

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-02-06	2008	52	66

ELECTRICAL SYMBOL LIST

SYMBOL		DESCRIPTION	SYMBOL		DESCRIPTION
EXST	NEW		EXST	NEW	
		Highway Light Standard			Change in Duct Section Designator
		Highway Light, Type, 150W HPS Luminaire, Alum Pole, Xfmr Base & Bracket Arm, See Detail A/E-11			Electrical/Signal Ductline with Designator, Indicates Type "SA" Duct Section with "2L" Ducts. See Sheets E-6 for Typ Duct Section
		Highway Light, Barrier Mounted Type, Twin 150W HPS Luminaires, Alum Pole, Xfmr Base & Bracket Arms, See Detail A/E-13			Highway Light Ductline and Wiring
		Highway Light, 150W HPS Luminaire, Wood Pole and Bracket Arm. See Detail B/E-13			Highway Light Conduit and Wiring (In Barrier)
		Highway Light, 250W HPS Luminaire			Highway Light Overhead Cable
		Remove Exst Joint Pole Mounted Highway Light			Stub, Cap and Mark Conduits
		Wood Pole			Metering Equipment
					HECO Pole Mtd Transformer
		Type "B" Metric Highway Light Pullbox (Approx. 28" X 40") , See Detail E-15			Utility Pole Unless Indicated Otherwise
					Elec/Tel Overhead Lines
					Guy Anchor
		Exst. Flashing Yellow Beacon			Concrete Stub-Out Marker, See Detail B/E-12

SYMBOL NOTES:

1. "X" Through Symbol Indicates Item to be Removed.

UTILITY LEGEND:

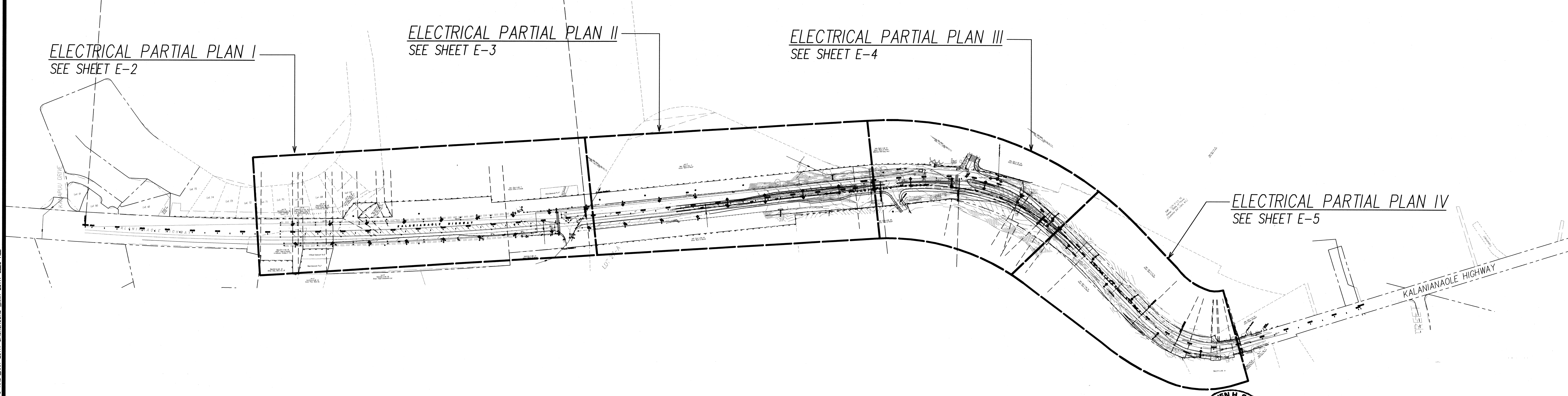
- w16— Exst Water Line, 16" Dia Indicated
- g6— Exst Gas Line, 6" Dia Indicated
- s8— Exst Sewer Line, 8" Dia Indicated
- d24— Exst Drain Line, 24" Dia Indicated
- f6— Exst Fuel Oil Line, 6" Dia Indicated
- fo6— Exst Fuel Oil Line, 6" Dia Indicated
- wmh Exst Water Manhole
- wv Exst Water Valve
- wm Exst Water Meter
- smh Exst Sewer Manhole
- sdmh Exst Storm Drain Manhole
- cb Exst Catch Basin

ELECTRICAL PARTIAL PLAN I
SEE SHEET E-2

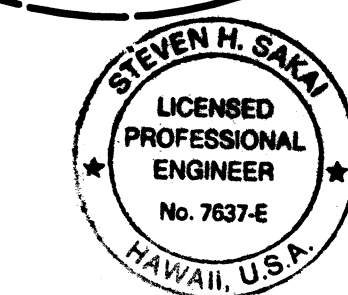
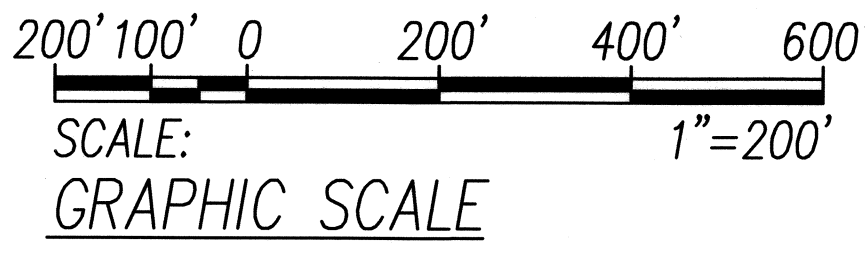
ELECTRICAL PARTIAL PLAN II
SEE SHEET E-3

ELECTRICAL PARTIAL PLAN III
SEE SHEET E-4

ELECTRICAL PARTIAL PLAN IV
SEE SHEET E-5



ELECTRICAL SITE PLAN
SCALE: 1"=200'



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APRIL 30, 2010
EXPIRATION DATE OF LICENSE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL SYMBOL LIST
ELECTRICAL SITE PLAN

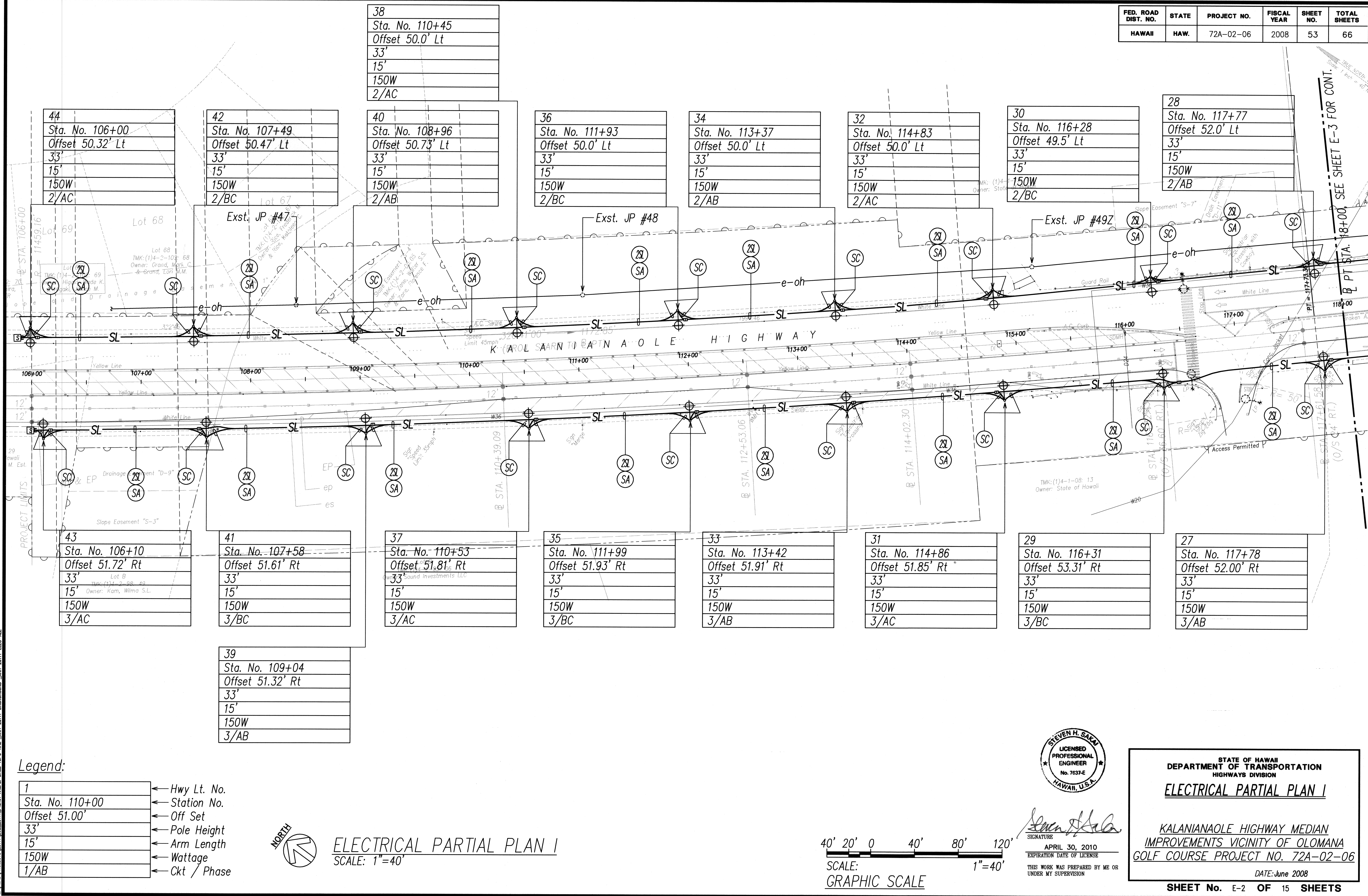
KALANIANA'OLE HIGHWAY MEDIAN
IMPROVEMENTS VICINITY OF OLOMANA
GOLF COURSE PROJECT NO. 72A-02-06

DATE: June 2008

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
CHECKED BY	
NO. 1	

LAST SAVE: 06/16/08 09:43:07 BY: JOT RUT 52:1=200
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FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-02-06	2008	53	66

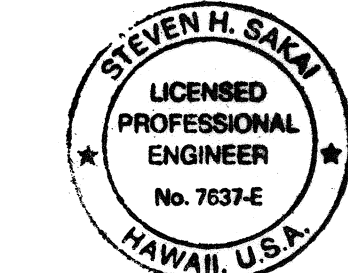
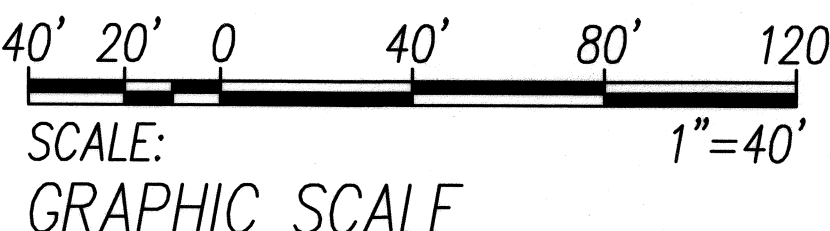


Legend:

1	← Hwy Lt. No.
Sta. No. 110+00	← Station No.
Offset 51.00'	← Off Set
33'	← Pole Height
15'	← Arm Length
150W	← Wattage
1/AB	← Ckt / Phase



ELECTRICAL PARTIAL PLAN I
SCALE: 1"=40'



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ELECTRICAL PARTIAL PLAN I

KALANIANAOLE HIGHWAY MEDIAN
IMPROVEMENTS VICINITY OF OLOMANA
GOLF COURSE PROJECT NO. 72A-02-06
DATE: June 2008

SHEET No. E-2 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-02-06	2008	54	66

26
Sta. No. 119+22
Offset 52.0' Lt
33'
15'
150W
2/AC

24
Sta. No. 120+69
Offset 52.0' Lt
33'
15'
150W
2/BC

22
Sta. No. 122+13
Offset 52.0' Lt
33'
15'
150W
2/AB

20
Sta. No. 123+38
36'
8'
150W
1/AB

18
Sta. No. 124+88
36'
8'
150W
1/AC

16
Sta. No. 126+41
36'
8'
150W
1/BC

14
Sta. No. 127+81 83
36'
8'
150W
1/AB

12
Sta. No. 129+25 17
36'
8'
150W
1/AC

11
Sta. No. 129+25 17
36'
8'
150W
1/AC

13
Sta. No. 127+86 83
36'
8'
150W
1/AB

25
Sta. No. 119+22
Offset 52.0' Rt
33'
15'
150W
3/AC

23
Sta. No. 120+69
Offset 52.1' Rt
33'
15'
150W
3/BC

21
Sta. No. 122+13
Offset 54.0' Rt 51.0' Rt
33'
15'
150W
3/AB

19
Sta. No. 123+38
36'
8'
150W
1/AB

17
Sta. No. 124+88
36'
8'
150W
1/AC

15
Sta. No. 126+41
36'
8'
150W
1/BC

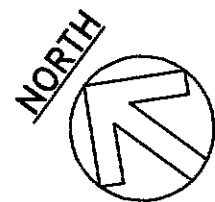
Legend:

1	← Hwy Lt. No.
Sta. No. 110+00	← Station No.
Offset 51.00'	← Off Set
33'	← Pole Height
15'	← Arm Length
150W	← Wattage
1/AB	← Ckt / Phase

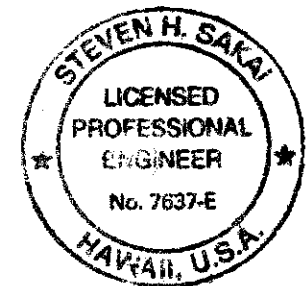
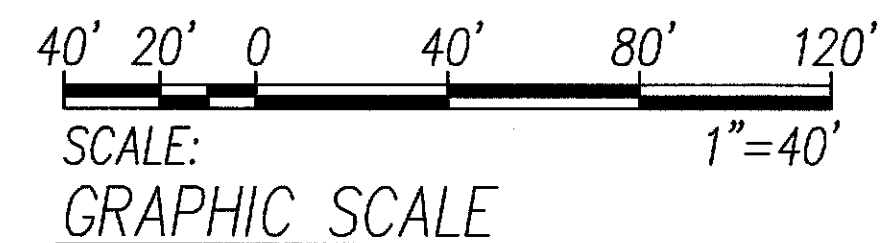
1	← Hwy Lt. No.
Sta. No. 110+00	← Station No.
36'	← Pole Height
8'	← Arm Length
150W	← Wattage
1/AB	← Ckt / Phase

LEGEND FOR AS-BUILT POSTINGS

	Squiggly line for as-built deletion
	Double line for as-built deletion
	Roadway
	Text for as-built posting



ELECTRICAL PARTIAL PLAN II
SCALE: 1"=40'

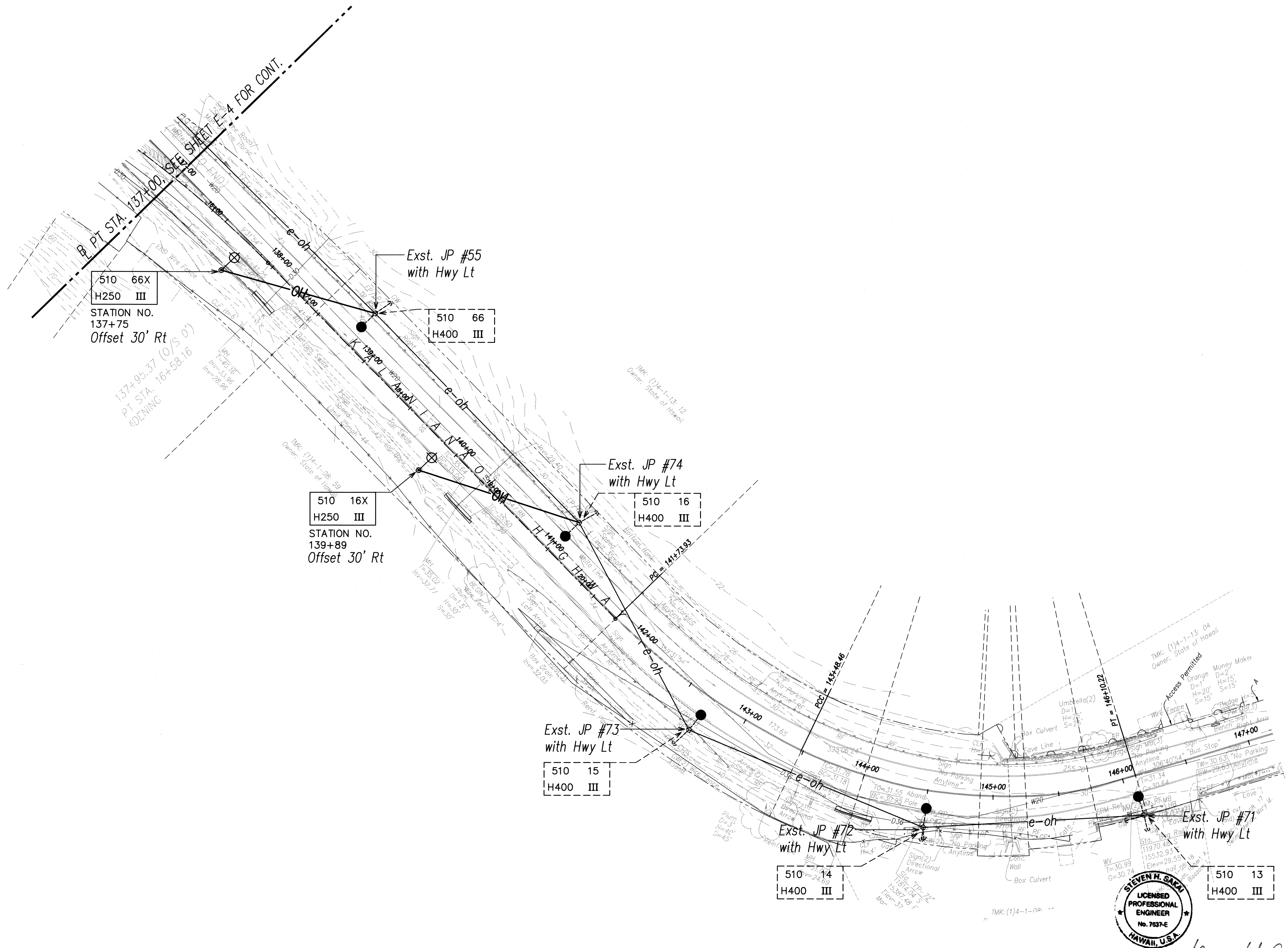


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9/23/09	Revised Hwy Lt. Spacing
7/24/09	Revised HECO connection
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION ELECTRICAL PARTIAL PLAN II KALANIANA'OLE HIGHWAY MEDIAN IMPROVEMENTS VICINITY OF OLOMANA GOLF COURSE PROJECT NO. 72A-02-06 DATE: June 2008 SHEET No. E-3 OF 15 SHEETS	

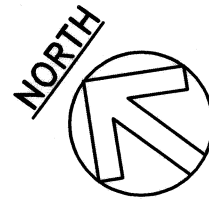
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-02-06	2008	56	66

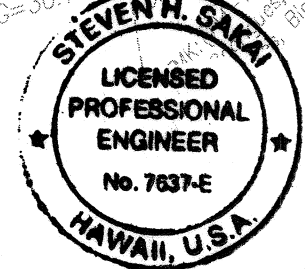
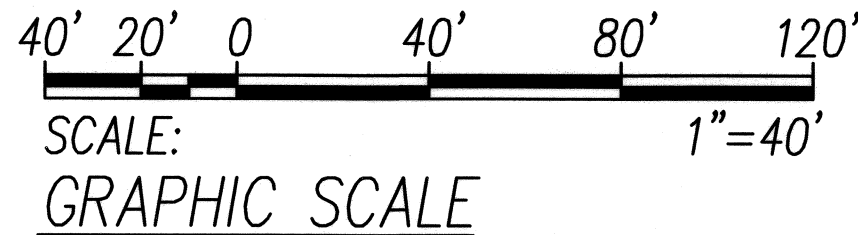


ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY
No.	DESIGNED BY
	CHECKED BY

LAST SAVE: 06/06/08 09:55:55
Z:\AD\PROJECTS\2011\72A-02-06\2011_72A-02-06-ELEC-ALL



ELECTRICAL PARTIAL PLAN IV
SCALE: 1"=40'



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APRIL 30, 2010
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UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
ELECTRICAL PARTIAL PLAN IV

KALANIANA'OLE HIGHWAY MEDIAN
IMPROVEMENTS VICINITY OF OLOMANA
GOLF COURSE PROJECT NO. 72A-02-06
DATE: June 2008

SHEET No. E-5 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-02-06	2008	57	66

STATE RIGHT-OF-WAY BACKFILL NOTES

- Trench Backfill Material "B"

1. Sand Equivalent ≥ 2

2. 8" Max. Lift Loose

3. 95% Compaction

Trench Backfill Material "A"

1. Sand Equivalent ≥ 20

2. 8" Max. Lift Loose

3. 95% Compaction

If Material Below Duct is Not Equivalent to Backfill Material "A", Excavate Material & Provide 3" Backfill Material "A", See Above

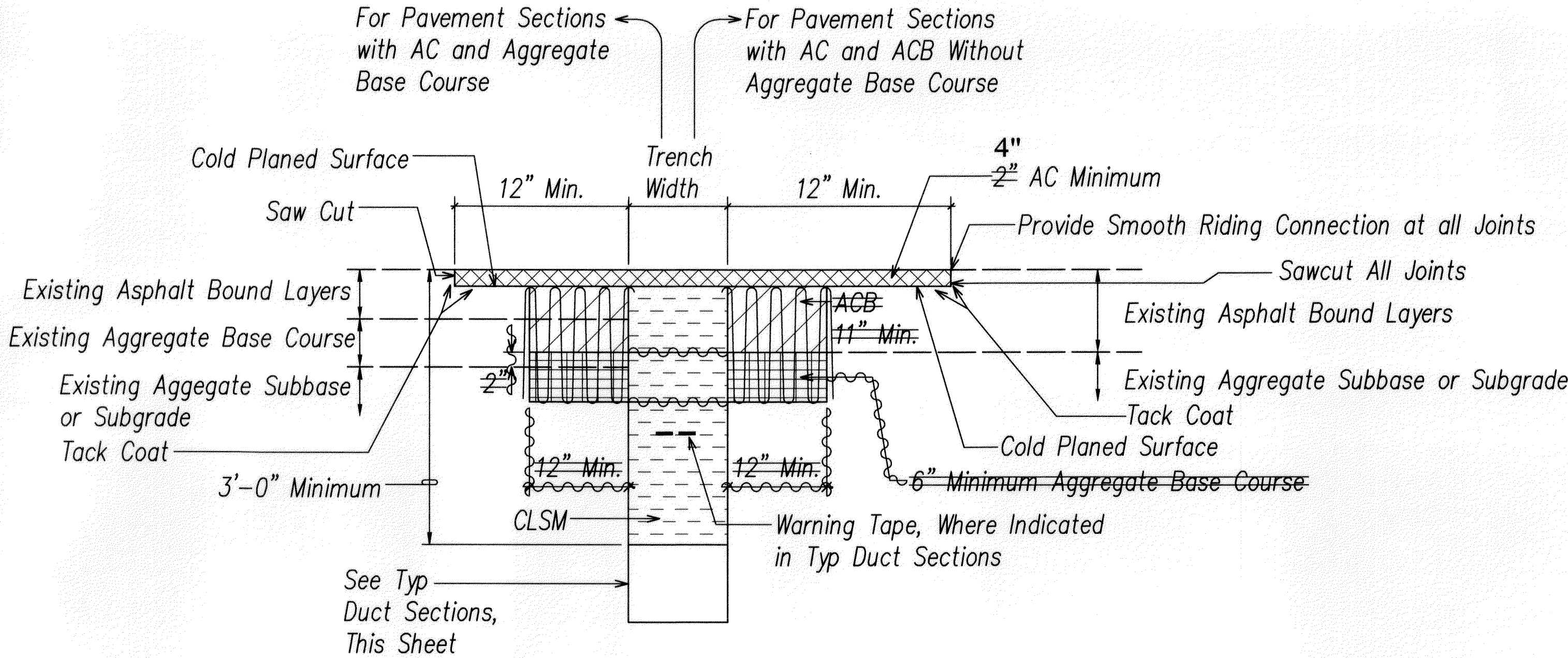
Concrete - 3" Encasement, 2500 PSI Compressive Strength @ 28 Days.

Notes:

- 1

Sawcutting & Repairing of Exst A.C. Pavement shall not be Paid for Separately, but Considered Incidental to the Various Contract Items.
- 2

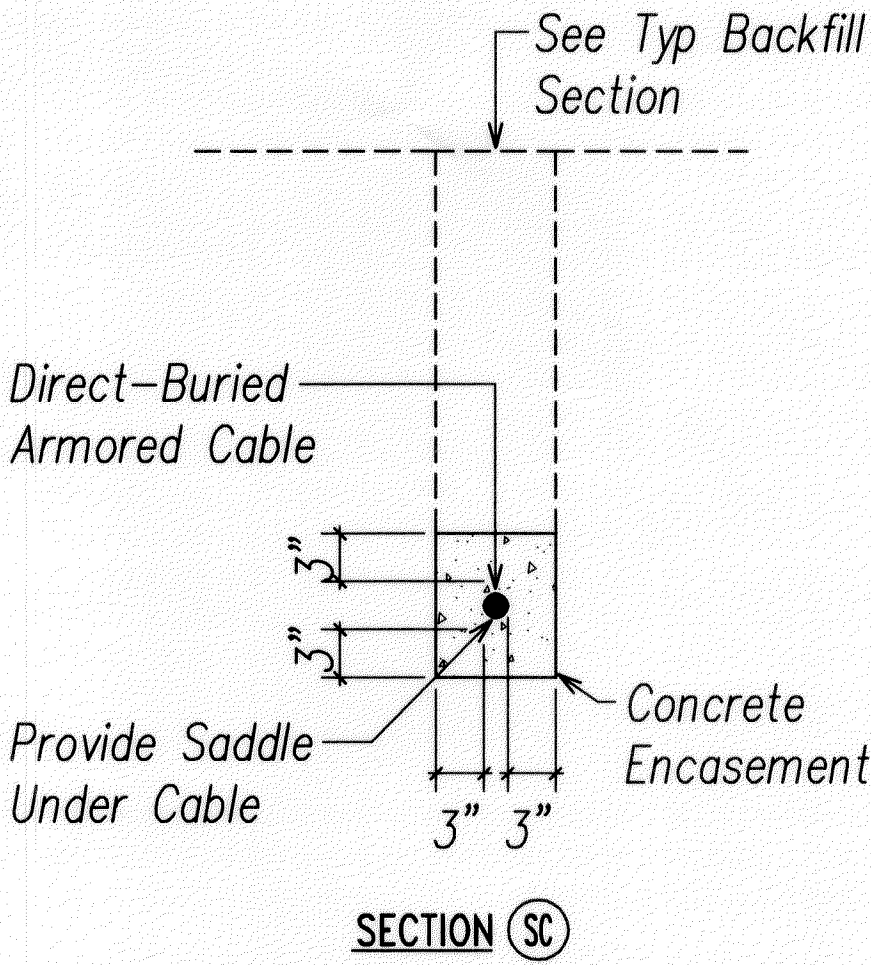
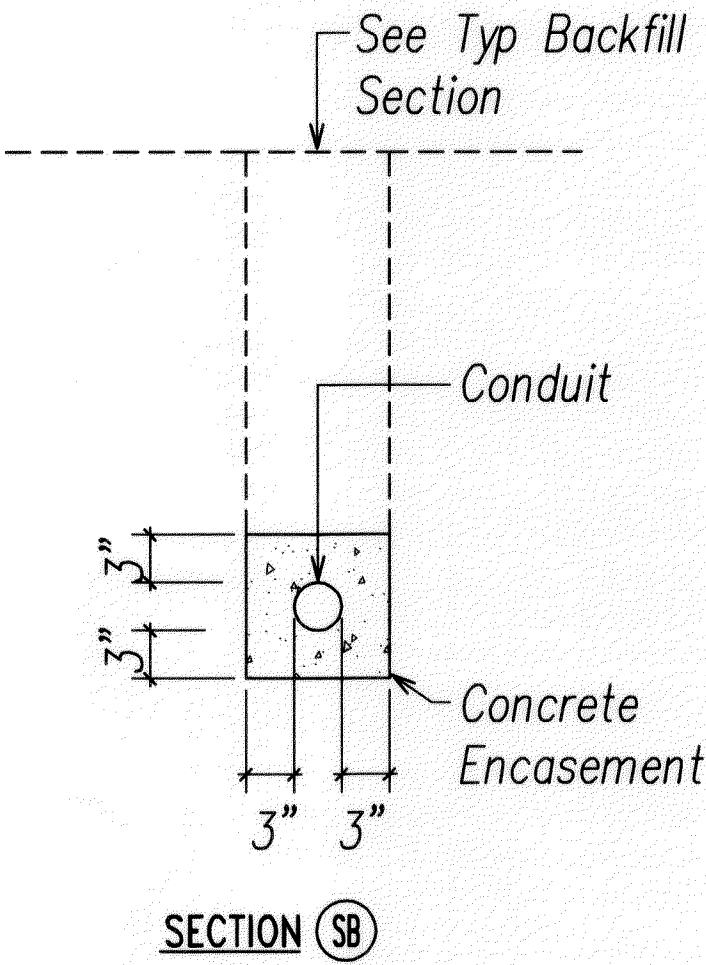
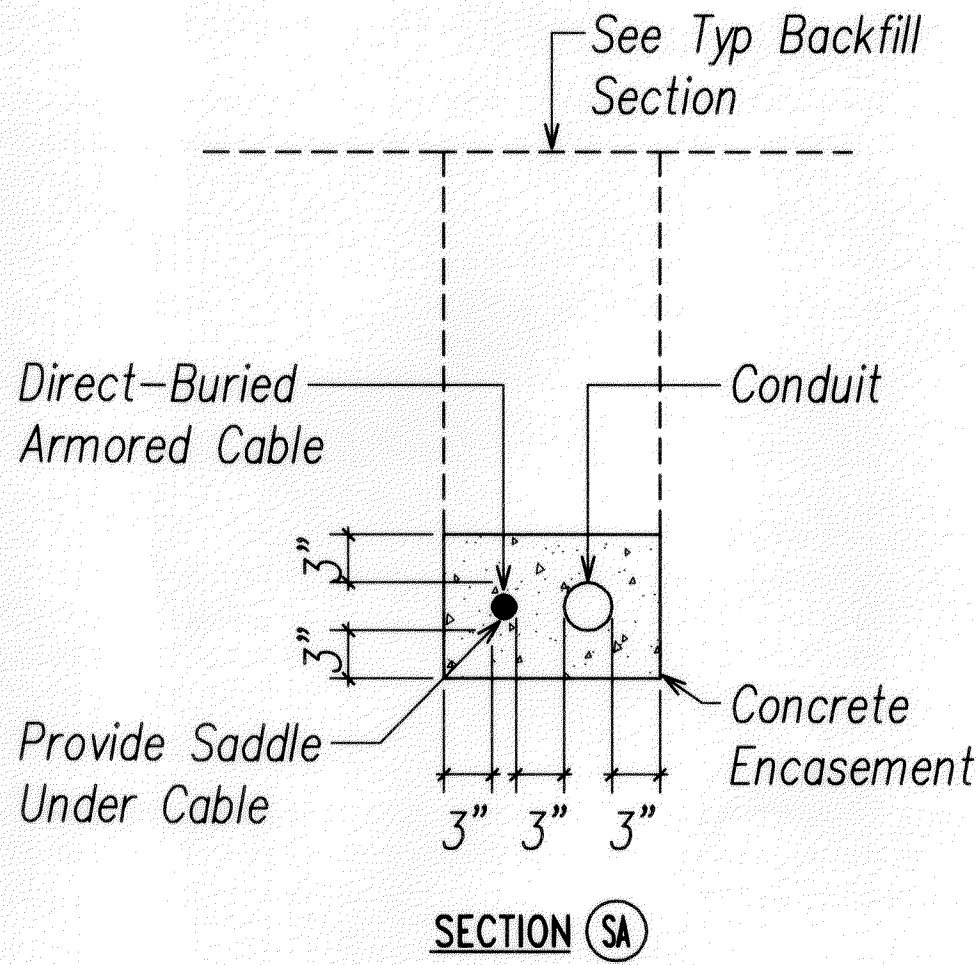
Sawcutting & Repairing of Exst Conc Pavement shall not be Paid for Separately, but Considered Incidental to the Various Contract Items.



- 1

BACKFILL SECTION
WITHIN STATE RIGHT-OF-WAY
UNDER EXISTING ROADWAY &
PAVED SHOULDER 1, 2

TYPICAL BACKFILL SECTION (STATE) NOT TO SCALE



TYPICAL DUCT SECTION NOT TO SCALE

** Notes For Backfill Section 1

1. If Trench Aligned Transverse to Direction of Travel, Sawcut 1 Foot on Each Side of Trench.
2. If Trench Aligned Along Direction of Travel, Sawcut to Edge of Lane in which Edge of Trench is Located.
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. Sawcut 1 Foot on Each Side of Trench.

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

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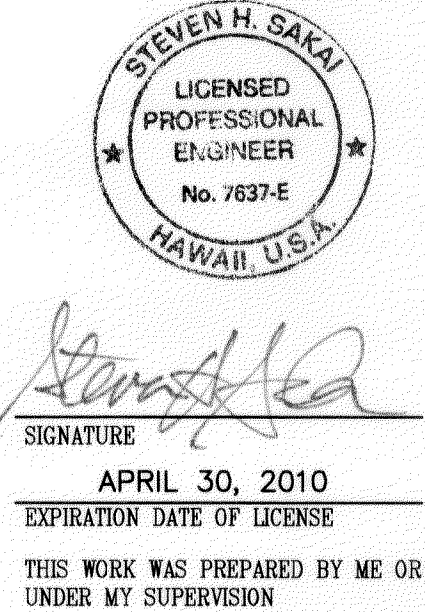
LEGEND FOR AS-BUILT POSTINGS

- ~~~~~

Squiggly line for as-built deletion
- ==00.00==

Double line for as-built deletion
- Roadway

Text for as-built posting



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL BACKFILL SECTIONS (STATE)

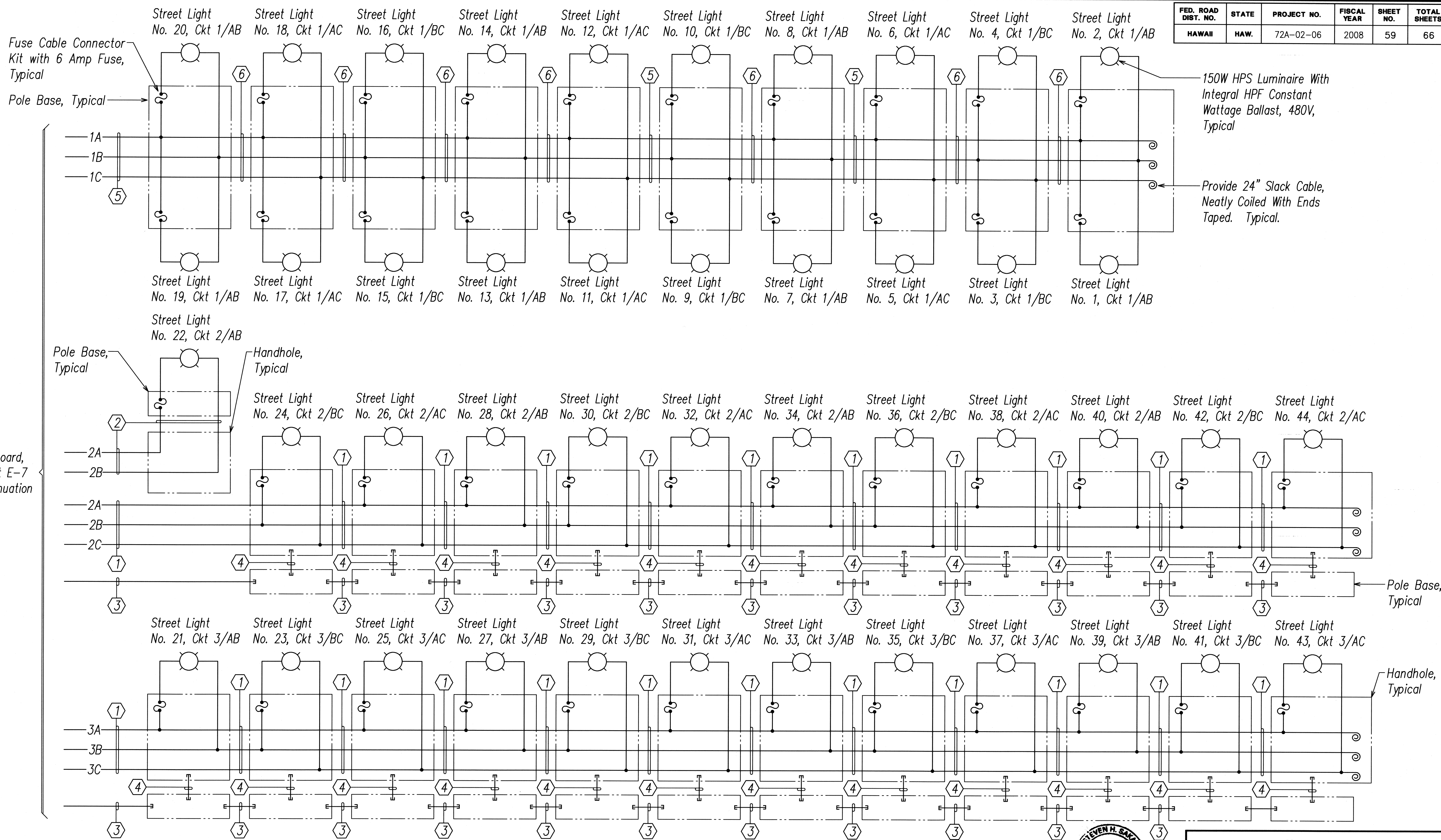
KALANIANA'OLE HIGHWAY MEDIAN
IMPROVEMENTS VICINITY OF OLOMANA
GOLF COURSE PROJECT NO. 72A-02-06

DATE: June 2008

SHEET No. E-6 OF 15 SHEETS

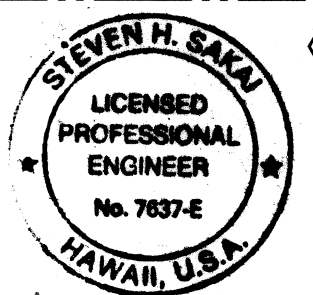
"AS-BUILT"

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-02-06	2008	59	66



CONDUIT & WIRE SCHEDULE			
ITEM	DESCRIPTION	ITEM	DESCRIPTION
①	Armored Cable, 3#10, #10 GND	⑤	2"C, 3#12, #12 Gnd
②	1"C, 2#10 RHW-USE, #10 GND	⑥	3#12, #12 Gnd in Barrier Conduit
③	2"C, with Pullwire		
④	1"C, with Pullwire		

HIGHWAY LIGHTING SYSTEM ONE-LINE DIAGRAM II



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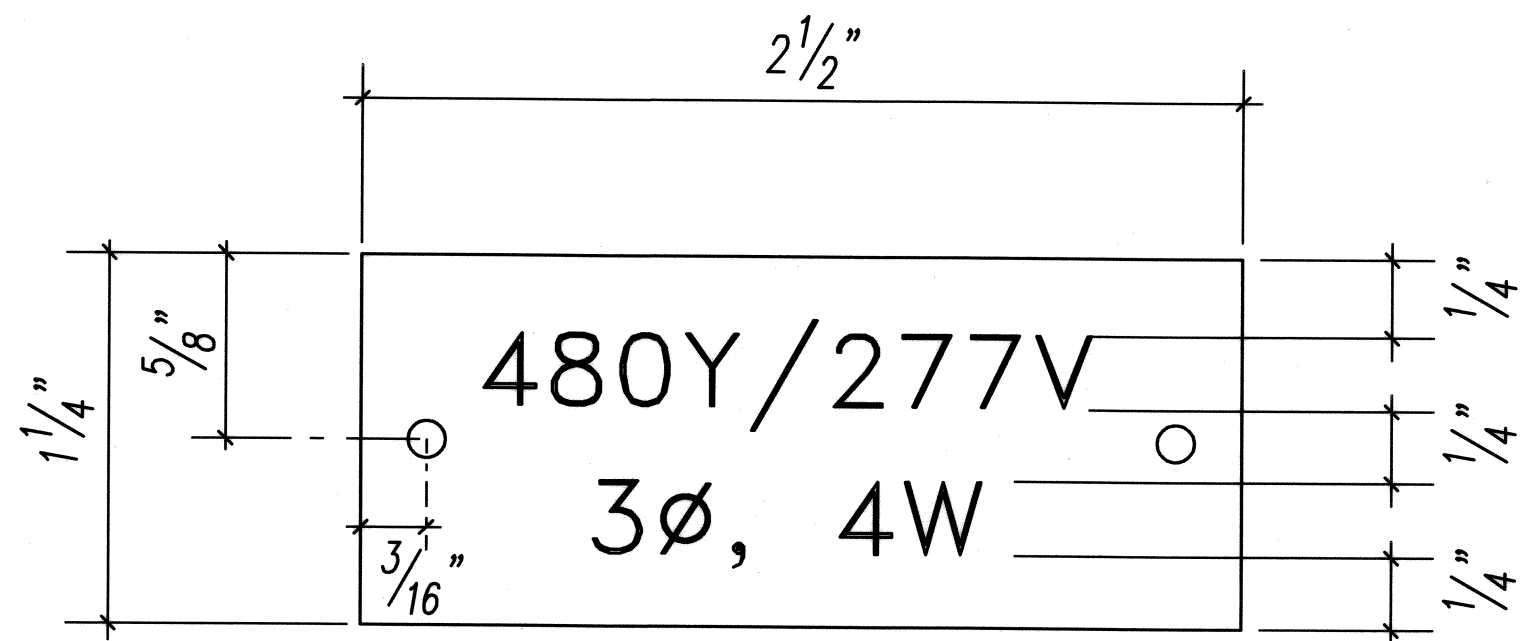
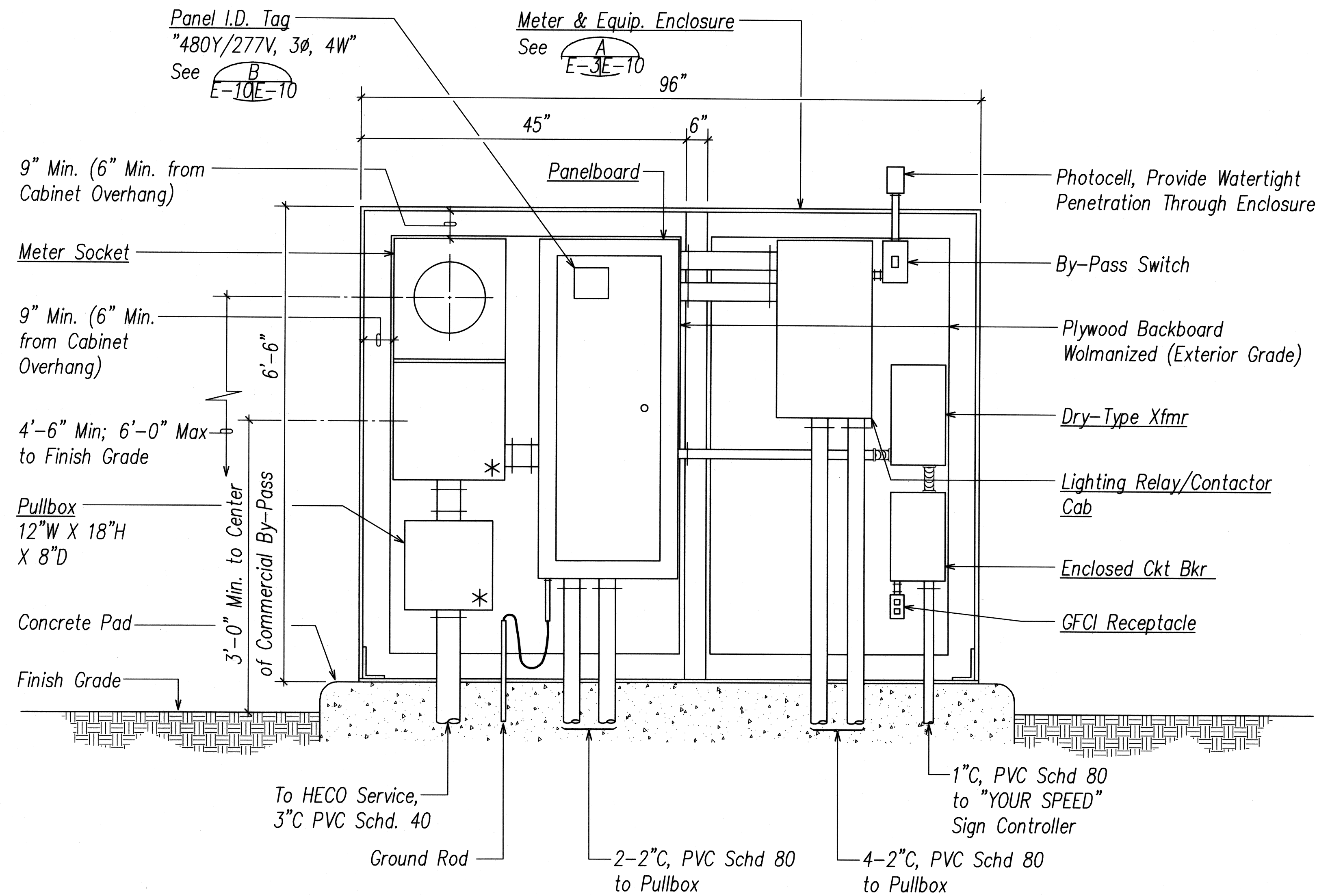
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY LIGHTING SYSTEM
ONE-LINE DIAGRAM II
KALANIANA'OLE HIGHWAY MEDIAN
IMPROVEMENTS VICINITY OF OLOMANA
GOLF COURSE PROJECT NO. 72A-02-06
DATE: June 2008

SHEET No. E-8 OF 15 SHEETS

ORIGINAL PLAN
DATE
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LAST SAVE: 06/06/08 @ 08:02:27 PM
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FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-02-06	2008	61	66



B
E-10E-10 **PANEL I.D. TAG DETAIL**
Not to Scale

Notes:

1. Use 2 Ply Plastic - Black, White.
2. Letter Size shall be 1/8" High and Engraved 1/32" Wide, White in Color.
3. Attach to Panel with No. 7 Stainless Steel Drive Screws.

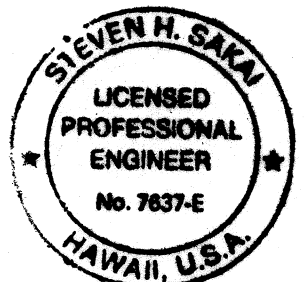
Notes:

1. See Sheet E-8 for One-line Diagram.
2. * - Provision for HECO Seal.

A
E-9E-10 **HIGHWAY LIGHTING SERVICE ELEVATION**
Not to Scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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	DESIGNED BY	
	CHECKED BY	

LAST SAVE: 06/16/08 @ 08:41:57 BY: 207 ELOJ SC: 1-C-11
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Signature
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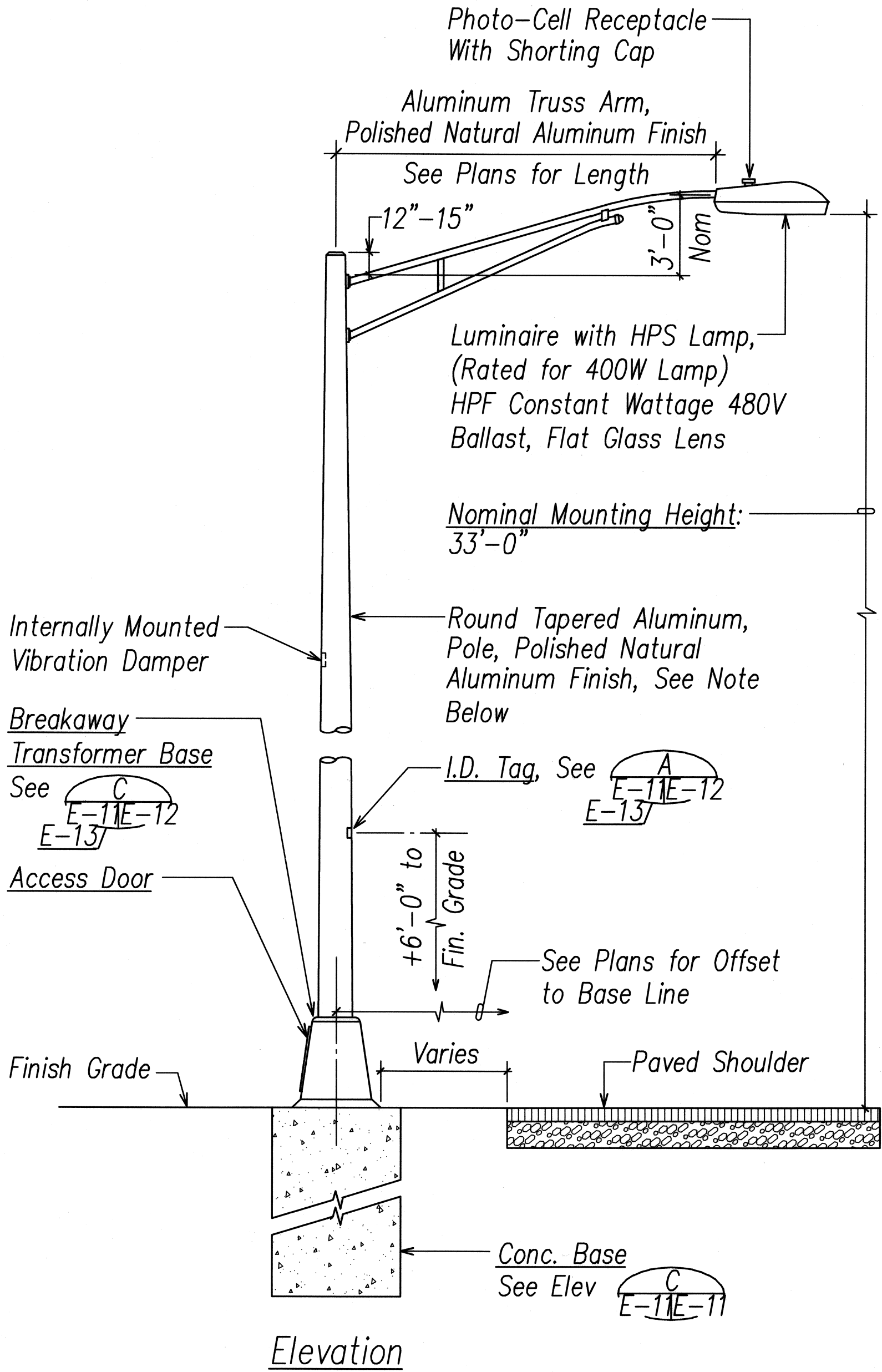
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

**METER AND EQUIPMENT
ENCLOSURE DETAILS III**

KALANIANA'OLE HIGHWAY MEDIAN
IMPROVEMENTS VICINITY OF OLOMANA
GOLF COURSE PROJECT NO. 72A-02-06

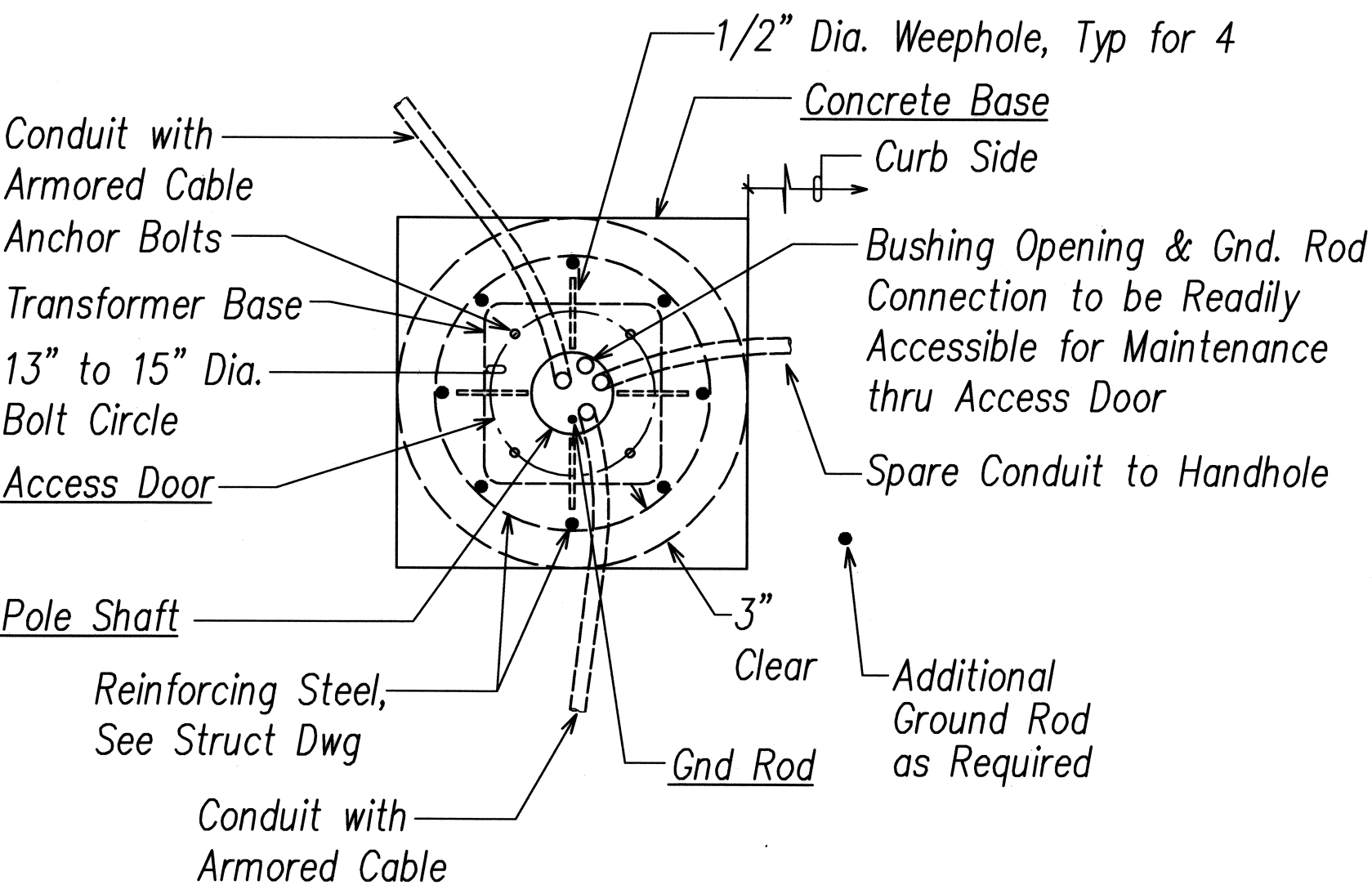
DATE: June 2008

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HAWAII	HAW.	72A-02-06	2008	62	66

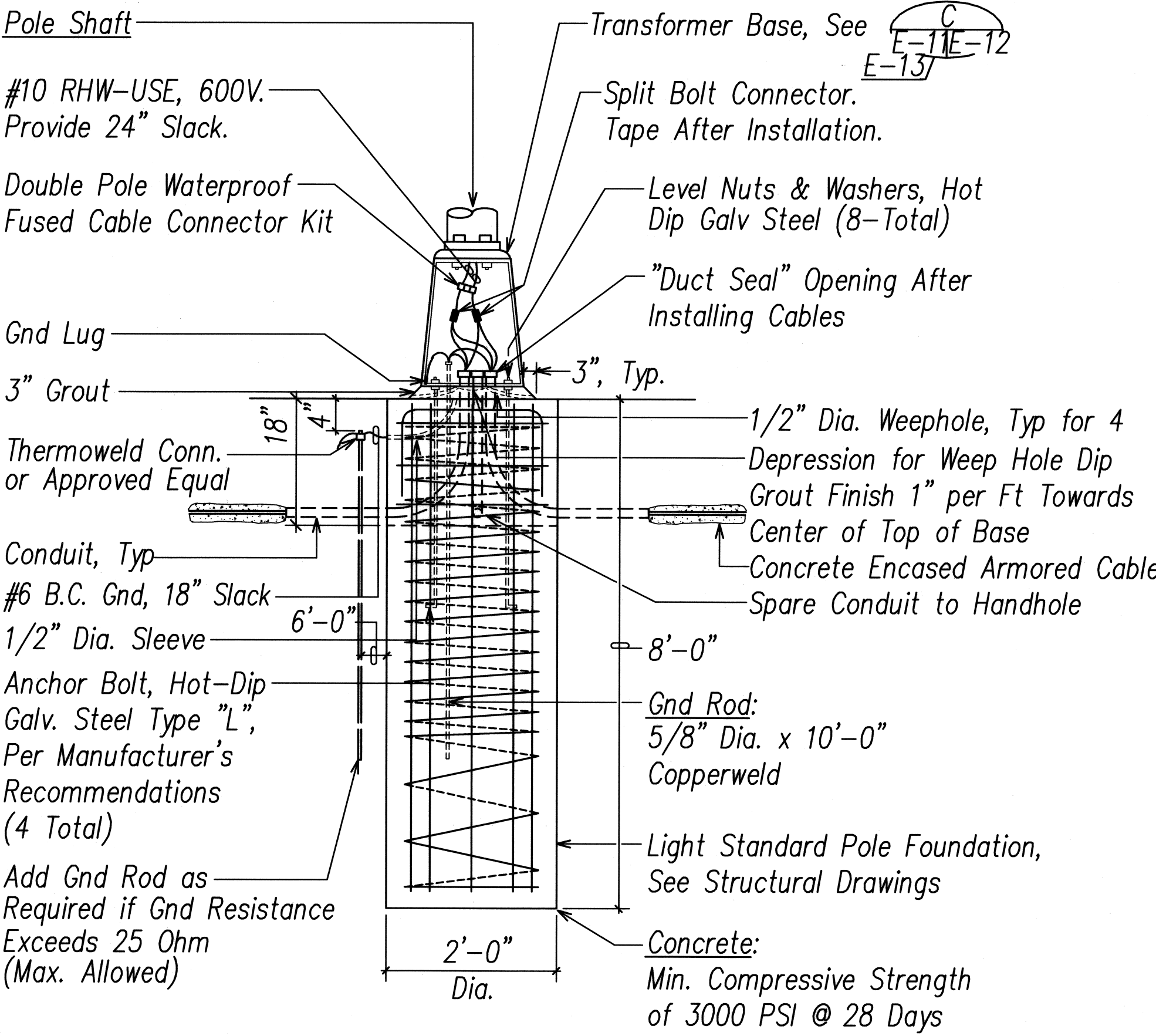


Note: Standard shall be Designed in Accordance with AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals", 4th Edition Dated 2001 with 2002 Interim Revisions. Highway Light Standard and Bracket Arm Assembly shall Withstand 105 M.P.H. Sustained Winds with 1.14 Gust Factor without Permanent Deformation.

HIGHWAY LIGHT STANDARD E-11E-11 Not to Scale

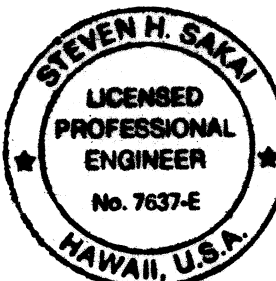


CONCRETE BASE PLAN E-11E-11 Not to Scale



Note: See Detail E-11E-11 & Structural Drawings

CONCRETE BASE ELEVATION E-11E-11 Not to Scale



Signature: *Steven H. Sakai*

APRIL 30, 2010

EXPIRATION DATE OF LICENSE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HIGHWAY LIGHT DETAILS I

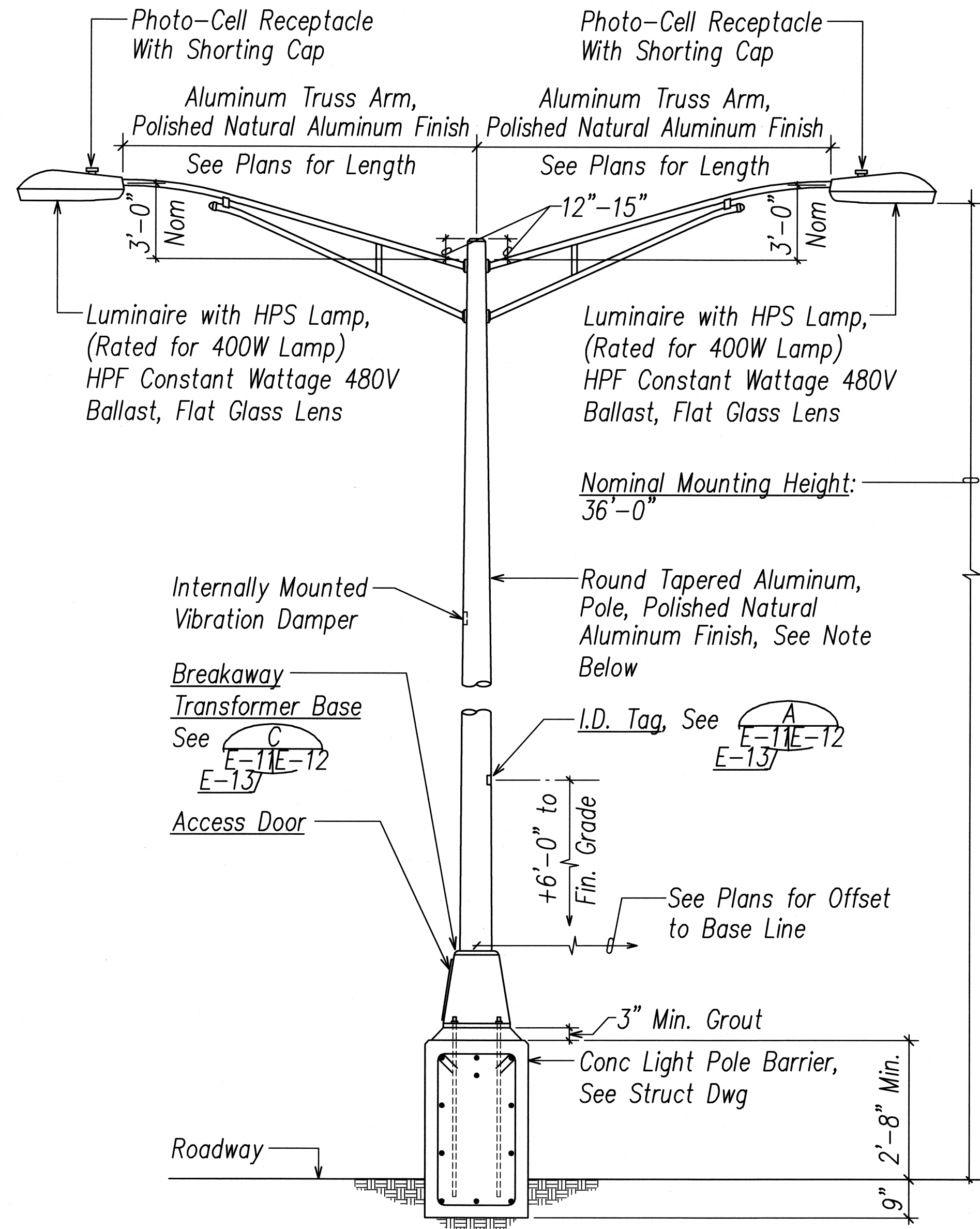
KALANIANA'OLE HIGHWAY MEDIAN
IMPROVEMENTS VICINITY OF OLOMANA
GOLF COURSE PROJECT NO. 72A-02-06

DATE: June 2008

SHEET No. E-11 OF 15 SHEETS

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	CHECKED BY

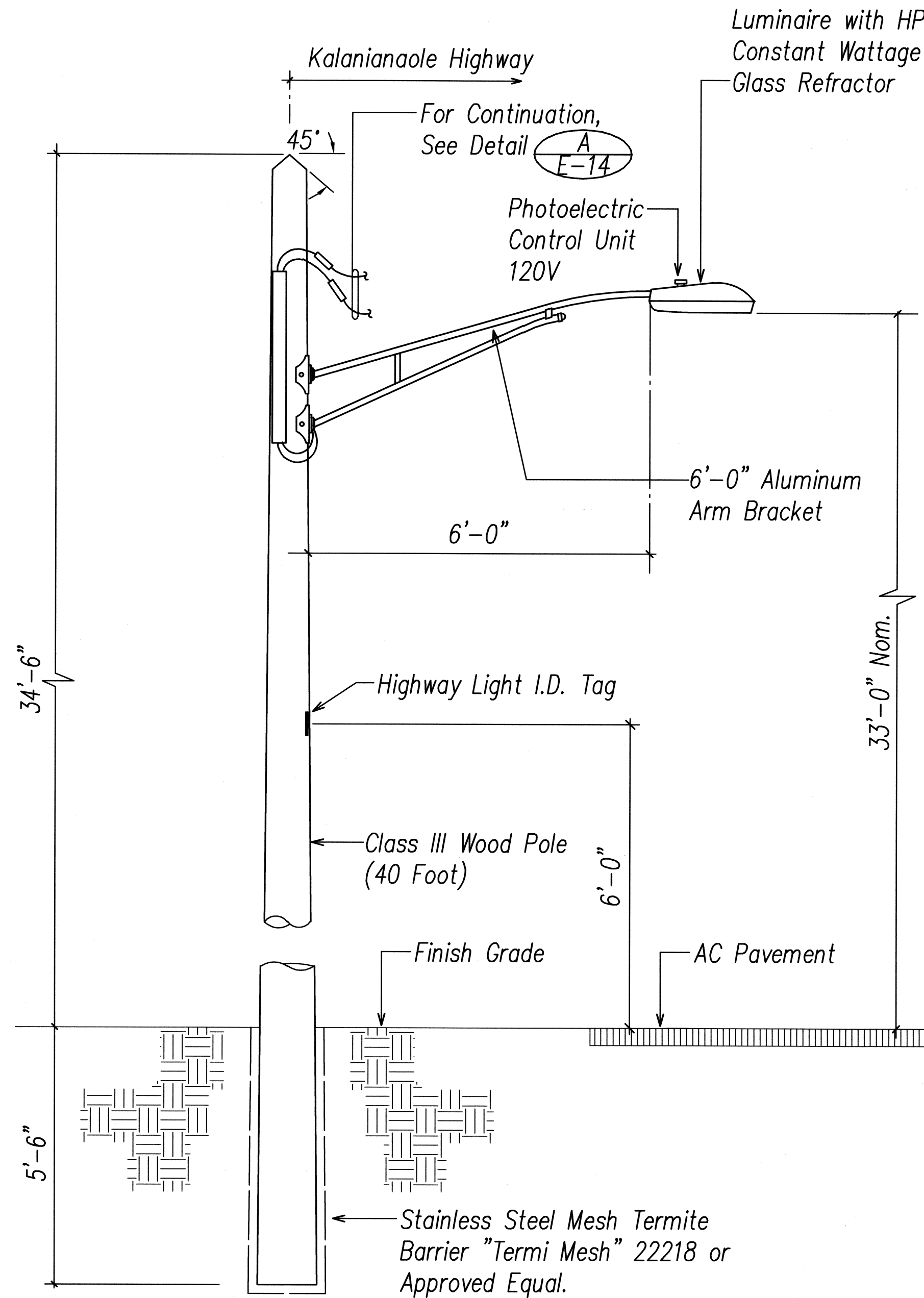
FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-02-06	2008	64	66



Elevation

Note: Standard shall be Designed in Accordance with AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals", 4th Edition Dated 2001 with 2002 Interim Revisions. Highway Light Standard and Bracket Arm Assembly shall Withstand 105 M.P.H. Sustained Winds with 1.14 Gust Factor without Permanent Deformation.

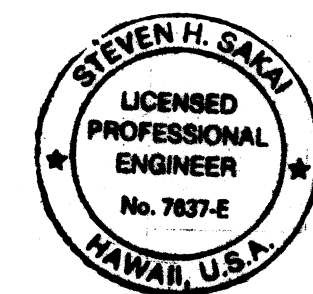
HIGHWAY LIGHT STANDARD
Not to Scale



NOTE(S):

1. Minimum Top Circumference is 23"; Minimum Circumference at 6'-0" From Butt is 37".
2. Pole Shall be Treated with Pentachlorophenol using the "Celon" Process, by a Licensed Termite Treatment Company.
3. Termite Treat the Bottom of the Hole and Backfill Material with Aqueous Chemical Solution Consisting of 0.5% Aldrin or 0.5% Dursban. Minimum 5 Gallons of the Solution Shall Be Used For Each Hole. Application Shall be Performed by Contractor Licensed For This Type of Work. Treatment Shall be Done as the Hole is Being Backfilled.
4. Installation Shall be in Accordance with Current AASHTO Requirements.

HIGHWAY LIGHT STANDARD ON WOOD POLE DETAIL
NOT TO SCALE



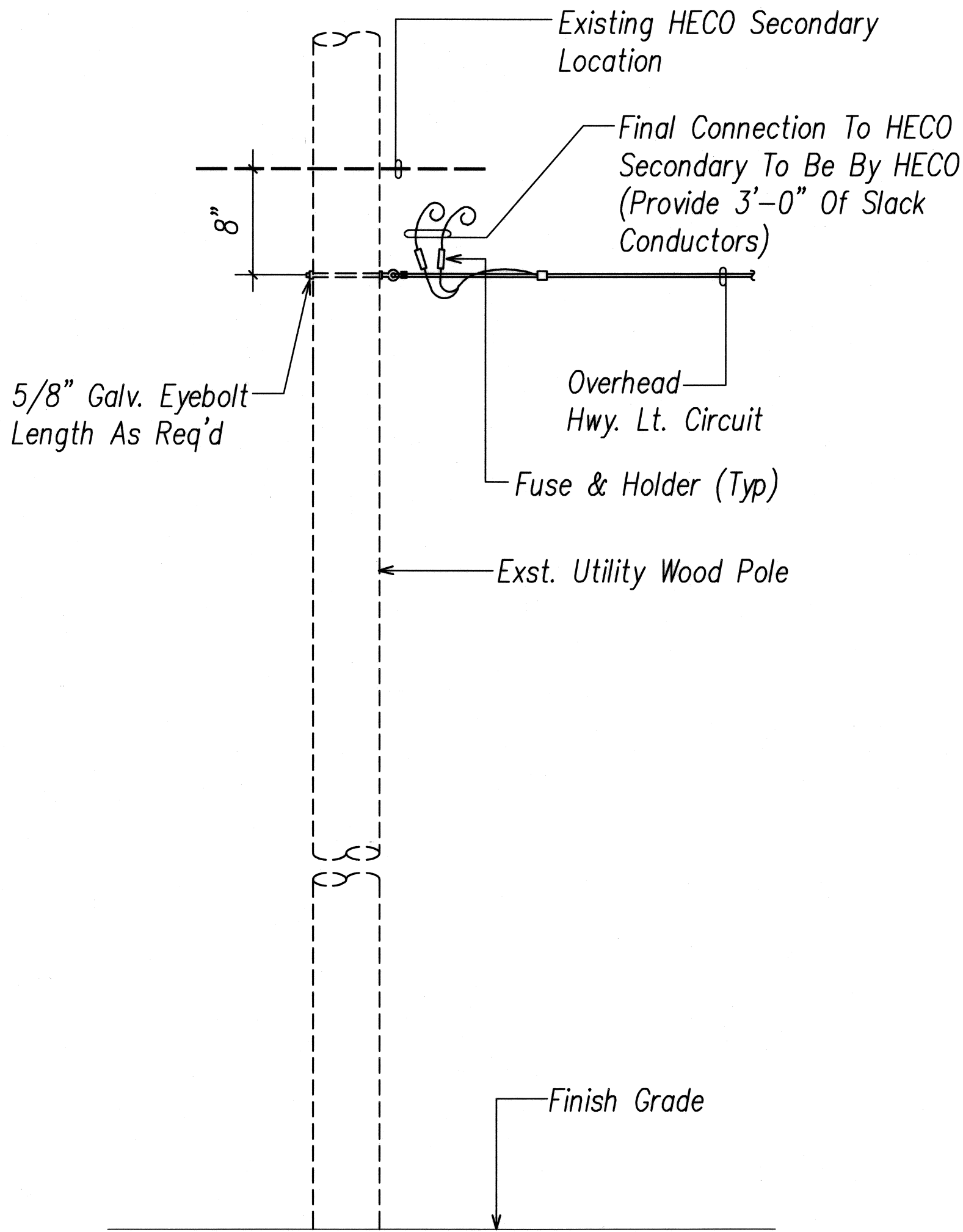
Signature: *Steven H. Sakai*
APRIL 30, 2010
EXPIRATION DATE OF LICENSE
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY LIGHT DETAILS III

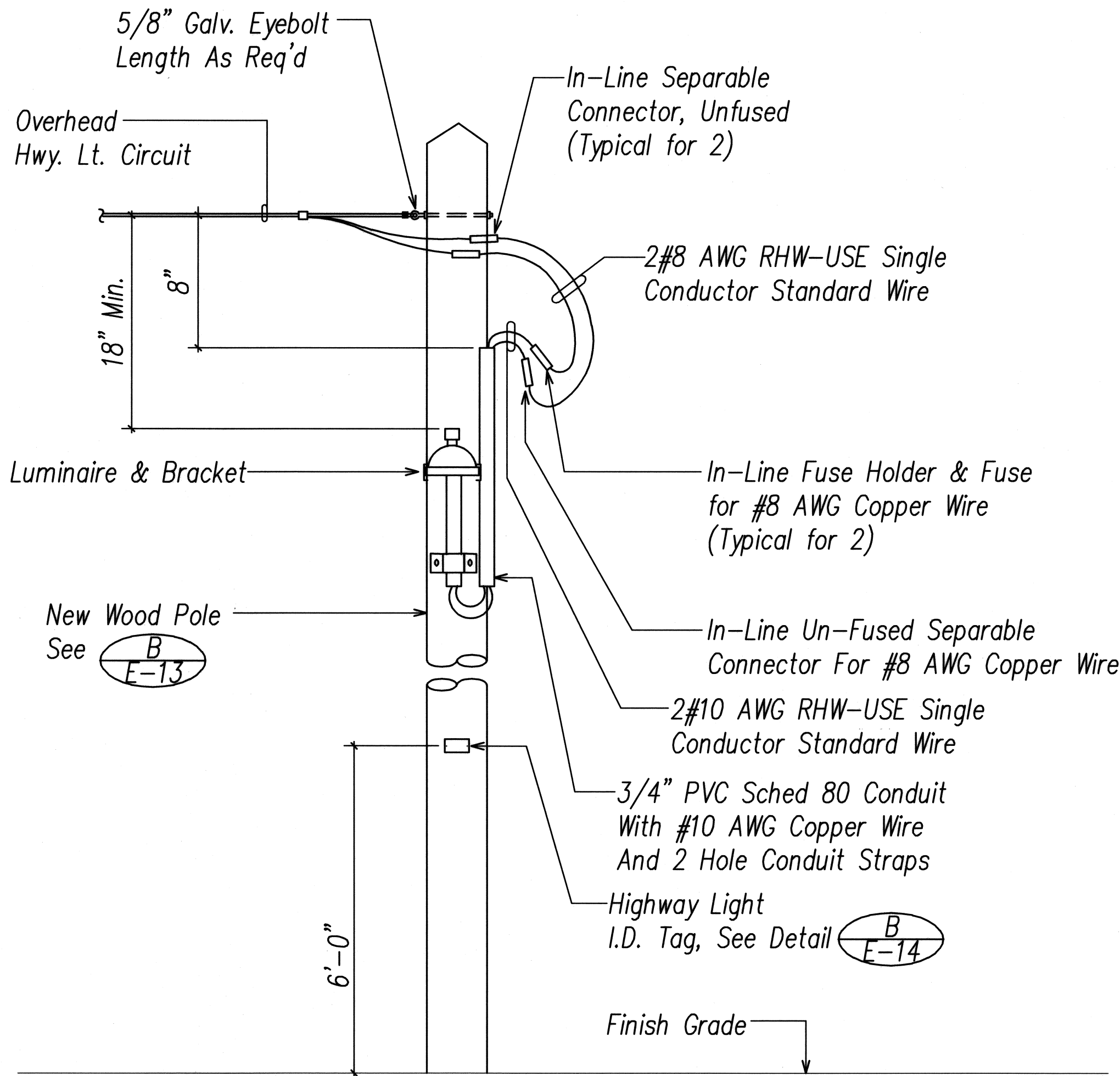
KALANIANA'OLE HIGHWAY MEDIAN
IMPROVEMENTS VICINITY OF OLOMANA
GOLF COURSE PROJECT NO. 72A-02-06
DATE: June 2008

SHEET No. E-13 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	72A-02-06	2008	65	66



AT UTILITY SERVICE POLE

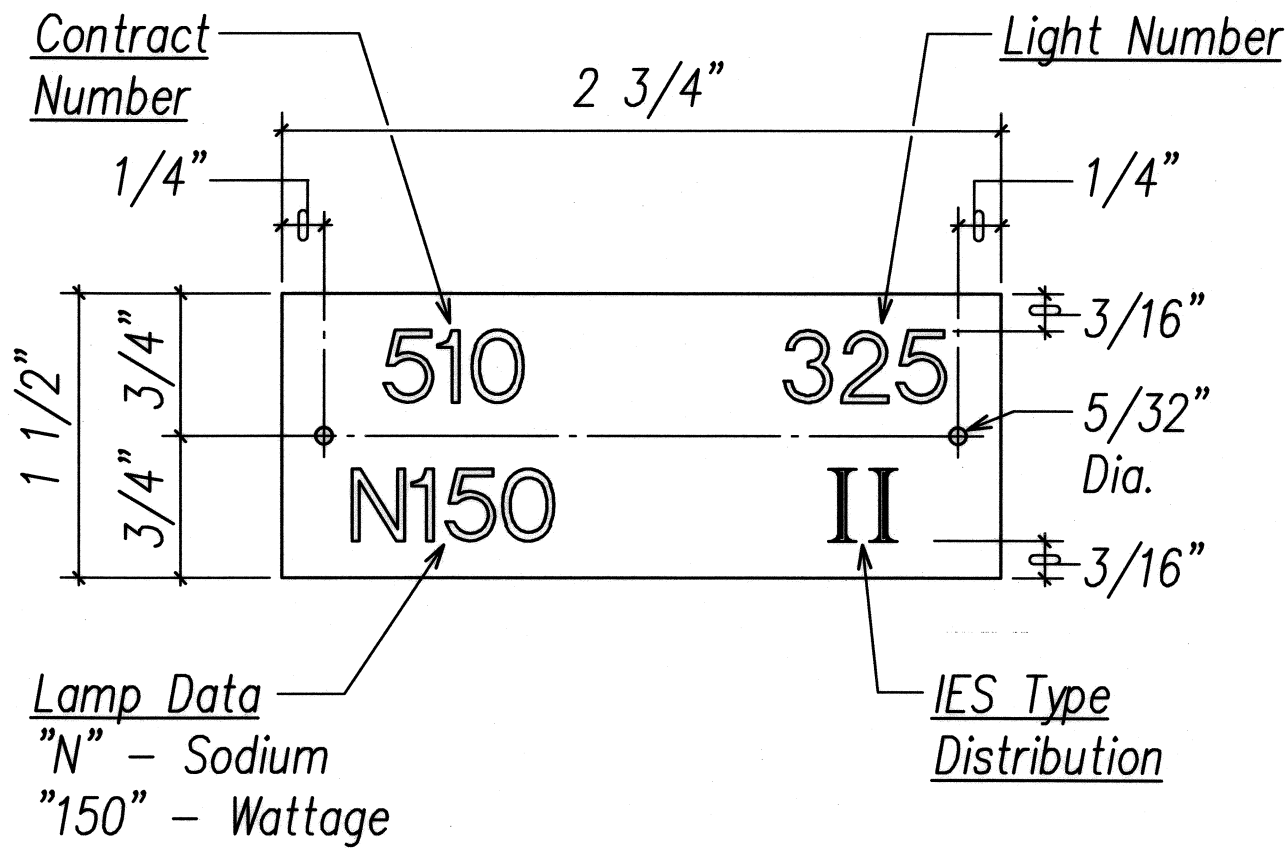


AT TYPICAL ROADWAY LIGHT POLE

NOTE:

- Conductor Insulation Shall Be Black For Phase Conductors And White For Neutral Conductor.

HIGHWAY LIGHT CONNECTION DETAIL
NOT TO SCALE

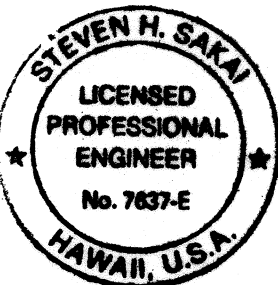


NOTES:

- Use 3 Ply Laminated Flexible Plastic, Black-White-Black. Thickness: Black Cap & Base Sheet - 0.010", White Middle Sheet - 0.052".
- Letters And Numbers Shall Be Engraved 1/4" High, 1/16" Stroke, White In Color.
- Attach To Aluminum Pole With No. 8 Stainless Aluminum, 1/2" Long Drive Screws In 1/8" Drill Hole. Attach To Wood Poles With 4D Aluminum Nails.
- Letters And Numbers Shall Be Engraved Through "Black Cap Sheet" To Expose "White" Letters.

ID TAG DETAIL
NOT TO SCALE

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



SIGNATURE
APRIL 30, 2010
EXPIRATION DATE OF LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HIGHWAY LIGHT DETAILS IV

KALANIANA'OLE HIGHWAY MEDIAN
IMPROVEMENTS VICINITY OF OLOMANA
GOLF COURSE PROJECT NO. 72A-02-06
DATE: June 2008

SHEET No. E-14 OF 15 SHEETS

