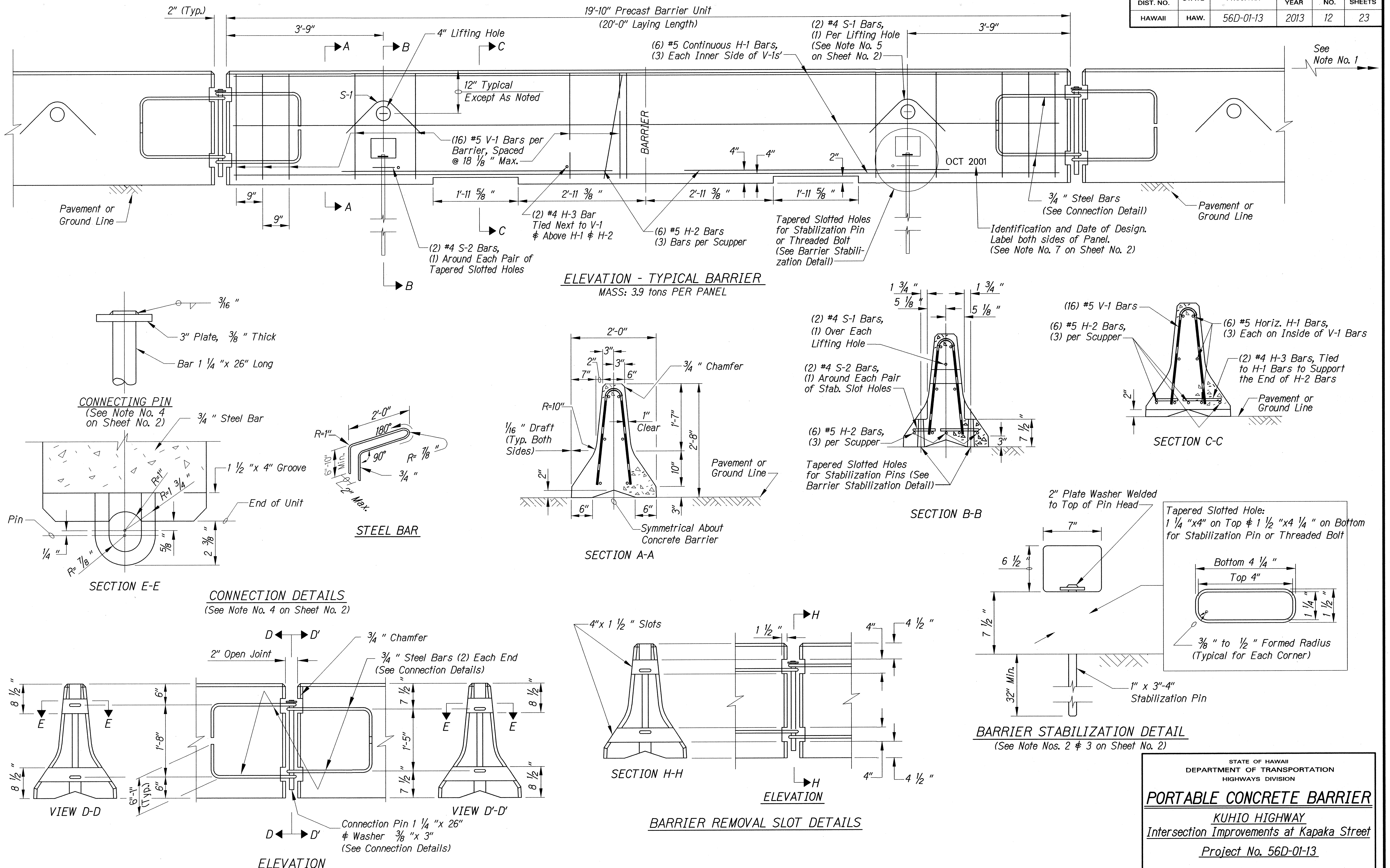
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	56D-01-13	2013	12	23



19'-10" Precast Barrier Unit
(20'-0" Laying Length)
2" (Typ.)
3'-9"
4" Lifting Hole
(6) #5 Continuous H-1 Bars, (3) Each Inner Side of V-1s'
(2) #4 S-1 Bars, (1) Per Lifting Hole (See Note No. 5 on Sheet No. 2)
See Note No. 1
12" Typical Except As Noted
S-1
BARRIER
(16) #5 V-1 Bars per Barrier, Spaced @ 18 1/8 " Max.
OCT 2001
1'-11 5/8 "
2'-11 3/8 "
Pavement or Ground Line
(2) #4 H-3 Bar Tied Next to V-1 & Above H-1 & H-2
(6) #5 H-2 Bars (3) Bars per Scupper
Tapered Slotted Holes for Stabilization Pin or Threaded Bolt (See Barrier Stabilization Detail)
3/4 " Steel Bars (See Connection Detail)
Identification and Date of Design. Label both sides of Panel. (See Note No. 7 on Sheet No. 2)
(2) #4 S-2 Bars, (1) Around Each Pair of Tapered Slotted Holes
ELEVATION - TYPICAL BARRIER
MASS: 3.9 tons PER PANEL
3/16 "
3" Plate, 3/8 " Thick
Bar 1 1/4 "x 26" Long
CONNECTING PIN
(See Note No. 4 on Sheet No. 2)
3/4 " Steel Bar
1 1/2 "x 4" Groove
End of Unit
Pin
SECTION E-E
STEEL BAR
2'-0"
180°
90°
2" Max.
CONNECTION DETAILS
(See Note No. 4 on Sheet No. 2)
3/4 " Chamfer
R=10"
1/16 " Draft (Typ. Both Sides)
1" Clear
Pavement or Ground Line
Symmetrical About Concrete Barrier
SECTION A-A
(2) #4 S-1 Bars, (1) Over Each Lifting Hole
(2) #4 S-2 Bars, (1) Around Each Pair of Stab. Slot Holes
(6) #5 H-2 Bars, (3) per Scupper
Tapered Slotted Holes for Stabilization Pins (See Barrier Stabilization Detail)
SECTION B-B
(16) #5 V-1 Bars
(6) #5 H-2 Bars, (3) per Scupper
(6) #5 Horiz. H-1 Bars, (3) Each on Inside of V-1 Bars
(2) #4 H-3 Bars, Tied to H-1 Bars to Support the End of H-2 Bars
Pavement or Ground Line
SECTION C-C
2" Plate Washer Welded to Top of Pin Head
Tapered Slotted Hole: 1 1/4 "x4" on Top & 1 1/2 "x4 1/4 " on Bottom for Stabilization Pin or Threaded Bolt
Bottom 4 1/4 "
Top 4"
3/8 " to 1/2 " Formed Radius (Typical for Each Corner)
1" x 3'-4" Stabilization Pin
32" Min.
BARRIER STABILIZATION DETAIL
(See Note Nos. 2 & 3 on Sheet No. 2)
2" Open Joint
3/4 " Chamfer
3/4 " Steel Bars (2) Each End (See Connection Details)
VIEW D-D
VIEW D'-D'
Connection Pin 1 1/4 "x 26" & Washer 3/8 "x 3" (See Connection Details)
ELEVATION
4"x 1 1/2 " Slots
SECTION H-H
ELEVATION
BARRIER REMOVAL SLOT DETAILS

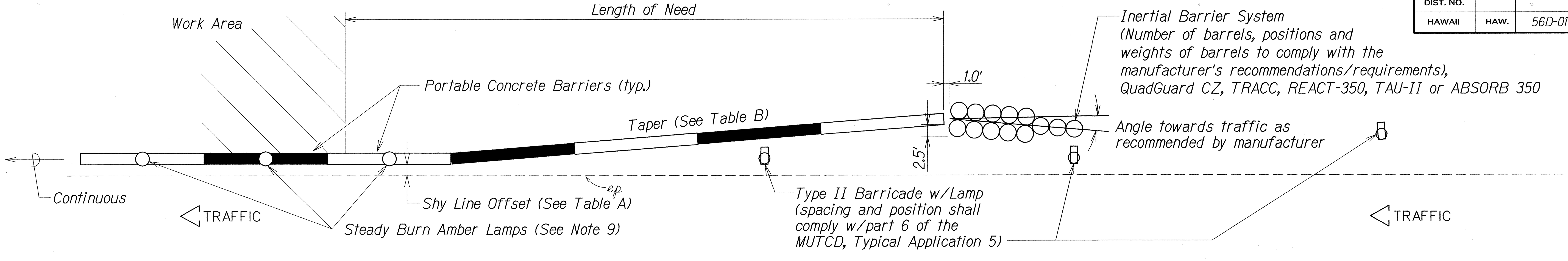
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PORTABLE CONCRETE BARRIER

KUHIO HIGHWAY
Intersection Improvements at Kapaka Street
Project No. 56D-01-13

Not to Scale   Date: January 2013

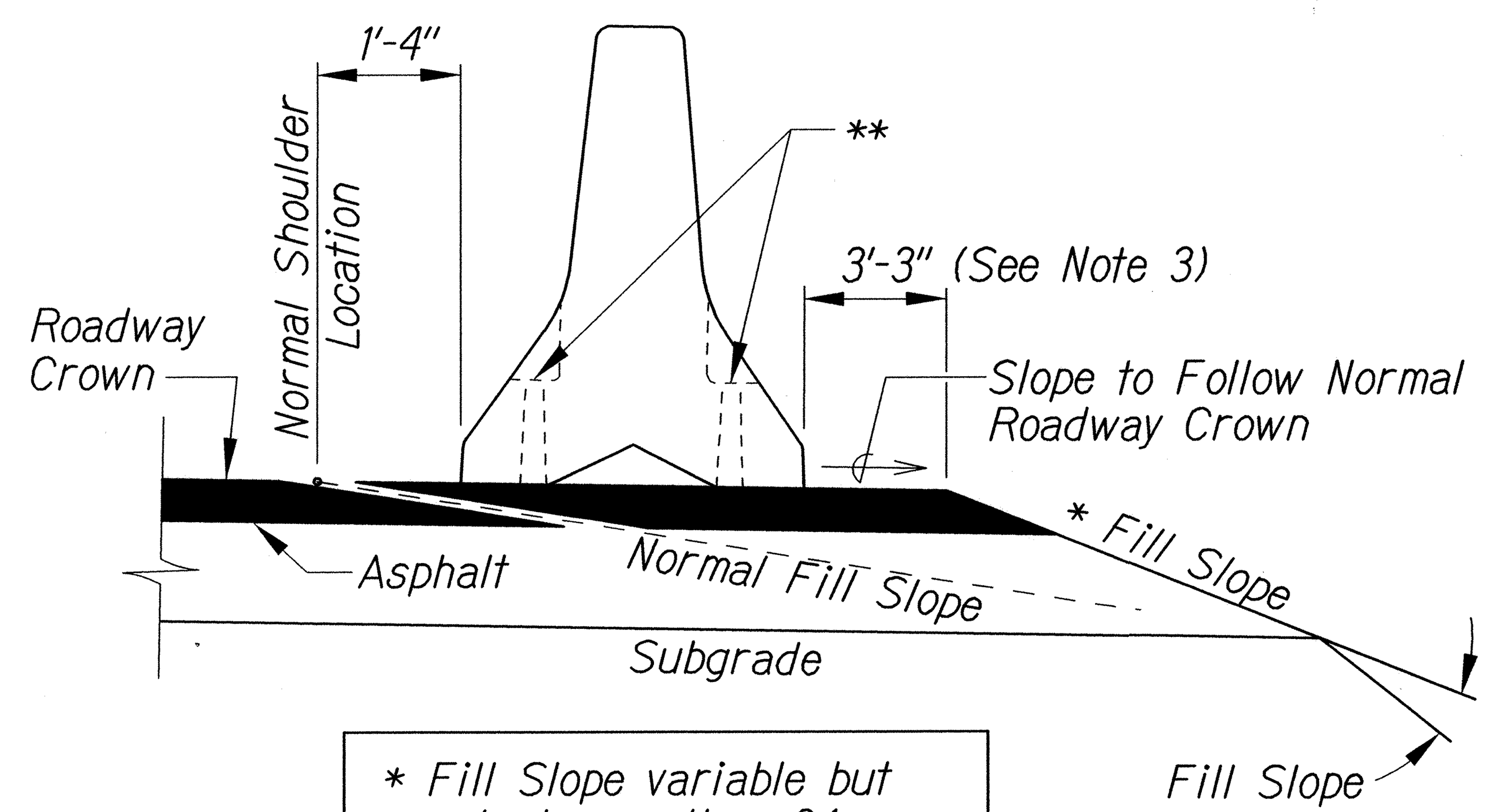
SHEET No. 1 OF 2 SHEETS



TYPICAL DETAIL - PORTABLE CONCRETE BARRIER END TREATMENT

Scale: 1" = 10'-0"

METAL REINFORCEMENT TABLE				
MARK	LOCATION	BAR SIZE	(NO. BARS)	SKETCH
H-1	Horizontal in Barrier Tied Inside V-1 Bars	#5	(6)	19'-3"
H-2	Centered Above Scuppers Long. & Transversely	#5	(6)	6'-6"
H-3	Tied Above H-1 Bars to Support H-2, Tied to V-1	#4	(2)	1'-6"
S-1	Horizontal in Top of Wing Wall & in Floor Back Wall	#4	(2)	2'-5"; Lifting Hole; 90°; R=3⅜"
S-2	Horizontal Around Slots Between V-1's @ Scuppers	#4	(2)	R=1½"; Slots; 7"; 1'-6"; 1" Min. Clear to Bar; 5'-1" Bar w/(4) 1½"R Bends & Min. 1'-0" Overlap
V-1	Vertical in Barrier (3) Each End & (2) at Each Scupper	#5	(16)	Total Length 4'-9"; R=2³⁄₁₆"; 12°; 9½"; 4⅜"; 2'-1⅜"



* Fill Slope variable but not steeper than 2:1
** No Stabilization Pins (See Note Nos. 3 & 4)

STANDARD INSTALLATION

(See Note No. 1)

TABLE A SHY LINE OFFSETS *	
DESIGN SPEED (mph)	SHY LINE OFFSETS
70	10.0'
65	9.0'
60	8.5'
55	7.0'
50	6.5'
45	6.0'
40	5.0'
35	4.5'
30	3.5'
≤25	2.0'

TABLE B MAXIMUM TAPERS FOR CONCRETE BARRIER		
DESIGN SPEED (mph)	TAPER	
	INSIDE SHY LINE	BEYOND SHY LINE
70	30:1	20:1
65	28:1	19:1
60	26:1	18:1
55	24:1	16:1
50	21:1	14:1
45	18:1	12:1
40	17:1	11:1
35	15:1	9:1
≤30	13:1	8:1

* Note: Minimum shy line offset for tangent sections shall be 2'-0".

NOTES:

1. For end treatment, layout, crash cushions and where needed see Project Plans or Special Provisions.
2. Barriers must be pinned together and cannot exceed the Table of Maximum Tapers.
3. The concrete barrier "Standard Installation" design allows for 3'-3" of outward lateral movement if the barrier is struck. Barrier installations that require less than the 3'-3" of outward lateral movement should have stabilization pins.
4. ASTM A-36 steel shall be used for the connection pin, connection loops and stabilization pins. A one piece pin with a 3" rounded top may be used in place of the detailed connection pin if the one piece pin meets ASTM A-36 requirements.
5. A 4" white PVC sleeve may be used to form the lifting hole and if used the sleeve is to be left in place.
6. Concrete shall be Class A and reinforcing shall be Grade 60.
7. Identification and date of design will be as follows:

   OCT 2001

   Text letters and numbers shall be shown as on Standard Plan Sht. No. B-01.
8. Minimum tangent length for portable Concrete Barrier System shall be 100' (5 units). This minimum does not include the required system length of the Inertial Barrier System.
9. Install steady burn amber lamps on portable concrete barriers @ 20.0' o.c. Installing, maintaining and removing each steady burn amber lamp including changing of batteries and bulbs shall be considered incidental to applicable portable concrete barrier items.

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PORTABLE CONCRETE BARRIER

KUHIO HIGHWAY
Intersection Improvements at Kapaka Street
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Scale: As Noted   Date: January 2013

SHEET No. 2 OF 2 SHEETS

ORIGINAL PLAN | SURVEY | PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE 3/09 | NOTE BOOK