

ELEVATION

GENERAL NOTES

- Whether an existing bridge handrail is to remain in place, be retrofitted or be replaced, is a determination that must be made independent of any information contained on this index.
- Only after it has been established that an existing bridge handrail is to remain in place is this index to be used to analyze guardrail to bridge connections.
- The schemes on this index are not to be used for new bridge construction, bridge widening, bridge barrier wall or handrail replacement, or, for existing bridges that have safety shade traffic barrier.
- The schemes on this index are divided into two general categories, representing curbed and uncurbed roadway approaches. A scheme selection guide is provided below for curbed and uncurbed roadway approaches. Approach slabs with curbs or wing walls with radial safety curbs will be treated as curbed roadway approaches.
- Existing bridge features shown in these schemes are example configurations only. The principle key to scheme selection is bridge curb or sidewalk width. Location control is keyed to bridge face of curb, except for certain trailing conditions.
- Details that are repetitive on the schemes and features that are detailed on Index No. 400 have been purposely deleted to produce clarity and simplification in the schemes, and to emphasize proper location and positioning of the anchorage and connecting guardrail.
- All schemes are right side or right hand details for traffic flow right to left. Left side applications are opposite hand.
- For undivided two-way bridges "trailing end", as used in this index, is in relation to the direction of travel of near lane traffic, but it is always considered as an approach for opposing lane traffic.
- All connections of guardrail special end shoes to concrete anchorage posts, panels and walls shall have a 12" x 12" x 5/8" galvanized steel back-up plate for girth tightening of hex nuts on 5/8" diameter galvanized hex bolts; hex bolts shall have a nominal length equal to the thickness of the concrete anchorage plus 1 1/2".

When thru bolts would penetrate existing bridge rails, 5/8" diameter bolt clusters and chemical anchor bolts meeting the manufacturers recommendation may be substituted as approved by the Engineer.

- Unless otherwise called for in the plans exposed concrete surfaces shall have a Class 3 surface finish and Class 5 Applied Finish Coating in accordance with Section 520 and 400 respectively of the Standard Specifications.
- The guardrail end anchorage schemes on this index do not include cost for payment of guardrail.

Each independent anchorage described in these schemes shall be paid for as a bridge end anchorage assembly under the contract unit price for Bridge Anchorage Assembly, EA. The unit price shall be full compensation for the following:

- Each concrete anchor post, panel or transition wall including reinforcing steel, existing rail or rail and post removal, socket filling, sand breaker, post beveling, drilling, cawing, grouting, excavation, backfill, special end shoe and accessory items.
- Each guardrail steel terminal post, including flared end section, anchorage and accessory items (optional use not included).
- Each special end shoe anchored directly to an existing bridge end post or wing post, including back-up plate and accessory items.

Continuous concrete safety barrier (Schemes 1 & 19) shall be paid for as a roadway item under the contract unit price for Concrete Handrail (Retrofit Barrier) (Vert. Face), LF.

Continuous guardrail across bridges shall be paid for as a roadway item under the contract unit price for Guardrail (Bridge) LF. and Special Guardrail Post, EA. The unit price for guardrail shall include the cost for all accessories prescribed under Index No. 400 and the unit price for special posts shall include the cost for all accessories and anchorage prescribed in Index 400 and in Scheme 16 of this index.

GUARDRAIL NOTE

Approach end guardrail transitions shall be constructed on the approach ends of one-way bridges, and both the approach and trailing ends of undivided two-way bridges. Nested rails shall not be bolted to the blocks and posts of posts (a), (c), (e), (g), (i), (k), (m), (o), (q), (s), (u), (w), (y), (aa), (ac), (ad), (af), (ag), (ah), (aj), (ak), (al), (am), (an), (ao), (ap), (aq), (ar), (as), (at), (au), (av), (aw), (ax), (ay), (az), (ba), (bb), (bc), (bd), (be), (bf), (bg), (bh), (bi), (bj), (bk), (bl), (bm), (bn), (bo), (bp), (bq), (br), (bs), (bt), (bu), (bv), (bw), (bx), (by), (bz), (ca), (cb), (cc), (cd), (ce), (cf), (cg), (ch), (ci), (cj), (ck), (cl), (cm), (cn), (co), (cp), (cq), (cr), (cs), (ct), (cu), (cv), (cw), (cx), (cy), (cz), (da), (db), (dc), (dd), (de), (df), (dg), (dh), (di), (dj), (dk), (dl), (dm), (dn), (do), (dp), (dq), (dr), (ds), (dt), (du), (dv), (dw), (dx), (dy), (dz), (ea), (eb), (ec), (ed), (ee), (ef), (eg), (eh), (ei), (ej), (ek), (el), (em), (en), (eo), (ep), (eq), (er), (es), (et), (eu), (ev), (ew), (ex), (ey), (ez), (fa), (fb), (fc), (fd), (fe), (ff), (fg), (fh), (fi), (fj), (fk), (fl), (fm), (fn), (fo), (fp), (fq), (fr), (fs), (ft), (fu), (fv), (fw), (fx), (fy), (fz), (ga), (gb), (gc), (gd), (ge), (gf), (gg), (gh), (gi), (gj), (gk), (gl), (gm), (gn), (go), (gp), (gq), (gr), (gs), (gt), (gu), (gv), (gw), (gx), (gy), (gz), (ha), (hb), (hc), (hd), (he), (hf), (hg), (hh), (hi), (hj), (hk), (hl), (hm), (hn), (ho), (hp), (hq), (hr), (hs), (ht), (hu), (hv), (hw), (hx), (hy), (hz), (ia), (ib), (ic), (id), (ie), (if), (ig), (ih), (ii), (ij), (ik), (il), (im), (in), (io), (ip), (iq), (ir), (is), (it), (iu), (iv), (iw), (ix), (iy), (iz), (ja), (jb), (jc), (jd), (je), (jf), (jg), (jh), (ji), (jj), (jk), (jl), (jm), (jn), (jo), (jp), (jq), (jr), (js), (jt), (ju), (jv), (jw), (jx), (jy), (jz), (ka), (kb), (kc), (kd), (ke), (kf), (kg), (kh), (ki), (kj), (kk), (kl), (km), (kn), (ko), (kp), (kq), (kr), (ks), (kt), (ku), (kv), (kw), (kx), (ky), (kz), (la), (lb), (lc), (ld), (le), (lf), (lg), (lh), (li), (lj), (lk), (ll), (lm), (ln), (lo), (lp), (lq), (lr), (ls), (lt), (lu), (lv), (lw), (lx), (ly), (lz), (ma), (mb), (mc), (md), (me), (mf), (mg), (mh), (mi), (mj), (mk), (ml), (mm), (mn), (mo), (mp), (mq), (mr), (ms), (mt), (mu), (mv), (mw), (mx), (my), (mz), (na), (nb), (nc), (nd), (ne), (nf), (ng), (nh), (ni), (nj), (nk), (nl), (nm), (nn), (no), (np), (nq), (nr), (ns), (nt), (nu), (nv), (nw), (nx), (ny), (nz), (oa), (ob), (oc), (od), (oe), (of), (og), (oh), (oi), (oj), (ok), (ol), (om), (on), (oo), (op), (oq), (or), (os), (ot), (ou), (ov), (ow), (ox), (oy), (oz), (pa), (pb), (pc), (pd), (pe), (pf), (pg), (ph), (pi), (pj), (pk), (pl), (pm), (pn), (po), (pp), (pq), (pr), (ps), (pt), (pu), (pv), (pw), (px), (py), (pz), (qa), (qb), (qc), (qd), (qe), (qf), (qg), (qh), (qi), (qj), (qk), (ql), (qm), (qn), (qo), (qp), (qq), (qr), (qs), (qt), (qu), (qv), (qw), (qx), (qy), (qz), (ra), (rb), (rc), (rd), (re), (rf), (rg), (rh), (ri), (rj), (rk), (rl), (rm), (rn), (ro), (rp), (rq), (rr), (rs), (rt), (ru), (rv), (rw), (rx), (ry), (rz), (sa), (sb), (sc), (sd), (se), (sf), (sg), (sh), (si), (sj), (sk), (sl), (sm), (sn), (so), (sp), (sq), (sr), (ss), (st), (su), (sv), (sw), (sx), (sy), (sz), (ta), (tb), (tc), (td), (te), (tf), (tg), (th), (ti), (tj), (tk), (tl), (tm), (tn), (to), (tp), (tq), (tr), (ts), (tt), (tu), (tv), (tw), (tx), (ty), (tz), (ua), (ub), (uc), (ud), (ue), (uf), (ug), (uh), (ui), (uj), (uk), (ul), (um), (un), (uo), (up), (uq), (ur), (us), (ut), (uu), (uv), (uw), (ux), (uy), (uz), (va), (vb), (vc), (vd), (ve), (vf), (vg), (vh), (vi), (vj), (vk), (vl), (vm), (vn), (vo), (vp), (vq), (vr), (vs), (vt), (vu), (vv), (vw), (vx), (vy), (vz), (wa), (wb), (wc), (wd), (we), (wf), (wg), (wh), (wi), (wj), (wk), (wl), (wm), (wn), (wo), (wp), (wq), (wr), (ws), (wt), (wu), (wv), (ww), (wx), (wy), (wz), (xa), (xb), (xc), (xd), (xe), (xf), (xg), (xh), (xi), (xj), (xk), (xl), (xm), (xn), (xo), (xp), (xq), (xr), (xs), (xt), (xu), (xv), (xw), (xx), (xy), (xz), (ya), (yb), (yc), (yd), (ye), (yf), (yg), (yh), (yi), (yj), (yk), (yl), (ym), (yn), (yo), (yp), (yq), (yr), (ys), (yt), (yu), (yv), (yw), (yx), (yz), (za), (zb), (zc), (zd), (ze), (zf), (zg), (zh), (zi), (zj), (zk), (zl), (zm), (zn), (zo), (zp), (zq), (zr), (zs), (zt), (zu), (zv), (zw), (zx), (zy), (zz).

DESIGN NOTES

- The details in this index are intended to be used for existing bridges that have end and approach slab configurations constructed under former Department standards and are not intended to preclude special design details more suited to bridges with unusual handrail or wingpost configurations, or, when there is conflict with drainage structures or other features that can not be adjusted.
- The schemes provide the designer with a convenient method of providing standardized information on the plans. In the selection and assignment of schemes the designer must predetermine existing bridge handrail, curb, sidewalk and approach slab conditions, particularly the location of embedded conduit. Special attention must be directed to the presence or absence of curbed approaches on each independent corner of the bridge.
- Each corner of the bridge that requires a guardrail connection should be labeled independently by scheme number, and, where continuous barrier is required across a bridge the scheme number should be labeled independently on the side(s) of the bridge. When continuous guardrail is called for, bridge end anchorage assemblies will be omitted, but when continuous concrete safety barrier is called for, one or more bridge end anchorage assemblies will be labeled on the plans.
- The scheme selection guide below is to be used as a quick reference for determining anchorages and continuous barriers that are applicable to specific conditions for existing bridges. When appropriate, special details are to be used in lieu of schemes or to supplement or complement the scheme details. In selecting schemes the width of curb, safety curb and sidewalk is the distance from the face of curb to the nearest face of post, rail or parapet.

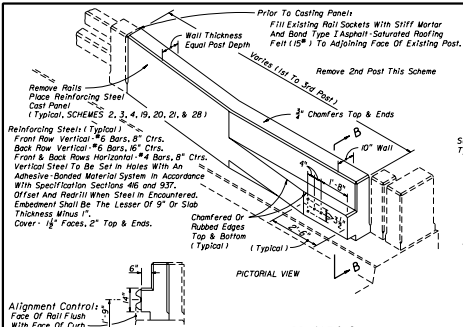
SCHEME SELECTION GUIDE (NUMBERS)				
	WITH ROADWAY CURBS APPROACHING BRIDGES Sheets 2 thru 6		WITHOUT ROADWAY CURBS APPROACHING BRIDGES Sheets 7 thru 9	
	APPROACH END	TRAILING END	APPROACH END	TRAILING END
ONE-WAY BRIDGES				
Handrail Curb	3, 4, 18	3, 4, 18	21, 22, 27, 30	23, 27, 30
Narrow Curb	1, 2, 3, 8, 9, 11, 12, 13, 14	2, 3, 8, 15	20, 21, 28, 29	23, 27, 29
Wide Safety Curb	1, 2, 6, 11, 12, 13, 14, 15, 16, 17	1, 2, 6, 11, 12, 13, 14, 15, 16	19, 20, 28, 29	19, 23, 29
Sidewalks	1, 16	1, 16	19	19
TWO-WAY BRIDGES				
	APPROACH AND TRAILING ENDS		APPROACH AND TRAILING ENDS	
Handrail Curb	3, 4, 9, 10, 18		21, 22, 26, 30	
Narrow Curb	2, 3, 6, 7, 9, 10, 11, 12, 13, 14		20, 21, 25, 29	
Wide Safety Curb	1, 2, 5, 6, 9, 10, 11, 12, 13, 14, 16		19, 20, 24, 25, 29	
Sidewalks	1, 16		19	

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN

GUARDRAIL ANCHORAGE AND CONTINUOUS BARRIER FOR EXISTING BRIDGES

Designed By: JMS 09/96
 Drawn By: HSD 09/96
 Checked By: JMS 09/96

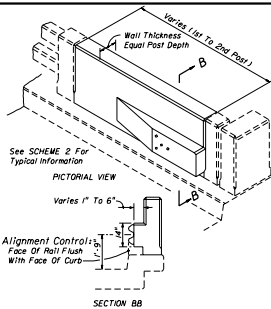
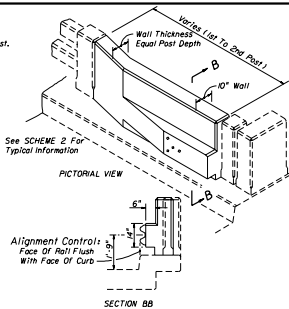
Approved By: *[Signature]*
 SPECIALIST
 1 of 9 401



APPLICATIONS

SAFETY CURB 1'-0" TO 2'-0" WIDE
 POST AND DISCONTINUOUS BEAM RAILING
 APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
 APPROACH END OF ONE-WAY BRIDGES
 TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

SCHEME 2



*Const. Bevel On Approach Ends Only (Remove Sufficient Conc. Below Neat Faces To Either Cut Or Bend Reinf. Steel To Provide Min. Of 1/2\"/>

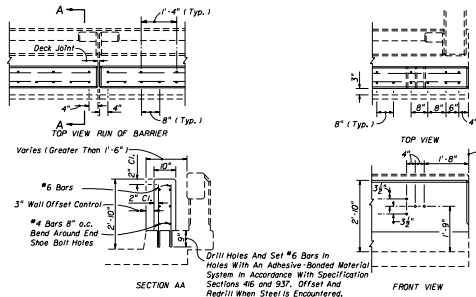
APPLICATIONS

HANDRAIL CURB
 POST AND DISCONTINUOUS BEAM RAILING
 APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
 APPROACH END OF ONE-WAY BRIDGES
 TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

SCHEME 4

**SCHEME 3
 CAST IN PLACE PANELS**

Estimated Quantities (Per L.F.)
 Class II Concrete - 0.06 C.Y.
 Reinforcing Steel - 16 Lbs.



APPLICATIONS

SAFETY CURB WIDER THAN 1'-6" AND
 SIDEWALKS CONTINUOUS BARRIER ACROSS BRIDGE

**SCHEME 1
 CONCRETE SAFETY BARRIER**

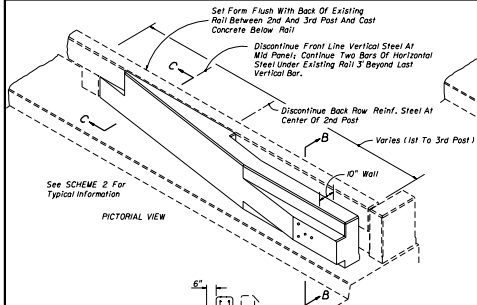
BRIDGES WITH APPROACHING ROADWAY CURB

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
 ROAD DESIGN

**GUARDRAIL ANCHORAGE AND
 CONTINUOUS BARRIER FOR
 EXISTING BRIDGES**

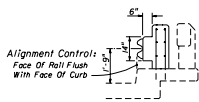
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DRWEN BY	REVISION	DATE
CHECKED BY	NO.	OF

2 of 9 401



See SCHEME 2 For Typical Information

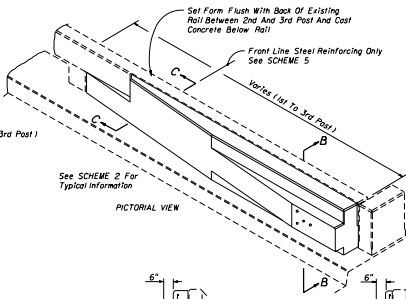
PICTORIAL VIEW



SECTION BB

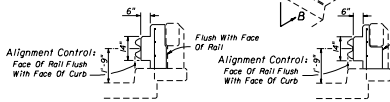
APPLICATIONS
SAFETY CURB 2'-0" WIDE
CONCRETE CONTINUOUS BEAM RAILING
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

SCHEME 5



See SCHEME 2 For Typical Information

PICTORIAL VIEW

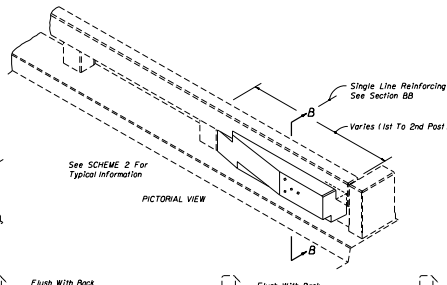


SECTION BB
CURBS 18" TO 23" WIDE (18" SHOWN)

APPLICATIONS
SAFETY CURB 1'-1" TO 1'-11" WIDE
CONCRETE CONTINUOUS BEAM RAILING
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES (CURBS 1'-1" TO 1'-11" WIDE)
TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT (CURBS 1'-8" TO 1'-11" WIDE)

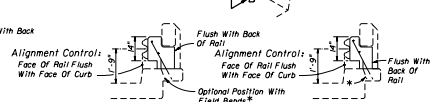
SCHEME 6

CAST IN PLACE PANELS



See SCHEME 2 For Typical Information

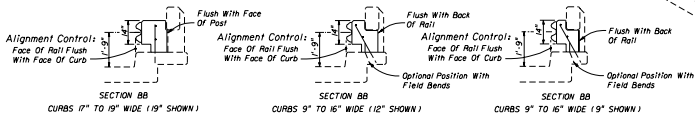
PICTORIAL VIEW



SECTION BB
(12" CURBS SHOWN)

APPLICATIONS
SAFETY CURB 9" TO 1'-0" WIDE
CONCRETE CONTINUOUS BEAM RAILING
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES

SCHEME 7



SECTION BB
CURBS 0" TO 19" WIDE (19" SHOWN)

SECTION BB
CURBS 9" TO 16" WIDE (12" SHOWN)

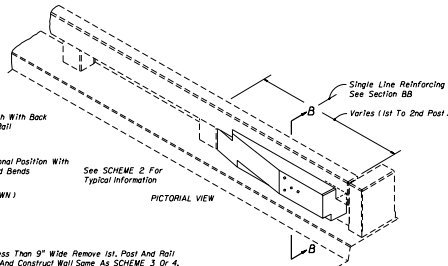
SECTION BB
CURBS 9" TO 16" WIDE (9" SHOWN)

APPLICATIONS
SAFETY CURB 9" TO 1'-7" WIDE
CONCRETE CONTINUOUS BEAM RAILING
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

SCHEME 8

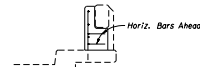
CAST IN PLACE PANELS

Note: For Curbs Less Than 9" Wide Remove 1st, Post And Roll To 2nd Post And Construct Wall Same As SCHEME 3 Or 4.
For Safety Curbs Wider Than 19" See SCHEME 5, 6 & 9.



See SCHEME 2 For Typical Information

PICTORIAL VIEW

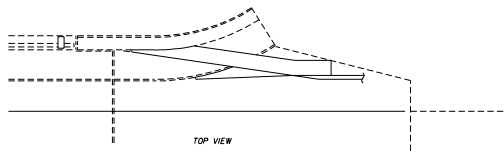


SECTION CC (SCHEMES 5, 6 & 8)

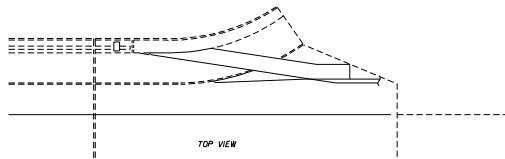
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN

GUARDRAIL ANCHORAGE AND
CONTINUOUS BARRIER FOR
EXISTING BRIDGES

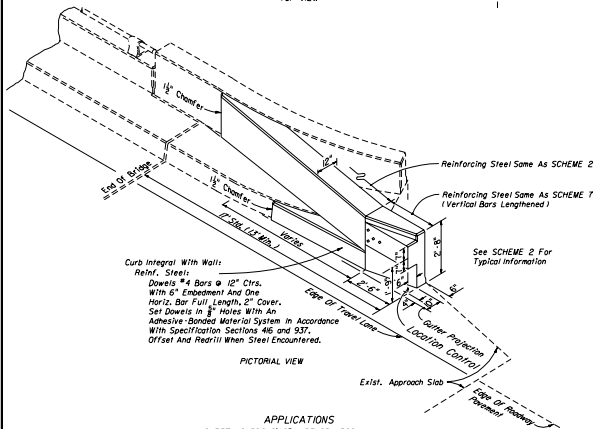
DESIGNED BY	JMK	DATE	02/96	APPROVED BY	[Signature]
DRAWN BY	HSD	CHECKED BY	TEAL/ML	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	
CHECKED BY	JMK	DATE	02/96	00	3 of 9



TOP VIEW



TOP VIEW

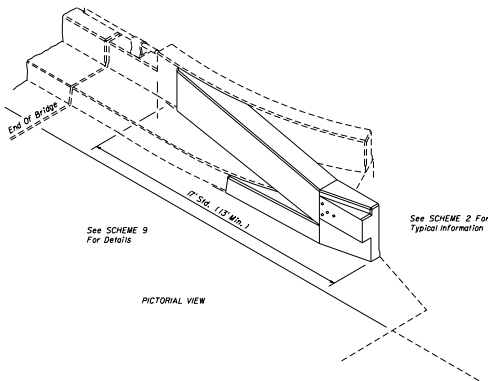


PICTORIAL VIEW

APPLICATIONS

- SAFETY CURBS 2'-0" WIDE OR LESS
- CONCRETE PARAPET WITH METAL PIPE RAILING
- APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
- APPROACH END OF ONE-WAY BRIDGES
- APPROACH SLAB FOUNDATION

SCHEME 9



PICTORIAL VIEW

APPLICATIONS

- SAFETY CURBS 2'-0" WIDE OR LESS
- CONCRETE PARAPET WITH METAL PIPE RAILING
- APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
- APPROACH END OF ONE-WAY BRIDGES
- APPROACH SLAB FOUNDATION

SCHEME 10

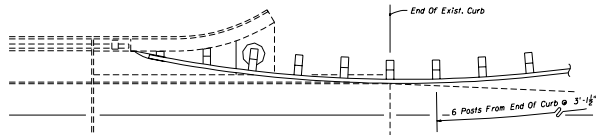
CAST IN PLACE TRANSITION WALL

BRIDGE WITH APPROACHING ROADWAY CURB

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN

GUARDRAIL ANCHORAGE AND
CONTINUOUS BARRIER FOR
EXISTING BRIDGES

DESIGNED BY	DATE	APPROVED BY	SCALE	REVISIONS	WORK NO.
JMS	08/96	[Signature]			
DRAWN BY	MSD	08/96	1/4" = 1'-0"		
CHECKED BY	JMS	08/96	00	4 of 9	401

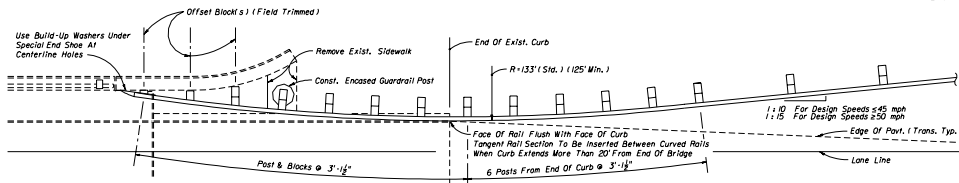


See SCHEME II For Additional Information

APPLICATIONS

SAFETY CURB 2'-0" WIDE OR LESS
 APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
 APPROACH END OF ONE-WAY BRIDGES
 TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

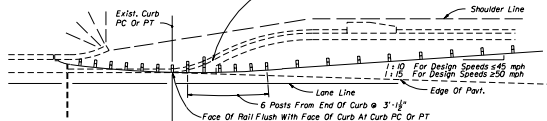
SCHEME 12



APPLICATIONS

SAFETY CURB 2'-0" WIDE OR LESS
 APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
 APPROACH END OF ONE-WAY BRIDGES
 TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

SCHEME 11



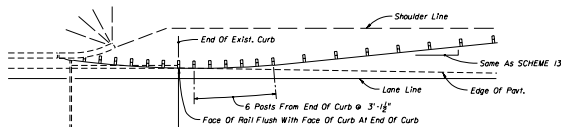
Portions Of Curb And Gutter May Be Removed And Reconstructed As Necessary To Locate Posts In This Zone. Post May Be Located Within The Curb Or Within The Lip Of The Gutter, But Not Closer Than 12" From Face Of Curb.

See SCHEMES II & 12 For Additional Information

APPLICATIONS

SAFETY CURB 2'-0" WIDE OR LESS
 APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
 APPROACH END OF ONE-WAY BRIDGES
 TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

SCHEME 13



See SCHEMES II & 12 For Additional Information

APPLICATIONS

SAFETY CURB 2'-0" WIDE OR LESS
 APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
 APPROACH END OF ONE-WAY BRIDGES
 TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

SCHEME 14

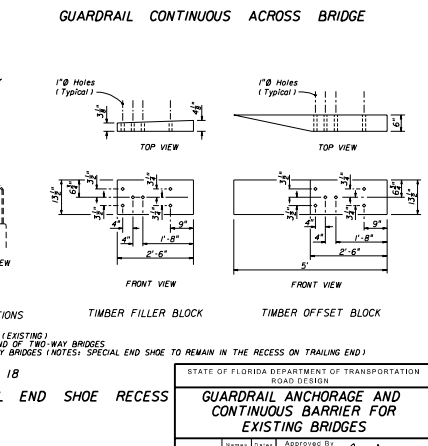
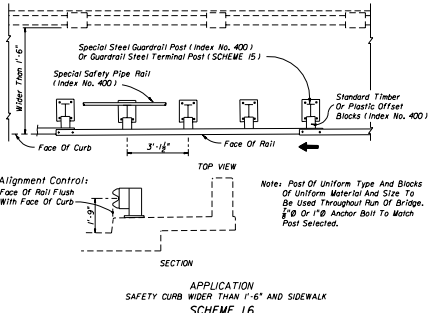
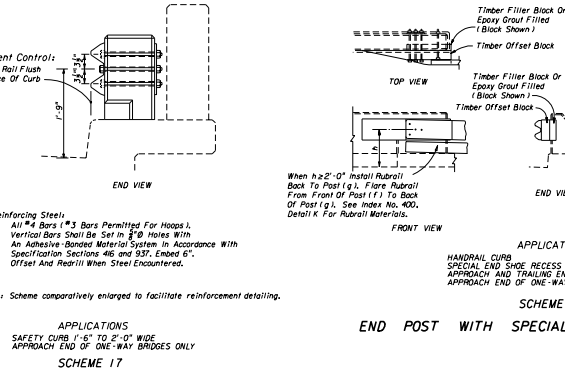
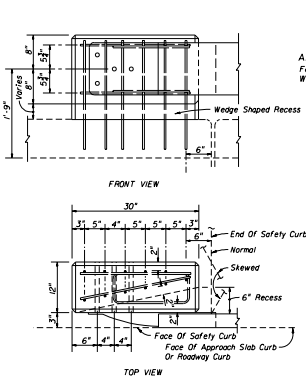
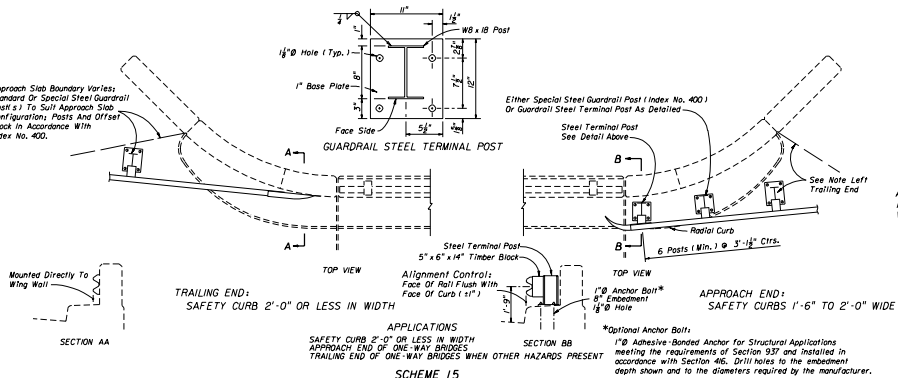
CURVILINEAR GUARDRAIL
 BRIDGES WITH APPROACHING ROADWAY CURB

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
 ROAD DESIGN

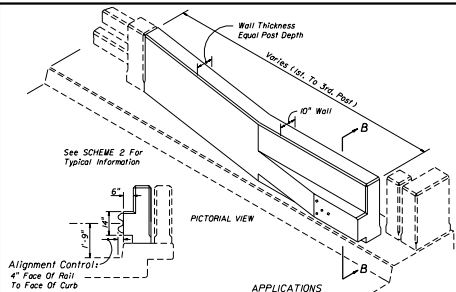
GUARDRAIL ANCHORAGE AND
 CONTINUOUS BARRIER FOR
 EXISTING BRIDGES

Drawn By	Checked By	Date	State Highway Design	Sheet No.	Total No.
JMS	JMS	09/96		5 of 9	401
Approved By	[Signature]				

Approach Slab Boundary Varies. Standard Or Special Steel Guardrail Posts To Suit Approach Slab Configurations. Posts And Offset Block In Accordance With Index No. 400.



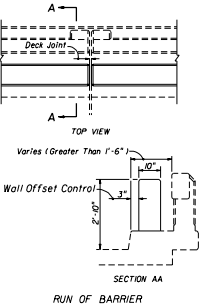
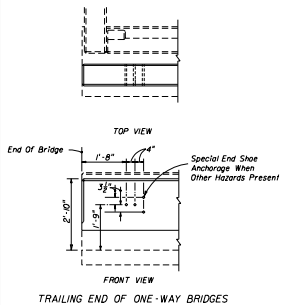
STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD DESIGN			
DESIGNED BY	DATE	APPROVED BY	
JMS	09/96	[Signature]	
Drawn By	JMS	CHECKED BY	JMS
Checked By	JMS	DATE	00
			6 of 9
			401



Alignment Control:
4" Face Of Rail
To Face Of Curb

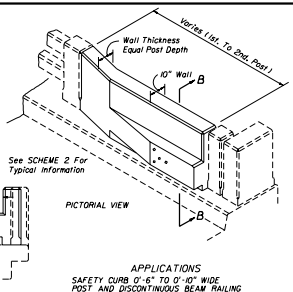
APPLICATIONS
SAFETY CURB 0'-11" TO 2'-0" WIDE
POST AND DISCONTINUOUS BEAM RAILING
APPROACH ENDS OF ONE-WAY BRIDGE
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES

SCHEME 20



See Scheme 1 For Reinforcing Details And Estimated Quantities
APPLICATIONS
SAFETY CURB WIDER THAN 1'-6", AND
SIDEWALKS CONTINUOUS BARRIER ACROSS BRIDGE

SCHEME 19
CONCRETE SAFETY BARRIER

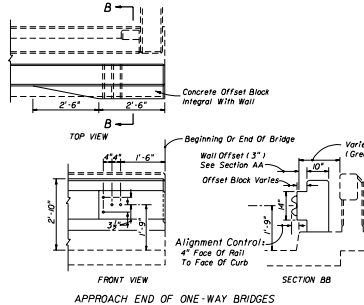


Alignment Control:
4" Face Of Rail
To Face Of Curb

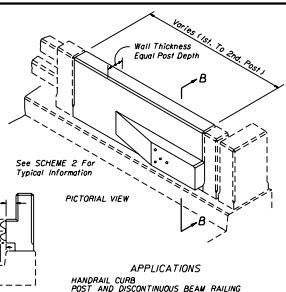
APPLICATIONS
SAFETY CURB 0'-6" TO 0'-10" WIDE
POST AND DISCONTINUOUS BEAM RAILING
APPROACH ENDS OF ONE-WAY BRIDGES
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES

SCHEME 21

CAST IN PLACE PANELS



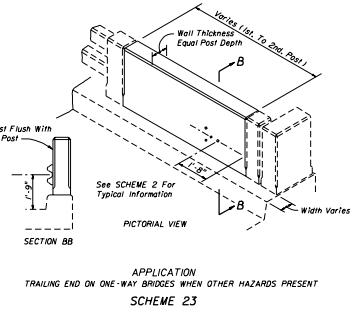
APPLICATIONS
APPROACH END OF ONE-WAY BRIDGES
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES



Alignment Control:
4" Face Of Rail
To Face Of Curb

APPLICATIONS
HANDRAIL CURB
POST AND DISCONTINUOUS BEAM RAILING
APPROACH END OF ONE-WAY BRIDGES
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES

SCHEME 22

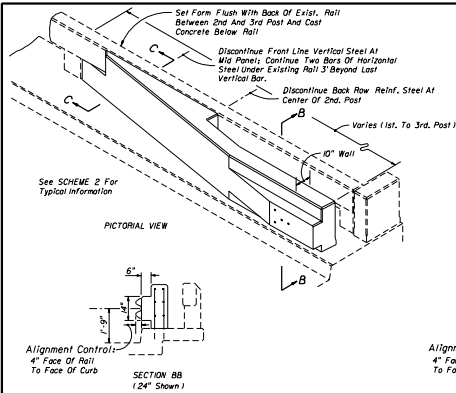


APPLICATION
TRAILING END ON ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

SCHEME 23
CAST IN PLACE CONCRETE PANEL

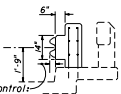
BRIDGE WITHOUT APPROACHING ROADWAY CURB

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD DESIGN			
GUARDRAIL ANCHORAGE AND CONTINUOUS BARRIER FOR EXISTING BRIDGES			
DESIGNED BY	DATE	APPROVED BY	
DRAWN BY	DATE	CHECKED BY	
CHECKED BY	DATE	CD	7 of 9 401



See SCHEME 2 For Typical Information

PICTORIAL VIEW



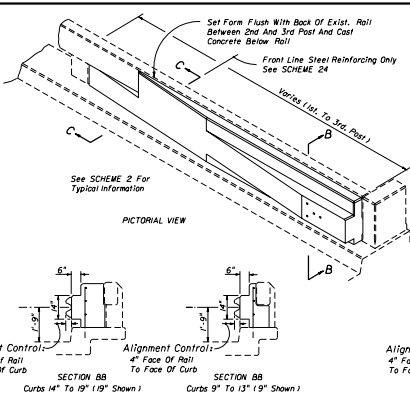
Alignment Control:
4" Face Of Rail
To Face Of Curb

SECTION BB
(24" Shown)

APPLICATIONS

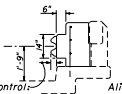
SAFETY CURBS 1'-8" TO 2'-0" WIDE
CONCRETE CONTINUOUS BEAM RAILING
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES

SCHEME 24



See SCHEME 2 For Typical Information

PICTORIAL VIEW



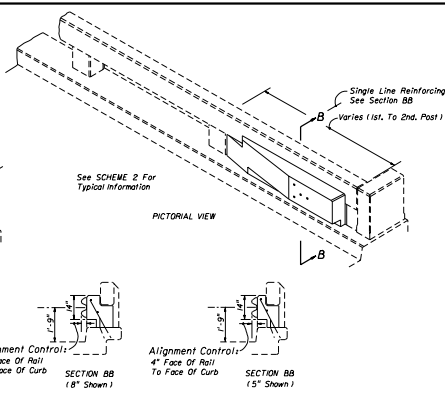
Alignment Control:
4" Face Of Rail
To Face Of Curb

SECTION BB
(Curbs 14" To 19" Shown)

APPLICATIONS

SAFETY CURBS 9" TO 1'-7" WIDE
CONCRETE CONTINUOUS BEAM RAILING
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES

SCHEME 25



See SCHEME 2 For Typical Information

PICTORIAL VIEW



Alignment Control:
4" Face Of Rail
To Face Of Curb

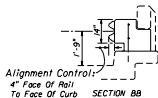
SECTION BB
(8" Shown)

APPLICATIONS

SAFETY CURBS 5" TO 8" WIDE
CONCRETE CONTINUOUS BEAM RAILING
APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES

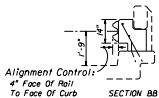
SCHEME 26

CAST IN PLACE PANELS



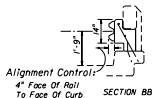
Alignment Control:
4" Face Of Rail
To Face Of Curb

SECTION BB
CURBS 9" TO 15" WIDE (13" SHOWN)
APPROACH ENDS



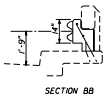
Alignment Control:
4" Face Of Rail
To Face Of Curb

SECTION BB
CURBS 5" TO 8" WIDE (5" SHOWN)
APPROACH ENDS



Alignment Control:
4" Face Of Rail
To Face Of Curb

SECTION BB
CURBS 5" TO 8" WIDE (5" SHOWN)
APPROACH ENDS



SECTION BB
CURB WIDTHS VARY
TRAILING END
WHEN OTHER HAZARDS PRESENT

Note: For Trailing End Curb Less Than 5" Wide See SCHEME 23

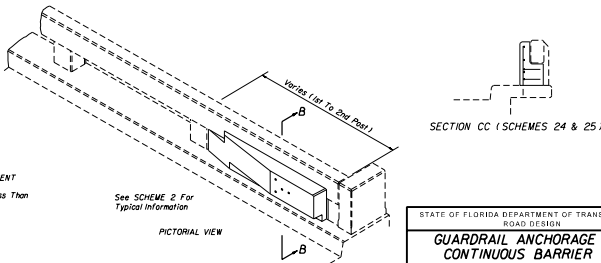
APPLICATIONS

SAFETY CURB 5" TO 1'-5" WIDE
CONCRETE CONTINUOUS BEAM RAILING
APPROACH END OF ONE-WAY BRIDGES
TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT

SCHEME 27

CAST IN PLACE PANELS

BRIDGES WITHOUT APPROACHING ROADWAY CURB



See SCHEME 2 For Typical Information

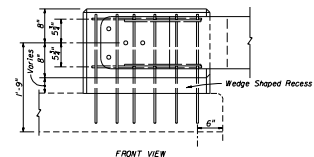
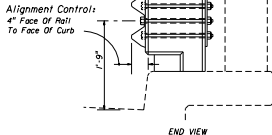
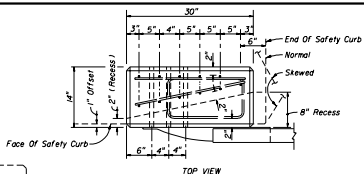
PICTORIAL VIEW

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
ROAD DESIGN

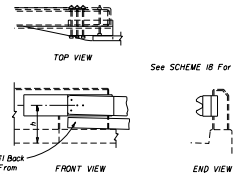
GUARDRAIL ANCHORAGE AND
CONTINUOUS BARRIER FOR
EXISTING BRIDGES

DESIGNED BY	DRAWN BY	CHECKED BY	DATE	APPROVED BY
JMS	MSD	JMS	09/96	[Signature]
MSD	MSD	JMS	09/96	00
8 of 9			401	

Reinforcing Steel: See SCHEME 17.
 Note: Scheme comparatively enlarged to facilitate reinforcement detailing.



APPLICATIONS
 SAFETY CURB WIDER THAN 1'-4" AND UP TO 2'-0"
 APPROACH END OF ONE-WAY BRIDGES ONLY
 SCHEME 28
 CONCRETE ANCHOR POST



When $h \geq 2'-0"$ Install Rubrail Back To Post (g), Flare Rubrail From Front Of Post (f) To Back Of Post (g). See Index 400, Detail K For Rubrail Materials.

APPLICATIONS
 HANDRAIL CURB
 SPECIAL END SHOE RECESS (EXISTING) APPROACH AND TRAILING END OF TWO-WAY BRIDGES
 APPROACH END OF ONE-WAY BRIDGES (NOTE: SPECIAL END SHOE TO REMAIN IN THE RECESS ON TRAILING END)
 SCHEME 30
 END POST WITH SPECIAL END SHOE RECESS

Note (Scheme 29):

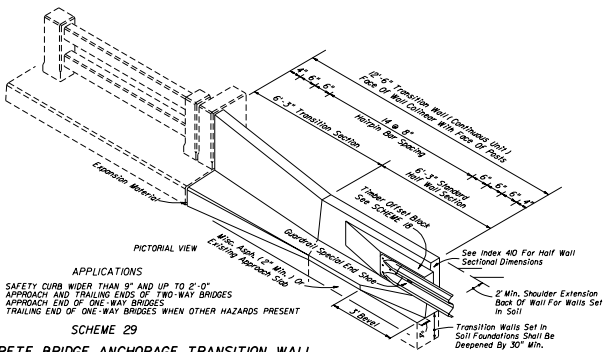
Portions of existing approach slab curbing, wingwalls, shoulder gutter, flumes and etc. may have to be revamped or removed.

Transition walls shall be reinforced in accordance with the 'Free End Reinforcement' detail of index No. 410 with the hairpin bars spaced as shown in this pictorial. Walls mounted on existing approach slabs shall be anchored into the slabs with the front line of the hairpin reinforcement embedded 6" in the slab with an Adhesive-Bonded Material System in accordance with Specification Section 416 and 937. Offset and redrill when steel encountered.

Transition walls mounted on soil foundation shall have footings deepened 30" and the walls deepened into the end of the existing bridge in the following manner:

Four 1 1/2" diameter holes 6" deep shall be drilled in the end post of the existing bridge and "6 bars 15" long set in epoxy mortar. The holes shall be located as near as practical to the vertical center of the end of the transition wall and equally spaced to provide cover of 3" minimum. The ends of the dowels extending into the transition wall shall be wrapped with one layer of Type I asphalt-saturated roofing felt (15#) with the ends crimped.

Approaching guardrail shall have approach post spacings, offset blocks and double W-beams in accordance with Details H, I, S & T, index No. 400.



APPLICATIONS
 SAFETY CURB WIDER THAN 9" AND UP TO 2'-0"
 APPROACH AND TRAILING ENDS OF TWO-WAY BRIDGES
 APPROACH END OF ONE-WAY BRIDGES
 TRAILING END OF ONE-WAY BRIDGES WHEN OTHER HAZARDS PRESENT
 SCHEME 29
 CONCRETE BRIDGE ANCHORAGE TRANSITION WALL

BRIDGES WITHOUT APPROACHING ROADWAY CURB

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION ROAD DESIGN			
GUARDRAIL ANCHORAGE AND CONTINUOUS BARRIER FOR EXISTING BRIDGES			
Drawn By	Checked By	Approved By	Scale
JAS	JAS	[Signature]	AS SHOWN
DESIGNED BY	CHECKED BY	DATE	NO. OF SHEETS
JAS	JAS	00	9 of 9