FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	147	~~195~~ 194

GENERAL CONSTRUCTION NOTES

A. All work shall be done in accordance with the "Hawaii Standard Specifications For Road, Bridge, and Public Works Construction", 2005, State of Hawaii Department of Transportation, Highways Division, except as modified herein or in the Special Provisions.

B. The Contractor shall verify with the respective utility companies and Government agencies the locations of all electric, telephone, roadway light, water, sewer, drain and other lines crossing the excavation path or in excavation areas.

C. The Contractor shall notify all affected utility companies and Government agencies of their intent to begin construction on any intersection or street at least two (2) weeks prior to the start of such construction.

D. The Contractor shall notify the Department of Transportation three (3) working days prior to commencing work on the traffic signal system. (Phone: 873-3535).

E. The traffic signal system shall be kept operational during construction. Any relocation required shall be approved by the Department of Transportation and paid for by the Contractor.

F. The Contractor shall provide microwave detector system for all existing signalized intersections where existing loop detector system will be out of service to ensure uniterrupted coordinated signal timing at all times.

G. Trenching to be by hand digging near and across existing utility lines.

H. Unless otherwise requested by the Maui County Department of Water Supply, minimum clearance between water lines and conduits shall be:
Horizontal = 3 feet
Vertical = 6 inches

I. Adjust new conduit alignment, if required to provide clearances. If conduit cannot be realigned, adjustments to existing water system shall be performed in accordance with standards of the Department of Water Supply.

J. Underground utilities shown hereon are for information only. No guarantee is made on the accuracy or completeness of said information.

K. Where necessary, reconstruction of sidewalk, gutter and driveway areas shall conform to the standard details of the governmental agency having jurisdiction over the work.

L. The Contractor shall be responsible for removal of all silt and debris resulting from his work and deposited in drainage facilities, roadways and other areas. The cost for any necessary remedial action by the Chief Engineer shall be payable by the Contractor.

M. The Contractor, at his own expense, shall keep the project area free from dust nuisance. The work shall be in conformance with the air pollution control standards and regulations of the State Department of Health.

N. Traffic signal supports shall be designed in accordance with the latest AASHTO std. specs. for Structural Supports for Highway Signs, Luminaires, & Traffic Signals, and with modifications contained in Memo HWY-DB 2.6843, Design Criteria for Bridges and Structures, Feb 2005 as shown on this sheet.

MODIFICATIONS TO AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS

1. Basic Wind Speed (Article 3.8.2) to determine the design wind pressure shall be 105 MPH. For unusual or differing exposure conditions, the basic wind speed should be increased using rational procedures and sound engineering judgement. Alternatively, the design wind pressure may be increased by using a higher Wind Importance Factor (Table 3-2) corresponding to a recurrence interval of at least one Level greater than recommended.

2. Wind Importance Factor (Article 3.8.3) noted in Table 3-2 used to determine the design wind pressures shall be based on the following recurrence intervals:

   a. For traffifc signal structures: 50 years

   b. For luminaire support structures: 25 years

   c. For temporary support structures: 10 years

3. Fatigue Importance Factors (Article 11.6) noted in Table 11-1 for traffic signal structures shall be based on Fatigue Category I Luminaire support structures with round cross sections under 50 do not need to be designed for fatigue.

4. Galloping (Article 11.7.1). Traffic signal support structures shall be designed for galloping-induced cyclic loads unless approved vibration mitigation devices are installed.

5. Vortex Shedding (Article 11.7.2). Non-tapered lighting structures shall be designed to resist vortex shedding-induced loads including cantilevered mast arms and lighting structures that have tapers less than 0.14 in/ft.

6. Natural Wind Gust (Article 11.7.3). Traffic signal and high-level lighting support structures shall be designed to resist an equivalent static natural wind gust pressure. For unusual or differing exposure conditions, the equivalent static natural wind gust pressure should be increased using references noted in the specifications.

7. Truck-Induced Gust (Article 11.7.4). Traffic signal support structures shall be designed to resist an equivalent static truck gust pressure range based on a truck speed of 20 MPH over the posted speed.

ELECTRICAL SYMBOLS

EXIST	NEW	DESCRIPTION
		TRAFFIC SIGNAL HEAD RYGA, PROGRAMMABLE VISIBILITY, PROVIDE NECESSARY MOUNTING BRACKETS AND ACCESSORIES
		TRAFFIC SIGNAL HEAD RYG, PROVIDE NECESSARY MOUNTING BRACKETS AND ACCESSORIES
		PEDESTRIAN TRAFFIC SIGNAL HEAD, PROVIDE NECESSARY MOUNTING BRACKETS AND ACCESSORIES
		PEDESTRIAN PUSHBUTTON SHALL MEET CURRENT AMERICAN WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES AND WILL BE SUBJECT TO ENGINEER'S APPROVAL, SEE DETAIL A/E-20.
		TYPE I TRAFFIC SIGNAL STANDARD, SEE DETAIL A/E-19.
	30'	TYPE II TRAFFIC SIGNAL STANDARD (WITH 30' MAST ARM INDICATED). SEE DETAIL B/E-19.
		OPTICOM DETECTOR, PROVIDE NECESSARY MOUNTING BRACKETS AND ACCESSORIES, SEE DETAIL B/E-22. AND C/E-22.
A	A	TRAFFIC SIGNAL PULLBOX, TYPE "A" INDICATED. SEE SHEETS E-17 AND E-18 FOR DETAILS.
--- e/OH---	—E/OH—	OVERHEAD ELECTRIC UTILITY CABLE
--- e ----	——·——	CONDUIT CONCEALED BELOW GRADE
		STREET LIGHT POLE
		UTILITY POLE

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SEAN K. SUGAI
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APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

2/19/08

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL SYMBOLS, GENERAL NOTES

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-1 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	148	~~195~~ 194

MAUI ELECTRIC COMPANY NOTES

1. LOCATION OF MECO FACILITIES

The Location Of MECO's Overhead Facilities Shown On The Plans Are From Existing Records With Varying Degrees Of Accuracy And Are Not Guaranteed As Shown. The Contractor Shall Verify In The Field The Locations Of The Facilities And Shall Exercise Proper Care In Excavating And Working In The Area. Wherever Connections Of New Utilities To Existing Utilities And Utility Crossings Are Shown, The Contractor Shall Expose The Existing Lines At The Proposed Connections And Crossings To Verify The Depths Prior To Excavation For The New Lines. The Contractor Shall Be Responsible For Any Damages To MECO's Facilities Whether Shown Or Not Shown On The Plans.

2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS

The Contractor Shall Comply With The State Of Hawaii's Occupational Safety And Health Laws And Regulations, Including Without Limitation, Those Related To Working On Or Near Exposed Or Energized Electrical Lines And Equipment.

3. EXCAVATION PERMIT

The Contractor Shall Obtain An Excavation Permit From MECO Two Weeks Prior To Starting Construction. Please Refer To Our Request Number At That Time.

4. CAUTION!!! ELECTRICAL HAZARD!!!

Existing MECO Overhead Lines Are Energized And Will Remain Energized During Construction Unless Prior Special Arrangements Have Been Made With MECO. Only MECO Personnel Are To Handle These Energized Lines And Erect Temporary Guards To Protect These Lines From Damage. The Contractor Shall Work Cautiously At All Times To Avoid Accidents And Damage To Existing MECO Facilities Which Can Result In Electrocution.

5. OVERHEAD LINES

State Law Requires That A Worker And The Longest Object He Or She May Contact Cannot Come Closer Than A Minimum Radial Clearance Of 10 Feet When Working Close To Or Under Any Overhead Lines Rated 50KV And Below. For Each Additional 1KV Above 50KV, An Additional 0.4 Inch Shall Be Added To The 10-foot Clearance Requirement. The Preceding Information On Line Clearance Requiements Is Provided As A Convenience And It Is The Contractor's Responsibility To Be Informed Of And Comply With Any Revisions Or Amendments To The Law.

Should The Contractor Anticipate That His Work Will Result In The Need To Encroach Within The Minimum Required Clearance At Any Time, The Contractor Shall Notity MECO At Least Four (4) Weeks Prior To The Planned Encroachment So That, If Feasable, The Necessary Protections (e.g. Relocate, De-energize, Or Blanket MECO Lines) Can Be Put In Place. MECO's Cost Of Safeguarding Its Lines Will Be Charged To The Contractor.

Contact MECO's Engineering Department At 871-2390 For Assistance In Identifying And Safeguarding Overhead Power Lines.

Refer To Section X Of MECO's Electrical Service Installation Manual For Additional Guidelines When Working Around MECO's Facilities. A Copy May Be Obtained From MECO's Engineering Department.

6. POLE BRACING

A Minimum Clearance Of 10 Feet Must Be Maintained When Excavating Around Utility Poles And/Or Their Anchor System To Prevent Weakening Or Pole Support Failure. Should Work Require Excavating Within 10-feet Of A Pole And/or Its Anchor System, The Contractor Shall Protect, Support, Secure, And Take All Other Precautions To Prevent Damage To Or Leaning Of These Poles. The Contractor Is Responsible For All Associated Costs To Brace, Repair, Or Straighten Poles. All Means Of Structural Support For The Poles Proposed By The Contractor Shall First Be Reviewed By MECO Before Implementation. For Pole Bracing Instructions, The Contractor Shall Request Pole Bracing Instructions From MECO A Minimum Of Two (2) Weeks In Advance.

7. EXCAVATIONS

When Trench Excavation Is Adjacent To Or Beneath MECO's Existing Structures Or Facilities, The Contractor Is Responsible For:

A) Sheeting And Bracing The Excavation And Stabilizing The Existing Ground To Render It Safe And Secure And To Prevent Possible Slides, Cave-ins, And Settlements.

B) Properly Supporting Existing Structures Or Facilities With Beams, Struts, Or Under-pinnings To Fully Protect It From Damage.

C) Backfilling With Proper Backfill Material Including Special Thermal Backfill Where Existing (refer To Engineering Department For Thermal Backfill Specifications).

8. RELOCATION OF MECO FACILITIES

Any Work Required To Relocate Or Modify MECO Facilities Shall Be Done By MECO, Or By The Contractor Under MECO's Supervision. The Contractor Shall Be Responsible For All Coordination, And Shall Provide Necessary Support For MECO's Work, Which May Include, But Not Limited To, Excavation And Backfill, Permits And Traffic Control, Barricading, And Restoration Of Pavement, Sidewalks, And Other Facilities.

All Costs Associated With Any Relocation Or Modification (either Temporary Or Permanent) For The Convenience Of The Contractor, Or To Enable The Contractor To Perform His Work In A Safe And Expedious Manner In Fulfilling His Contract Obligations Shall Be Borne By The Contractor.

9. CONFLICTS

Any Redesign Or Relocation Of MECO's Facilities Not Shown On The Plans May Be Cause For Lengthy Delays. The Contractor Acknowledges That MECO Is Not Responsible For Any Delay Or Damage That May Arise As A Result Of Any Conflicts Discovered Or Identified With Respect To The Location Or Construction Of MECO's Electrical Facilities In The Field, Regardless Of Whether The Contractor Has Met The Requested Minimum Advance Notices. In Order To Minimize Any Delay Or Impact Arising From Such Conflicts, MECO Should Be Notified Immediately Upon Discovery Of Identification Of Such Conflict.

10. DAMAGE TO MECO FACILITIES

The Contractor Shall Be Responsible For The Protection Of All MECO Surface And Subsurface Utilities And Shall Be Responsible For Any Damages To MECO's Facilities As A Result Of His Operations. The Contractor Shall Immediately Report Such Damages To MECO. Repair Work Shall Be Done By MECO Or By The Contractor Under MECO's Supervision. Cost For Damages To MECO's Facilities Shall Be Borne By The Contractor.

11. MECO STAND-BY PERSONNEL

The Contractor May Request MECO To Provide An Inspector To Stand-by During Construction Near MECO's Facilities. The Cost Of Such Inspection Will Be Charged To The Contractor.

The Contractor Shall Call MECO A Minimum Of 5 Working Days In Advance To Arrange For MECO Stand-By Personnel.

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2/19/08

APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MECO NOTES

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-2 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	149	~~195~~ 194

MAUI ELECTRIC COMPANY NOTES (Continued)

12. CLEARANCES

The Following Clearances Shall Be Maintained Between MECO's Ductline And All Adjacent Structures (charted And Uncharted) In The Trench:

Structure Type	Minimum Clearance (inches)
Water Lines, Parallel	36(A)
Water Lines, Crossing	12(B)
Sewer Lines, Parallel	36(C)
Sewer Lines, Crossing	24(D)
Drain Lines, Parallel	12
Drain Lines, Crossing	6(E)
Electrical and Gas Lines, Parallel	12
Electrical and Gas Lines, Crossing	12
Telephone Lines, Parallel	6(E)
Telephone Lines, Crossing	6(E)
Chevron Oil Lines, Parallel	36
Chevron Oil Lines, Crossing	48 BELOW OIL LINE (F)

A. The Minimum Horizontal Clerances To Water Lines Parallel To Electrical Ductlines Should Be Increased To 60 Inches If The Water Line Is Greater Than Or Equal To 16 Inches In Diameter.

B. The Mimimum Vertical Clerances To Water Lines Crossing Electrical Ductlines Can Be Reduced To 6 Inches If The Electrical Ductline Structure Is Concrete Encased And Is Below The Water Line And The Water Line Is Less Than 16 Inches In Diameter.

C. A Minimum Horizontal Clearance Of 36 Inches Is Required Between New Handholes And Existing Sewer Laterals.

D. The Minimum Vertical Clearances To Sewer Pipes Crossing Electrical Ductlines Can Be Reduced To 12 Inches If The Sewer Pipe Is Jacketed In Concrete.

E. The Minimum Clearances Shall Be Increased To 12 Inches If The Electrical Ductline Is Direct Buried.

F. The Minimum Vertical Clearances To Oil Lines Crossing Electrical Ductlines Can Be Reduced To 24 Inches Below Oil Lines If The Crossings Are Encased In 6 Inches Of Concrete.

G. The Contractor Shall Notify The Construction Manager & MECO Of Any Heat Sources (Power Cable Duct Bank, Steamline, Etc.) Encountered That Are Not Properly Identified On The Drawing.

13. The Contractor Shall Indemnify, Defend And Hold Harmless MECO From And Against All Losses, Damages, Claims, And Actions, Including But Not Limited To Reasonable Attorney's Fees And Costs Based Upon Or Arising Out Of Damage To Property Or Injuries To Persons, Or Other Tortious Acts Caused By Contributed To By Contractor Or Anyone Acting Under Its Direction Or Control Or On Its Behalf; Provided Contractor's Indemnity Shall Not Be Applicable To Any Liability Based Upon The Sole Negligence Of MECO.

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APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MECO NOTES

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-3 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	150	~~195~~ 194

HAWAIIAN TELCOM TELEPHONE COMPANY NOTES:

1. The Location Of Hawaiian Telcom's Existing Facilities Are Approximate Only. The Contractor Shall Exercise Extreme Caution And Shall Maintain Proper Clearances Whenever Construction Crosses Or Is In Close Proximity To Hawaiian Telcom's Facilities. The Contractor Shall Verify Their Locations And Shall Be Liable For Any Damages To Hawaiian Telcom Facilities. Any Damages Shall Be Reported Immediately To Hawaiian Telcom's During During Normal Work Day Hours, Monday Thru Friday, Except Holidays.

2. The Contractor Shall Take Necessary Precautions Not To Damage Existing Cables. Any Work Involving Existing Hawaiian Telcom Cables Shall Be Done In The Presence Of A Hawaiian Telcom Inspector Or Designated Representative.

3. The Contractor Shall Notify Hawaiian Telcom's Inspector Or Designated Representative a Minimum of 72 Hours Prior To Bracing of Hawaiian Telcom's Structures Or Facilities.

4. Should It Become Necessary To Relocate Any Hawaiian Telcom Facilities, The Work Shall be Done By Hawaiian Telcom. The The Contractor Shall Be Responsible For All Coordination And Costs Associated With The Relocation.

5. Should Field Conditions And Construction Procedures Require That Utility Poles Be Braced, The Contractor Shall Contact Hawaiian Telcom For Pole Bracing Instructions A Minimum Of 72 Hours In Advance Of Actual Required Bracing.

OCEANIC TIME WARNER CABLE NOTES:

1. The Contractor Shall Take Necessary Precaution Not To Damage Existing Cables. Any Work Involving Existing Cables Shall Be Done In The Presence Of The Oceanic's Inspector Or His Representative.

2. Any Work Required To Relocate CATV Facilities Shall Be Done By Oceanic Time Warner Cable And The Contractor Shall Be Responsible For All Coordination Requirements And Associated Costs.

3. Any Damage To Oceanic's Facilities Shall Be Reported To Mr. Bill Hanke at (808) 877-4425 ext. 838.

4. All Construction Must Be Inspected And Approved By Oceanic Time Warner Cable Prior To The Installation Of Any Of Its Facilities And The Energizing Of Its System.

5. Contractor And/Or Customer Shall Provide Oceanic Time Warner Cable With Sufficient Installation Time In Their Occupancy Time Table.

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EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HAWAIIAN TELCOM NOTES,
OCEANIC CABLE NOTES

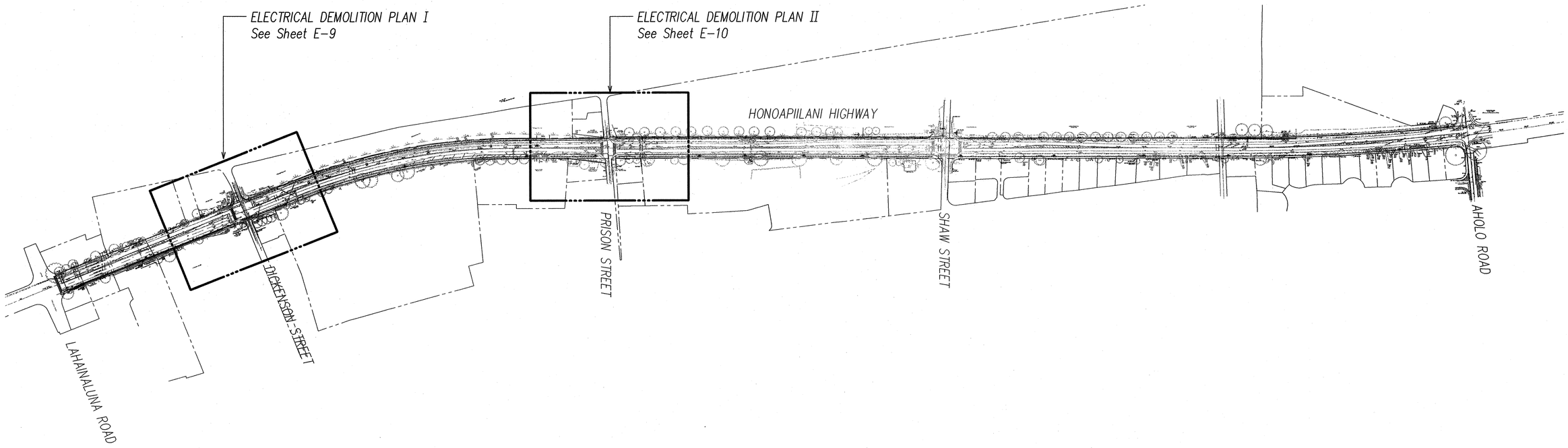
Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-4 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	151	~~195~~ 194



NORTH

ELECTRICAL DEMOLITION SITE PLAN

SCALE: 1"=200'

200' 100' 0 200' 400' 600'

SCALE: 1"=200'

GRAPHIC SCALE

SEAN K. SUGAI
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APRIL 30, 2008
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL DEMOLITION SITE PLAN

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-5 OF 27 SHEETS

151

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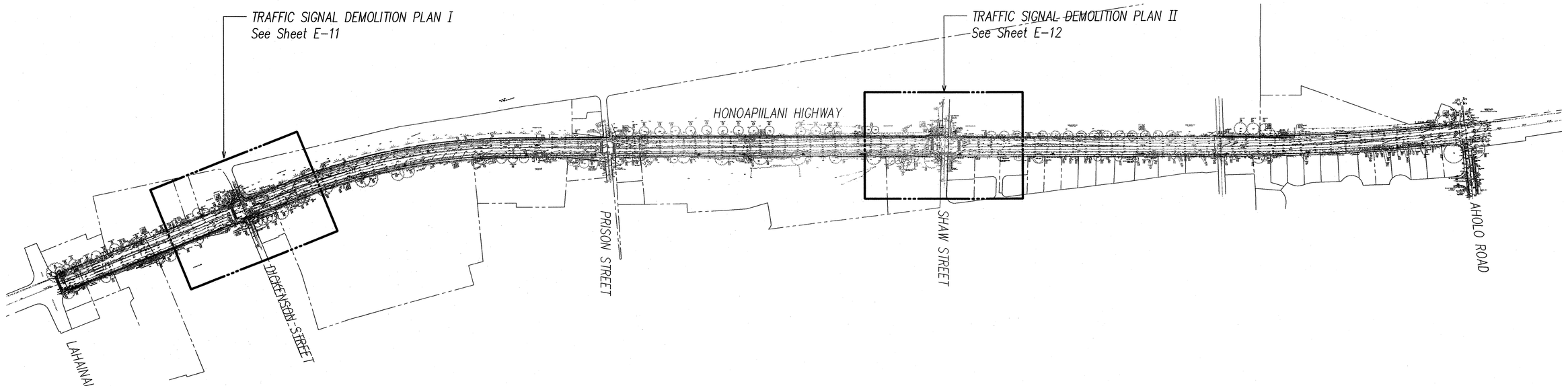
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	152	~~195~~ 194



NORTH

TRAFFIC SIGNAL DEMOLITION SITE PLAN

SCALE: 1"=200'

200' 100' 0 200' 400' 600'

SCALE: 1"=200'

GRAPHIC SCALE

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APRIL 30, 2008
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL
DEMOLITION SITE PLAN

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-6 OF 27 SHEETS

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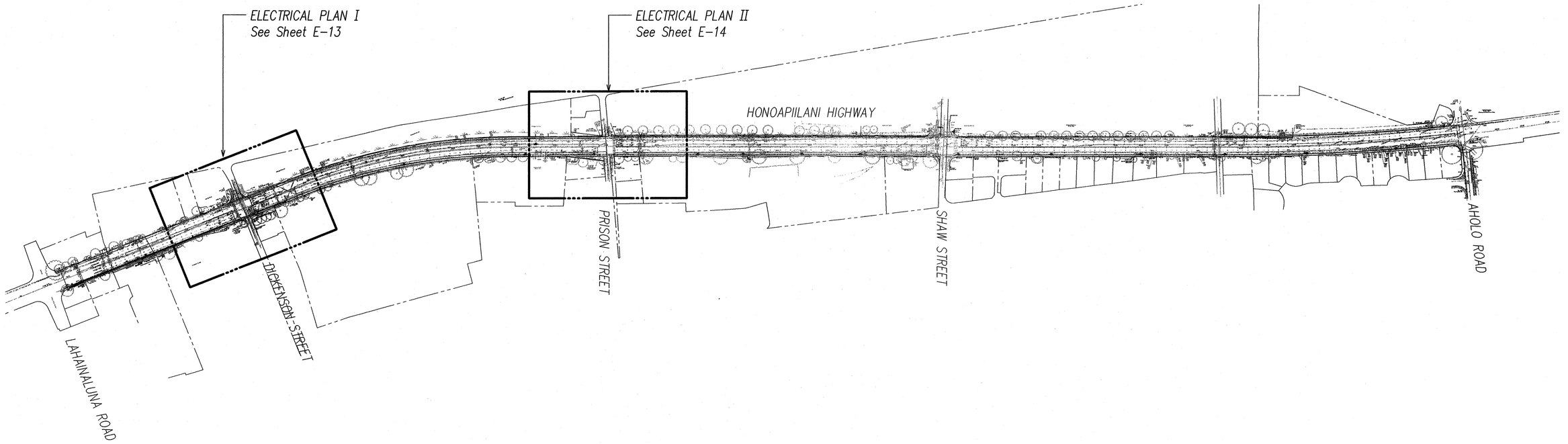
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	153	~~195~~ 194



NORTH

ELECTRICAL SITE PLAN

SCALE: 1"=200'

200' 100' 0 200' 400' 600'

SCALE: 1"=200'

GRAPHIC SCALE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL SITE PLAN

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-7 OF 27 SHEETS

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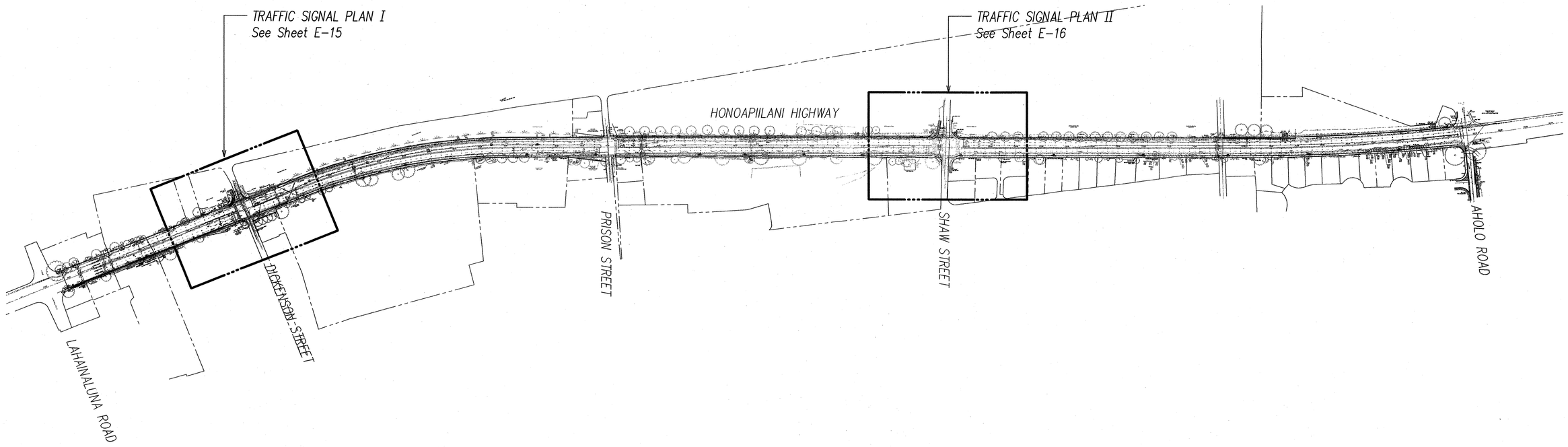
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	154	~~195~~ 194



NORTH

TRAFFIC SIGNAL SITE PLAN

SCALE: 1"=200'

200' 100' 0 200' 400' 600'

SCALE: 1"=200'

GRAPHIC SCALE

SEAN K. SUGAI
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STATE OF HAWAII
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HIGHWAYS DIVISION

TRAFFIC SIGNAL SITE PLAN

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-8 OF 27 SHEETS

154

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	155	~~195~~ 194

DICKENSON STREET

HONOAPIILANI HIGHWAY

Existing Ramp

Shell Gas Station

Street Light Pole to be Relocated by MECO

Utility Pole w/MECO Transformer Bank

Utility Pole w/MECO Meter #76690

Utility Pole

To Adjacent Utility Pole 1 2 3 4

Street Light Pole to be Relocated by MECO

Undeveloped Grass Area

Trees D=1.5 H=30 S=20

Avocado Tree D=2 H=40 S=30

Mango Tree D=2 H=40 S=40

5-Palm Trees D=0.8 H=15 S=7

Parking Area

Wood Fence H=6

Grass Area

Sign "Bike Route"

Sign "Shell Gas Station"

CMU

LA-10 ("+" CUT) 7301.80 S. 2473.31 W. ELEV.=31.07

Cb 34.04 top MH 31.54 inv

Conc Curb H=0.5

Dmh 34.30 top 30.55 inv 18" 27.35 inv 24"

Hedge H=30

Wmh 33.66 top 30.96 ts

arv w/ type "f" manhole dws std. det. v4 & v23 (per plan) 26.00 inv 37.90 top 516 (per plan)

arv w/ type dws std. det. (per plan) 35.10 top 25.40 inv

Sign "No LT turn except passenger cars"

Sign "West Hwy 30"

Sign "No Left Turn Ahead"

Sign "Accept Passenger Car Signal"

Sign "Lane Ends" "Merge Left"

Sign "40 MPH"

Sign "Merge"

Sign "Parking"

Sign "No RT turn except passenger cars & pick-ups"

Sign "No LT turn except passenger cars"

Sign "No RT turn except passenger cars"

Traffic Cabinet H=6

2-bollards H=4

Guard Rail

Spike #404

Amfac Property (Dev. Corp.)

1/4" Pipe (Fnd)

Monkey Pod D=3.5 H=70 S=60

Pink Oleander Hedge H=15 W=4

2-African Tulips D=2 H=70 S=25

African Tulip D=3 H=80 S=30

2-African Tulips D=2 H=80 S=30

"Fire Department Only"

Gate

Conc Wall H=4

Conc Wall W/wire Fence Conc=1 Wf=3

4-Mango Trees D=2 H=50 S=40

Mango Tree D=1 H=30 S=15

2-Mango Trees D=0.8 H=15 S=7

Lahaina-Wailuku Rd. Pem (31A (Lahaina Section) F=040-1(1

Clf H=6

Fh

Hp

Smh 28.96 top 21.31 inv

Wv 30.14 top 28.10 ts

Wv 31.35 top 28.35 ts

Wv 31.4 top 28

Wv 32.13 29.28

Wv 31.22 28.22

St MH Elev.=31.22

Dyl

Swl

Bwl

Dwl

W16 (per plan)

W12 (per plan)

S16 (per plan)

S8

S15

e/OH

Tspb

E.Pav't

AC Swale

(LA-11 TO LA-10) fiber optic cable (per plan)

fiber optic cable (per plan)

LA03XB2700 Exist Smh (per plan) 28.97 top 22.21 inv. (18" in) 21.20 inv. (15" in)

LA03XB2710 Exist Stch (per plan) 29.19 top 22.95 inv. (18" out) 21.62 inv. (16" in)

LA03XB2720 Exist Stch (per plan) 29.19 top 22.95 inv. (18" out) 21.62 inv. (16" out)

EASEMENT FOR CULVERT & SYPHON

453.53

325°58'19" 84.00

77+00 78+00 79+00 80+00 81+00 82+00 83+00

1 2 3 4

1 2 3

NOTES:

1. All items Shown are Existing Unless Otherwise Noted.
2. "X" thru Item Denotes "Existing Item to be Removed".
3. Coordinate All Utility Work with Respective Utility Companies.
4. 1 MECO Primary Electric Line.
   2 MECO Secondary Electric Line.
   3 Hawaiian Telcom Telephone Line.
   4 Oceanic Time Warner CATV Line.

NORTH

ELECTRICAL DEMOLITION PLAN I

SCALE: 1"=20'

20' 10' 0 20' 40' 60'

SCALE: 1"=20'

GRAPHIC SCALE

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 9023-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

2/15/08

APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL DEMOLITION PLAN I

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

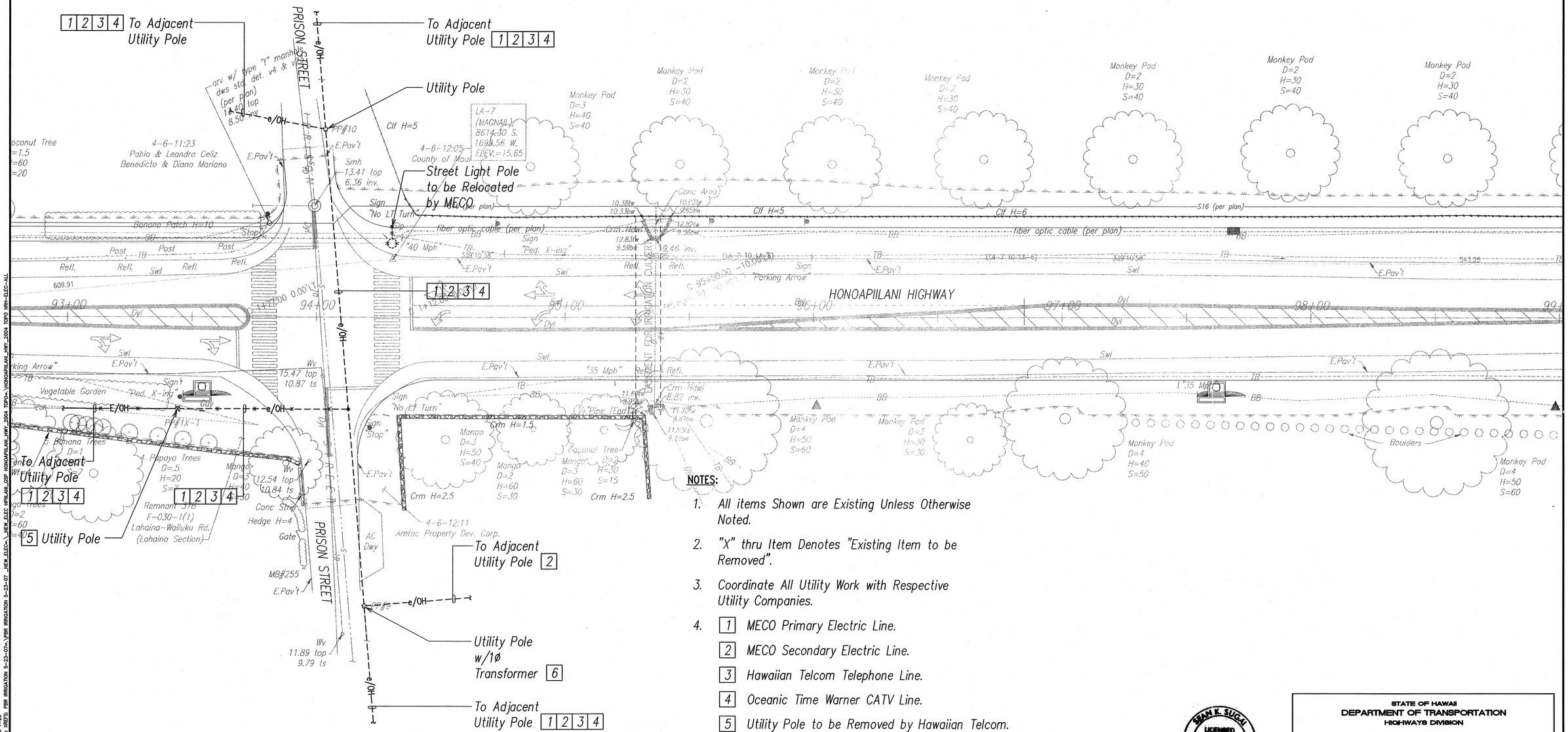
Scale: As Shown Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-9 OF 27 SHEETS

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

LAST SAVE: 02/15/08 @ 14:19:19 BY: BO PLOT SC: 1=20
X:\ENG\PROJECTS\STP-0300-2(39)_Aholo-Hono\HONO_PRR IRRIGATION 5-23-07_NEW_ELEC_NEW_ELEC-HPIILANI_DSP HONOAPIILANI_HWY_2004 TOPO_HONOAPIILANI_HWY_2004 TOPO_XRH-ELEC-ALL

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	156	~~195~~ 194



NOTES:

1. All items Shown are Existing Unless Otherwise Noted.
2. "X" thru Item Denotes "Existing Item to be Removed".
3. Coordinate All Utility Work with Respective Utility Companies.
4. 1 MECO Primary Electric Line.
   - 2 MECO Secondary Electric Line.
   - 3 Hawaiian Telcom Telephone Line.
   - 4 Oceanic Time Warner CATV Line.
   - 5 Utility Pole to be Removed by Hawaiian Telcom.
   - 6 Oceanic Cable Pole Mounted Power Supply Mounted on Utility Pole.

ELECTRICAL DEMOLITION PLAN II

SCALE: 1"=20'

20' 10' 0 20' 40' 60'
SCALE: 1"=20'
GRAPHIC SCALE

SEAN K. SUGAI
No. 9023-E

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
2/19/08
APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ELECTRICAL DEMOLITION PLAN II
Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)
Scale: As Shown
Date: ~~FEBRUARY 2008~~ October 2008
SHEET No. E-10 OF 27 SHEETS

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

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	157	~~155~~ 197

Conduit	Cable
2"	1-26C#14 Loop Control Ea
2"	1-3C#20 DRN Pre-Emption
2"	2-2C#14 Shielded

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea

Conduit	Cable
2"	1-24C#19 Interconnect
2"	2-2C#14 Shielded

Conduit	Cable
2"	1-24C#19 Interconnect

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	2-3C#20 DRN Pre-Emption
2"	2-2C#14 Shielded

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	3-2C#14 Shielded

Conduit	Cable
4-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	4-3C#20 DRN Pre-Emption
2"	8-2C#14 Shielded

Conduit	Cable
2"	1-24C#19 Interconnect
2"	2-2C#14 Shielded

Conduit	Cable
2"	1-24C#19 Interconnect

Conduit	Cable
2"	1-24C#19 Interconnect

Conduit	Cable
2"	1-26C#14 Loop Control
2"	1-3C#20 DRN Pre-Emption

Conduit	Cable
2"	1-24C#19 Interconnect

Conduit	Cable
12-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	2-3C#20 DRN Pre-Emption
2"	5-2C#14 Shielded

Traffic Signal Controller

Meter Socket w/MECO Meter #76690

Utility Pole

NOTES:

1. All Items are Existing Unless Otherwise Noted.
2. "X" thru Item Denotes "Existing Item to be Removed".

NORTH

TRAFFIC SIGNAL DEMOLITION PLAN I

SCALE: 1"=10'

SCALE: 1"=10'

GRAPHIC SCALE

SURVEY PLOTTED BY: DATE
DRAWN BY:
TRACED BY:
DESIGNED BY:
QUANTITIES BY:
CHECKED BY:

ORIGINAL PLAN | NOTE BOOK | No.

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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DEMOLITION PLAN I

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown — Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-11 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	158	~~195~~ 194

Conduit	Cable
2"	1-2C#14 Shielded

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-3C#20 DRN Pre-Emption
2"	3-2C#14 Shielded
2"	1-24C#19 Interconnect

Conduit	Cable
2"	1-24C#19 Interconnect

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-3C#20 DRN Pre-Emption
2"	5-2C#14 Shielded
2"	1-24C#19 Interconnect

Conduit	Cable
4-2"	1-26C#14 Loop Control Ea
2"	4-3C#20 DRN Pre-Emption
2"	12-2C#14 Shielded

Conduit	Cable
2"	2-2C#14 Shielded

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	3-2C#14 Shielded

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	2-3C#20 DRN Pre-Emption
2"	6-2C#14 Shielded
2"	1-24C#19 Interconnect

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	2-3C#20 DRN Pre-Emption
2"	3-2C#14 Shielded

Conduit	Cable
2"	2-2C#14 Shielded

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-3C#20 DRN Pre-Emption
2"	1-2C#14 Shielded

Conduit	Cable
2"	1-2C#14 Shielded

NOTES:

1. All Items are Existing Unless Otherwise Noted.
2. "X" thru Item Denotes "Existing Item to be Removed".

TRAFFIC SIGNAL DEMOLITION PLAN II

SCALE: 1"=10'

10' 5' 0 10' 20' 30'
SCALE: 1"=10'
GRAPHIC SCALE

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9023-E

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
2/19/08
APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DEMOLITION PLAN II

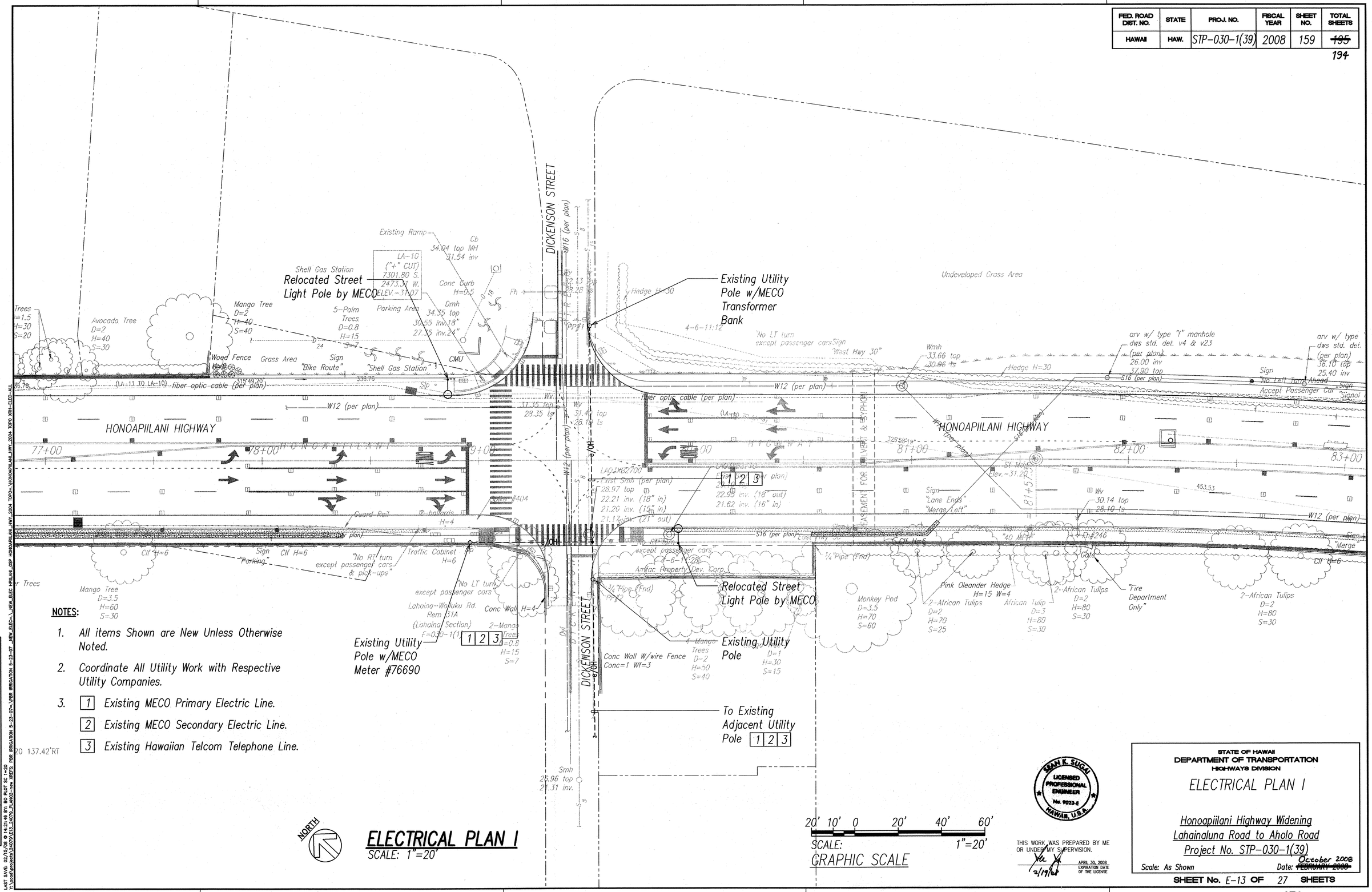
Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown
Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-12 OF 27 SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	159	~~195~~ 194



NOTES:

1. *All items Shown are New Unless Otherwise Noted.*
2. *Coordinate All Utility Work with Respective Utility Companies.*
3. 1 *Existing MECO Primary Electric Line.*
   2 *Existing MECO Secondary Electric Line.*
   3 *Existing Hawaiian Telcom Telephone Line.*

NORTH

ELECTRICAL PLAN I
SCALE: 1"=20'

SCALE: 1"=20'
GRAPHIC SCALE

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9923-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE.

2/19/08

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN I

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown
Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-13 OF 27 SHEETS

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

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	160	~~195~~ 194

ELECTRICAL PLAN II

SCALE: 1"=20'

NOTES:

1. All items Shown are Existing Unless Otherwise Noted.
2. Coordinate All Utility Work with Respective Utility Companies.
3.

1 Existing MECO Primary Electric Line.	5 MECO Primary Electric Line.
2 Existing MECO Secondary Electric Line.	6 MECO Secondary Electric Line.
3 Existing Hawaiian Telcom Telephone Line.	7 Hawaiian Telcom Telephone Line.
4 Existing Oceanic CATV Line.	8 Oceanic CATV Line.

20' 10' 0 20' 40' 60'
SCALE: 1"=20'
GRAPHIC SCALE

SEAN K. SUGAI
No. 9023-E

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
2/19/08
APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN II

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown
Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-14 OF 27 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	"
	TRACED BY	"
	DESIGNED BY	"
	QUANTITIES BY	"
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	161	~~195~~ 194

Notes:

1. All Items are New Unless Otherwise Noted.
2. Traffic Signal System Installation Shall be in Compliance with ADAAG 4.27.
3. [1] Provide New Street Sign Traffic Signal Pole. See Sheet E-27 for Street Sign Detail.

   [2] Provide Type I Standard. Install New Signal Heads Where Indicated. Provide all Necessary Mounting Equipment & Accessories as Required. Provide ADA Compliant Pedestrian Push Button where Indicated. See Details on Sheets E-19, E-20 & E-21.

   [3] Provide Type II Standard with Mast Arm Length as Specified and Signal Heads Installed. Provide all Necessary Mounting Equipment & Accessories as Required. Provide ADA Compliant Pedestrian Push Button where Indicated. See Details on on Sheets E-19, E-20 & E-21.

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-3C#20 DRN Pre-Emption
2"	4-2C#14 Shielded

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-3C#20 DRN Pre-Emption
2"	1-2C#14 Shielded
2"	Spare

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea

Conduit	Cable
2"	1-24C#19 Interconnect

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	2-3C#20 DRN Pre-Emption
2"	4-2C#14 Shielded
2"	Spare

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	2-2C#14 Shielded
2"	Spare

Conduit	Cable
4-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	1-3C#20 DRN Pre-Emption
2"	10-2C#14 Shielded

Conduit	Cable
2"	1-24C#19 Interconnect

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	2-3C#20 DRN Pre-Emption
2"	5-2C#14 Shielded

Conduit	Cable
4-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	1-3C#20 DRN Pre-Emption
2"	4-2C#14 Shielded
2"	Spare

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	1-3C#20 DRN Pre-Emption
2"	2-2C#14 Shielded

Shell Gas Station
Cb 34.04 top MH 31.54 inv
Conc Curb H=0.5
5-Palm Trees D=0.8 H=15
Sign "Bike Route"
Sign "Shell Gas Station"
CMU
DICKENSON STREET
W16
W12 (per plan)
To Honoapiilani Hwy/ Lahainaluna Rd Intersection
To Honoapiilani Hwy/ Shaw St Intersection
Sign "West Hwy 30"
Wmh 33.66 top 30.96 ts
fiber optic cable (per plan)
Exist Smh (per plan) 29.19 top 22.95 inv. (18" out) 21.62 inv. (16" in)
6' X 6' Loop Detector, Centered in Lane, Typ.
EASEMENT FOR DRAINAGE DITCH & SIPHON
Guard Rail
12 bollards
Sign "Lane Ends" "Merge Left"
"No RT turn except passenger cars & pick-ups"
"No LT turn except passenger cars"
Traffic Signal Controller
Existing Meter Socket w/MECO Meter #76690
Existing Utility Pole
Conc Wall H=4
Lahaina/Aholuku Rd.
3/4"Pipe (End)
3/4"Pip PP#2
Cliff H=6
S16 (per plan)
S21 (per plan)
81+00
94+00
HALAU WAY
LAO 3XB2710
F-030-1(1)

NORTH

TRAFFIC SIGNAL PLAN I

SCALE: 1"=10'

10' 5' 0 10' 20' 30'

SCALE: 1"=10'

GRAPHIC SCALE

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 9923-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN I

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-15 OF 27 SHEETS

161

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

LAST SAVE: 02/15/08 @ 14:41:16 BY: BD PLOT SC 1=10
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	162	~~195~~ 194

Notes:

1. All Items are New Unless Otherwise Noted.
2. Traffic Signal System Installation Shall be in Compliance with ADAAG 4.27.
3. [1] Provide New Street Sign Traffic Signal Pole. See Sheet E-27 for Street Sign Detail.

   [2] Provide Type I Standard. Install New Signal Heads Where Indicated. Provide all Necessary Mounting Equipment & Accessories as Required. Provide ADA Compliant Pedestrian Push Button where Indicated. See Details on Sheets E-19, E-20 & E-21.

   [3] Provide Type II Standard with Mast Arm Length as Specified and Signal Heads Installed. Provide all Necessary Mounting Equipment & Accessories as Required. Provide ADA Compliant Pedestrian Push Button where Indicated. See Details on Sheets E-19, E-20 & E-21.

   [4] 3/4"C, 2#10, #10 Gnd to Speed Radar (Not Shown On This Plan). Provide Type A Pullbox Every 200' In Run. Provide Hardwire Connection at Speed Radar. Verify Exact Location With General Contractor.

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect.
2"	1-3C#20 DRN Pre-Emption
2"	2-2C#14 Shielded

To Honoapiilani Hwy/ Dickenson St. Intersection

fiber optic cable (per plan)

Conduit	Cable
2"	1-24C#19 Interconnect

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	2-2C#14 Shielded
2"	Spare

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-3C#20 DRN Pre-Emption
2"	2-2C#14 Shielded
2"	Spare

To Speed Radar (Sta. 117 + 77) [4]

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	2-3C#20 DRN Pre-Emption
2"	8-2C#14 Shielded

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	1-3C#20 DRN Pre-Emption
2"	5-2C#14 Shielded
2"	Spare

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-3C#20 DRN Pre-Emption
2"	3-2C#14 Shielded

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	2-3C#20 DRN Pre-Emption
2"	7-2C#14 Shielded
2"	Spare

Existing Meter Socket w/MECO Meter #77545. Mount New 1P20A [2] Encl Ckt Bkr and J-box [E] Existing Structural Support

Traffic Signal Controller

Conduit	Cable
4-2"	1-26C#14 Loop Control Ea
2"	1-24C#19 Interconnect
2"	4-3C#20 DRN Pre-Emption
2"	14-2C#14 Shielded

Conduit	Cable
2"	2-2C#14 Shielded

To Speed Radar (Sta. 117 + 77) [4]

Conduit	Cable
2-2"	1-26C#14 Loop Control Ea
2"	2-3C#20 DRN Pre-Emption
2"	4-2C#14 Shielded
2"	Spare

6' X 6' Loop Detector, Centered in Lane, Typ.

Sign "Stop/ Honoapiilani./Shaw" 4-6-12:2

Sign "No Parking" 10' 5' 0

SHAW STREET

EASEMENT FOR CULVERT

Lahaina Recreation Area

Earth Swale

Conc Curb

Existing Ramp

Existing Wing Wall

2-24" CMP

11.81 inv.

11.88 inv.

Monkey

"Ped. X-ing"

"End Bike Rou

Ped. X-ing

CMU Wall H=4

CMU Wall H=6

CMU Wall

CMU Wall

SCALE: Wall H=4

GRAPHIC SCALE

1"=10'

0' 10' 20' 30'

NORTH

TRAFFIC SIGNAL PLAN II

SCALE: 1"=10'

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 9023-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PLAN II

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-16 OF 27 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY	
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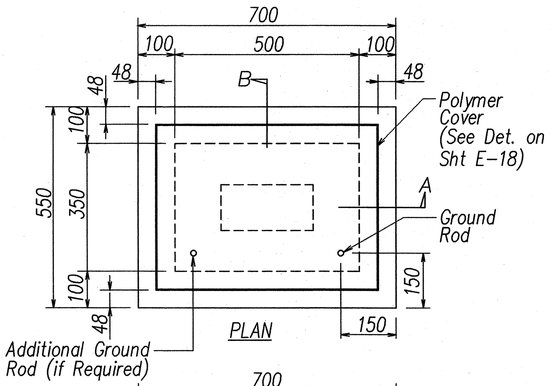
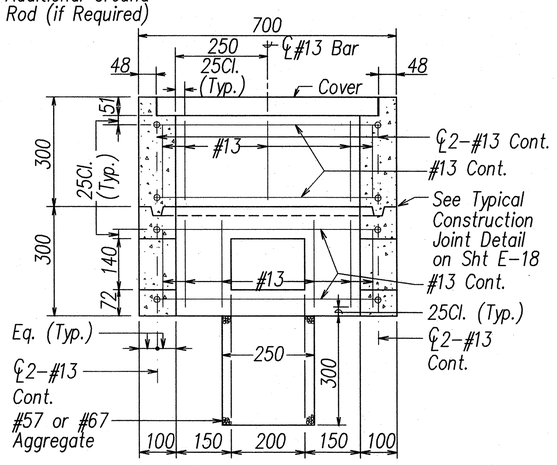
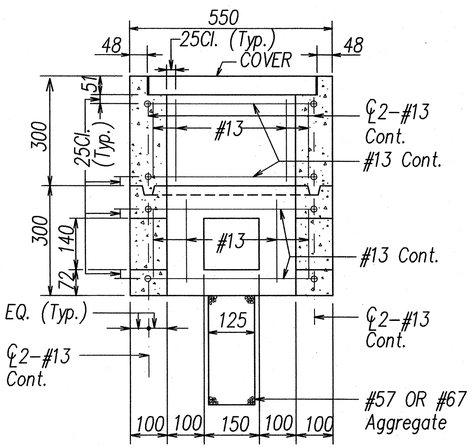
LAST SAVE: 02/15/08 @ 14:37:41 BY: BO PLOT SC: 1=10
V:\2008\projects\HDOT\STL\STP-0300(39)\Honoapiilani Hwy\PLANS\E_PSBR IRRIGATION 5-23-07\ NEW ELEC HPILANI.GSP HONOAPILANI_HWY_2004 TOPO=\HONOAPILANI_HWY_2004 TOPO XRH=ELEC-ALL

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	163	~~195~~ 194





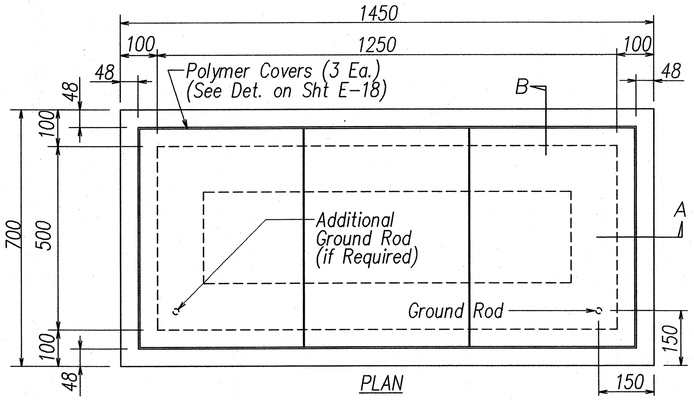
SECTION A-A

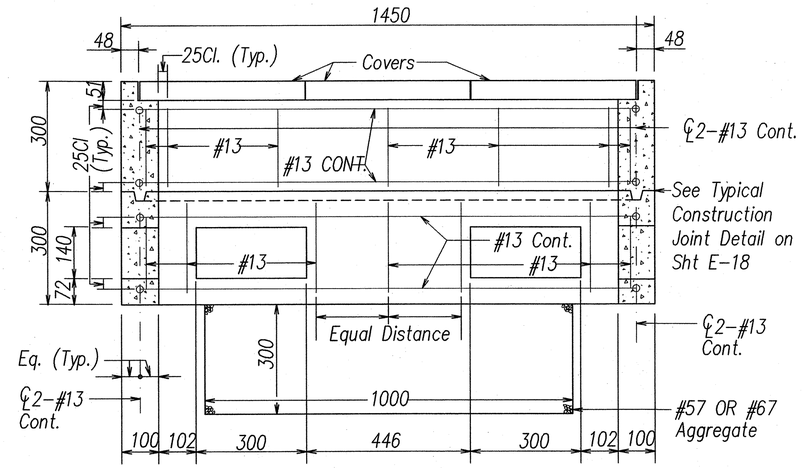


SECTION B-B

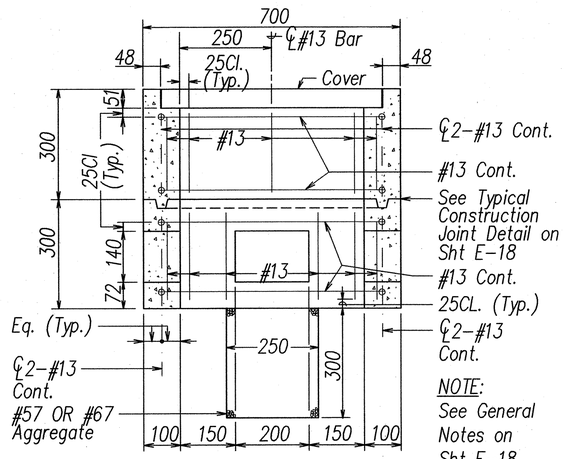
NOTE: See General Notes on Sht E-18

A / E-17 TYPE "A" PULLBOX OLD TYPE "B"
NOT TO SCALE





SECTION A-A



SECTION B-B

NOTE: See General Notes on Sht E-18

B / E-17 TYPE "C" PULLBOX (OLD TYPE "D")
NOT TO SCALE

All Dimensions on this Sheet are in Millimeters

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APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PULLBOX DETAILS I

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown Date: ~~FEBRUARY 2009~~ October 2008

SHEET No. E-17 OF 27 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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LAST SAVE: 02/12/08 @ 11:41:36 BY: BO PLOT SC: 1'-0"=1"
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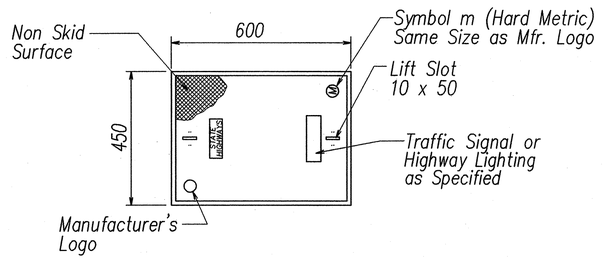
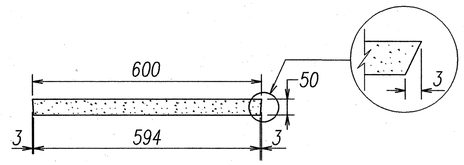
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	164	~~195~~ 194

GENERAL NOTES FOR TRAFFIC SIGNAL PULLBOX
DETAILS ON SHEET E-17

1. Provide a minimum of one 16 x 2.5m copperweld ground rod in each pullbox. When directed by the traffic signal inspector/engineer, install additional ground rods. Cost of ground rods shall be incidental to the pullboxes.
2. All pre-cast concrete pullboxes shall be manufactured in two pieces.
3. The pullbox with cover shall be capable of supporting an ms 18 loading.
4. The maximum weight of the pullbox cover shall not exceed 27 kilograms.
5. The openings for the conduits on all pullboxes shall be pre-cast concrete knockouts.
6. After installing the conduits in the openings of the pullboxes, the Contractor shall fill the excess opening in the pre-cast knockouts with concrete mortar.
7. Prior to installing the pullboxes, the Contractor shall level the bottom of the trench and achieve a minimum of 95% relative compaction of the bottom of the trench.
8. All concrete shall be class A (25MPA, min.)
9. Rebars shall be grade 300 and all lapped splices shall be 360mm minimum.
10. The #57 or #67 size aggregate shall conform to latest version of AASHTO M43 (ASTM D 448).
11. Type "C" pullbox shall be installed in a location protected from vehicular traffic (i.e. raised sidewalk, behind a.c. curbs, traffic signal standard or pipe guards).

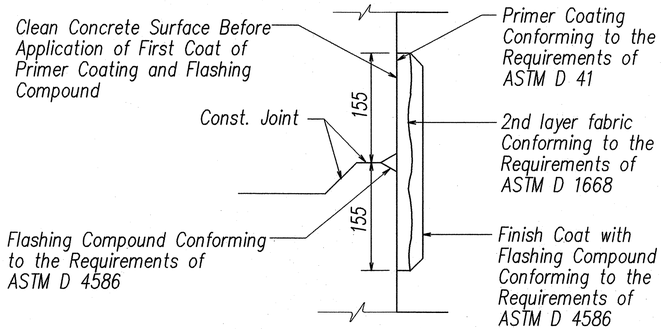


PLAN VIEW



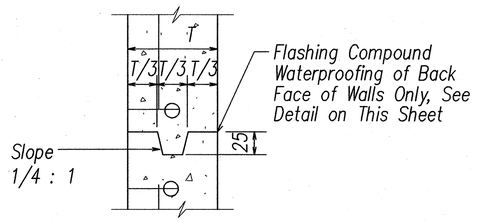
ELEVATION

Note: See Highway Lighting and Traffic Signal Pullbox Details on Sht E-17



A E-18 TYPICAL FLASHING COMPOUND WATERPROOFING DETAILS
NOT TO SCALE

B E-18 POLYMER CONCRETE COVER
NOT TO SCALE



Note: See Highway Lighting and Traffic Signal Pullbox Details on Sht E-17

C E-18 TYPICAL CONSTRUCTION JOINT DETAIL
NOT TO SCALE

All Dimensions on this Sheet are in Millimeters Unless Otherwise Shown

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9023-E
HAWAII, U.S.A.

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APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE
12/19/08

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PULLBOX DETAILS II

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown
Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-18 OF 27 SHEETS

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

LAST SAVE: 02/12/08 @ 11:42:44 BY: BO PLOT SC: 1'-0"=1'
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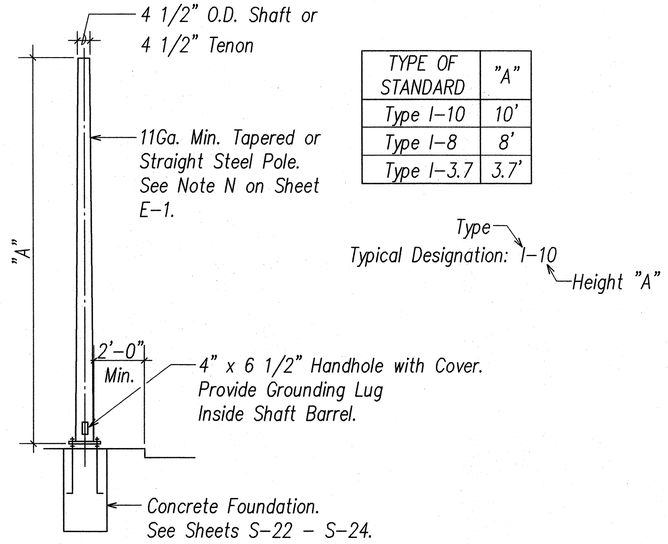
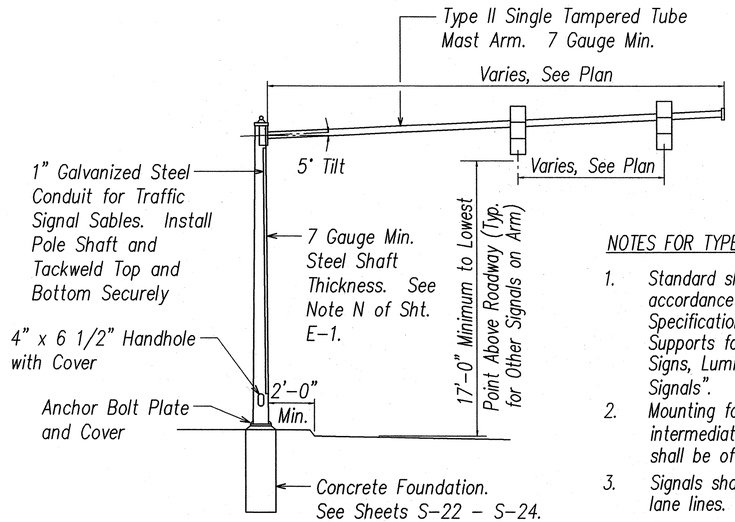
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	165	~~195~~ 194



TYPE OF STANDARD	"A"
Type I-10	10'
Type I-8	8'
Type I-3.7	3.7'

Typical Designation: Type I-10, Height "A"

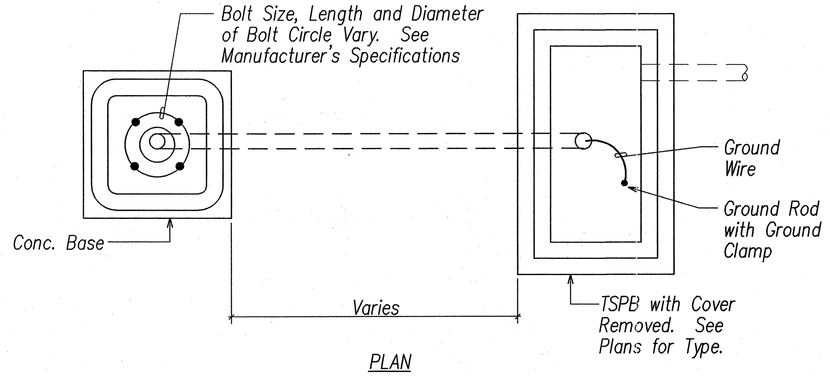
A E-19 TYPE I TRAFFIC SIGNAL STANDARD
NOT TO SCALE



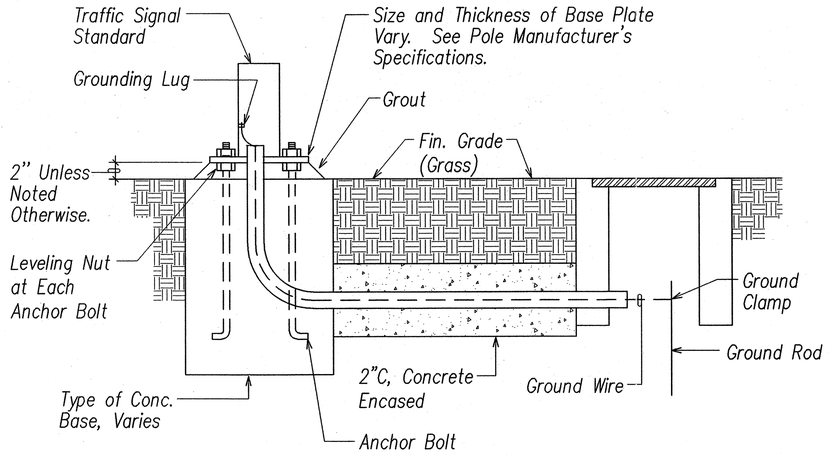
NOTES FOR TYPE II STANDARD:

1. Standard shall be designed in accordance with "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals".
2. Mounting for signals at intermediate points of mast arm shall be of the adjustable type.
3. Signals shall be centered over lane lines.
4. Submit shop drawings for approval.

B E-19 TYPE II TRAFFIC SIGNAL STANDARD
NOT TO SCALE



PLAN



SECTION

C E-19 TYPICAL STANDARD & PEDESTAL DETAIL
NOT TO SCALE

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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	DESIGNED BY	
	QUANTITIES BY	
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LAST SAVE: 02/12/08 @ 11:43:39 BY: BO PLOT SC: 1'-0"=1"
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2/11/08 — APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS I

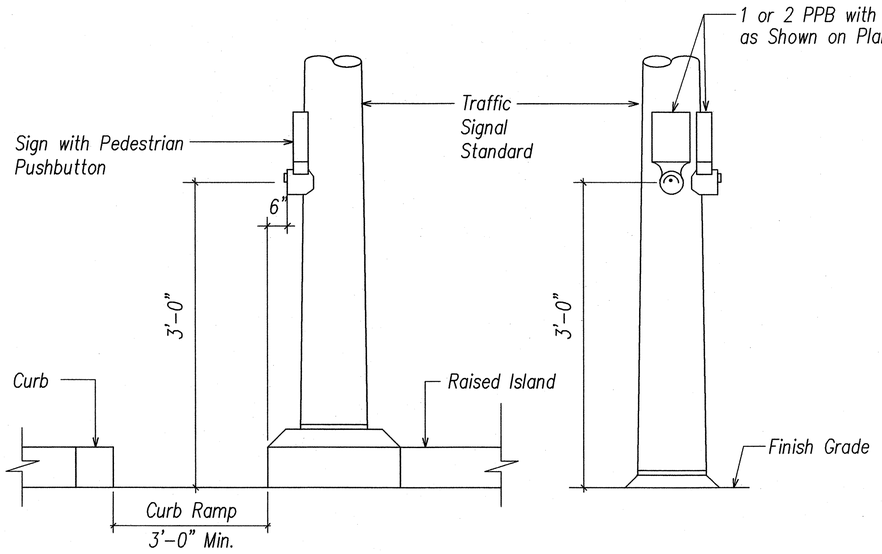
Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown — Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-19 OF 27 SHEETS

165

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	166	~~195~~ 194

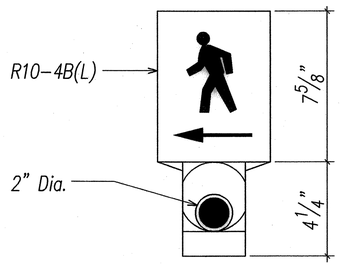


AT RAISED CONCRETE ISLAND

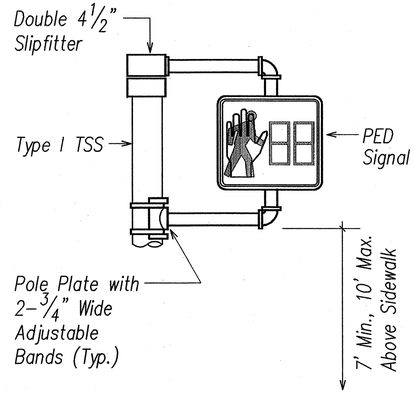
AT SHOULDER

DETAIL NOTES:

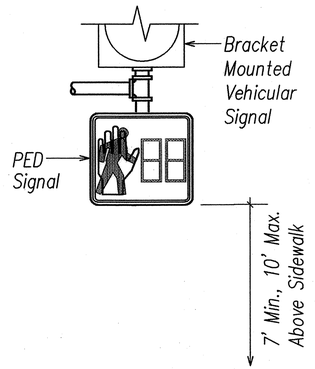
1. The pedestrian pushbutton unit shall consist of a one piece assembly with a raise walking man, arrow indication and push button.
2. The pushbutton activator shall be of the mushroom plunger type, ADA acceptable, 2 inches in diameter that requires less than 5 lbs. of pressure to activate.
3. The raised man and arrows shall be directional and match the directional indication as shown on the plans.
4. The pushbutton shall be tamper proof, weatherproof and constructed so that electrical shocks are impossible.
5. The color scheme shall be:
   White – Man, arrow and pushbutton
   Black – Background
6. Minimum clearance in front of pushbutton shall be in compliance with ADAAG 4.2.1.



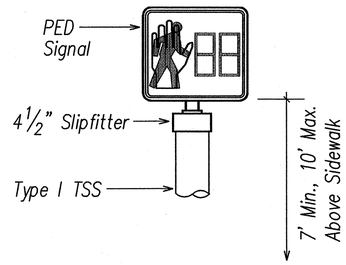
A / E-20 PEDESTRIAN PUSHBUTTON DETAILS
NOT TO SCALE



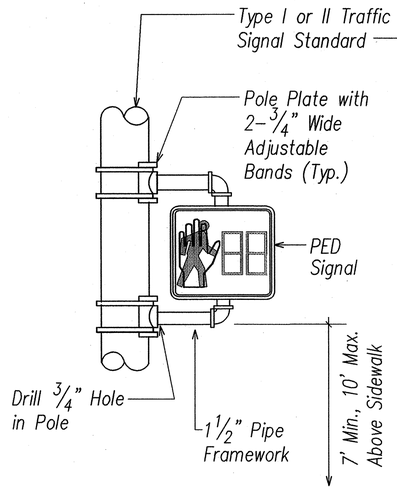
CANTILEVER – ONE WAY



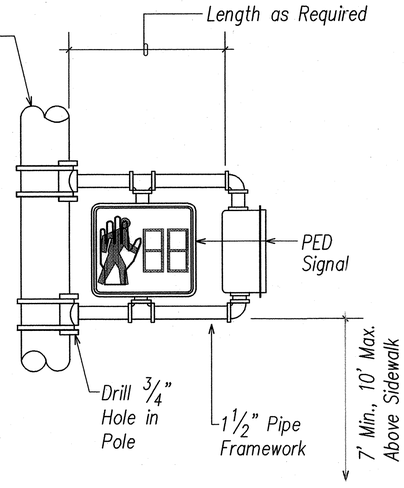
UNDERSLUNG – ONE WAY



TOP OF POLE – ONE WAY



BRACKET MOUNT – ONE WAY



BRACKET MOUNT – TWO WAY

NOTES:

1. Stainless steel bands shall be 3/4" wide x .050" thick, minimum. tensile strength shall be 100,000 psi minimum.
2. Upper arm, lower arm and vertical support tube shall be of 356 cast aluminum.
3. All wiring shall be concealed.
4. Vertical tube clamp shall be of malleable iron, grade 32510.
5. All aluminum parts shall have an alodine 1200 finish.
6. Signal as noted on plans.
7. Maintain 16" min. clearance at rear of all programmed faces.

B / E-20 PEDESTRIAN SIGNAL MOUNTING DETAILS
NOT TO SCALE

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9023-E
HAWAII, U.S.A.

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2/19/08

APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS II

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-20 OF 27 SHEETS

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

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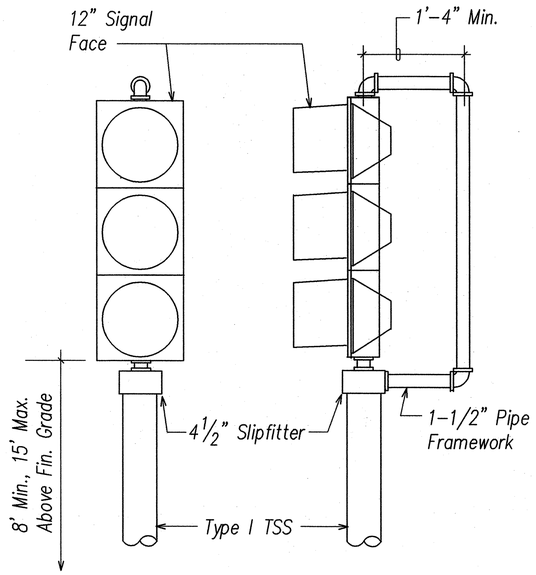
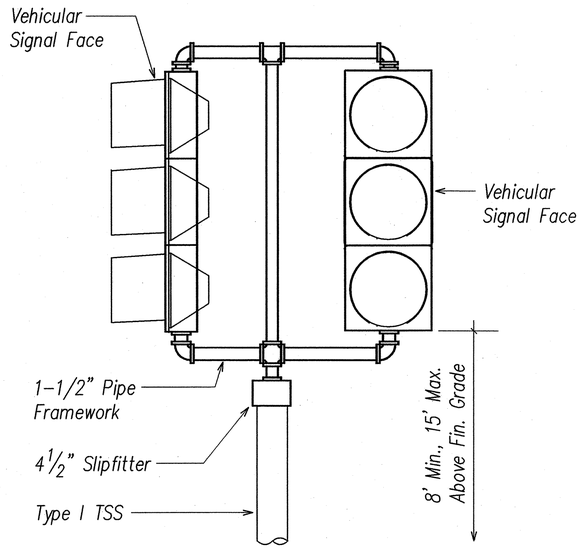
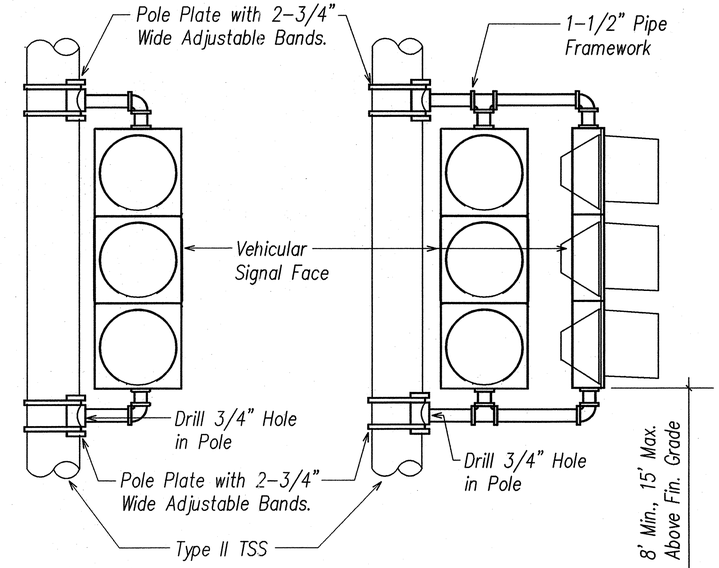
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	167	~~195~~ 194



TOP OF POLE – ONE WAY MOUNTING

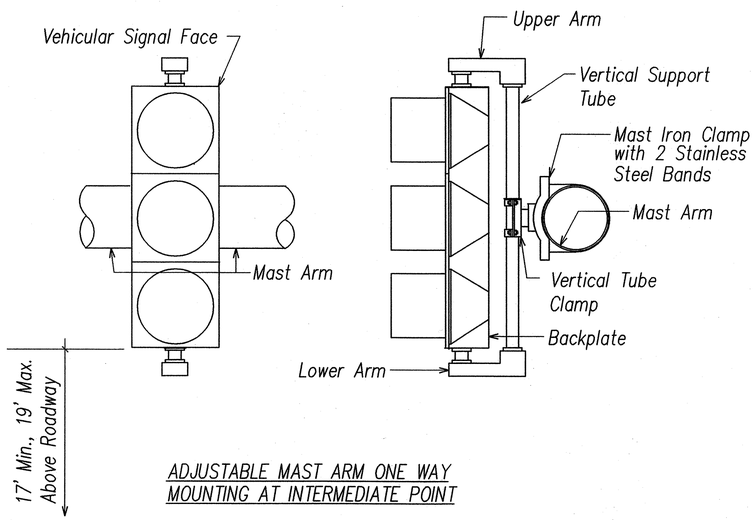


TOP OF POLE – TWO WAY MOUNTING



BRACKET MOUNT – ONE WAY

BRACKET MOUNT – TWO WAY



ADJUSTABLE MAST ARM ONE WAY MOUNTING AT INTERMEDIATE POINT

NOTES:

1. Stainless steel bands shall be 3/4" wide x .050" thick, minimum. tensile strength shall be 100,000 psi minimum.
2. Upper arm, lower arm and vertical support tube shall be of 356 cast aluminum.
3. All wiring shall be concealed.
4. Vertical tube clamp shall be of malleable iron, grade 32510.
5. All aluminum parts shall have an alodine 1200 finish.
6. Signal as noted on plans.
7. Maintain 16" min. clearance at rear of all programmed faces.

A E-21 VEHICULAR SIGNAL MOUNTING DETAILS
NOT TO SCALE

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APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS III

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-21 OF 27 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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No.	DESIGNED BY	
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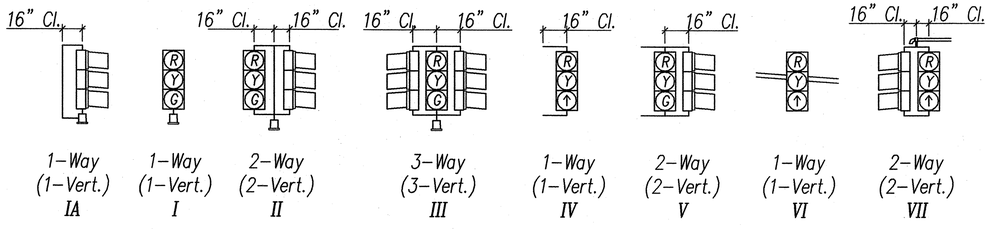
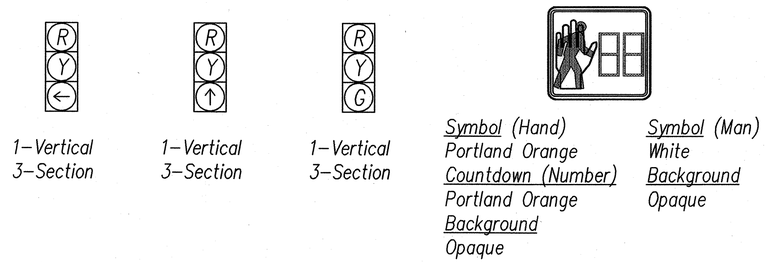
LOCATION: D:\HWY\SIG\SHEETS\E-21_DETAILS.DWG

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	168	~~195~~ 194

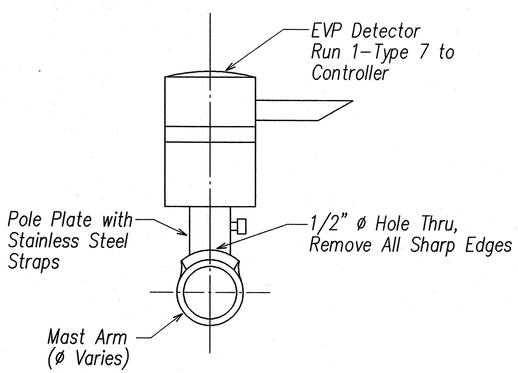


TYPICAL VEHICULAR AND PEDESTRIAN SIGNAL MOUNTINGS



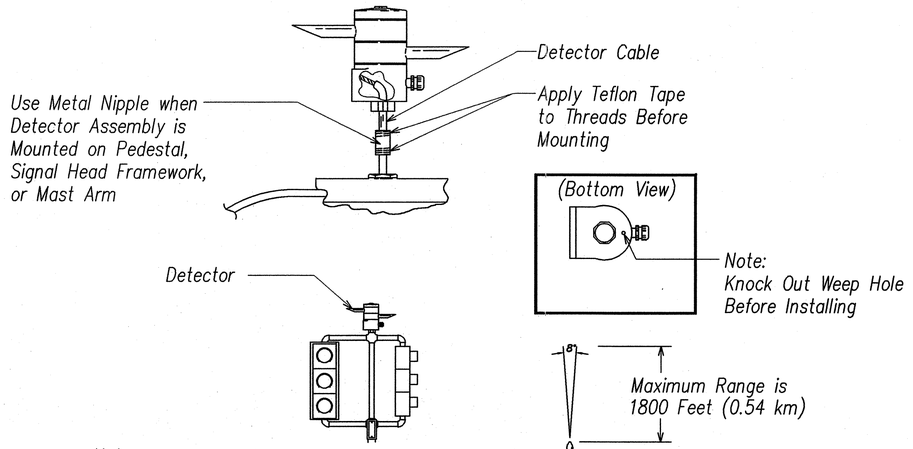
A E-22 TYPICAL SIGNAL ARRANGEMENTS

NOT TO SCALE



C E-22 EVP DETECTOR HORIZONTAL MOUNTING DETAIL

NOT TO SCALE

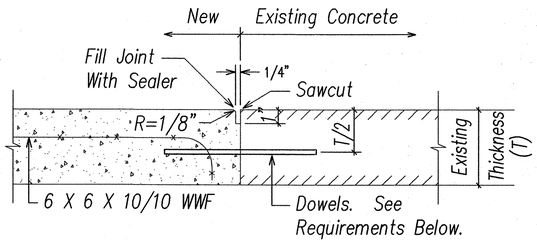


Note:

Detector Reception Angle Varies with Distance. It is Approximately 8° at 1800 Feet (0.54km). Due to Reflection, Reception Angle is Increased at Close Range. The Detector Must be Aligned within 8° of the Farthest Point Where Priority Vehicle is to be Sensed.

B E-22 TYPICAL PEDESTAL/MAST ARM INSTALLATION OF EVP DETECTOR

NOT TO SCALE



SECTION

Note:

Dowel Requirements:

Curbs – Use #4 Reinf. Bar, 18" Long, Spaced 6" From Edges.
Gutters – Use Two #4 Reinf. Bar, 18" Long, Spaced 6" From Edges.
Sidewalks – Use #3 Reinf. Bar, 12" Long, Spaced 18" O.C.

D E-22 CONCRETE SIDEWALK RESTORATION DETAIL

NOT TO SCALE

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 7823-E HAWAII, U.S.A.

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APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE

2/19/08

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL DETAILS IV

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

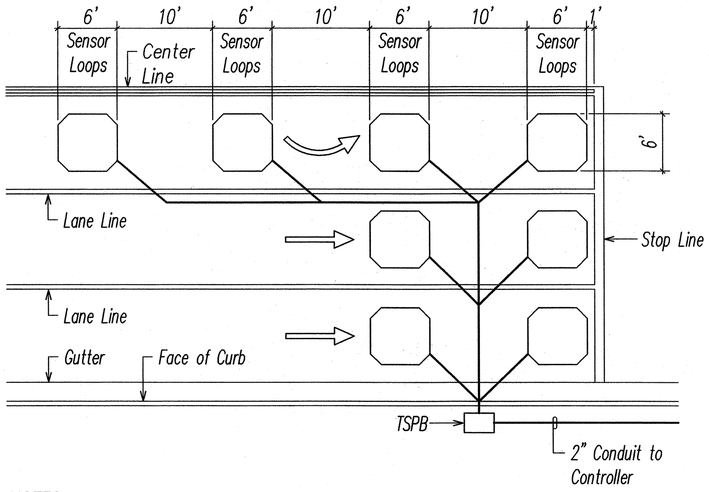
Scale: As Shown Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-22 OF 27 SHEETS

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

LAST SAVE: 02/19/2008 @ 11:45:15 BY: BO PLOT SC: 1'-0"=1"
Y:\Used Projects\030-1(39) Honoapiilani Hwy\Design\Traffic\Sheets\

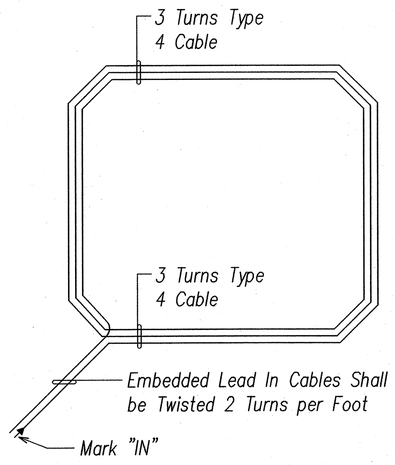
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	169	~~195~~ 194



NOTES:

1. Center sensor loops in lanes.
2. Collector cables shall be twisted 2 turns per foot.
3. Number of loops and locations vary. See project plans.
4. Number and locations of collector sawcuts may be varied in the field to suit.

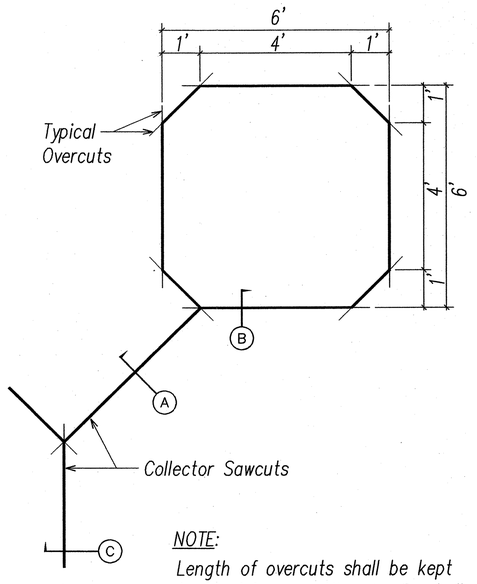
TYPICAL SENSOR LOOP LAYOUT
NOT TO SCALE



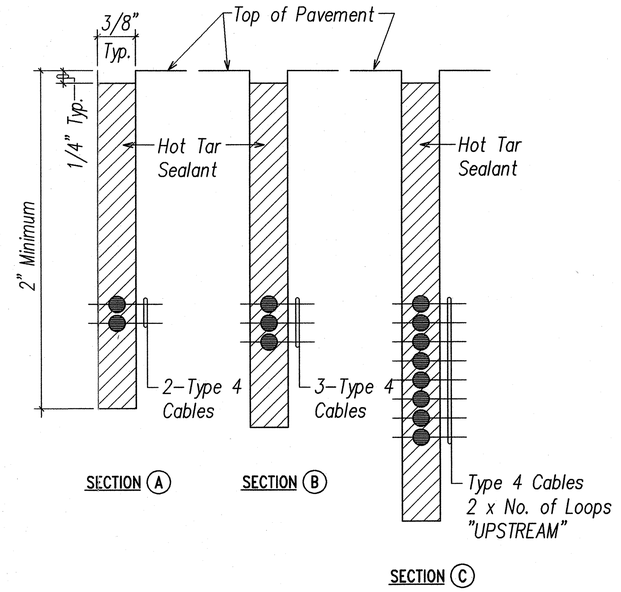
PLAN

NOTE: Type 4 Cable – Loop Sensor Cable: Solid No. 12, Single Conductor to IMSA Spec 51-5

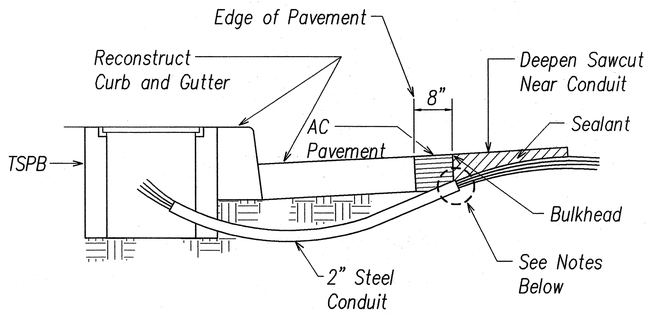
TYPICAL SENSOR LOOP WIRING DIAGRAM
NOT TO SCALE



NOTE:
Length of overcuts shall be kept to a minimum. All overcuts shall be backfilled with hot tar sealant.



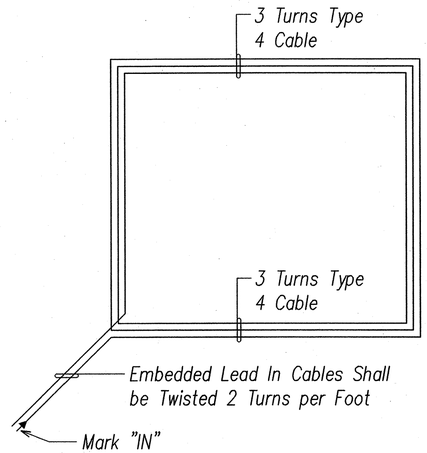
TYPICAL SENSOR LOOP SAWCUT DETAIL
NOT TO SCALE



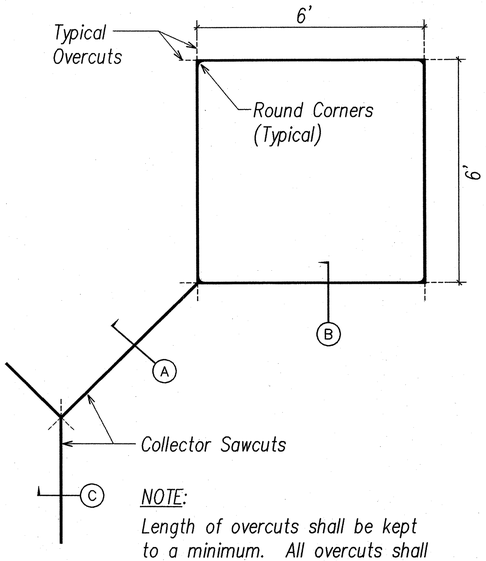
NOTES:

1. Seal roadway end of conduit after installation of conductors.
2. Install bulkhead across conduit trench.
3. Place hot tar in sawcut.
4. Backfill over conduit with new a.c.
5. Reconstruct curb and gutter as required.

DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY
NOT TO SCALE



TYPICAL ALTERNATE SENSOR LOOP WIRING DETAIL
NOT TO SCALE



NOTE:
Length of overcuts shall be kept to a minimum. All overcuts shall be backfilled with hot tar sealant.

TYPICAL ALTERNATE SENSOR LOOP SAWCUT DETAIL
NOT TO SCALE

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APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE

2/19/08

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL LOOP DETECTOR DETAILS

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-23 OF 27 SHEETS

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

LAST SAVE: 02/12/08 @ 11:46:47 BY: BO PLOT SC 1'-0"=1'
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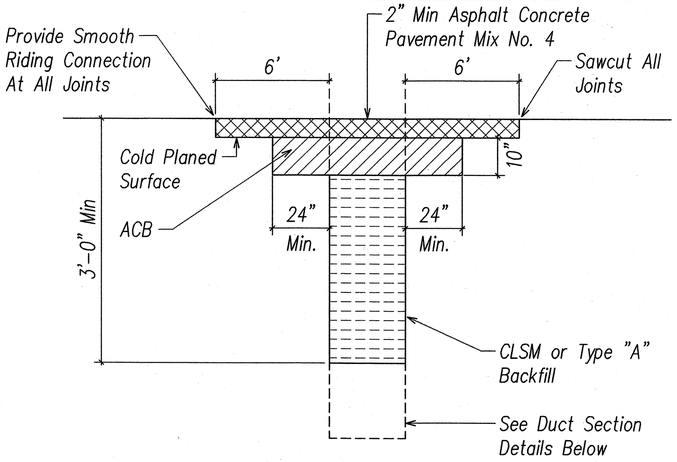
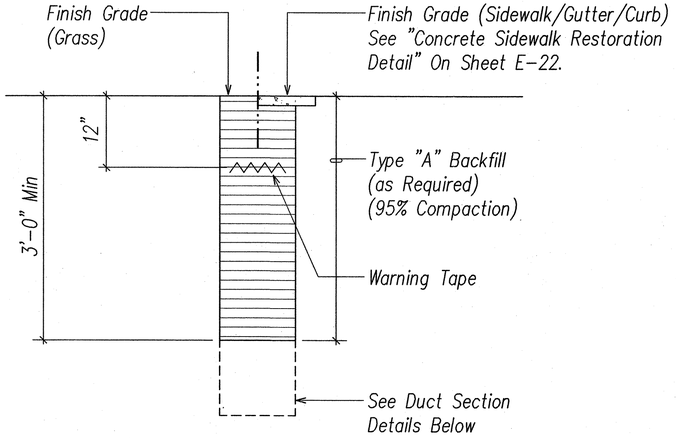
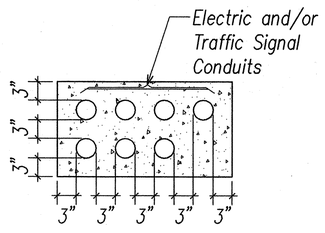
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	170	~~195~~ 194







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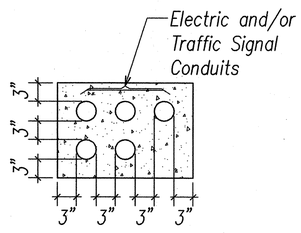
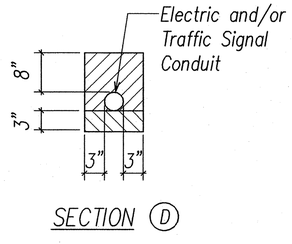


SECTION (B)

SECTION (C)

ROADWAY CROSSING



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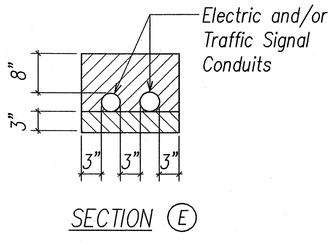

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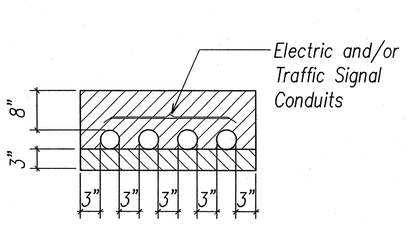

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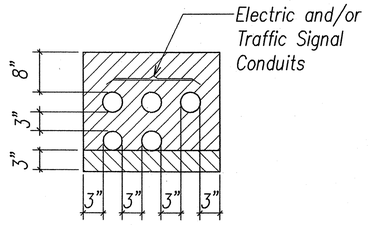

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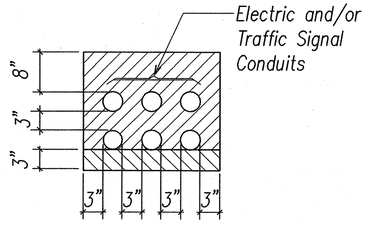

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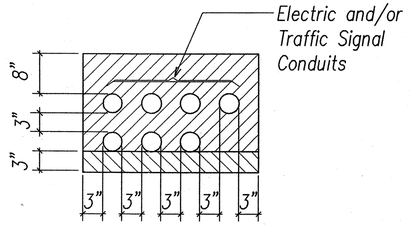

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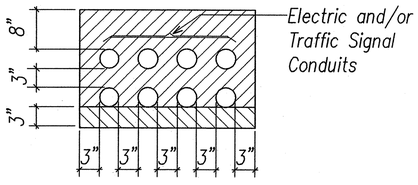

SECTION (J) SIDEWALK/SHOULDER

BACKFILL NOTES:

- Trench Backfill Material "A"
  1. Sand Equivalent ≥ 2
  2. 8" Max. Lift Loose
  3. 95% Compaction
- Trench Backfill Material "B"
  1. Sand Equivalent ≥ 20
  2. 8" Max. Lift Loose
  3. 95% Compaction
- If Material Below Duct Is Not Equivalent To Backfill Material "B", Excavate Material & Provide 3" Backfill Material "B", See Above
- Concrete – 3" Encasement, 3000 PSI Compressive Strength @ 24 Days.

NOTES:

1. Tack Coat Existing Asphalt Bound Material Faces Prior To Filling Excavation With Asphalt Bound Material.
2. When Ground Water Is Encountered In Trenches, Backfill With Gravel Conforming To ASTM C-33, Size 67 Material Until One Foot Above Waterlevel. Encapsulate The Size 67 And Sides Of The Trench And Overlap At The Top Of The Material For The Width Of The Trench. Complete Backfilling The Trench Per Detail.
3. Smoothness of Paved Surfaces:
   The Distance From The Paved Surface To The Testing Edge Of A Ten-Foot Straight Edge Between Two Points Of Contact Shall Not Exceed 3/16".
4. Base Course & Sub-Base Course Per 1994 State Standard Specifications For Highway Construction.
5. Sawcutting & Repairing Of Existing A.C. Pavement Shall Not Be Paid For Separately, But considered Incidental to the Various Contract Items.
6. The Metal Detectable Reel Warning Tape Shall Be A Minimum Of 8 Mils Thick And 3" Wide With A Continuous Metallic Backing And Corrosion Resistant 1± Mil Thick Foil Core. The Message On The Tape Shall Read, "Caution-State Highway Lighting Cables Buried Below", Utility 2" Series "C" Black Lettering. The Message Shall Be Repeated With A 36" Spacing.
   Warning Tape For Signal Corps Conduits Shall Be Per Signal Corps Standards.

TRENCH RESTORATION & DUCT SECTION DETAILS
NOT TO SCALE

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

LAST SAVE: 02/12/08 @ 11:48:14 BY: BRI PLOT SC: 1'-0"=1"
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2/19/08
APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

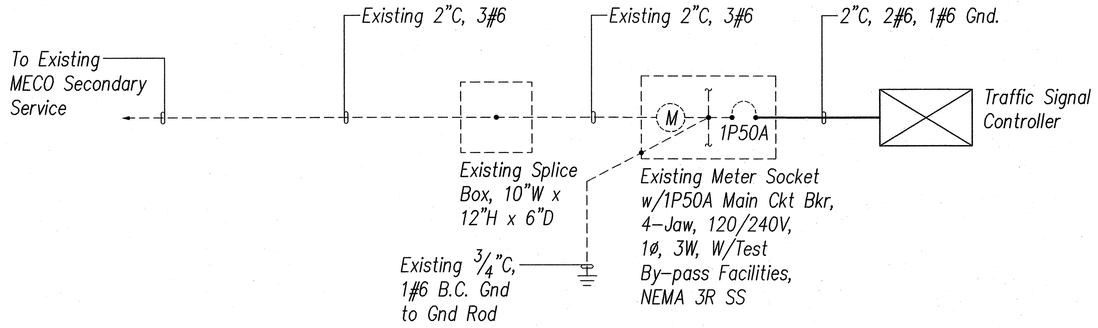
TRENCH RESTORATION & DUCT SECTION DETAILS

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

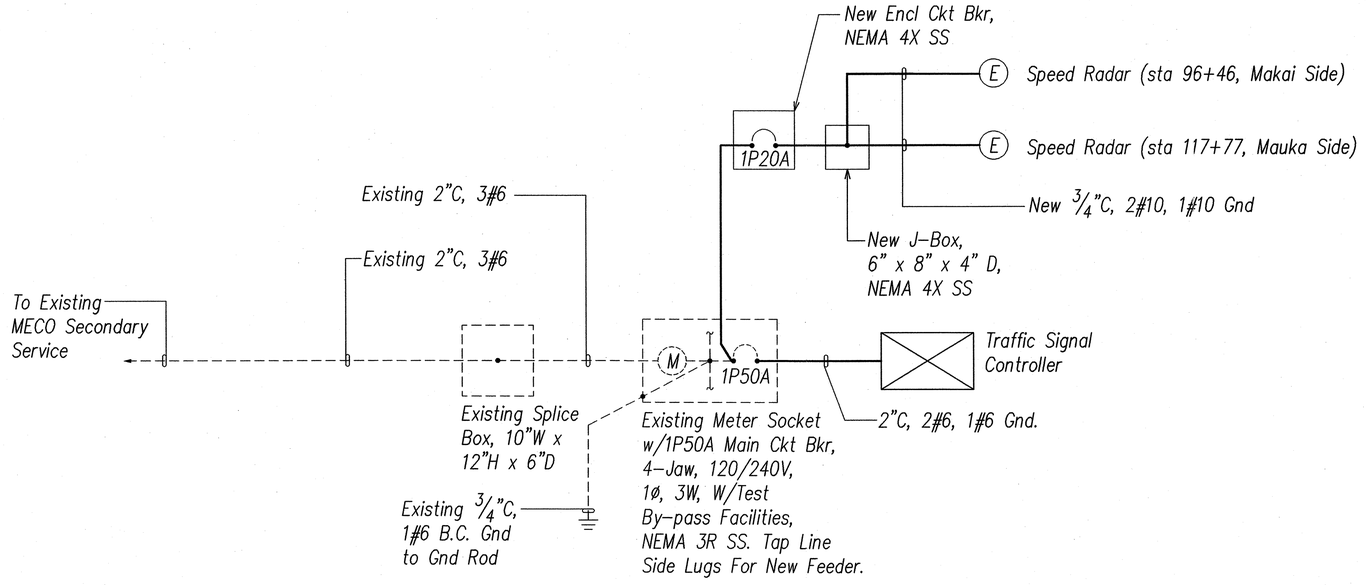
Scale: As Shown
Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-24 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	171	~~195~~ 194



ONE-LINE DIAGRAM - HONOAPIILANI HWY/DICKENSON ST



ONE-LINE DIAGRAM - HONOAPIILANI HWY/SHAW ST

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

LAST SAVE: 02/12/08 @ 11:46:34 BY: BO PLOT SC: 1"=0"=1"
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2/19/08

APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ONE-LINE DIAGRAMS

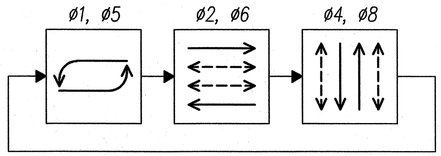
Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

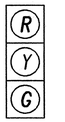
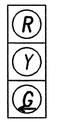
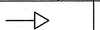
Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-25 OF 27 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	172	~~195~~ 194

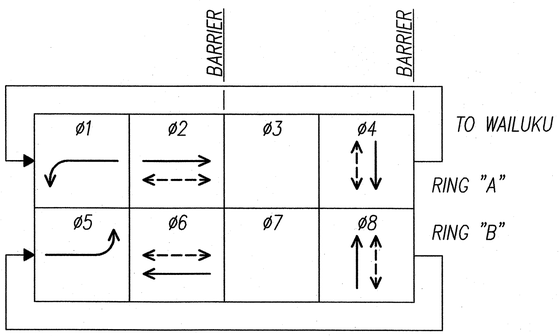


PHASING DIAGRAM

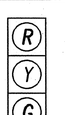
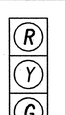
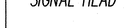
			SIGNAL INDICATION
12" RYG TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLY)	12" RYGA TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLY)	PEDESTRIAN SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLY)	DESCRIPTION
			SYMBOL
A-2 F-2 A-3 F-3 C-1 G-1 D-1 H-1 E-1	A-1* F-1* E-1* I-1*	B-1 G-2 C-2 H-2 D-2 I-2	

* – PROGRAMMED VISABILITY (INCANDESCENT)

HONOAPIILANI HWY/DICKENSON ST INTERSECTION TRAFFIC SIGNAL HEAD LEGEND



PHASE ASSIGNMENT DIAGRAM

			SIGNAL INDICATION
12" RYG TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLY)	12" RYGA TRAFFIC SIGNAL HEAD (L.E.D. SIGNAL ASSEMBLY)	PEDESTRIAN SIGNAL HEAD	DESCRIPTION
			SYMBOL
A-2 F-2 A-3 F-3 B-1 G-1 C-1 H-1	A-1* F-1* C-2* H-2*	B-2 F-4 B-3 F-5 C-3 H-3 D-1 H-4 E-1 I-1	

* – PROGRAMMED VISABILITY (INCANDESCENT)

TYPICAL TRAFFIC SIGNAL PHASING DIAGRAMS
FOR DICKENSON ST AND SHAW ST INTERSECTIONS

HONOAPIILANI HWY/SHAW ST INTERSECTION TRAFFIC SIGNAL HEAD LEGEND

SEAN K. SUGAI
LICENSED PROFESSIONAL ENGINEER
No. 9923-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2008
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC SIGNAL PHASING DIAGRAM, TRAFFIC SIGNAL HEAD LEGENDS

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-26 OF 27 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	TRACED BY	
NOTE BOOK	DESIGNED BY	
No.	QUANTITIES BY	
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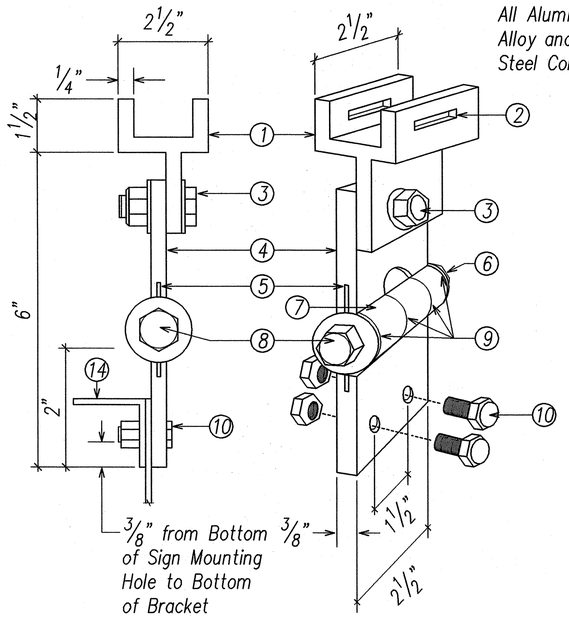
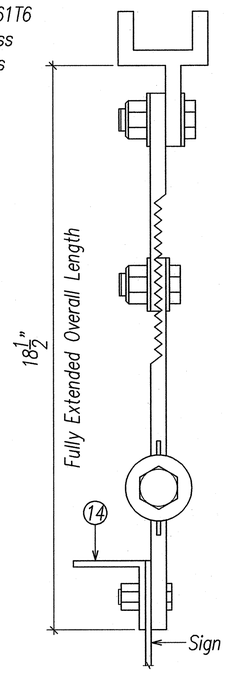
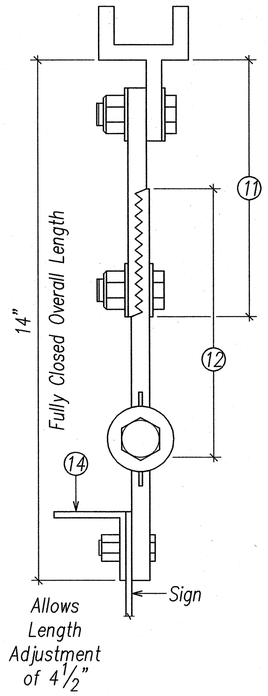
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-030-1(39)	2008	173	~~195~~ 194

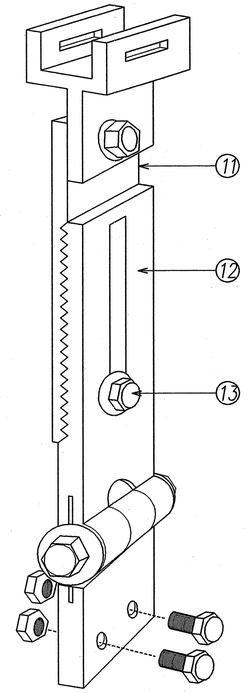


A E-27 FIXED LENGTH NON-ADJUSTABLE SWING SIGN BRACKET



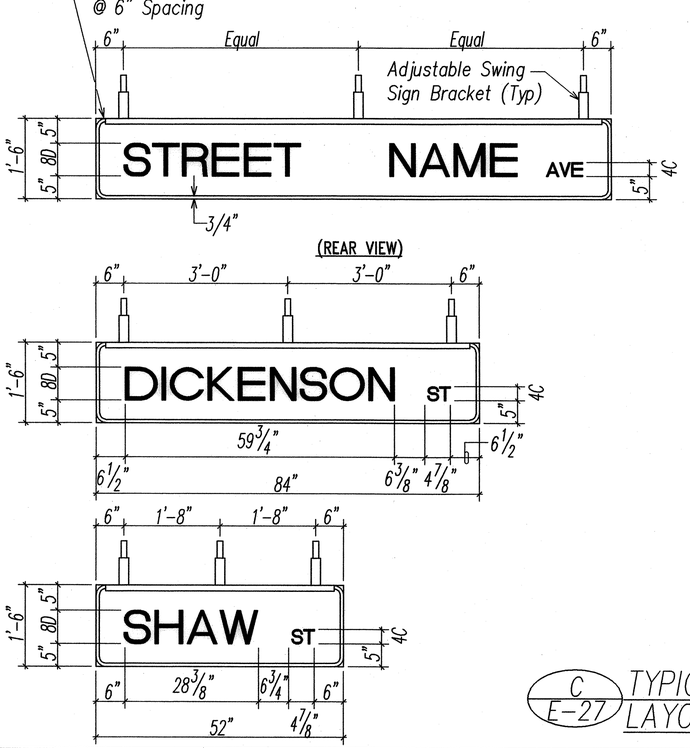


B E-27 ADJUSTABLE LENGTH SWING SIGN BRACKET



1. Pivotal Upper Bracket
2. 1⅝" x ¼" Slot for Double Strapping to Electrolier Mast Arm (M2G-34S(HD) .030" x ¾" Heavy Duty Stainless Steel Strap with M2G-34B(HD) Buckle Recommended.)
3. ½" – 13 x 1½" Stainless Steel Hex Head Bolt with Stainless Steel Hex Lock Nut and 1/16" Stainless Steel Washer (Both Sides). Allows Upper Bracket to Pivot and Align with Electrolier Mast Arm.
4. 6" Overall Drop with Fixed Length Sign Bracket.
5. Stainless Steel Dampener Spring (Removable).
6. Stainless Steel Hex Lock Nut with 1/16" Stainless Steel Washer.
7. 1" O.D. Axle Housing.
8. ½" – 13 x 4" Stainless Steel Hex Head Bolt with 1/16" Stainless Steel Washer.
9. Oilite Bushing
10. Sign Mounting Sets, Consisting of Two Each 5/16" – 18 x 1" Stainless Steel Hex Head Bolt with Stainless Steel Hex Lock Nut. Two Holes on 1½" Centers Provide Positive Lock Sign Mounting to Bracket.
11. 8¼" Overall Length Upper Adjustable Sign Bracket Section.
12. 9" Overall Length Lower Adjustable Sign Bracket Section, Including Axle Housing (8" Overall Length to Top of Axle Housing).
13. ½" – 13 x 1½" Stainless Steel Hex Bolt with Stainless Steel Hex Lock Nut and 1/16" Stainless Steel Washers (Both Sides). Loosen Lock Nut, Adjust Bracket Teeth to Level Sign.
14. 1¼" x 1¼" x ⅛" Aluminum Angle

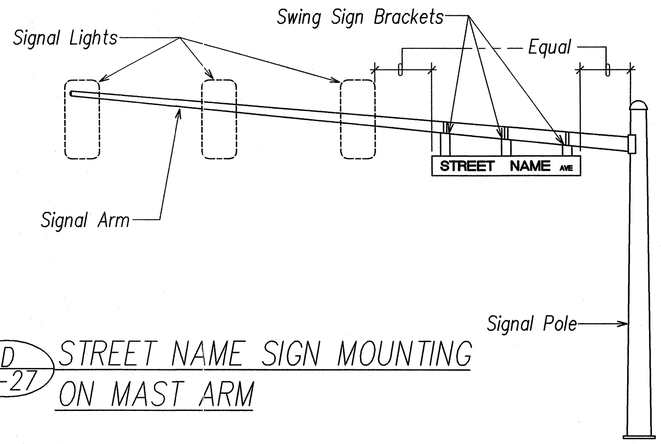
Note: Dimensions May Vary Slightly.



C E-27 TYPICAL PANEL & SWING BRACKET LAYOUT FOR STREET NAME SIGN

NOTES:

1. Signs Shall Be New Street Name Signs. The Contractor Shall Provide the Same Message on the Front and Back Side of the Sign. Payment Will Not Be Made Separately but Shall Be Considered as One Unit.
2. Colors:
   Legend – White (Reflectorized)
   Background – Green (Reflectorized)
3. All Panels Shall Be Reflectorized with Type B Reflective Sheeting in Accordnace with Section 712.20 of the Standard Specifications.
4. Borders and Messages Shall Conform to Details as Shown on the Pland and as Specified in the MUTCD.
5. Sign Mounting Brackets, Aluminum Aangle, Fixtures, Fasteners, and All Necessary Hardware, and Equipment, Tools, Labor, Materials and Other Incidentals for Installation, Will Nnt Be Paid for Separately but Shall Be Considreed Incidental to Street Name Sign Installation.
6. Maximum Spacing Between Swing Sign Brackets Will Be 3'–0".
7. All Signs Shall Conform to Section 621 of the Standard Specifications and the Latest Editions and Amendments of the Following FHWA Publications:
   a. "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD)
   b. "Standard Highway Signs"
   c. "Standard Alphabets for Highway Signs"



D E-27 STREET NAME SIGN MOUNTING ON MAST ARM

SEAN K. SUGAI LICENSED PROFESSIONAL ENGINEER No. 9023-E HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

APRIL 30, 2008 EXPIRATION DATE OF THE LICENSE.

2/19/08

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STREET SIGN DETAILS

Honoapiilani Highway Widening
Lahainaluna Road to Aholo Road
Project No. STP-030-1(39)

Scale: As Shown

Date: ~~FEBRUARY 2008~~ October 2008

SHEET No. E-27 OF 27 SHEETS

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

LAST SAVE: 02/12/08 @ 11:47:37 BY: BD PLOT SC: 1'-0"=1'
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