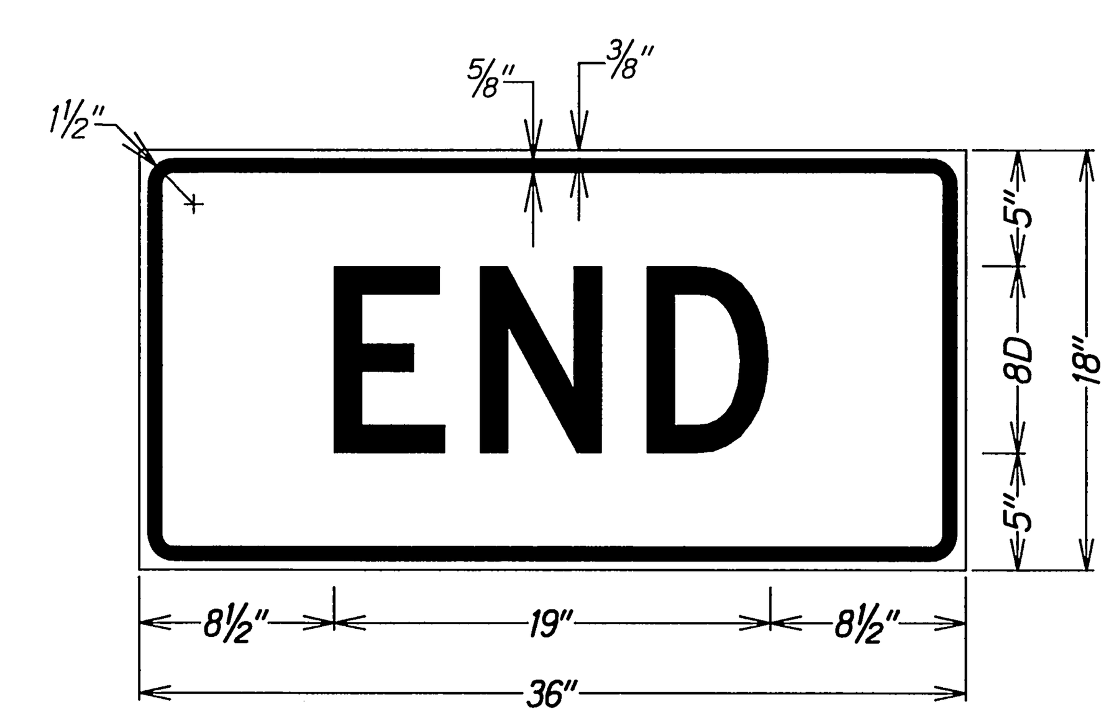
BACKGROUND: ORANGE



LEGEND: BLACK
BACKGROUND: ORANGE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

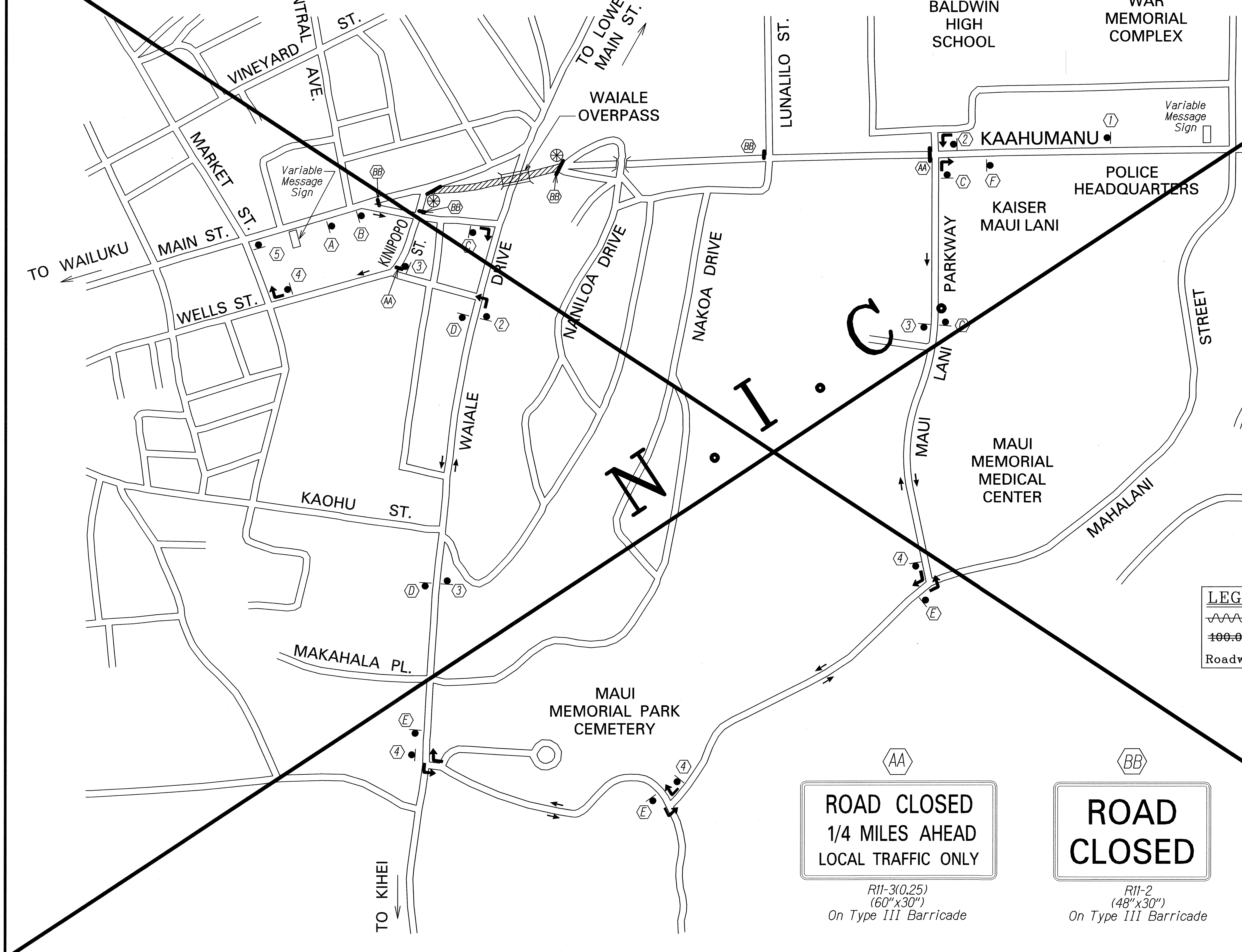
HIGH SPEED DIVIDED HIGHWAY
WORK ZONE SIGNING PLAN, NOTES & DETAILS
KAAHUMANU AVENUE
Waiale Road Overpass Repairs
Federal Aid Project No. ARR-032-1(9)

Not To Scale — Date: Sept. 2009

SHEET No. T2 OF 9 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-032-1(9)	2010	24	30



LEGEND FOR AS-BUILT POSTINGS

(squiggly line)	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

LEGEND:

- *Temporary Construction Sign w/Post*
- *Variable Message Sign*
- *Road Closure Area*
- *Direction of Travel*
- *Police Officer*

AA

ROAD CLOSED
1/4 MILES AHEAD
LOCAL TRAFFIC ONLY

R11-3(0.25)
(60"x30")
On Type III Barricade

BB

ROAD CLOSED

R11-2
(48"x30")
On Type III Barricade

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETOUR PLAN FOR KAAHUMANU AVENUE

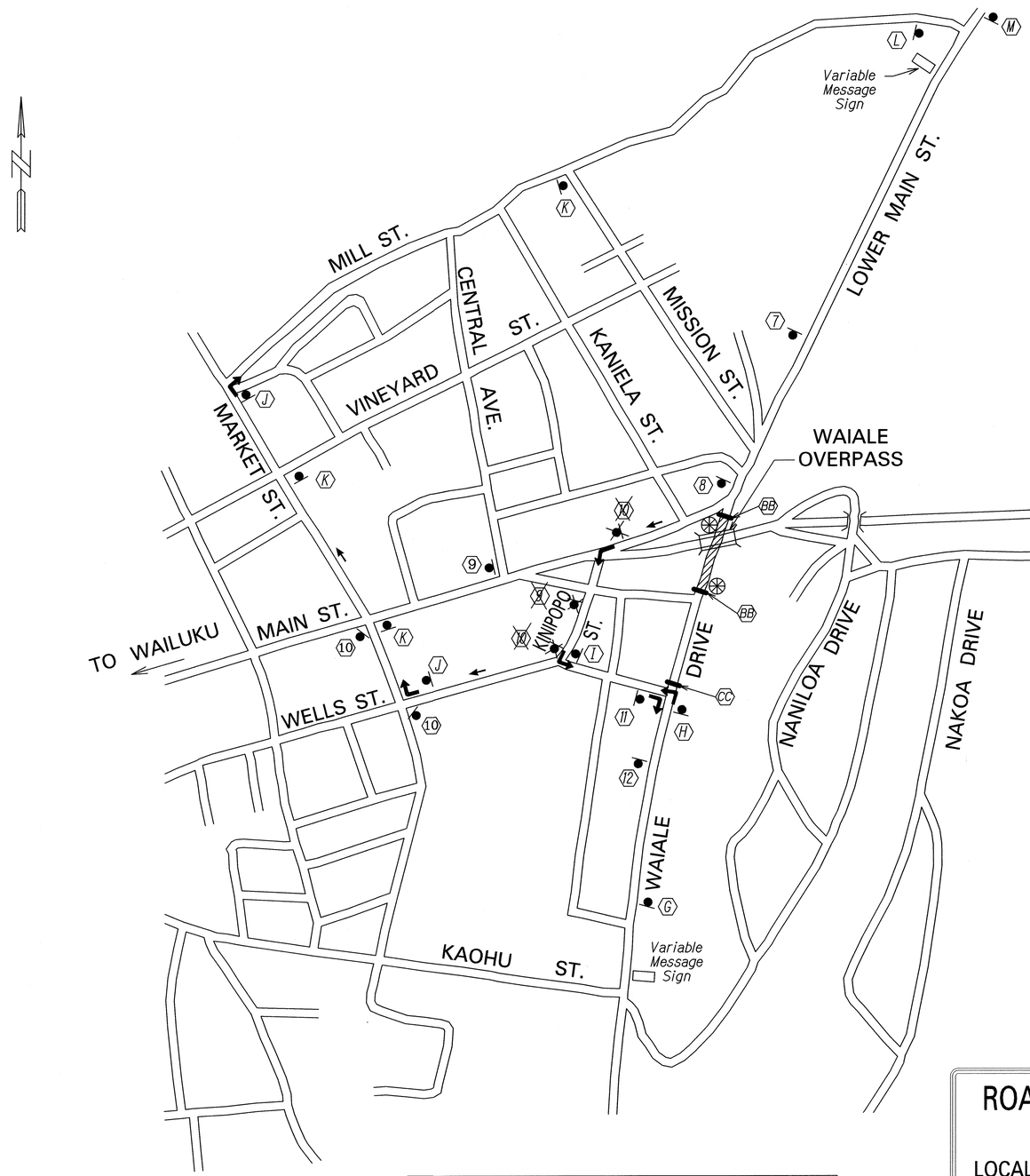
KAAHUMANU AVENUE
Waiale Road Overpass Repairs
Federal Aid Project No. ARR-032-1(9)
Not to Scale *Date: Sept. 2009*

SHEET No. T3 OF 9 SHEETS

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

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-032-1(9)	2010	25	30



LEGEND:

- Temporary Construction Sign w/Post
- Variable Message Sign
- Road Closure Area
- Direction of Travel
- Police Officer

ORIGINAL PLAN	SURVEY PLOTTED BY
	DRAWN BY
NOTE BOOK	TRACED BY
N:\waiale\tp2_1d2.mxy	DESIGNED BY
	QUANTITIES BY
	CHECKED BY
	DATE

LEGEND FOR AS-BUILT POSTINGS

~~^^^^~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

CC

ROAD CLOSED
AHEAD
LOCAL TRAFFIC ONLY

R11-3
(60"x30")
On Type III Barricade

BB

ROAD
CLOSED

R11-2
(48"x30")
On Type III Barricade

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETOUR PLAN FOR WAIALE DRIVE

KAAHUMANU AVENUE
Waiale Road Overpass Repairs
Federal Aid Project No. ARR-032-1(9)

Not to Scale Date: Sept. 2009

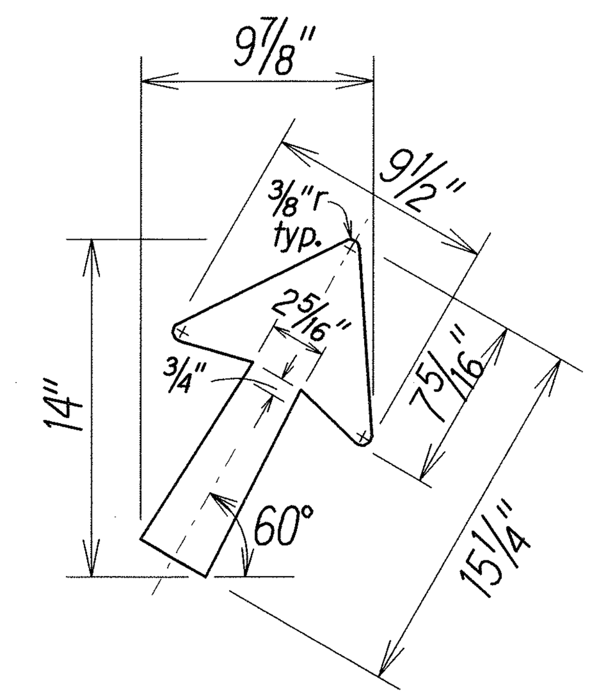
SHEET No. T4 OF 9 SHEETS

"AS-BUILT"

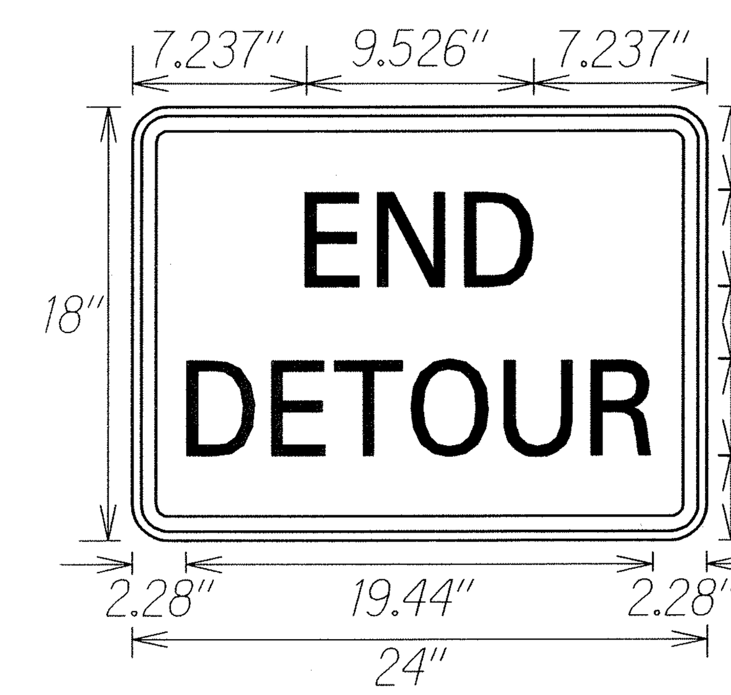
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-032-1(9)	2010	26	30

NOTES:

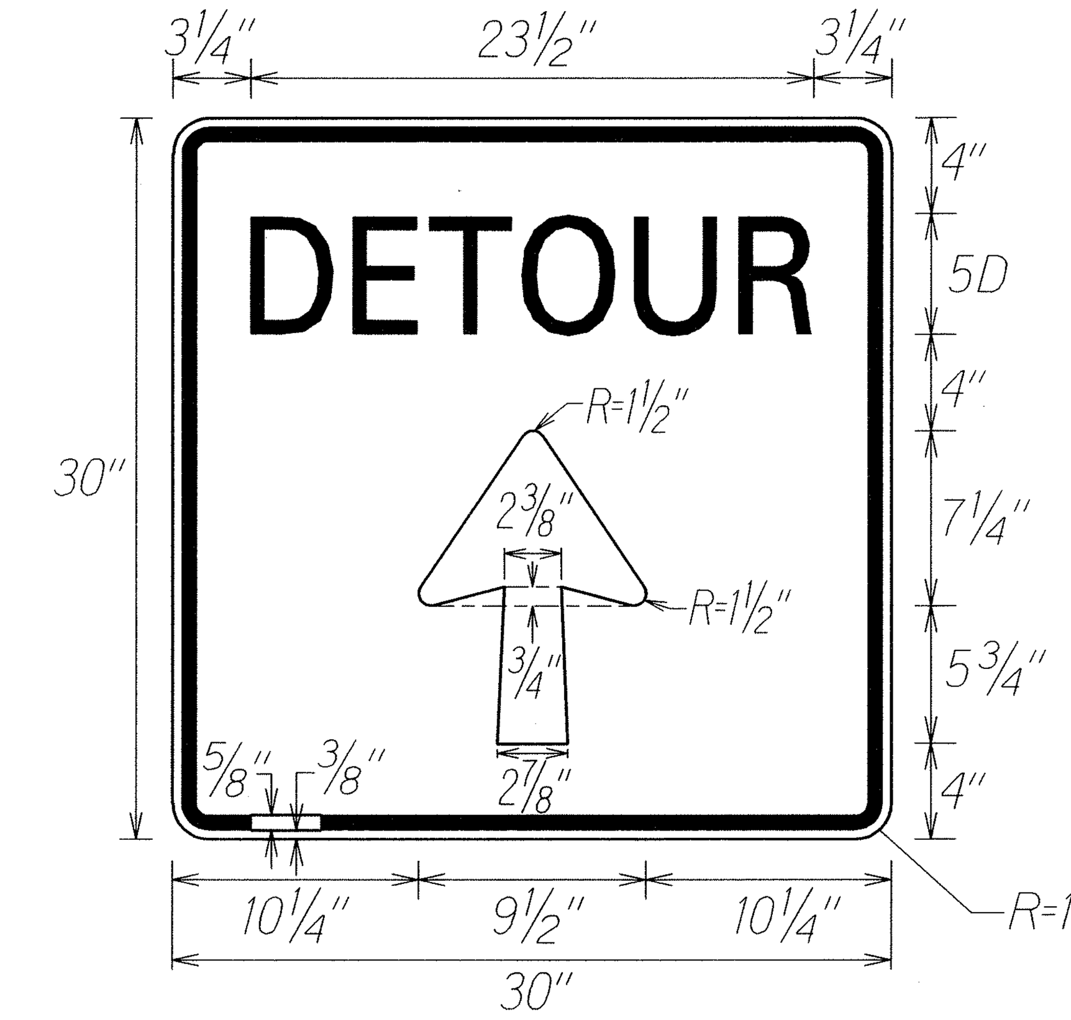
1. Markers prefixed with "C" shall have a black legend on orange background.
2. Contractor to provide up to 2 portable variable message signs per each road/ramp closure as part of the traffic control lump sum item. Variable message signs shall be set up one week prior to any road/ramp closure and for the duration of the road/ramp closure at the location specified by the Engineer. Variable message signs will not be paid for separately, but shall be considered incidental to Contract Item 645.0100 - Traffic Control.
3. In addition to the detour signs shown on this plan, Contractor shall install appropriate traffic controls for each road/ramp closure. All traffic control work, including detour signs will not be paid for separately, but shall be considered incidental to Contract Item 645.0100 - Traffic Control.
4. Contractor shall furnish a minimum of one (1) uniformed police officer with vehicle equipped with blue strobe light at each roadway approach to the road/ramp closure area. The furnishing of a police officer with vehicle will not be paid for separately, but shall be considered incidental to Contract Item 645.0100 - Traffic Control.
5. For additional traffic control note, see Contract Plan Sheet No. T1.
6. All signs shown within the County right-of-way shall be installed on existing street light posts or temporary non-marring sign supports. This work shall be considered incidental to various contract items.



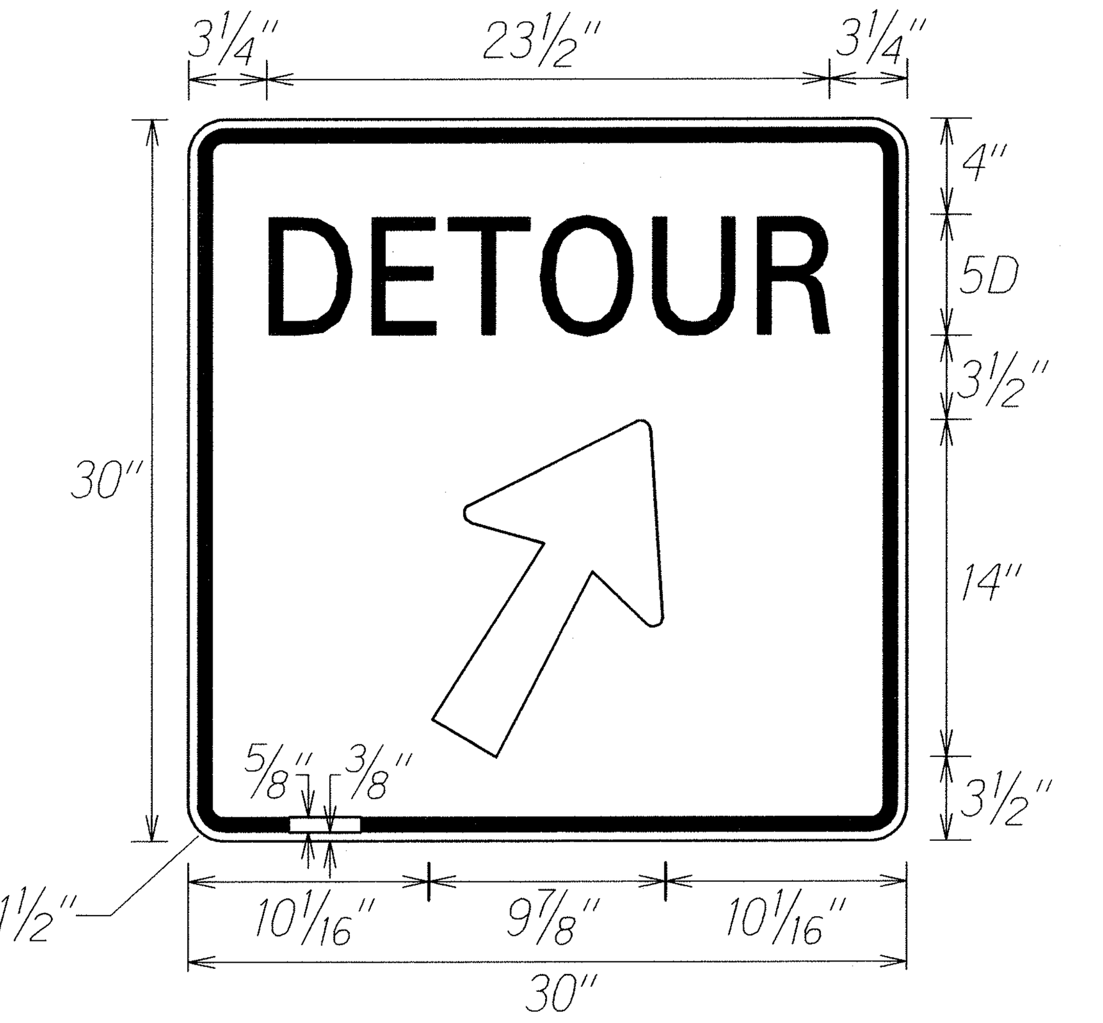
Type "A" Diagonal Arrow Detail



CM4-8a

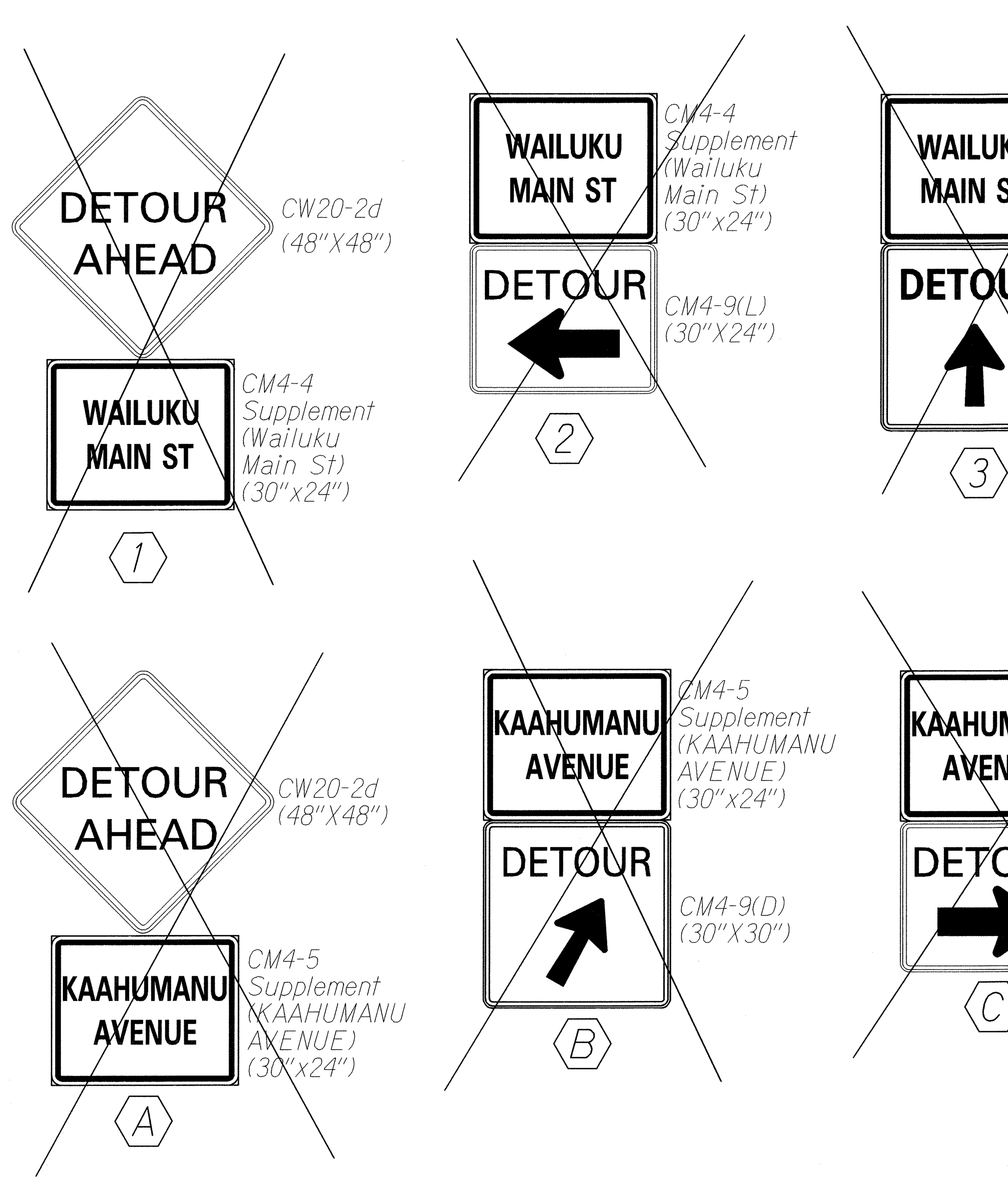


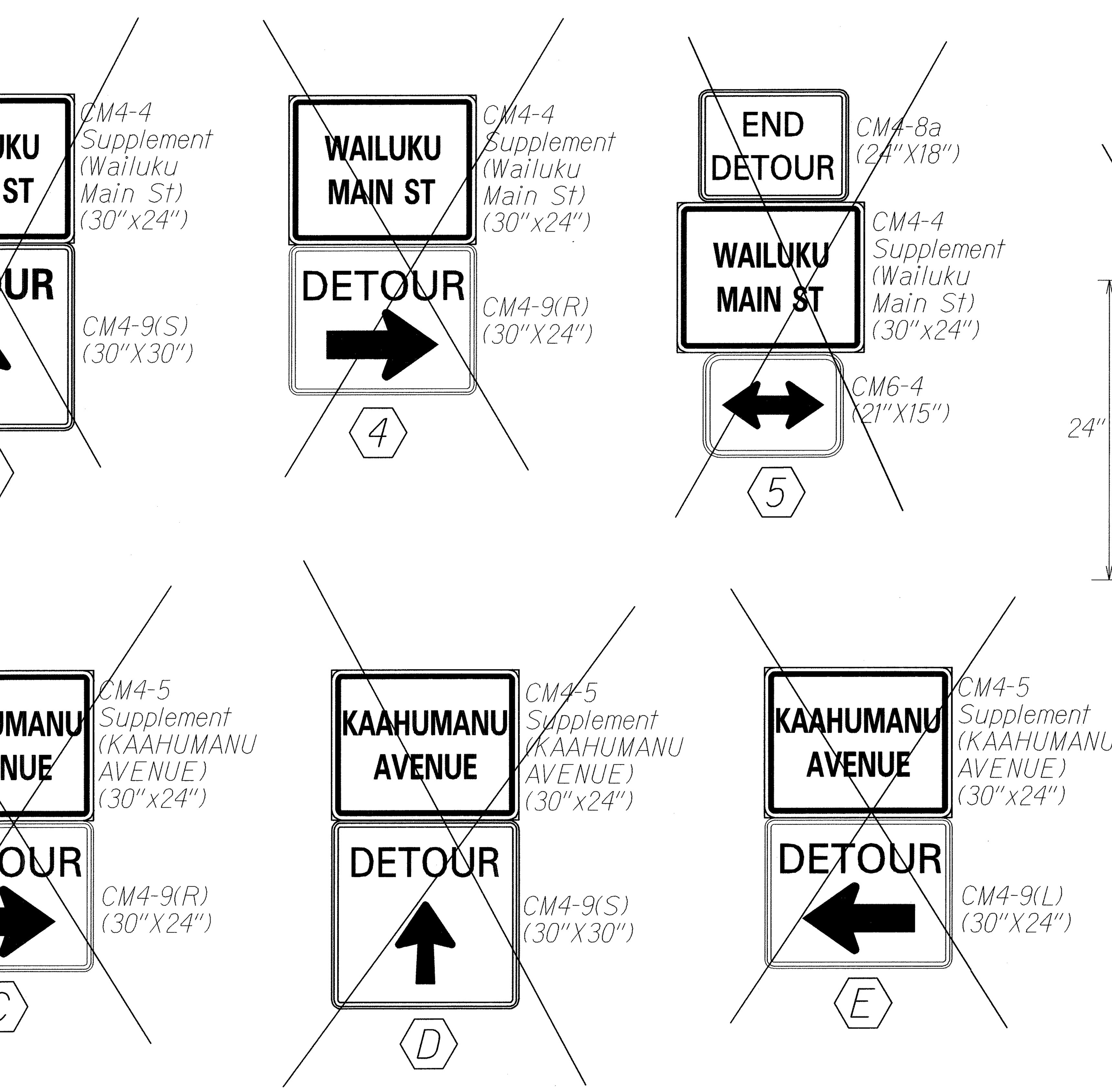
CM4-9(S)
Not to Scale

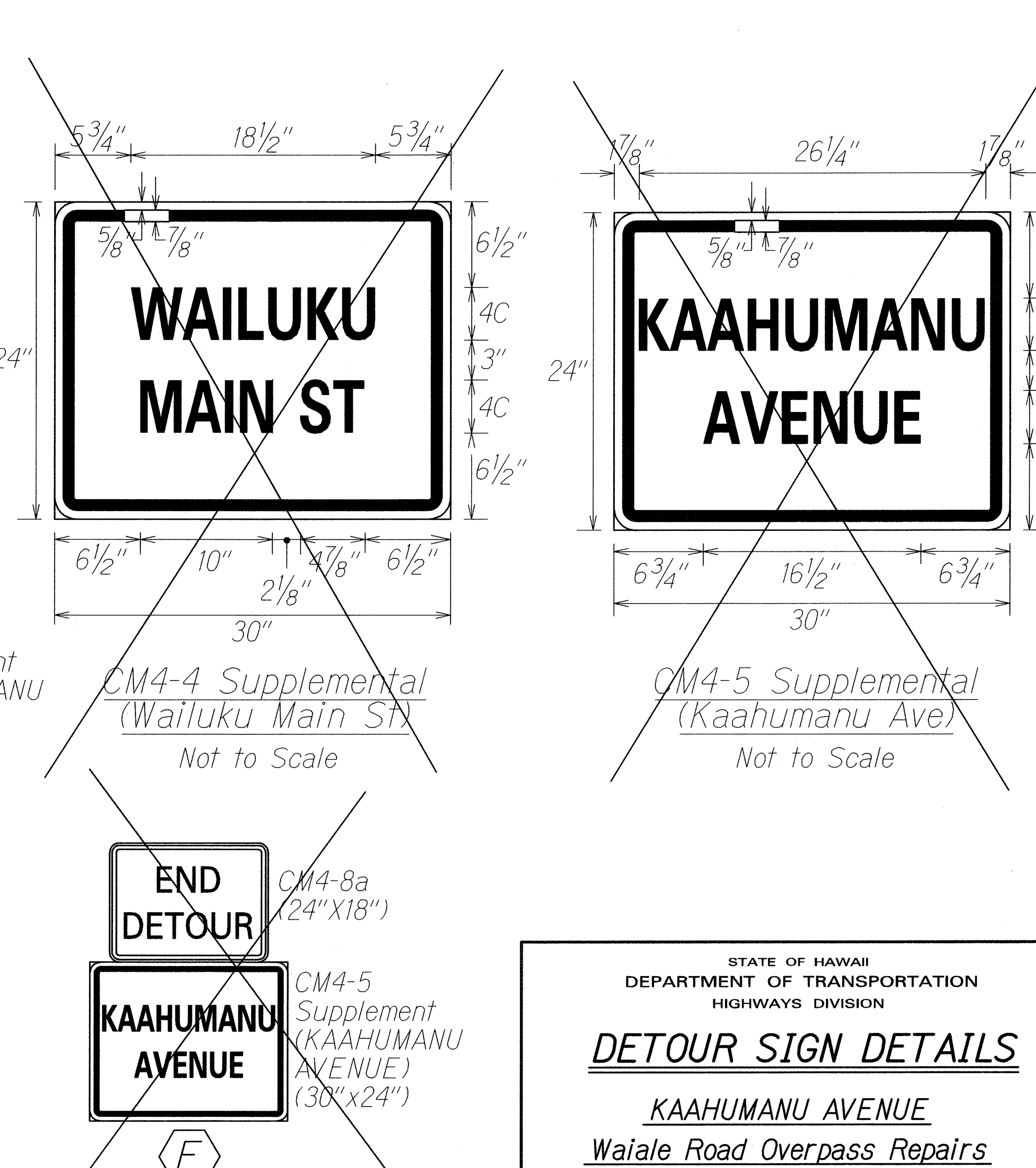


CM4-9(D)
Not to Scale

LEGEND: BLACK
BACKGROUND: ORANGE







LEGEND FOR AS-BUILT POSTINGS	
~~100.00~~ (squiggly)	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETOUR SIGN DETAILS

KAAHUMANU AVENUE
Waiale Road Overpass Repairs
Federal Aid Project No. ARR-032-1(9)

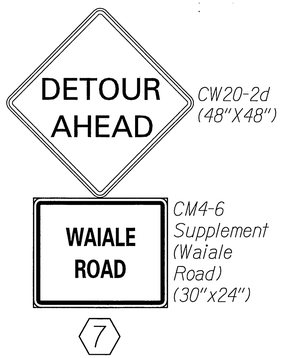
Not to Scale   Date: Sept. 2009

SHEET No. T5 OF 9 SHEETS

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

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-032-1(9)	2010	27	30



CW20-2d (48"X48")

CM4-6 Supplement (Waiale Road) (30"x24")

7

CM4-6 Supplement (Waiale Road) (30"x24")

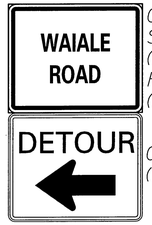
CM4-9(D) (30"X30")

8

CM4-6 Supplement (Waiale Road) (30"x24")

CM4-9(S) (30"X30")

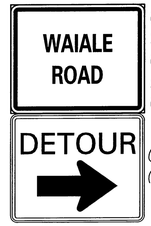
9



CM4-6 Supplement (Waiale Road) (30"x24")

CM4-9(L) (30"X24")

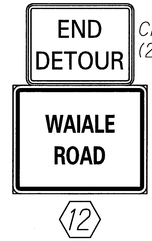
10



CM4-6 Supplement (Waiale Road) (30"x24")

CM4-9(R) (30"X24")

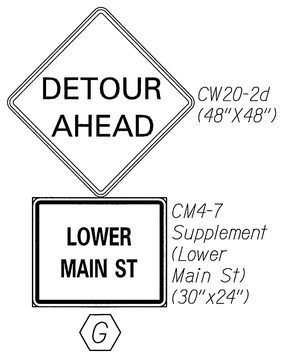
11



CM4-8a (24"X18")

CM4-6 Supplement (Waiale Road) (30"x24")

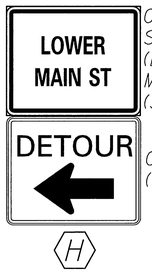
12



CW20-2d (48"X48")

CM4-7 Supplement (Lower Main St) (30"x24")

G



CM4-7 Supplement (Lower Main St) (30"x24")

CM4-9(L) (30"X24")

H

CM4-7 Supplement (Lower Main St) (30"x24")

CM4-9(D) (30"X30")

I

CM4-7 Supplement (Lower Main St) (30"x24")

CM4-9(R) (30"X24")

J

CM4-7 Supplement (Lower Main St) (30"x24")

CM4-9(S) (30"X30")

K

CM4-7 Supplement (Lower Main St) (30"x24")

CM4-9(L) (30"X24")

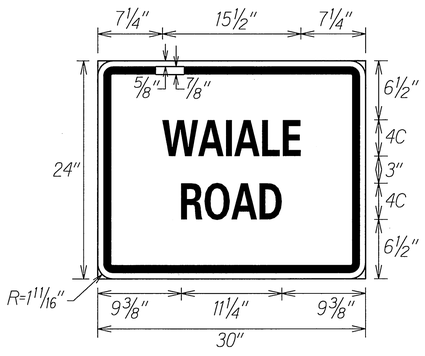
L

CM4-8a (24"X18")

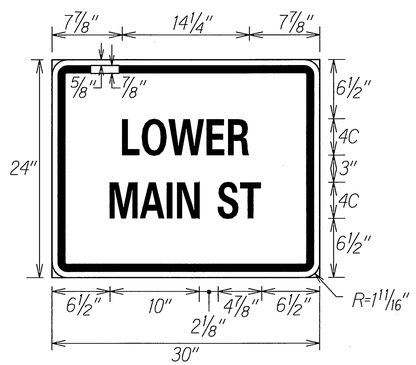
CM4-7 Supplement (Lower Main St) (30"x24")

M

LEGEND: BLACK
BACKGROUND: ORANGE



CM4-6 Supplemental
(Waiale Rd)
Not to Scale



CM4-7 Supplemental
(Lower Main St)
Not to Scale

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

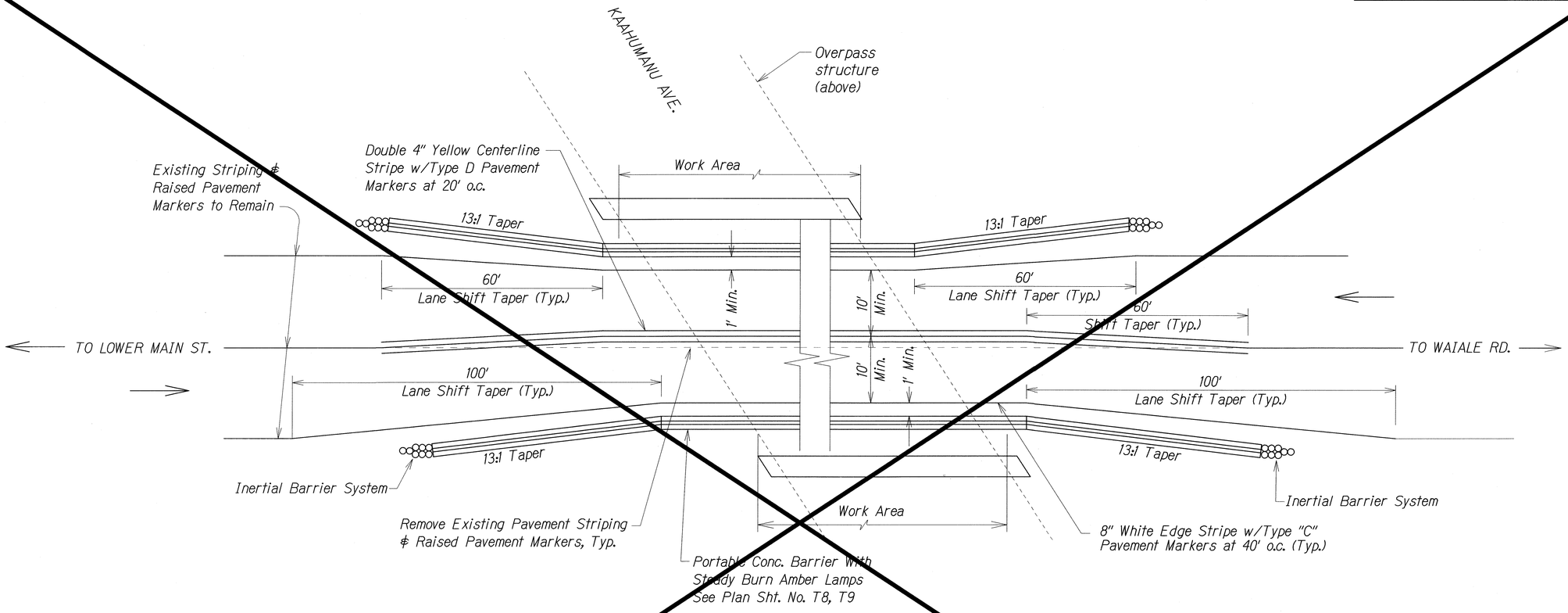
DETOUR SIGN DETAILS

KAAHUMANU AVENUE
Waiale Road Overpass Repairs
Federal Aid Project No. ARR-032-1(9)

Not to Scale Date: Sept. 2009

SHEET No. T6 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-032-1(9)	2010	28	30



N.I.C.

NOTE:

1. Contractor shall incorporate MUTCD CW1-R Series lane shift and other warning signs as applicable.
2. Contractor shall restore striping and markers to original configuration if area is not shown to receive new striping.
3. Removal and installation of temporary and permanent striping and markers will not be paid for separately, and shall be considered incidental to Other Contract Items.
4. Furnishing and installation of portable concrete barrier shall be paid for under Contract Item 649.0100.
5. Furnishing and installation of inertial barrier system shall be paid for under Contract Item 649.0200.

LEGEND FOR AS-BUILT POSTINGS	
~~^^^^~~	Squiggly line for as-built deletion
~~100.00~~	Double line for as-built deletion
Roadway	Text for as-built posting

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
lg2.mdy	TRACED BY	
N. waialelsp	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	

TEMPORARY STRIPING PLAN - LANE SHIFT ON WAIALE ROAD

Not To Scale

NOTE: WAIALE ROAD IS CLOSED TO TRAFFIC,
24 HOURS - 7 DAYS DURING REPAIR WORK

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TEMPORARY STRIPING PLAN

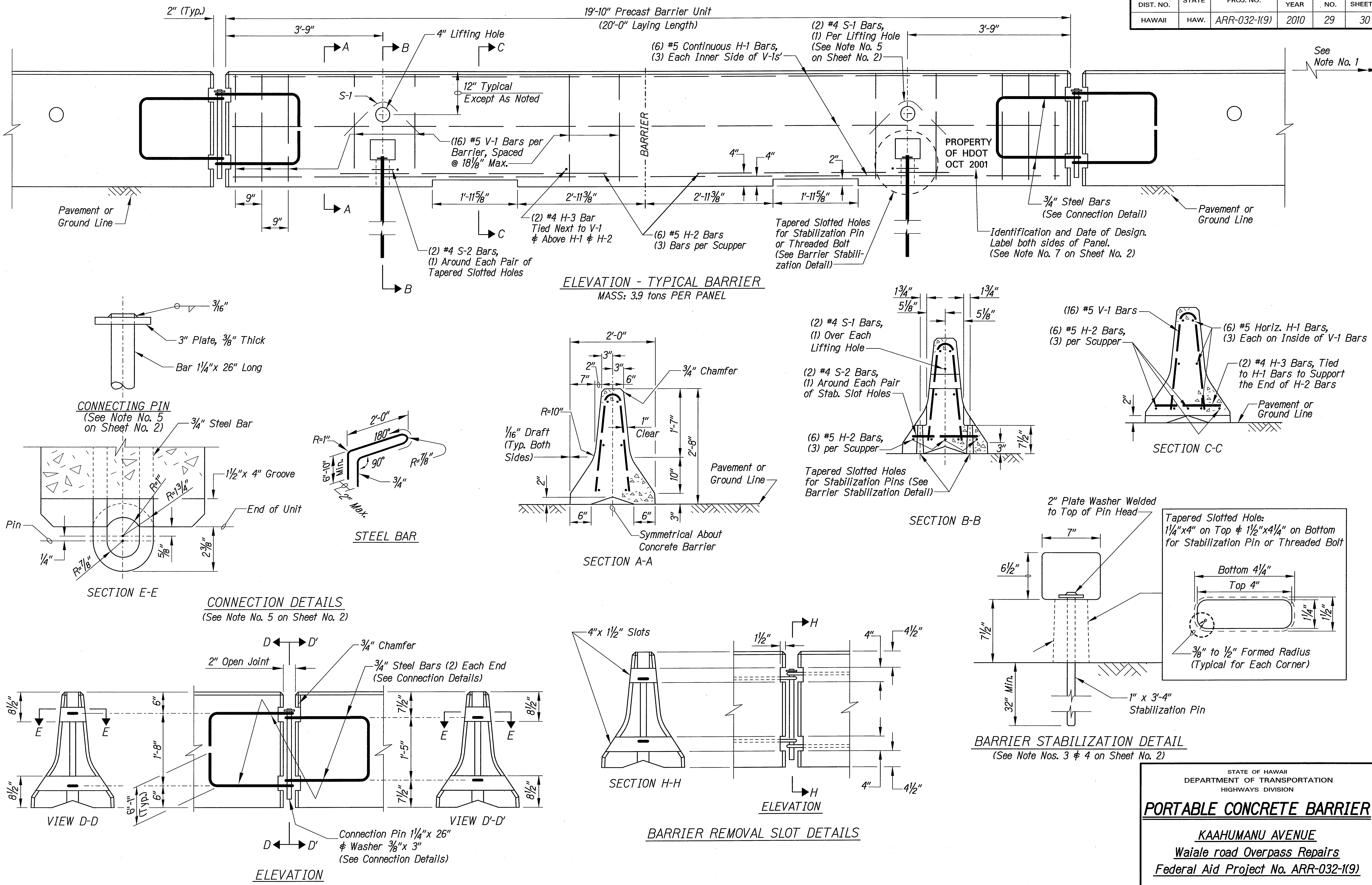
KAAHUMANU AVENUE
Waiale Road Overpass Repairs
Federal Aid Project No. ARR-032-1(9)

Scale: As Noted Date: Sept. 2009

SHEET No. T7 OF 9 SHEETS

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-032-1(9)	2010	29	30



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PORTABLE CONCRETE BARRIER

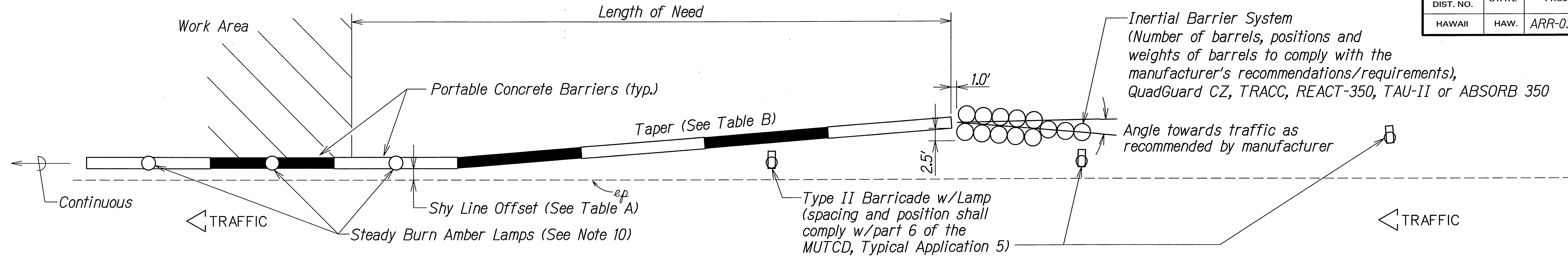
KAAHUMANU AVENUE
Waiale road Overpass Repairs
Federal Aid Project No. ARR-032-1(9)

Not To Scale — Date: Sept. 2009

SHEET No. T8 OF 9 SHEETS

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ARR-032-1(9)	2010	30	30

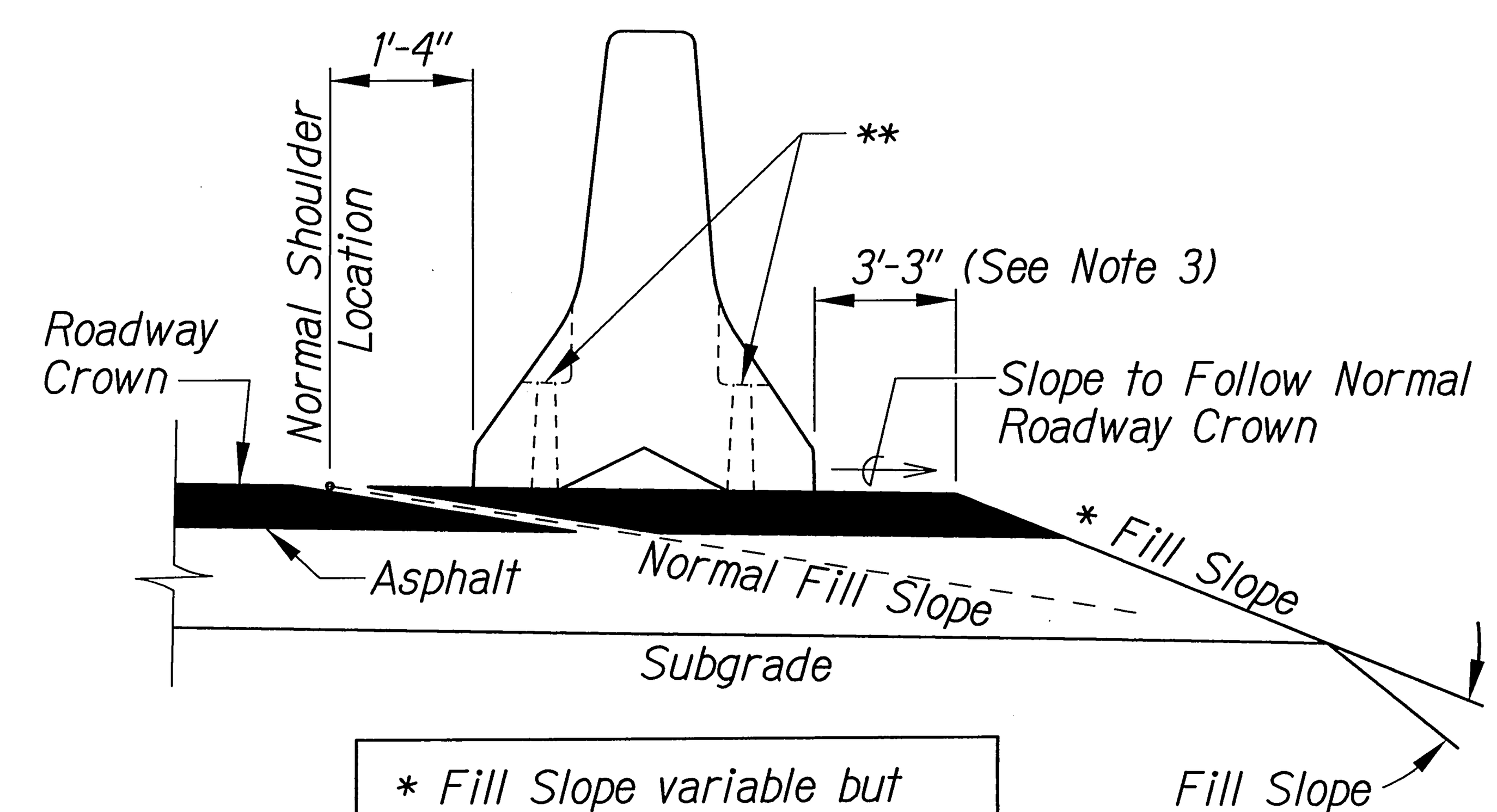


TYPICAL DETAIL - PORTABLE CONCRETE BARRIER END TREATMENT

Scale: 1" = 10'-0"

METAL REINFORCEMENT TABLE

MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	Horizontal in Barrier Tied Inside V-1 Bars	#5	(6)	19'-3"
H-2	Centered Above Scuppers Long. ⊄ Transversely	#5	(6)	6'-6"
H-3	Tied Above H-1 Bars to Support H-2, Tied to V-1	#4	(2)	1'-6"
S-1	Horizontal in Top of Wing Wall ⊄ in Floor Back Wall	#4	(2)	2'-5"; Lifting Hole; 90°; R=3⅜"
S-2	Horizontal Around Slots Between V-1's @ Scuppers	#4	(2)	R=1½"; Slots; 7"; 1'-6"; 1" Min. Clear to Bar; 5'-1" Bar w/(4) 1½"R Bends ⊄ Min. 1'-0" Overlap
V-1	Vertical in Barrier (3) Each End ⊄ (2) at Each Scupper	#5	(16)	Total Length 4'-9"; R=2³⁄₁₆"; 12°; 9½"; 2'-1⅞"; 4⅜"



* Fill Slope variable but not steeper than 2:1
** No Stabilization Pins (See Note Nos. 3 ⊄ 4)

STANDARD INSTALLATION
(See Note No. 1)

TABLE A
SHY LINE OFFSETS *

DESIGN SPEED (mph)	SHY LINE OFFSETS
70	10.0'
65	9.0'
60	8.5'
55	7.0'
50	6.5'
45	6.0'
40	5.0'
35	4.5'
30	3.5'
≤25	2.0'

TABLE B
MAXIMUM TAPERS FOR CONCRETE BARRIER

DESIGN SPEED (mph)	TAPER	
	INSIDE SHY LINE	BEYOND SHY LINE
70	30:1	20:1
65	28:1	19:1
60	26:1	18:1
55	24:1	16:1
50	21:1	14:1
45	18:1	12:1
40	17:1	11:1
35	15:1	9:1
≤30	13:1	8:1

* Note: Minimum shy line offset for tangent sections shall be 2'-0".

NOTES:

1. For end treatment, layout, crash cushions and where needed see Project Plans or Special Provisions.
2. Barriers must be pinned together and cannot exceed the Table of Maximum Tapers.
3. The concrete barrier "Standard Installation" design allows for 3'-3" of outward lateral movement if the barrier is struck. Barrier installations that require less than the 3'-3" of outward lateral movement should have stabilization pins.
4. ASTM A-36 steel shall be used for the connection pin, connection loops and stabilization pins. A one piece pin with a 3" rounded top may be used in place of the detailed connection pin if the one piece pin meets ASTM A-36 requirements.
5. A 4" white PVC sleeve may be used to form the lifting hole and if used the sleeve is to be left in place.
6. Concrete shall be Class A and reinforcing shall be Grade 60.
7. Identification and date of design will be as follows:
   PROPERTY
   OF HDOT
   OCT 2001
   Text letters and numbers shall be shown as on Standard Plan Sht. No. B-01. "PROPERTY OF HDOT" may be changed depending upon ownership. All Portable Concrete Barriers made for HDOT will be subject to rejection, if "PROPERTY OF HDOT" is not imprinted. The Contractor shall bear the cost of the rejected Portable Concrete Barriers.
8. Minimum tangent length for portable Concrete Barrier System shall be 100' (5 units). This minimum does not include the required system length of the Inertial Barrier System.
9. Install steady burn amber lamps on portable concrete barriers @ 20.0' o.c. Installing, maintaining and removing each steady burn amber lamp including changing of batteries and bulbs shall be considered incidental to applicable portable concrete barrier items.

ORIGINAL PLAN	SURVEY PLOTTED BY / DRAWN BY / TRACED BY / DESIGNED BY / QUANTITIES BY / CHECKED BY	DATE
NOTE BOOK 102my No. wa1ep002		

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PORTABLE CONCRETE BARRIER

KAAHUMANU AVENUE
Waiale Road Overpass Repairs
Federal Aid Project No. ARR-032-1(9)

Scale: As Noted — Date: Sept. 2009

SHEET No. T9 OF 9 SHEETS