

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0540(2)	2004	17	23

GENERAL NOTES

DESIGN SPECIFICATIONS:

AASHTO LRFD Bridge Design Specifications, Second Edition, 1998

MATERIALS:

- A. Reinforced Concrete: Class A ( $f'c = 3,000$  psi min.)  
B. Reinforced Steel: ASTM A 615, Grade 60  
C. Admixture in Concrete: See Special Provisions  
D. All expansion and premolded joint filler shall be incidental to concrete and will not be paid for separately.  
E. All structural steel shall be ASTM A 36, hot-dip galvanized after fabrication.  
F. All anchor bolts, nuts and washers shall be ASTM A 325, hot-dip galvanized after fabrication, unless noted otherwise.  
G. All welding shall be in accordance with the current edition of Reinforcing Steel Welding Code AWS D 1.4.

CONSTRUCTION REQUIREMENTS:

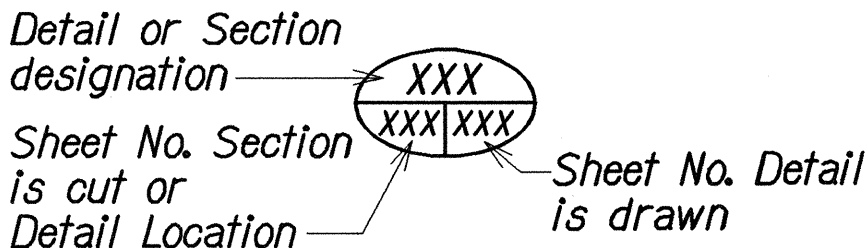
- A. Refer to Hawaii Standard Specifications for Road, Bridge and Public Works Construction, (Hawaii 1994 edition and Special Provisions).  
B. Except as noted otherwise, all vertical dimensions are measured plumb.  
C. For steel reinforcing, stagger all splices where possible.  
D. Steel reinforcing shall be supported, bent and placed as per the ACI Detailing Manual, 1994.  
E. For cast-in-place concrete, minimum reinforcement cover:  
Concrete cast against earth: 3"  
Walls: 2"  
F. At time concrete is placed, reinforcing shall be free from mud, oil laitance or other coatings adversely affecting bond capacity.  
G. Reinforcement, dowels and other embedded items shall be positively secured before pouring.  
H. Minimum clear spacing between parallel bars shall be one and one-half ( $1\frac{1}{2}$ ) times the diameter of the bars (for non-bundled bars). But in no case shall the clear distance between the bars be less than one and one-half ( $1\frac{1}{2}$ ) times the maximum size of the course aggregate.  
I. All dimensions relating to reinforcing bars (e.g. spacing of bars, etc.) are to centers of bars unless noted otherwise.  
J. All footings shall bear on firm undisturbed natural soils or properly compacted structural fill.  
K. Expansion and contraction joints in bridge rail upgrade to match respective joints in existing bridge rail. Premolded joint filler for joints to be incidental to bridge rail upgrade.  
L. Rail splices shall be located on any section of rail crossing an existing bridge rail control or expansion joint and shall be considered incidental to bridge rail upgrade. Splices to be located 1'-0" from  $\phi$  of post.  
M. Saw-cut  $\frac{1}{2}$ " deep prior to removal of existing concrete for bridge rail upgrade or endpost transition upgrade.  
N. Studs used on rail end plate shall be Type B shear connectors made from A 108 material ( $F_u$  60 k.s.i.) as specified in AWS D 1.1 / D 1.1M : 2002, Chapter 7 (Section 7.26 and Table 7.1).

REFERENCE:

- A. Refer to Standard Plans for additional details and notes not covered by details and typical drawings.

GENERAL:

- A. The Contractor shall conduct his work in such a manner and provide such temporary shoring or other measures as may be necessary to insure the safety of all concerned and to protect existing structures.  
B. In the event of over-excavation, the space between the footing or footing key and ground shall be filled with a minimum of Class D concrete at the Contractor's expense at no cost to the State.  
C. Unless noted otherwise, chamfer all exposed concrete edges three-quarters ( $\frac{3}{4}$ ) of an inch.



$\otimes$  -  $\phi$  Bearing Abutment Seat Line

$\bullet$  - Boring No.  $\phi$  Designation

Abut.	Abutment
AC	Asphaltic Concrete
Adj.	Adjacent
Alt.	Alternate
Alum.	Aluminum
Approx.	Approximate
Az.	Azimuth
$\phi$	Baseline
Bal.	Balance
Bef., Btwn.	Between
B.F.	Back Face
B.F.E.	Bottom Footing Elevation
Bk.	Back
Blf.	Bolt
Bm.	Beam
B, Bot., Bott.	Bottom
Br.	Bridge
Brg., Brgs.	Bearing, Bearings
B.V.C.	Beginning of Vertical Curve
$\phi$	Center Line
Cant.	Cantilever
C.F.	Cubic Feet
CiP	Cast in Place
C.I.P.	Cast Iron Pipe
Cl., Clr.	Clear
Col.	Column
Conc.	Concrete
Conn.	Connection
Const.	Construction
Cont.	Continuous
CRM	Cement Rubble Masonry
C.Y., Cu. Yd.	Cubic Yards

Det.  
Dia.,  $\phi$   
Dim.  
Dwg., Dwgs.

Detail  
Diameter  
Dimension  
Drawing, Drawings

I.B.  
I.F.  
In.  
Int.  
Inv.

Inbound  
Inside Face  
Inch  
Interior  
Invert

R  
Rdwy  
Ref.  
Reinf.  
Ret.  
Req'd  
R.F.  
Rt.  
R/W

Radius  
Roadway  
Reference  
Reinforcement  
Retaining  
Required  
Rear Face  
Right  
Right Of Way

EA, Ea, ea.  
E.F.  
Elec.  
El., Elev.  
Emb.  
E.P.  
Eq.  
Est.  
E.W.  
Exc.  
Exist.  
Exp., (E)  
Ext.

Each  
Each Face  
Electrical  
Elevation  
Embankment  
Edge of Pavement  
Equal  
Estimated  
Each Way  
Excavation  
Existing  
Expansion  
Exterior

Jt.

Joint

L

Length

LBS., lb., lbs.

Pound, Pounds

L.F., Lin. Ft.

Linear Feet

Lg.

Long

Longit.

Longitudinal

L.S.

Lump Sum

Lt.

Left

Ltg. Std.

Lighting Standard

Max.

Maximum

Mech.

Mechanical

Min.

Minimum

Misc.

Miscellaneous

N

North

N.B.

Northbound

N.F.

Near Face

No., #

Number

N.T.S.

Not To Scale

O.B.

Outbound

O.C.

On Center

O.G.

Outside Girder

Opn'g

Opening

O/S, O/S

Offset

P.B.

Pull Box

P.C.

Point of Curvature

P.C.C.

Portland Cement Concrete

Perf.

Perforated

PG-( )

Prestressed Girder-(Type)

PL

Plate

P/S

Prestressed Strands

Pvmt.

Pavement

S

South

S.B.

Southbound

Sect.

Section

SF

Square Feet

Shldr.

Shoulder

Sht.

Sheet

Sp.

Space

 Spd. |