

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

Z:\\$PROJECTS\NUMBERED\20080908\CONSTRUCTION DOCUMENTS\RECORD DRAWINGS\ELECTRICAL AS-BUILT DRAWINGS\B09_000E-LONG 9/22/2010 12:06 AM KYLE HAMAOKA

GENERAL NOTES – ELECTRICAL:

1.

The scope of work for this project shall consist of installing new highway lighting, new traffic signal systems with appurtenances, emergency optical, preemption system, disconnecting and removal of existing traffic signal systems and street lighting systems, and interfacing between new and existing systems.
2.

The Contractor is reminded of the requirements of State of Hawaii Department of Transportation 2005 standard subsection 105.16 – Subcontracts, which requires him/her to perform work accounting to not less than 30 percent of the total contract cost less deductible items. Non-compliance with this subsection may be grounds for rejection of bid.
3.

The Contractor’s attention is directed to the following sections of State of Hawaii Department of Transportation 2005 standard:
a. Subsection 104.11 – Utilities and Services
b. Subsection 107.06 – Contractor Duty Regarding Public Convenience
c. Section 645 – Work Zone Traffic Control
4.

All necessary permits shall be obtained by the contractor at his/her own cost.
5.

The contractor shall comply with the state of Hawaii’s Occupational Safety and Health Law (DOSH).
6.

Locations of existing underground structures and utilities such as pipelines, conduits, cables, manholes, monuments and structures shown on the plans are approximate only. It is not the intent of these plans to show the exact location of all underground utilities and structures. It is the responsibility of the contractor to verify the locations of existing utilities with the respective owners. Existing utilities damaged by the contractor shall be repaired by the contractor at his own cost. Prior to any excavation work contractor shall call ‘Hawaii One Call Center” at ph. 811 or ph. 1–866–423–7287.
7.

All work shall be constructed in accordance with the following construction standards and specifications:
a. General order no. 6 and no. 10 Public Utilities Commission, State of Hawaii, current edition
b. Construction standards of Department of Transportation, State of Hawaii.
c. Current standard specifications for road and bridge construction, State of Hawaii.
d. Standard details for public works construction, Department of Public Works, County of Hawaii
e. Current standard specifications for Public Works construction, Department of Public Works, City and County of Honolulu.
f. Construction standard and specifications of GTE, Hawaiian Telephone Company, Inc. (Verizon)
g. Construction standards and specifications of the Hawaii Electric Light Company.
8.

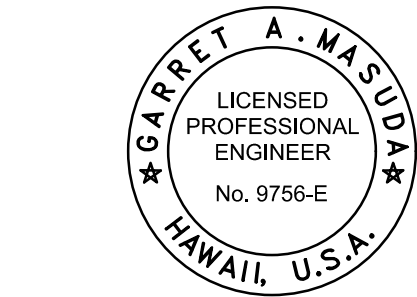
It is not the intent of these plans and specifications to indicate all existing utilities. The information on the existing utilities are based on available plans and a limited amount of field work. The locations are approximate only and the contractor shall verify the location and depth of the facilities and exercise proper care in excavating in this area. All existing utilities whether or not shown on the plans shall be protected at all times by the contractor unless specified on the plans to be abandoned or demolished. The contractor shall be responsible for any damages to the facilities whether shown or not shown on plans. Any repair work shall be provided at no additional cost to this project.
9.

The contractor shall exercise proper care when excavating in areas with existing underground facilities, damages to the existing facilities shall be immediately reported to the respective utility companies, county or state agency. The repair work shall be provided at no additional cost to this project.
10.

Contractor shall install 3 /16” polypropylene fish rope in all ducts. Plug all ducts with non-corrodible plugs manufactured for this purpose.

ELECTRICAL ABBREVIATIONS			
A/C	AMPERE–INTERRUPTING CAPACITY	MH	MANHOLE
AFF	ABOVE FINISH FLOOR	MAX	MAXIMUM
A	AMPERE	MIN	MINIMUM
AWG	AMERICAN WIRE GAUGE	MLO	MAIN LUGS ONLY
BC	BARE COPPER	MTD	MOUNTED
BKR	BREAKER	MTG	MOUNTING
BLDG	BUILDING	NEC	NATIONAL ELECTRICAL CODE
BKBD	BACKBOARD	NEMA	NATIONAL ELECTRICAL MANUFACTURE’S ASSOCIATION
C	CONDUIT	NO.,#	NUMBER
CATV	CABLE TELEVISION	O.C.	ON CENTER
CKT	CIRCUIT	OCPD	OVER CURRENT PROTECTION DEVICE
CONC	CONCRETE	PB	PULLBOX
CT	CURRENT TRANSFORMER	PFB	PROVISION FOR FUTURE BREAKER
D	DEEP	PNL	PANEL
DISC	DISCONNECT	ø	PHASE
DIST	DISTRIBUTION	RM	ROOM
HH	HANDHOLE	SMH	SEWER MANHOLE
EMH	ELECTRICAL MANHOLE	SN	SOLID NEUTRAL
ENCL	ENCLOSURE	S/S	STAINLESS STEEL
EMT	ELECTRICAL METALLIC TUBING	ST	STREET
EQUIP	EQUIPMENT	SURF	SURFACE
EXIST	EXISTING	SW	SWITCH
FLA	FULL LOAD AMPERE	TBB	TELECOMMUNICATIONS BACKBOARD
GALV	GALVANIZED	THK	THICK
GFC	GROUND FAULT CIRCUIT INTERRUPTOR	TYP	TYPICAL
GND	GROUND	UG	UNDERGROUND
GRS	GALVANIZED RIGID STEEL	UON	UNLESS OTHERWISE NOTED
H	HEIGHT	V	VOLTS
HP	HORSEPOWER	W	WIRE, WIDE, WATTS, WITH
JB	JUNCTION BOX	WP	WEATHERPROOF
KV	KILO–VOLT	XFMR	TRANSFORMER
KVA	KILO–VOLT AMPERE	ø	PHASE
KW	KILOWATT	’	FOOT, FEET
L	LENGTH	”	INCH, INCHES
LT	LIGHT	&	AND
LTG	LIGHTING		

NOTES:
1. MOUNTING HEIGHTS SHALL BE AS INDICATED ON SCHEDULE UNLESS OTHERWISE NOTED



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Signature: *Garrett A. Nasuda* APRIL 30, 2018
SIGNATURE EXPIRATION DATE OF THE LICENSE

LEGEND FOR
AS–BUILT POSTINGS

Squiggly line for as–built deletion

Double line for as–built deletion

Text for as–built posting

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES – ELECTRICAL
TRAFFIC SIGNAL NOTES

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahohe Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: AUGUST 2016

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	454 441	528 522

ELECTRICAL LEGEND				
SYMBOLS			DESCRIPTION	
EXIST	NEW	MTG HT		
ELECTRICAL				
1				PULL & JUNCTION BOX, SIZE PER NEC
2			—	DISCONNECT SWITCH, HP RATED
3			—	TRANSFORMER, DRY-TYPE
4			—	PANELBOARD OR LOADCENTER
5			18" FLR-CL	RECEPTACLE, SINGLE
6				HOMERUN RACEWAY & WIRING
7				RACEWAY & WIRING, EXPOSED
8				RACEWAY & WIRING, CONCEALED IN FLOOR OR BELOW GRADE
9				TELEPHONE RACEWAY
10				CABLE TELEVISION RACEWAY
11				COMMUNICATION RACEWAY
12				GROUND CONDUCTOR BARE COPPER STRANDED SIZE AS NOTED
13				ELECTRICAL RACEWAY & WIRING, HATCHMARKS INDICATE NO. OF CURRENT CARRYING CONDUCTORS. NO HATCH MARKS INDICATE TWO CURRENT CARRYING CONDUCTORS. PROVIDE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR SIZED PER NEC
14				TELEPHONE UNDERGROUND DUCT
15				PRIMARY UNDERGROUND DUCT
16				SECONDARY UNDERGROUND DUCT, 600V OR BELOW
17				COMMUNICATION UNDERGROUND DUCT
18				TELEPHONE OVERHEAD CABLE
19				PRIMARY OVERHEAD CABLE
20				SECONDARY OVERHEAD CABLE, 600V OR BELOW
21				UTILITY POLE
22				REMOVE EXISTING FEEDER OR BRANCH CIRCUIT
23				TRANSFORMER, POLE MOUNTED
24				DOWN GUY ASSEMBLY
25				LIGHT FIXTURE, POLE MOUNTED SEE 1 E-35
26				LIGHT FIXTURE, POLE MOUNTED SEE 1 E-35
27				LIGHT FIXTURE DESIGNATOR, "A" INDICATES TYPE
28				NOTE DESIGNATION, NOTE "1" INDICATED
29				NOTE DESIGNATION, NOTE "1" INDICATED
30				REVISION DESIGNATION, REVISION "1" INDICATED
31				DETAIL DESIGNATOR. TOP HALF-DETAIL NUMBER. BOTTOM HALF-SHEET NUMBER WHERE DETAIL IS SHOWN.
32				DUCT SECTION DESIGNATOR. TYPE A INDICATED
33				DUCT SECTION DESIGNATOR. 1-4" INDICATED, LETTER ON LEFT DENOTES DUCT TYPE. LETTER ON RIGHT DENOTES QUANTITY-SIZE OF DUCTS. P-PRIMARY, S-SECONDARY, T-TEL, V-CATV, L-LIGHTING

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
	DESIGNED BY	
	NOTED BY	
	CHECKED BY	
No.		

NOTES FOR CONSTRUCTION:

1. Construction and restoration of all existing highway facilitates within the state right-of-way shall be done in accordance with all applicable sections of the current 2005 "Hawaii Standard Specifications for Road, Bridge, and Public Works Construction", and the "Specification for Installation of Miscellaneous Improvements within State Highways", of the State Highways Division.
2. All lanes shall be opened to traffic during morning peak hours from 5:00 a.m. to 8:30 a.m. and the afternoon peak hours from 3:30 p.m. to 6:00 p.m. and during non-working hours except as specified in State of Hawaii Department of Transportation 2005 standard specifications Section 645.
3. The contractor shall provide, install and maintain all necessary signs, lights, flares, barricades, markers, cones, and other protective facilities and shall take all necessary precautions for the protection and for the convenience and safety of public traffic. All such protective facilities and precautions to be taken shall conform with the "Administrative Rules of Hawaii Governing the use of traffic control devices at work sites on or adjacent to public street and highways". adopted by the director of transportation, and the current U.S. Federal Highway Administration "Manual on Uniform Traffic Control Devices for Streets and Highways, Part iv – Traffic Control for Highway Construction and Maintenance Operations". If lane closures are required during construction, a traffic control plan shall be incorporated into the construction plans and must be approved by the district engineer prior to the issuance of the permit.
4. No material, and/or equipment shall be stockpiled or otherwise stored within highway rights-of-way except at locations designed in writing and approved by the district engineer.
5. Compaction tests shall be taken in accordance with the specifications for installation of miscellaneous improvements within state highways and as directed by the state's highway district engineer.
6. Prior to commencing trench excavation work, the contractor shall take a profile along the new centerline of utility trench and that such information shall be used in the verification of restoring the roadway to its original condition. A copy of the profile shall be submitted to the district engineer.
7. The contractor shall be required to provide adequate, safe, non-skid bridging material over trench, including shoring, when trenching in pavement areas to handle all types of vehicular traffic.
8. No trench shall be opened in advance of the installed and tested pipe, and/or ductline more than the length directed by the state's highway district engineer.
9. Longitudinal drainage along the highway shall be maintained.
10. Pavement striping where required shall be done by contractor.
11. All regulatory, guide and construction signs and barricades shall be of high intensity reflective sheeting.
12. The contractor shall sawcut the pavement prior to commencing trench or roadway excavation work.

13. The contractor shall place a "Notice to Motorist" announcement in the two major daily newspapers for at least three consecutive days, one week prior to start of construction. The notice shall be prepared in accordance with state DOT Highways division standards and submitted to the construction and maintenance branch for approval at least four (4) weeks before publishing in the newspaper. The notice shall include but shall not be limited to the following information:
a. Date on which the closure will start.
b. The number of days of the closure.
c. The hours and days of work.
d. A diagram of the affected roadway.
14. Where pedestrian walkways exist, they shall be maintained in passable condition or other facilities for pedestrians shall be provided. Passage between walkways at intersections shall likewise be provided.
15. The contractor shall reference to the satisfaction of the district engineer, all existing traffic signs, post and pavement markings prior to the commencement of construction. The contractor shall replace or repair all traffic signs, posts, and pavement markings disturbed by his activities, unless directed otherwise by the district engineer or his representative.
16. The contractor shall exercise care when excavating in existing utility area, damages to the existing facilities shall be immediately reported to the respective utility companies, city or state agency. The repair work shall be done at the contractor's expense.
17. The use of steel plates over open trenches shall not be allowed except for temporary use to reroute traffic during the construction.
18. All trenches in traffic lanes must be compacted and provided with cover for traffic use.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	455 442	528 522



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.
Signature: *Garrett A. Nasuda* APRIL 30, 2018
SIGNATURE EXPIRATION DATE OF THE LICENSE

LEGEND FOR
AS-BUILT POSTINGS

Squiggly line for
as-built deletion

Double line for
as-built deletion

Roadway Text for as-built
posting

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NOTES FOR CONSTRUCTION

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: AUGUST 2016

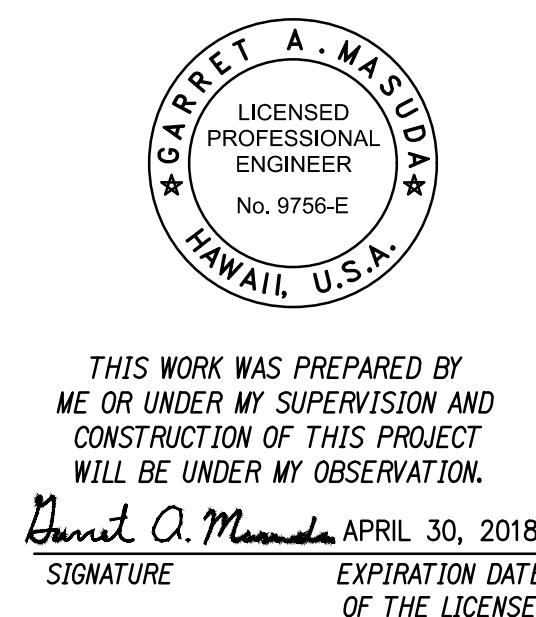
1. The contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incident to the due and lawful prosecution of the work.
2. The contractor shall obtain an excavation permit and toning request from Hawaiian Telcom's excavation permit section, located at 161 Kinoole Street, Kailua-Kona HI 96740 two weeks prior to the start of construction. Hours of business are 8:00 a.m. to 11:00 a.m. and 12:00 p.m. to 3:30 p.m. Monday through Friday, except holidays.
3. Prior to the excavation of the ductline, the contractor shall request Hawaiian Telcom to locate existing ductline wherever required. For underground cable locating and marking, five (5) working days advance notice is required. Three (3) working days advance notice is required for any inspection by a designated representative.
4. The locations of existing utilities are approximate only. the contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity of Hawaiian Telcom 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 repair section at #611 (24 hours) or to the excavation permit section at 840-1444 (normal working hours, Monday through Friday, except holidays). as a result of his operations, adjustments to the new ductline alignment, if required, shall be made to provide the required clearances.
5. The contractor shall take necessary precaution not to damage existing cables or ducts. A Hawaiian Telcom inspector or designated representative is required to be at any job site whenever there will be a breakage into or entry into any structure that contain Hawaiian Telcom facilities. temporary cable and duct supports shall be provided wherever necessary.
6. The contractor shall notify Hawaiian Telcom's inspector or designated representative a minimum of 72 hours prior to excavation, bracing, or backfilling of Hawaiian Telcom structures of facilities.
7. All applicable construction work shall be done in accordance with the "Hawaiian Telcom standard specifications for placing underground telephone systems" dated January 2007. All subsequent amendments and additions, and all other pertinent standards for telephone construction. Contractor shall familiarize his personnel by obtaining applicable specifications.
8. When excavation is adjacent to or beneath Hawaiian Telcom's existing structures or facilities, the contractor shall:
 - a. Sheet and/or brace the excavation to prevent slides, cave-ins, or settlements to ensure no movement to Hawaiian Telcom's structures or facilities
 - b. Protect existing structures and/or facilities with beams, struts, or underpinning while excavating beneath them to ensure no movement to Hawaiian Telcom's structures or facilities.
9. The contractor shall brace all utility poles or street light standards near the new ductline, manhole, or handhole during his operations.
10. The contractor shall saw-cut a.c. pavement and concrete gutter wherever new manholes, handholes, or ductlines are to be placed and shall restore to existing condition or better.



11. The contractor shall comply with the policy adopted by the Department of Transportation, State of Hawaii, concerning the replacement of concrete sidewalks after excavation work. 22.
12. The underground pipes, cables, or ductlines known to exist by the engineer from his search of records are indicated on the plans. The contractor shall verify the locations and depth of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
13. Wherever connections to existing utilities are shown on the plans, the contractor shall exposed the existing lines prior to excavation of the main trenches to verify their locations and depths.
14. The contractor, at his own expense, shall keep the project and surrounding area free from dust nuisance. The cost for supplementary measures, which will be required by the Department of Transportation, State of Hawaii, shall be borne by the contractor.
15. The contractor shall pump all manholes dry during final inspection.
16. The contractor shall notify Hawaiian Telcom inspector 72 hours prior to the pouring of concrete or backfilling.
17. When connecting to manhole walls, all existing reinforcing bars shall be left intact. Ducts shall be adjusted in the field in order to clear reinforcing.
18. The contractor shall be responsible for laying out all required lines and grades and shall preserve all bench marks and working points necessary to lay out the work correctly. The new ductline shall be adjusted by the contractor to suit the existing conditions and the details as described in the plans.
19. Minimum concrete strength shall be:

For ductline 2500 psi at 28 days
For manhole 3000 psi at 28 days or as specified in design notes
20. Bends in the duct alignment, due to changes in grade shall have a minimum radius of 25 feet. All 90 degree bend C-Bends at a pole or at the building floor slab penetration, shall have a bend radius of ten times the diameter of the duct or greater.
21. After ductline has been completed, A mandrel with a square front not less than 12" long and having a diameter of 1/4" less than the inside diameter of the duct, shall be pulled through each duct after which a brush with stiff bristles shall be pulled through to make certain that no particles of earth, sand, or gravel have been left inside. Ducts shall be completely dry and clean.

Oceanic Time Warner Cable

DATE _____



<u>LEGEND FOR</u> <u>AS-BUILT POSTINGS</u>	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

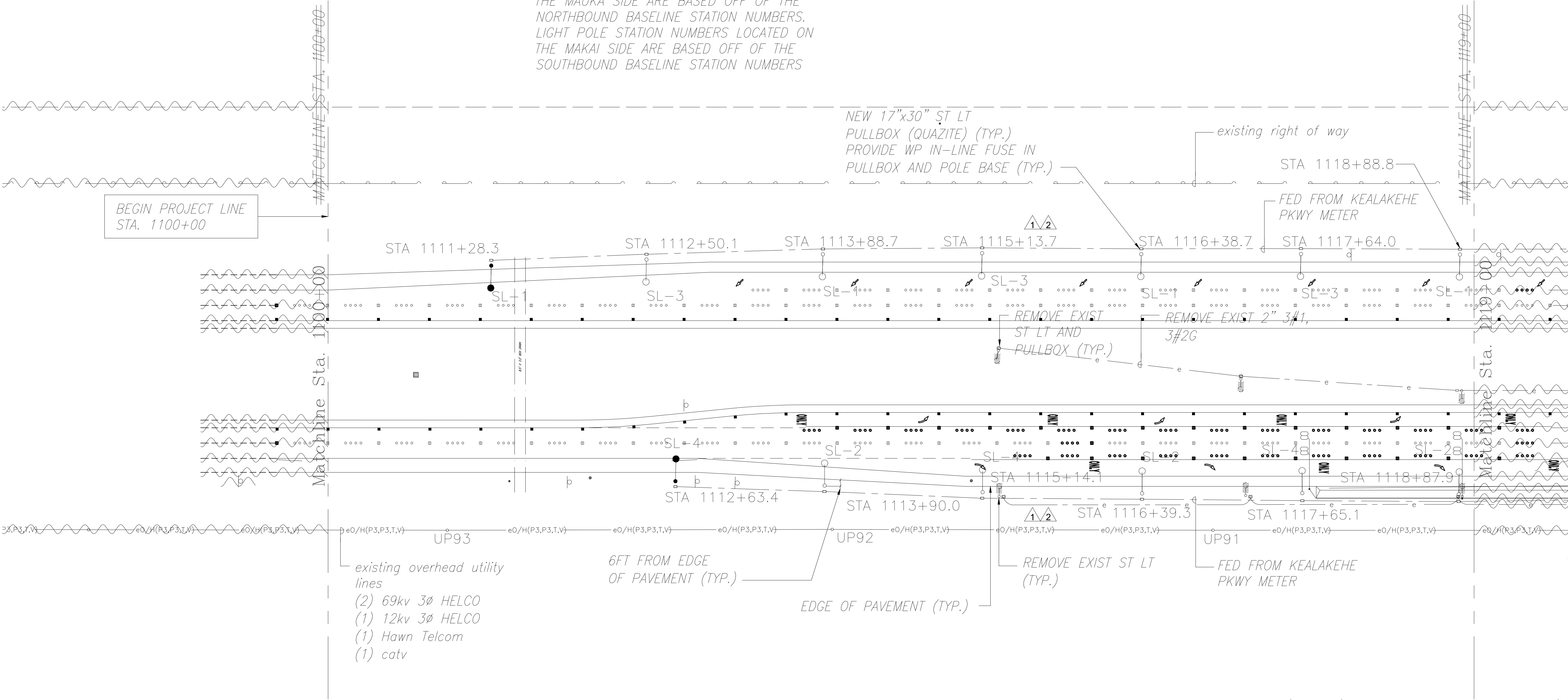
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HAWAIIAN TELECOM GENERAL
CONSTRUCTION/DESIGN NOTES

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahke Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: AUGUST 2016

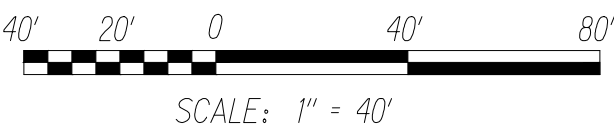
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	445 C.O. 458	527 528

NOTE:
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS

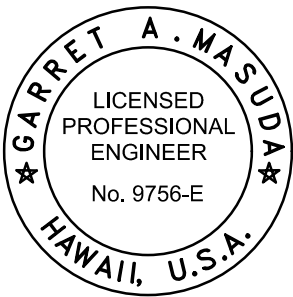


1
E-5
ELECTRICAL PLAN STA. 1100+00 TO STA.1119+00(KEALAKEHE PKWY)
SCALE: 1" = 40'

GRAPHICAL SCALE:



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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Signature: *David A. Masuda*
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

04/14/16	ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE
01/22/16	ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE

DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ELECTRICAL PLAN STA. 1100+00 TO STA. 1119+00	
QUEEN KAAHUMANU HIGHWAY WIDENING Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)	
Federal Aid Project No. NH-019-1(38)R	
Scale: AS NOTED Date: AUGUST 2016	

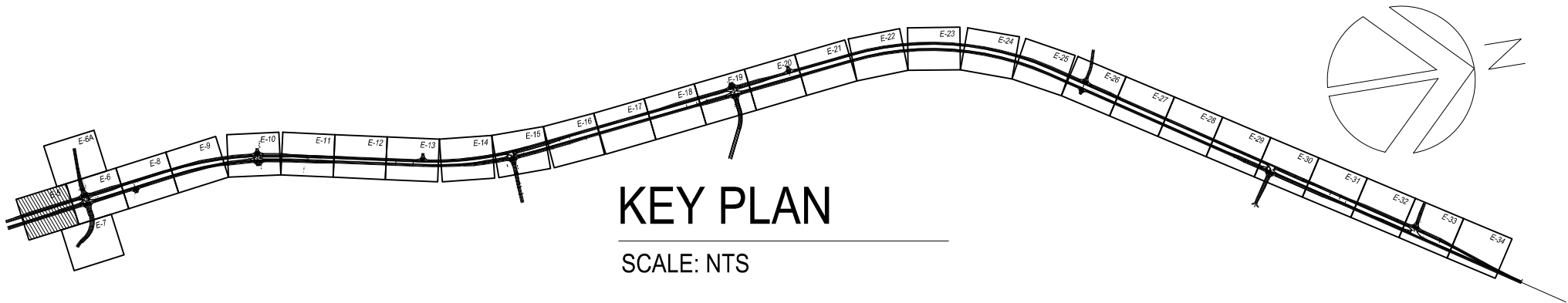
SHEET No. 5 OF 40 SHEETS

08/01/2016

C.O. ~~445~~ 458

"AS-BUILT"

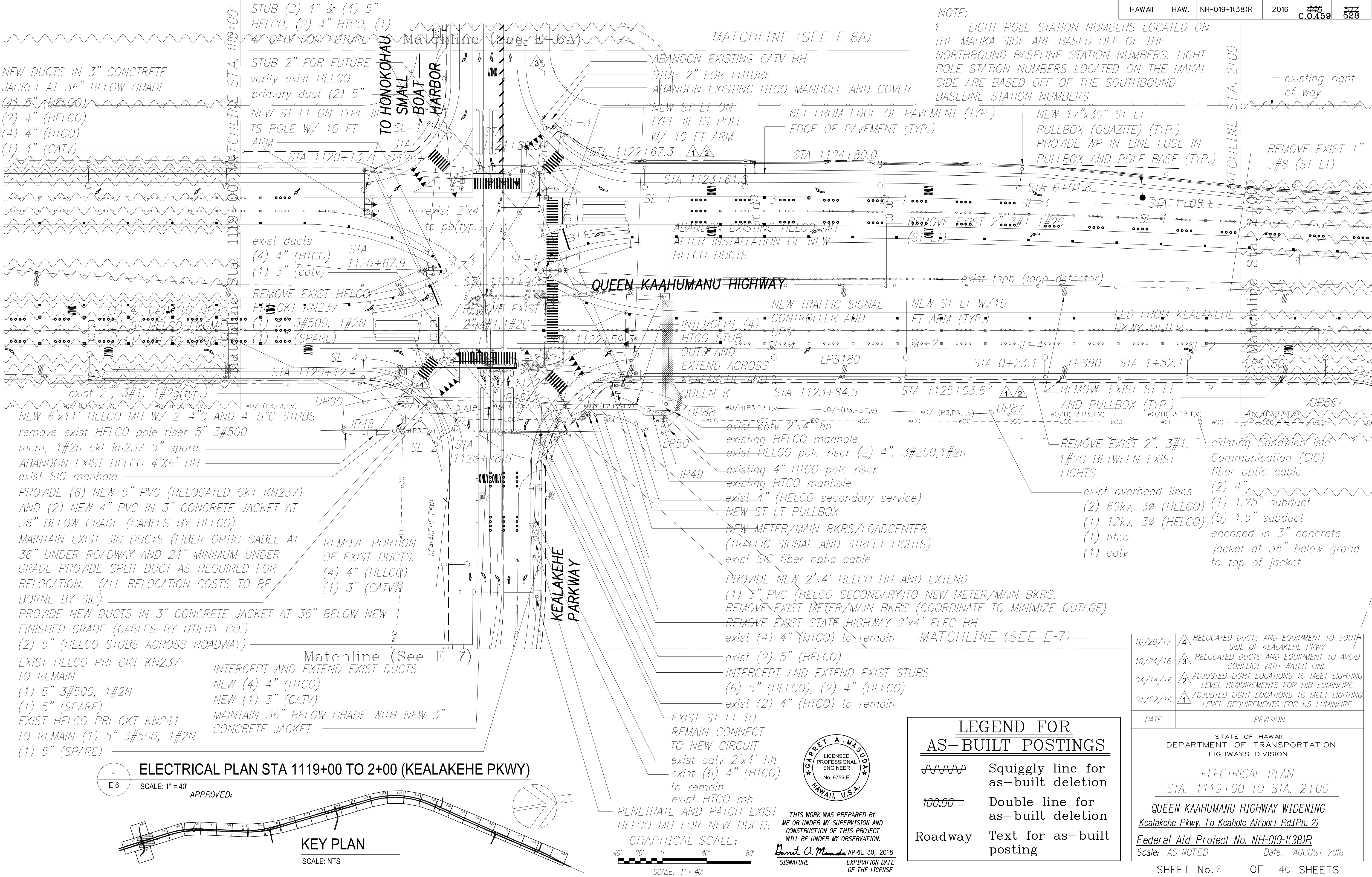
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	QUANTITIES BY	
	CHECKED BY	



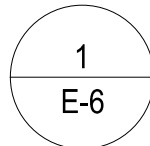
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	446 C.O. 446-459	522 528

NOTE:

1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS



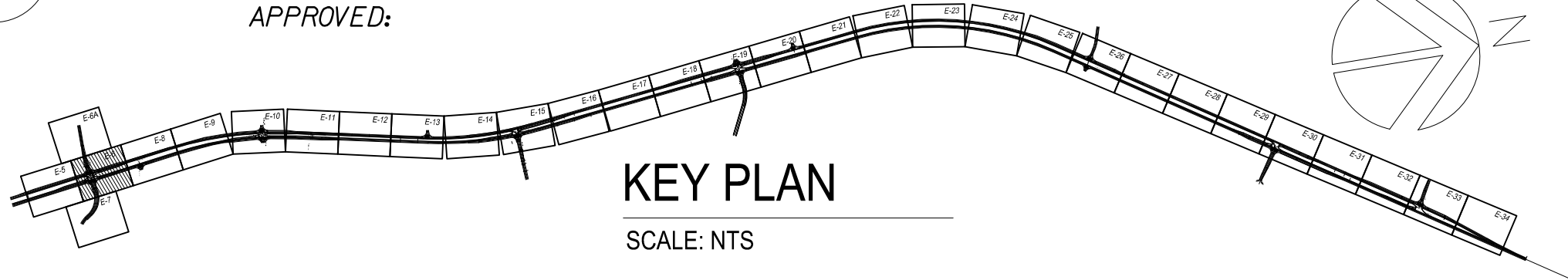
ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
NO.	



ELECTRICAL PLAN STA 1119+00 TO 2+00 (KEALAKEHE PKWY)

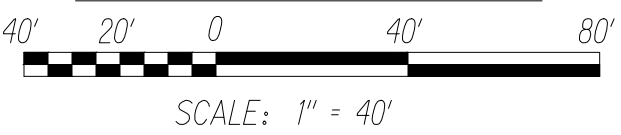
SCALE: 1" = 40'

APPROVED:

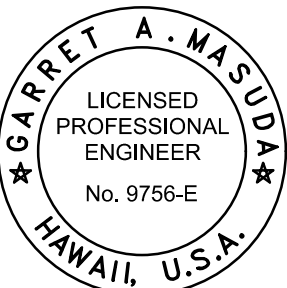


KEY PLAN

SCALE: NTS



SCALE: 1" = 40'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Signature: David A. M...
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

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

10/20/17	4	RELOCATED DUCTS AND EQUIPMENT TO SOUTH SIDE OF KEALAKEHE PKWY
10/24/16	3	RELOCATED DUCTS AND EQUIPMENT TO AVOID CONFLICT WITH WATER LINE
04/14/16	2	ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE
01/22/16	1	ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE

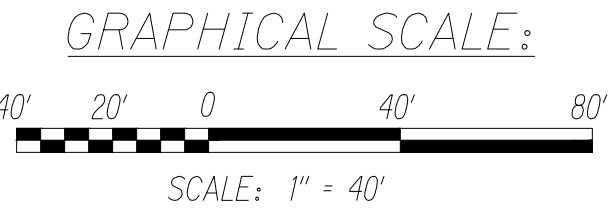
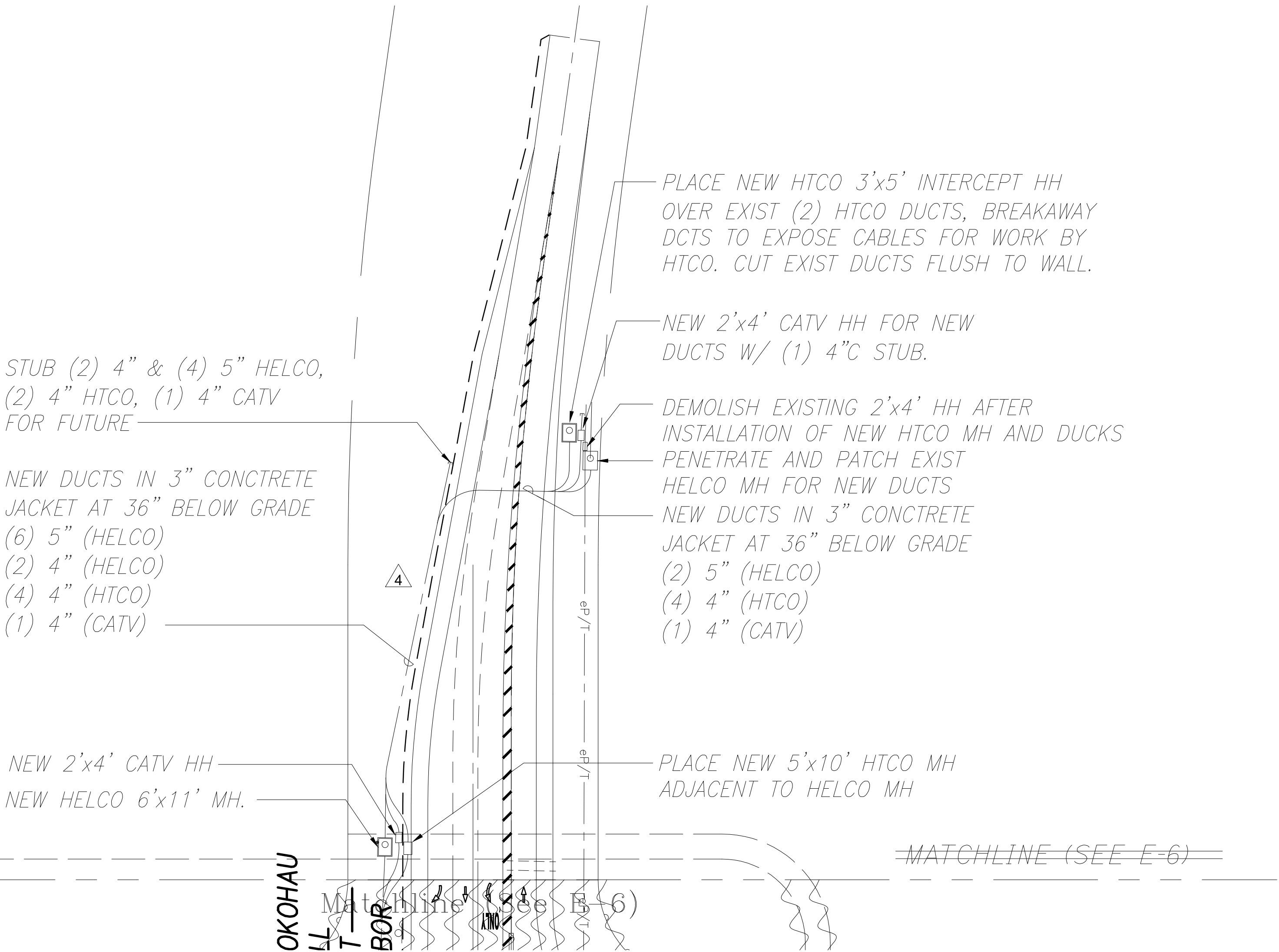
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ELECTRICAL PLAN STA. 1119+00 TO STA. 2+00	
QUEEN KAAHUMANU HIGHWAY WIDENING Kealahöhe Pkwy. To Keahole Airport Rd.(Ph. 2)	
Federal Aid Project No. NH-019-1(38)R	
Scale: AS NOTED	Date: AUGUST 2016
SHEET No. 6	OF 40 SHEETS

"AS-BUILT"

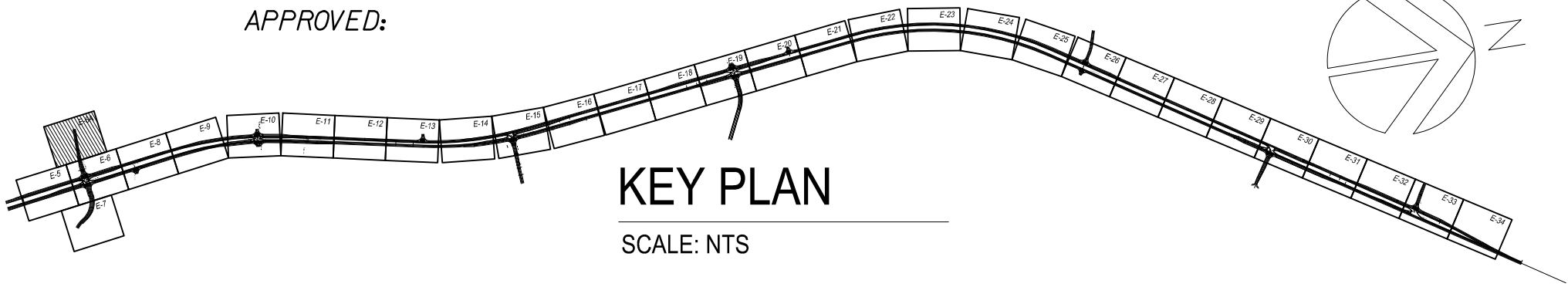
08/01/2016

C.O. 446-459

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	446A C.O. 459 S-1	527 528



1
E-6A
ELECTRICAL PLAN (KEALAKEHE PKWY)
SCALE: 1" = 40'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

David A. M... APRIL 30, 2018
SIGNATURE EXPIRATION DATE OF THE LICENSE

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

10/20/17	RELOCATED DUCTS AND EQUIPMENT TO SOUTH SIDE OF KEALAKEHE PKWY
DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
<u>ELECTRICAL PLAN</u> <u>STA. 1119+00 TO STA. 2+00</u>	
<u>QUEEN KAAHUMANU HIGHWAY WIDENING</u> <u>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)</u>	
<u>Federal Aid Project No. NH-019-1(38)R</u> Scale: AS NOTED Date: AUGUST 2016	
SHEET No. 6A OF 40 SHEETS	

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

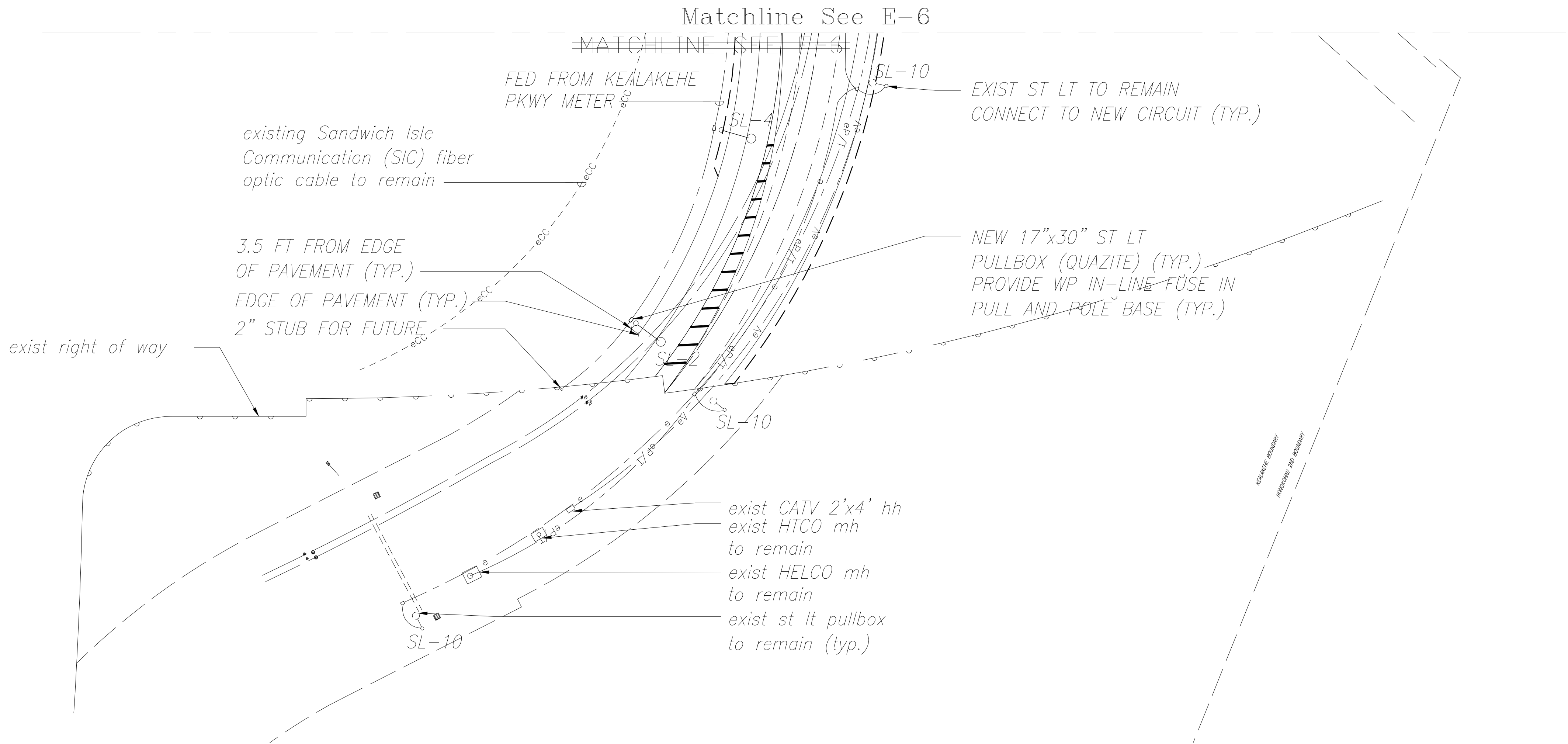
"AS-BUILT"

08/01/2016

C.O. 446S1 459S-1

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	447 460	527 528

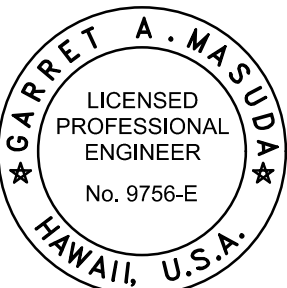
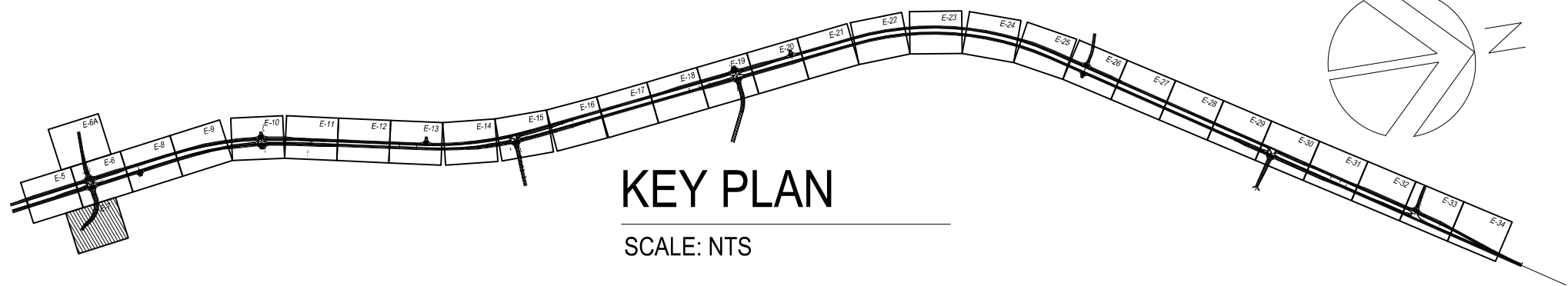
NOTE:
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS



1
E-7

ELECTRICAL PLAN (KEALAKEHE PKWY)

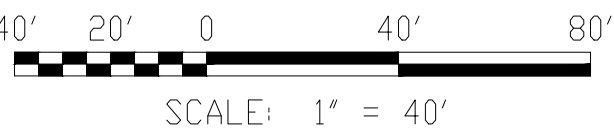
SCALE: 1" = 40'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
David A. Masuda
SIGNATURE APRIL 30, 2018 EXPIRATION DATE OF THE LICENSE

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

GRAPHICAL SCALE:



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ELECTRICAL PLAN
KEALAKEHE PKWY

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: AUGUST 2016

SHEET No. 7 OF 40 SHEETS

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

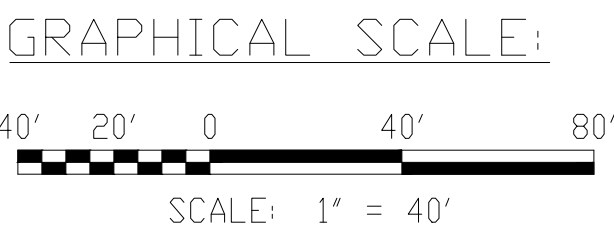
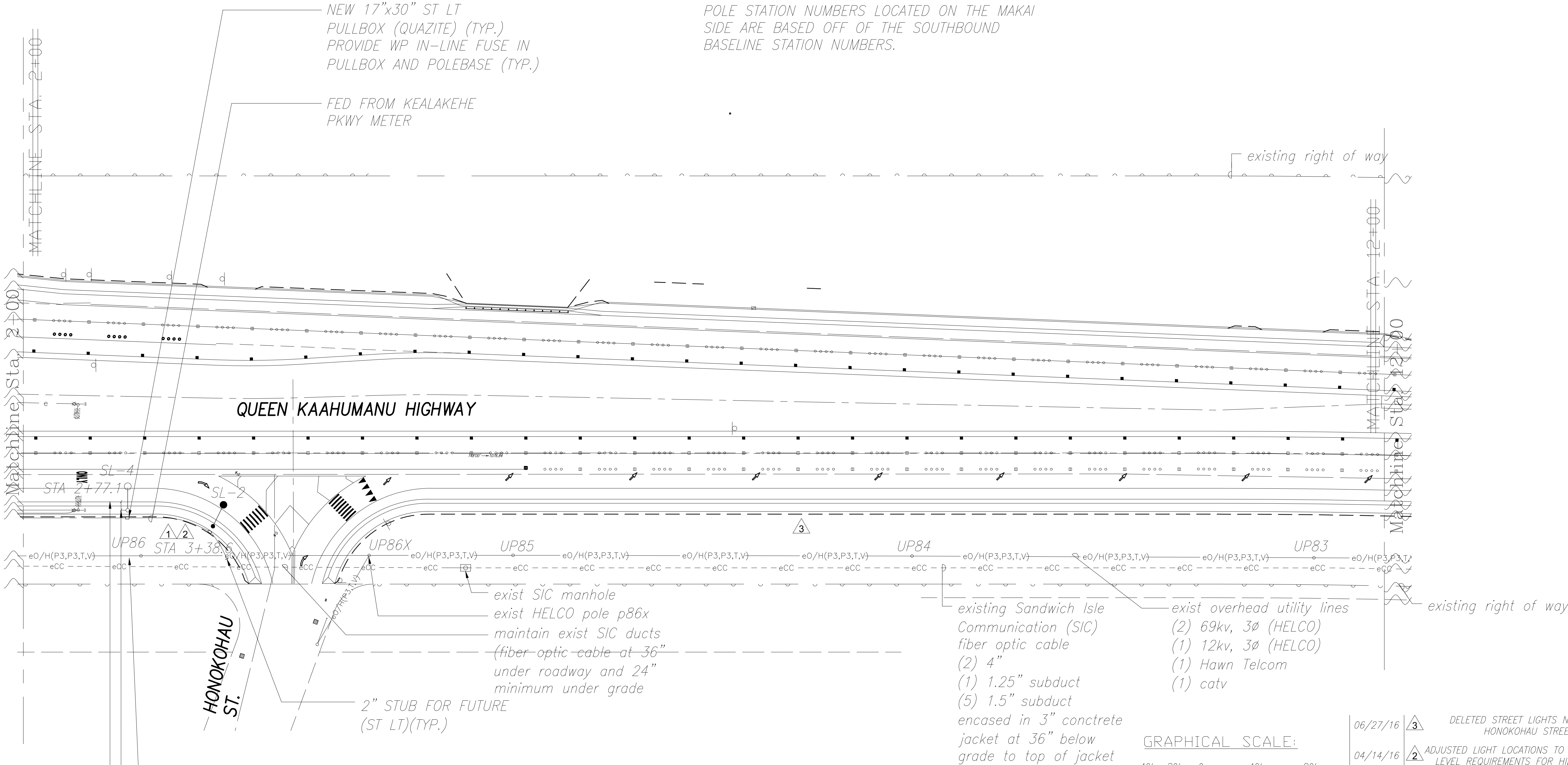
"AS-BUILT"

08/01/2016

~~447~~ 460

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 461 448	528 522

- NOTE:
- LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS.



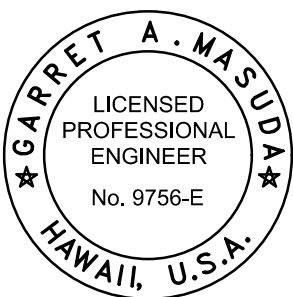
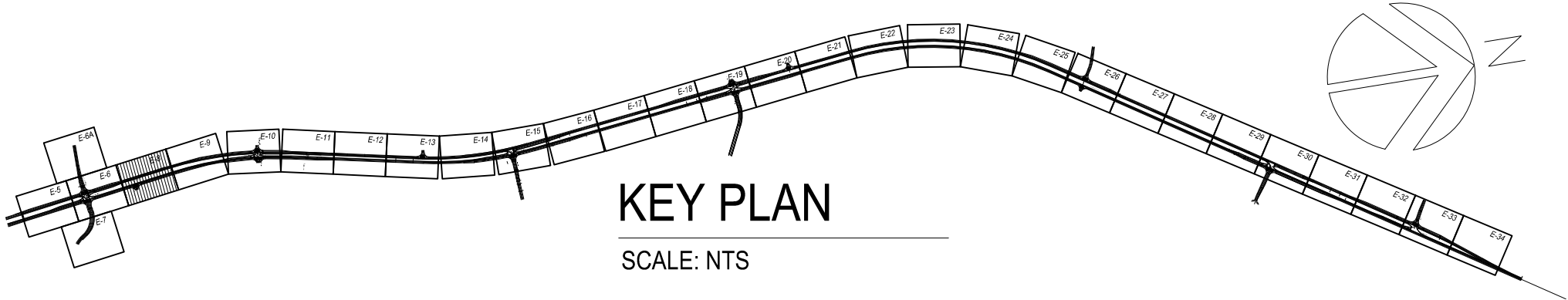
EDGE OF
PAVEMENT (TYP.)
6 FT FROM EDGE
OF PAVEMENT (TYP.)

exist 12"x18"
quasite pullbox
(ground
electrode)

1
E-8

ELECTRICAL PLAN STA 2+00 TO 12+00 (HONOKOHAU ST)

SCALE: 1" = 40'



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Garrett A. Masuda APRIL 30, 2018
SIGNATURE EXPIRATION DATE
OF THE LICENSE

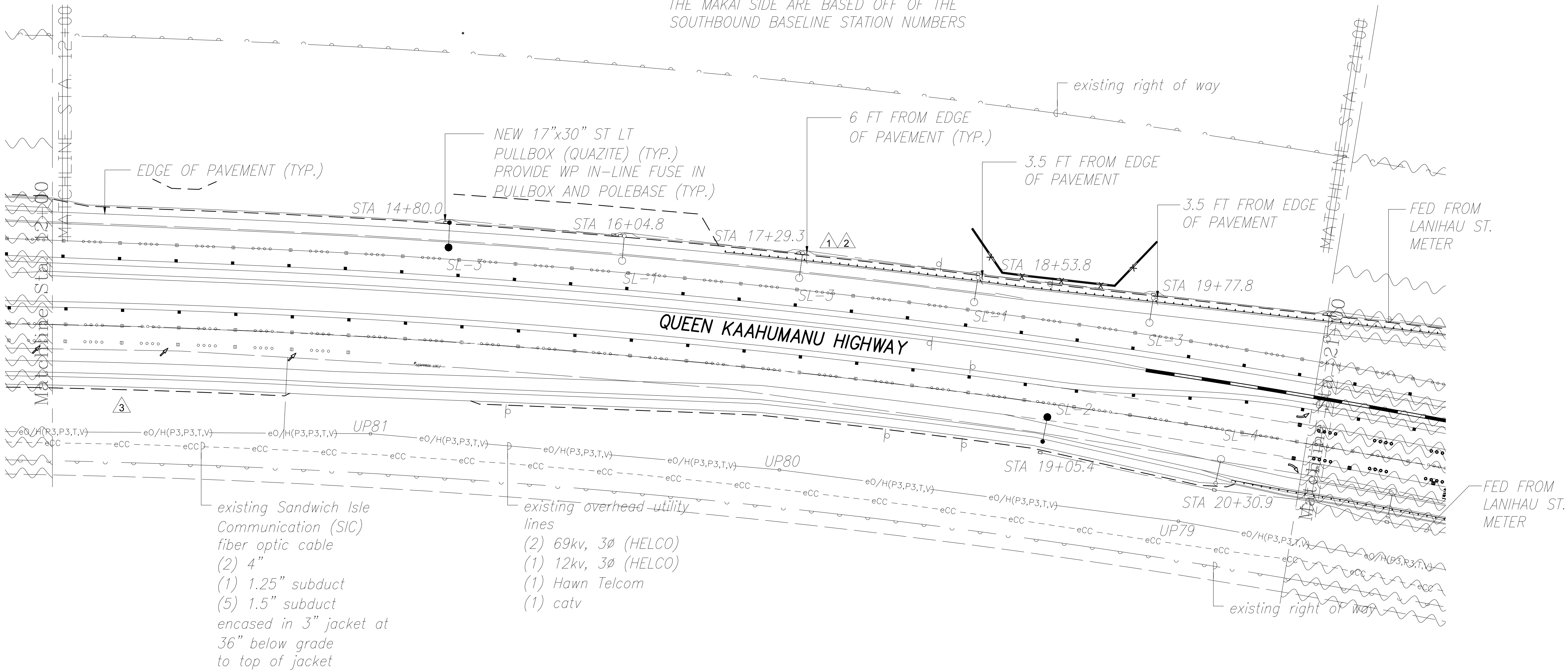
LEGEND FOR AS-BUILT POSTINGS	
	Squiggly line for as-built deletion
	Double line for as-built deletion
Roadway	Text for as-built posting

06/27/16	3	DELETED STREET LIGHTS NORTH OF HONOKOHAU STREET
04/14/16	2	ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE
01/22/16	1	ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE

DATE	REVISION
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
ELECTRICAL PLAN STA. 2+00 TO STA. 12+00	
QUEEN KAAHUMANU HIGHWAY WIDENING Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)	
Federal Aid Project No. NH-019-1(38)R	
Scale: AS NOTED	Date: AUGUST 2016

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 449 449 462	528 522

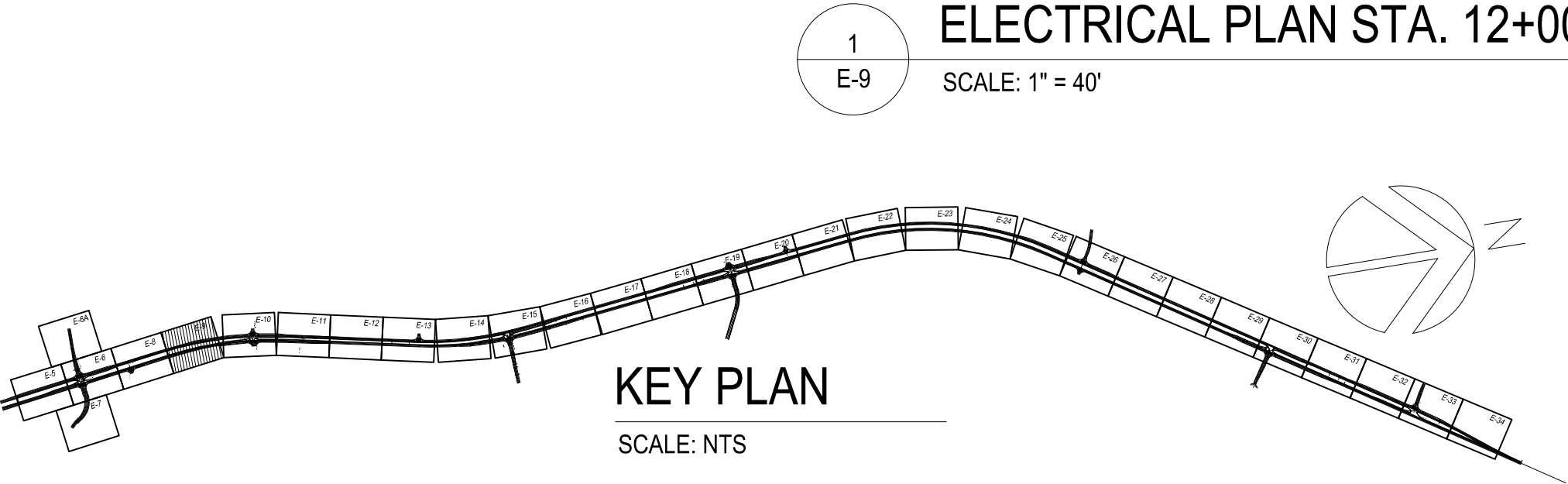
- NOTE:
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS



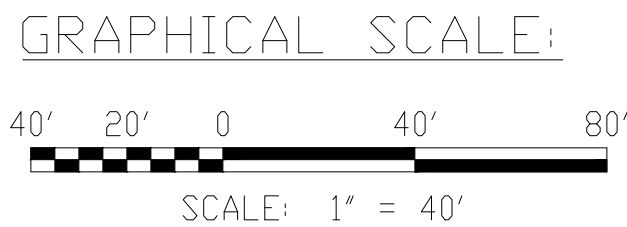
existing Sandwich Isle Communication (SIC) fiber optic cable
(2) 4"
(1) 1.25" subduct
(5) 1.5" subduct
encased in 3" jacket at 36" below grade to top of jacket

existing overhead utility lines
(2) 69kv, 3Ø (HELCO)
(1) 12kv, 3Ø (HELCO)
(1) Hawn Telcom
(1) catv

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



ELECTRICAL PLAN STA. 12+00 TO STA. 21+00
SCALE: 1" = 40'



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

GARRET A. MASUDA
LICENSED PROFESSIONAL ENGINEER
No. 9756-E
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
David A. M... APRIL 30, 2018
SIGNATURE EXPIRATION DATE OF THE LICENSE

06/27/16	3	DELETED STREET LIGHTS NORTH OF HONOKOHAU STREET
04/14/16	2	ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE
01/22/16	1	ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE
DATE	REVISION	
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION		
<u>ELECTRICAL PLAN</u> <u>STA. 12+00 TO STA. 21+00</u>		
<u>QUEEN KAAHUMANU HIGHWAY WIDENING</u> <u>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)</u>		
<u>Federal Aid Project No. NH-019-1(38)R</u> Scale: AS NOTED Date: AUGUST 2016		
SHEET No. 9 OF 40 SHEETS		

"AS-BUILT"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-019-1(38)R	2016	C.O. 463 450	528 522

- NOTE:
- LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS.

exist HELCO meter/main bkrs
(pump station and Visitor Center)

exist HELCO pad mt
xfmr 300kva 120/208y
3p, 4w vault #3T225(35362)

exist HELCO 5'x7' mh

exist HAWN TELCOM 3'x5' handhole

EXIST HELCO/HTCO SERVICE DUCTS TO REMAIN. CABLES TO BE REPLACED

(2) 5" W/PRIMARY CABLES (HELCO)

(1) 4" W/TEL CABLES (HTCO)

(1) 4" SPARE (HTCO)

KALOKO-HONOKOHA
NATIONAL
HISTORIC
PARK

existing right of way

EDGE OF PAVEMENT (TYP.)

6 FT FROM EDGE OF PAVEMENT (TYP.)

FED FROM LANIHOU ST. METER

NEW 17"x30" ST LT
PULLBOX (QUAZITE) (TYP.)
PROVIDE WP IN-LINE FUSE IN
PULLBOX AND POLE BASE (TYP.)

NEW ST LT ON TYPE III
TS POLE W/ 10FT ARM

STA 24+44.8

STA 25+21.3

STA 26+50.5

STA 27+28.0

STA 28+51.8

STA 29+75.4

COORDINATE TO MINIMIZE OUTAGE FOR
REMOVAL OF EXIST HELCO PRI CABLES
AND HTCO CABLES. INTERCEPT AND
EXTEND DUCTS TO NEW HELCO MH.
HTCO MH. PERFORM WORK TO COMPLETE
NEW CABLE INSULATION (FOR HELCO
AND HTCO) ONE DUCT AT A TIME.

NEW ST LT ON TYPE III
TS POLE W/ 10FT ARM

PROVIDE NEW 2'x4' HELCO HT AND EXTEND
(1) 3" PVC (HELCO SECONDARY) TO NEW
METER/MAIN BKRS.

existing Sandwich Isle
Communication (sic)
fiber optic cable
(2) 4"
(1) 1.25" subduct
(5) 1.5" subduct
encased in 3" concrete
jacket at 36" below
grade to top of jacket

2" STUB FOR
FUTURE

MAINTAIN EXIST SIC DUCTS
(FIBER OPTIC CABLE AT
36" UNDER ROADWAY AND
24" MINIMUM UNDER
GRADE PROVIDE SPLIT
DUCT AS REQUIRED FOR
RELOCATION (ALL
RELOCATION COSTS
TO BE BORNE BY SIC)

INTERCEPT AND
EXTEND EXISTING
DUCTS TO NEW
MANHOLES

NEW DUCTS IN 3"
CONC JACKET AT 36"
BELOW GRADE
(2) 5" (HELCO)
(2) 4" (HTCO)

REMOVE EXIST
POLE UP79

NEW METER/MAIN
BKRS/LOADCENTER TRAFFIC
SIGNAL CONTROLLER AND UPS

NEW HTCO 5'x10'x6' MH #180016

NEW HELCO 6'x11' MH #26921,
PROVIDE NEW (2) 5" STUB FOR
FUTURE (HELCO) IN NORTH AND
SOUTH DIRECTION

PROVIDE NEW STEEL POLE
(HELCO) UP79A 30FT FROM EXIST
UP79 AND SWING OVER EXIST O/H
LINES (BY HELCO/HTCO/OTWC)

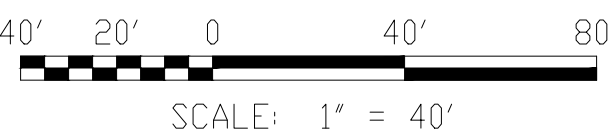
NEW POLE RISERS
(2) 5" (HELCO)
(2) 4" (HTCO)

NEW JOINT POLE W/(1)
POLE MTD XFMR

CROSSARMS, FUSE CUTOUT,
DOWNGUY AND ANCHOR.

EXTEND HELCO O/H
PRIMARY TO POLE MTD
XFMR (BY HELCO)

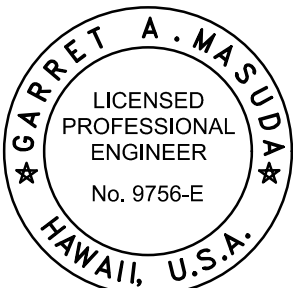
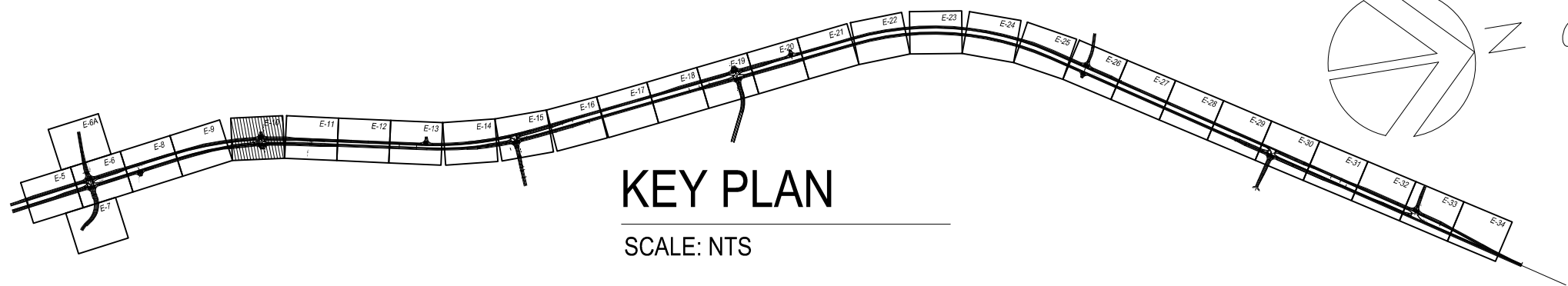
GRAPHICAL SCALE:



1
E-10

ELECTRICAL PLAN STA. 21+00 TO STA. 30+00 (LANIHOU ST.)

SCALE: 1" = 40'



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

David A. Masuda APRIL 30, 2018
SIGNATURE EXPIRATION DATE
OF THE LICENSE

LEGEND FOR AS-BUILT POSTINGS

~~~~~ Squiggly line for  
as-built deletion

== Double line for  
as-built deletion

Roadway Text for as-built  
posting

| DATE     | REVISION                                                                         |
|----------|----------------------------------------------------------------------------------|
| 04/14/16 | 2 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

| DATE                                                                              | REVISION |
|-----------------------------------------------------------------------------------|----------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION              |          |
| ELECTRICAL PLAN<br>STA. 21+00 TO STA. 30+00                                       |          |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2) |          |
| Federal Aid Project No. NH-019-1(38)R<br>Scale: AS NOTED Date: AUGUST 2016        |          |

SHEET No. 10 OF 40 SHEETS

"AS-BUILT"

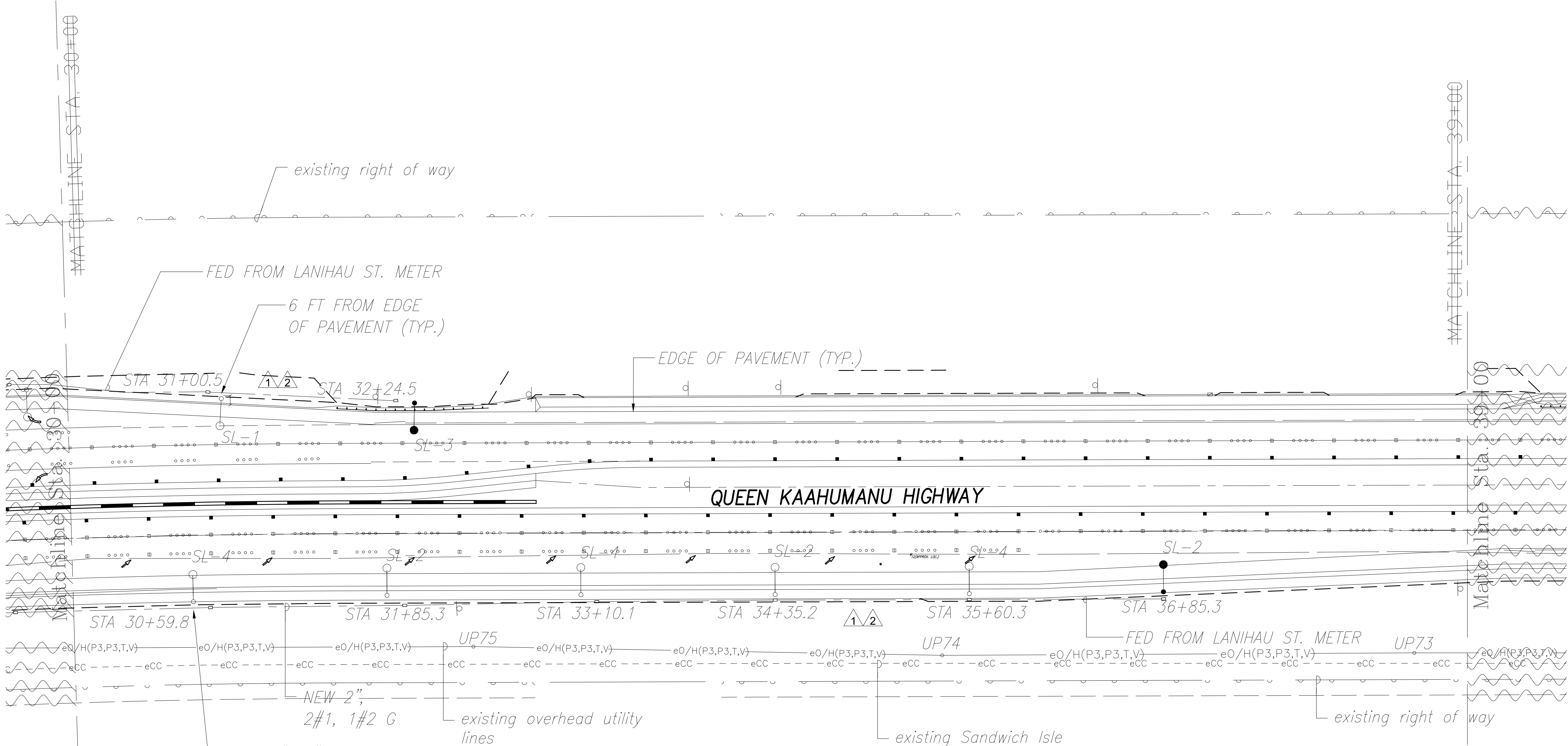
08/01/2016

C.O. 450 463



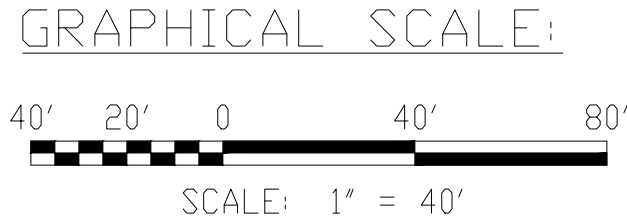
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.                | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|--------------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | C.0464<br><del>451</del> | 528<br><del>522</del> |

NOTE:  
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS



NEW 17"x30" ST LT PULLBOX (QUAZITE) (TYP.) PROVIDE WP IN-LINE FUSE IN PULLBOX AND POLE BASE (TYP.)  
NEW 2", 2#1, 1#2 G  
existing overhead utility lines  
(2) 69kv 3Ø (HELCO)  
(1) 12kv 3Ø (HELCO)  
(1) Hawn Telcom  
(1) catv

existing Sandwich Isle Communication (SIC) fiber optic cable  
(2) 4"  
(1) 1.25" subduct  
(5) 1.5" subduct  
encased in 3" concrete jacket at 36" below grade to top of jacket



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

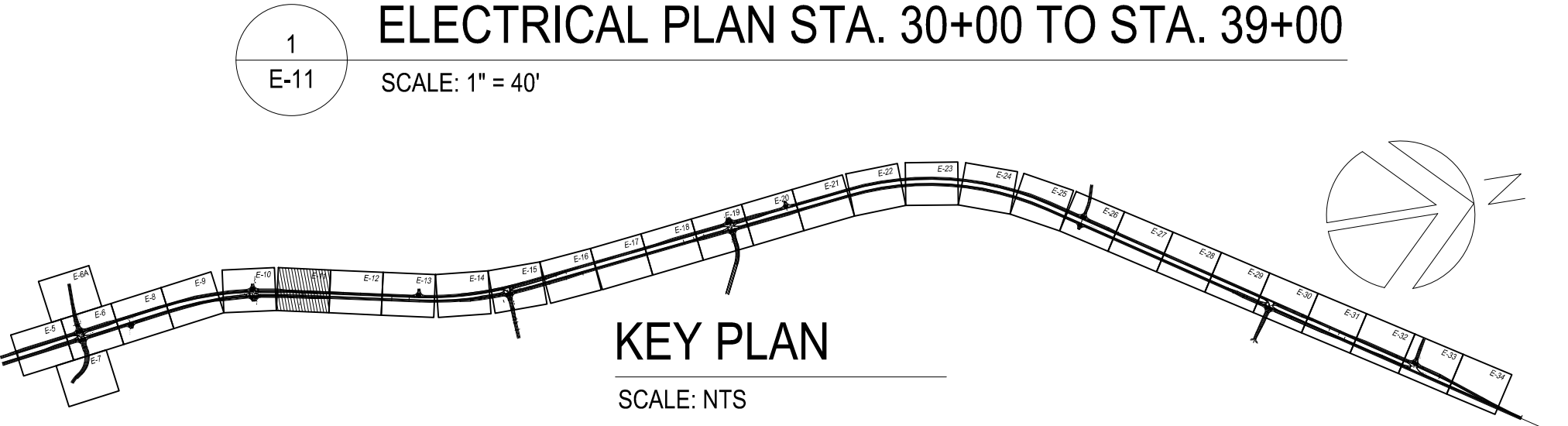
| DATE     | REVISION                                                                         |
|----------|----------------------------------------------------------------------------------|
| 04/14/16 | 2 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ELECTRICAL PLAN  
STA. 30+00 TO STA. 39+00

QUEEN KAAHUMANU HIGHWAY WIDENING  
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)  
Federal Aid Project No. NH-019-1(38)R  
Scale: AS NOTED Date: AUGUST 2016

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

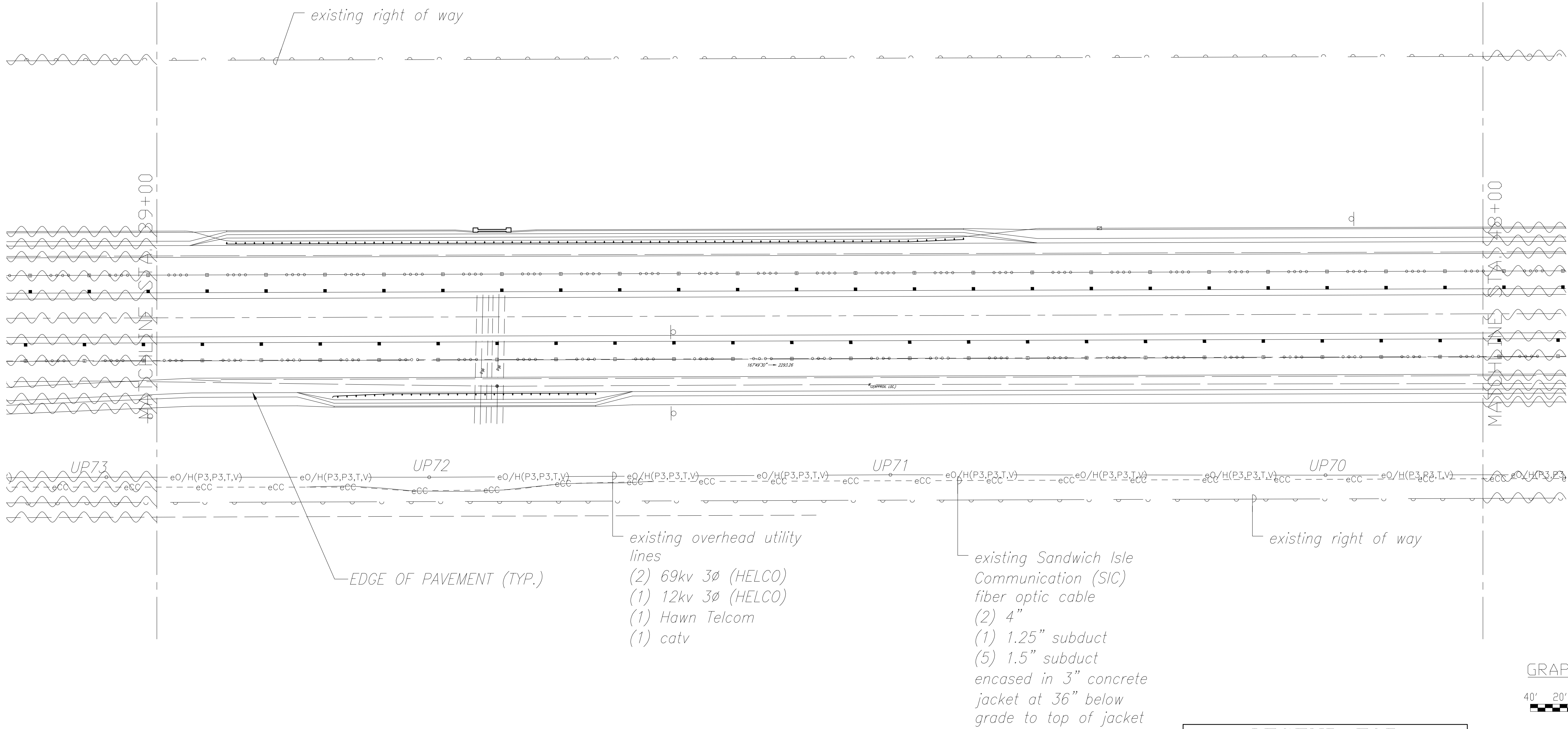
*Garret A. Masuda*  
SIGNATURE

APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

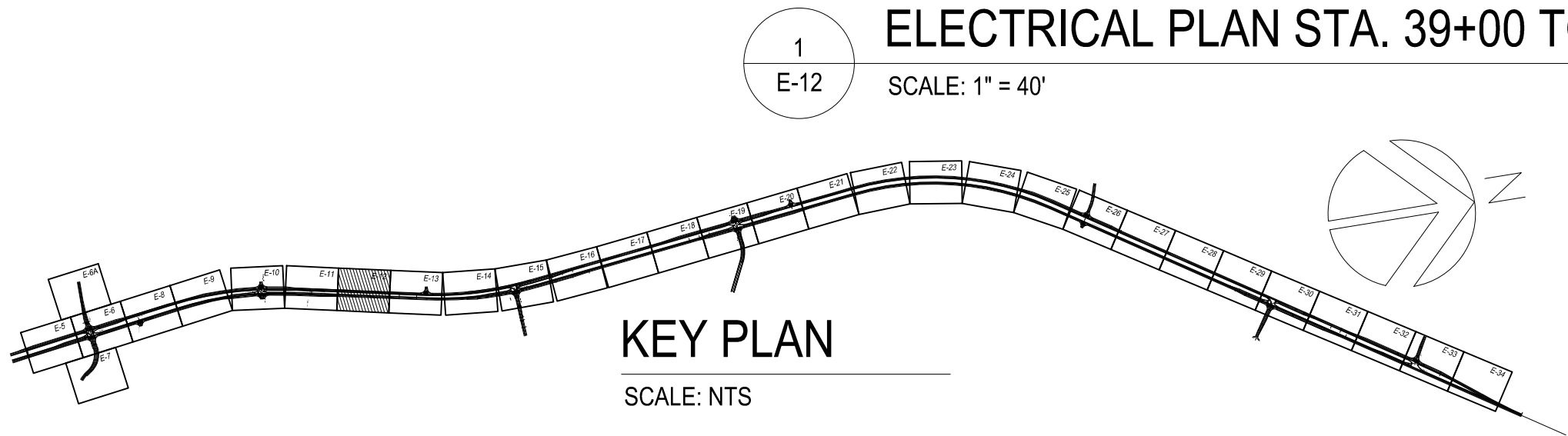
GARRET A. MASUDA  
LICENSED PROFESSIONAL ENGINEER  
No. 9756-E  
HAWAII, U.S.A.



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.             | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>452</del><br>465 | <del>522</del><br>528 |



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



1  
E-12  
ELECTRICAL PLAN STA. 39+00 TO STA. 48+00  
SCALE: 1" = 40'

existing Sandwich Isle Communication (SIC) fiber optic cable  
(2) 4" (1) 1.25" subduct (5) 1.5" subduct encased in 3" concrete jacket at 36" below grade to top of jacket



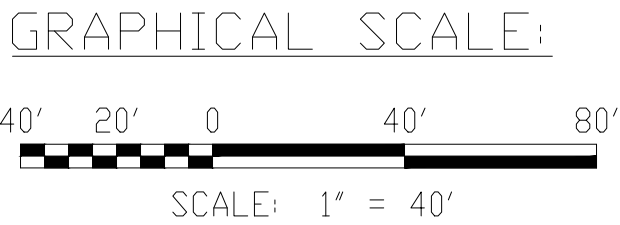
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
Signature: *Garrett A. Masuda* APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

**LEGEND FOR AS-BUILT POSTINGS**

Squiggly line for as-built deletion

Double line for as-built deletion

Roadway Text for as-built posting



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

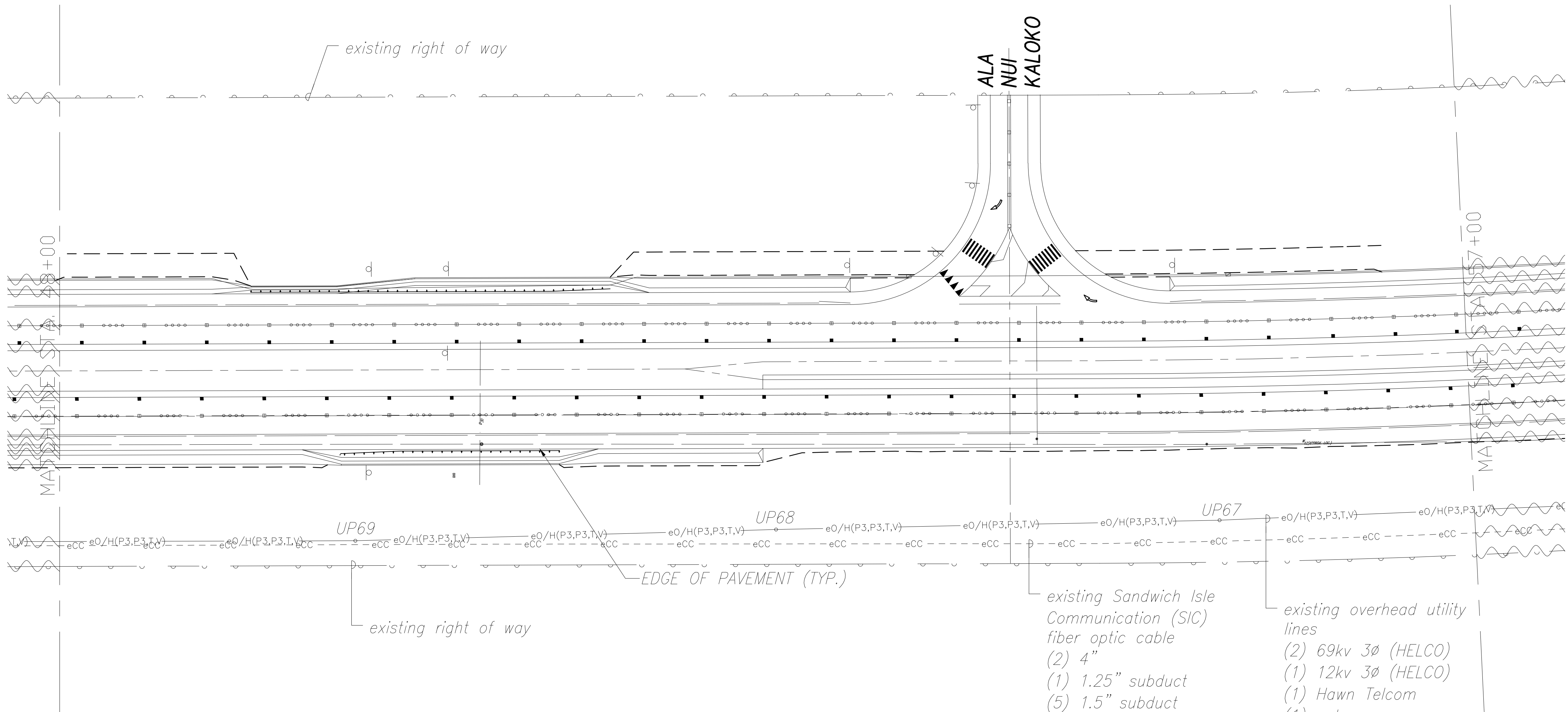
ELECTRICAL PLAN  
STA. 39+00 TO STA. 48+00

QUEEN KAAHUMANU HIGHWAY WIDENING  
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R  
Scale: AS NOTED Date: AUGUST 2016



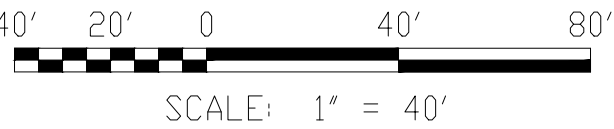
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.             | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>466</del><br>453 | <del>528</del><br>522 |



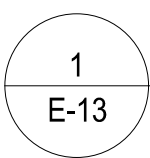
existing Sandwich Isle  
Communication (SIC)  
fiber optic cable  
(2) 4"  
(1) 1.25" subduct  
(5) 1.5" subduct  
encased in 3" concrete  
jacket at 36" below  
grade to top of jacket

existing overhead utility  
lines  
(2) 69kv 3Ø (HELCO)  
(1) 12kv 3Ø (HELCO)  
(1) Hawn Telcom  
(1) catv

GRAPHICAL SCALE:

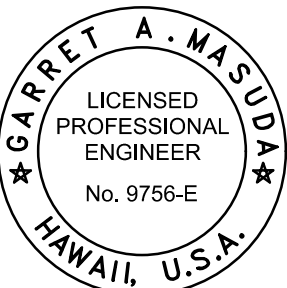
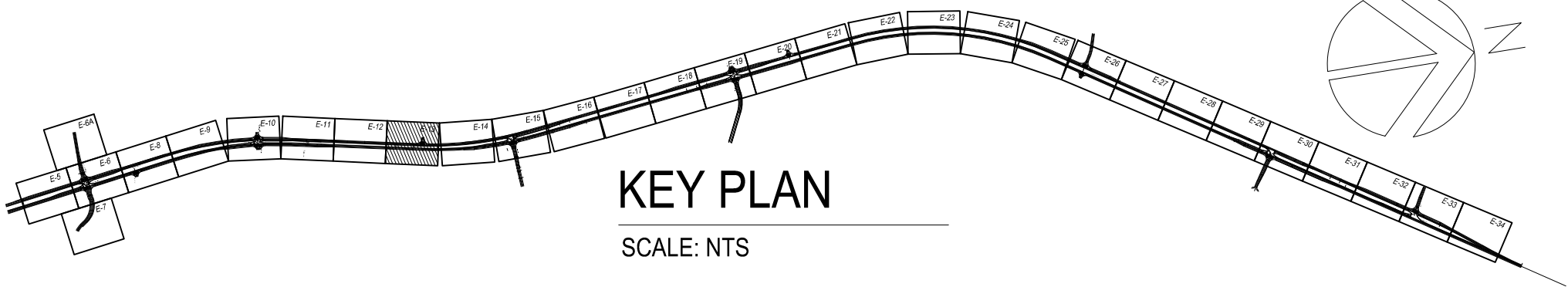


|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
| No.           | DESIGNED BY       |      |
|               | QUANTITIES BY     |      |
|               | CHECKED BY  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



ELECTRICAL PLAN STA. 48+00 STA. 57+00 (ALA NUI KALOKO)

SCALE: 1" = 40'



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
*Garrett A. Masuda* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE  
OF THE LICENSE

| LEGEND FOR<br>AS-BUILT POSTINGS |                                        |
|---------------------------------|----------------------------------------|
|                                 | Squiggly line for<br>as-built deletion |
|                                 | Double line for<br>as-built deletion   |
| Roadway                         | Text for as-built<br>posting           |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ELECTRICAL PLAN  
STA. 48+00 TO STA. 57+00

QUEEN KAAHUMANU HIGHWAY WIDENING  
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)  
Federal Aid Project No. NH-019-1(38)R  
Scale: AS NOTED Date: AUGUST 2016

SHEET No. 13 OF 40 SHEETS

"AS-BUILT"

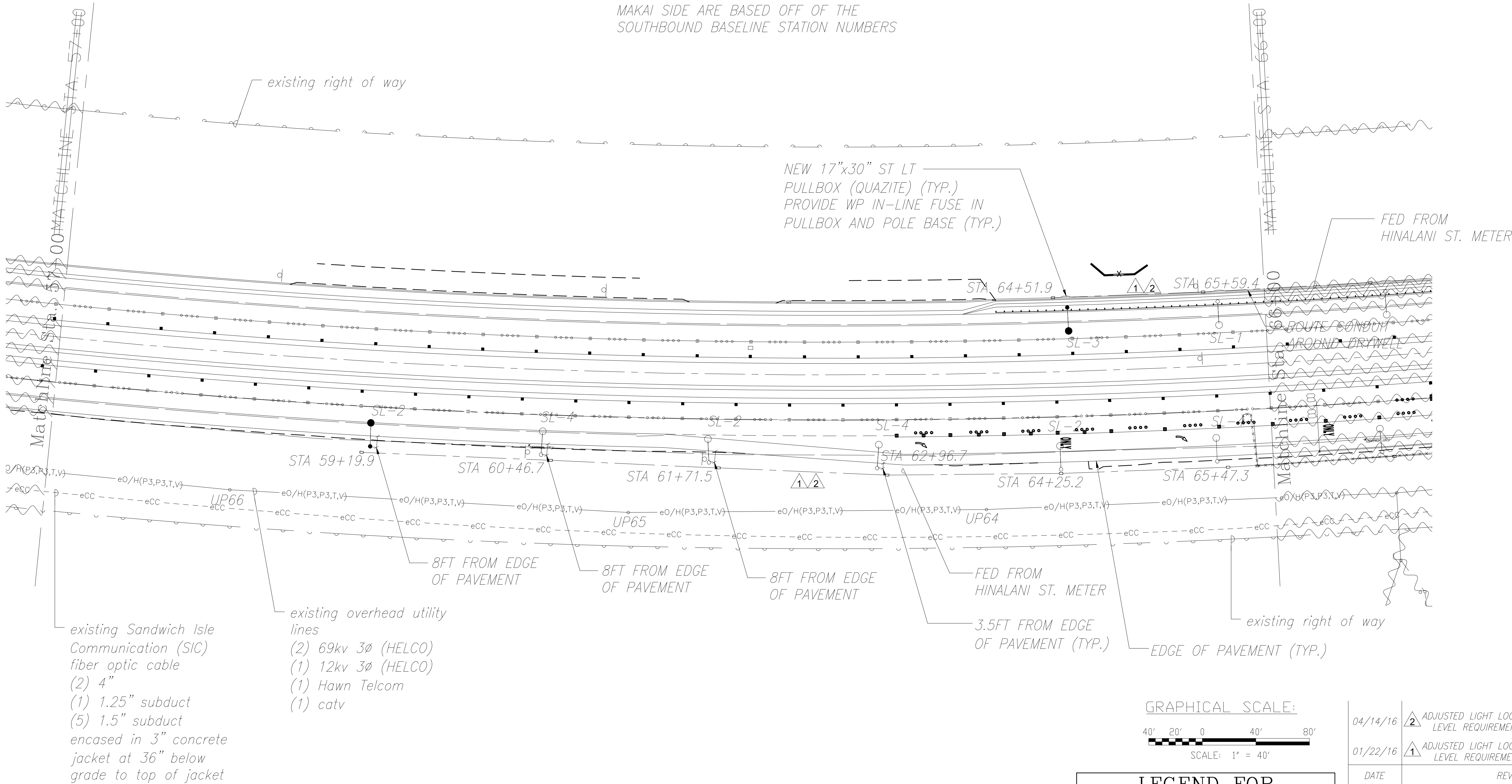
08/01/2016

~~453~~ 466



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.               | TOTAL SHEETS       |
|---------------------|-------|--------------------|-------------|-------------------------|--------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | C.O. <del>454</del> 467 | <del>528</del> 522 |

- NOTE:
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS

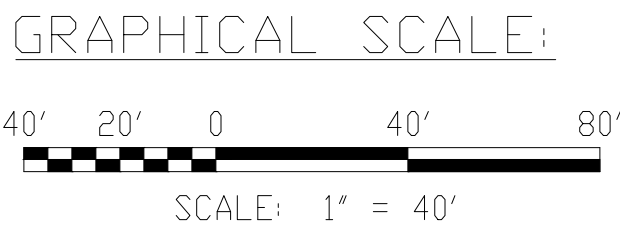
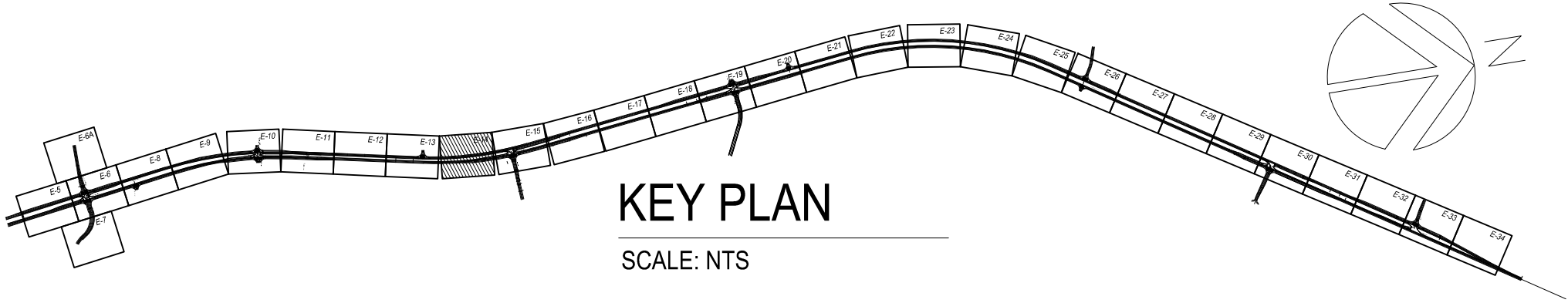


|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
| No.           | DESIGNED BY       |      |
|               | QUANTITIES BY     |      |
|               | CHECKED BY  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

existing Sandwich Isle Communication (SIC) fiber optic cable  
(2) 4"  
(1) 1.25" subduct  
(5) 1.5" subduct  
encased in 3" concrete jacket at 36" below grade to top of jacket

existing overhead utility lines  
(2) 69kv 3Ø (HELCO)  
(1) 12kv 3Ø (HELCO)  
(1) Hawn Telcom  
(1) catv

1  
E-14  
ELECTRICAL PLAN STA. 57+00 TO STA. 66+00  
SCALE: 1" = 40'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
*David A. M...*  
SIGNATURE  
APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

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

| 04/14/16                                                                         | 2 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 01/22/16                                                                         | 1 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |
| DATE                                                                             | REVISION                                                                         |
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |                                                                                  |
| ELECTRICAL PLAN<br>STA. 57+00 TO STA. 66+00                                      |                                                                                  |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) |                                                                                  |
| Federal Aid Project No. NH-019-1(38)R                                            |                                                                                  |
| Scale: AS NOTED Date: AUGUST 2016                                                |                                                                                  |
| SHEET No. 14 OF 40 SHEETS                                                        |                                                                                  |

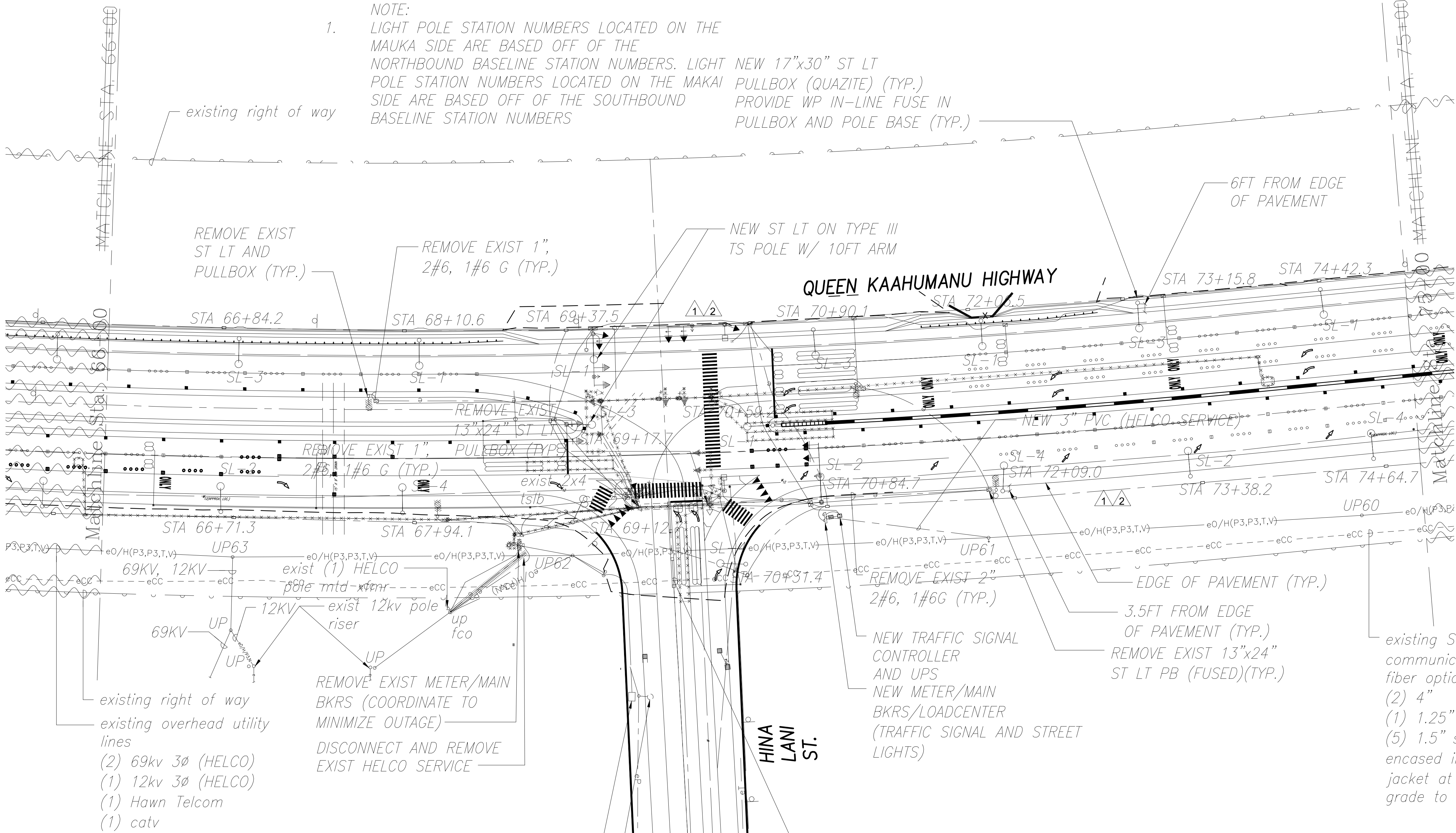
"AS-BUILT"



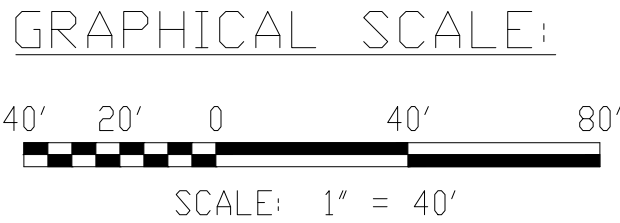
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.                  | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | C.O. 468<br><del>455</del> | <del>528</del><br>522 |

NOTE:  
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS

PULLBOX (QUAZITE) (TYP.)  
PROVIDE WP IN-LINE FUSE IN PULLBOX AND POLE BASE (TYP.)



existing Sandwich Isle communication (SIC) fiber optic cable  
(2) 4"  
(1) 1.25" subduct  
(5) 1.5" subduct  
encased in 3" concrete jacket at 36" below grade to top of jacket

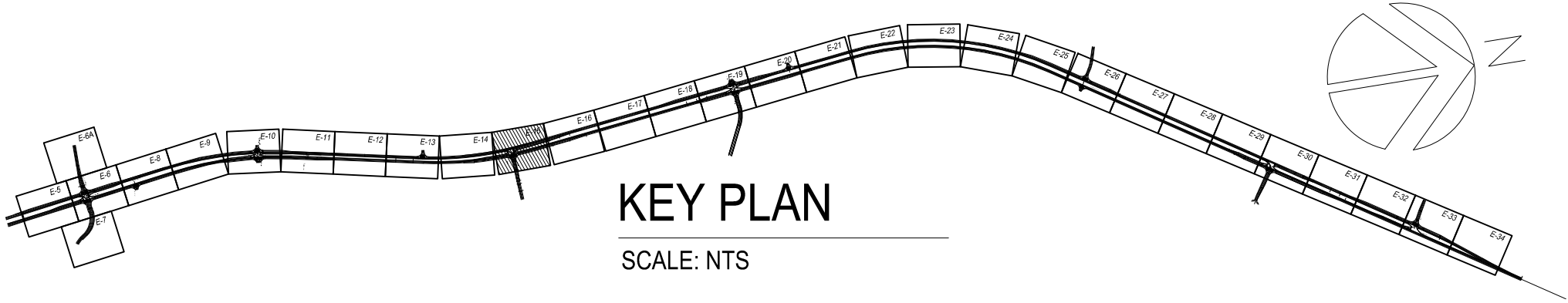


| LEGEND FOR AS-BUILT POSTINGS |                                     |
|------------------------------|-------------------------------------|
|                              | Squiggly line for as-built deletion |
|                              | Double line for as-built deletion   |
| Roadway       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

|          |   |                                                                                |
|----------|---|--------------------------------------------------------------------------------|
| 06/01/16 | 2 | REMOVED 2'X3' HELCO SERVICE BOX                                                |
| 04/14/16 | 2 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

| DATE                                                                             | REVISION |
|----------------------------------------------------------------------------------|----------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |          |
| ELECTRICAL PLAN<br>STA. 66+00 TO STA. 75+00                                      |          |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) |          |
| Federal Aid Project No. NH-019-1(38)R                                            |          |
| Scale: AS NOTED Date: AUGUST 2016                                                |          |

1 E-15 ELECTRICAL PLAN STA. 66+00 TO STA. 75+00 (HINALANI ST)  
SCALE: 1" = 40'



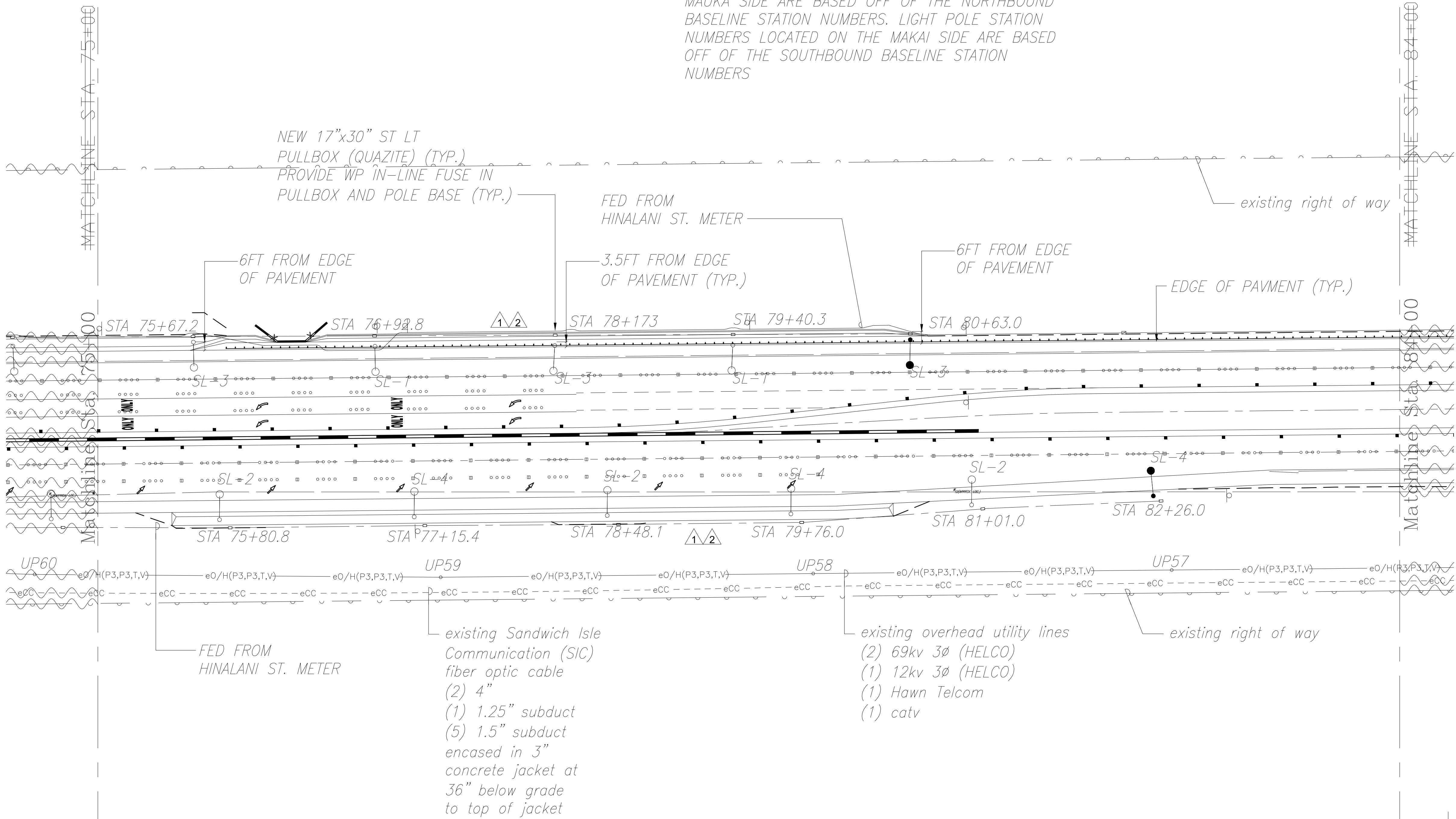
GARRET A. NASUDA  
LICENSED PROFESSIONAL ENGINEER  
No. 9756-E  
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
Signature: Daniel A. M...  
EXPIRATION DATE OF THE LICENSE: APRIL 30, 2018

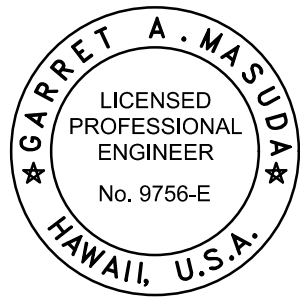
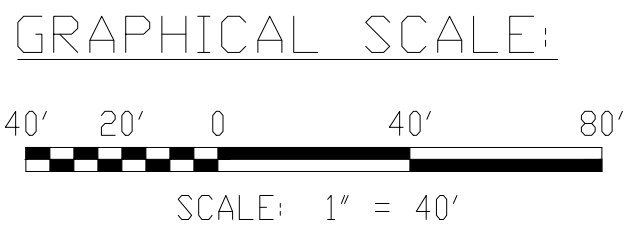
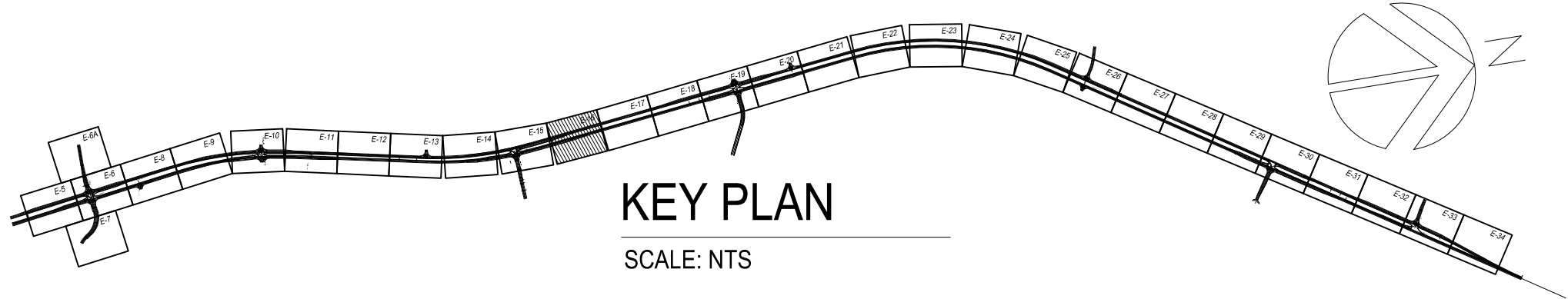


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.                         | TOTAL SHEETS                 |
|---------------------|-------|--------------------|-------------|-----------------------------------|------------------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | C.O. 469<br><del>456</del><br>456 | 528<br><del>522</del><br>522 |

- NOTE:
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS



1  
E-16  
ELECTRICAL PLAN STA. 75+00 TO STA. 84+00  
SCALE: 1" = 40'



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
*David A. Masuda* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE  
OF THE LICENSE

| LEGEND FOR<br>AS-BUILT POSTINGS |                                        |
|---------------------------------|----------------------------------------|
|                                 | Squiggly line for<br>as-built deletion |
|                                 | Double line for<br>as-built deletion   |
| Roadway                         | Text for as-built<br>posting           |

|          |                                                                                     |
|----------|-------------------------------------------------------------------------------------|
| 04/14/16 | 2 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING<br>LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING<br>LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

| DATE                                                                             | REVISION          |
|----------------------------------------------------------------------------------|-------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |                   |
| ELECTRICAL PLAN<br>STA. 75+00 TO STA. 84+00                                      |                   |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) |                   |
| Federal Aid Project No. NH-019-1(38)R                                            |                   |
| Scale: AS NOTED                                                                  | Date: AUGUST 2016 |

SHEET No. 16 OF 40 SHEETS

"AS-BUILT"

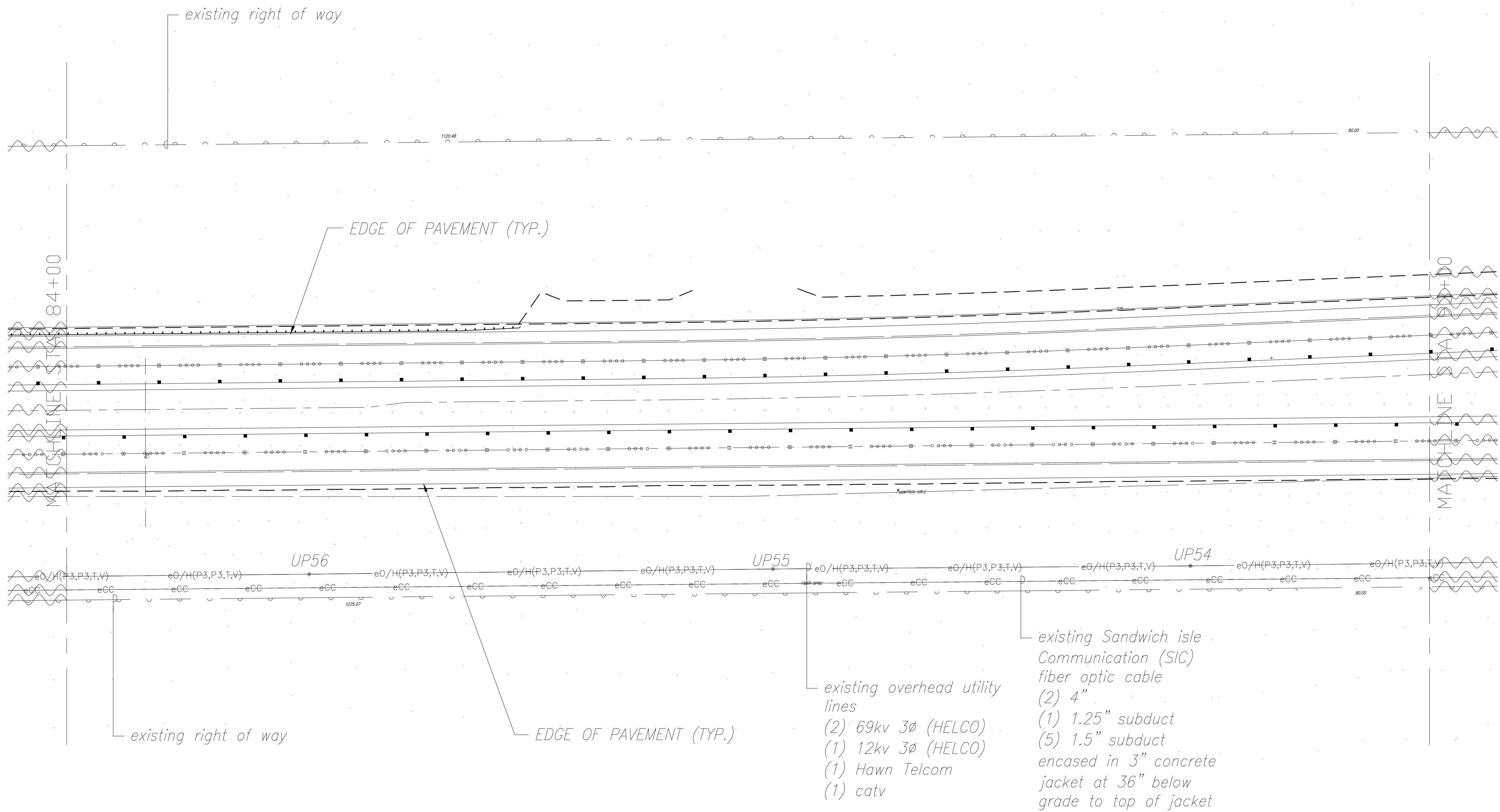
08/01/2016

C.O. 456 469

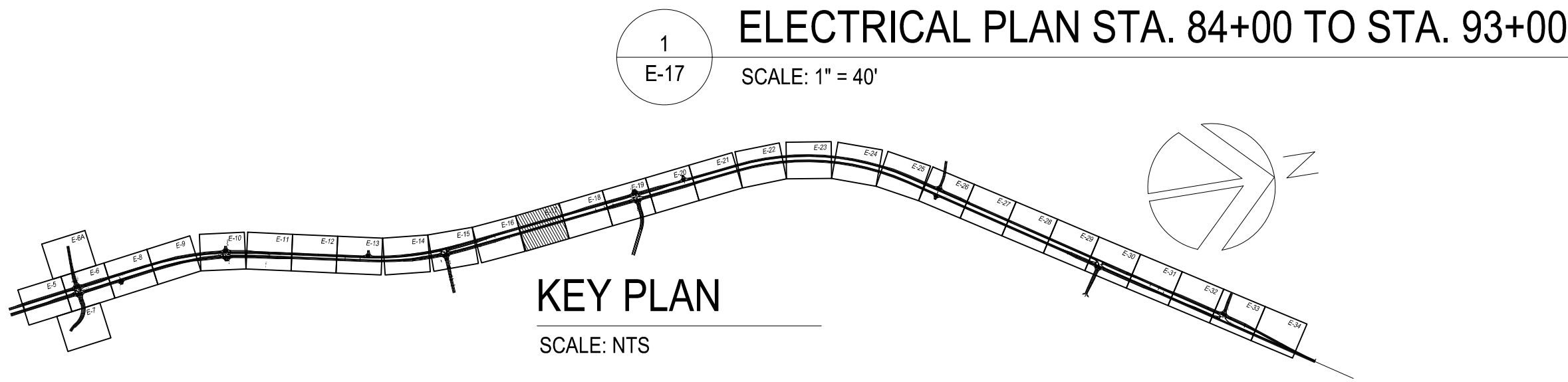
|                  |                   |      |
|------------------|-------------------|------|
| ORIGINAL<br>PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK        | DRAWN BY          |      |
| No.              | DESIGNED BY       |      |
|                  | QUANTITIES BY     |      |
|                  | CHECKED BY        |      |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.             | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>470</del><br>457 | <del>528</del><br>522 |



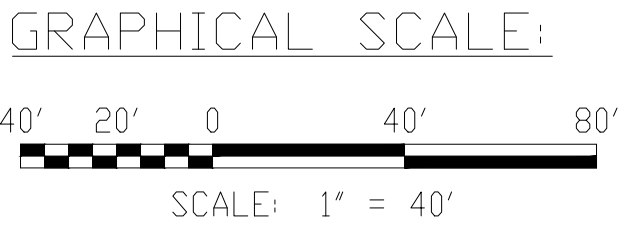
|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
| No.           | DESIGNED BY       |      |
|               | QUANTITIES BY     |      |
|               | CHECKED BY  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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*David A. M...* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE OF THE LICENSE

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



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ELECTRICAL PLAN  
STA. 84+00 TO STA. 93+00

QUEEN KAAHUMANU HIGHWAY WIDENING  
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)  
Federal Aid Project No. NH-019-1(38)R  
Scale: AS NOTED Date: AUGUST 2016

SHEET No. 17 OF 40 SHEETS

"AS-BUILT"

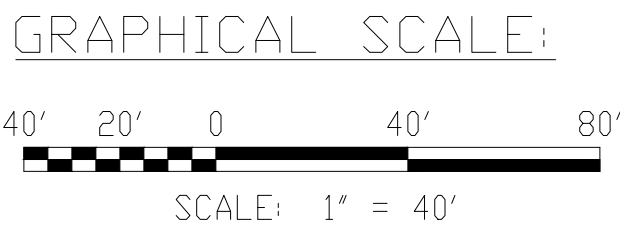
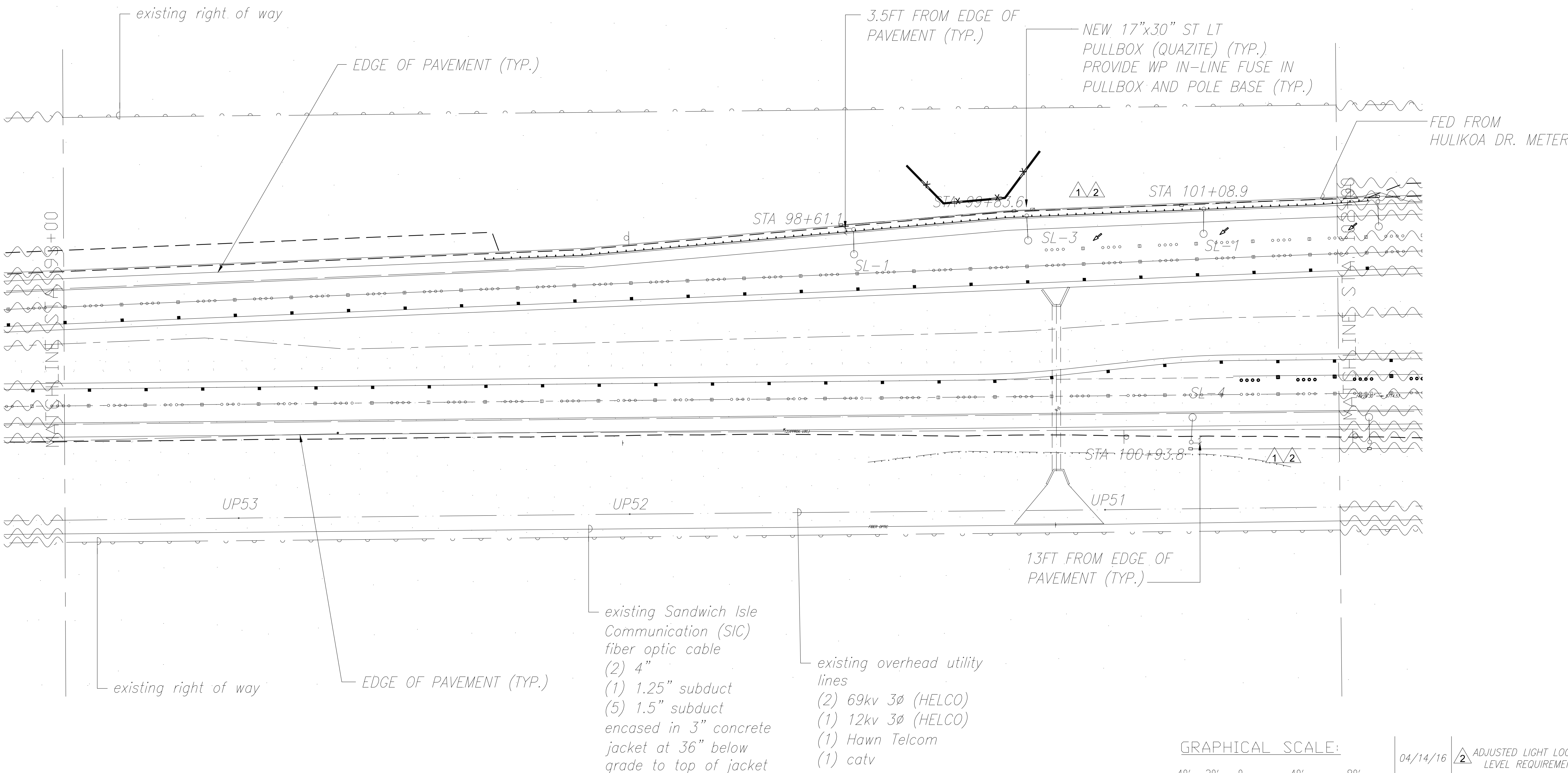
08/01/2016

~~457~~ 470



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.                  | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | C.O. 471<br><del>458</del> | <del>528</del><br>522 |

NOTE:  
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS

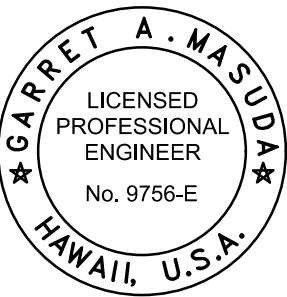
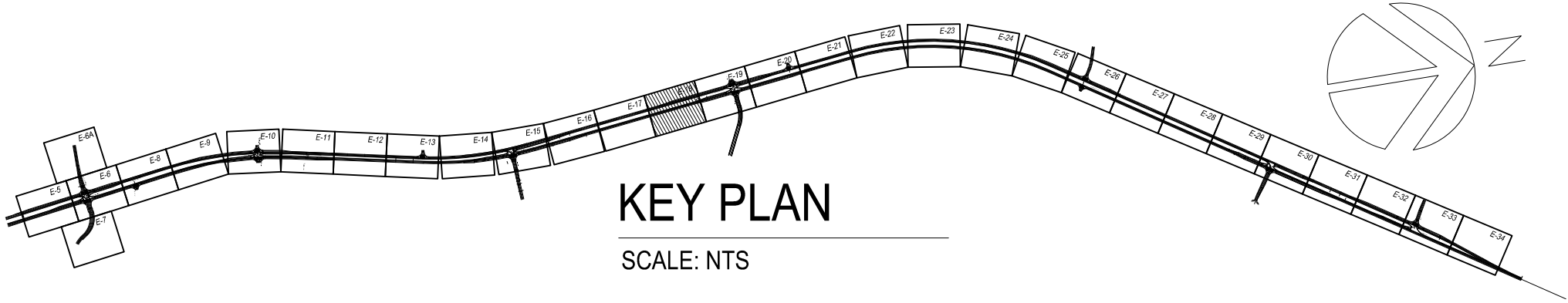


| LEGEND FOR AS-BUILT POSTINGS |                                     |
|------------------------------|-------------------------------------|
|                              | Squiggly line for as-built deletion |
|                              | Double line for as-built deletion   |
| Roadway       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

|          |                                                                                |
|----------|--------------------------------------------------------------------------------|
| 04/14/16 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

| DATE                                                                             | REVISION          |
|----------------------------------------------------------------------------------|-------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |                   |
| ELECTRICAL PLAN<br>STA. 93+00 TO STA. 102+00                                     |                   |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) |                   |
| Federal Aid Project No. NH-019-1(38)R                                            |                   |
| Scale: AS NOTED                                                                  | Date: AUGUST 2016 |

1 ELECTRICAL PLAN STA. 93+00 TO STA. 102+00  
E-18 SCALE: 1" = 40'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
Signature: *David A. Masuda* APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

"AS-BUILT"

08/01/2016

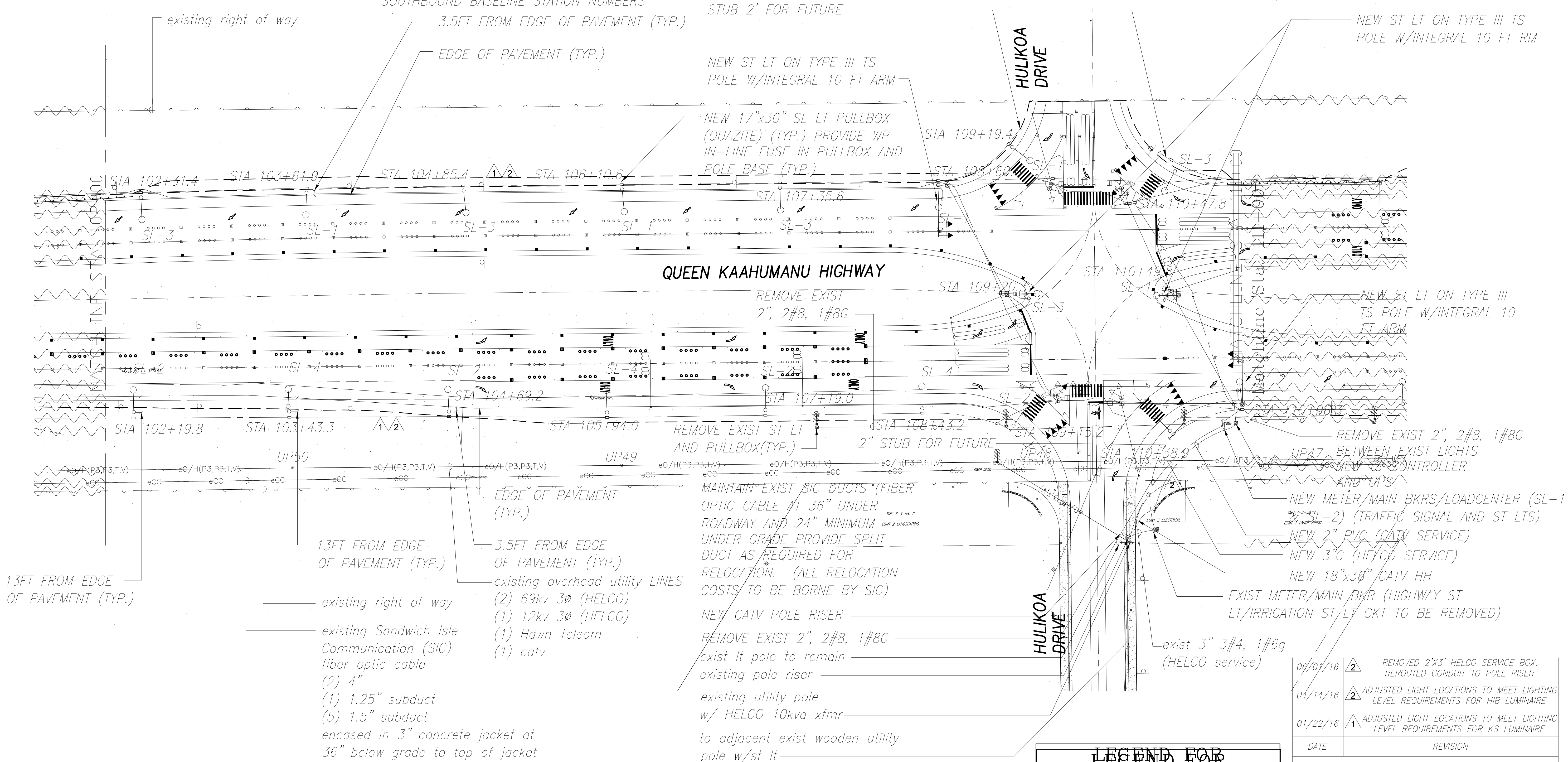
C.O. ~~458~~ 471

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

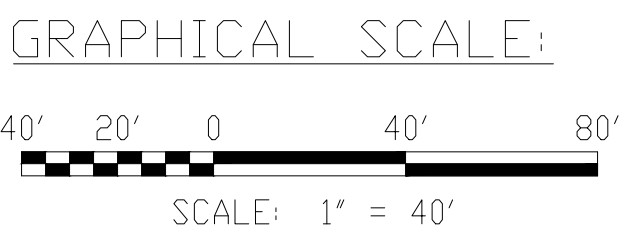
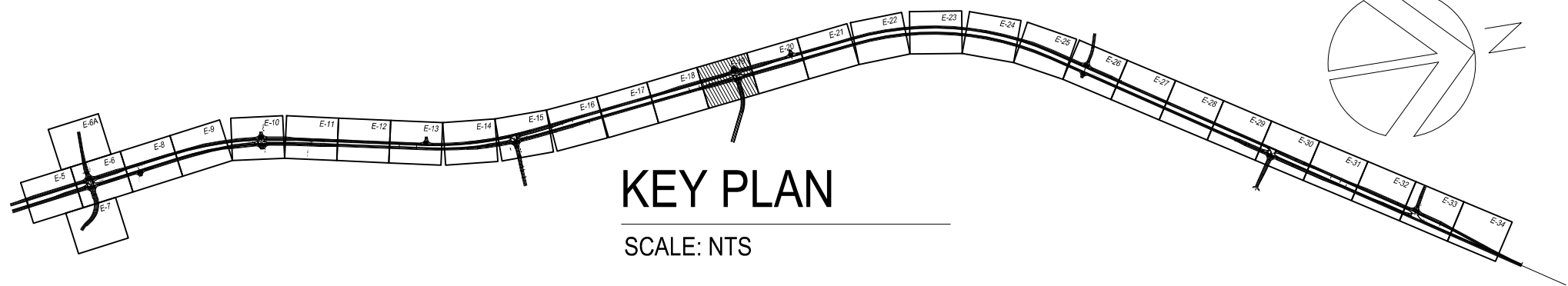


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.       | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | C.O. 472<br>459 | 528          |

- NOTE:
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS.



1  
E-19  
ELECTRICAL PLAN STA. 102+00 TO 111+00 (HULIKOA DR.)  
SCALE: 1" = 40'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

*David A. M...* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE OF THE LICENSE

| LEGEND FOR AS-BUILT POSTINGS |                                     |
|------------------------------|-------------------------------------|
|                              | Squiggly line for as-built deletion |
|                              | Double line for as-built deletion   |
|                              | Text for as-built posting           |

| DATE     | REVISION                                                                         |
|----------|----------------------------------------------------------------------------------|
| 06/01/16 | 2 REMOVED 2'X3' HELCO SERVICE BOX. REROUTED CONDUIT TO POLE RISER                |
| 04/14/16 | 2 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

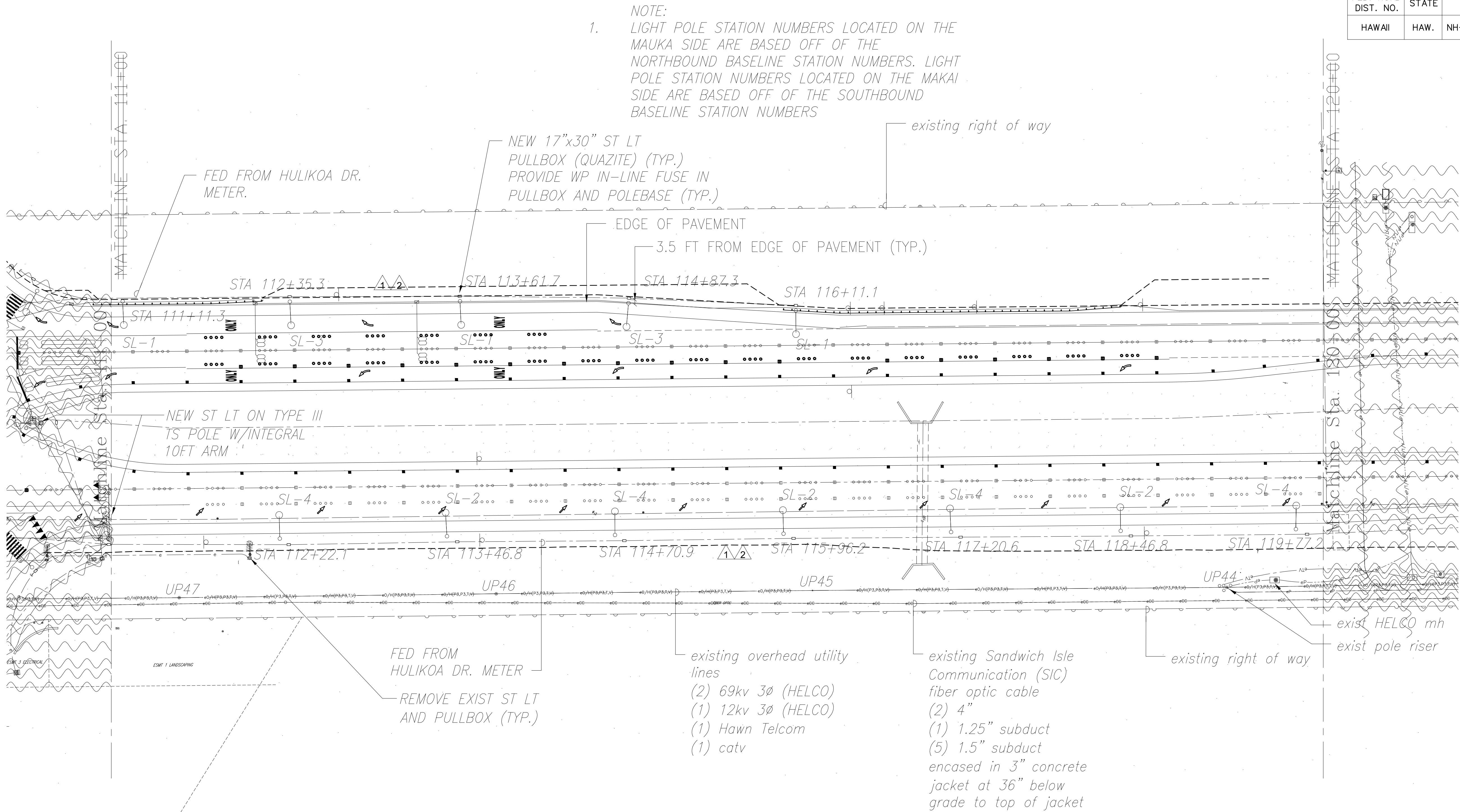
ELECTRICAL PLAN  
STA. 102+00 TO STA. 111+00

QUEEN KAAHUMANU HIGHWAY WIDENING  
Kealahoe Pkwy. To Keahole Airport Rd.(Ph. 2)

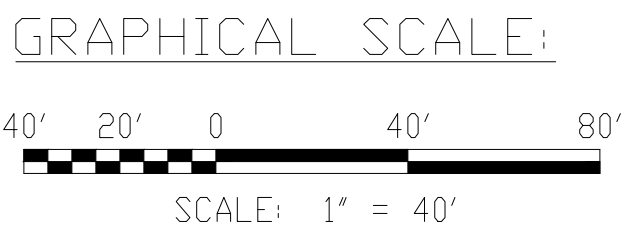
Federal Aid Project No. NH-019-1(38)R  
Scale: AS NOTED Date: AUGUST 2016



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.             | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>460</del><br>473 | <del>527</del><br>528 |



1  
E-20  
ELECTRICAL PLAN STA. 111+00 TO STA.120+00 (KOHANAIKI RESORT ACCESS RD.)  
SCALE: 1" = 40'



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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
Signature: *Garrett A. Masuda*  
APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

|          |                                                                                  |
|----------|----------------------------------------------------------------------------------|
| 04/14/16 | 2 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

| DATE                                                                             | REVISION          |
|----------------------------------------------------------------------------------|-------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |                   |
| ELECTRICAL PLAN<br>STA. 111+00 TO STA. 120+00                                    |                   |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) |                   |
| Federal Aid Project No. NH-019-1(38)R                                            |                   |
| Scale: AS NOTED                                                                  | Date: AUGUST 2016 |

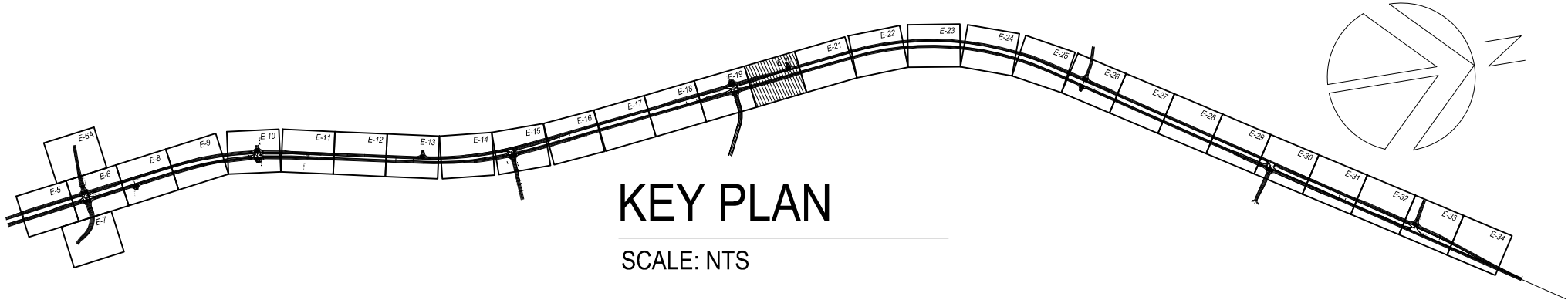
SHEET No. 20 OF 40 SHEETS

08/01/2016

C.O. ~~460~~ 473

"AS-BUILT"

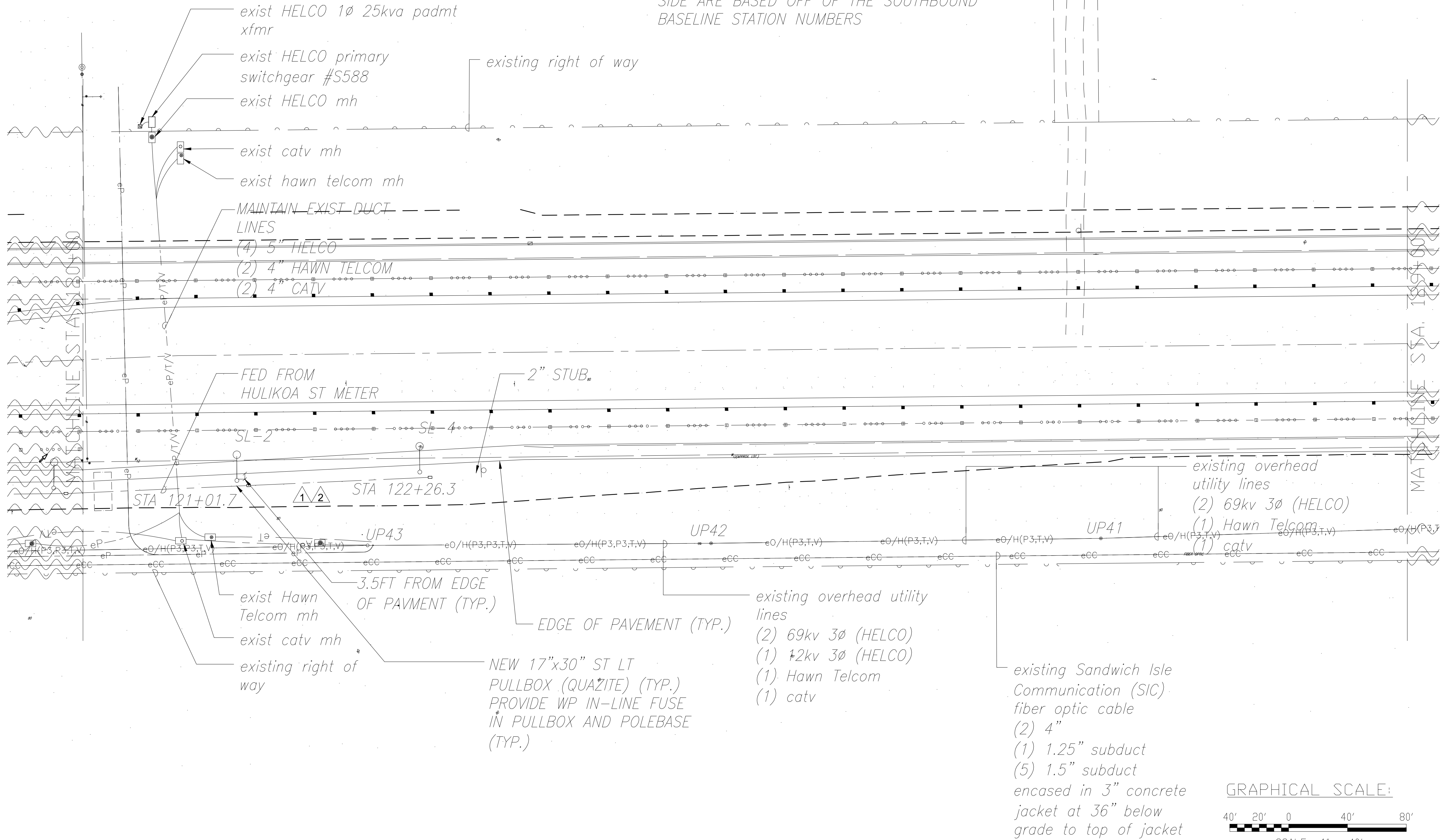
|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
| No.           | DESIGNED BY       |      |
|               | QUANTITIES BY     |      |
|               | CHECKED BY  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



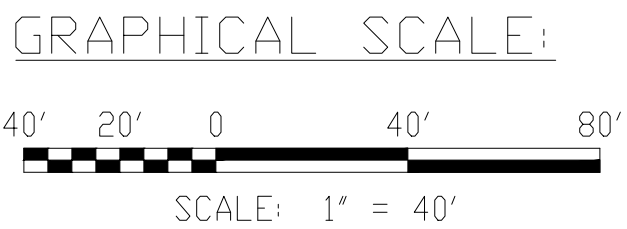
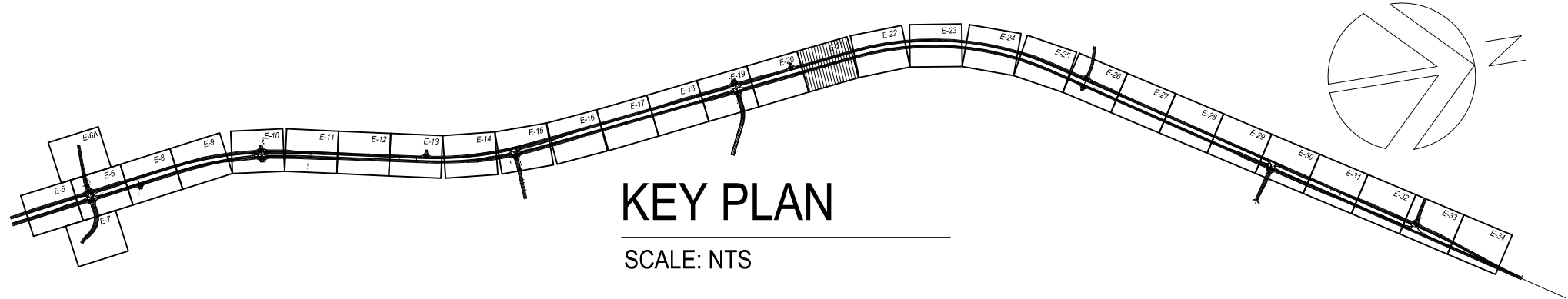


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.                  | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>461</del><br>C.O. 474 | <del>527</del><br>528 |

NOTE:  
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS



1  
E-21  
ELECTRICAL PLAN STA. 120+00 TO STA. 129+00 (KOHANAIKI RESORT ACCESS RD.)  
SCALE: 1" = 40'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
Signature: David A. Masuda  
APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

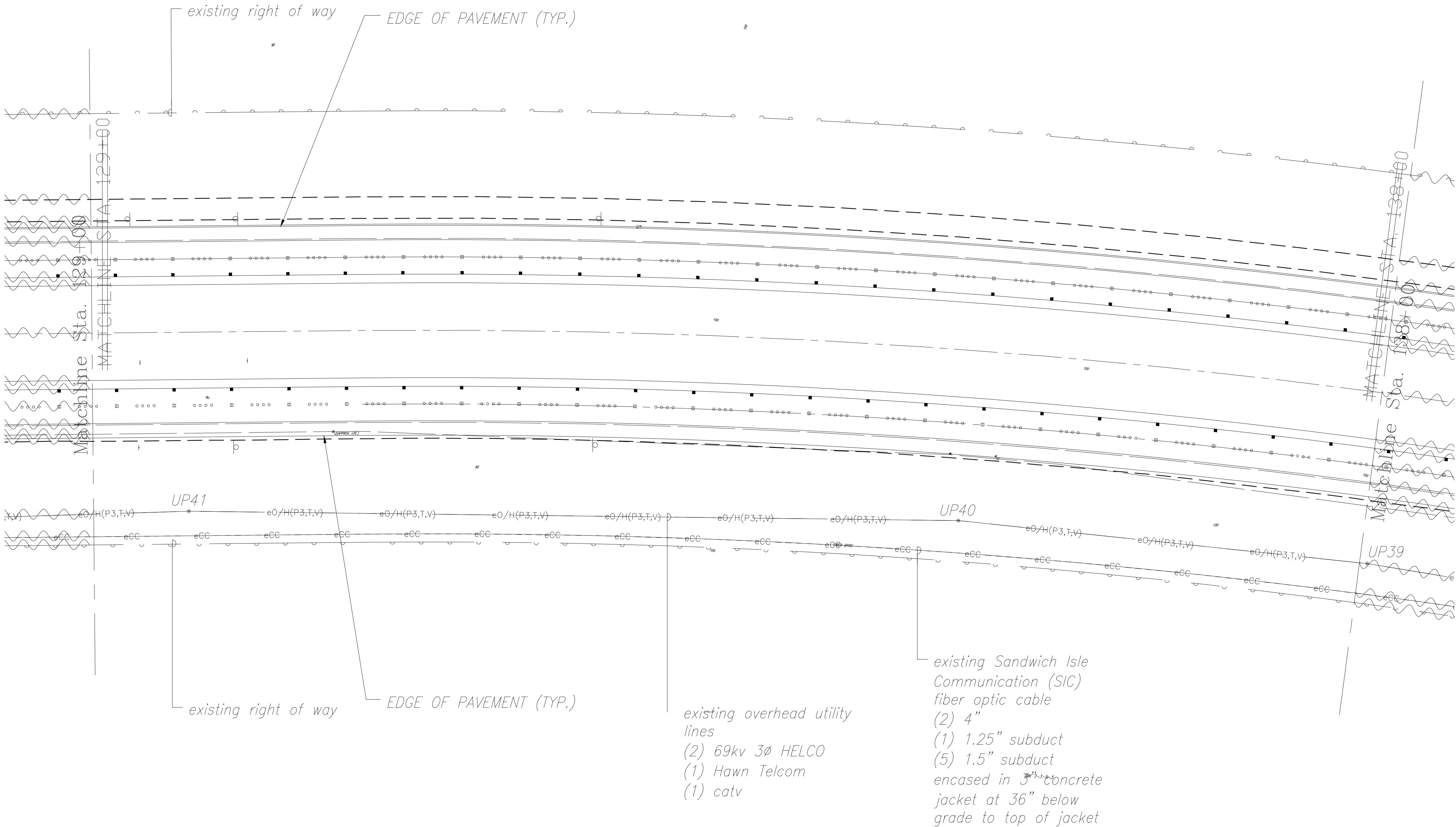
| LEGEND FOR AS-BUILT POSTINGS |                                     |
|------------------------------|-------------------------------------|
|                              | Squiggly line for as-built deletion |
|                              | Double line for as-built deletion   |
| Roadway       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

|          |                                                                                  |
|----------|----------------------------------------------------------------------------------|
| 04/14/16 | 2 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

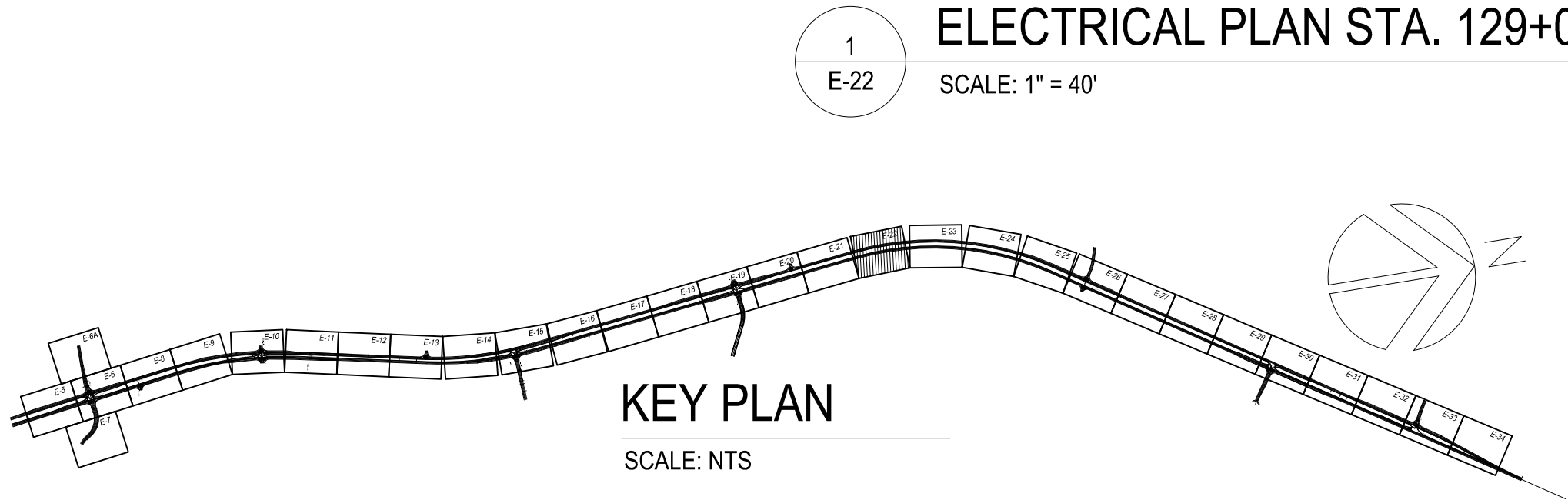
| DATE                                                                             | REVISION |
|----------------------------------------------------------------------------------|----------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |          |
| ELECTRICAL PLAN<br>STA. 120+00 TO STA. 129+00                                    |          |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) |          |
| Federal Aid Project No. NH-019-1(38)R<br>Scale: AS NOTED Date: AUGUST 2016       |          |



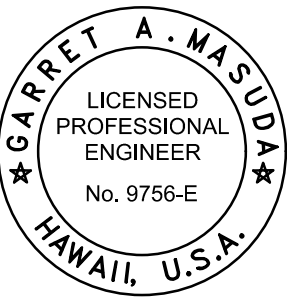
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.             | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>475</del><br>462 | <del>528</del><br>522 |



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



1  
E-22  
ELECTRICAL PLAN STA. 129+00 TO 138+00  
SCALE: 1" = 40'



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
Signature: *Garrett A. Masuda* APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ELECTRICAL PLAN  
STA. 129+00 TO STA. 138+00

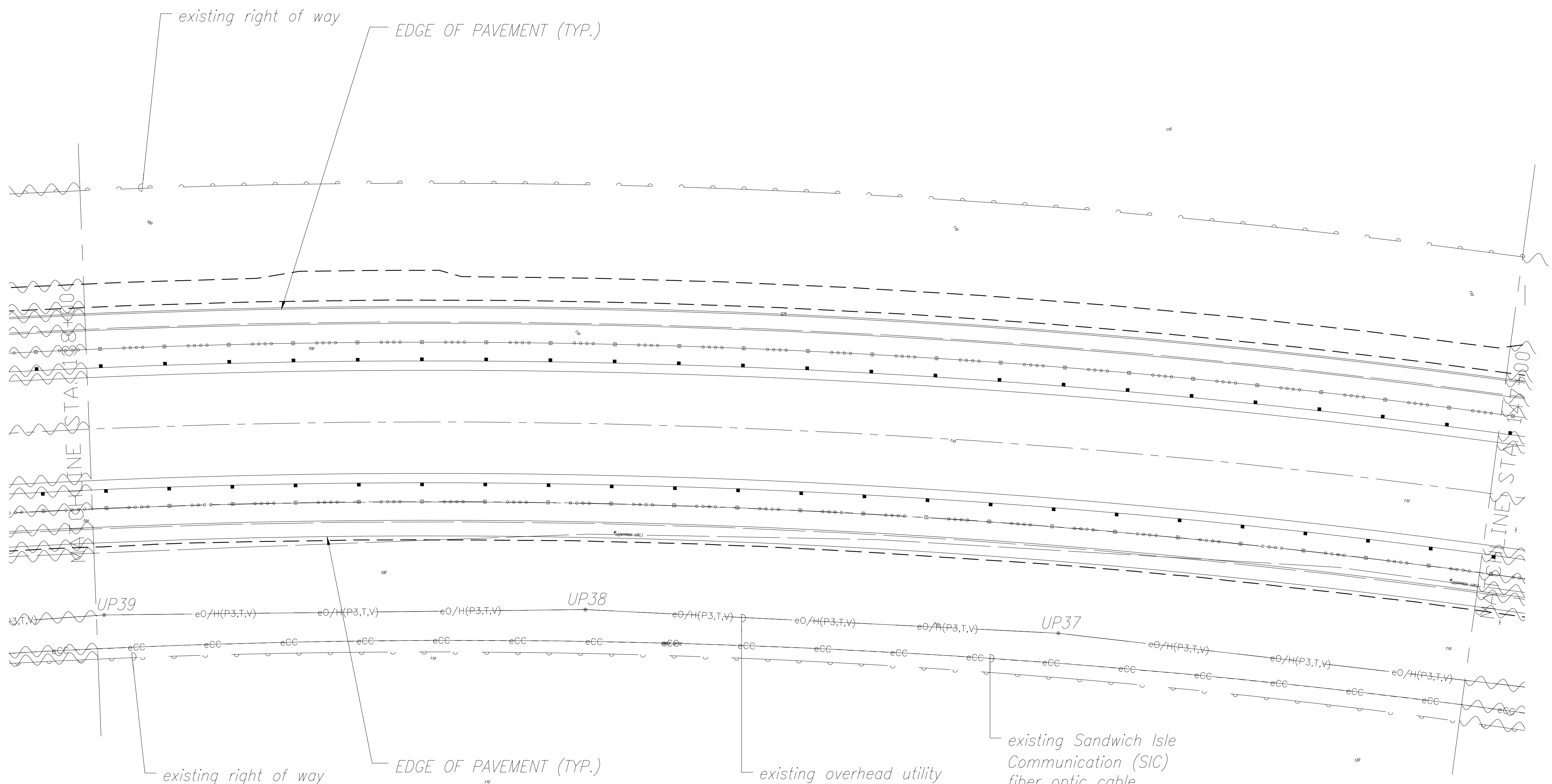
QUEEN KAAHUMANU HIGHWAY WIDENING  
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R  
Scale: AS NOTED Date: AUGUST 2016

SHEET No. 22 OF 40 SHEETS

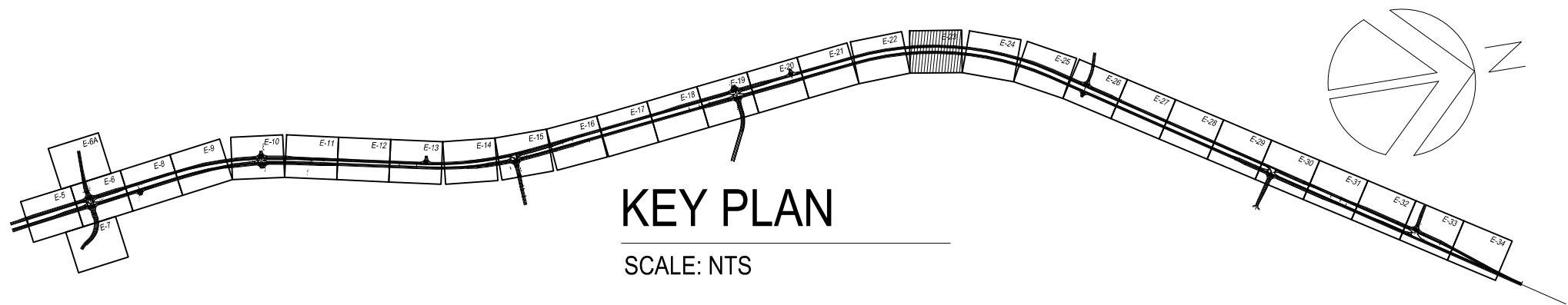


| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.             | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>476</del><br>463 | <del>528</del><br>522 |

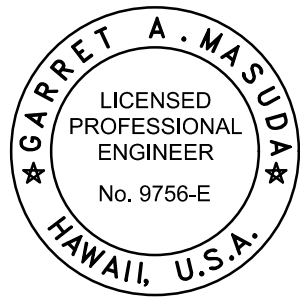


|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
| No.           | DESIGNED BY       |      |
|               | QUANTITIES BY     |      |
|               | CHECKED BY  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

1  
E-23  
ELECTRICAL PLAN STA. 138+00 TO STA. 147+00  
SCALE: 1" = 40'

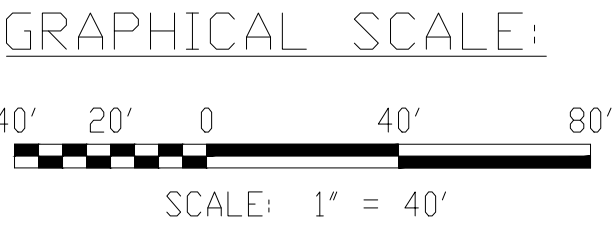


existing Sandwich Isle  
Communication (SIC)  
fiber optic cable  
(2) 4"  
(1) 1.25" subduct  
(5) 1.5" subduct  
encased in 3" concrete  
jacket at 36" below  
grade to top of jacket



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
Signature: *Garrett A. Masuda* APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

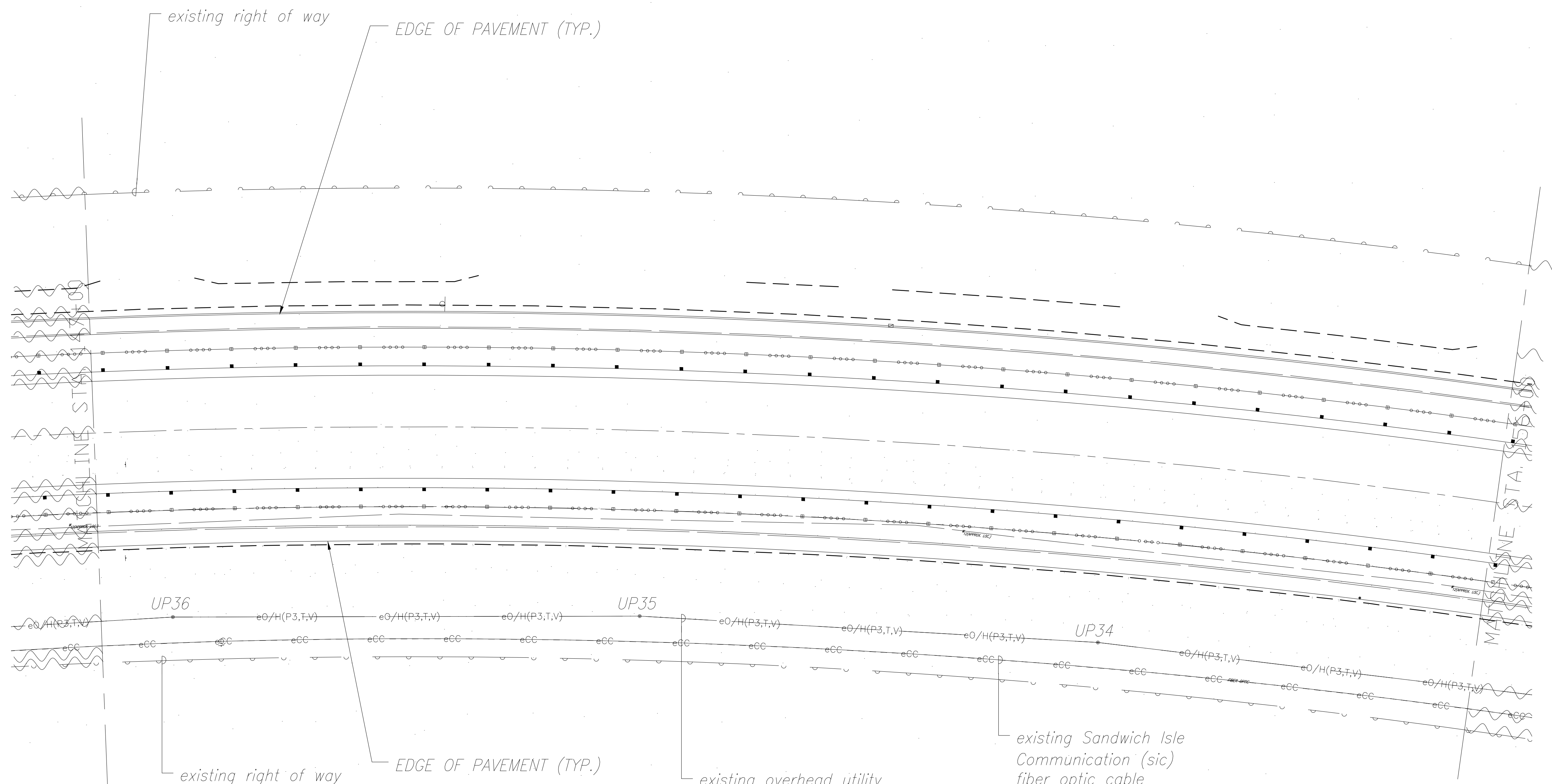
| LEGEND FOR AS-BUILT POSTINGS |                                     |
|------------------------------|-------------------------------------|
|                              | Squiggly line for as-built deletion |
|                              | Double line for as-built deletion   |
| Roadway       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



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
ELECTRICAL PLAN  
STA. 138+00 TO STA. 147+00  
QUEEN KAAHUMANU HIGHWAY WIDENING  
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)  
Federal Aid Project No. NH-019-1(38)R  
Scale: AS NOTED Date: AUGUST 2016



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.             | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>477</del><br>464 | <del>528</del><br>528 |

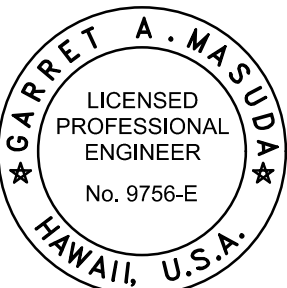
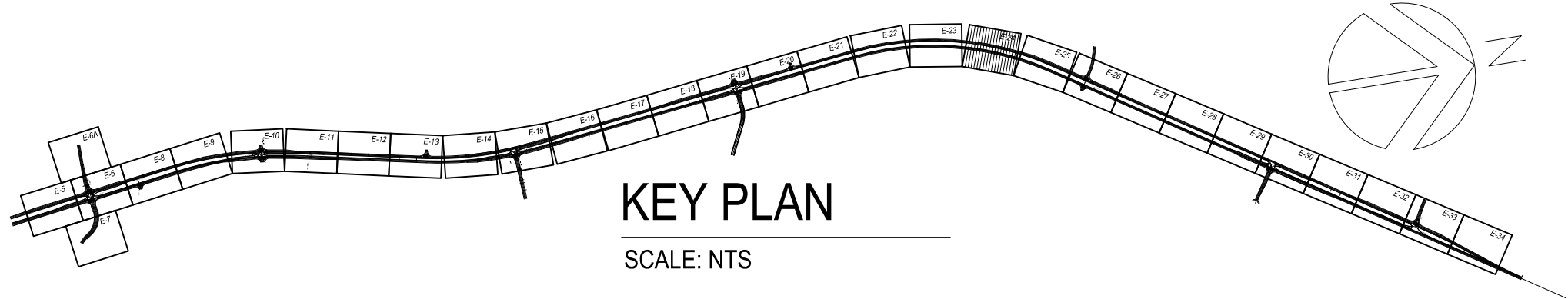


|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
| No.           | DESIGNED BY       |      |
|               | QUANTITIES BY     |      |
|               | CHECKED BY  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

1  
E-24

ELECTRICAL PLAN STA. 147+00 TO STA. 156+00

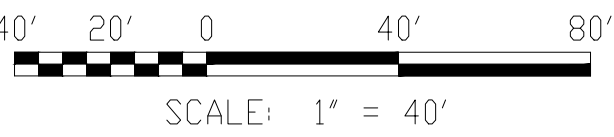
SCALE: 1" = 40'



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
*Garrett A. Masuda* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE  
OF THE LICENSE

| LEGEND FOR<br>AS-BUILT POSTINGS |                                        |
|---------------------------------|----------------------------------------|
|                                 | Squiggly line for<br>as-built deletion |
|                                 | Double line for<br>as-built deletion   |
| Roadway                         | Text for as-built<br>posting           |

GRAPHICAL SCALE:



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
  
ELECTRICAL PLAN  
STA. 147+00 TO STA. 156+00  
QUEEN KAAHUMANU HIGHWAY WIDENING  
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)  
Federal Aid Project No. NH-019-1(38)R  
Scale: AS NOTED Date: AUGUST 2016

SHEET No. 24 OF 40 SHEETS

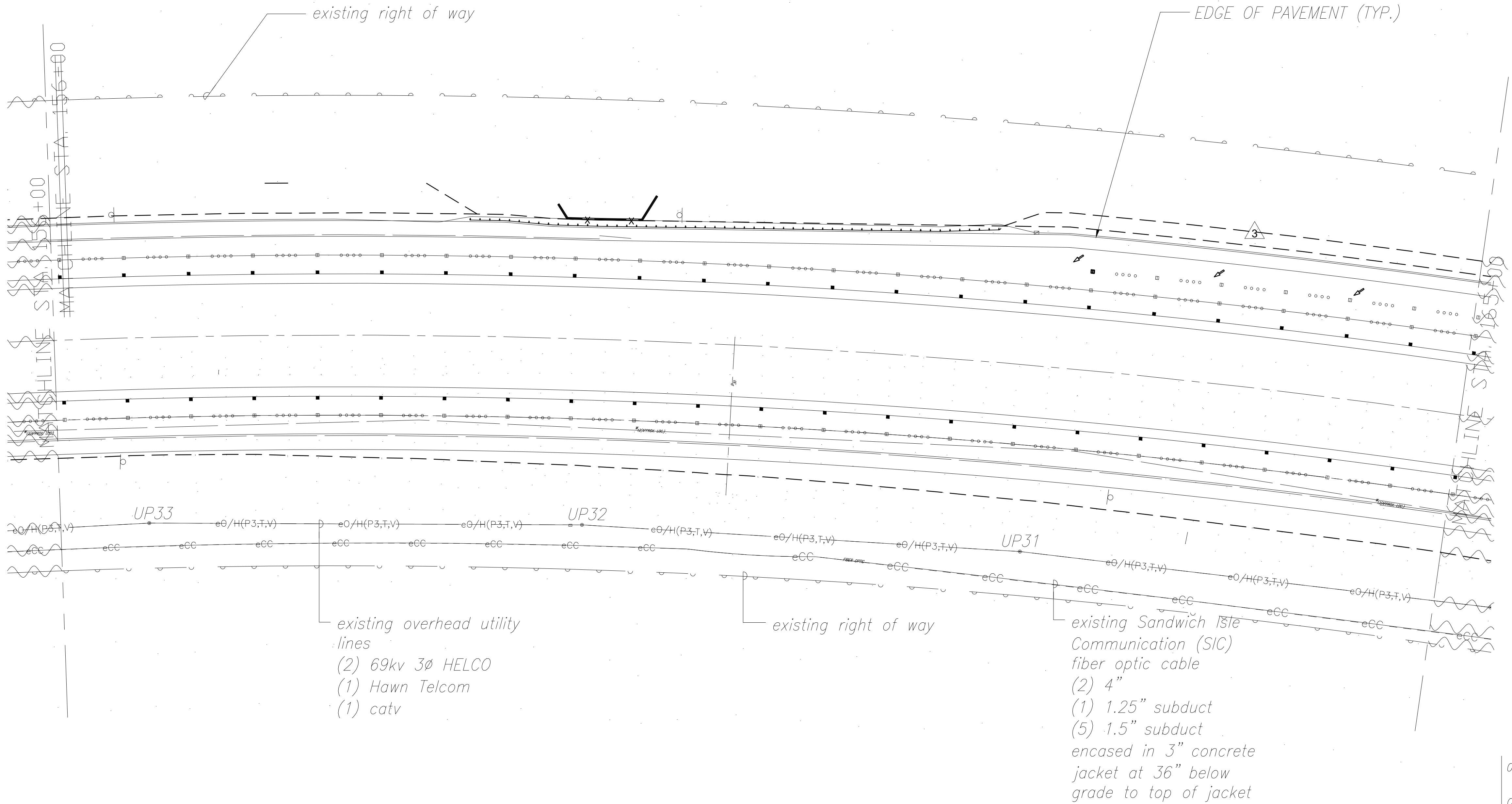
"AS-BUILT"

08/01/2016

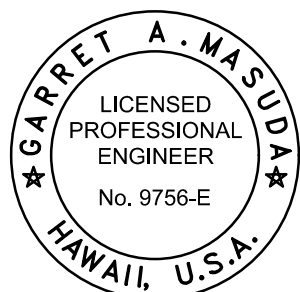
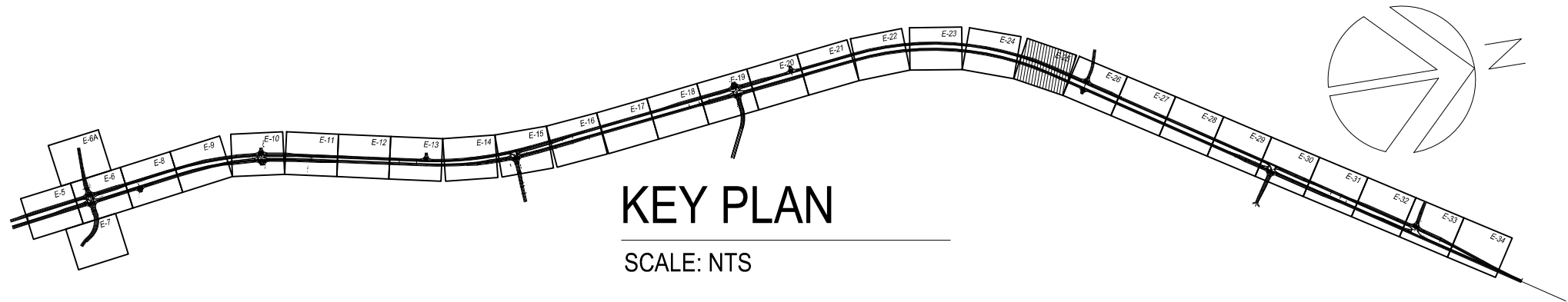
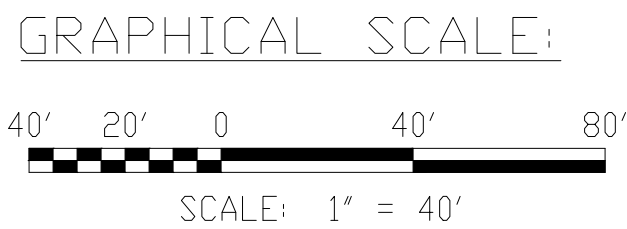
~~464~~ 477



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.                  | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | C.O. 478<br><del>465</del> | 528<br><del>528</del> |



1 ELECTRICAL PLAN STA. 156+00 TO STA. 165+00  
E-25 SCALE: 1" = 40'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.  
Signature: *David A. M...* APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

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

|          |   |                                                                                |
|----------|---|--------------------------------------------------------------------------------|
| 06/27/16 | 3 | DELETED STREET LIGHTS NORTH OF HONOKOHAU STREET                                |
| 04/14/16 | 2 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

| DATE                                                                             | REVISION          |
|----------------------------------------------------------------------------------|-------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |                   |
| ELECTRICAL PLAN<br>STA. 156+00 TO STA. 165+00                                    |                   |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) |                   |
| Federal Aid Project No. NH-019-1(38)R                                            |                   |
| Scale: AS NOTED                                                                  | Date: AUGUST 2016 |

SHEET No. 25 OF 40 SHEETS

"AS-BUILT"

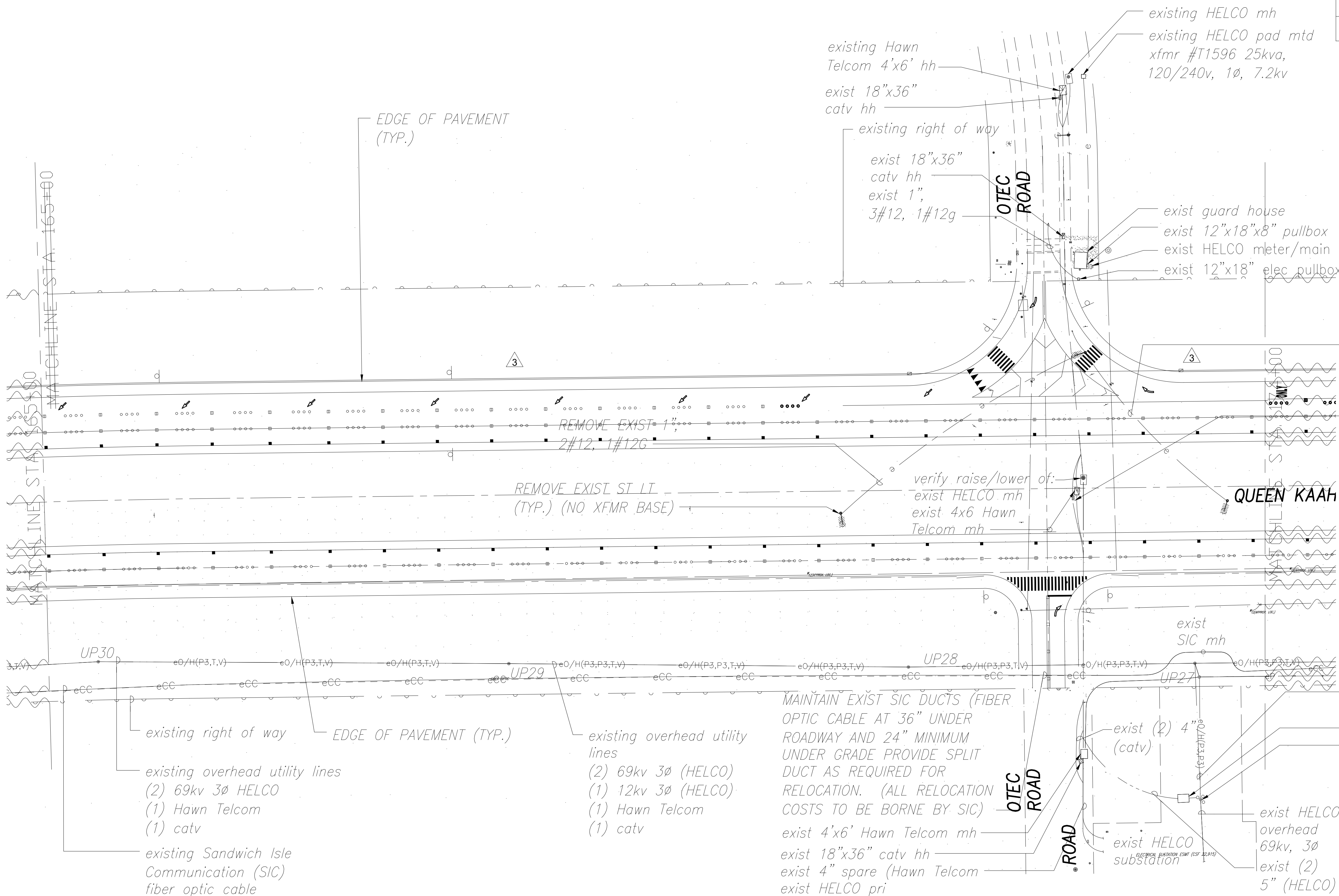
08/01/2016

C.O. 465 478

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



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.                  | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>466</del><br>C.O. 479 | <del>527</del><br>528 |



REMOVE EXIST 1",  
2#12, 1#12G

PROVIDE NEW 3'x5' INTERCEPT HH OVER  
EXIST 18"x36" CATV HH. BREAKAWAY  
AND REMOVE EXIST 18"x36" HH. CUT  
EXIST DUCTS FLUSH TO NEW HH WALL.  
PROVIDE TRAFFIC RATED STEEL 28"DIA.  
COVER W/TV ENGRAVED

exist HELCO overhead  
69kv, 3Ø 12kva 3Ø

exist HELCO mh  
HELCO pole w/riser  
(1) 5", 3#500  
(1) 5", spare

06/27/16 **3** DELETED STREET LIGHTS NORTH OF  
HONOKOHAU STREET

04/14/16 **2** ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING  
LEVEL REQUIREMENTS FOR HIB LUMINAIRE

01/22/16 **1** ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING  
LEVEL REQUIREMENTS FOR KS LUMINAIRE

| DATE                                                                                     | REVISION          |
|------------------------------------------------------------------------------------------|-------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION                     |                   |
| <u>ELECTRICAL PLAN</u><br>STA. 165+00 TO STA. 174+00                                     |                   |
| <u>QUEEN KAAHUMANU HIGHWAY WIDENING</u><br>Kealakehe Pkwy. To Keahole Airport Rd.(Ph. 2) |                   |
| Federal Aid Project No. NH-019-1(38)R                                                    |                   |
| Scale: AS NOTED                                                                          | Date: AUGUST 2016 |

|                  |                   |      |
|------------------|-------------------|------|
| ORIGINAL<br>PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK        | DRAWN BY          |      |
| No.              | DESIGNED BY       |      |
|                  | CHECKED BY        |      |

1  
E-26

ELECTRICAL PLAN STA. 165+00 TO STA. 174+00 (OTEC RD)

SCALE: 1" = 40'

GRAPHICAL SCALE:

40' 20' 0 40' 80'

SCALE: 1" = 40'

KEY PLAN

SCALE: NTS

GARRET A. NASUDA  
LICENSED PROFESSIONAL ENGINEER  
No. 9756-E  
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
Signature: *Garret A. Nasuda*  
APRIL 30, 2018  
EXPIRATION DATE OF THE LICENSE

LEGEND FOR  
AS-BUILT POSTINGS

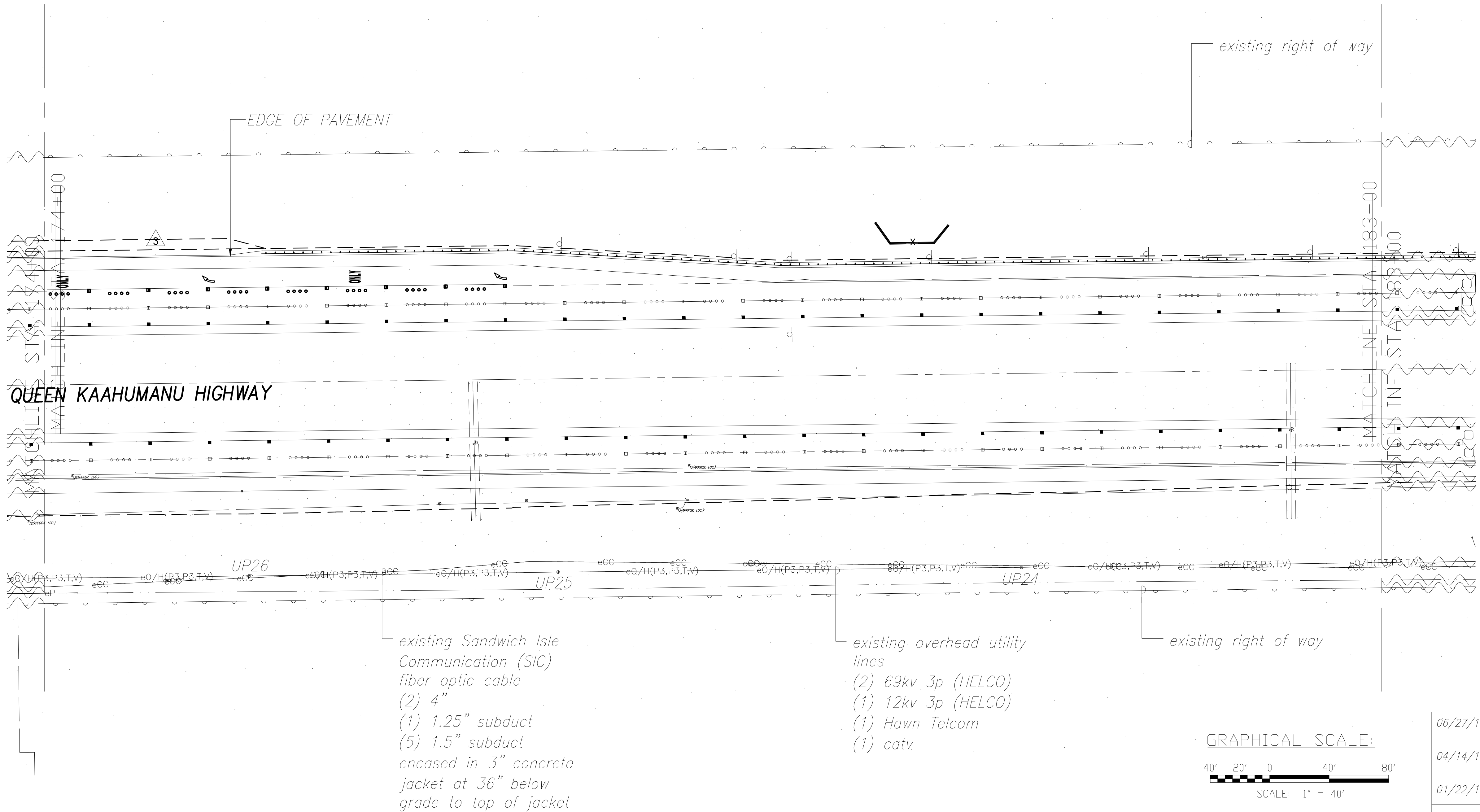
Squiggly line for  
as-built deletion

Double line for  
as-built deletion

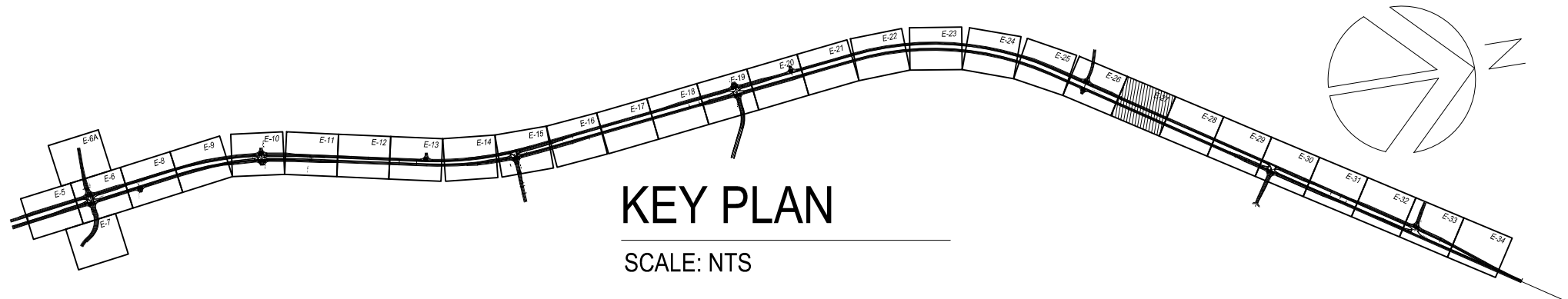
Roadway Text for as-built  
posting



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.                  | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>467</del><br>C.O. 480 | <del>527</del><br>528 |



1  
E-27  
ELECTRICAL PLAN STA. 174+00 TO STA. 183+00  
SCALE: 1" = 40'



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
*David A. M...* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE  
OF THE LICENSE

| LEGEND FOR<br>AS-BUILT POSTINGS |                                        |
|---------------------------------|----------------------------------------|
|                                 | Squiggly line for<br>as-built deletion |
|                                 | Double line for<br>as-built deletion   |
| Roadway                         | Text for as-built<br>posting           |

|          |   |                                                                                   |
|----------|---|-----------------------------------------------------------------------------------|
| 06/27/16 | 3 | DELETED STREET LIGHTS NORTH OF<br>HONOKOHAU STREET                                |
| 04/14/16 | 2 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING<br>LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING<br>LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

| DATE                                                                             | REVISION          |
|----------------------------------------------------------------------------------|-------------------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |                   |
| ELECTRICAL PLAN<br>STA. 174+00 TO STA. 183+00                                    |                   |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) |                   |
| Federal Aid Project No. NH-019-1(38)R                                            |                   |
| Scale: AS NOTED                                                                  | Date: AUGUST 2016 |

SHEET No. 27 OF 40 SHEETS

"AS-BUILT"

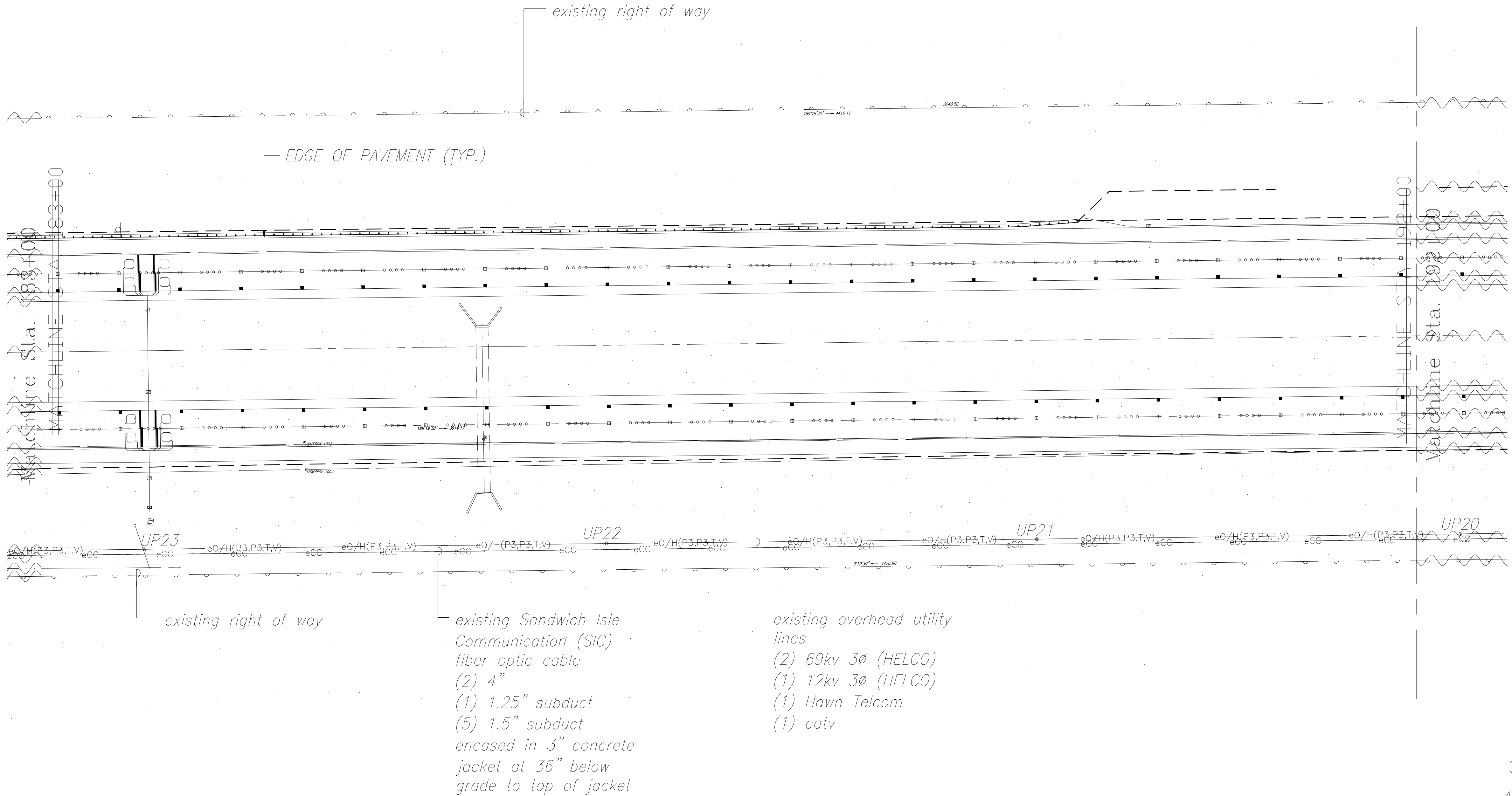
08/01/2016

C.O. ~~467~~ 480

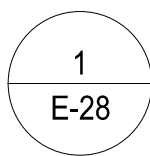
|                  |                   |      |
|------------------|-------------------|------|
| ORIGINAL<br>PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK        | DRAWN BY          |      |
| No.              | DESIGNED BY       |      |
|                  | QUANTITIES BY     |      |
|                  | CHECKED BY        |      |



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.             | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>468</del><br>481 | <del>522</del><br>528 |

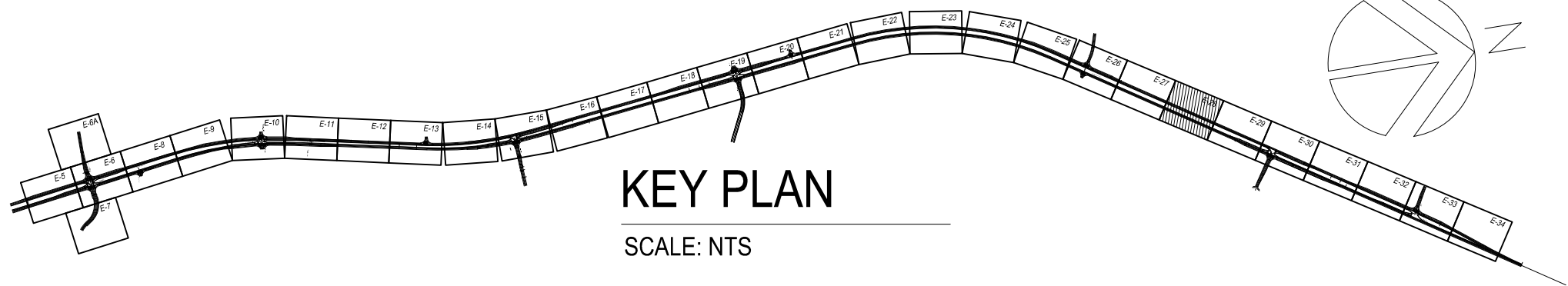


|               |                   |      |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK     | DRAWN BY          |      |
| No.           | DESIGNED BY       |      |
|               | QUANTITIES BY     |      |
|               | CHECKED BY  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

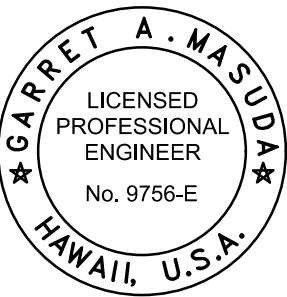
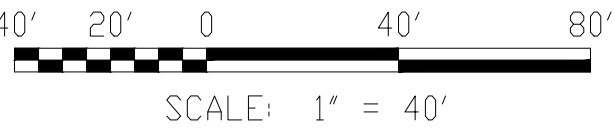


**ELECTRICAL PLAN STA. 183+00 TO STA. 192+00**

SCALE: 1" = 40'



**GRAPHICAL SCALE:**



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
*David A. M...* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE  
OF THE LICENSE

| LEGEND FOR<br>AS-BUILT POSTINGS |                                        |
|---------------------------------|----------------------------------------|
|                                 | Squiggly line for<br>as-built deletion |
|                                 | Double line for<br>as-built deletion   |
| Roadway                         | Text for as-built<br>posting           |

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

ELECTRICAL PLAN  
STA. 183+00 TO STA. 192+00

QUEEN KAAHUMANU HIGHWAY WIDENING  
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R  
Scale: AS NOTED Date: AUGUST 2016

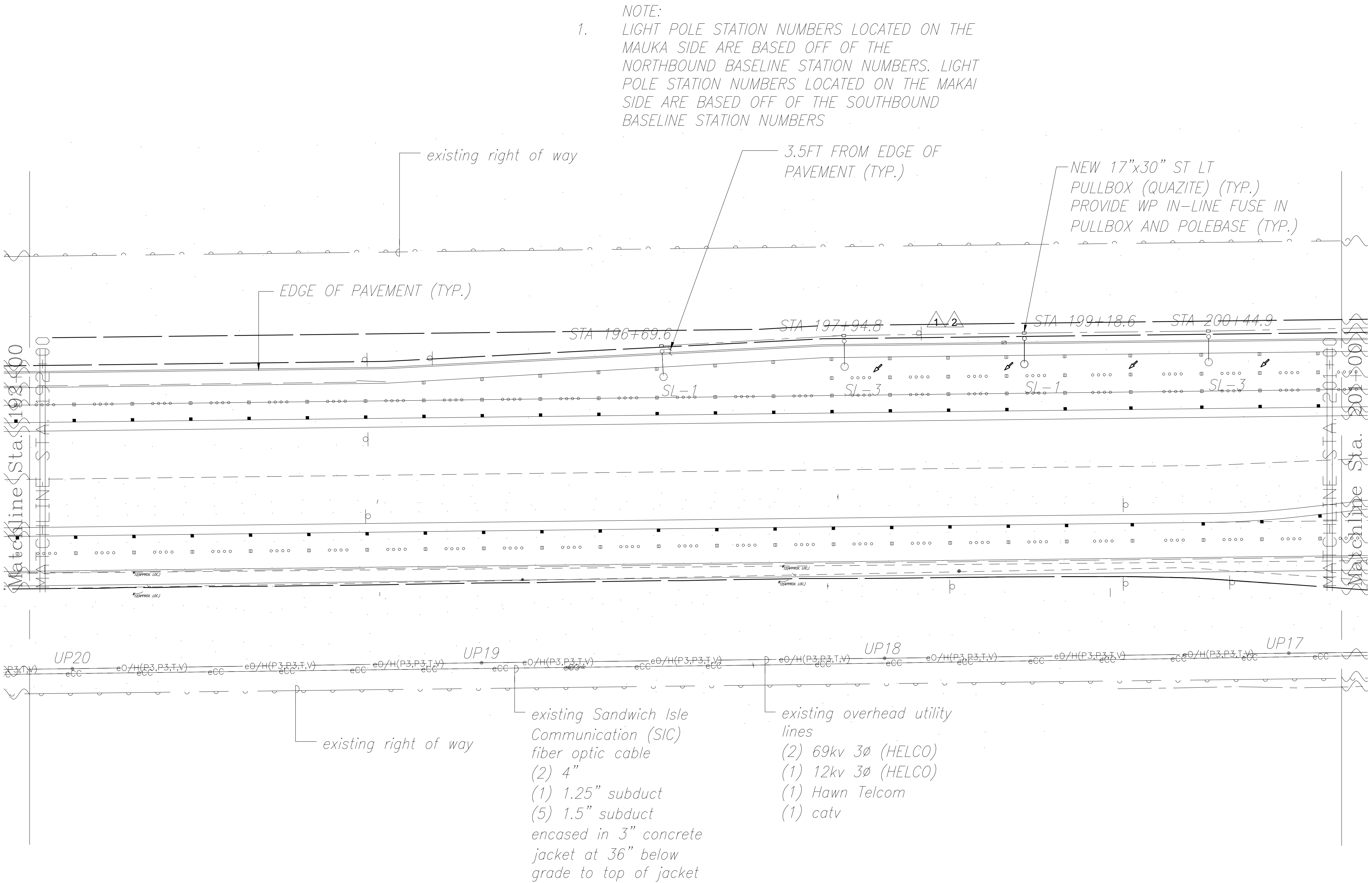
SHEET No. 28 OF 40 SHEETS

"AS-BUILT"

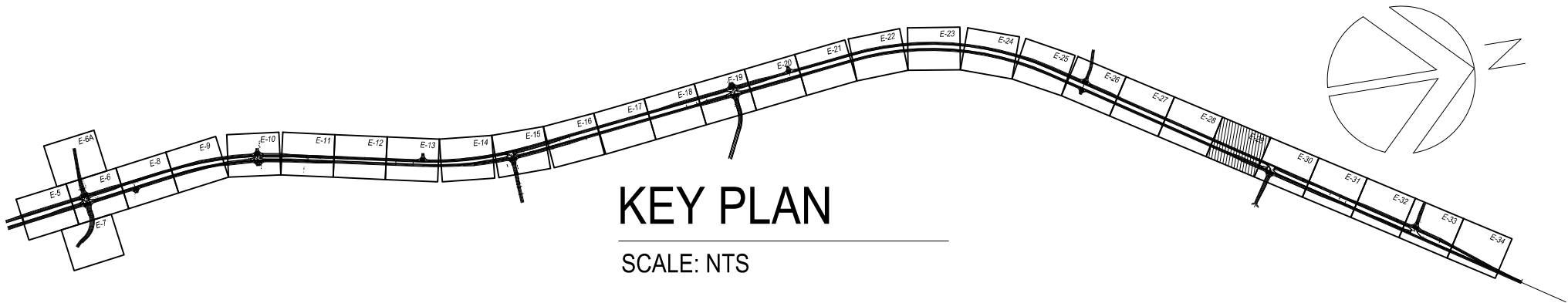
08/01/2016



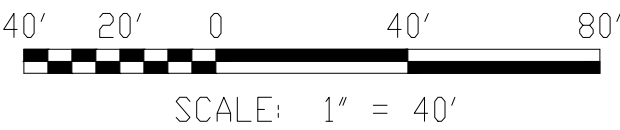
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO.                  | TOTAL SHEETS          |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | <del>469</del><br>C.O. 482 | <del>527</del><br>528 |



1  
E-29  
ELECTRICAL PLAN STA. 192+00 TO STA. 201+00  
SCALE: 1" = 40'



GRAPHICAL SCALE:



LEGEND FOR  
AS-BUILT POSTINGS

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



THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION AND  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
*David A. M...* APRIL 30, 2018  
SIGNATURE EXPIRATION DATE  
OF THE LICENSE

|          |   |                                                                                |
|----------|---|--------------------------------------------------------------------------------|
| 04/14/16 | 2 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

| DATE                                                                                           | REVISION |
|------------------------------------------------------------------------------------------------|----------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION                           |          |
| <u>ELECTRICAL PLAN</u><br><u>STA. 192+00 TO STA. 201+00</u>                                    |          |
| <u>QUEEN KAAHUMANU HIGHWAY WIDENING</u><br><u>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)</u> |          |
| <u>Federal Aid Project No. NH-019-1(38)R</u><br>Scale: AS NOTED Date: AUGUST 2016              |          |

SHEET No. 29 OF 40 SHEETS

"AS-BUILT"

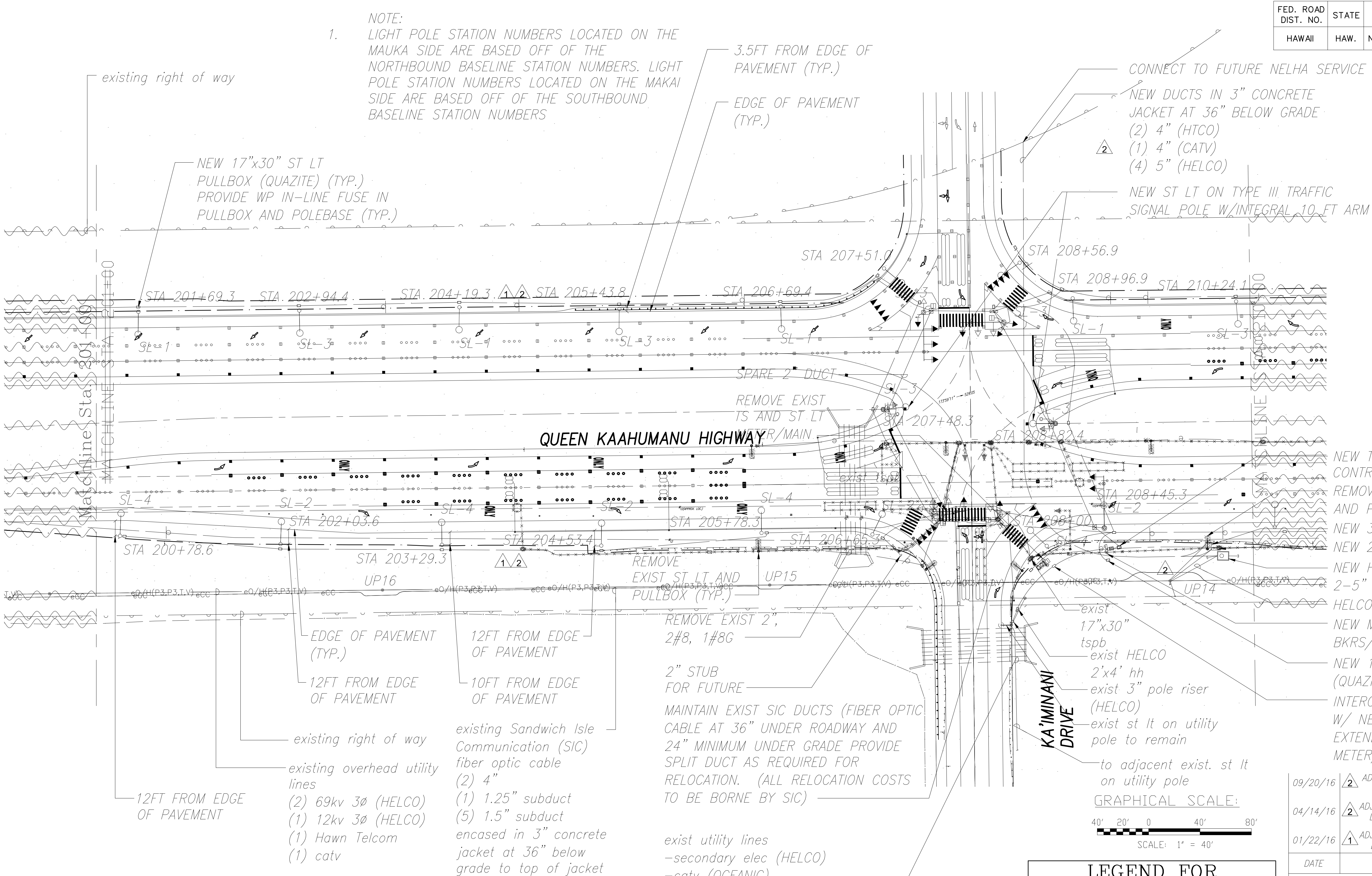
08/01/2016

C.O. 469-482

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



| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAW.  | NH-019-1(38)R      | 2016        | 470       | 528          |

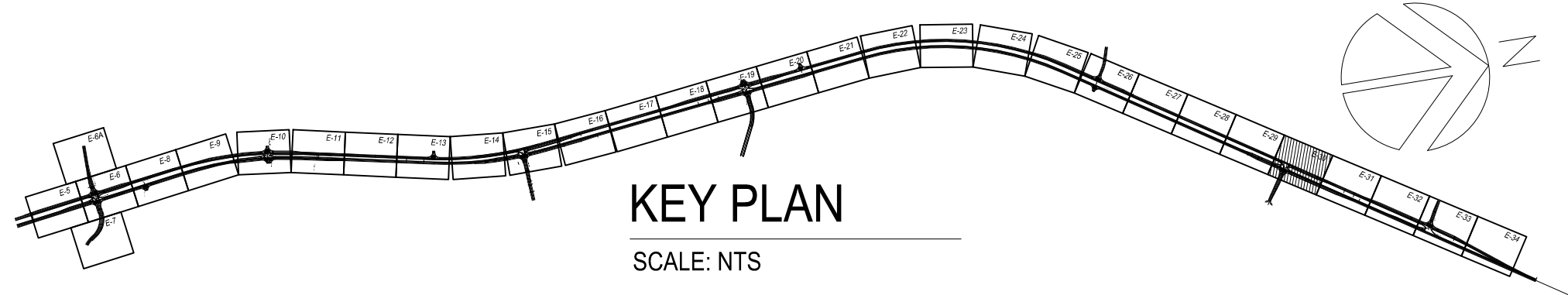


- NEW TRAFFIC SIGNAL CONTROLLER & UPS
- REMOVE EXIST ST LT AND PULLBOX (TYP.)
- NEW 3'x5' HTCO HH
- NEW 2'x6' HH FOR CATV (OTWC)
- NEW HELCO 6'x11' MH WITH 2-5" STUBS
- HELCO POLE RISER (2) 5"C
- NEW METER/MAIN BKRS/LOADCENTER AND PULLBOX
- NEW 17"x30" ST LT PULLBOX (QUAZITE) (TYP.)
- INTERCEPT EXIST HELCO SERVICE W/ NEW 2'x4' HELCO HANDHOLE, EXTEND 3" TO NEW PULLBOX METER/MAIN BKRS/LOADCENTER

|          |   |                                                                                |
|----------|---|--------------------------------------------------------------------------------|
| 09/20/16 | 2 | ADJUSTED NUMBER OF DUCTS AND SWITCHED HTCO AND OTWC HH LOCATIONS               |
| 04/14/16 | 2 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE  |

| DATE                                                                             | REVISION |
|----------------------------------------------------------------------------------|----------|
| STATE OF HAWAII<br>DEPARTMENT OF TRANSPORTATION<br>HIGHWAYS DIVISION             |          |
| ELECTRICAL PLAN<br>STA. 201+00 TO STA. 210+00                                    |          |
| QUEEN KAAHUMANU HIGHWAY WIDENING<br>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) |          |
| Federal Aid Project No. NH-019-1(38)R<br>Scale: AS NOTED Date: AUGUST 2016       |          |

1  
E-30  
ELECTRICAL PLAN STA. 201+00 TO STA. 210+00 (KAIMINANI DRIVE)  
SCALE: 1" = 40'

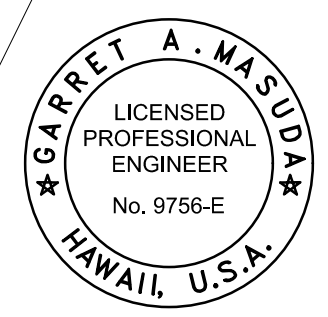


**LEGEND FOR AS-BUILT POSTINGS**

~~~~~ Squiggly line for as-built deletion

==== Double line for as-built deletion

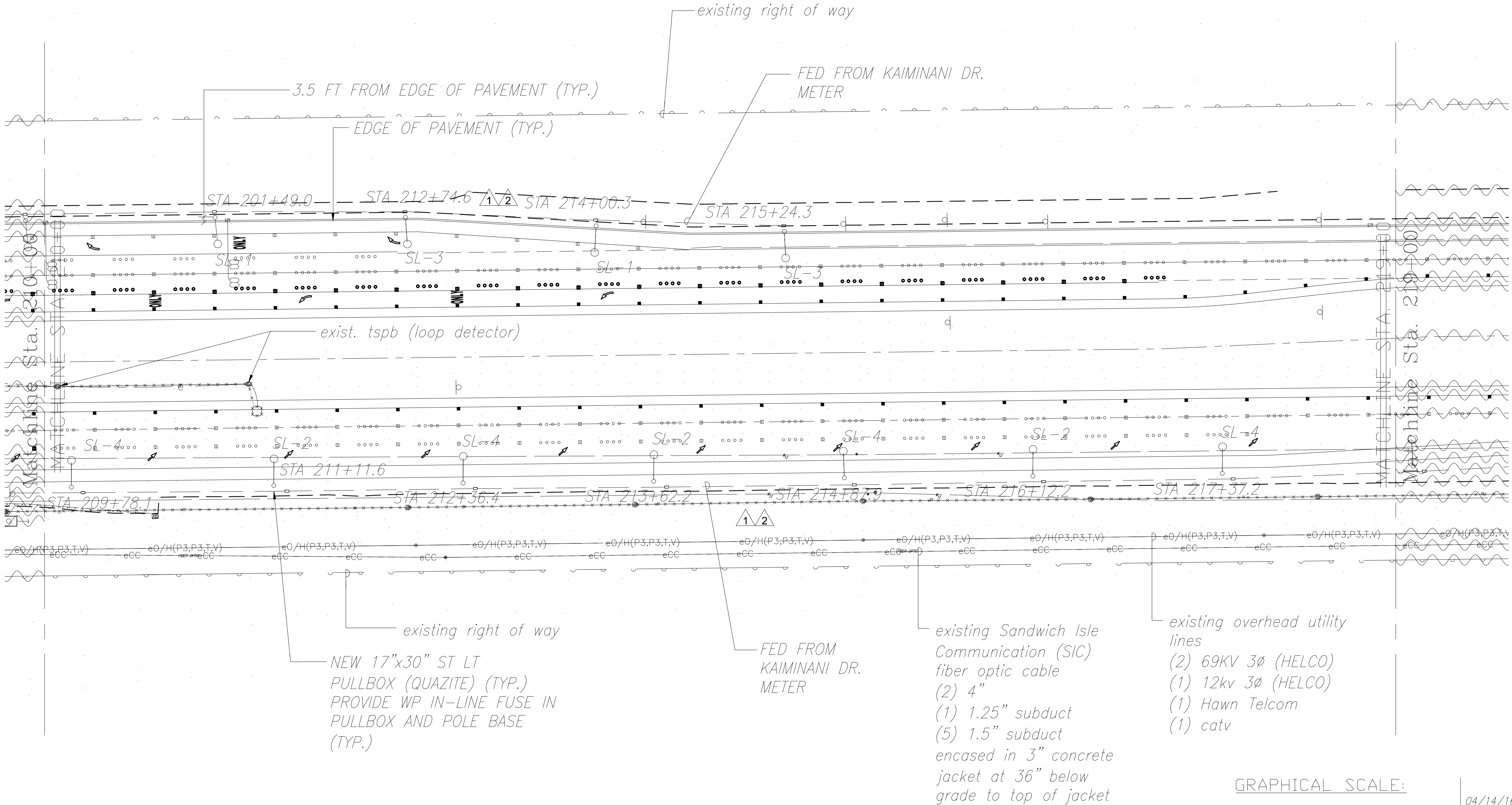
Roadway Text for as-built posting



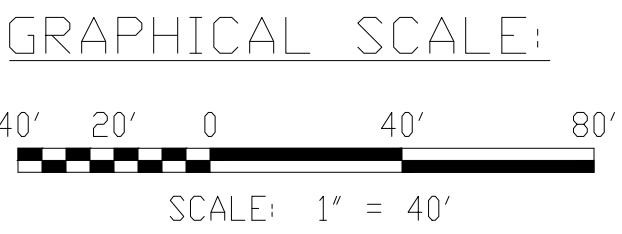
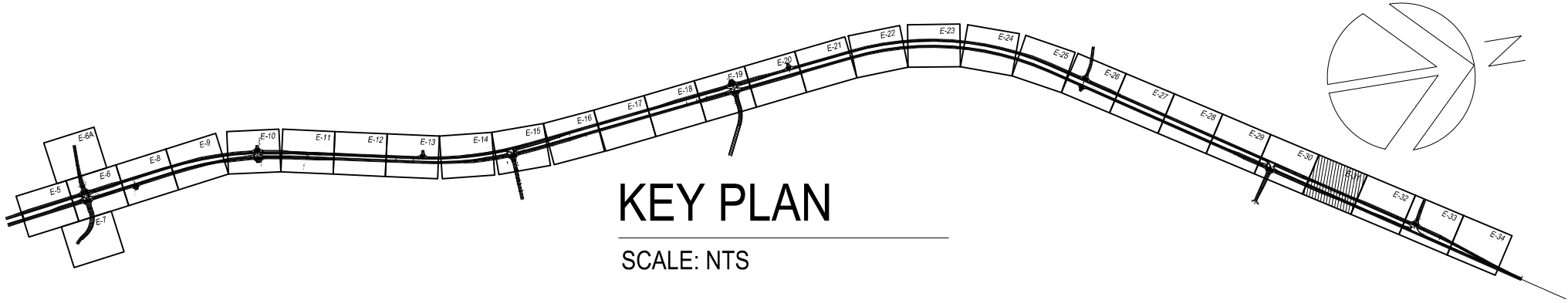
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Signature: Daniel A. M... APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII | HAW. | NH-019-1(38)R | 2016 | 477
C.O. 484 | 527
528 |

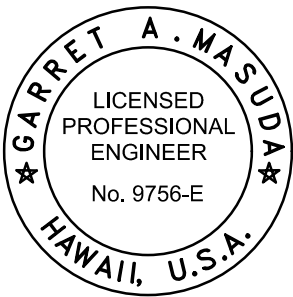
- NOTE:
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS



1
E-31
PHOTOMETRIC CALC STA. 210+00 TO STA. 219+00 (KAIMINANI DR)
SCALE: 1" = 40'



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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Signature: *David A. Masuda* APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

| | |
|----------|--|
| 04/14/16 | 2 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | 1 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE |

| DATE | REVISION |
|--|----------|
| STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION | |
| ELECTRICAL PLAN
STA. 210+00 TO STA. 219+00 | |
| QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) | |
| Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: AUGUST 2016 | |

SHEET No. 31 OF 40 SHEETS

"AS-BUILT"

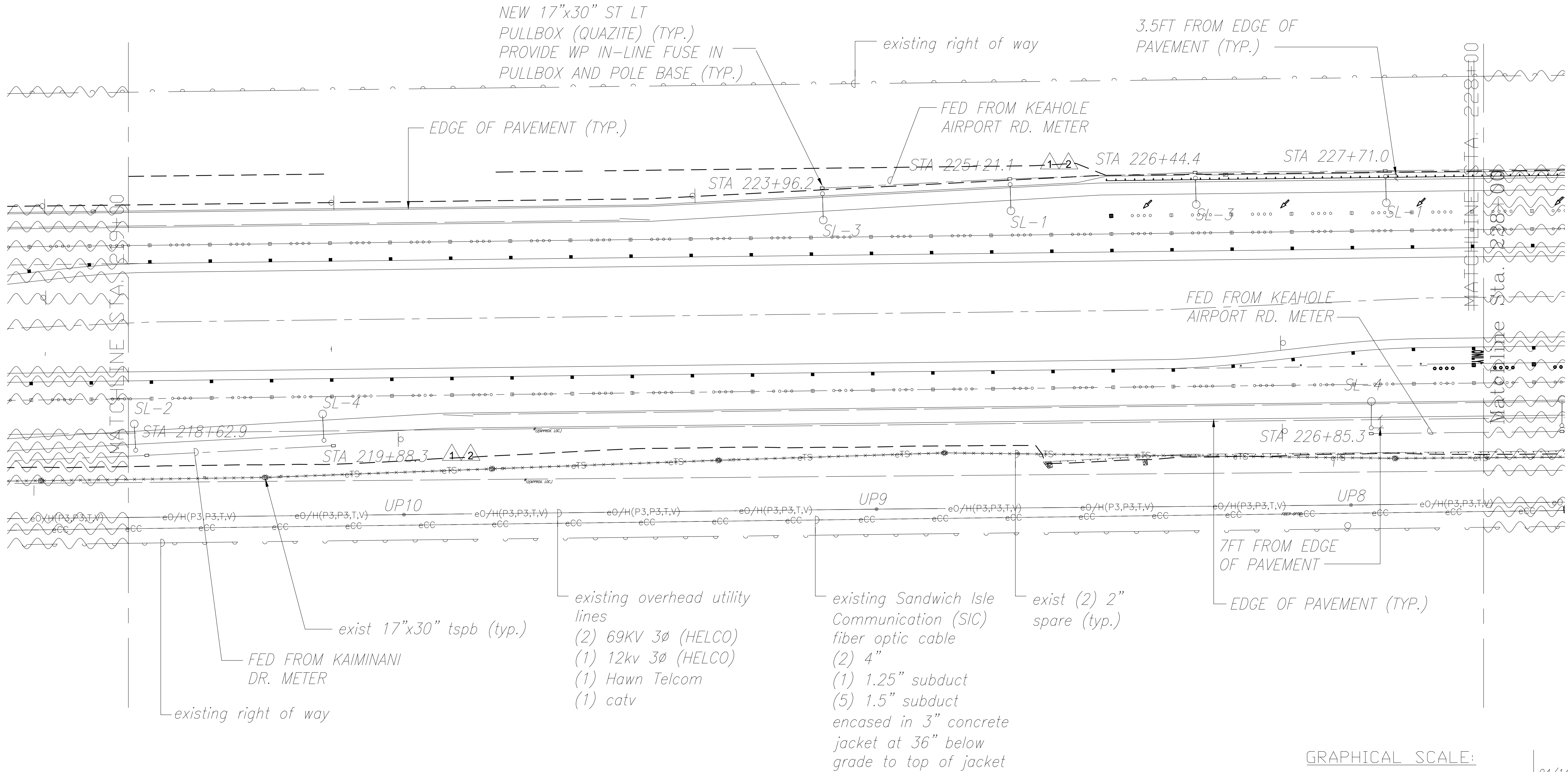
08/01/2016

C.O. ~~471~~ 484

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

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII | HAW. | NH-019-1(38)R | 2016 | 477
C.O. 485 | 527
528 |

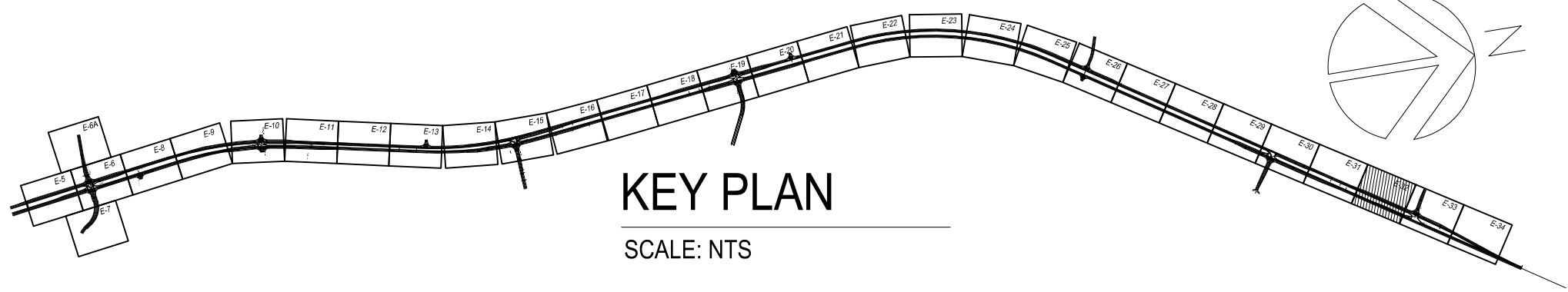
NOTE:
1. LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS



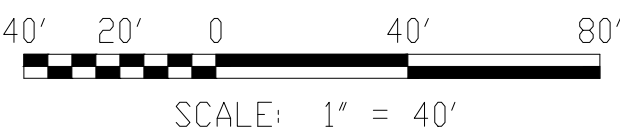
1
E-32

ELECTRICAL PLAN STA. 219+00 TO STA. 228+00

SCALE: 1" = 40'

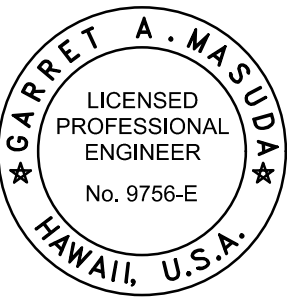


GRAPHICAL SCALE:



LEGEND FOR AS-BUILT POSTINGS

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



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
David A. M...
SIGNATURE APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

| | |
|----------|--|
| 04/14/16 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
| 01/22/16 | ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE |

| DATE | REVISION |
|--|----------|
| STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION | |
| <u>ELECTRICAL PLAN</u>
<u>STA. 219+00 TO STA. 228+00</u> | |
| <u>QUEEN KAAHUMANU HIGHWAY WIDENING</u>
<u>Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)</u> | |
| <u>Federal Aid Project No. NH-019-1(38)R</u>
Scale: AS NOTED Date: AUGUST 2016 | |

SHEET No. 32 OF 40 SHEETS

"AS-BUILT"

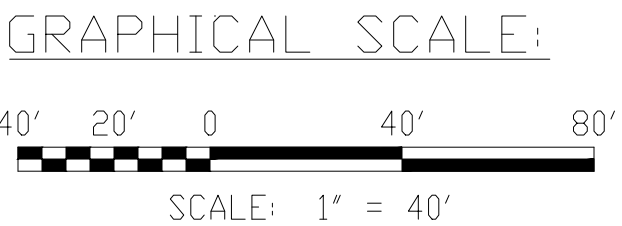
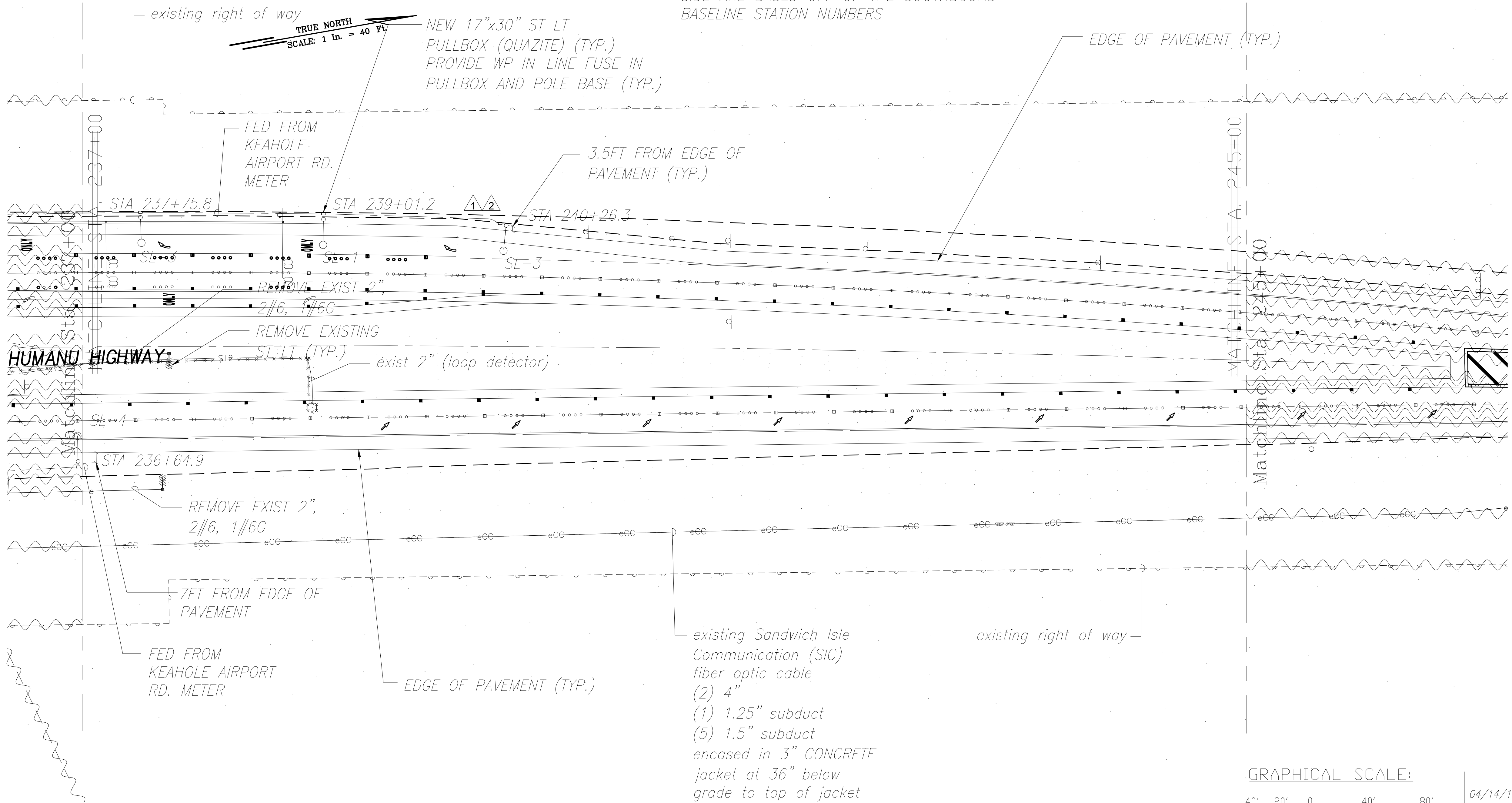
08/01/2016

C.O. 472-485

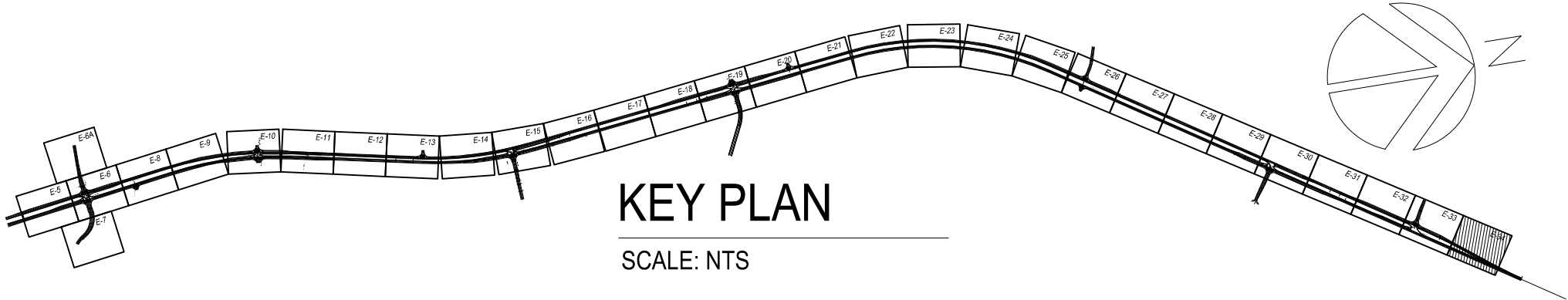
| | | |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK | DRAWN BY | |
| No. | DESIGNED BY | |
| | QUANTITIES BY | |
| | CHECKED BY | |

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|----------------------------|-----------------------|
| HAWAII | HAW. | NH-019-1(38)R | 2016 | 474
C.O. 487 | 527
528 |

- NOTE:
- LIGHT POLE STATION NUMBERS LOCATED ON THE MAUKA SIDE ARE BASED OFF OF THE NORTHBOUND BASELINE STATION NUMBERS. LIGHT POLE STATION NUMBERS LOCATED ON THE MAKAI SIDE ARE BASED OFF OF THE SOUTHBOUND BASELINE STATION NUMBERS



1 ELECTRICAL PLAN STA. 237+00 TO STA. 245+00
E-34 SCALE: 1" = 40'



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.
Garrett A. Masuda APRIL 30, 2018
SIGNATURE EXPIRATION DATE
OF THE LICENSE

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

| 04/14/16 | 2 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR HIB LUMINAIRE |
|--|--|
| 01/22/16 | 1 ADJUSTED LIGHT LOCATIONS TO MEET LIGHTING LEVEL REQUIREMENTS FOR KS LUMINAIRE |
| DATE | REVISION |
| STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION | |
| ELECTRICAL PLAN
STA. 237+00 TO STA. 245+00 | |
| QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) | |
| Federal Aid Project No. NH-019-1(38)R | |
| Scale: AS NOTED | Date: AUGUST 2016 |
| SHEET No. 34 OF 40 SHEETS | |

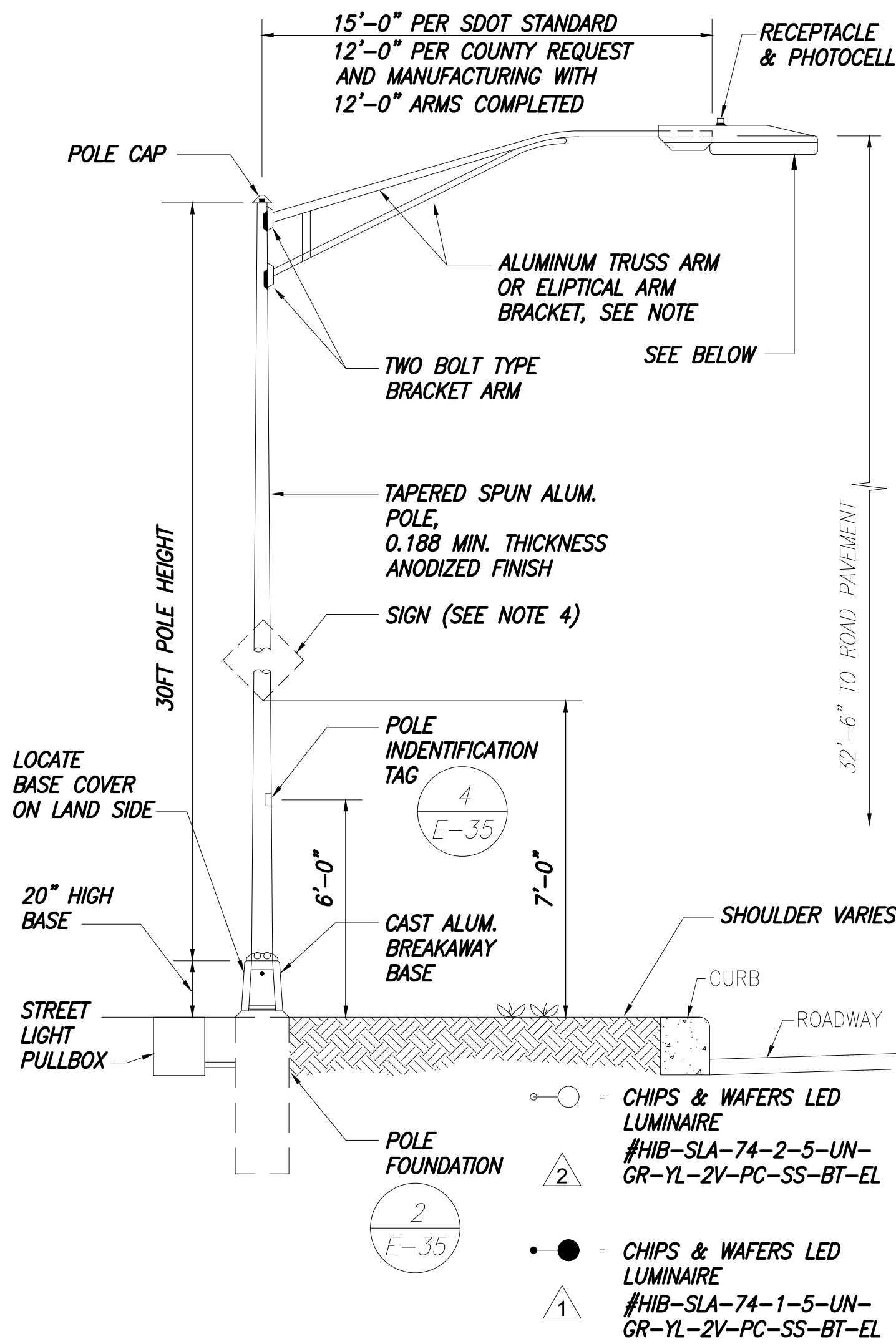
"AS-BUILT"

08/01/2016

C.O. ~~474~~ 487

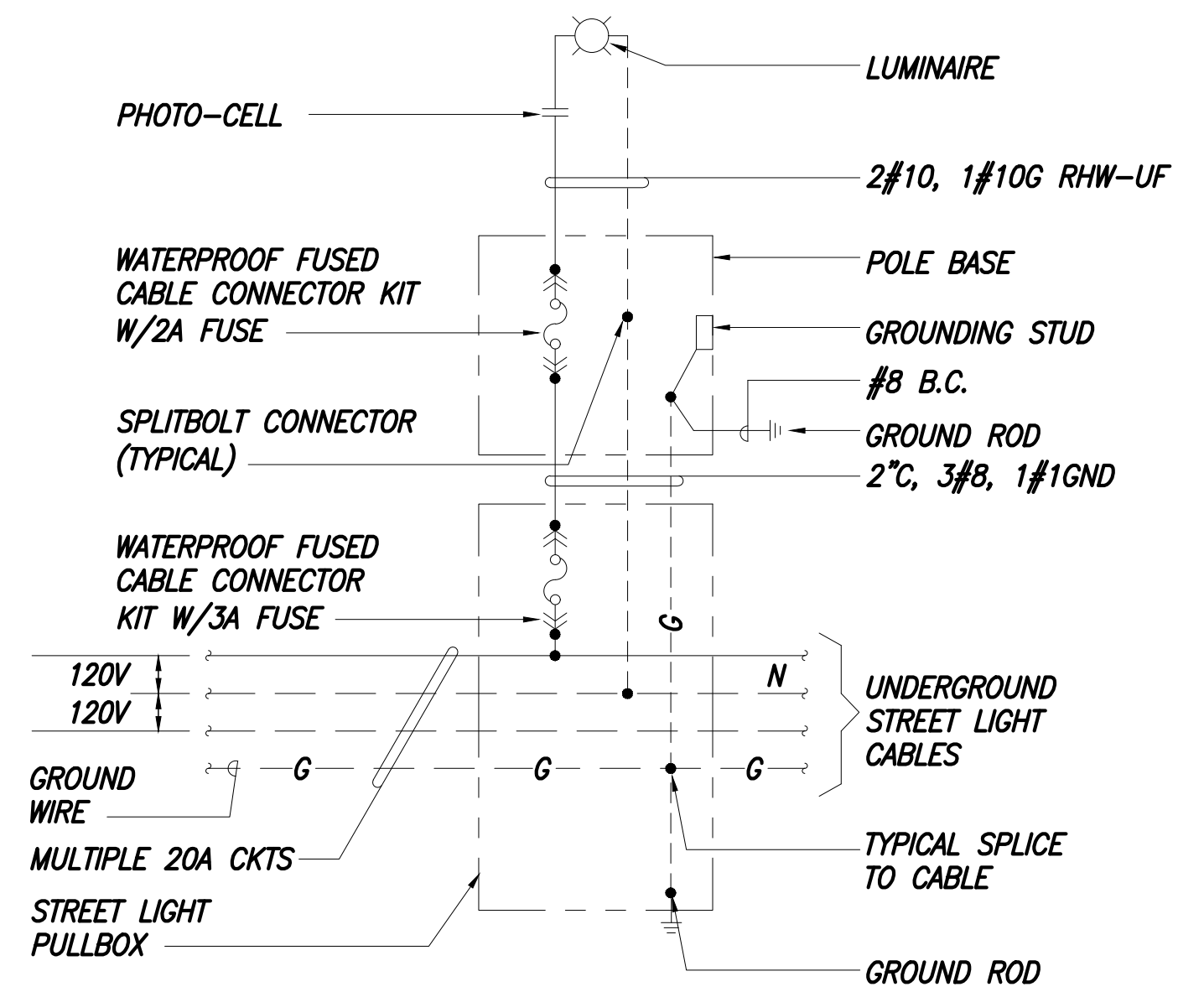
| | | |
|---------------|-------------------|------|
| ORIGINAL PLAN | SURVEY PLOTTED BY | DATE |
| NOTE BOOK | DRAWN BY | |
| No. | DESIGNED BY | |
| | QUANTITIES BY | |
| | CHECKED BY | |

| | | |
|---------------|---------------|------|
| ORIGINAL PLAN | DESIGNED BY | DATE |
| NOTE BOOK | TRACED BY | |
| No. | QUANTITIES BY | |
| | CHECKED BY | |



1
E-35
TYPICAL STREET LIGHT STANDARD

NOT TO SCALE



3
E-35
STREET LIGHT CONNECTION DIAGRAM

NOT TO SCALE

NOTES:

- DESIGN OF LIGHT STANDARD & FOUNDATION SHALL CONFORM TO LATEST AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", SUBSEQUENT INTERIMS, AND LATEST HDOT "DESIGN CRITERIA FOR BRIDGES AND STRUCTURES".
- REFER TO STATE STANDARD SPECIFICATIONS SECTION 511 FOR DRILLED SHAFT CONCRETE PROPERTIES.
- SEE B-01 FOR ADDITIONAL NOTES.
- SIZE OF TRAFFIC SIGN USED IN DESIGN OF HIGHWAY LIGHT STANDARD FOUNDATION IS 9 SF, LOCATED AT 10 FT. ABOVE FINISH GRADE.
- FOR FOUNDATIONS WHERE THE GROUND WATER TABLE IS AT GROUND LEVEL, MINIMUM ROUND SECTION LENGTHS ARE AS FOLLOWS
8'-6" FOR SAND AND GRAVEL
6'-6" FOR STIFF CLAY
2'-6" FOR ROCK

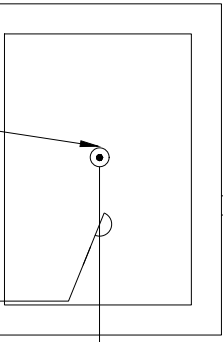
PROVIDE ADDITIONAL 3/4" ϕ x 10'-0" COPPERCLAD GROUND ROD TO OBTAIN 25 OHM. MAX GROUND. SPACE GROUND RODS 6FT APART WITH 8FT IN EARTH

STREET LIGHT
PULLBOX
& COVER

#8 BC GND

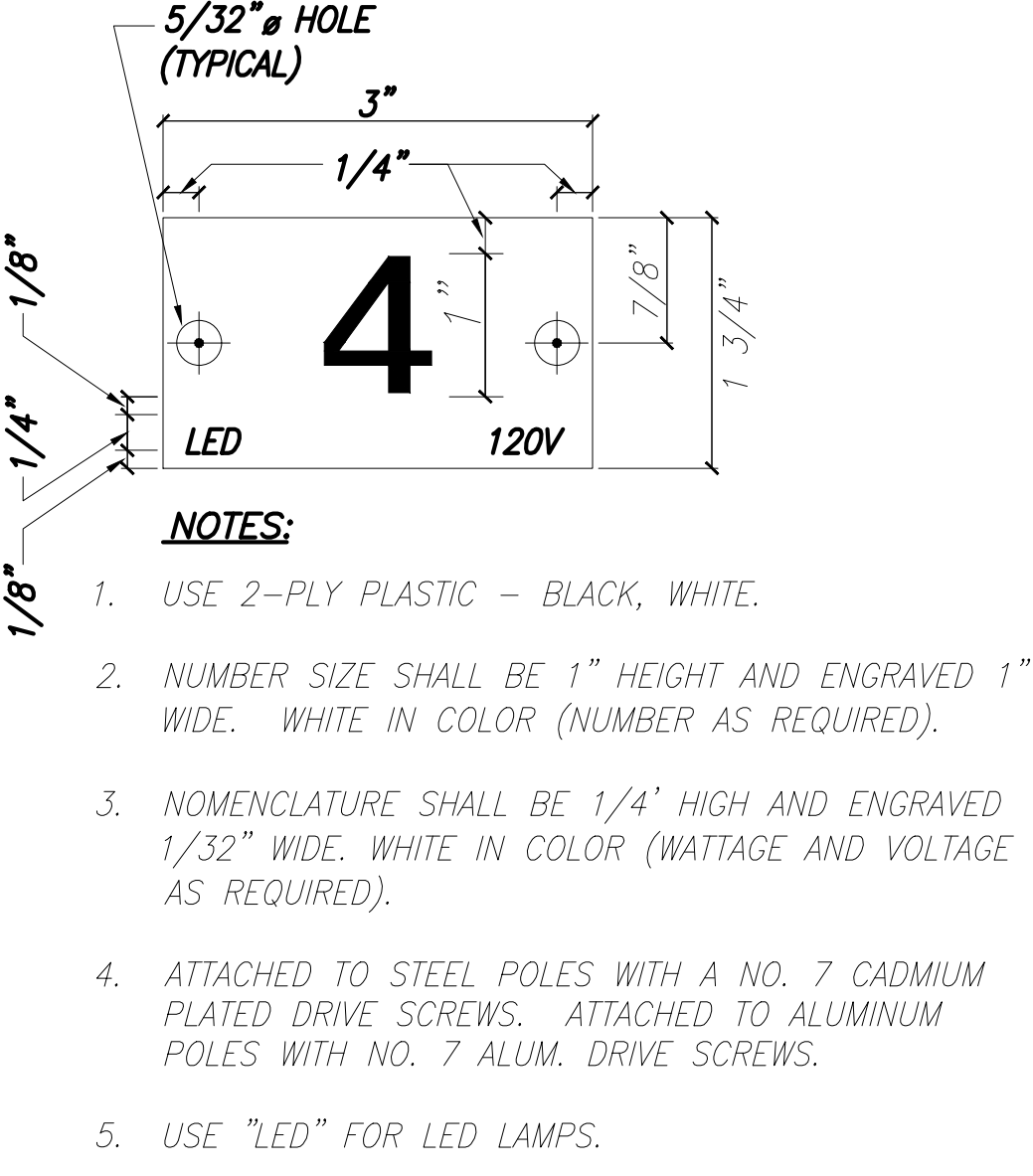
ADDITIONAL GROUND
AT 6FT APART

2" PVC, SCH. 80 CONDUIT,
2-#8, 1-#8 GND.



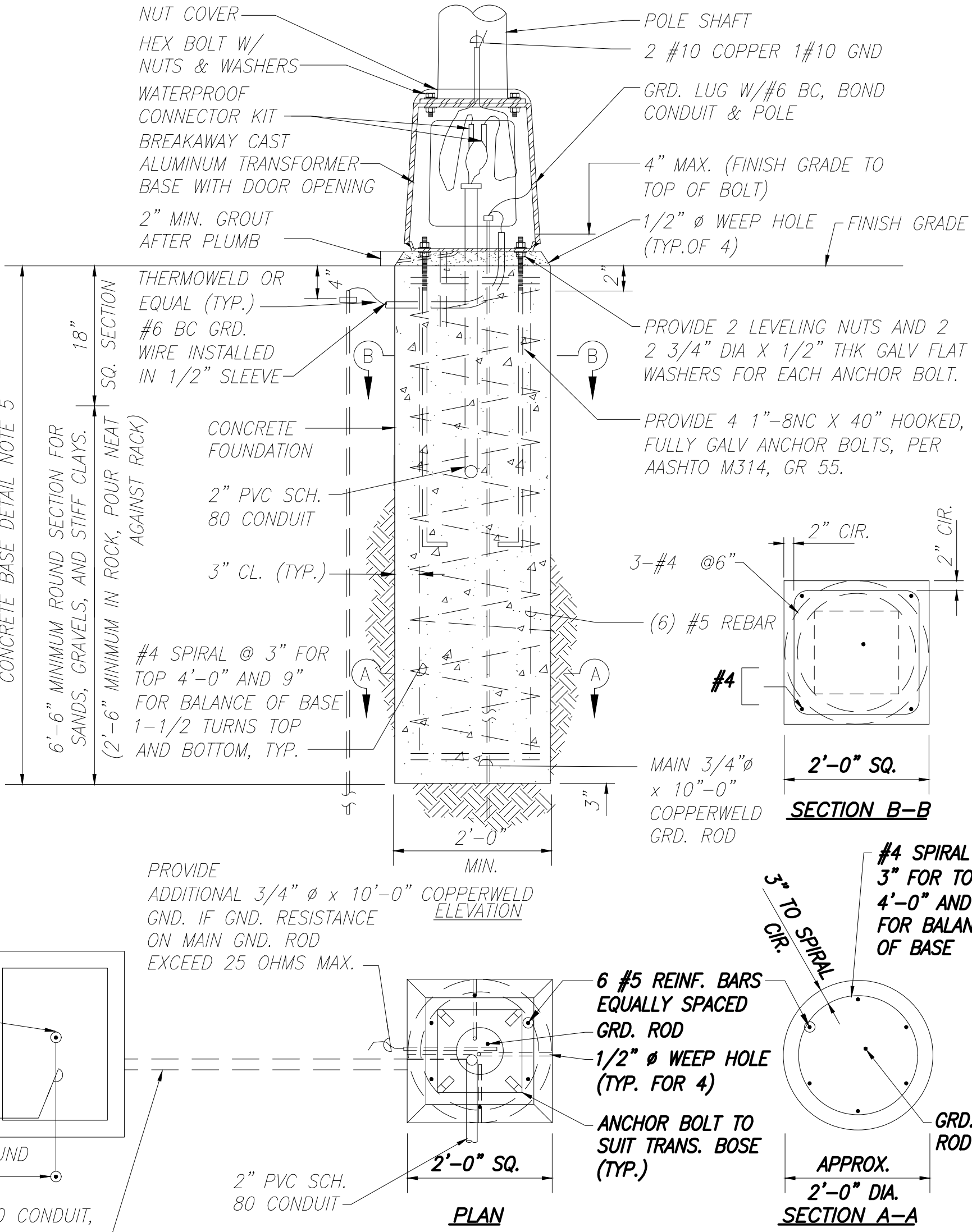
2
E-35
TYPICAL CONCRETE FOUNDATION
AND TRANSFORMER BASE DETAIL

NOT TO SCALE



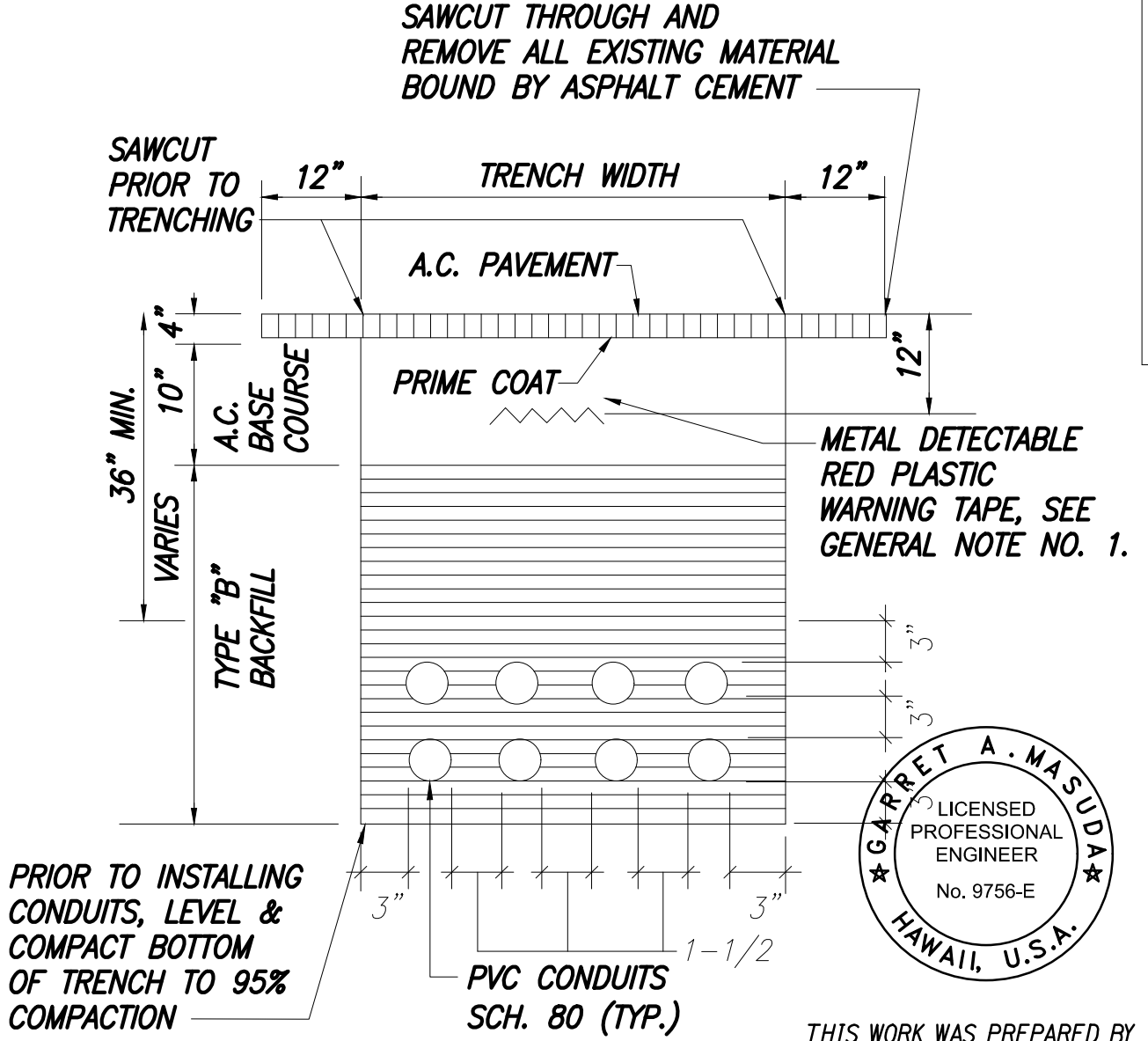
4
E-35
POLE IDENTIFICATION TAG

NOT TO SCALE



2
E-35
TYPICAL CONCRETE FOUNDATION
AND TRANSFORMER BASE DETAIL

NOT TO SCALE

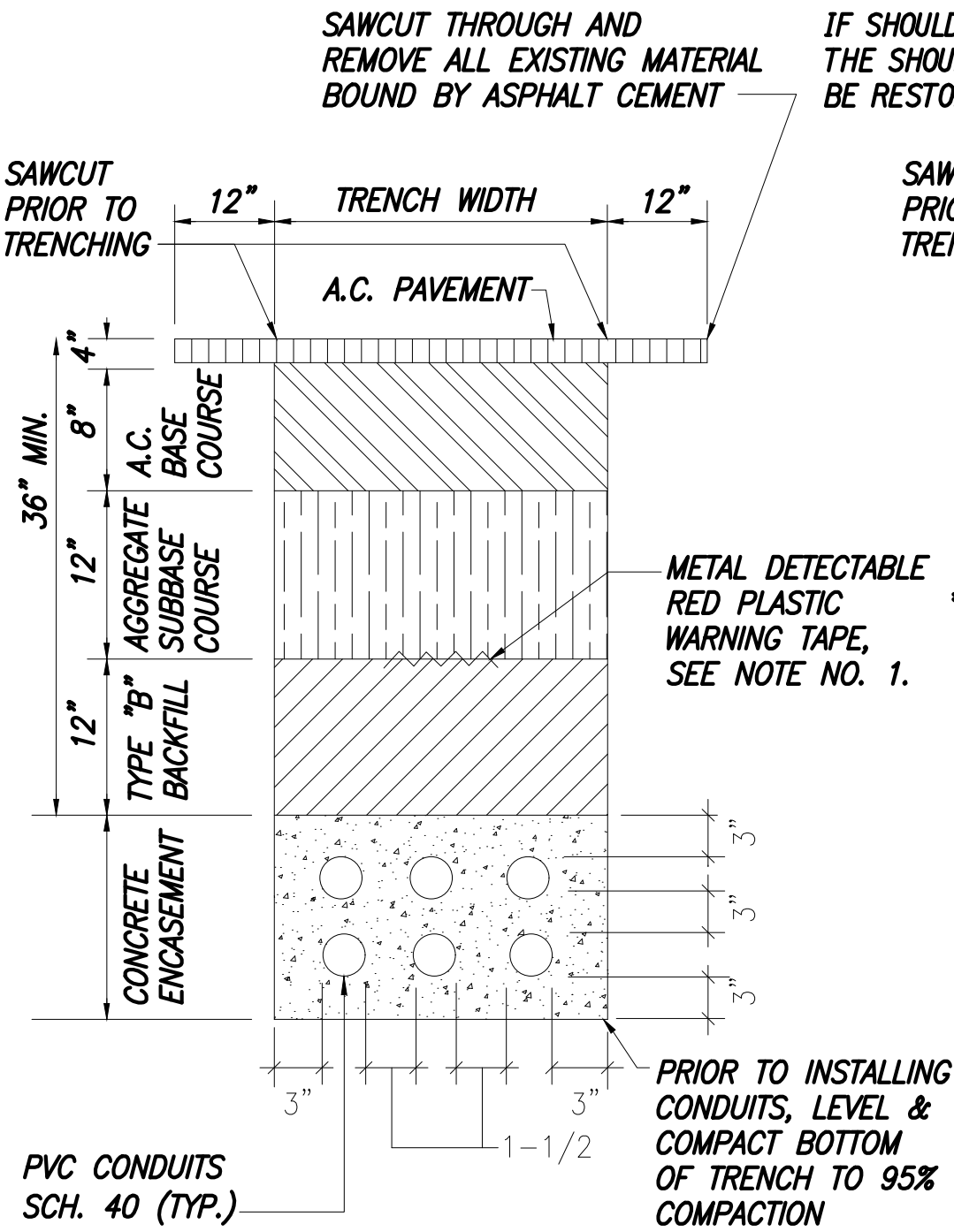


TYPICAL DUCT SECTION
(DIRECT BURIED DUCTS)

B

NOTES:

- ALL CONDUIT SHALL BE "PVC" SCHEDULE 80 FOR DIRECT BURIED AND "PVC" SCHEDULE 40 FOR CONCRETE ENCASEMENT, UNLESS OTHERWISE NOTED.
- BACKFILL OVER CONCRETE DUCT SECTIONS SHALL BE TYPE "A" PER BACKFILL TYPE NOTES.
- BACKFILL OVER DIRECT BURIED CONDUITS SHALL BE TYPE "B" PER BACKFILL TYPE NOTES.
- IF THE NORMAL MATERIAL IN THE BOTTOM OF A TRENCH CONTAINING A DIRECT BURRIAL CONDUIT IS NOT TYPE "B" AN ADDITIONAL 3" SHALL BE EXCAVATED AND TYPE "B" BACKFILL PROVIDED.
- CONCRETE FOR DUCTS SHALL BE 2500 P.S.I. IN 28 DAYS.
- ALL CONDUCTOR SIZES SHALL BE COPPER CONDUCTORS.



UNDER SOH ROADWAY

WITHIN SOH SHOULDER

TYPICAL DUCT SECTION
(CONCRETE ENCASED DUCTS)

A

GENERAL NOTES

- THE METAL DETECTABLE RED PLASTIC WARNING TAPE SHALL BE A MINIMUM 5 MILS THICK AND 4" WIDE WITH A CONTINUOUS METALLIC BACKING AND CORROSION RESISTANT 1± MIL THICK FOIL CORE. THE MESSAGE ON THE TAPE SHALL READ, "CAUTION - STATE TRAFFIC SIGNAL AND/OR HWY LIGHTING BURIED BELOW," UTILIZING 1-1/2 INCHES SERIES "C" BLACK LETTERING. THE MESSAGE WILL BE REPEATED WITH A 4-1/4" SPACING BETWEEN TOP LINE OF MESSAGE AND START OF NEXT TEXT

| | | |
|----------|---|---|
| 08/17/16 | 2 | CHANGED TYPICAL DUCT SECTION DETAIL |
| 04/14/16 | 2 | CHANGED CATALOG NUMBERS TO MATCH HIB LUMINAIRE |
| 01/22/16 | 1 | ADDED CATALOG NUMBER FOR LUMINAIRE TO MEET MOA REQUIREMENTS |

| DATE | REVISION |
|--|-------------------|
| STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION | |
| STREET LIGHT STANDARD DETAILS,
HELCO, HTCO, OTWC TYPICAL
DUCT SECTIONS | |
| QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2) | |
| Federal Aid Project No. NH-019-1(38)R | |
| Scale: AS NOTED | Date: AUGUST 2016 |

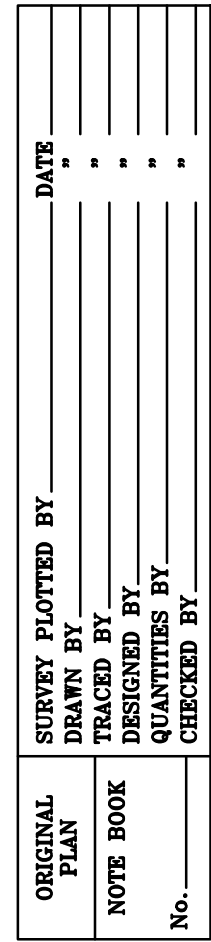
SHEET No. 35 OF 40 SHEETS

"AS-BUILT"

08/17/2016

475=488

Z:\#Projects (numbered)\2008\08039\Drawing Files\Drawings ~ Electrical\8c9_1330e-36.dwg ~ 20101119.1427



- THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.
- Garret A. Mowbray APRIL 30, 2018
- SIGNATURE EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

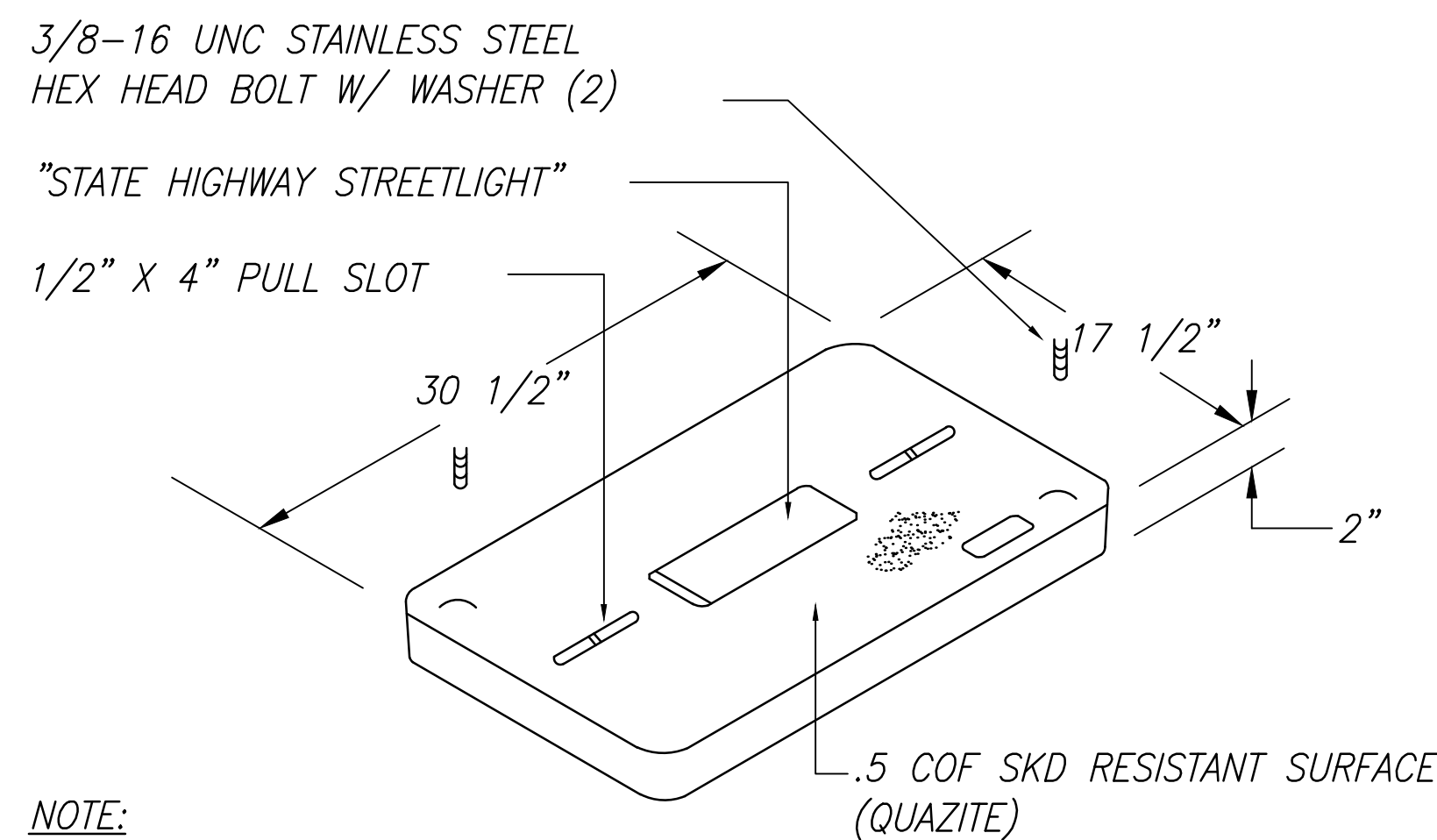
*STREET LIGHT STANDARD
DETAILS, TYPICAL DUCT SECTIONS*

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)

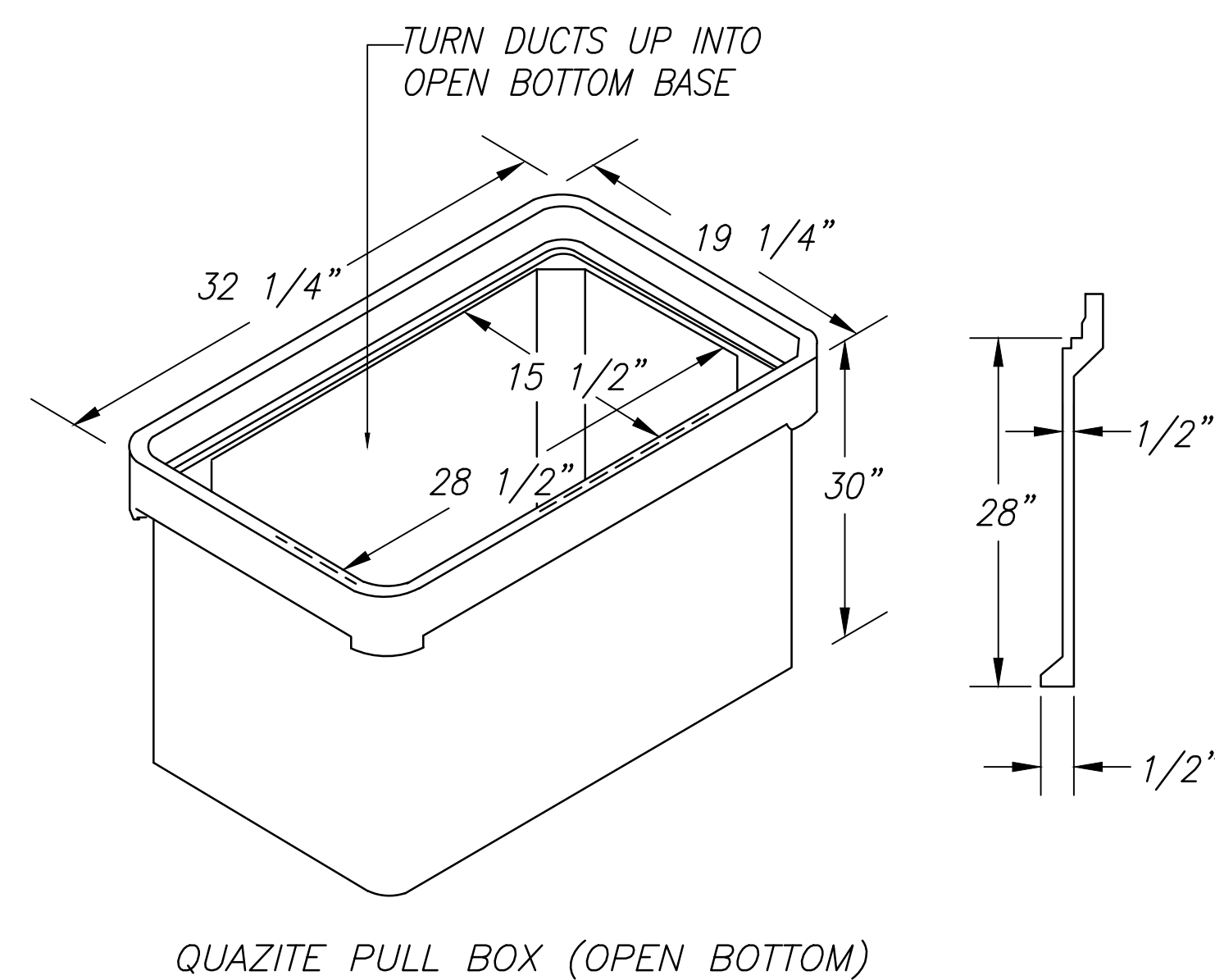
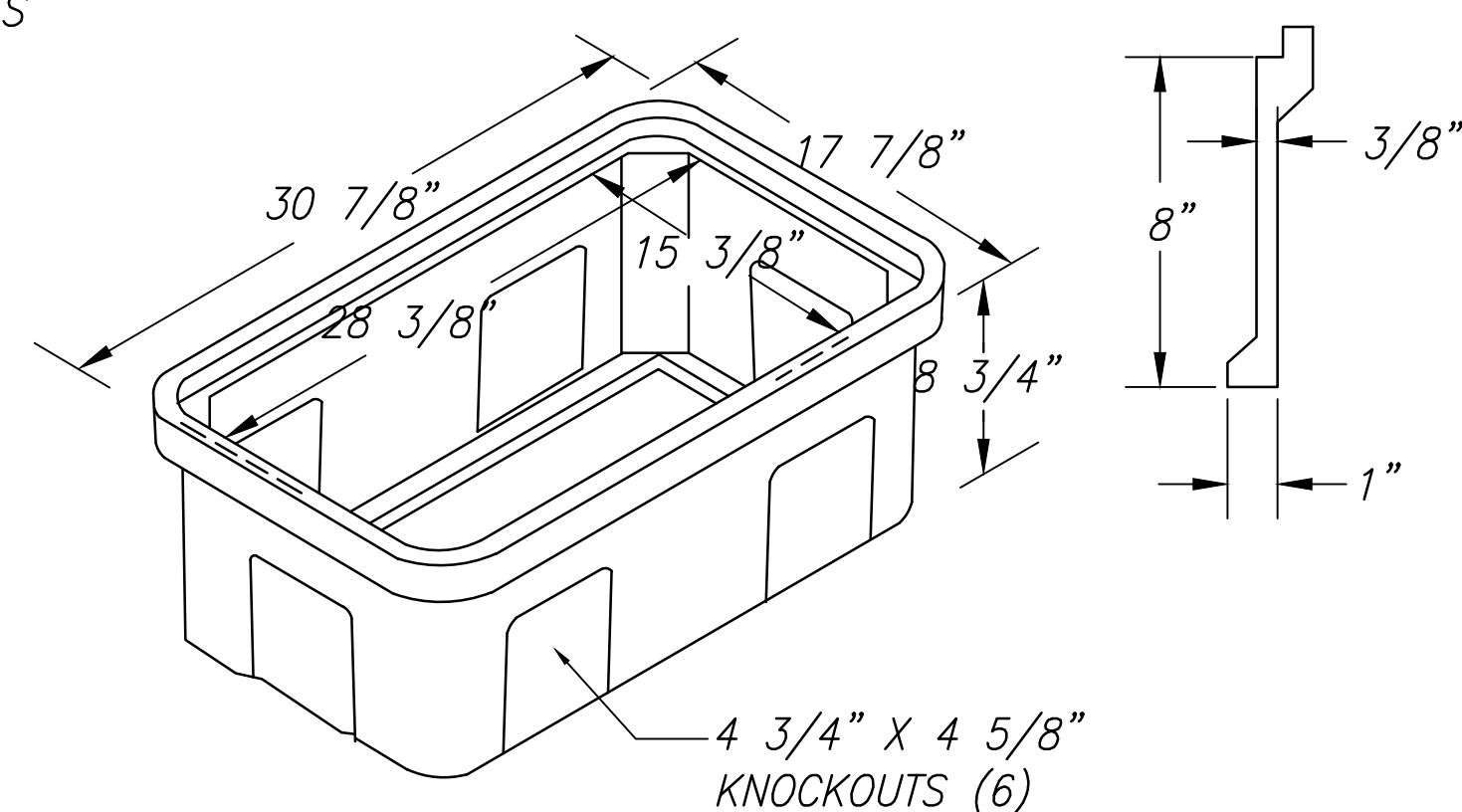
Federal Aid Project No. NH-019-1(38)R

Scale: AS NOTED Date: AUGUST 2016

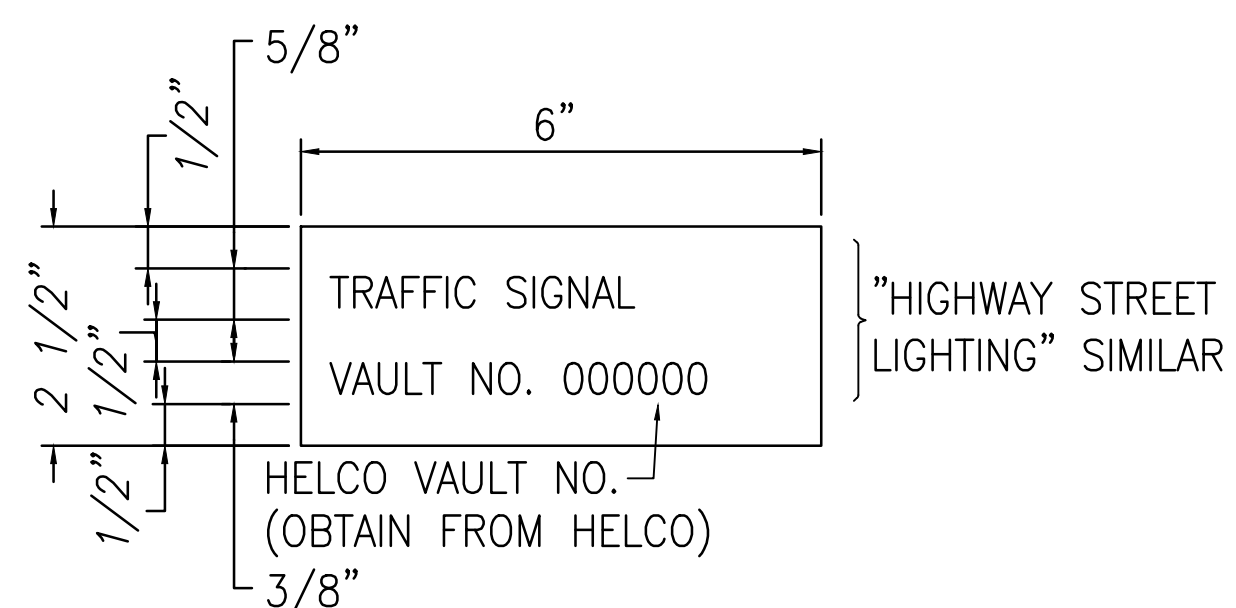
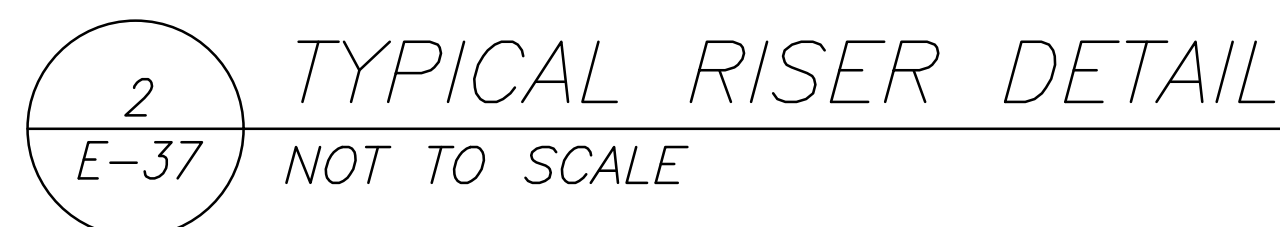
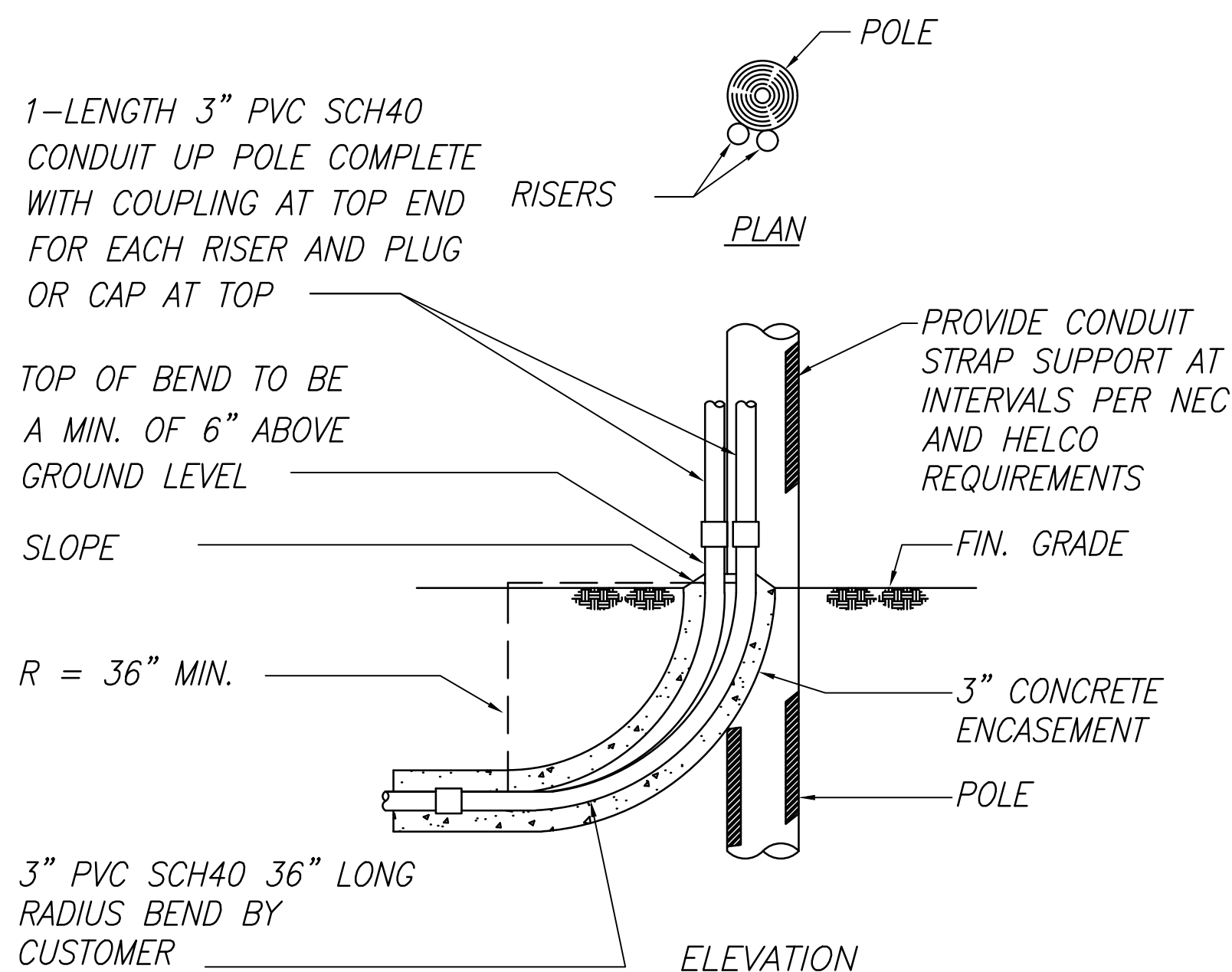
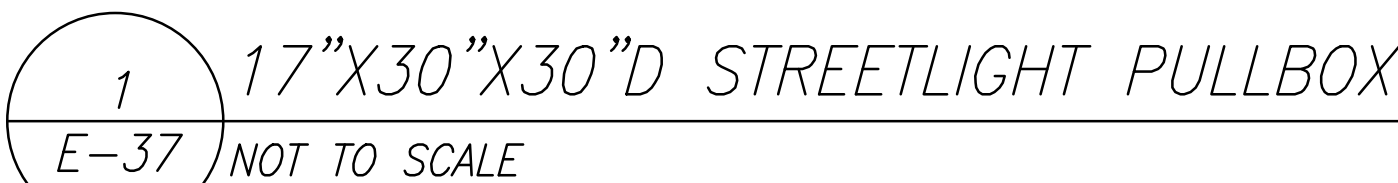
| FED. ROAD
DIST. NO. | STATE | FED. AID
PROJ. NO. | FISCAL
YEAR | SHEET
NO. | TOTAL
SHEETS |
|------------------------|-------|-----------------------|----------------|-----------------------|-----------------------|
| HAWAII | HAW. | NH-019-1(38)R | 2016 | 477
490 | 522
528 |



NOTE:
PROVIDE H2O TRAFFIC RATED
COVERS WHERE PULLBOX IS
LOCATED INTERSECTION MEDIANS
AND TRIANGLES

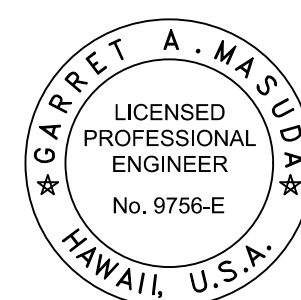
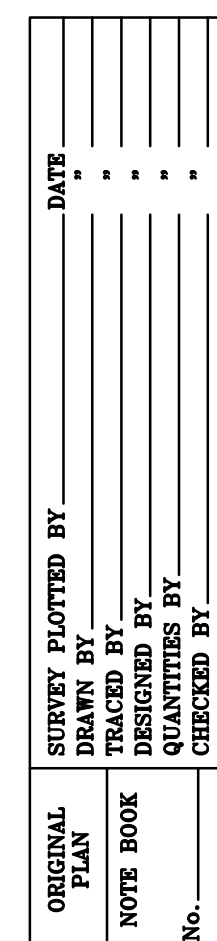
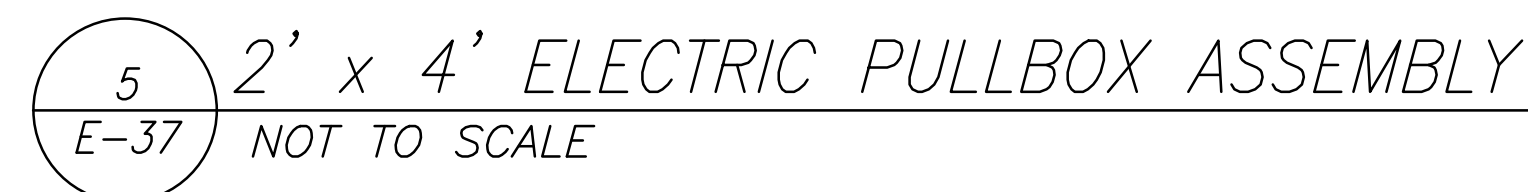
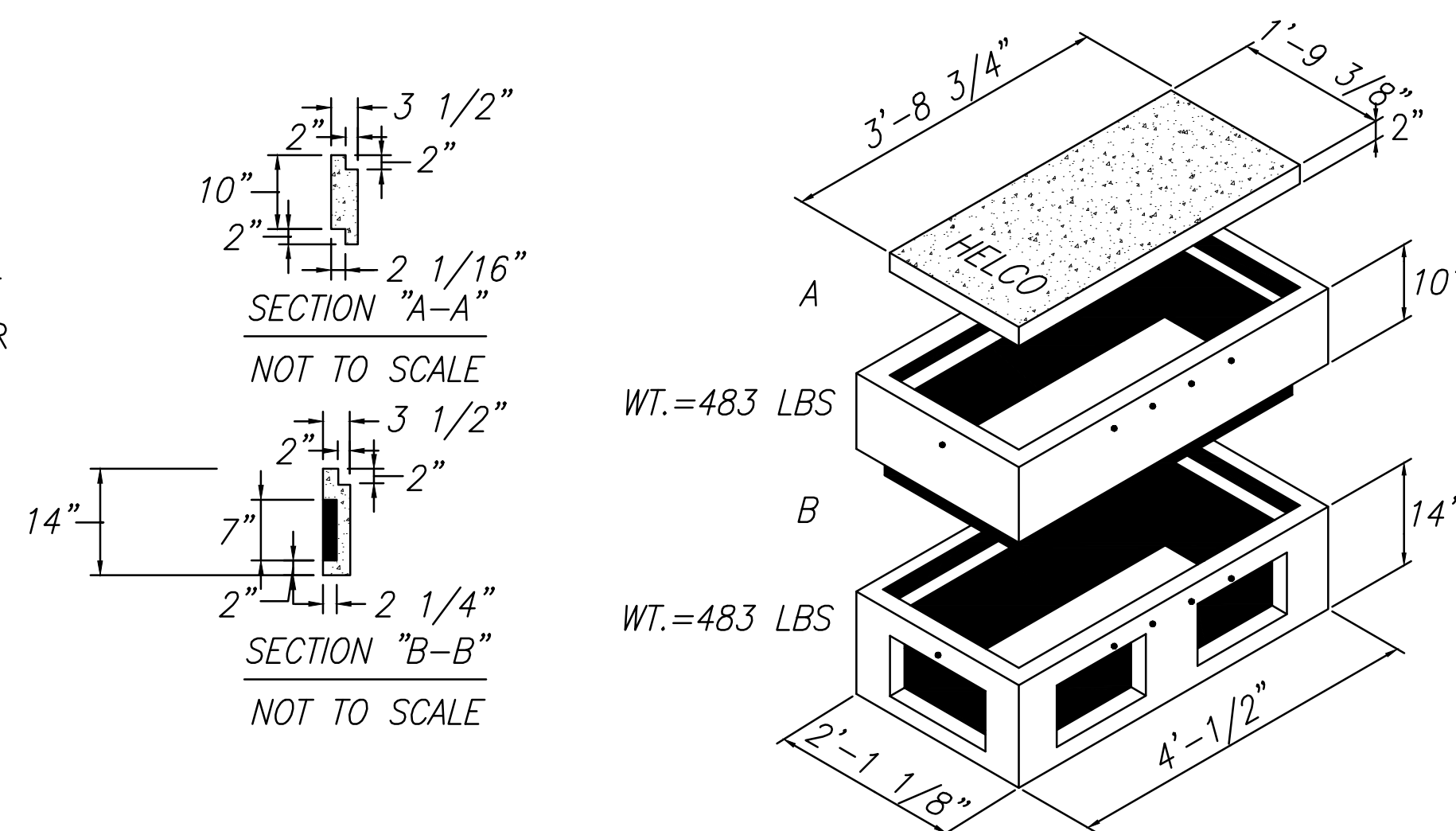
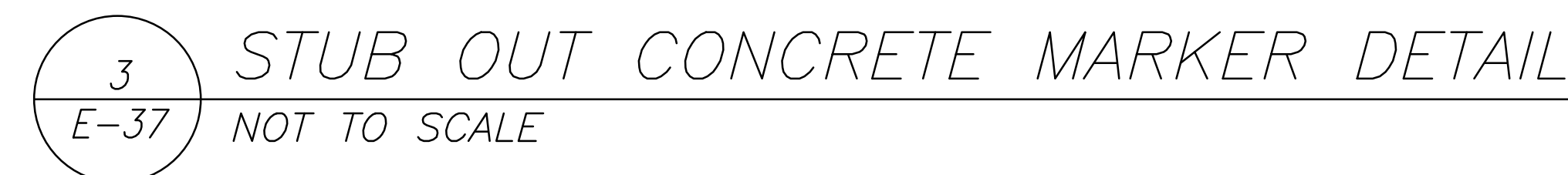
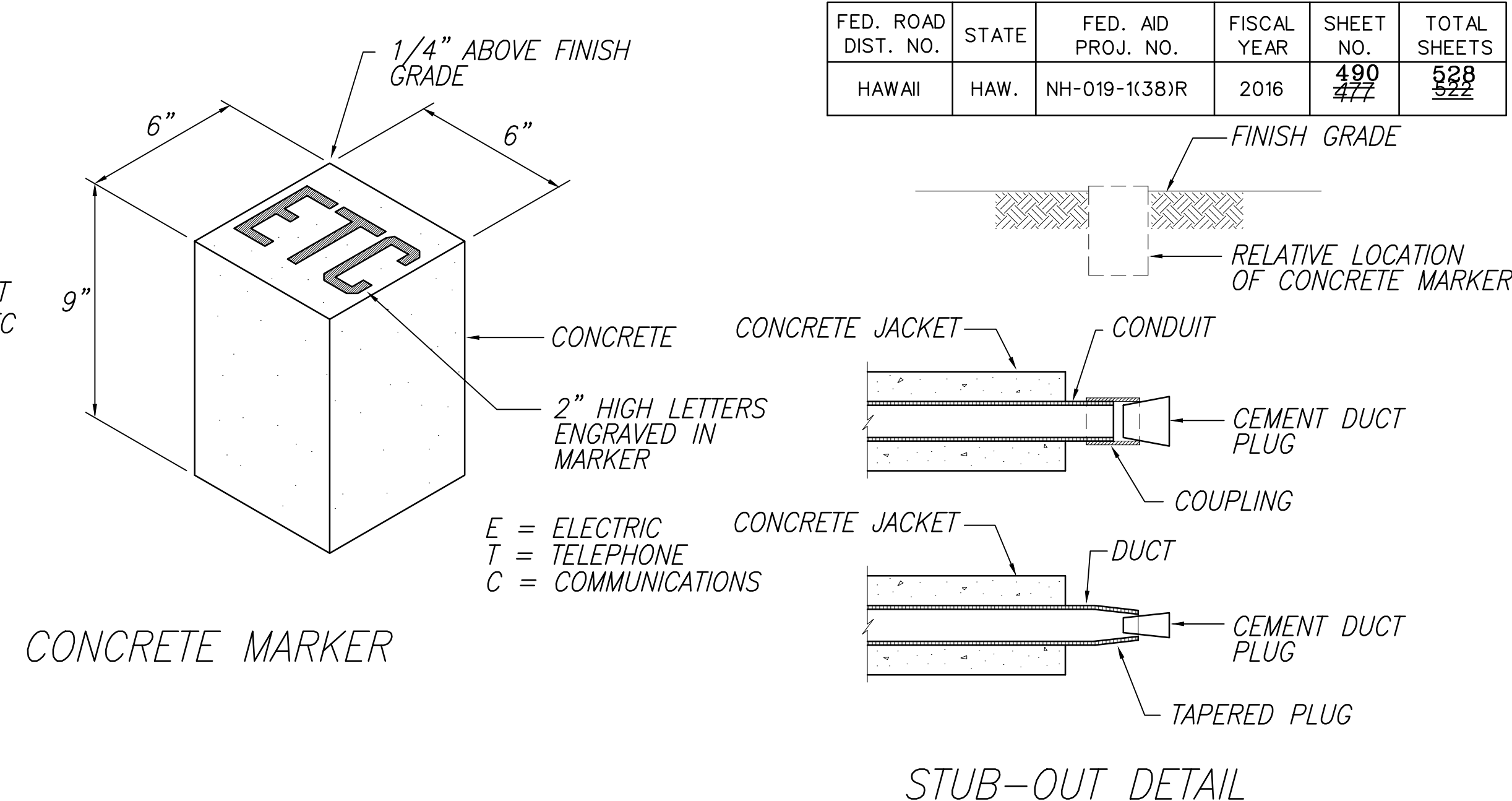


NOTE: PROVIDE 6 INCH MINIMUM 3/4" CRUSHED GRAVEL BASE COURSE, WELL COMPACTED



NOTES:



1. USE 3-PLY LAMINATED FLEXIBLE PLASTIC, BLACK-WHITE-BLACK. THICKNESS:
0.010"—BLACK CAP SHEET
0.052"—WHITE BASE SHEET
0.010"—BLACK BASE SHEET
2. ATTACH TO METER SOCKET USING SCOTCH 3M BRAND VERY HIGH BOND (VHB) DOUBLE COATED ACRYLIC FOAM TAPE OR EQUIVALENT.



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Barrett A. Mendenhall APRIL 30, 2018

SIGNATURE EXPIRATION DATE
OF THE LICENSE

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

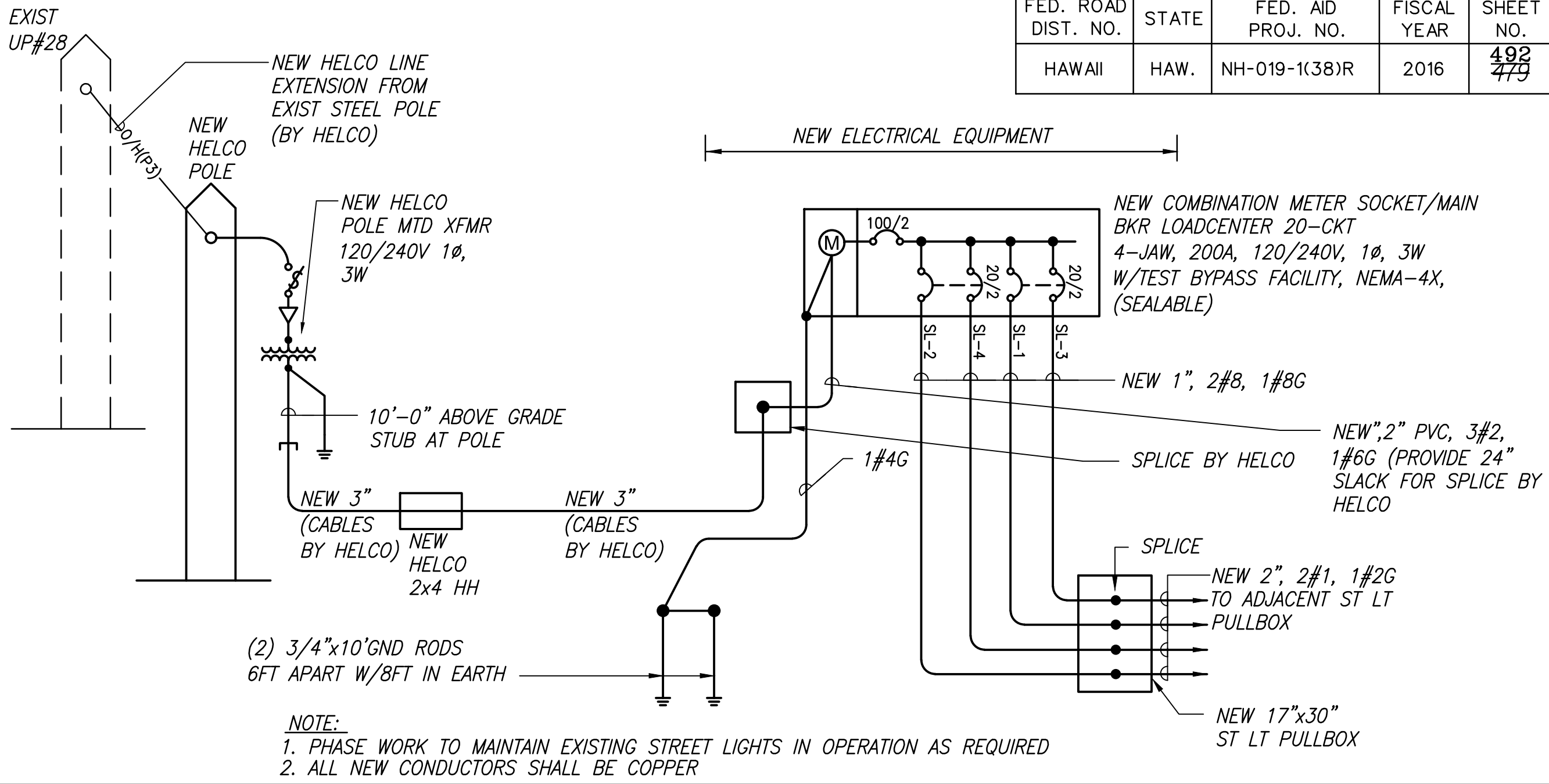
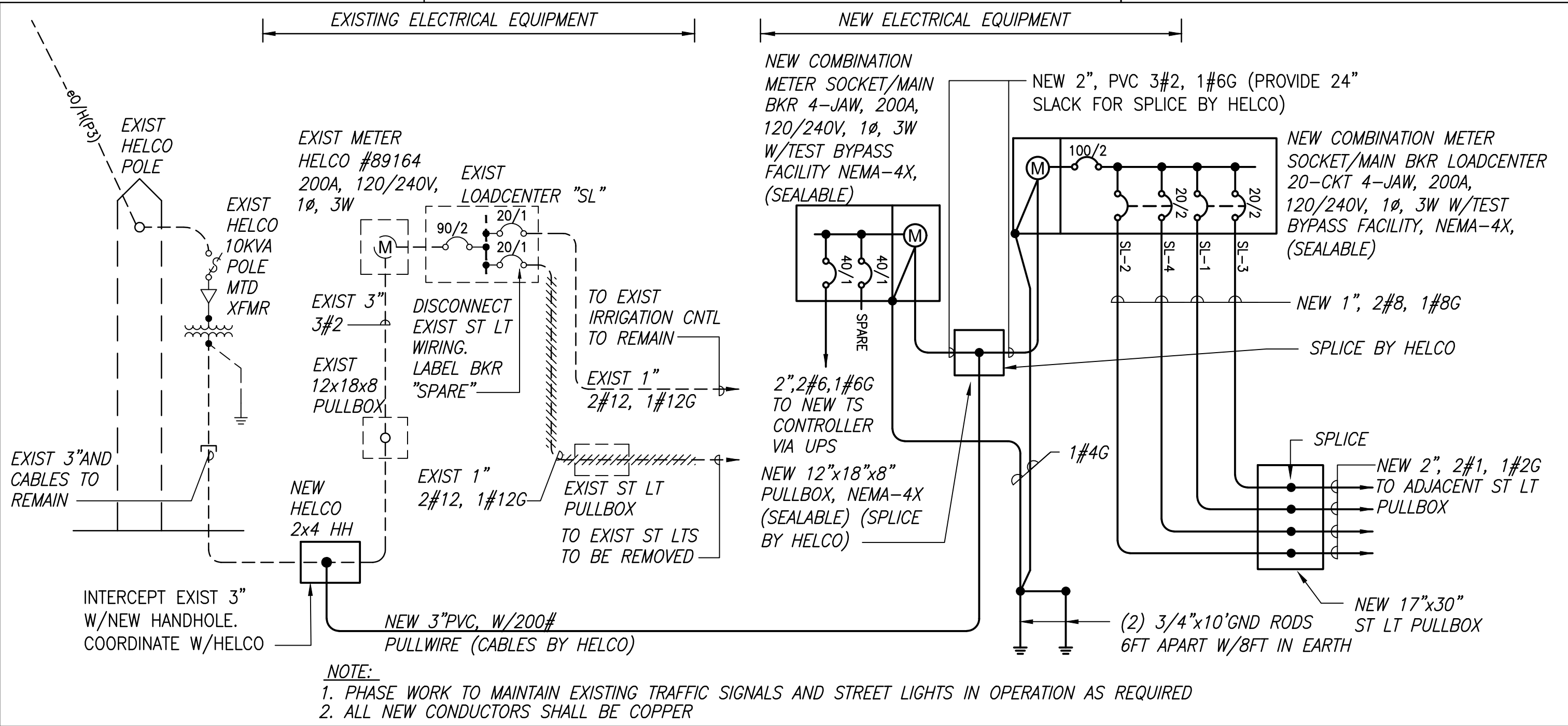
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: AUGUST 2016

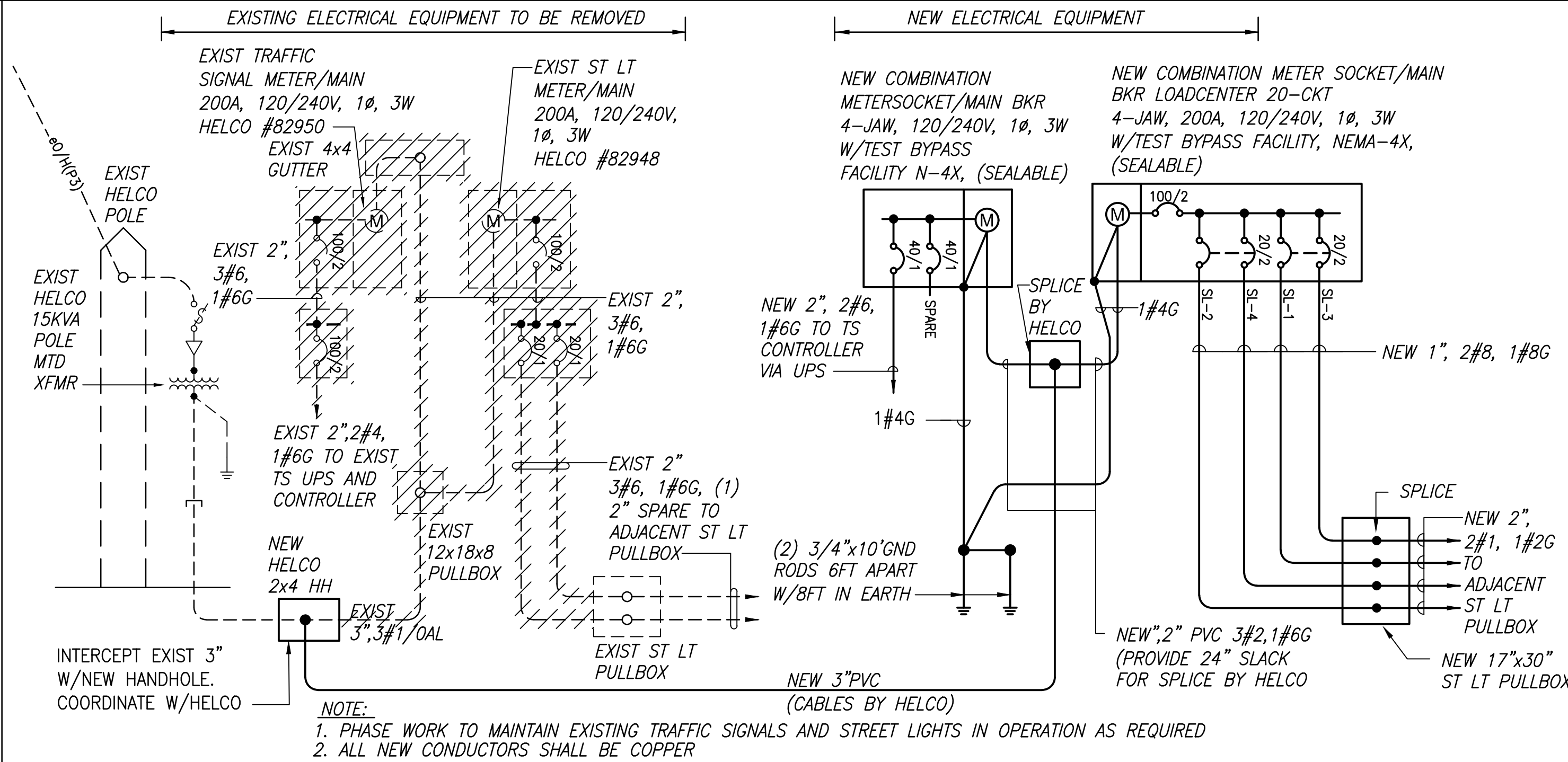
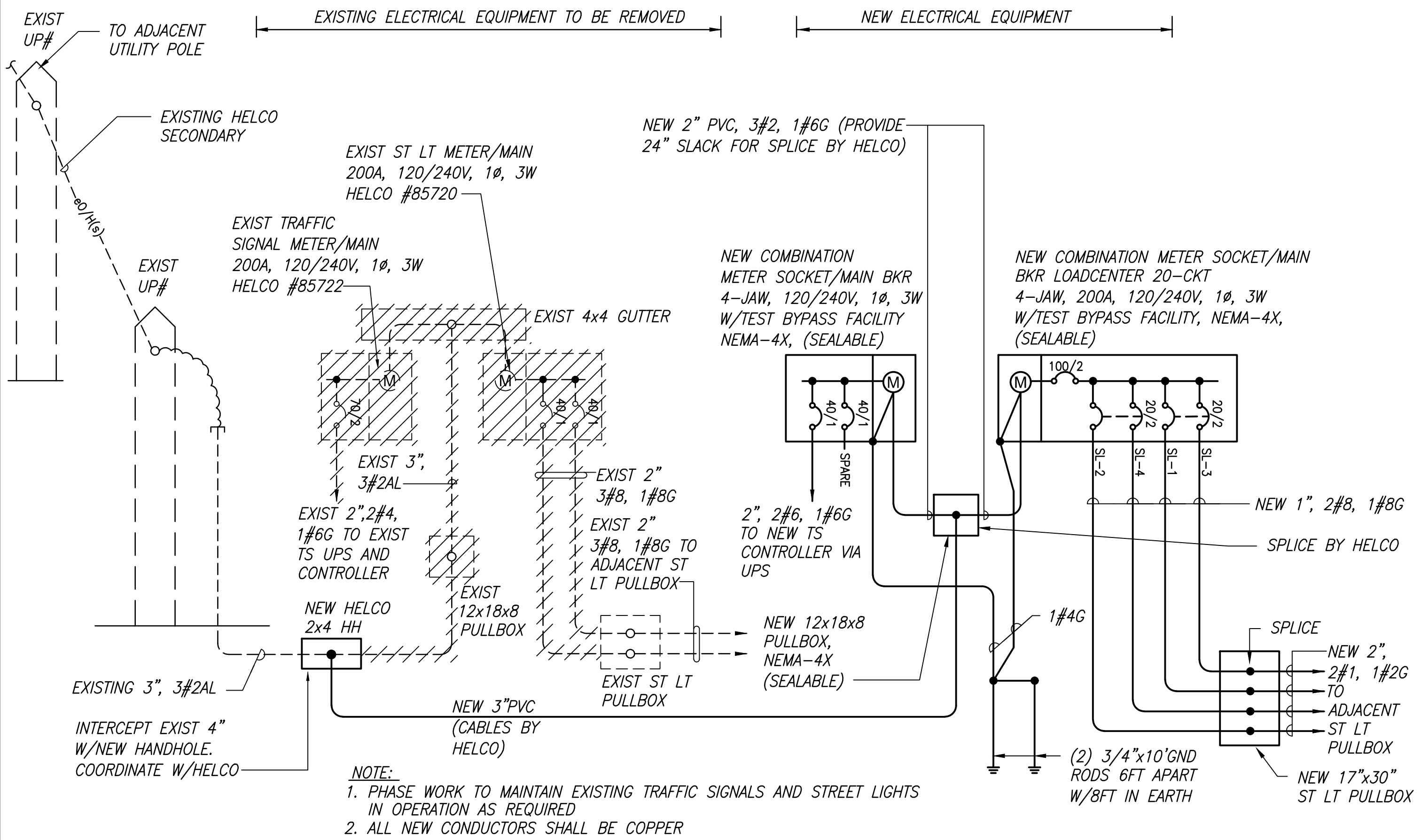
SHEET No. 37 OF 40 SHEETS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| HAWAII | HAW. | NH-019-1(38)R | 2016 | 492
479 | 528
522 |



1 HULIKOA DRIVE ONE-LINE DIAGRAM
E-39 NOT TO SCALE

2 OTEC ROAD ONE-LINE DIAGRAM
E-39 NOT TO SCALE

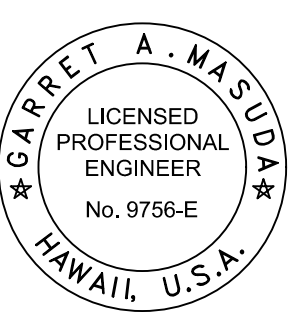


4 KEAHOLE AIRPORT ROAD ONE-LINE DIAGRAM
E-39 Scale: NOT TO SCALE

3 KAIMINANI DRIVE ONE-LINE DIAGRAM
E-39 NOT TO SCALE

NOTES:

BILLING ADDRESS FOR UTILITY CHARGES: STATE HIGHWAYS DIVISION, HAWAII DISTRICT.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
Garrett A. Masuda
SIGNATURE
APRIL 30, 2018
EXPIRATION DATE OF THE LICENSE

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SINGLE LINE DIAGRAM

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)
Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: AUGUST 2016

| | |
|---------------|------|
| ORIGINAL PLAN | DATE |
| NOTED BY | |
| DESIGNED BY | |
| QUANTITIES BY | |
| CHECKED BY | |

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

NOTE: PANEL "SL" IS A TYPICAL PANEL SCHEDULE

| | | | | | | | | | |
|-------------------|---------------------------|-----|-----|-------------------|------|--------------------------|---------------------------|--------------------------|------|
| PANEL: "SL" | | | | VOLT# 240 | | 1 PHASE | | POLES: | |
| MAIN BUS: 200A | | | | MAIN BKR: 100/2 | | 3 WIRE | | MIN. A.I.C. 22,000 | |
| MOUNTING: SURFACE | | | | BKR TYPE: PLUG-IN | | ENCL: N-3R,STAINLESS STL | | ENCL DIMS: 27"Wx30"Hx6"D | |
| CKT NO. | DESCRIPTION | KVA | | CKT BKR | WIRE | CKT NO. | DESCRIPTION | KVA | |
| | | A | B | | | | | A | B |
| 1 | L- STREETLIGHTS | 0.1 | | 1 | 8 | 2 | L- STREETLIGHTS | | 0.1 |
| 3 | S | | 0.0 | 20/1 | | 4 | S | 0.0 | 20/1 |
| 5 | S | 0.0 | | 20/1 | | 6 | S | | 0.0 |
| 7 | PFB | | | 1 | | 8 | PFB | | 1 |
| 9 | PFB | | | 1 | | 10 | PFB | | 1 |
| 11 | PFB | | | 1 | | 12 | PFB | | 1 |
| 13 | PFB | | | 1 | | 14 | PFB | | 1 |
| 15 | PFB | | | 1 | | 16 | PFB | | 1 |
| 17 | PFB | | | 1 | | 18 | PFB | | 1 |
| 19 | PFB | | | 1 | | 20 | PFB | | 1 |
| 21 | ----20-CKT LOADCENTER---- | | | | | 22 | ----20-CKT LOADCENTER---- | | |
| 23 | | | | | | 24 | | | |
| 25 | | | | | | 26 | | | |
| 27 | | | | | | 28 | | | |
| 29 | | | | | | 30 | | | |
| 31 | | | | | | 32 | | | |
| 33 | | | | | | 34 | | | |
| 35 | | | | | | 36 | | | |
| 37 | | | | | | 38 | | | |
| 39 | | | | | | 40 | | | |
| 41 | | | | | | 42 | | | |

TOTAL PHASE A, B

CONNECTED KVA:

DEMAND FACTOR:

DEMAND KVA:

DEMAND AMPS:

0.1

0.1

0.2 KVA

100 %

0.1 KVA

0.4 AMPS

NOTES:

1. COMBINATION 4-JAW, 200A, METER SOCKET W/ TEST BYPASS BLOCK & LOADCENTER

| | | | | | |
|---------------------|-------|--------------------|-------------|-----------------------|-----------------------|
| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
| HAWAII | HAW. | NH-019-1(38)R | 2016 | 493
490 | 528
522 |



THIS WORK WAS PREPARED BY
ME OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.
David A. Masuda APRIL 30, 2018
SIGNATURE EXPIRATION DATE
OF THE LICENSE

LEGEND FOR
AS-BUILT POSTINGS

Squiggly line for
as-built deletion

Double line for
as-built deletion

Roadway

Text for as-built
posting

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SINGLE LINE DIAGRAM

QUEEN KAAHUMANU HIGHWAY WIDENING
Kealahou Pkwy. To Keahole Airport Rd.(Ph. 2)

Federal Aid Project No. NH-019-1(38)R
Scale: AS NOTED Date: AUGUST 2016