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LEGEND FOR AS-BUILT POSTINGS

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Roadway	Text for as-built posting

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STATE OF HAWAII
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PALI HIGHWAY
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Scale: None Date: May 6, 2019

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DATE

ORIGINAL PLAN
NOTE BOOK
No.

DRAWING NAME: Z:\OD ONGOING\19-014.A PALI ROOF SHED POST DESIGN-WSP TM\01 CAD\04-01-21 AS-BUILT\PLM-S0001 ADD1 DETAIL-7 INDEX.DWG PLOT TIME: 04-01-21, 4:59 PM

"AS-BUILT"

ADD 24

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QUANTITIES BY
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DRAWING NAME: Z:\OD ONGOING\19-014A PALI ROOF SHED POST DESIGN-WSP TM\01 CAD\04-01-21 AS-BUILT\PLM-S0001 ADD1 DELTA3-7 INDEX.DWG PLOT TIME: 04-01-21 4:53 PM

LEGEND FOR AS-BUILT POSTINGS

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Roadway	Text for as-built posting

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STATE OF HAWAII
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Scale: None Date: May 6, 2019

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"AS-BUILT"

24S-1

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STRUCTURAL GENERAL NOTES:

1. General Specifications:

   A. Hawaii Department of Transportation (HDOT), Standard Specifications for Road and Bridge, Construction, 2005, together with Special Provisions prepared for this project.

2. Design Specifications:

   A. American Association of State Highway and Transportation Officials (AASHTO) 2017 LRFD Bridge Design Specifications, Eight Edition, including the 2015 Interim revision edition as amended by Hawaii Department of Transportation (HDOT) document dated August 8, 2014 with subject title "Design Criteria for Bridges and Structures" and HDOT memorandum dated January 8, 2018 with subject title "Changes to Design Criteria for Bridges and Structures".

   B. Technical paper titled "Rock Fall Sheds - Application of Japanese Designs in North America" by Hiroshi Yoshida, Toshimitsu Nomura, Duncan C. Wyllie, and Anthony J. Morris presented to ASCE in 2007.

3. Design Loads:

   A. Dead Load:
   Weight of all components of the structures, appurtenances attached thereto, and earth covers.
   Unit Weight of Concrete - 160 pcf
   Unit Weight of Compacted Earth - 120 pcf
   Unit Weight of Debris Buildup - 95 pcf
   Energy Absorbing Material - 1.8 pcf

   B. Seismic Load:
   In accordance with AASHTO LFRD Bridge Design Specifications 8th Edition 2017

   Peak Ground Acceleration (PGA = 0.171) modified by the Site Coefficient (F_{PGA} = 1.206) to give a spectrum acceleration, A_S = 0.206

   Short period acceleration at 0.2 seconds (S_S = 0.400) modified by the Site Coefficient (F_{PGA} = 1.206) to give the short period spectrum acceleration, S_{DS} = 0.483.

   Long period acceleration at 1.0 seconds (S_1 = 0.109) modified by the Site Coefficient (F_V = 1.694) to give the long period spectrum acceleration, S_{D1} = 0.185.

   Site Class = C
   Seismic Zone = 2
   Operational Category = Essential

   C. Soil Properties:
   (1) Bearing Pressure
      (a) Extreme Event Limit State - 31,000 psf
      (b) Strength Limit State - 15,000 psf
   (2) Coefficient of Friction
      (a) Extreme Event Limit State - 0.62
      (b) Strength Limit State - 0.53

3. Design Loads (Continued):

   (3) Passive Earth Pressure
      (a) Extreme Event Limit State - 300 pcf
      (b) Strength Limit State - 150 pcf
   (4) Static Lateral Earth Pressure - 5 pcf
   (5) Dynamic Lateral Earth Pressure - 13H ^{2}lb/ft
      Where H = Height of retained soil or backfill in feet acting at the mid-height of the wall.

   C. Wind: Design Wind Velocity - 105 MPH (Acting on the portal)

4. Materials:

   A. All concrete properties shall be as noted below:

Item No.	Structural Parts	Minimum Compressive Strength, f'c (28 Days)	Maximum Water/ Cement (W/C)	Included Admixtures*
(1)	Footing	6,000 psi	0.40	4.(B), 4.(C)
(2)	Retaining Wall and End Post	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E)
(3)	Drilled Shafts	4,500 psi	0.45	4.(B)
(4)	Column	6,000 psi	0.40	4.(B)
(5)	Column Pilaster	6,000 psi	0.40	4.(B), 4.(C)
(6)	Column Corbel	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E)
(7)	Column Cap Beam Seat and Curtain Wall	6,000 psi	0.40	4.(B), 4.(C), 4.(D)
(8)	Transition Zone	6,000 psi	0.40	4.(B)
(9)	Column Cap Beam	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E)
(10)	End Beam	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E)
(11)	Headwall	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E), 4.(R)
(12)	Rock Anchor Beam and Cap Beam	6,000 psi	0.40	4.(B), 4.(C), 4.(D)
(13)	Upturn Curbs	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E)
(14)	Wall Extension on existing Portal	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E)
(15)	Anchor Block	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E)
(16)	Precast Planks	8,000 psi	0.40	4.(B), 4.(C)
(17)	CIP Topping	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E)
(18)	Precast Portal	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(R)
(19)	CIP Planter at Precast Portal	5,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E), 4.(R)
(20)	Shotcrete	5,000 psi	0.40	4.(F)
(21)	Lower Containment Wall and Upper Containment Wall	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E), 4.(R)
(22)	Return Wall	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E), 4.(R)
(23)	Creep Wall	6,000 psi	0.40	4.(B), 4.(C), 4.(D), 4.(E)
(24)	Quadguard Slab	5,000 psi	0.40	4.(B), 4.(C), 4.(E)
(25)	All Others	6,000 psi	0.45	4.(B)
(26)	Roof slab, Walls, and Curbs at Electrical Building	6,000 psi	0.40	4.(B), 4.(C), 4.(D)

*Refer to notes 4.(B) through 4.(F) in this section

4. Materials (Continued):

   B. Amine carboxylate corrosion inhibiting water-based admixture such as Cortec MCI 2005 NS or approved equal shall be added at a dosage of 24 ounces per cubic yard.

   C. Shrinkage reducing admixture such as Eclipse 4500 or Masterlife SRA 20 or approved equal shall be added at a dosage of 128 ounces per cubic yard or as recommended by the manufacturer.

   D. Alkali resistant structural glass fiber such as CEMFIL, ANTI-CRAK HP67/36 or approved equal shall be added to the concrete mix. The dosage rate shall be 15 lbs per cubic yard for CEMFIL or the equivalent amount of approved equal to achieve similar properties as the glass dosage. The fiber shall be added to the concrete as recommended by the manufacturer during the mixing process.

   E. An integral waterproofing admixture such as KIM HS or approved equal shall be added to the concrete mix. The dosage rate shall be 13.5 lbs per cubic yard.

   F. A 2 1/4" long macro synthetic fiber such as Forta Ferro or approved equal shall be added to the concrete mix. The dosage shall be 7.5 lbs per cubic yard or the equivalent amount of approved equal to achieve similar properties.

   G. Contractor is not limited to only adding admixtures listed on these notes. Other admixtures may be added upon approval of the Engineer.

   H. The maximum cementitious content for all concrete except for items 16 and 20 shall be 670 lbs of portland cement per cubic yard. The maximum cementitious content for Item 16 shall be 700 lbs of portland cement per cubic yard. The maximum cement content for Item 20 shall be 752 lbs of portland cement per cubic yard.

   I. The use of calcium chloride in any concrete is prohibited.

   J. All concrete exposed within 7 days of placement shall be cured using Sinak Lithium Cure 1000 or approved equal at a coverage rate of no less than 400 sq. ft. per gallon.

DATE	REVISION
11/15/19	11 Revised Note
10/04/19	8 Revised Note
9/27/19	7 Revised Note
5/24/19	1 Revised Notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

PALI HIGHWAY
LANDSLIDE MITIGATION PROJECT
FAP Proj. No. ER-22(002)

Scale: None Date: May 6, 2019

SHEET No. S0.2 OF 5 SHEETS

ADD 25

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

DRAWING NAME: Z:\00 ONGOING\19-014.1A PALI ROOF SHED POST DESIGN-WSP TM\01 CAD\04-06-20B RF23 RVSD REBAR\PLM-S0002 ADD1 DELTA4 DELTA7 DELTA8 STRUCT NOTES.DWG PLOT TIME: 07-02-20, 10:23 AM

STRUCTURAL GENERAL NOTES:

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4. Materials (Continued):

K. Non-shrink grout shall be a pre-mixed product consisting of non-staining, non-metallic aggregate cement, water reducing and plasticizing agents capable of developing a minimum compressive strength of 4000 psi in 3 days and 7000 psi in 28 days. The non-shrink grout shall contain at least 10 grams of migrating amine carboxylate corrosion inhibiting admixture per 0.4 to 0.5 cubic feet of no-shrink grout.

L. Elastomeric waterproofing membrane shall be applied on the CIP topping. The tensile strength (ASTM D412) shall be at least 350 psi, the elongation (ASTM D412 at least 300% and the tensile bond adhesion (ASTM C297) at least 300 psi cohesive. All work including surface preparation, application and limitations shall be in accordance with the manufacturer's brochure. 4

M. Rock anchors and vertical ground anchors shall be all-thread rebar conforming to ASTM A615 Grade 75 and hot-dip galvanized in accordance with ASTM A767 Class 1. Any damage to corrosion protective coating on bars shall be repaired in accordance with manufacturer's recommendations or else bars shall not be used.

N. Bearing plates, nuts, washers and couplers for ground anchors shall conform to the following:

(1) Bearing plates: ASTM A36

(2) Nuts: ASTM A563

(3) Washers: ASTM F436

(4) Couplers: ASTM A108

(5) All hardware shall be hot-dip galvanized in accordance with ASTM A123, A153, and F2329, respectively.

O. Grout for rock anchors and vertical ground anchors shall conform to "Section 681 - Grouted Anchor". In addition, grout mix shall be proportioned as follows: 1

(1) Use 94 lbs of type I/II cement, 4 gallons of water, and 3 to 6 lbs of Masterroc FLC 100 admixture or approved equal.

(2) Use 1 oz. of Amine Carboxylate corrosion inhibiting water-based admixture such as Cortec MCI 2005 NS or approved equal per 94 lb bag of cement.

(3) Use Glenium 3030 or approved equal for workability as needed.

(4) Grout shall be stable (bleed less than 2%) per ASTM C940.

(5) Corrosion inhibitor and Masterroc shall be added to the mixing water before adding cement.

4. Materials (Continued):

(6) Temperature of grout shall not exceed 85^F at the end of the grouting hose coupling to fill tube.

(7) Use 0.3 lbs ± 0.1 lbs of VMA such at Walocel MW PFV admixture or approved equal per 94 lb bag of cement.

P. Bonding agent shall be a three-component, preproportioned, water based epoxy modified portland cement bonding agent and anti-corrosion coating. Bond strength shall exceed 2,400 psi in accordance with ASTM C882. 1

Q. Expanded Polystyrene (EPS) used as energy absorbing material shall have a maximum density of 1.80 lb/cf, a minimum elastic modulus of 730 psi, and a poissons ratio equal to exactly 0.05.

R. A dark gray internal pigmenting shall be added to Item No.s 11, 18, 19, 21, and 22. A test sample shall be submitted to the Engineer for review and approval.

S. Very Early Strength Latex Modified Concrete (VESLMC) shall consist of FasTrac 246 concrete, an added amine carboxylate corrosion inhibiting admixture, and a Ready-To-Use FasTrac Polymer so that when combined it produces a rapid-setting material capable of achieving 2,500 psi of compressive strength in 1.5-hours.

T. Very Early Strength Grout shall be FasTrac 246 mortar. Grout shall be of pourable consistency and shall be capable of developing 2,500 psi of compressive strength in 3 hours.

5. Reinforcement: 1

A. Unless otherwise noted, the clear covering measured from the surface of the concrete to the face of any reinforcing steel bars shall be as follows:

(1) Deck Topping

(a) Top bars = 2 1/2"

(2) For precast planks see Sheets S9.1 through S9.2.

(3) Stirrups and ties = 2"

(4) Drilled shafts = 4"

(5) Reinforcing in concrete cast against and permanently exposed to earth = 3".

(6) All others = 2"

B. Reinforcement steel shall conform to ASTM A615, Grade 60 deformed bars unless otherwise noted.

C. Minimum clear spacing between parallel bars shall be 1 1/2 times the maximum size of the coarse aggregate or 1 1/2 inches, whichever is greater, except when bundled.

5. Reinforcement (Continued):

D. Reinforcing bars shall be placed and installed in accordance with the CRSI Manual of Standard Practice and CRSI Placing Reinforcing Bars, unless otherwise noted.

E. Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of the intersections is less than 12 inches in each direction, in which case alternate intersections shall be tied.

F. Minimum lap splice length for steel reinforcing shall be 40 bar diameters or 2'-0", whichever is greater, unless otherwise noted. Increase lap length by multiplying the minimum lap splice length by 1.3 for bars having more than 12" of fresh concrete below bars.

G. Unless otherwise noted, reinforcing splices shall be staggered. Minimum distance between staggered lap splice shall be equal to the length required for the lap splice. Number of bars spliced at sections normal to axis of member shall not exceed 50 percent of the total main reinforcing in the member.

H. All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.

I. Stainless steel deformed reinforcing bars (as noted) shall conform to ASTM A955 Type 2205, with a minimum yield and ultimate strength of 65 ksi and 95 ksi respectively. Follow CRSI Engineering Technical Note ETN-M-2-12 for stainless steel rebar handling and storage. 1

J. Stainless steel shall not come into contact with dissimilar metals. Separate contact points using teflon isolation material or dielectric tape.

K. Glass Fiber Reinforced Polymer (GFRP) rebar ASTM D7957 shall have a minimum modulus of elasticity of 6,500,000 psi.

DATE	REVISION
7/12/19	4 Revised Notes
5/24/19	1 Revised Notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

PALI HIGHWAY
LANDSLIDE MITIGATION PROJECT
FAP Proj. No. ER-22(002)

Scale: None Date: May 6, 2019

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ADD 26

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

DRAWING NAME: Z:\00 ONGOING\19-014.1 PALI ROOF SHED-WSP TM\01 CAD\07-15-19 DELTA 4\PLM-S0002 ADD1 STRUCT NOTES.DWG PLOT TIME: 07-12-19, 7:39 AM)

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6. General Construction Notes:

A. Requirements for formwork within these general notes shall govern over the specifications and special provisions. (1)

B. Unless otherwise noted, all vertical dimensions are measured plumb.

C. The Contractor shall verify all site conditions before commencing the work of excavation.

D. Unless otherwise noted, all exposed concrete surfaces shall be chamfered 3/4"x3/4".

E. Existing reinforcing shall not be damaged during demolition work, unless otherwise permitted.

F. For concrete finish see standard specifications and special provisions.

G. Construction joints may be relocated or additional ones added subject to the approval of the Engineer.

H. Retaining walls shall meet the following requirements:

1. Do not erect formwork for retaining wall on footing until minimum of 24 hours after concrete placement of footing.

2. Do not remove formwork for the retaining wall until a minimum of 24 hours.

3. Post-tension and grout the retaining wall after 48 hours and once the concrete has reached a minimum compressive strength of 3,000 psi.

4. Retaining wall shall not be vertically loaded until reaching a minimum compressive strength of 4,000 psi and 120 hours has elapsed since placing concrete.

I. Columns shall meet the following requirements:

1. Do not erect formwork for transition zone on the drilled shaft until minimum of 24 hours after concrete placement of drilled shaft.

2. Do not erect formwork for column on transition zone until minimum of 24 hours after concrete placement of transition zone.

3. Do not remove formwork for the columns until a minimum of 24 hours.

4. Do not erect formwork for cap beam on columns until reaching a minimum compressive strength of 4,000 psi and 72 hours has elapsed since placing concrete.

6. General Construction Notes (Continued):

J. Cap beams shall meet the following requirements:

1. Side forms for cap beams shall be removed after a minimum of 96 hours.

2. Formwork for the soffit shall be removed only after reaching a minimum compressive strength of 4,000 psi and 120 hours as elapsed since placing concrete.

3. Cap beams shall not be vertically loaded until reaching both a minimum compressive strength of 5,000 psi and 120 hours has elapsed since placing concrete.

K. Precast planks may be lifted and moved after reaching both a minimum compressive strength of 4,000 psi and 48 hours has elapsed since placing concrete.

L. Waterproofing over the CIP topping may be applied no sooner than 120 hours after the concrete has been placed when using a curing accelerator such as Vapor Shield or approved equal. Contractor shall follow manufacturer's recommendations during construction.

(1)

DATE	REVISION
5/24/19	(1) Revised Notes

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
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STRUCTURAL GENERAL NOTES

PALI HIGHWAY
LANDSLIDE MITIGATION PROJECT
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Scale: None Date: May 6, 2019

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NOTE BOOK
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SURVEY PLOTTED BY DATE
DRAWN BY
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DRAWING NAME: Z:\00 ONGOING\19-014.1 PALI ROOF SHED-WSP TM\01 CAD\05-24-19 PH 2\PLM-S0002 ADD1 STRUCT NOTES.DWG PLOT TIME: 06-03-19, 10:46 AM)

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SYMBOLS AND ABBREVIATIONS

&	And
@	At
Ø	Diameter
#	Number, Pound
Abut.	Abutment
Abbr.	Abbreviation
Add.	Additional, Added
Alt.	Alternate
AB	Anchor Bolt
AC	Asphaltic Concrete
Approx.	Approximate
Az.	Azimuth
Bk.	Back
Bal.	Balance
℄	Baseline
Bm.	Beam
Brg., Brgs.	Bearing, Bearings
BVC	Beginning of Vertical Curve
BMP	Best Management Practices
Bet.	Between
BF	Both Faces, Back Face
BW	Both Ways
BFE	Bottom of Footing Elevation
Bot., Bott., B	Bottom
Br.	Bridge
Blt.	Bolt
Cant.	Cantilever
C.B.	Catch Basin
CIP	Cast-in-Place
℄	Centerline
CG	Center of Gravity
cgs	Center to Gravity of Strands
cc	Center to Center
Cl.	Class
Clr.	Clearance
Col.	Column
Conc.	Concrete
Conn.	Connection
Const.	Construction
CFCW	Continuous Flashing Compound Waterproofing
CJ	Control Joint
Const. Jt.	Construction Joint
CLSM	Controlled Low Strength Material
Cont.	Continuous
CF	Cubic Feet
CY, Cu. Yd.	Cubic Yard
CSL	Crosshole Sonic Logging
Demo	Demolish, Demolition
Det.	Detail
Dia.	Diameter
Dim.	Dimension
Dist.	Distance
DO	Ditto
Dwls.	Dowels
Dn.	Down
Dbl.	Double
DI	Drain Inlet, Ductile Iron
Dwg., Dwgs.	Drawing, Drawings
DS	Drilled Shaft
EA, Ea., ea.	Each
EF	Each Face
EFH	Each Face Horizontal
EFV	Each Face Vertical
EW	Each Way
EP	Edge of Pavement
EPS	Expanded Polystyrene
E	East
Elec.	Electrical
EMH	Electrical Manhole
El., Elev.	Elevation
Emb.	Embankment
Embed.	Embedded, Embedment
EVC	End of Vertical Curve
Eq.	Equal
Est.	Estimated
Exc.	Excavation
Excl.	Excluding
Exist., Ex.	Existing
Exp., (E)	Expansion
EJ	Expansion Joint
Ext.	Exterior
FF	Far Face. Front Face
F'c	Specified Strength of Concrete
F'ci	Strength of Concrete at Time of Initial Prestress
Ft.	Feet, Foot
Fig.	Figure
Fin. Gr.	Finish Grade
(F)	Fixed
FB	Flat Bar
Ftg.	Footing
FA	Force Account
Ga.	Gage, Gauge
Galv.	Galvanized
GFRP	Glass Fiber Reinforced Polymer
Gr.	Grade
Grd.	Ground
GRP	Grouted Rubble Pavement
H	Height
(H)	Hinge
Horiz.	Horizontal
HS	High strength
HSS	Hollow Structural Section
HECO	Hawaiian Electric Company
IB, Inbnd.	Inbound
In.	Inch
ID	Inside Diameter
IF	Inside Face
Int.	Interior
Inv.	Invert
Jt.	Joint
K	Kips
KF	Kip Foot
KSF	Kips Per Square Foot
KSI	Kips Per Square Inch
KLF	Kips Per Linear Foot
L	Length
lb., lbs., LBS.	Pound, Pounds
Ltg. Std.	Lighting Standard
LF	Linear Feet/Foot
Lin. Ft.	Linear Feet/Foot
LS	Lump Sum
Longit.	Longitudinal
M	Modified
MH	Manhole
Max.	Maximum
Mech.	Mechanical
Min.	Minimum
Misc.	Miscellaneous
MPH	Miles Per Hour
NF	Near Face
N	North
NIC	Not in Contract
No.	Number
NTS	Not to Scale
O/S	Offset
oc	On Center
Opn'g	Opening
OB, Outbnd.	Outbound
OD	Outside Diameter
P(e)	Effective or Working Prestressing Force
PP	Precast Plank
Perf.	Perforated
PL	Plate
PCC	Portland Cement Concrete
PC	Point of Curvature
PCF	Pounds per Cubic Foot
PSF	Pounds per Square Foot
PSI	Pounds per Square Inch
PLF	Pounds per Linear Foot
PI	Point of Intersection of Tangents
PIVC	Point of Intersection of Vertical Curve
PT	Point of Tangency, Post Tensioned
Pt., Pts.	Point, Points
PRC	Point of Reverse Curvature
PVC	Polyvinyl Chloride
Prestr.	Prestressed
P/S	Prestressed Strands
PB	Pull Box
Q	Flow Rate
Rad., R	Radius
RF	Rear Face
Rebar	Reinforcing Bar
Ref.	Reference
Reinf.	Reinforced, Reinforcing, Reinforcement
Req'd.	Required
Ret.	Retaining
ROW	Right of Way
Rdwy.	Roadway
Sch.	Schedule
Sect.	Section
SDMH	Sewer Drain Manhole
Sht.	Sheet
SRA	Shrinkage Reducing Admixture
Sl.	Slope
S	South
Spc	Spacing
Sprd.	Spread
Spec.	Specification
SF	Square Feet
SY	Square Yard
SS. SSTL	Stainless Steel
Std.	Standard
Sta.	Station
Stagg.	Staggered
Stiff.	Stiffener
Stirr.	Stirrup
Str.	Straight
Struct.	Structure
SE	Super Elevation
Symm.	Symmetrical
Tan.	Tangent
Temp.	Temporary
Thk.	Thick
T	Top
T&B	Top and Bottom
TOD	Top of Deck
TFE	Top of Footing Elevation
TOW	Top of Wall
Tot.	Total
Transv.	Transverse
TS	Structural Tubing
Typ.	Typical
Undergrd.	Underground
UNO	Unless Noted Otherwise
Var.	Varies
Vert., V	Vertical
VC	Vertical Curve
W/C	Water/Cement Ratio
w/	With
W	West
WWR	Welded Wire Reinforcing
WW	Wing Wall
WP	Work Point, Working Point
WS	Water Surface
Yr.	Year

ORIGINAL PLAN | NOTE BOOK No.

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

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SYMBOLS AND ABBREVIATIONS

PALI HIGHWAY
LANDSLIDE MITIGATION PROJECT
FAP Proj. No. ER-22(002)

Scale: None Date: May 6, 2019

SHEET No. S0.5 OF 5 SHEETS