Figure 1 Jersey Barrier at Outside Piers Details

Figure 2 Jersey Barrier at Outside Piers – Reinforcing Details

Figure 3 Jersey Barrier at Outside Piers – Bent Bar Details and Bar List

Figure 4 Median Pier Transition Wall and Attenuation Device Layout

Figure 5 Median Pier Transition Wall Details

Figure 6 Median Pier Transition Wall Details – Reinforcing Steel Layout

Figure 7 Median Pier Transition Wall – Bent Bar Details and Bar List

Figure 8 Jersey Barrier and Attenuation Device Layout

Figure 9 Jersey Barrier Details

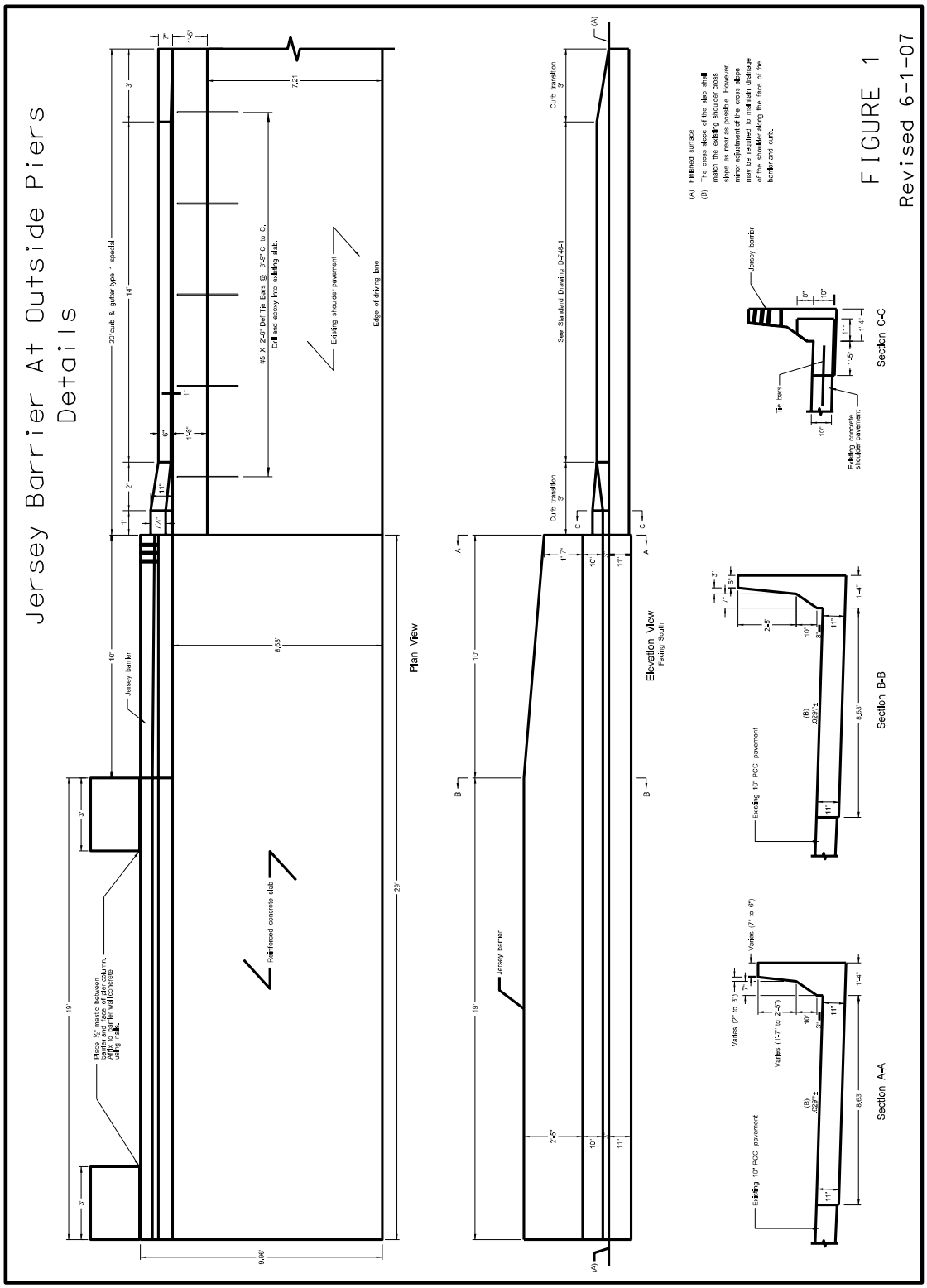
Figure 10 Jersey Barrier – Reinforcing Steel Layout

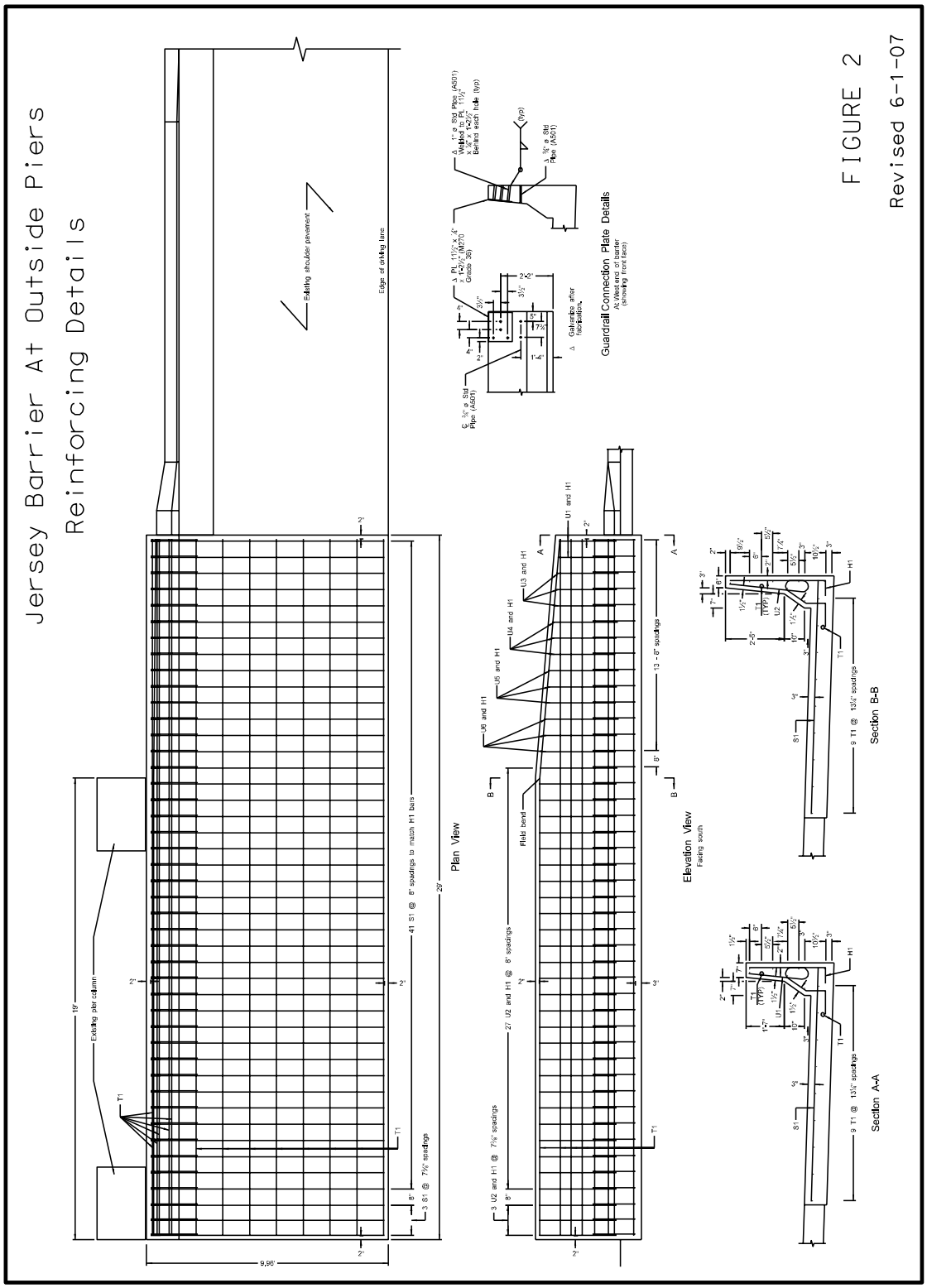
Figure 11 Jersey Barrier Details – Bent Bar Details, Bar List

Figure 12 Barrel Attenuation Device Details

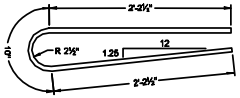
Figure 13 W-Beam Pier Protection End Treatment Details

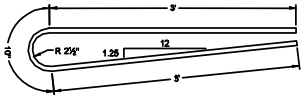
Figure 14 W-Beam Guardrail at Horizontal Curves Example

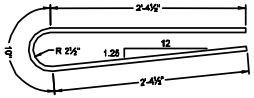

Jersey Barrier At Outside Piers
Details
Plan View
Elevation View
Facing South
Section A-A
Section B-B
Section C-C
FIGURE 1
Revised 6-1-07
Jersey barrier
Reinforced concrete slab
Existing shoulder pavement
Edge of driving lane
See Standard Drawing D-48-1
Curb transition
Existing concrete shoulder pavement
Tie bars
Existing 10" PCC pavement
Varies (7" to 6")
Varies (2" to 3")
Varies (1-7" to 2-5")
(A) Finished surface
(B) The cross slope of the slab shall match the existing shoulder cross slope. The existing shoulder may be resulted to maintain drainage of the shoulder along the face of the barrier and curb.


Jersey Barrier At Outside Piers
Reinforcing Details
FIGURE 2
Revised 6-1-07
Plan View
Elevation View
Facing south
Guardrail Connection Plate Details
At West end of barrier
(showing front face)
Section A-A
Section B-B
Existing shoulder pavement
Edge of driving lane
Existing pier column
Field bend
41 S1 @ 8" spacings to match H1 bars
3 S1 @ 7½" spacings
27 U2 and H1 @ 8" spacings
3 U2 and H1 @ 7½" spacings
13 - 8" spacings
9 T1 @ 13½" spacings
U1 and H1
U2 and H1
U3 and H1
U4 and H1
U5 and H1
U6 and H1
T1
S1
H1
Galvanize after fabrication.

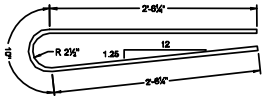
Jersey Barrier At Outside Piers
Bent Bar Details and Bar List

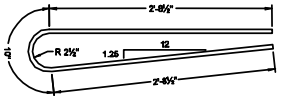


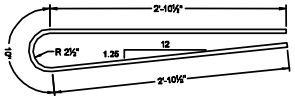




BAR LIST - ONE BARRIER				
MARK	SIZE	NO.	LENGTH	SHAPE
H1	5	44	5'-6"	BENT
S1	5	44	9'-7½"	STRAIGHT
T1	5	18	28'-8"	STRAIGHT
U1	5	2	5'-3"	BENT
U2	5	30	6'-10"	BENT
U3	5	3	6'-7"	BENT
U4	5	3	6'-10½"	BENT
U5	5	3	6'-3"	BENT
U6	5	3	6'-7"	BENT

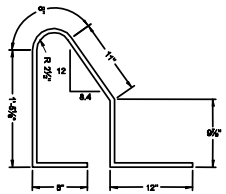






Construction notes:

1. Barriers shall be constructed according to the provisions of Section 602.03 B.4 except that there shall be no deflection joints. Make ¾" V-grooves in all faces of the barriers to match transverse slab joints.
2. Slab transverse joint shall be located to match the adjacent pavement joints. Joints shall be sawed and sealed as shown in the transverse joint sawing and sealing details, except that the saw cut depth shall be no more than 2"
3. Dimensions of bent bars are given out to out. The length of bent bars listed is the sum of the detailing dimensions. All radii are given to the inside of the bend.
4. Reinforcing steel shall be grade 60, and concrete shall be Class AAE-3.
5. Surface finish "D" shall be required for all exposed surfaces of the barrier.



BENT BAR DETAILS

FIGURE 3

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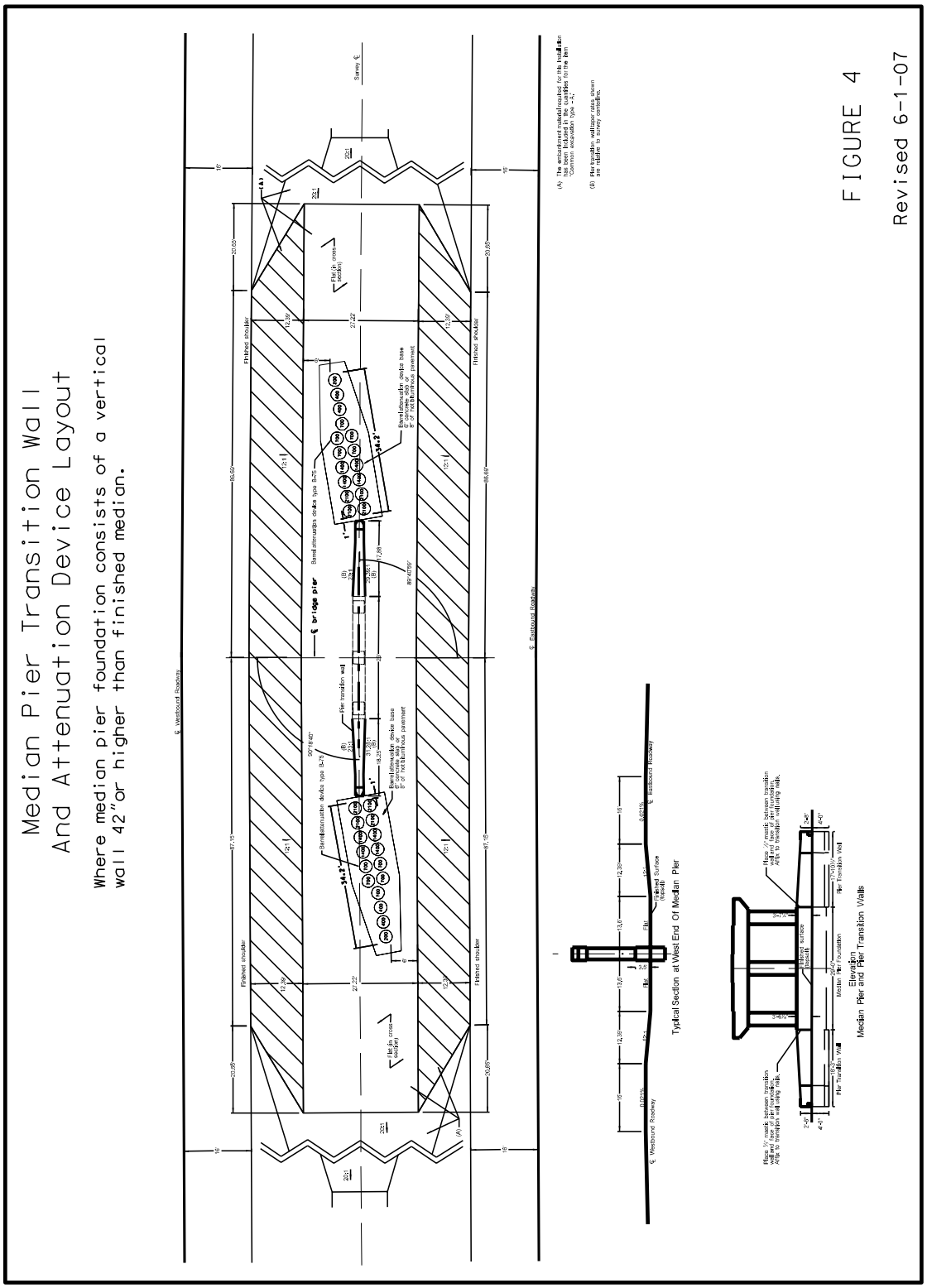
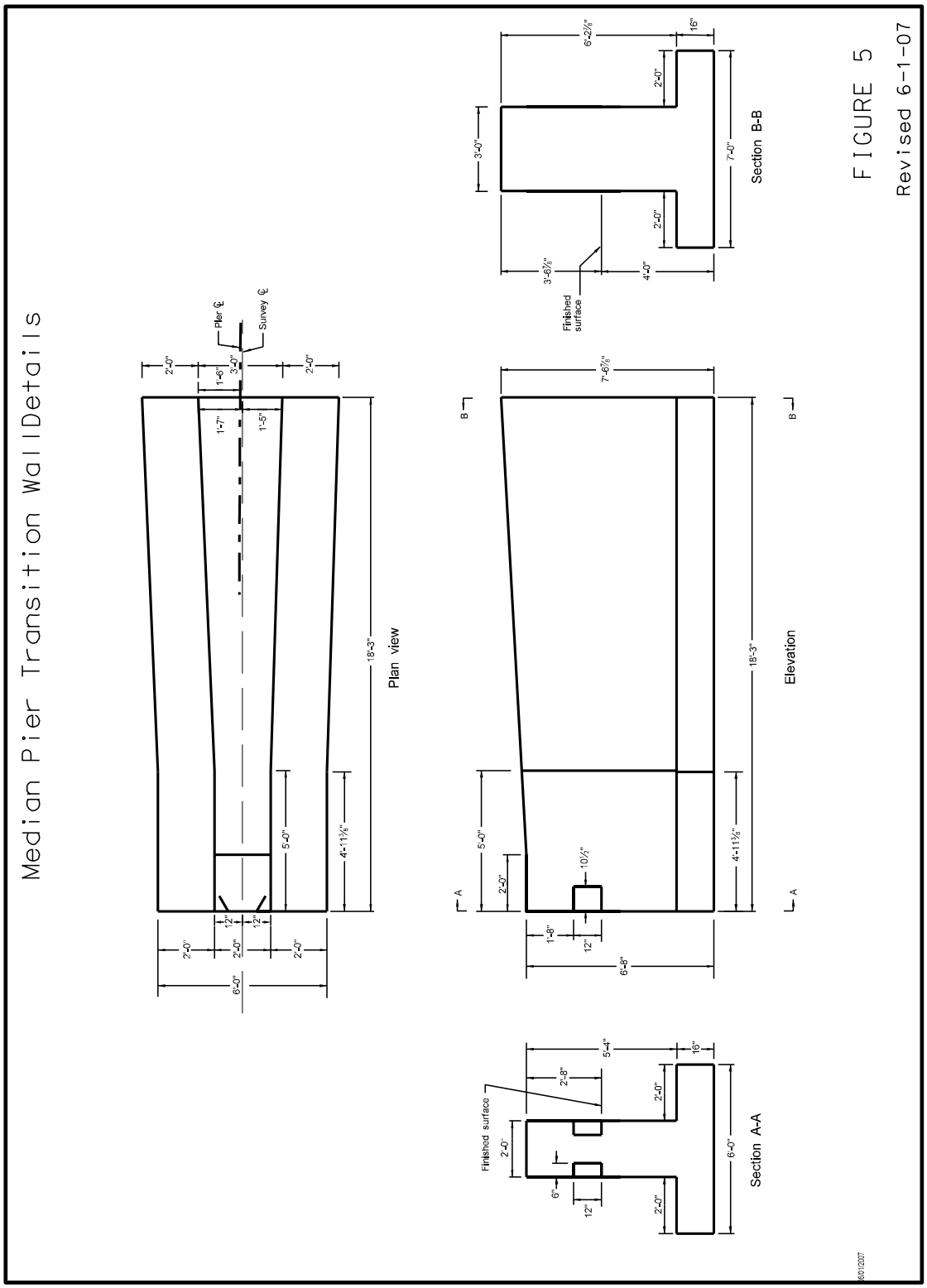
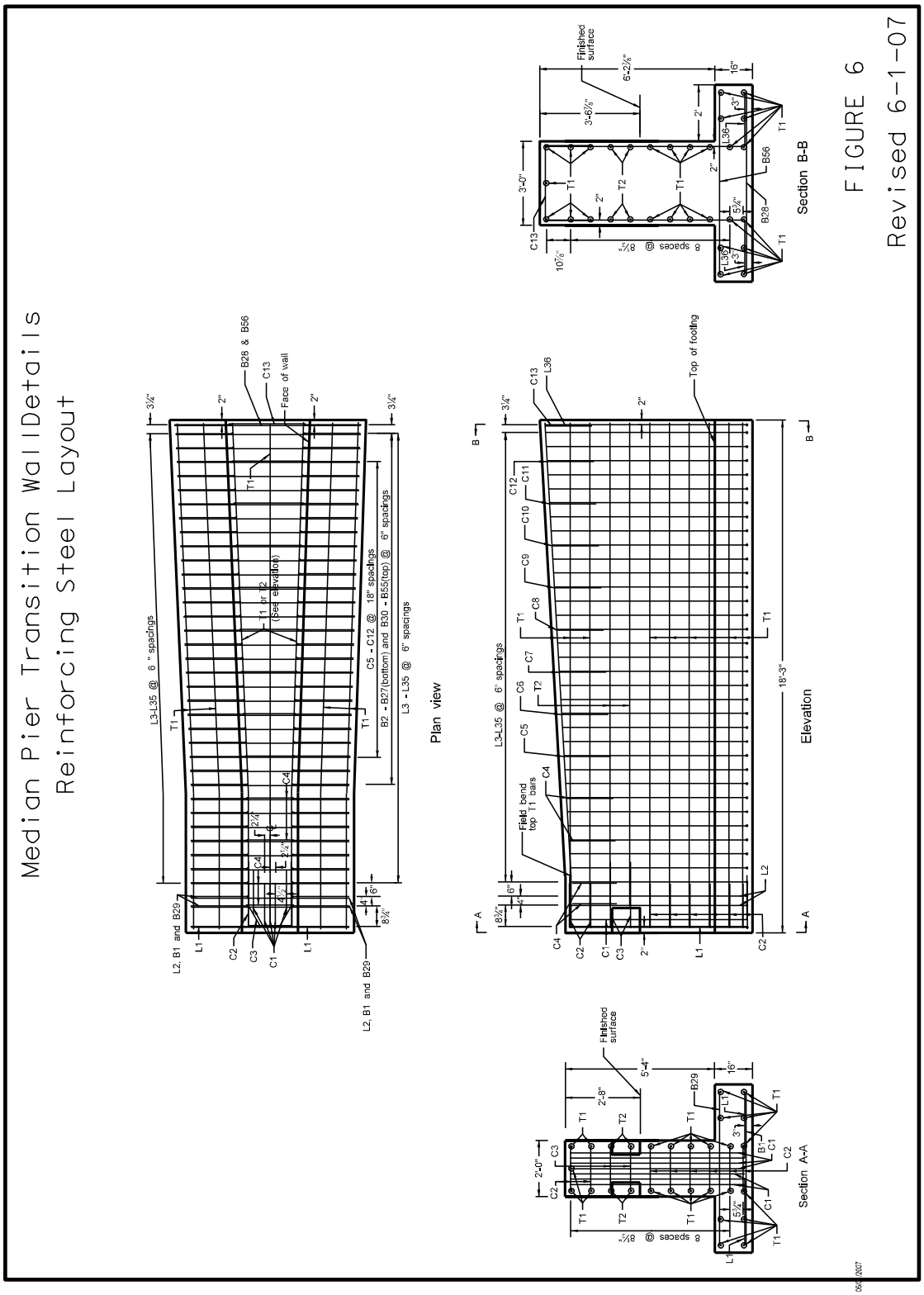
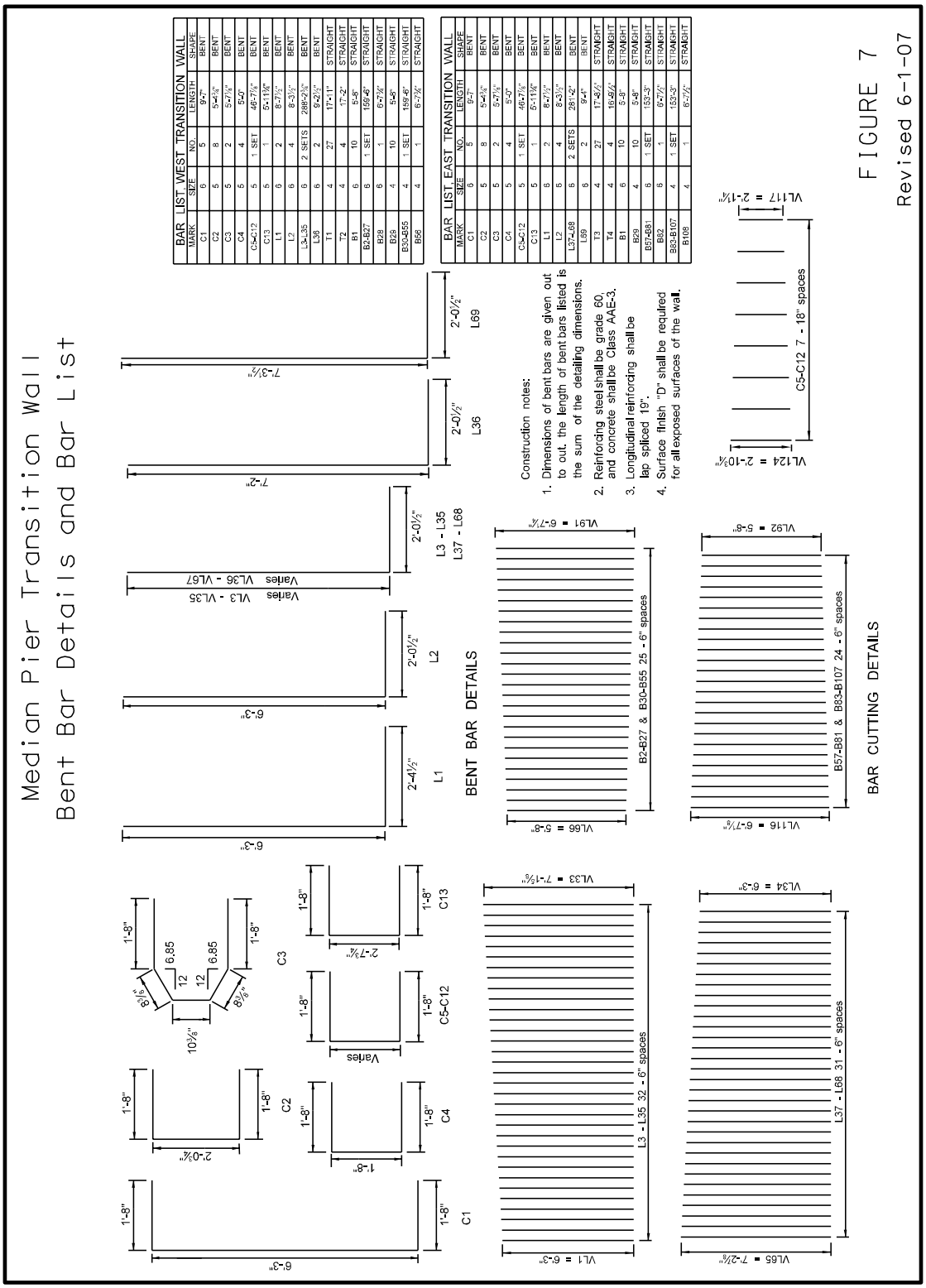
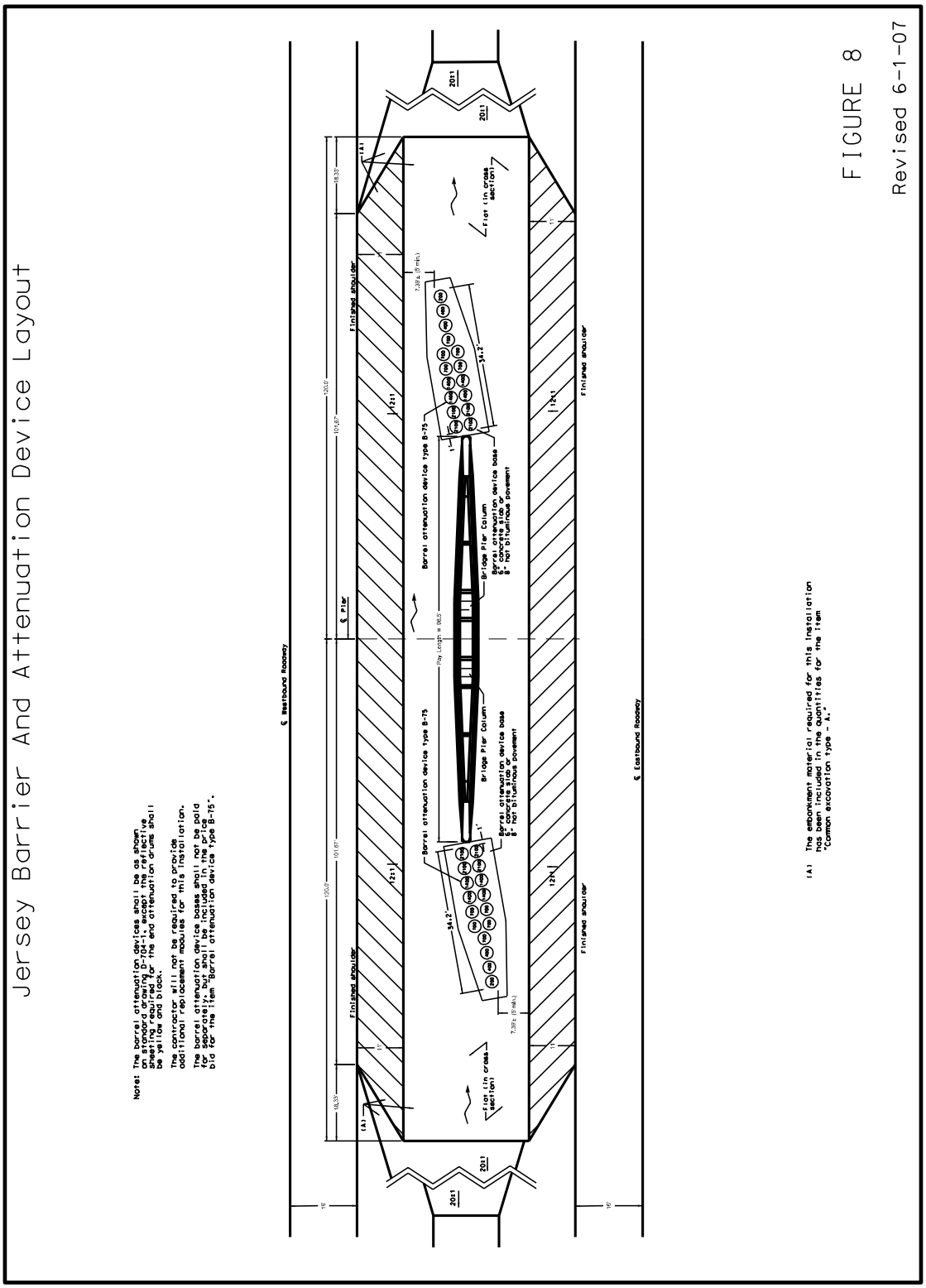
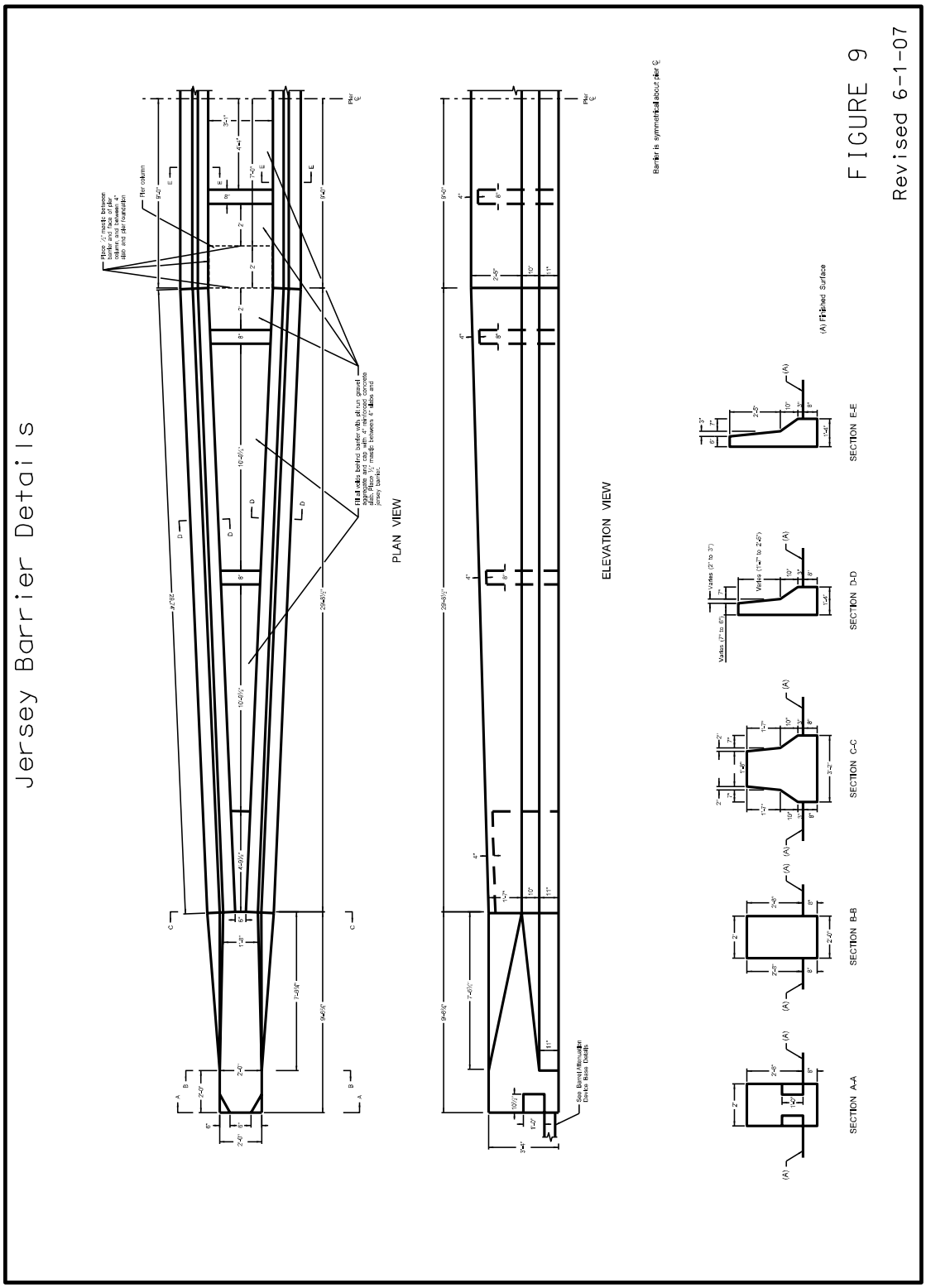

Median Pier Transition Wall
And Attenuation Device Layout
Where median pier foundation consists of a vertical wall 42"or higher than finished median.
Typical Section at West End Of Median Pier
Elevation
Median Pier and Pier Transition Walls
FIGURE 4
Revised 6-1-07

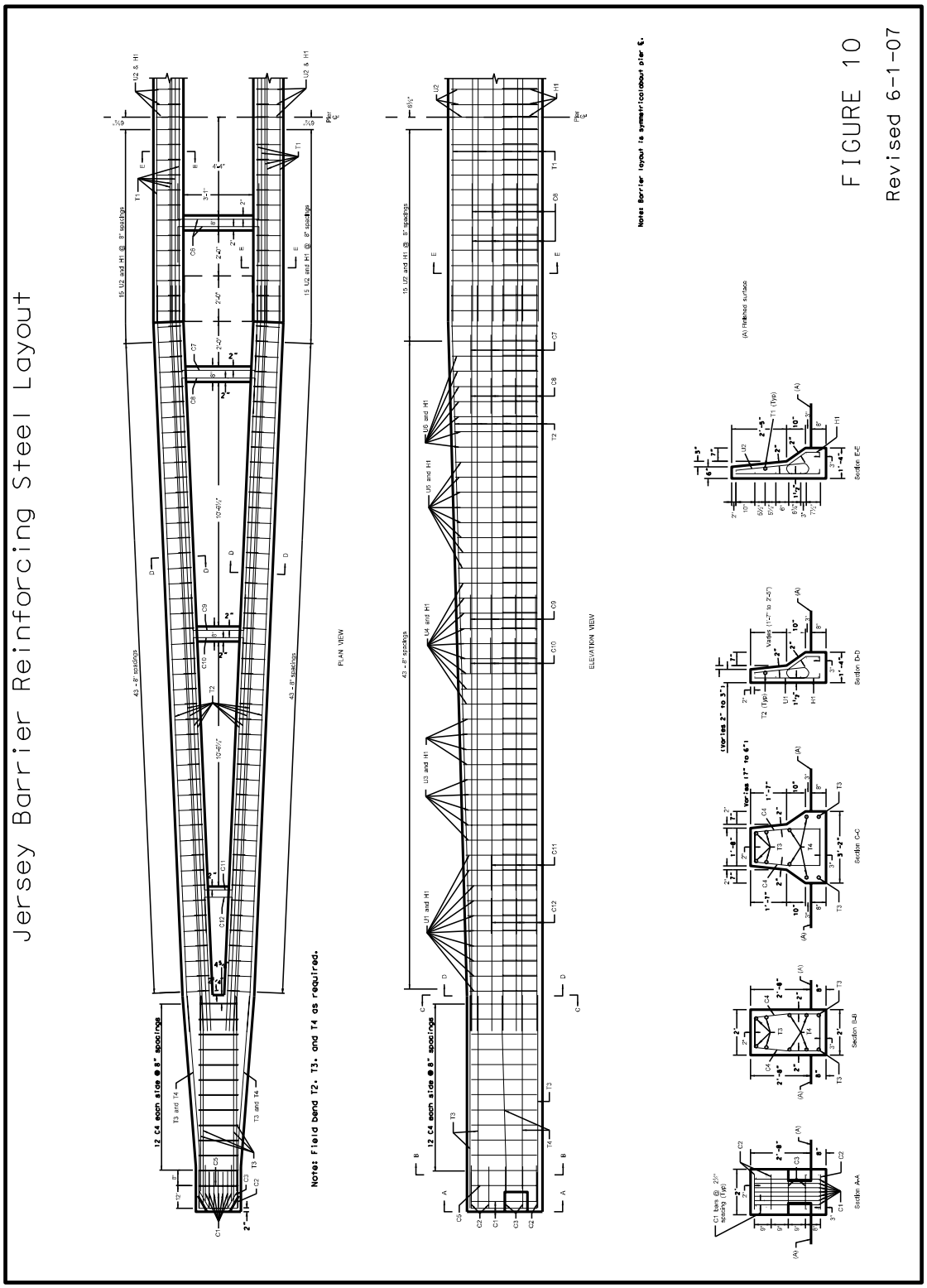

Median Pier Transition WallDetails
Plan view
Elevation
Section B-B
Section A-A
Finished surface
FIGURE 5
Revised 6-1-07

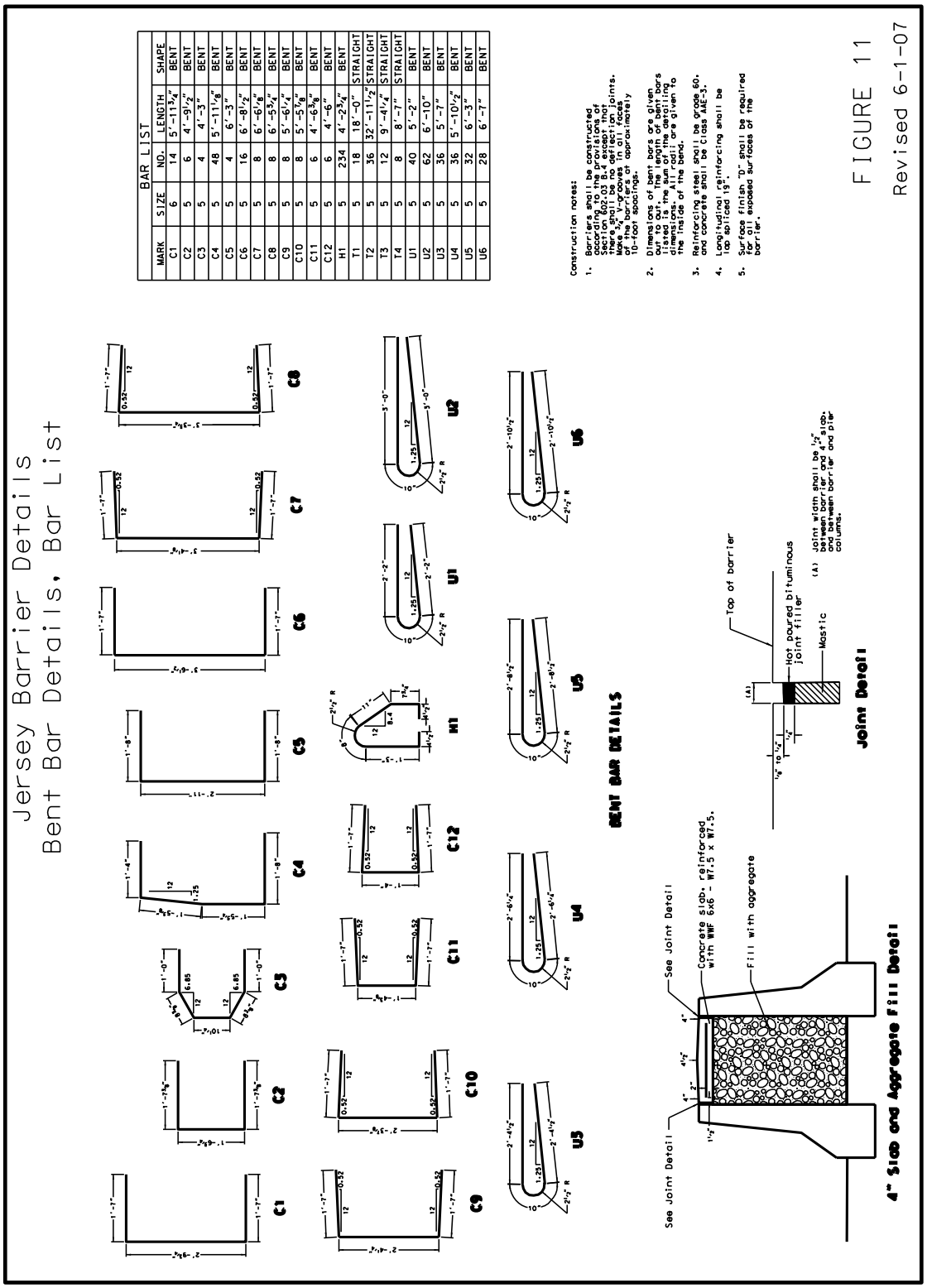

Median Pier Transition WallDetails
Reinforcing Steel Layout
Plan view
Elevation
Section B-B
Section A-A
FIGURE 6
Revised 6-1-07

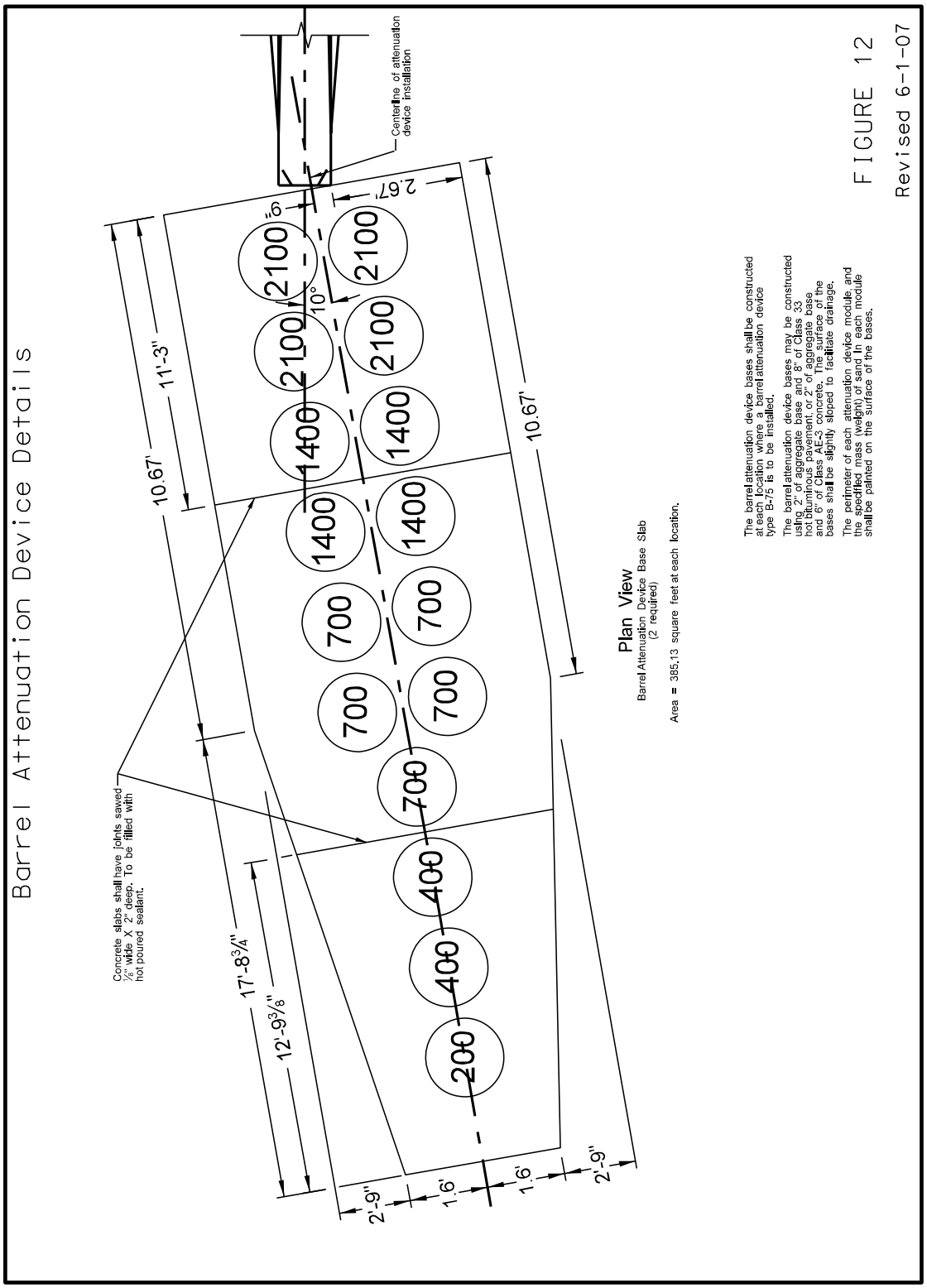

Median Pier Transition Wall
Bent Bar Details and Bar List
BAR LIST WEST TRANSITION WALL
MARK | SIZE | NO. | LENGTH | SHAPE
C1 | 6 | 5 | 6'-3" | BENT
C2 | 5 | 8 | 5'-4⅞" | BENT
C3 | 5 | 2 | 5'-7⅛" | BENT
C4 | 5 | 4 | 5'-0" | BENT
C5-C12 | 5 | 1 SET | 46'-7⅞" | BENT
C13 | 5 | 1 | 5'-11⅝" | BENT
L1 | 6 | 2 | 8'-7½" | BENT
L2 | 6 | 4 | 8'-3½" | BENT
L3-L35 | 6 | 2 SETS | 288'-2½" | BENT
L36 | 6 | 2 | 9'-2½" | BENT
T1 | 4 | 27 | 17'-1" | STRAIGHT
T2 | 4 | 4 | 11'-2" | STRAIGHT
B1 | 6 | 10 | 5'-8" | STRAIGHT
B2-B27 | 6 | 1 SET | 159'-8" | STRAIGHT
B28 | 6 | 1 | 6'-7⅝" | STRAIGHT
B29 | 4 | 10 | 5'-8" | STRAIGHT
B30-B55 | 4 | 1 SET | 159'-8" | STRAIGHT
B56 | 4 | 1 | 6'-7¾" | STRAIGHT
BAR LIST EAST TRANSITION WALL
MARK | SIZE | NO. | LENGTH | SHAPE
C1 | 6 | 5 | 6'-3" | BENT
C2 | 5 | 8 | 5'-4⅞" | BENT
C3 | 5 | 2 | 5'-7⅛" | BENT
C4 | 5 | 4 | 5'-0" | BENT
C5-C12 | 5 | 1 SET | 46'-7⅞" | BENT
C13 | 5 | 1 | 5'-11⅝" | BENT
L1 | 6 | 2 | 8'-7½" | BENT
L2 | 6 | 4 | 8'-3½" | BENT
L37-L68 | 6 | 2 SETS | 288'-2" | BENT
L69 | 6 | 2 | 9'-4" | BENT
T3 | 4 | 27 | 17'-8½" | STRAIGHT
T4 | 4 | 4 | 16'-8½" | STRAIGHT
B1 | 6 | 10 | 5'-8" | STRAIGHT
B29 | 4 | 10 | 5'-8" | STRAIGHT
B57-B81 | 6 | 1 SET | 153'-3" | STRAIGHT
B82 | 6 | 1 | 6'-7½" | STRAIGHT
B83-B107 | 4 | 1 SET | 153'-3" | STRAIGHT
B108 | 4 | 1 | 6'-7½" | STRAIGHT
Construction notes:
1. Dimensions of bent bars are given out to out, the length of bent bars listed is the sum of the detailing dimensions.
2. Reinforcing steel shall be grade 60, and concrete shall be Class AAE-3.
3. Longitudinal reinforcing shall be lap spliced 19".
4. Surface finish "D" shall be required for all exposed surfaces of the wall.
BENT BAR DETAILS
L1
L2
L3 - L35
L37 - L68
L36
L69
BAR CUTTING DETAILS
B2-B27 & B30-B55 25 - 6" spaces
B57-B81 & B83-B107 24 - 6" spaces
L3 - L35 32 - 6" spaces
L37 - L68 31 - 6" spaces
C5-C12 7 - 18" spaces
C1
C2
C3
C4
C5-C12
C13
FIGURE 7
Revised 6-1-07

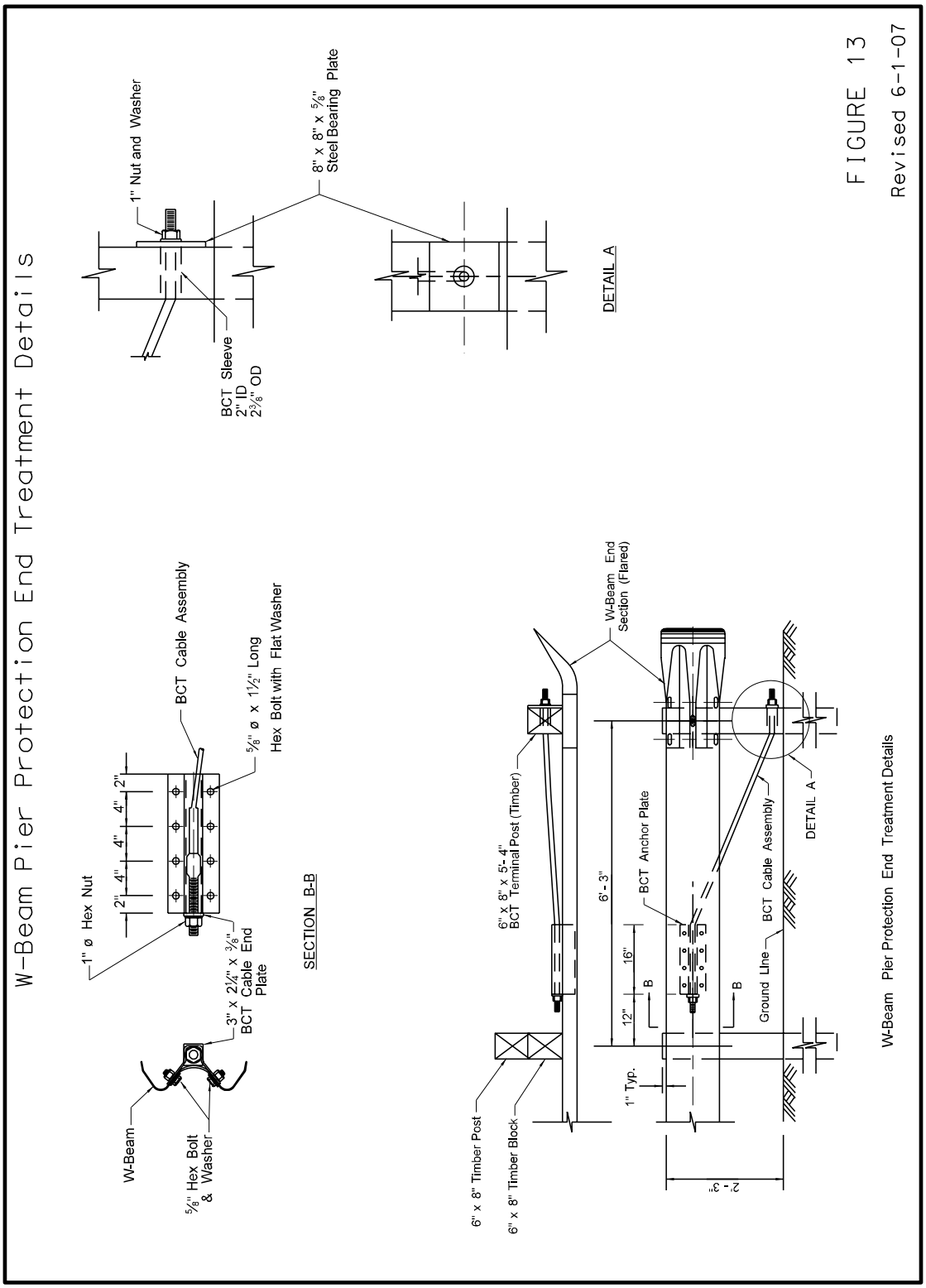

Jersey Barrier And Attenuation Device Layout
Note: The barrel attenuation devices shall be as shown on standard drawing D-704-1, except the reflective sheeting required for the end attenuation drums shall be yellow and black.
The contractor will not be required to provide additional replacement modules for this installation.
The barrel attenuation device bases shall not be paid for separately, but shall be included in the price bid for the item "Barrel attenuation device type B-75".
℄ Westbound Roadway
℄ Eastbound Roadway
℄ Pier
Finished shoulder
Flat (in cross section)
Barrel attenuation device type B-75
Bridge Pier Column
Barrel attenuation device base 6" concrete slab or 8" hot bituminous pavement
Play Length = 98.5'
34.2'
20:1
12:1
(A) The embankment material required for this installation has been included in the quantities for the item "Common excavation type - A."
FIGURE 8
Revised 6-1-07

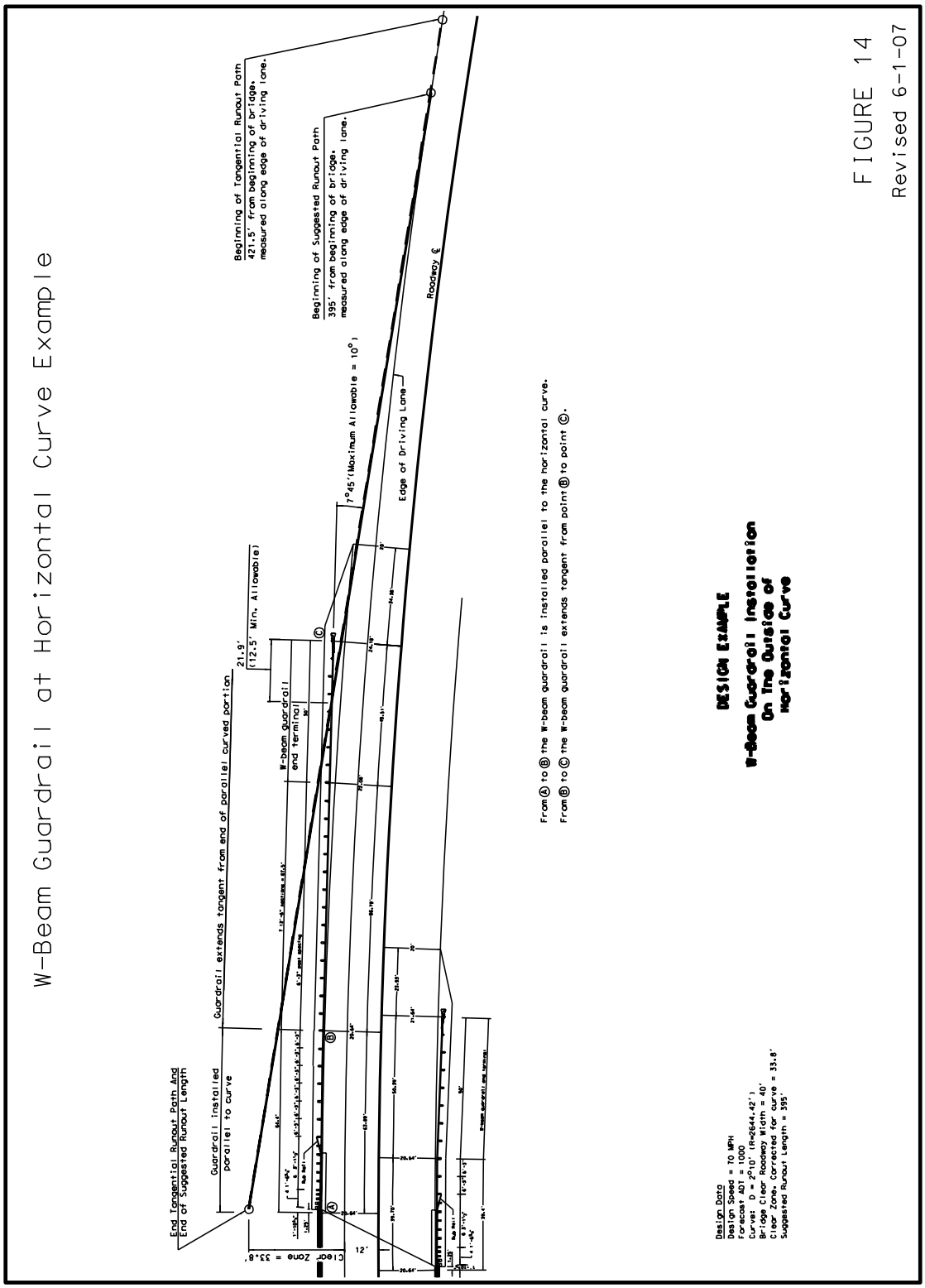

Jersey Barrier Details
PLAN VIEW
ELEVATION VIEW
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
(A) Finished Surface
Barrier is symmetrical about pier ℄
FIGURE 9
Revised 6-1-07


Jersey Barrier Reinforcing Steel Layout
FIGURE 10
Revised 6-1-07
PLAN VIEW
ELEVATION VIEW
Note: Field bend T2, T3, and T4 as required.
Notes: Barrier layout is symmetrical about pier ℄.
12 C4 each side @ 8" spacings
43 - 8" spacings
15 U2 and H1 @ 8" spacings
Section A-A
Section B-B
Section C-C
Section D-D
Section E-E
(A) Finished surface


Jersey Barrier Details
Bent Bar Details, Bar List
BAR LIST
MARK | SIZE | NO. | LENGTH | SHAPE
C1 | 6 | 14 | 5'-11¼" | BENT
C2 | 5 | 6 | 4'-9½" | BENT
C3 | 5 | 4 | 4'-3" | BENT
C4 | 5 | 48 | 5'-11⅞" | BENT
C5 | 5 | 4 | 6'-3" | BENT
C6 | 5 | 16 | 6'-8½" | BENT
C7 | 5 | 8 | 6'-6⅞" | BENT
C8 | 5 | 8 | 6'-5¾" | BENT
C9 | 5 | 8 | 5'-6¼" | BENT
C10 | 5 | 8 | 5'-5⅞" | BENT
C11 | 5 | 6 | 4'-6⅜" | BENT
C12 | 5 | 6 | 4'-6" | BENT
H1 | 5 | 234 | 4'-2¾" | BENT
T1 | 5 | 18 | 18'-0" | STRAIGHT
T2 | 5 | 36 | 32'-11½" | STRAIGHT
T3 | 5 | 12 | 9'-4¼" | STRAIGHT
T4 | 5 | 8 | 8'-7" | STRAIGHT
U1 | 5 | 40 | 5'-2" | BENT
U2 | 5 | 62 | 6'-10" | BENT
U3 | 5 | 36 | 5'-7" | BENT
U4 | 5 | 36 | 5'-10½" | BENT
U5 | 5 | 32 | 6'-3" | BENT
U6 | 5 | 28 | 6'-7" | BENT
Construction notes:
1. Barriers shall be constructed according to the provisions of Section 602.03 B.4 except that sheeting shall not be used. Make ¾" V-grooves in all faces of the barriers at approximately 10 foot spacings.
2. Dimensions of bent bars are given outside to outside of bends. Bar lengths listed is the sum of the detailing dimensions. All radii are given to the inside of the bend.
3. Reinforcing steel shall be grade 60, and concrete shall be class AE-3.
4. Longitudinal reinforcing shall be lap spliced 15".
5. Surface finish "D" shall be required on all exposed surfaces of the barrier.
BENT BAR DETAILS
4" Slab and Aggregate Fill Detail
See Joint Detail
Concrete slab, reinforced with WWF 6x6 - W7.5 x W7.5.
Fill with aggregate
Joint Detail
Top of barrier
Hot poured bituminous joint filler
Mastic
(A) Joint width shall be ½" between barrier and 4" slab, and between barrier and pier columns.
FIGURE 11
Revised 6-1-07


Barrel Attenuation Device Details
Centerline of attenuation device installation
2.67'
9"
10°
11'-3"
10.67'
10.67'
2100
1400
700
400
200
17'-8 3/4"
12'-9 3/8"
2'-9"
1'-6"
1'-6"
2'-9"
Concrete slabs shall have joints sawed ⅛" wide X 2" deep. To be filled with hot poured sealant.
Plan View
Barrel Attenuation Device Base Slab
(2 required)
Area = 385.13 square feet at each location.
The barrel attenuation device bases shall be constructed at each location where a barrel attenuation device type B-75 is to be installed.
The barrel attenuation device bases may be constructed using 2" of aggregate base and 8" of Class 33 hot bituminous pavement, or 2" of aggregate base and 8" of Class 47B concrete. The surface of the bases shall be slightly sloped to facilitate drainage.
The perimeter of each attenuation device module, and the specified mass (weight) of sand in each module shall be painted on the surface of the bases.
FIGURE 12
Revised 6-1-07


W-Beam Pier Protection End Treatment Details
1" Nut and Washer
8" x 8" x 5/8" Steel Bearing Plate
BCT Sleeve
2" ID
2 3/8" OD
DETAIL A
FIGURE 13
Revised 6-1-07
BCT Cable Assembly
5/8" ø x 1 1/2" Long
Hex Bolt with Flat Washer
1" ø Hex Nut
2"
4"
4"
4"
2"
3" x 2 1/4" x 3/8"
BCT Cable End
Plate
W-Beam
5/8" Hex Bolt
& Washer
SECTION B-B
W-Beam End
Section (Flared)
6" x 8" x 5'-4"
BCT Terminal Post (Timber)
6'-3"
BCT Anchor Plate
12"
16"
B
B
1" Typ.
Ground Line
BCT Cable Assembly
DETAIL A
6" x 8" Timber Post
6" x 8" Timber Block
2'-3"
W-Beam Pier Protection End Treatment Details


W-Beam Guardrail at Horizontal Curve Example
FIGURE 14
Revised 6-1-07
DESIGN EXAMPLE
W-Beam Guardrail Installation
On the Outside of
Horizontal Curve
Design Data
Design Speed = 70 MPH
Forecast ADT = 1000
Curve: D = 2°10' (R=2644.42')
Bridge Clear Roadway Width = 40'
Clear Zone. Corrected for curve = 33.8'
Suggested Runout Length = 395'
From Ⓐ to Ⓑ the W-beam guardrail is installed parallel to the horizontal curve.
From Ⓑ to Ⓒ the W-beam guardrail extends tangent from point Ⓑ to point Ⓒ.
End Tangential Runout Path And
End of Suggested Runout Length
Guardrail installed
parallel to curve
Guardrail extends tangent from end of parallel curved portion
21.9'
(12.5' Min. Allowable)
W-beam guardrail
end terminal
Beginning of Tangential Runout Path
421.5' from beginning of bridge,
measured along edge of driving lane.
Beginning of Suggested Runout Path
395' from beginning of bridge,
measured along edge of driving lane.
7°45' (Maximum Allowable = 10°)
Edge of Driving Lane
Roadway ℄
Clear Zone = 33.8'
12'