STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION INTERMODAL TRANSPORTATION DIVISION ROADWAY ENGINEERING ROADWAY DESIGN SECTION



2007

MAY

CONSTRUCTION STANDARD DRAWINGS

31-001

Updates to the May, 2007 Construction Standard Drawings

1. November 1, 2007 Revised Standard Drawings C-07.02, C-21.10 and C-21.20



Arizona Department of Transportation Intermodal Transportation Division

Roadway Engineering Group

MEMORANDUM

To: All Users of the Roadway Construction Standard Drawings Date: 21 May 2007

From: Mary Viparina Assistant State Engineer Roadway Engineering Group

Subject: C-Standards New Edition

The Roadway Construction Standard Drawings (C-Stds) have been revised and updated, and printed as a new, complete set. Users should obtain the new Construction Standard Drawings (May 2007 cover) from Engineering Records. The new edition has both format and engineering changes. The format change is the most obvious and affects all of the drawings. This change is as follows and is not noted individually in the revision block:

The drawings font size and style, and lines now conform to the ADOT CADD guidelines. Information is contained on the same levels as those prescribed for plan sheets.

Some of the significant engineering changes from the October 2004 edition are the following:

- C-01.10, Sht 1 of 4: changed the order of the various boundary and jurisdictional lines
- C-02.20 and C-02.30: changed the steepest allowable slope for 1-1/2:1 to 2:1
- C-04.10, Sht 2 of 2: new drawing for double inlet in sag condition
- C-04.20, Sht 2 of 2: new drawing for double inlet in sag condition
- C-04.30 and C-04.40: revised tables as a result of slope changes in C-02.20 and C-02.30, and guidance on spillway and downdrain usage from the RDG
- C-05.10: added General Note 7 reading, "Place AB under single curb, valley gutter, and curb & gutter when shown on plans."
- C-05.20, Sht 1 of 2: added General Note 5 reading, "Place AB under driveways when shown on plans."
- C-05.20, Sht 2 of 2: added General Note 5 reading, "Place AB under sidewalks when shown on plans."
- C-05.30, Sht 1 of 7: changed slope rate in Sections A-A and C-C to 15:1; changed maximum ramp length at 15:1 slope to 15 feet
- C-05.30, Shts 2 5 of 7: changed maximum ramp length at 15:1 slope to 15 feet
- C-07.02: revised General Note 1 to read, "Load transfer dowel assemblies shall be used with non-skewed, mainline PCCP joints"
- C-10.00: revised graphics to match Bridge Group's Transition, SD 1.03; thrie-beam approach and departure transitions are now the same
- C-10.30, Sht 2 of 2: added anchor hardware drawings formerly shown on concrete barrier transition drawings
- C-10.32: deleted
- C-10.54 and C-10.55, Shts 1 & 2 of 3: added concrete cap to Section A-A; revised General Note 3 to read, "Longitudinal rebar shall extend 12" past the construction joint at the completion of each incremental pour."
- C-10.70, C-10.71, C-10.72, and C-10.73: removed Thrie-Beam Guardrail Transition System hardware details and added references to Std Dwg C-10.30
- C-11.10, Shts 1 4 of 4: re-issued drawing with additional sheet detailing the clamp
- C-18.10, Sht 1 of 3: added "NOTE TO DESIGNERS" reading, "Per OSHA requirements, special treatments are required for heights exceeding 30 ft."

C-Standards New Edition 21 May 2007 Page 2

Design personnel should incorporate the new edition of the C-Stds into their project plans. For projects at or near completion, where the inclusion of all new standard drawings is not practical, the 1A Sheet must accurately reflect the drawings' correct revision date. Construction personnel should review the drawing revisions for possible implementation on construction projects.

Please arrange for additional copies of the new C-Stds for all users within your Group or District. Additional copies (8-1/2" x 11" or 11" x 17") may be obtained from Engineering Records located at 1655 West Jackson, Room 175, Phoenix, AZ 85007-3217 or by telephoning 602-712-8216.

An updated List of Standards (1A Sheet) is available either from the Roadway Support Desk (602-712-8667 or 602-712–8491) or on-line at the Roadway Design web site at the following address: http://www.azdot.gov/Highways/Rdwyeng/RoadwayDesign/Index.asp

Updated Summary Sheets are also available on-line at the address shown above.

Please distribute this memorandum to all design personnel, project managers, consultants, and other users in your respective Group, District, or Section.

Please direct questions regarding this memo or the updated standards to Kenneth Cooper, P.E., Roadway Standards Engineer, at 602-712-8674.

MAV/KRC/krc

c: Roadway Engineering Group Traffic Engineering Group Valley Project Management Group Environmental and Enhancement Group Districts (10) Statewide Project Management Group FHWA Contracts and Specifications Section Construction Group Bridge Group Maintenance Group Regional Traffic Engineers (4) Materials Group Local Government Section Engineering Consultant Section District Permits Office (9) Engineering Records Sam Elters Dan Lance Sam Maroufkhani Doug Forstie

NOTICE TO READERS: REVISION DATES

This edition of the Roadway Construction Standard Drawings contains both format and engineering changes.

The format changes include font style and size, line weights and terminators, and placing information on the same levels as specified for plan sheets. These changes are universal for all the sheets and are not noted. The revision date for all the format changes is 5/07 and is noted in the title block. This is the revision date shown on the 1A sheet.

Engineering changes have been made to some of the drawings since the last edition was issued in October 2004. These numbered changes are noted in the revision block in the upper left-hand corner of the affected sheets and referenced by circled numbers on the drawings.

Future engineering revisions will be noted in the revision and title blocks, and the 1A sheet.

Standard Names with an asterisk (*) have recommended Special Provisions associated with them that can be found here. Be sure to review the recommended Special Provisions if you are using any of those drawings.

C-STANDARDS FEEDBACK FORM

* Required Information

PROJECT: *Project Name/N	0.:		
Route:	Milepost:		District:
<u>C-STANDARD:</u> *Number:		*Sheet No.:	Edition Yr.:
*COMMENT OR QUESTION	: Use back of fo	rm for additional sp	ace
			*Mail Drop.:
*Phone No.: *E-mail Address:			DRG No.:
		Office Use Only	
ANALYSIS/EVALUATION: U		-	
RECOMMENDATION/ACTIC	<u>DN:</u> Use back of	form for additional	space

Return forms to Ken Cooper, MD 615E, or fax: 602-712-3075

CONSTRUCTION STANDARD DRAWINGS - INDEX

DRAWING NO.	TITLE SYMBOL LEGEND (4 SHEETS) GENERAL ABBREVIATIONS (3 SHEETS) SLOPES, RURAL DIVIDED HIGHWAYS SLOPES, RURAL UNDIVIDED AND FRINGE-URBAN HIGHWAYS SLOPES, MISCELLANEOUS ROADWAYS DITCHES, CHANNELS, DIKES AND BERMS (5 SHEETS) SPILLWAY, EMBANKMENT (2 SHEETS) ODWNDRAIN, EMBANKMENT (2 SHEETS) SPILLWAY LENGTH TABLE DOWNDRAIN LENGTH TABLE DOWNDRAIN ENERGY DISSIPATOR CURB & GUTTER, CURB, AND GUTTER CURB & GUTTER, TRANSITIONS (3 SHEETS) CONCRETE DRIVEWAYS & SIDEWALKS (2 SHEETS) SIDEWALK RAMP (7 SHEETS) MEDIAN PAVING AND NOSE TAPER CONCRETE BRIVEWAYS & SIDEWALKS (2 SHEETS) SIDEWALK RAMP (7 SHEETS) MEDIAN PAVING AND NOSE TAPER CONCRETE BUS BAY DRIVEWAY & TURNOUT LAYOUTS (2 SHEETS) PCCP JOINTS (2 SHEETS) LOAD TRANSFER DOWEL ASSEMBLY PCCP JOINT LOCATIONS, MAINLINE (8 SHEETS) CCP JOINT LOCATIONS, MAINLINE (8 SHEETS) PCCP JOINT LOCATIONS, MAINLINE (8 SHEETS) PCCP JOINT LOCATIONS, MAINLINE (8 SHEETS) PCCP JOINT LOCATIONS, RAMPS & CROSSROADS (5 SHEETS) TRENCH BACKFILL AND PAVEMENT REPLACEMENT PAVED GORE AREA	DRAWING NO.	TITLE
C-01.10	SYMBOL LEGEND (4 SHEETS)	C-10.00	GUARDRAIL MEASUREMENT LIMITS
C-01.30	GENERAL ABBREVIATIONS (3 SHEETS)	C-10.01	GUARDRAIL INSTALLATION, TYPE A AND REFLECTOR TAB
C-02.10	SLAPES RURAL DIVIDED HICHWAYS	C = 10.02 C = 10.03	GUARDRAIL INSTALLATION, TYPE B AND REFLECTOR TAB W-BEAM GUARDRAIL, G4(1W) AND G4(2W), BLOCKED-OUT TIMBER
C-02.20	SLOPES, RURAL UNDIVIDED AND FRINGE-URBAN HIGHWAYS	C-10.03	W-BEAM GUARDRAIL, G4(1S), BLOCKED-OUT STEEL POST
C-02.30	SLOPES, MISCELLANEOUS ROADWAYS	C-10.05	W-BEAM GUARDRAIL, G4(MODIFIED), WITH FREEWAY CURB & GUT
		C-10.06	W-BEAM GUARDRAIL, NESTED (2 SHEETS)
C-03.10	DITCHES, CHANNELS, DIKES AND BERMS (5 SHEETS)	C-10.07	W-BEAM GUARDRAIL, BOLTED ANCHOR (2 SHEETS)
0 04 10		C-10.08	W-BEAM GUARDRAIL, END ANCHOR
C-04.10	SPILLWAY, EMBANKMENI (2 SHEETS)	L-IU.2U	THRIE-BEAM GUARDRAIL, G9, BLOCKED-OUT STEEL POST
C-04.20 C-04.30	DUWNDRAIN, EMDANKMENI (Z SHELIS) SDILLWAY LENCTH TADLE	C = 10.30	GUARDRAIL TRANSITION, W-BEAM TO CONCRETE HALF BARRIER,
C-04.30 C-04.40	DOWNDDAIN LENGTH TADLE	C = 10.40	CONCRETE MEDIAN BARRIER, 32" TYPE 'F', CAST-IN-PLACE CONCRETE MEDIAN BARRIER, 42" TYPE 'F', CAST-IN-PLACE
C-04.50		C = 10.41 C = 10.42	GLARE SCREEN, CONCRETE MEDIAN BARRIER (3 SHEETS)
01.30	Domodicative Energy D13511 ATOK	C-10.50	CONCRETE HALF BARRIER, 32" TYPE 'F' (2 SHEETS)
C-05.10	CURB & GUTTER, CURB, AND GUTTER	C-10.51	CONCRETE HALF BARRIER, 32" TYPE 'F', WITH SIDEWALK
C-05.12	CURB & GUTTER TRANSITIONS (3 SHEETS)	C-10.52	CONCRETE HALF BARRIER, 32" TYPE 'F', WITH GUTTER
C-05.20	CONCRETE DRIVEWAYS & SIDEWALKS (2 SHEETS)	C-10.53	CONCRETE HALF BARRIER, 42" TYPE 'F', WITH GUTTER
C-05.30	SIDEWALK RAMP (7 SHEETS)	C-10.54	CONCRETE HALF BARRIER, 32" TYPE 'F' AT PIERS (3 SHEETS)
C-05.40	MEDIAN PAVING AND NOSE TAPER	C-10.55	CONCRETE HALF BARRIER, 42" TYPE 'F' AT PIERS (3 SHEETS)
C-05.50	CONCRETE BUS BAY	C-10.70	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE
		C-10.71	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 32" TYPE
C-06.10	DRIVEWAY & TURNOUT LAYOUTS (2 SHEETS)	C-10.72	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32
		C-10.73	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL, 42" TO 32
C-07.01	PCCP JOINTS (2 SHEETS)	C-10.74	CONCRETE HALF-BARRIER TRANSITION, 42" TO 32" TYPE 'F'
C-07.02	LOAD TRANSFER DOWEL ASSEMBLY	C-10.75	CONCRETE HALF-BARRIER TRANSITION, TYPE 'F' TANGENT DEPA
C-07.03	PUCP JOINT LOCATIONS, MAINLINE (8 SHEETS)	C-10.76	CONCRETE HALF-BARRIER TRANSITION, TYPE 'F' AT RADIUS, 3
C-07.04 C-07.06	THE JUINT LULATIONS, RAMPS & CRUSSRUADS (5 SHEETS)	L-10.77	CONCRETE HALF-BARRIER TRANSITION, END TERMINAL, CURB AN
C-07.06	IRENUH DAURFILL AND FAVEMENT REFLAUEMENT	C-11 10	ROADWAY CATTLE GUARD (4 SHEETS)
C-08.20	PAVED GORE AREA	C-11 20	CATTLE GUARD, DRAINAGE
0 00.20		0 11.20	
		C-12.10	FENCE, WOVEN AND BARBED WIRE WITH GATES (5 SHEETS)
		C-12.20	FENCE, CHAIN LINK TYPES 1 AND 2 WITH GATES (3 SHEETS)
		C-12.30	FENCE, CHAIN LINK CABLE BARRIER (3 SHEETS)

TS) TS) PE 'F' WITH CAISSONS (3 SHEETS) PE 'F' WITH CURB & GUTTER (2 SHEETS) 32" TYPE 'F' WITH CAISSONS (3 SHEETS) 32" TYPE 'F' WITH GUTTER (2 SHEETS) ' EPARTURE (2 SHEETS) , 32" TO 0" AND GUTTER

32" TYPE 'F'

GUTTER (2 SHEETS)

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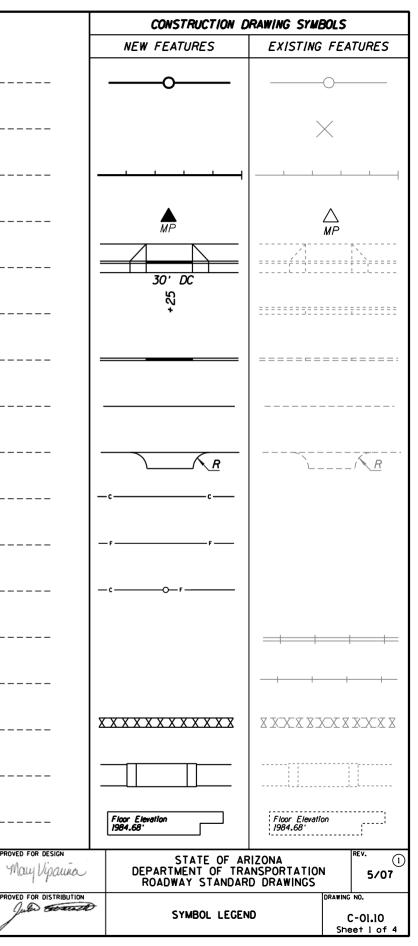
CONSTRUCTION STANDARD DRAWINGS - INDEX

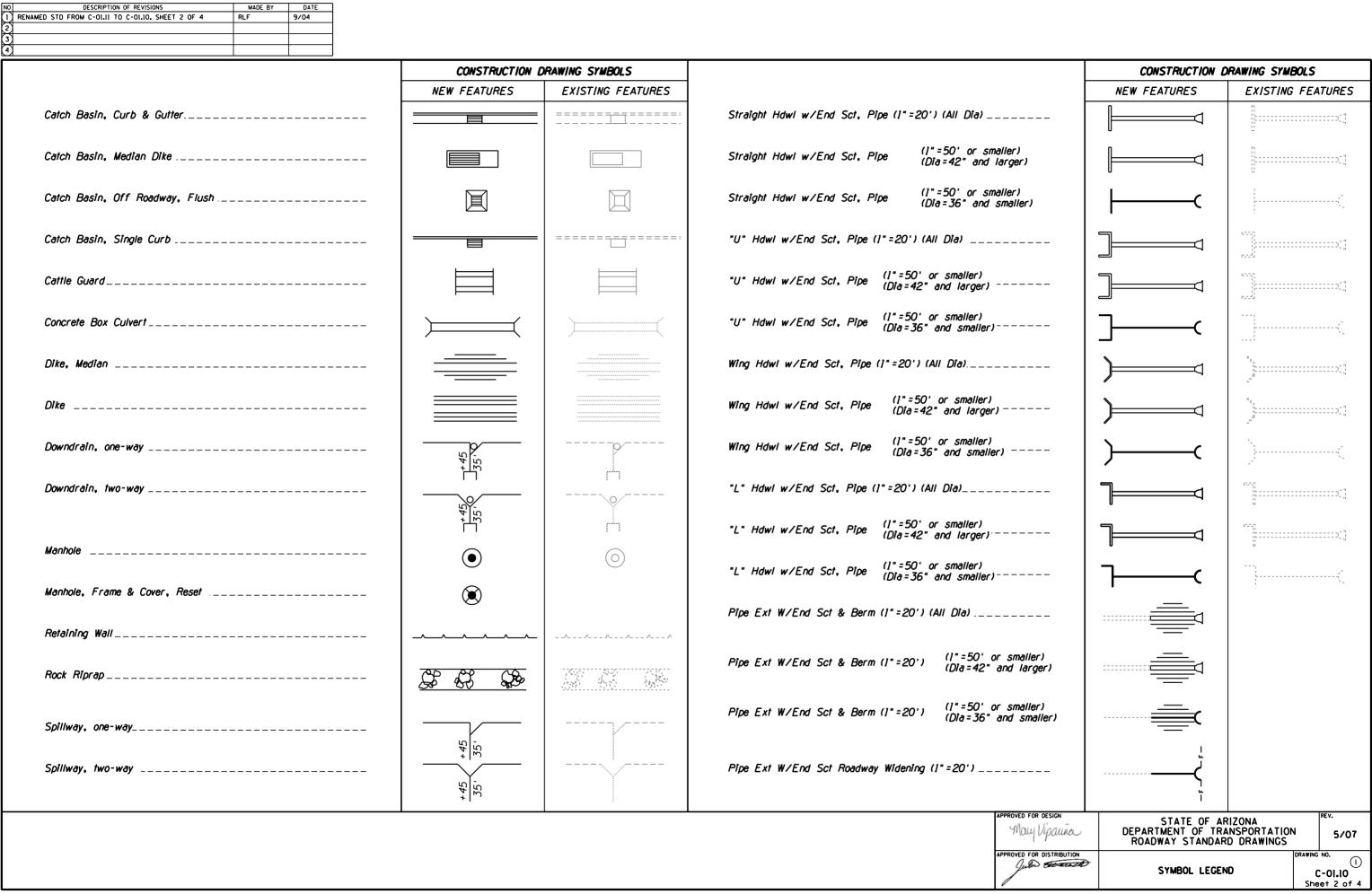
DRAWING NO.	TITLE	DRAWING NO.	TITLE
C-13.10 C-13.15	PIPE CULVERT INSTALLATION (2 SHEETS) TYPICAL PIPE INSTALLATION	C-18.10	MANHOLES (3 SHEETS)
C-13.20	PIPE, REINFORCED CONCRETE END SECTION	C-19.10	FORD, CONCRETE WALLS
C-13.25 C-13.30 C-13.55 C-13.60 C-13.65 C-13.70 C-13.75 C-13.76 C-13.80	PIPE, CORRUGATED METAL END SECTION PIPE AND PIPE ARCH, CORRUGATED METAL CONCRETE INVERT PAVING PIPE, CATTLE-VEHICLE PASS, MITERED END TREATMENT SLOTTED DRAIN DETAILS SLOTTED DRAIN, INSTALLATION DETAILS STORM DRAIN, CONNECTION DETAILS STORM DRAIN, OUTLET BARRIER GATE STORM DRAIN OUTLET AND STORM DRAIN PLUG PIPE COLLAR DETAILS	C-21.10 C-21.20	SURVEY MONUMENT FRAM SURVEY MARKER
C-15.10 C-15.20 C-15.30 C-15.40 C-15.50 C-15.70 C-15.75 C-15.80 C-15.81 C-15.90 C-15.91 C-15.92	CATCH BASIN, TYPE 1 CATCH BASIN, TYPE 3 (3 SHEETS) CATCH BASIN, TYPE 4 CATCH BASIN, TYPE 5 (2 SHEETS) CATCH BASIN, FRAME AND GRATE CATCH BASIN, MISCELLANEOUS DETAILS (2 SHEETS) CATCH BASIN, MISCELLANEOUS DETAILS (2 SHEETS) CATCH BASIN, DROP INLET CATCH BASIN, FLUSH CATCH BASIN, SIDE SLOPE CATCH BASIN, MEDIAN DIKE (PRECAST) FREEWAY CATCH BASIN DETAILS (2 SHEETS) CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER (2 SHEETS)		
C-16.40	IRRIGATION SLEEVES		
C-17.10 C-17.15 C-17.20	RAIL BANK PROTECTION FOR DRAINAGEWAYS, TYPES 1, 2 & 3 RAIL BANK PROTECTION AT ABUTMENTS, TYPES 4, 5 & 6 RAIL BANK PROTECTION FOR DRAINAGEWAYS, TYPES 7, 8 & 9		

S) ALLS (2 SHEETS) RAME AND COVER

NO DESCRIPTION OF REVISIONS MADE BY DATE (1) REISSUED STANDARD DRAWING - REVISED ORDER OF FEATURES RLF 5/07			
3 4			
	CONSTRUCTION D	RAWING SYMBOLS	
	NEW FEATURES	EXISTING FEATURES	
National, State Boundary			Survey Control Point
Forest or Reservation Boundary		· 1 1	Bench Mark
County Line			Centerline, Station Marks
City Limits			Mile Post Marker
Township or Range Line			Sidewalk, Curb & Gutter w/Depressed Curb (1"=50' or larger)
Section Line			Curb & Gutter with Depressed Curb (1"=100')
Quarter or Mid-Section Line			Curb, Single with Depressed Area
Sixteenth-Section Line			Pavement and Sidewalk Edge
Right-of-Way Line			Turnout
Property Line			Top of Cut
Temporary Construction Easement			Toe of Fill
Access Control			Transition, Cut to Fill
Section Corner			Railroad Track (1"=50' or larger)
Quarter Corner		-O	Railroad Track (1"=100')
Survey Monument	÷		Bank Protection
Right-of-Way Marker	•	\oplus	Bridge
Angle Point or PI		\square	Building
	1		

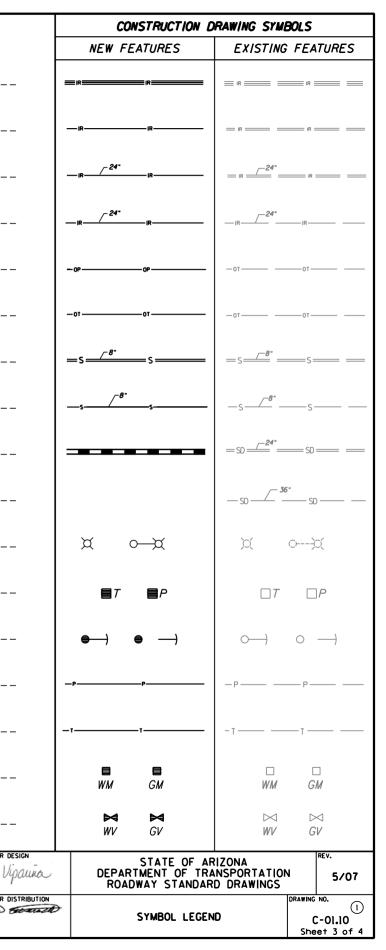
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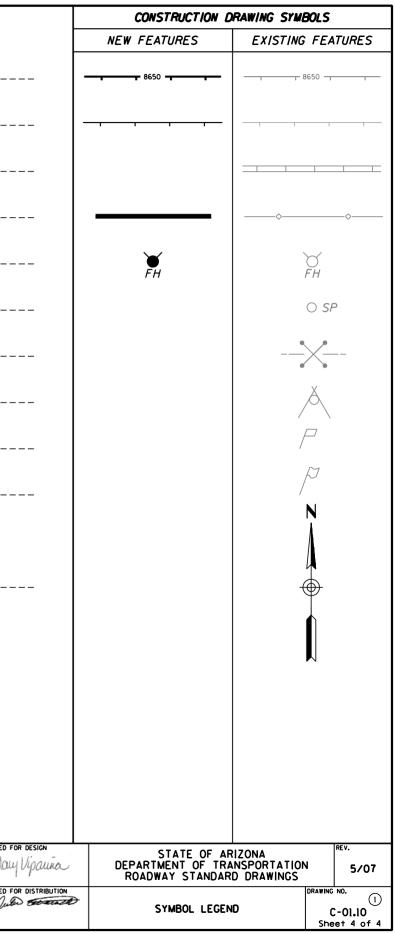
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IAMED STD FROM C-01.12 TO C-01.10. SHEET 3 OF 4 RLF 9/04			
	CONSTRUCTION	DRAWING SYMBOLS	
	NEW FEATURES	EXISTING FEATURES	
Plan View, Bituminous Pavement			Irrigation Ditch, Concrete
Plan View, Concrete Pavement			Irrigation Ditch, Earth
Plan View, Graded Surface			Irrigation Line (1" = 20')
Plan View, Obliterate Pavement			Irrigation Line (1" = 100')
Plan View, Wood	57772		Overhead Power/Joint-Use Line
Section, Asphaltic Concrete Friction Course			Overhead Telephone Line
Section, Bituminous Pavement			Sanitary Sewer (1"=20')
Section, Concrete	····· δ·······························		Sanitary Sewer (1"=100')
Section, Metal			Storm Drain (]"=20') & (]"=50')
Section, Wood			Storm Drain (1"=100')
Section, Aggregate Base			Street Light and with Mast Arm
Section, Ground Line	<u>KAKAKAI</u> KAKAKAI		Telephone/Power Pedestal
Ground Line Profile			Utility Pole with Down Guy and Anchor
Barbed Wire Fence & Gate	_ <u>* * *</u> /* *		Underground Power/Joint-Use Line
Chain Link Fence & Gate			Underground Telephone Line
Guardrail & Flared End Terminal		Decere	Water/Gas Meter Box
Guardrail & Tangent End Terminal	•••••		Water/Gas Valve
Gas Line		_ C 2 C	APPROVED FO MOUN
			APPROVED FO



0 DESCRIPTION OF REVISIONS MADE BY DATE RENAMED STD FROM C-01.13 TO C-01.10, SHEET 4 OF 4 RLF 9/04			
	CONSTRUCTION	DRAWING SYMBOLS	
	NEW FEATURES	EXISTING FEATURES	
Water Line			Depressed Index Contour Line
Drainage Channel			Depressed Intermediate Contour Line
,			
Drainage Ditch	Drainage Dilch	,−− Drainage Ditch	Block Wall (]"=20')
Major Wash		NAME -	Median Barrier
Minor Wash			Fire Hydrant
€ Grade, Profile			Standpipe
		-00000	
Hadaa		در	Transmission Tower
Hedge		" manuel	
		Hal, Ş	
Palm Tree		ATTACK	Windmill
Shrubbery		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Mail Box
Unclassified Tree		٤٠.٦	Flag Pole
		کرریج	-
Sign, Single Post		d	
		9	
		d	
Sign, Multiple Post		0	North Arrow
Dimensions			
Visible Outlines, Sections, etc			
Index Contour Line	8650		
Intermediate Contour Line			
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NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	RENAMED STD DWG FROM C-01.30 TO C-01.30, SHEET 1 OF 3	RLF	9/04
2			
3			
(4)			

WORDS	ABBREVIATION	WORDS	ABBREVIATION	WORDS	ABBREVIATION
Α		B (cont)	-	C (cont)	
Abutment	Abt	Bituminous Mixture	Bit Mix	Corrugated High-Density Polyethylene Pla	
Acceleration	Acc	Bituminous Surface Treatment	BST	Corrugated Metal Pipe	CMP
Acres	Ac	Bituminous Treated Base	BTB	Corrugated Steel Pipe	CSP
Aggregate	Agg	Black Steel Pipe	BSP	County	Co
Aggregate Base	AB	Borrow	Bor	Crossing	X-ING
Ahead	AHD, Ahd	Boulevard	BLVD, Blvd	Cross Section	X-SECT
Alternate	Alt	Boundary	Bdry	Crown	Cr
Aluminum	AI	Brass Cap	BC	Cubic	Cu
American Association of State Highway	AASHTO	Breakaway Cable Terminal	BCT	Cubic Feet Per Second	CFS
and Transportation Officials		Bridge	Br	Cubic Yard or Cubic Yards	CY, Cu Yd
American Concrete Institute	AC/	Building	Bldg	Culvert	Culv
American Institute of Steel Construction	A/SC	С		Curb and Gutter, Curb & Gutter	C&G
American Road and Transportation	ARTBA	Calculated	Calc	Curve to Spiral	CS
Builders Association		Cast-In-Place	C-1-P	D	
American Society for Testing Materials	ASTM	Cast Iron	CI	Deceleration	Dcl
Amount	Amt	Cast Iron Pipe	CIP	Deflection	Def
Approach	Appr	Catch Basin	СВ	Deflection of Total Curve	1
Approximate	Approx	Cattle Guard	CG	Degree of Curve	D
Asphalt	Asph	Cement	Cem	Delineator	Del
Asphalt Rubber	AR	Cement-Treated Base	СТВ	Delta	Δ.
Asphalt Rubber ACFC	ARACFC	Center	Ctr	Depressed Curb	DC
Asphaltic Concrete	AC	Center Line	£	Design Speed	Des Spd
Asphaltic Concrete Base	ABC	Center to Center	C to C	Detail	Dtl
Asphaltic Concrete Friction Course	ACFC	Channel	Chan	Diameter	Dia
Asphaltic Concrete Surface Course	ACSC	Class	CI	Distance	Dist
Avenue	AVE, Ave	Clear	Cir	Division	Div
Average Daily Traffic	ADT	Column	Col	Double	Dbi
В		Compact or Compaction	Comp	Drain or Drainage	Drn
Back	BK, Bk	Complete In Place	C in P	Drainage Area	DA
Backfill	Bkfl	Concrete	Conc	Drawing	Dwg
Balance	Bal	Concrete Box Culvert	CBC	Drive	Dr
Bank Protection	BP, Bank Prt	Concrete-Treated Base	CTB	Driveway	Dwy
Barbed Wire	BW	Connection	Conn	Ductile Iron Pipe	DIP
Bearing	Brg	Conduit	Cond	E	
Begin	Bgn	Construct or Construction	Cst	Each	Ea
Begin Curb Return	BCR	Continous	Cont	Easement	Esmt
Begin Full Super	BFS	Coordinate	Coord	East	E
Bench Mark	ВМ	Corner	Cor	Eastbound	EB
Bevel or Beveled	Bev	Correction	Corr		
Bituminous	Bit	Corrugated Aluminum Pipe	CAP	APPROVED FOR DESIGN	REV.
				May Vipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS 5/07
				APPROVED FOR DISTRIBUTION	CENERAL ABBREVIATIONS C-01.30 Sheet 1 of 3



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NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	RENAMED STD DWG C-01.31 TO C-01.30, SHEET 2 OF 3	RLF	9/04
2			
3			
(4)			

WORDS	ABBREVIATION	WORDS	ABBREVIATION	WORDS
E (cont)		G (cont)		M (cont)
Edge of Pavement	EP	Ground	Gnd	Mile or Miles
Electric, Electricity	Elec, E	Ground Compaction	Gnd Comp	Mile Post
Elevation	Elev	Grubbing	Grb	Miles Per Hour
Embankment	Emb	Guard	Grd	Mineral Aggregate
End Curb Return	ECR	Guardrail	GR	Minimum
End Full Superelevation	EFS	Guardrail Extruder Terminal	GET	Miscellaneous
Engineer	Engr	н		Modify or Modified
Entrance	Ent	Headwall	Hdwl	Monument
Equation	EQ. Eq	Height	Ht. H. h	Mountain
Estimate	Est	Height of Instrument	НІ	N
Excavation	Exc	Head Water	HW	National
Existing	Exst	Highway	Hwy	Non Delaforand Cost la Disso
Expansion Joint	Exp Jt	Horizontal	Horz	Non-Reinforced Cast-In-Place Concrete Pipe
Extend or Extension	Ext	Horizontal Elliptical Reinforced	HERCP	Normal Crown
External	Ext	Concrete Pipe		North
F		1		Northbound
Federal	Fed	Improvement	Impr	Number
Feet or Foot	Ft	Inch or Inches	In	0
Feet per Foot	711	Include, Included or Inclusive	Incl	Obliterate
Feet Per Second	FPS	Inside Diameter	ID	Original
Figure	Fig	Invert	Inv	Outside Diameter
Finish	Fin	Irrigation	Irr	Overhead
Floor	FI	J		Overpass
Flow Line	FL	Joint	Jt	P
Footing	Ftg	Junction	Jct	Parkway
Forest	Fst	L		Pavement
Found	Fnd	_ Laboratory	Lab	Pedestrian
Frame	Fr	Lateral	Lat	Place
Freeway	Fwy	Left	Lt	Point
Frontage	Frt	Length or Length of Curve	<u>_</u> . L	Point of Compound Curvature
Furnish or Furnished	Furn	Length of Normal Crown Removal	- L _c	Point of Curvature
Future	Fut	Length of Spiral	-c Ls	Point of Intersection
G		Length of Superelevation Runoff	L _s	Point of Reverse Curvature
Gas	G	Line	-s Ln	Point of Tangency
Gas Meter	GM	Linear or Lineal	Lin	Point on Curve
Gas Valve	GV	Linear Feet	Lin Ft	Point on Semi-Tangent
Galvanize or Galvanized	Galv	Location	Loc	Point on Spiral
Gauge	Ga	M		Point on Tangent
Government	Gov't	Manhole	МН	Polyethylene
Grade	Gr	Material	Mtl	APPROVED FOR DESIGN
Grade Seperation	GS	Maximum	Мах	May Vipaun
		Median	Med	1 1
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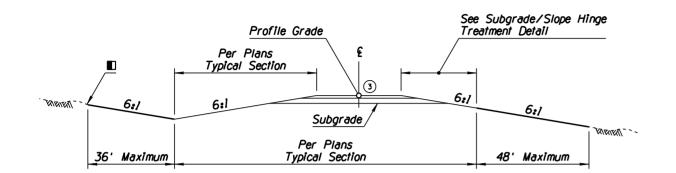
	ABBREVIATION	
	MI	
	MP	
	MPH	
	МА	
	Min	
	Misc	
	Mod	
	Mon	
	Mt	
	Nati	
	NRCIPCP	
	NC	
	N	
	NB	
	No	
	ОЫ	
	Orig	
	OD	
	ОН	
	OP	
	Pkwy	
	Pvmt	
	Ped	
	PI	
	Pt	
	PCC	
	PC	
	PI	
	PRC	
	PT	
	POC	
	POST	
	POS	
	POT	
	PE	
auño	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	^{REV.}
TRIBUTION	GENERAL ABBREVIATIONS	NO. ()

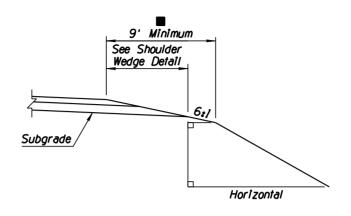
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
$\left(\right)$	RENAMED STD DWG C-01.32 TO C-01.30, SHEET 3 OF 3	RLF	9/04
2			
3			
(1)			

WORDS P (cont)	ABBREVIATION	WORDS s	ABBREVIATION	WORDS T (cont)	ABBREVIATION
Polyvinyl Chloride	PVC	Salvage	Salv	Telephone	Tel
Portland Cement Concrete	PCC	Section	Sct	Temporary	Temp
Portland Cement Concrete Pavement	PCCP	Select Material	SM	Temporary Construction Easement	TCE
Pounds	Lbs	Sheet	Sh	Timber	Tbr
Pounds Per Square Inch	PSI	Shoulder	Shidr	Top of Curb	TC
Preliminary	Prelim	Shrinkage	Shr	Topography	Τορο
Prestress, Prestressed or Prestressing	PS	Sidewalk	S/W	Township	T
Project	Prj	Sight Distance, Stopping	SD _S	Traffic Interchange	т. ТI
Property Line	P/L	Single	Sg/	Transition	Trns
Proposed	Prop	Skew	Sy. Sk	Turning Point	TP
Protection	Prt	South	S	Turnout	ТО
Provision or Provide	Prv	Southbound	SB	Typical	Тур
0		Special	Spcl	U	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Quadrant	Quad	Specification	Spec	Underground	Ugnd
Quantity or Quantities	Quan	Spiral Rate of Change	ð	Underpass	UP
Quantity of Drainage Runoff	0	Spiral To Curve	SC	V	
R	Ŭ	Spiral To Tangent	ST ST	Variable	Var
Radius	R	Square	Sq	Vertical	Vert
Railroad	RR	Square Feet	Sq Ft	Vertical Curve	VC
Range	R	Square Yard	Sq Yd	Vertical Elliptical Reinforced	VERCP
Reconstruct	Recst	Standard	Std	Concrete Pipe	VENC.
Reference	Ref	State Route	SR	Vertical Point of Intersection	VPI
Reinforced or Reinforcing	Reinf	Station	Sta	Viaduct	Via
Reinforced Concrete	RC	Street	St	Vitrified Clay Pipe	VCP
Reinforced Concrete Pipe	RCP	Structure or Structural	Str	Volume	Vol
Reinforcing Bar	Rebar	Subdivision	Subdiv	W	¥0/
Relocate, Relocation or Relocated	Reloc			• Water	W
Remove	Rem	Subgrade Subgrade Seal	SG SS	Water Meter	WM
Required	Reqd	Superelevation	e or Super	Water Valve	WV
Reservation		Surface		Welded Wire Fabric	WWF
Residence	Resv Res	Surrace Survey	Surf Sur	weided wire Fabric West	wwr W
Retain or Retaining	Ret	Swell	Sw	Westbound	w WB
Revised or Revision	Rev	Swen Symmetrical	Sw Sym	westoona Western Wood Products Association	₩₽ ₩₩₽A
Right	Rt	T	Sym	Wide or Width	WWFA W
	R/W	i Taccent	Tan		
Right-of-Way Road		Tangent	Tan T	Wood Y	Wđ
Road	Rd Rdunu	Tangent Length	1		¥.d
Roadway	Rdwy Bto	Tangent to Spiral	TS	Yard	Yd
Route Bubbar Casket Beinforced Constate Biog	Rte RGRCP	Telegraph	Tig		
Rubber Gasket Reinforced Concrete Pipe	RGRUP				
				APPROVED FOR DESIGN May Vyaura	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS
				APPROVED FOR DISTRIBUTION	GENERAL ABBREVIATIONS C-OI.30 Sheet 3 of

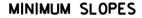


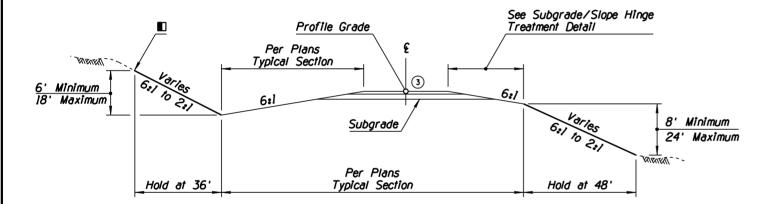
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	MODIFIED TITLE	RLF	4/06
2	REVISED 'NOTE TO DESIGNERS'	RLF	7/06
3	MODIFIED SYMBOL	RLF	7/06



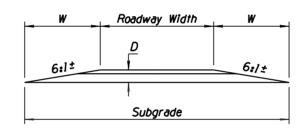


SUBGRADE/SLOPE HINGE TREATMENT DETAIL



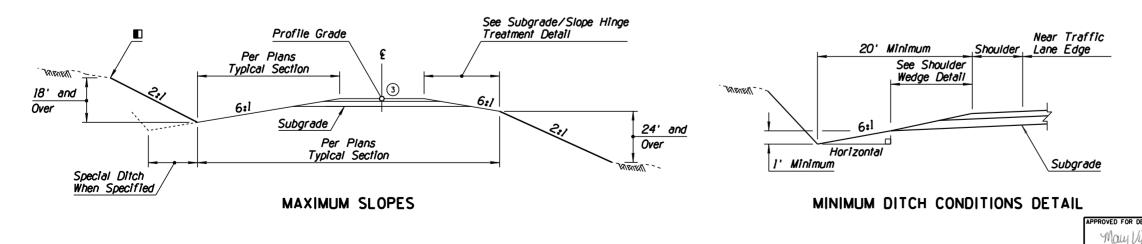


INTERMEDIATE SLOPES



W = D x Slope (6:1) D = Str Sct Depth (Ft) Excluding ACFC Subgrade = 2 x W + Roadway Width

SHOULDER WEDGE DETAIL



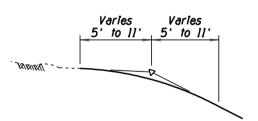
PPROVED FOR DIS

GENERAL NOTES

- Roadway width, cut ditch width, cross slope, and pavement structure section will be shown on project plans.
- 2. Pavement structure slope is nominal. Actual slope is controlled by (D). See Shoulder Wedge Detail.
- 3. Slopes beyond the pavement structure, such as embankment and cut slopes, are relative to horizontal.
- 4. For slope controls within interchange areas, see project plans.
- 5. When median slopes intersect, see project plans for controls.
- 6. These slopes are intended to be used with new or reconstructed roadways.

NOTE TO DESIGNERS

Required when guardrail is present on the project. Treatment shall be uniform throughout the project length. The 9' requirement may be waived under special conditions on projects without guardrail.



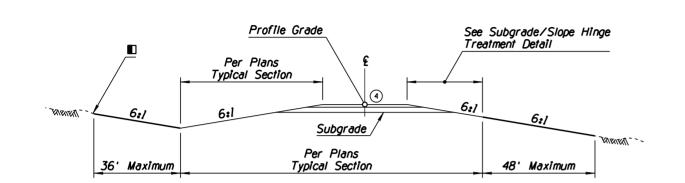
SLOPE ROUNDING DETAIL

Except in solid rock, or as directed by the Engineer, the intersection of roadway cut slopes with the ground surfaces shall be rounded.

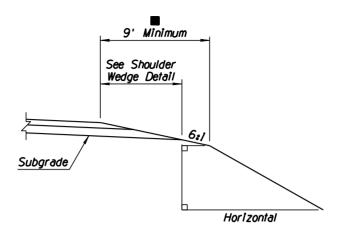
For cuts up to 6', use 5' semi-tangents for slope rounding. For each additional foot of cut add 1' to semi-tangent to 11' maximum.

sign	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
STRIBUTION	SLOPES RURAL DIVIDED HIGHWAYS 1	C-02.10

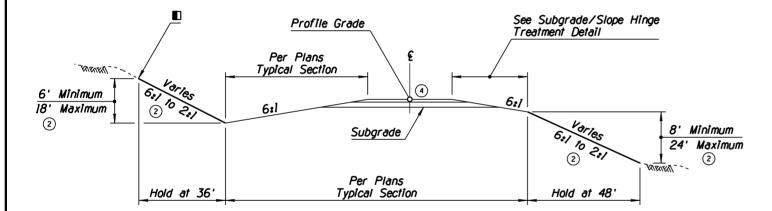
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REVISED TITLE	RLF	4/06
2	MODIFIED SLOPE CRITERIA	RLF	4/06
3	REVISED 'NOTE TO DESIGNERS'	RLF	7/06
4	MODIFIED SYMBOL	RLF	7/06



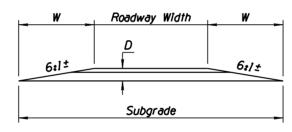
MINIMUM SLOPES



SUBGRADE/SLOPE HINGE TREATMENT DETAIL

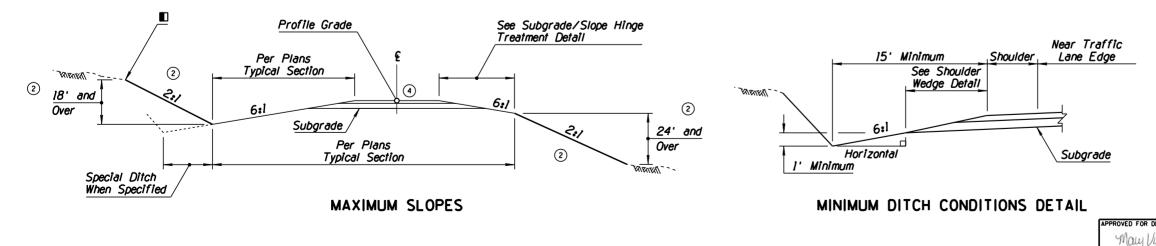


INTERMEDIATE SLOPES



 $W = D \times Slope (6:1)$ D = Str Sct Depth (Ft) Excluding ACFC Subgrade = $2 \times W + Roadway Width$

SHOULDER WEDGE DETAIL



PROVED FOR DIS Jule 5

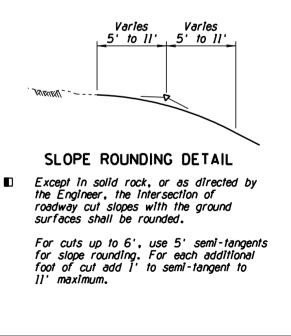
GENERAL NOTES

- 1. Roadway width, cut ditch width, cross slope, and pavement structure section will be shown on project plans.
- 2. Pavement structure slope is nominal. Actual slope is controlled by (D). See Shoulder Wedge Detail.
- 3. Slopes beyond the pavement structure, such as embankment and cut slopes, are relative to horizontal.
- 4. When median slopes intersect, see project plans for controls.
- 5. These slopes are intended to be used with new or reconstructed roadways.

NOTE TO DESIGNERS

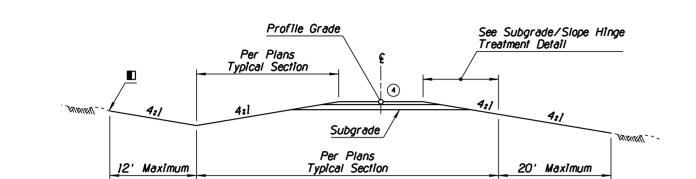
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Required when guardrail is present on the project. Treatment shall be uniform throughout the project length. The 9' requirement may be waived under special conditions on projects without guardrail.

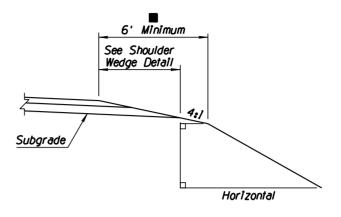


paura	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
STRIBUTION	SLOPES () RURAL UNDIVIDED AND FRINGE-URBAN HIGHWAYS	RAWING NO. C-02.20

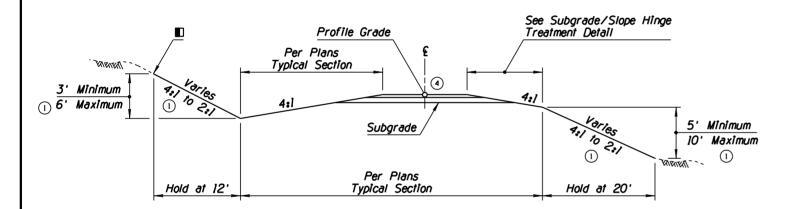
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
$\left(\right)$	MODIFIED SLOPE CRITERIA	RLF	4/06
2	ADDED USAGE NOTE	RLF	4/06
3	MODIFIED 'NOTE TO DESIGNERS'	RLF	7/06
(1)	MODIFIED SYMBOL	RLF	7/06



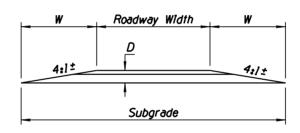
MINIMUM SLOPES



SUBGRADE/SLOPE HINGE TREATMENT DETAIL

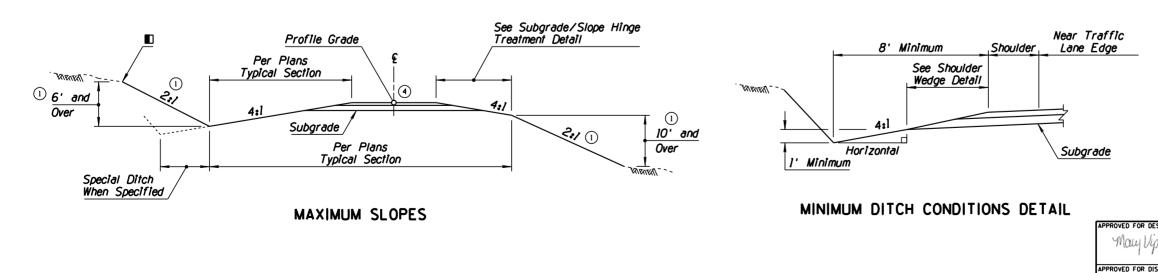


INTERMEDIATE SLOPES



W = D x Slope (4:1) D = Str Sct Depth (Ft) Excluding ACFC Subgrade = 2 x W + Roadway Width

SHOULDER WEDGE DETAIL

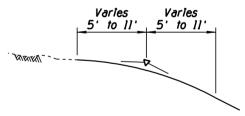


GENERAL NOTES

- Roadway width, cut ditch width, cross slope, and pavement structure section will be shown on project plans.
- 2. Pavement structure slope is nominal. Actual slope is controlled by (D). See Shoulder Wedge Detail.
- 3. Slopes beyond the pavement structure, such as embankment and cut slopes, are relative to horizontal.

NOTE TO DESIGNERS

- © USAGE OF THIS STANDARD IS LIMITED IN ACCORDANCE WITH THE ROADWAY DESIGN GUIDELINES - CHAPTER 300.
- Required when guardrail is present on the project. Treatment shall be uniform throughout
 the project length. The 9' requirement may be waived under special conditions on projects without guardrail.

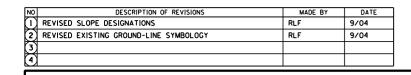


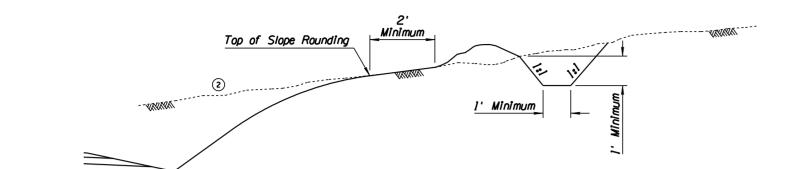
SLOPE ROUNDING DETAIL

Except in solid rock, or as directed by the Engineer, the intersection of roadway cut slopes with the ground surfaces shall be rounded.

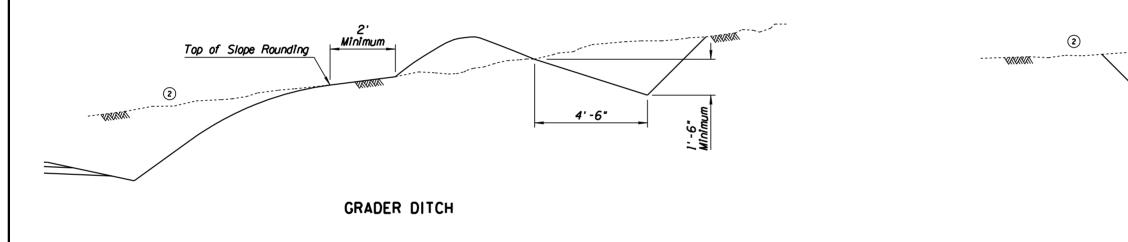
For cuts up to 6', use 5' semi-tangents for slope rounding. For each additional foot of cut add 1' to semi-tangent to 11' maximum.

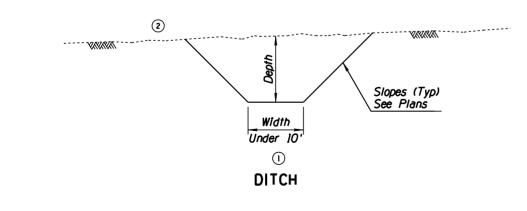
May Vipauna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N	rev. 5/07
Jule to Distribution	SLOPES MISCELLANEOUS ROADWAYS	C-02.30	

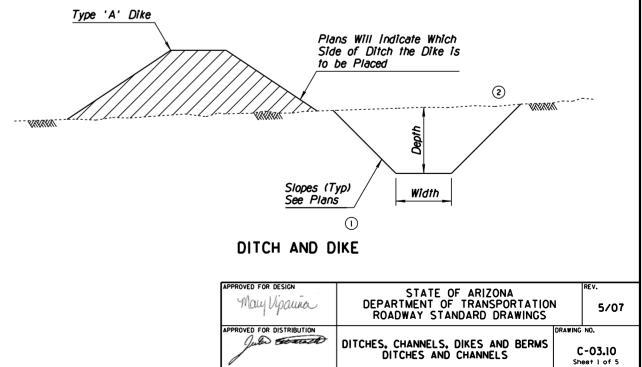




CROWN DITCH

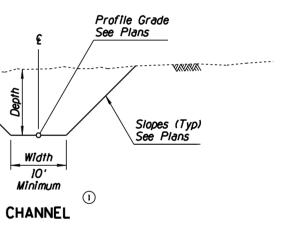




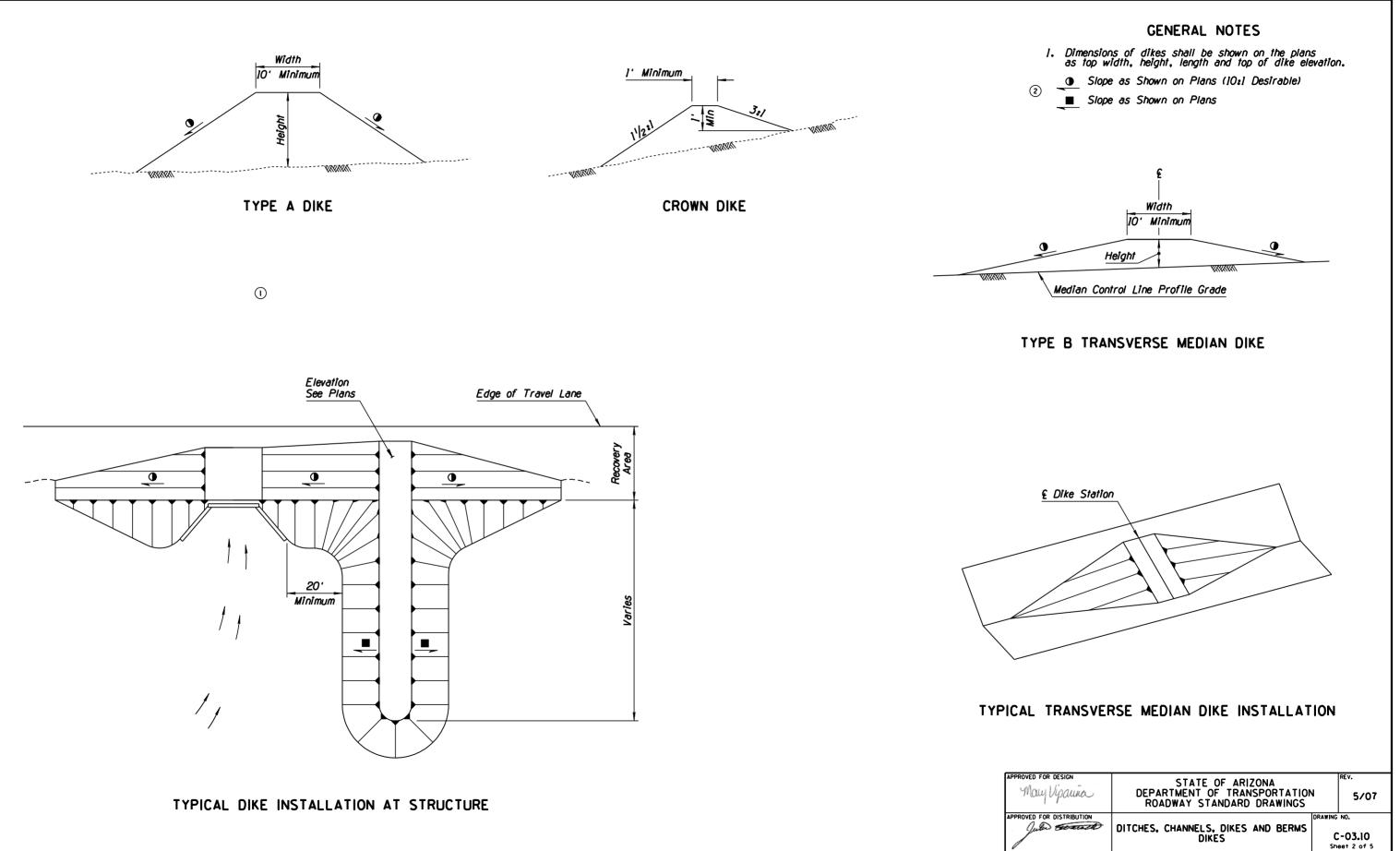




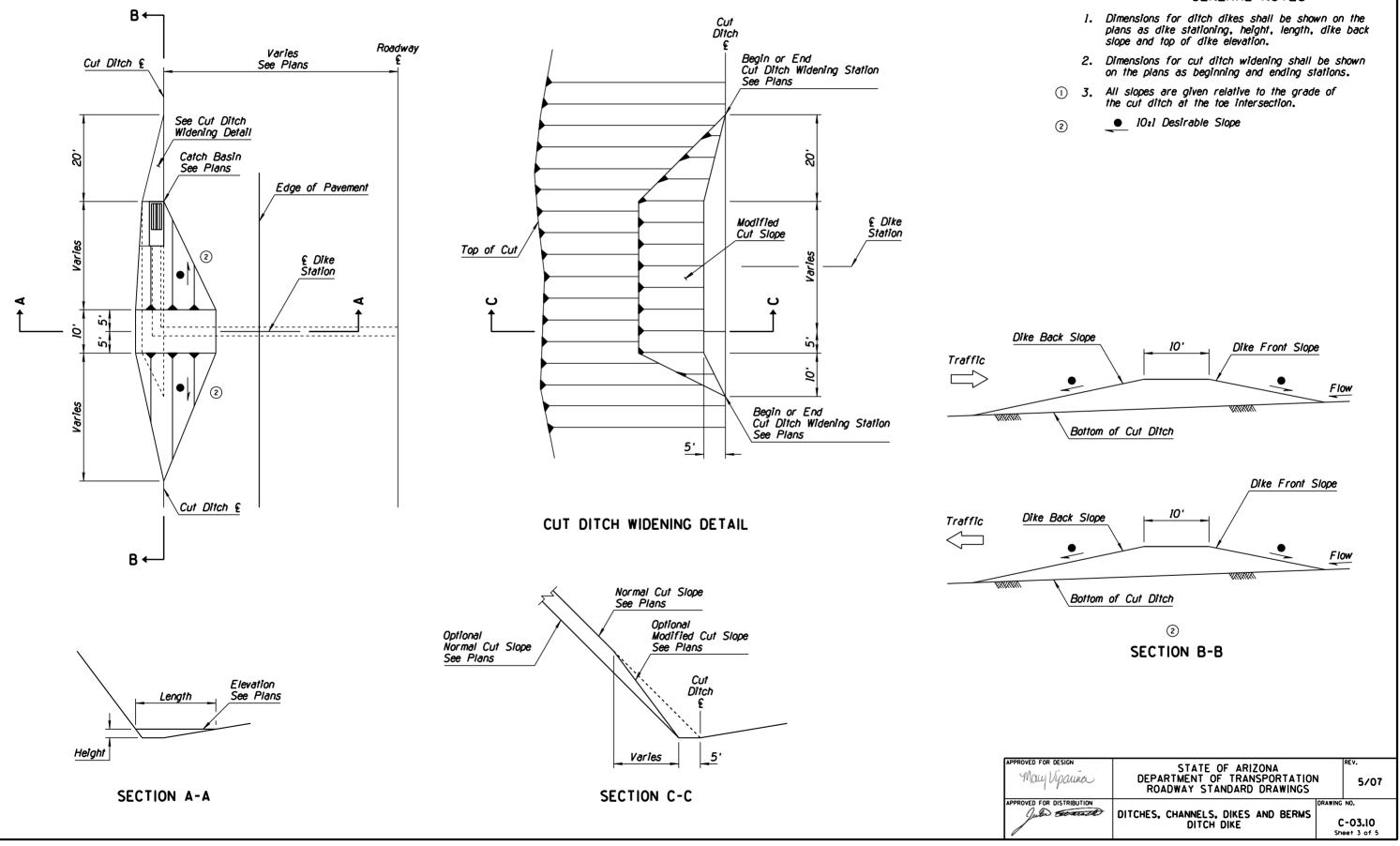
- 1. Dimensions of ditches and channels shall be shown on the plans as bottom width, depth and length.
- 2. Ditches and channels shall be constructed with a minimum grade to prevent erosion. Ditch outlet treatment shall be as provided on plans.

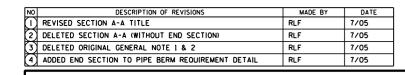


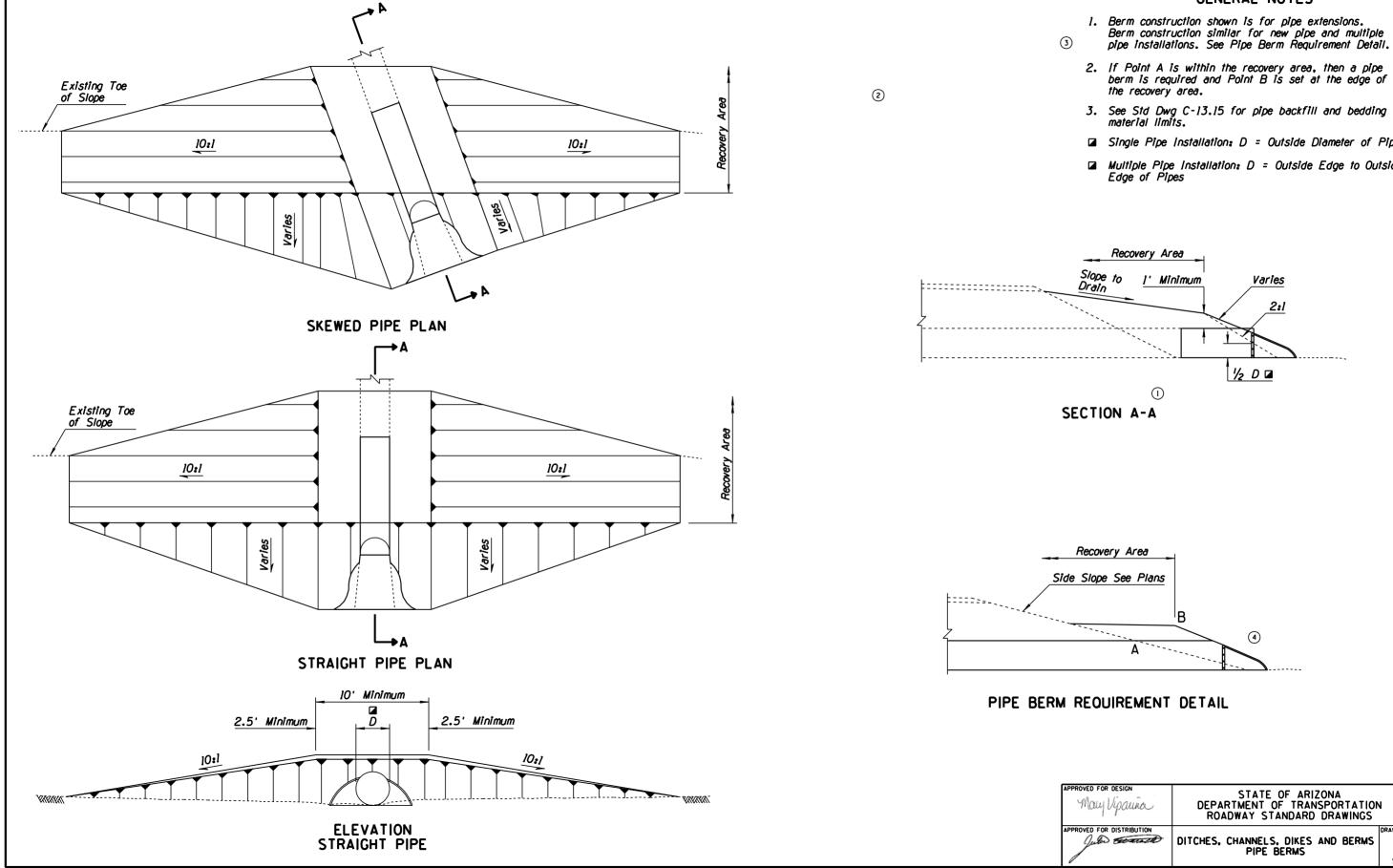
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{n})	DELETED SLOPE TABLE	RLF	9/04
2	DELETED GENERAL NOTE 2: REVISED SLOPE DESIGNATIONS	RLF	9/04
3			
(1)			



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	ADDED NEW GENERAL NOTE	RLF	9/04
2	REVISED SLOPE DESIGNATIONS	RLF	9/04
3			
4			

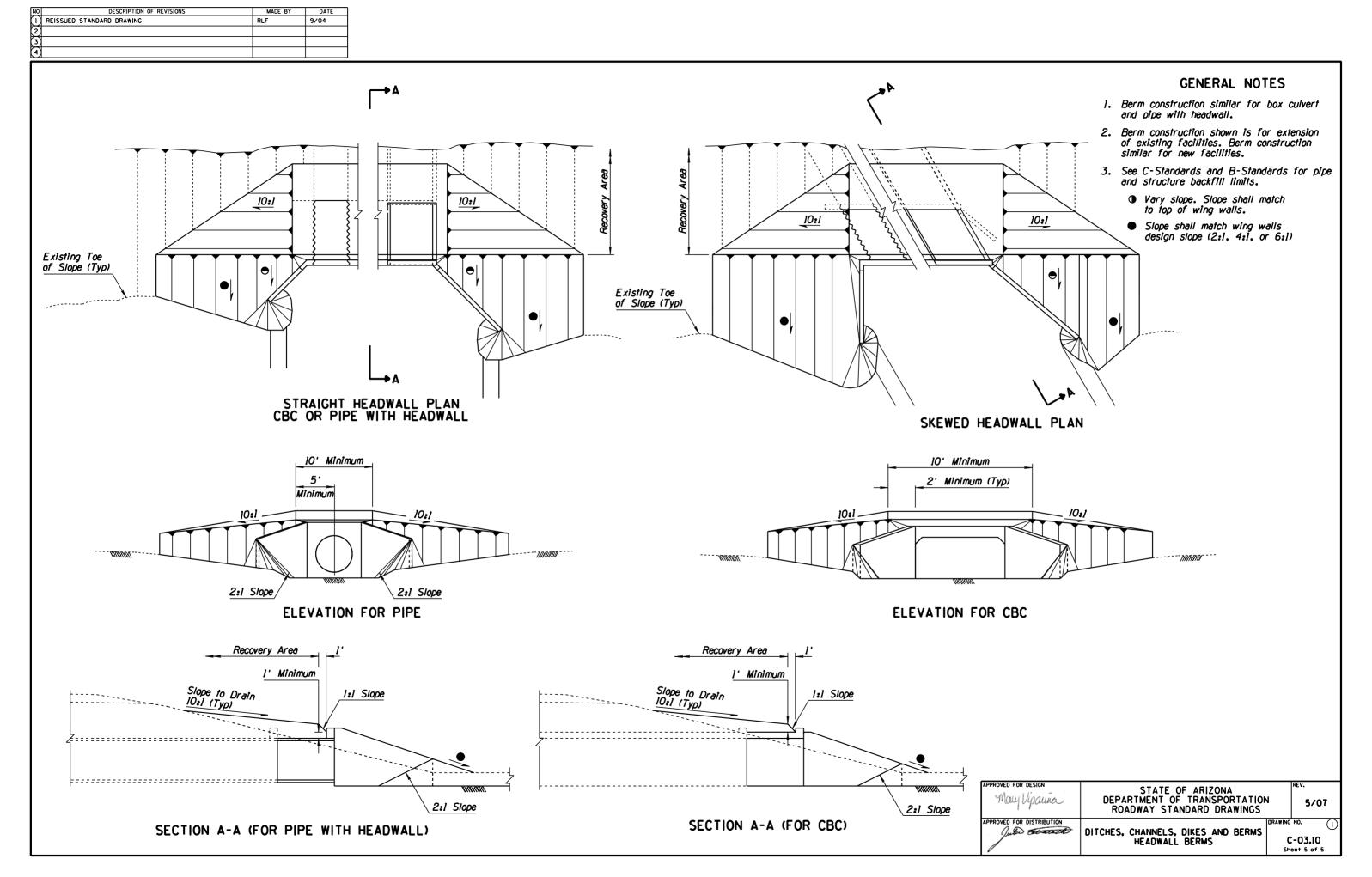




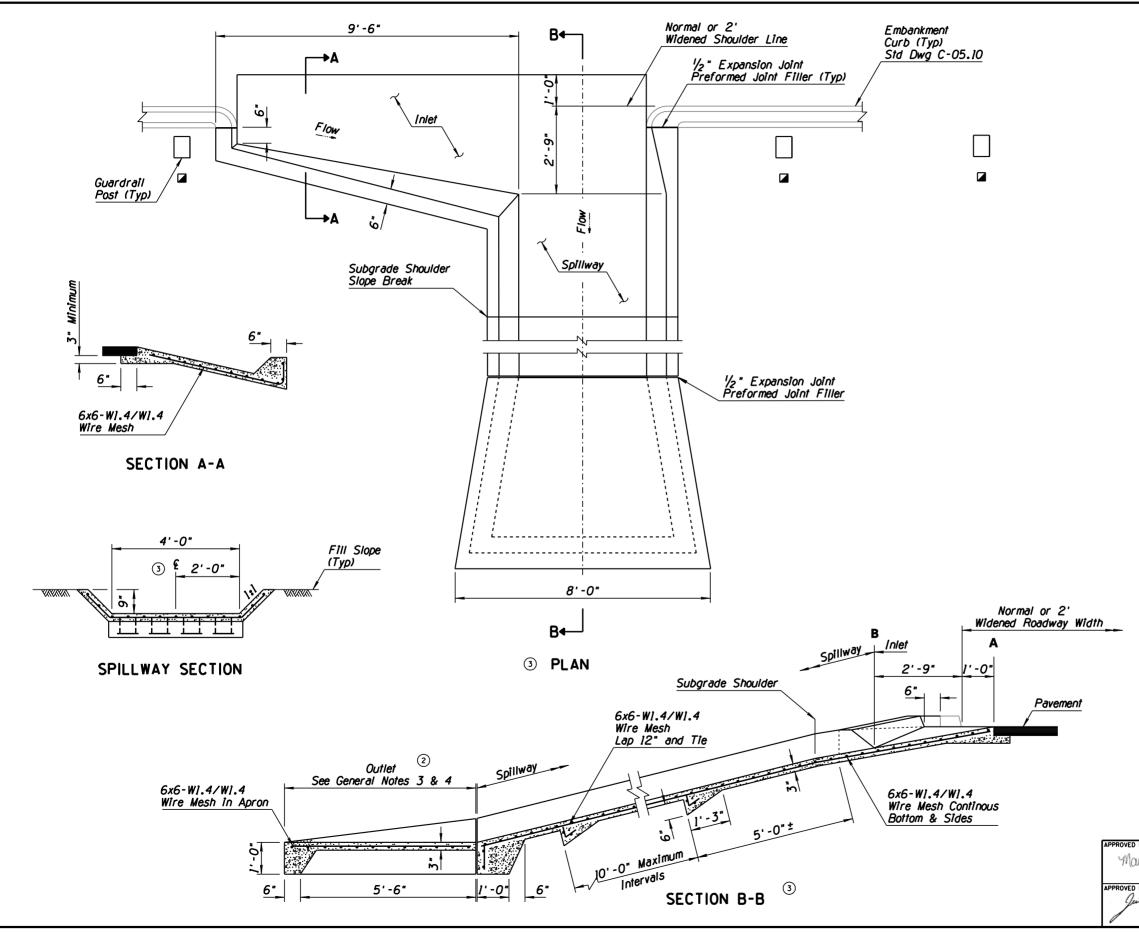


- Single Pipe Installation: D = Outside Diameter of Pipe
- Multiple Pipe Installation: D = Outside Edge to Outside

	DITCHES, CHANNELS, DIKES AND BERMS PIPE BERMS	DRAWING NO. C-03.10 Sheet 4 of 5	
lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		^{REV.}

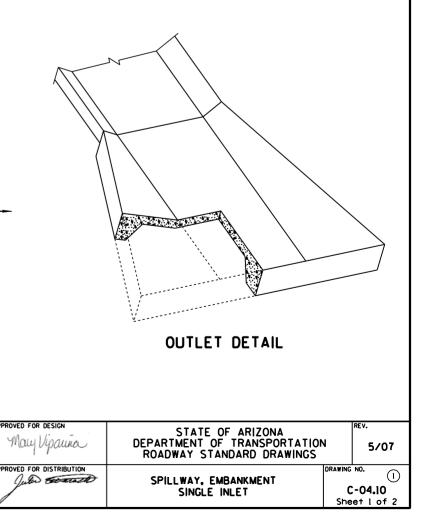


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	REISSUED STANDARD DRAWING	RLF	7/05
2	CORRECTED GENERAL NOTE REFERENCE	RLF	5/07
3	MODIFIED PLAN AND SECTION VIEWS	RLF	5/07
4			

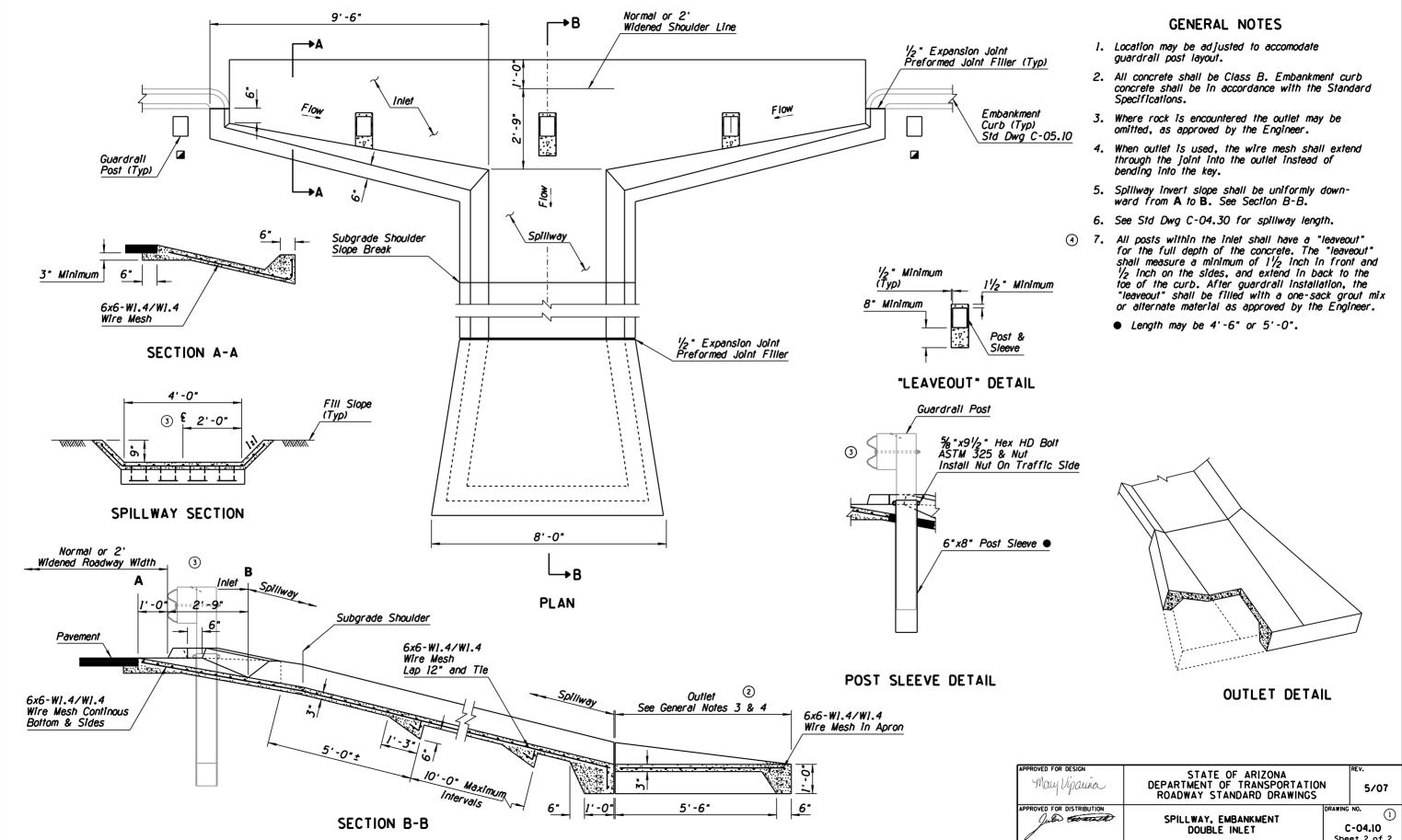


- 1. Location may be adjusted to accomodate guardrail post layout.
- 2. All concrete shall be Class B. Embankment curb concrete shall be in accordance with the Std Specs.
- 3. Where rock is encountered the outlet may be omitted, as approved by the Engineer.
- When outlet is used, the wire mesh shall extend through the joint into the outlet in lieu of bending into the key.
- 5. Spillway invert slope shall be uniformly downward from A to B. See Section B-B.
- 6. See Std Dwg C-04.30 for spillway length.
- 7. See Std Dwg C-10.06 for nested guardrail requirements.

72" Timber Post

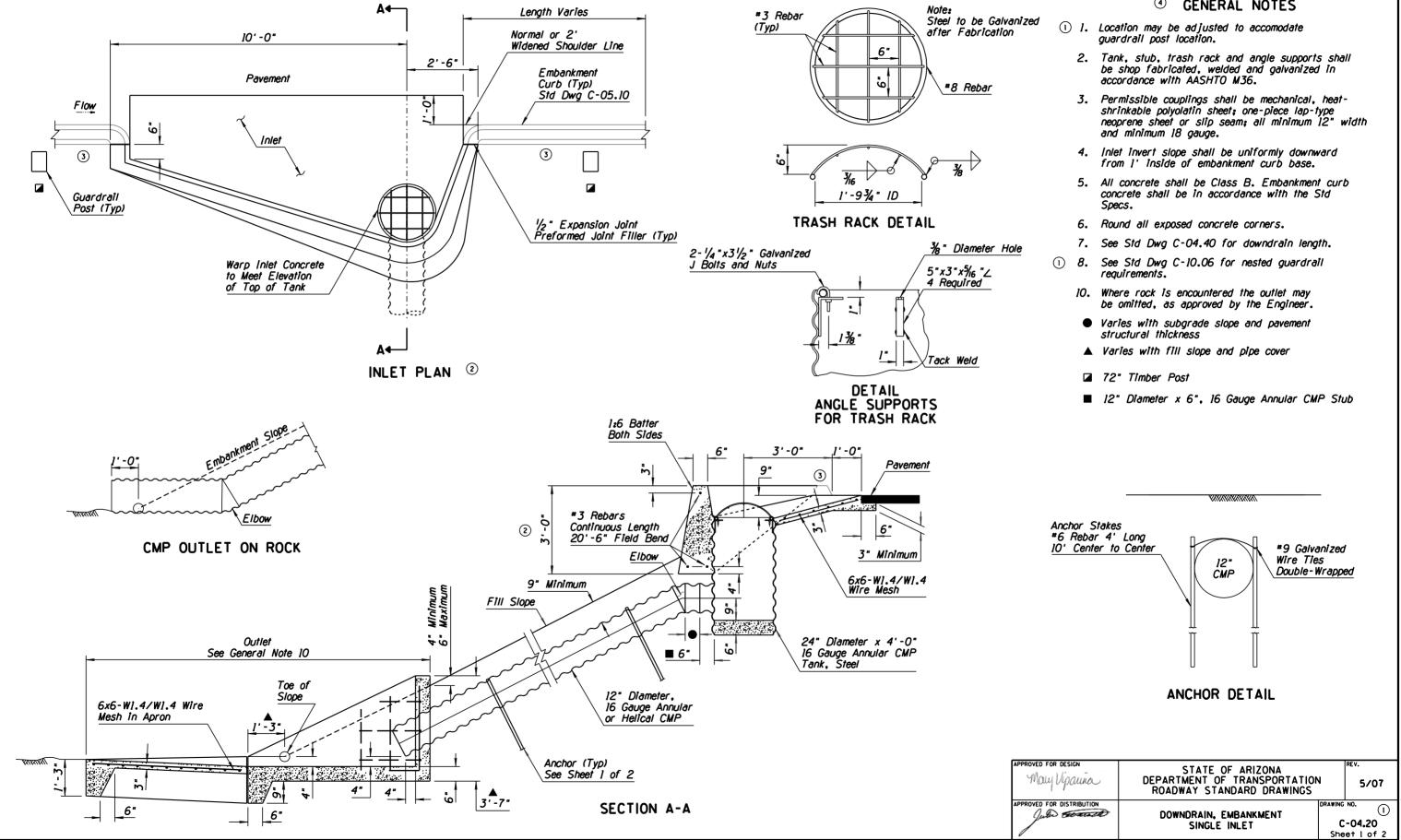


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	NEW STANDARD DRAWING	RLF	7/05
2	REVISED NOTE REFERENCE	RLF	4/06
3	SUBDUED POST / W-BEAM GRAPHICS	RLF	4/06
	REVISED GENERAL NOTE	RLF	8/06

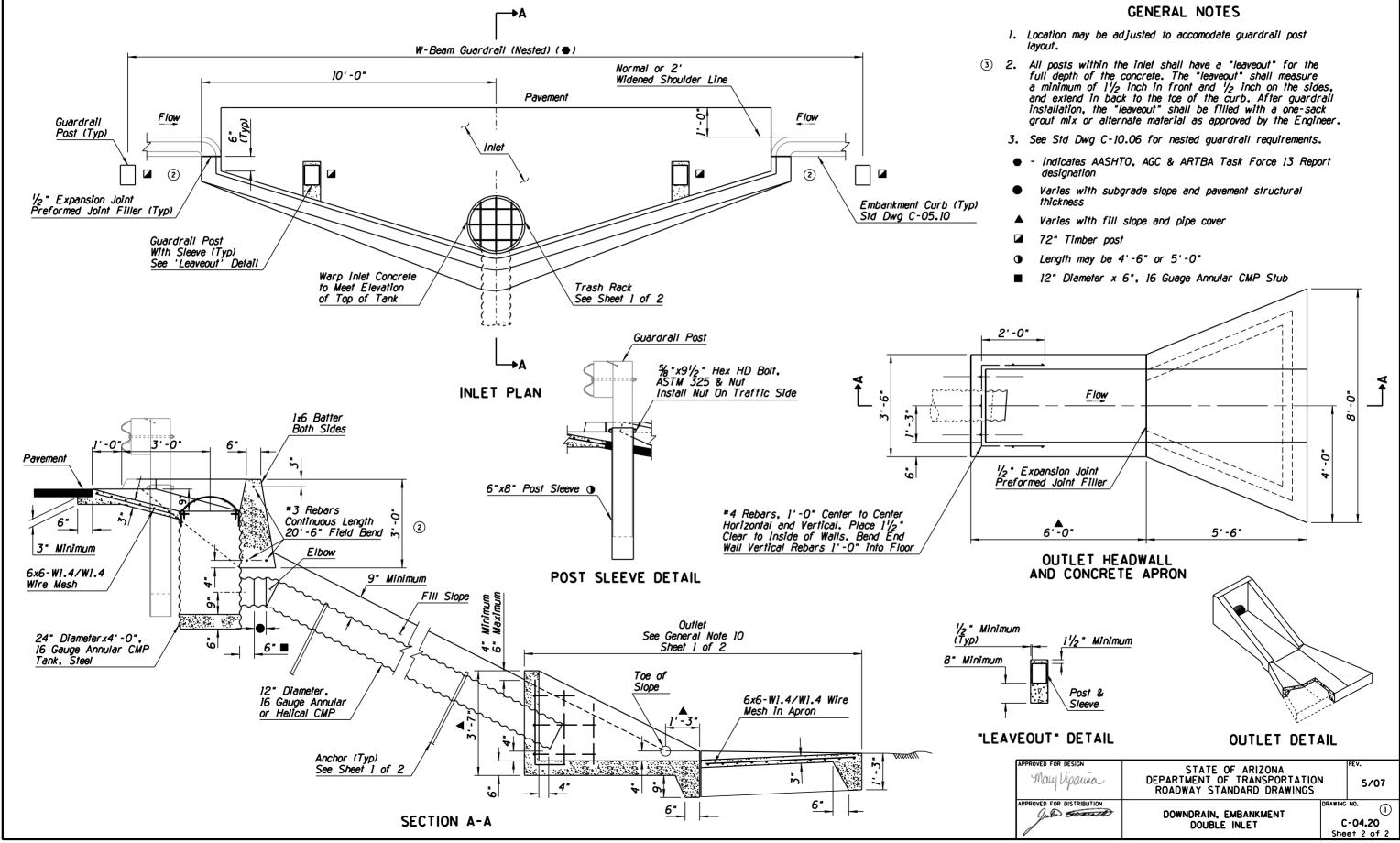


design lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
DISTRIBUTION	SPILLWAY, EMBANKMENT DOUBLE INLET	DRAWING NO. C-04.10 Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(1)	NEW GENERAL NOTE	RLF	7/05
2	REVISED SECTION A-A GRAPHICS	RLF	7/05
3	REVISED INLET PLAN VIEW AND SECTION A-A GRAPHICS	RLF	5/07
(1)	DELETED GENERAL NOTE 4 & REARRANGED NOTES 2 - 7	RLF	5/07



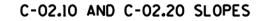
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	NEW STANDARD DRAWING	RLF	7/05
2	REVISED INLET PLAN AND SECTION A-A GRAPHICS	RLF	5/07
3	REVISED GENERAL NOTE 2	RLF	5/07
4			



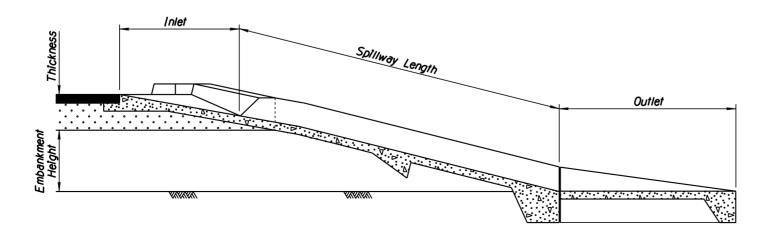
_			
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	REISSUED STANDARD DRAWING	RLF	5/07
2			
3			
4			

	APPROXIMATE LENGTH OF SPILLWAY (F+) C-02.10 & C-02.20 SLOPES																
PAVEMENT																	
STRUCTURAL		6	:1			VAF	RIES FI	ROM 6:	I TO 2	:/				2:1			
SECTION THICKNESS					EMBANKMENT HEIGHT (FT)												
(/n)	5	6	7	8	10	12]4	16	18	20	22	24	26	28	30	32	
12	EM	IBANKM	ENT CU	RB	50	51	51	52	52	52	52						
14	ANL	D SPILI	WAYS A	RE	51	51	52	52	52	52	53						
16	-		ALLY US		52	52	52	53	53	53	53		SPILLI				
18			IS SLOF . USE	_	53	53	53	53	53	53	53	USUALLY USED FOR THIS SLOPE CONDITION.					
20			. USE GEQUAT	_	53	53	54	54	54	54	54			THE FOLLOWING			
22			BANKME		54	54	54	54	54	54	54	EQUATION WHEN A SPILLWAY IS REQUIRED					
24			SPILL		59	58	57	57	57	56	56						
26				-	59	58	58	57	57	57	56		APPROXIMATE SPILLWAY LENGTH IN FEET =				
28			TE SPIL N FEET		60	59	58	58	57	57	57			KMENT	_		
30			VKMENT		61	60	59	58	58	57	57		PLU	S PAVEM	ENT		
32	HEIGH	HT PLU	S PAVE	MENT	62	60	60	59	58	58	57			TURAL S			
34	-		AL SEC		63	61	60	59	59	58	58		THICKNESS) TIMES 2				
36	THIC	KNESS) TIMES	5 6	63	62	61	60	59	59	58						

APPRO	XIMA.	TE LE	NGTH	OF S	SPILL	WAY	(F+) -	- C-02	.30 SLO	PES				
PAVEMENT	EMBANKMENT SLOPE													
STRUCTURAL SECTION	4	:/	VA	RIES I	FROM 4	1:1 TO	2:1	2:1						
THICKNESS (In)	EMBANKMENT HEIGHT (FT)													
(110	3	4	5	6	7	8	9	10	12]4				
12	12	16	20	21	22	23	23							
]4	13	17	21	22	23	23	23	SPILLWAYS ARE NOT USUALLY USED FOR						
16]4	18	22	22	23	23	24							
18]4	18	22	23	23	24	24		SLOPE CON					
20	15	19	23	24	24	24	24		THE FOLLO ATION WHE					
22	16	20	24	24	24	25	25		IAY IS REC					
24	16	20	24	25	25	25	25	APPRO	XIMATE SF	PILLWAY				
26	17	21	25	25	25	25	25		TH IN FEE					
28	18	22	26	26	26	26	26	(EMBANKMENT HEIGHT PLUS PAVEMENT STRUCTURAL SECTION THICKNESS) TIMES 2						
30	18	22	26	26	26	26	26							
32	19	23	27	27	27	27	27							
34	20	24	28	27	27	27	27							
36	20	24	28	28	28	28	27							



Spillways are not usually used for these slope conditions



GENERAL NOTES

1. For spillway details, see Std Dwg C-04.10.

NOTE TO DESIGNERS

Use earthwork cross sections for more precise spillway lengths

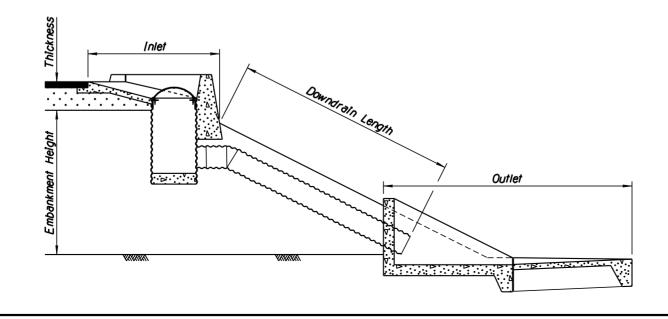
C-02.30 SLOPES

			1
Mary Vipania	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07
APPROVED FOR DISTRIBUTION	SPILLWAY LENGTH TABLE	DRAWING	NO. - 04.30

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{U})	REISSUED STANDARD DRAWING	RLF	5/07
2			
3			
4			

AF	APPROXIMATE DOWNDRAIN LENGTH (F+) - C-02.10 & C-02.20 SLOPES															
DAVENENT						EMB	ANKMEI	VT SLO	PE							
PAVEMENT STRUCTURAL		6	5:1		VARIES FROM 6:1 TO 2:1								2:1			
SECTION THICKNESS						EMBANKMENT HEIGHT (FT)										
(In)	5	6	7	8	10	12]4	16	18	20	22	24	26	28	30	32
12					62	60	58	57	56	55	55	54	50	54	58	62
]4	FM	IRANKM	ENT CU		63	61	59	58	56	56	55	52	50	54	58	62
16	AND	DOWNL	DRA/NS	ARE	64	61	59	58	57	56	55	55	51	55	59	63
18			ALLY US IS SLOF		65	62	60	59	57	56	56	55	51	55	59	63
20	CON	IDITION	. USE	THE	66	63	61	59	58	57	56	55	51	55	59	63
22			G EQUAT BANKME		66	63	61	60	58	57	56	56	52	56	60	64
24	CURE	BAND	DOWNDF	RA/NS	67	64	62	60	59	58	57	56	52	56	60	64
26			STALLEL E DOWN		68	65	62	61	59	58	57	56	52	56	60	64
28	LEN	VGTH (N FEET	T) =	69	65	63	61	60	58	57	57	53	57	61	65
30			STRUCT EMBAN	IKMENT	70	66	63	62	60	59	58	57	53	57	61	65
32	Н		MINUS ES 6	2)	70	67	64	62	60	59	58	57	53	57	61	65
34		1111	E3 0		7]	67	65	63	61	60	59	58	54	58	62	66
36					72	68	65	63	61	60	59	58	54	58	62	66

C-02.10 AND C-02.20 SLOPES



GENERAL NOTES

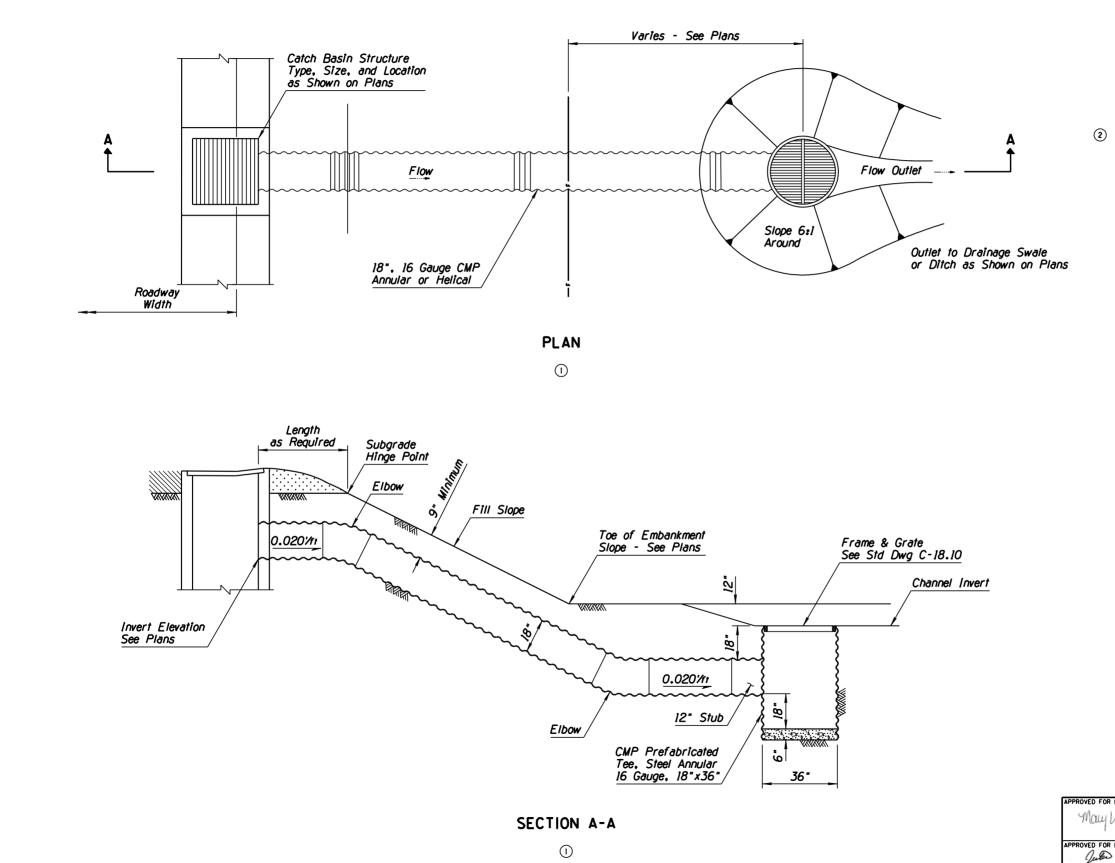
1. For downdrain details, see Std Dwg C-04.20.

NOTE TO DESIGNERS

Use earthwork cross sections for more precise downdrain lengths

			1
APPROVED FOR DESIGN Mary Vipania	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07
APPROVED FOR DISTRIBUTION	DOWNDRAIN LENGTH TABLE	DRAWING	№. -04 . 40

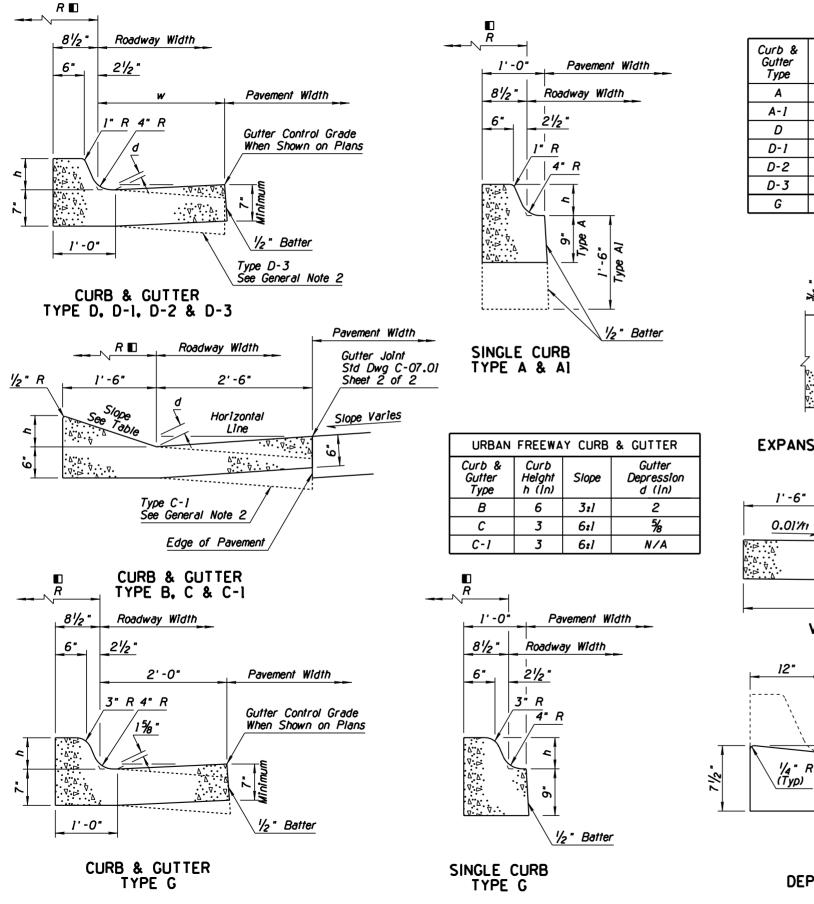
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	REVISED PLAN & SECTION VIEW	RLF	9/04
2	ADDED NEW GENERAL NOTE	RLF	9/04
3			
4			



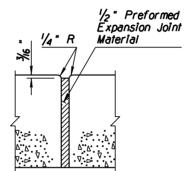
- Stub shall have annular corrugation. Downdrain piping beyond stub may be either annular or helical.
- Couplings shall be mechanical heat-shrinkable polyolatin sheet; one piece lap-type neoprene sheet or slip seam; all 12" minimum width and 18 gauge minimum.
- Maximum Q Allowable = 8 cfs Minimum V Allowable = 1 fps
- (2) 4. Concrete shall be Class B.

ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07
	DOWNDRAIN ENERGY DISSIPATOR	DRAWING	∾o. -04.50

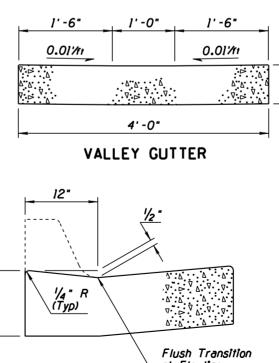
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REISSUED STANDARD DRAWING	RLF	5/07
2			
3			
4			



Curb Gutter Gutter Heiaht Width Depression w (Ft-/n) h (ľn) d (In) 0 N/A N/A 0 N/A N/A 1% 2-0 0 13/4 0 2-6 13/ 0 4-6 0 N/A 2-0 2-0 0 N/A



EXPANSION JOINT DETAIL

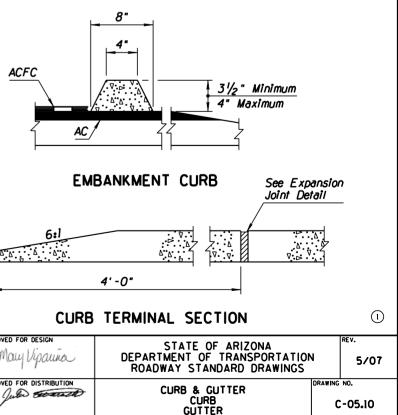


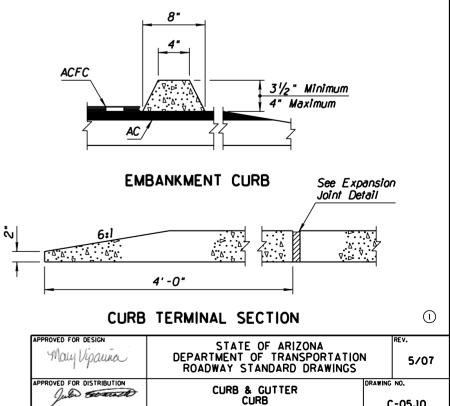
at Flowline No Lip or Groove

DEPRESSED CURB & GUTTER

- and guffer.
- autter when shown on plans

. 21/2







GENERAL NOTES

SINGLE CURB AND CURB & GUTTER

1. Single curb and curb & gutter may be constructed by the use of forms or the concrete may be extruded.

2. When the pavement section slopes away from the gutter, the slope of the gutter shall match the pavement cross slope. Therefore, the gutter depression is not applicable.

3. Two-inch deep contraction joints shall be placed in the curb and the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand-tooled or sawn.

 Expansion joints shall be located at tangent points in curb returns, at structures and at maximum 60' intervals. The 1/2 " joint filler shall extend the full depth of the concrete.

5. Concrete shall be finished with a steel trowel followed by brushing with a fine brush along the length of the curb

6. All exposed edges and hand-tooled joints shall be finished with a tool having a $\frac{1}{4}$ " radius, or as noted on the plans.

7. Place AB under single curb, valley gutter, and curb &

• See Plans (6 or 7 Inch typical)

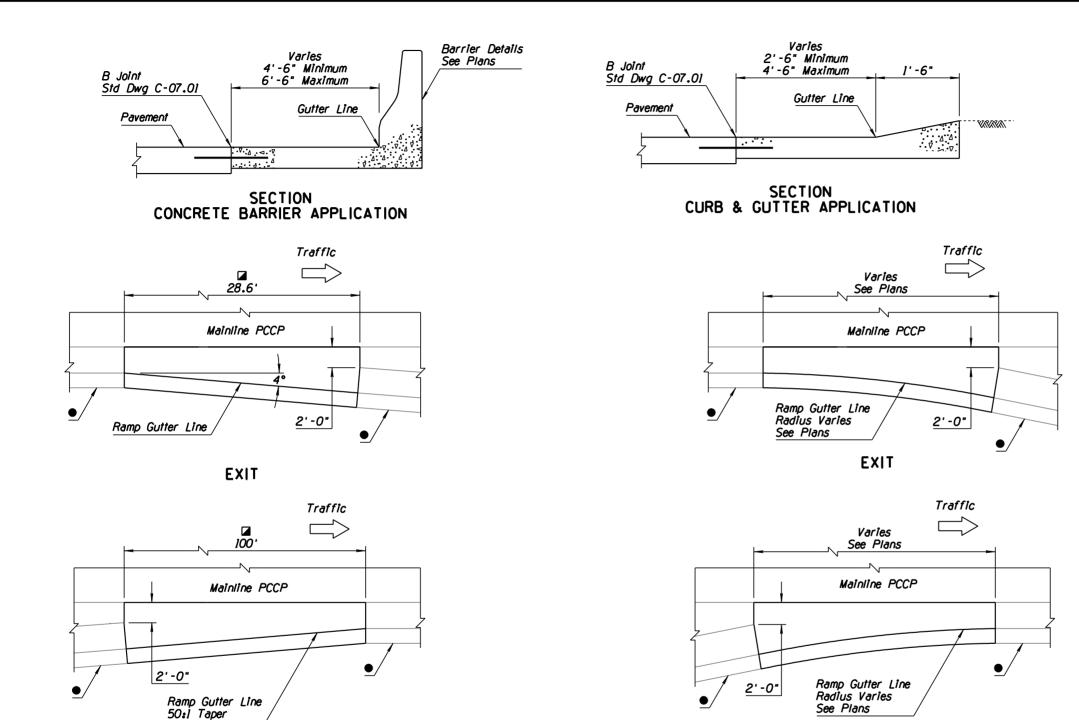
Curb Radius when shown on plans

EMBANKMENT CURB

1. No additional finishing will be required after extrusion or removal of the forms when the curb presents a neat appearance and the surface is uniform in texture and color.

2. The curb shall conform to the cross section as shown except that the horizontal dimensions shall not vary more than $\frac{1}{2}$.

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	REISSUED STANDARD DRAWING	RLF	7/05
2			
(3)			
(4)			







PLAN VIEW

ENTRANCE

TYPE | - PARALLEL-TYPE GUTTER TRANSITIONS AT RAMPS

PLAN VIEW



GENERAL NOTES

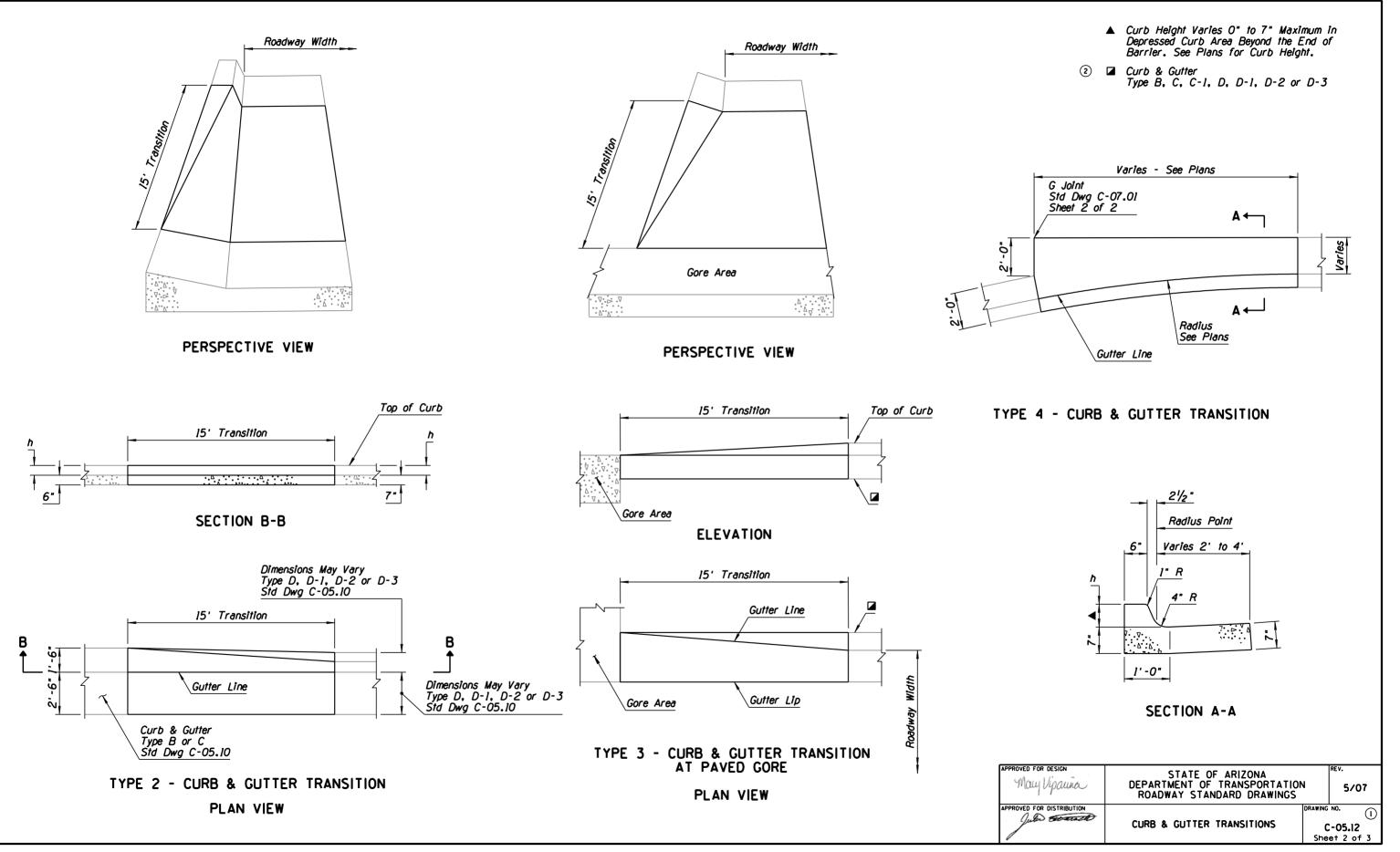
- 1. All gutter flow lines shall be constructed to an accurate grade.
- 2. See Slotted Drain Std Dwgs C-13.60 and C-15.91 for curb & gutter with slotted drain.
- 3. See Std Dwg C-05.10 for additional general notes and dimensions.
- 4. See Std Dwg C-07.04 for typical curb and gutter transition locations.
- Dimension May Vary Where Transition Occurs on Curves, See Plans

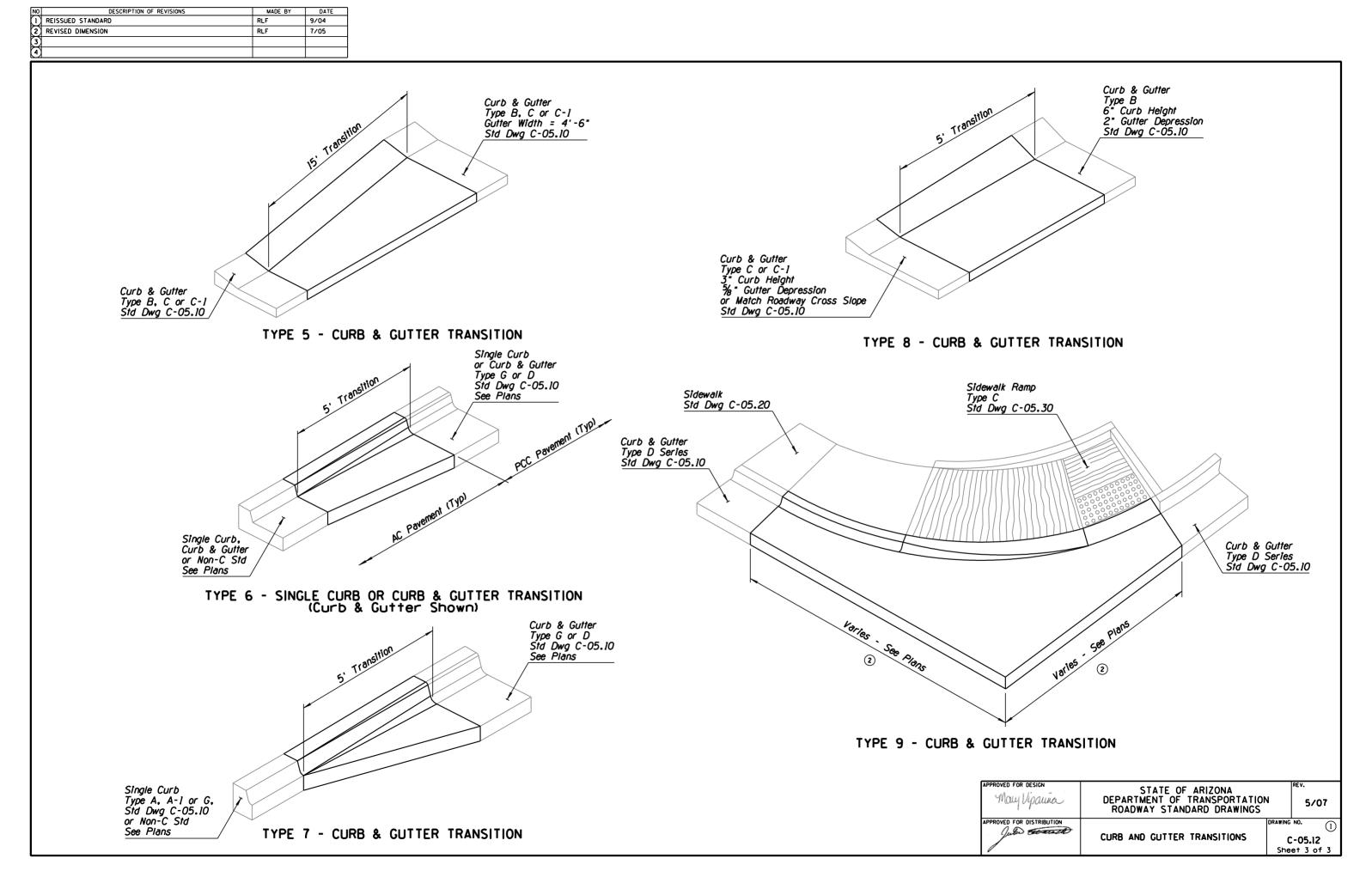
Type 1 - Gutter Transition at Roadway Edge With Angle Point is Applicable With Concrete Half Barrier and Curb & Gutter Applications Curb & Gutter Alternative is Shown

• Curb & Gutter - Type B, C or C-1, Std Dwg C-05.10

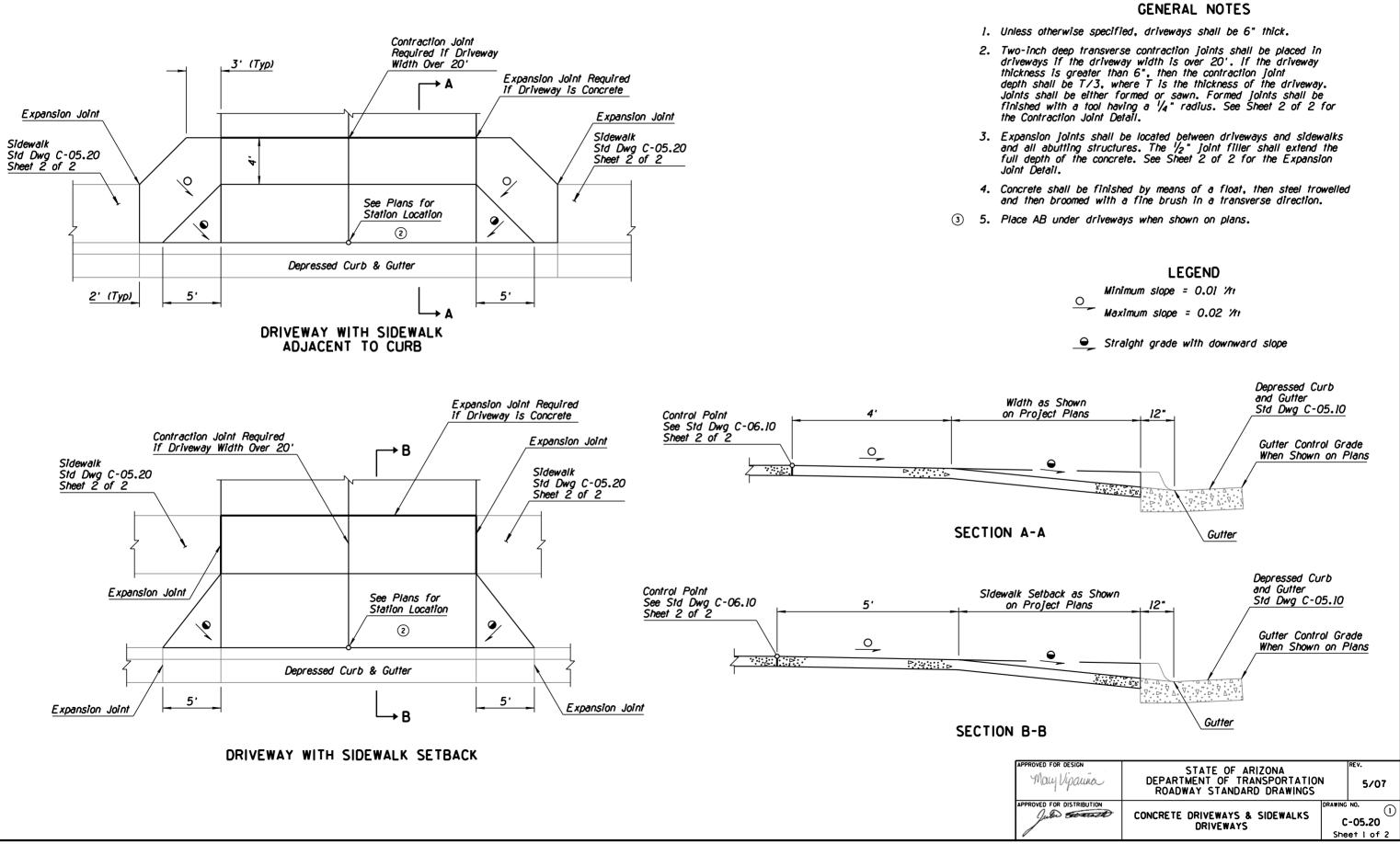
esion	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		REV. 5/07
ISTRIBUTION		DRAWING	NO. ()
	CURB & GUTTER TRANSITIONS	-	C-05.12 et 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{n})	REISSUED STANDARD DRAWING	RLF	7/05
2	REVISED NOTE	RLF	4/06
3			

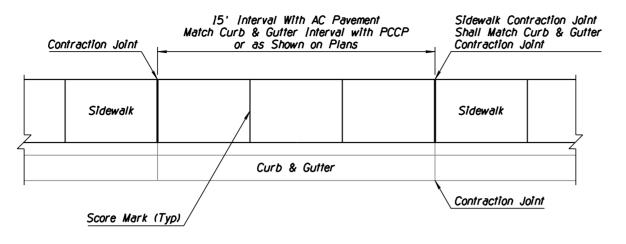




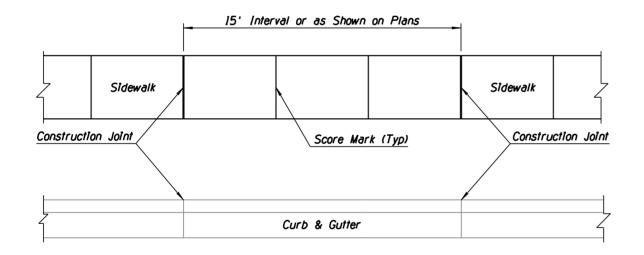
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	REISSUED STANDARD DRAWING	RLF	9/04
2	REVISED NOTATION	RLF	7/05
3	ADDED GENERAL NOTE FOR AB REQUIREMENT	RLF	5/07
(1)			



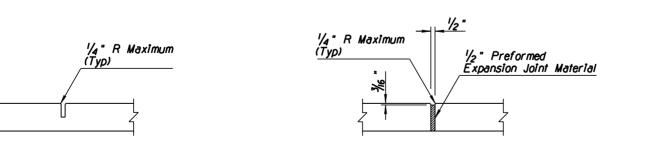
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	NEW GENERAL NOTE 5, REARRANGED 3, 4 & 5	RLF	9/04
2	ADDED SLOPE SPECIFICATIONS & REVISED SECTION VIEWS	RLF	7/05
3	ADDED GENERAL NOTE FOR AB REQUIREMENT	RLF	5/07
4			

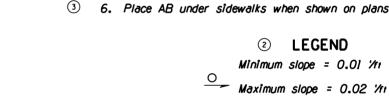


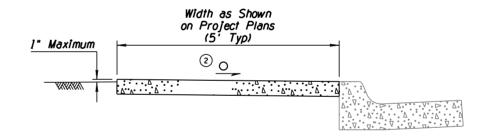
SIDEWALK ADJACENT TO CURB



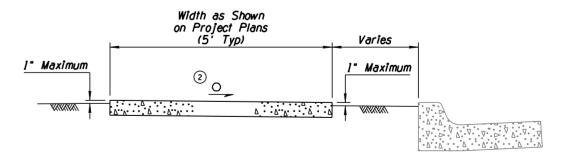
SIDEWALK SETBACK FROM CURB







CONCRETE SIDEWALK ADJACENT TO CURB



CONCRETE SIDEWALK SETBACK FROM CURB



CONTRACTION JOINT DETAIL

EXPANSION JOINT DETAIL

GENERAL NOTES (1)

1. Unless otherwise specified, sidewalks shall be 4" thick.

2. One-inch deep transverse contraction joints shall be placed in side-walks at intervals of approximately 15' or at a spacing that matches adjacent curb and gutter. If the sidewalk is over 7' in width, a 2" deep longitudinal contraction joint shall be placed in the center of the sidewalk. The maximum area of sidewalk without contraction joints or scoring lines shall be approximately 36 square feet. Joints shall be either formed or sawn. Formed joints shall be finished with a tool having a 1/4" radius.

3. Score marks shall be $\frac{1}{4}$ in depth. They shall be placed at 5' spacing when the contraction joint interval is 15' and at 6' spacing when the contraction joint interval is 12'.

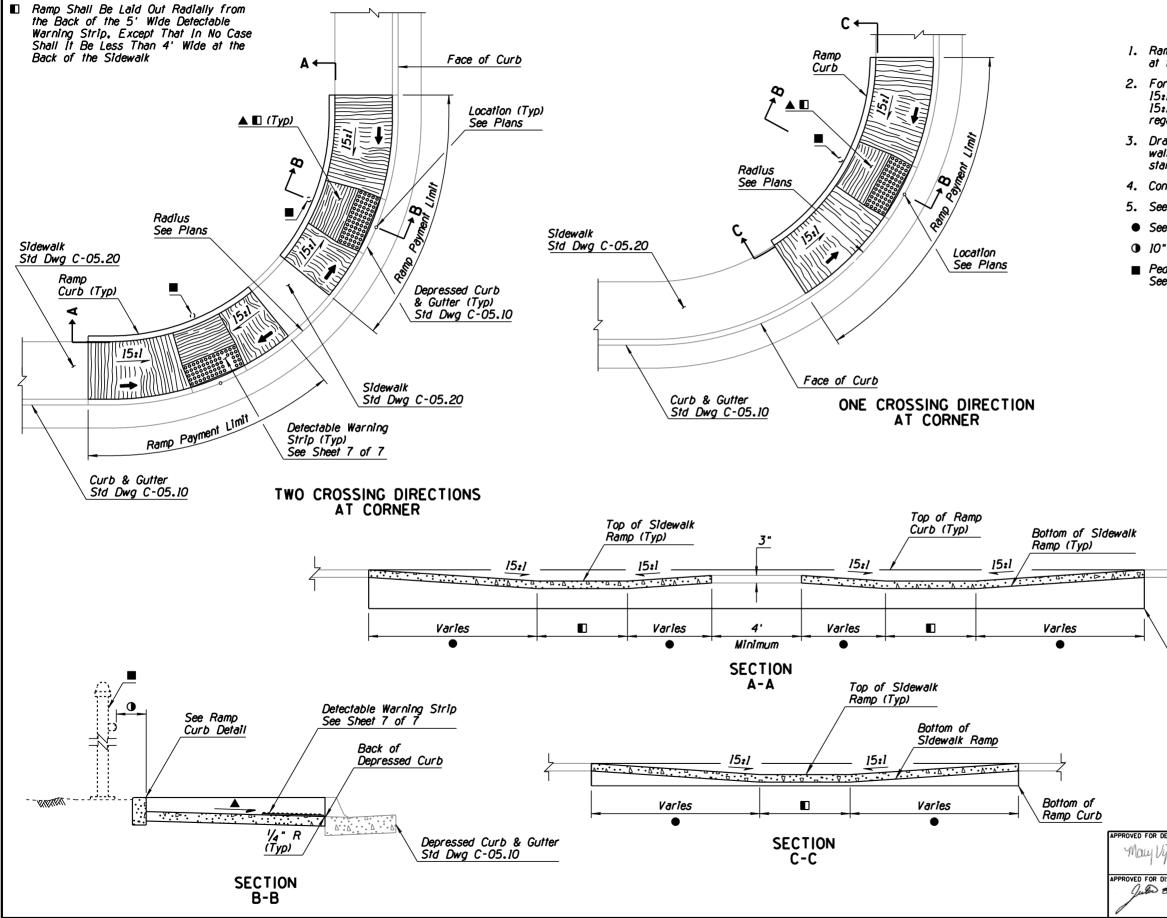
4. Expansion joints shall be located between sidewalks and driveways and all abutting structures. Expansion joints shall match the joints in the adjacent concrete pavement or existing concrete curb and sidewalk. Maximum length of sidewalk without an expansion joint shall be 60 transverse feet. The $\frac{1}{2}$ " joint filler shall extend the full depth of the concrete.

5. Concrete shall be finished by means of a float, then steel trowelled and then broomed with a fine brush in a transverse direction.

6. Place AB under sidewalks when shown on plans.

lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATIO ROADWAY STANDARD DRAWINGS		^{REV.}
	CONCRETE DRIVEWAYS & SIDEWALKS SIDEWALKS	DRAWING NO. C-05.20 Sheet 2 of 2	

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
()	REISSUED STD DWG	RLF	5/07
(2)			
(3)			
(1)			



1. Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.

2. For ramps 15-ft long or less, the 15:1 slope governs. If a 15:1 slope results in a ramp length longer than 15-ft, the 15:1 slope may be waived and the ramp length held at 15-ft, regardless of the slope.

3. Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.

4. Concrete shall receive a rough broom finish as shown.

5. See Std Dwgs C-05.10 and C-05.20 for joint details.

• See Note 2

• 10" Maximum to Face of Pedestrian Push Button

Pedestrian Push Button Pole When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information

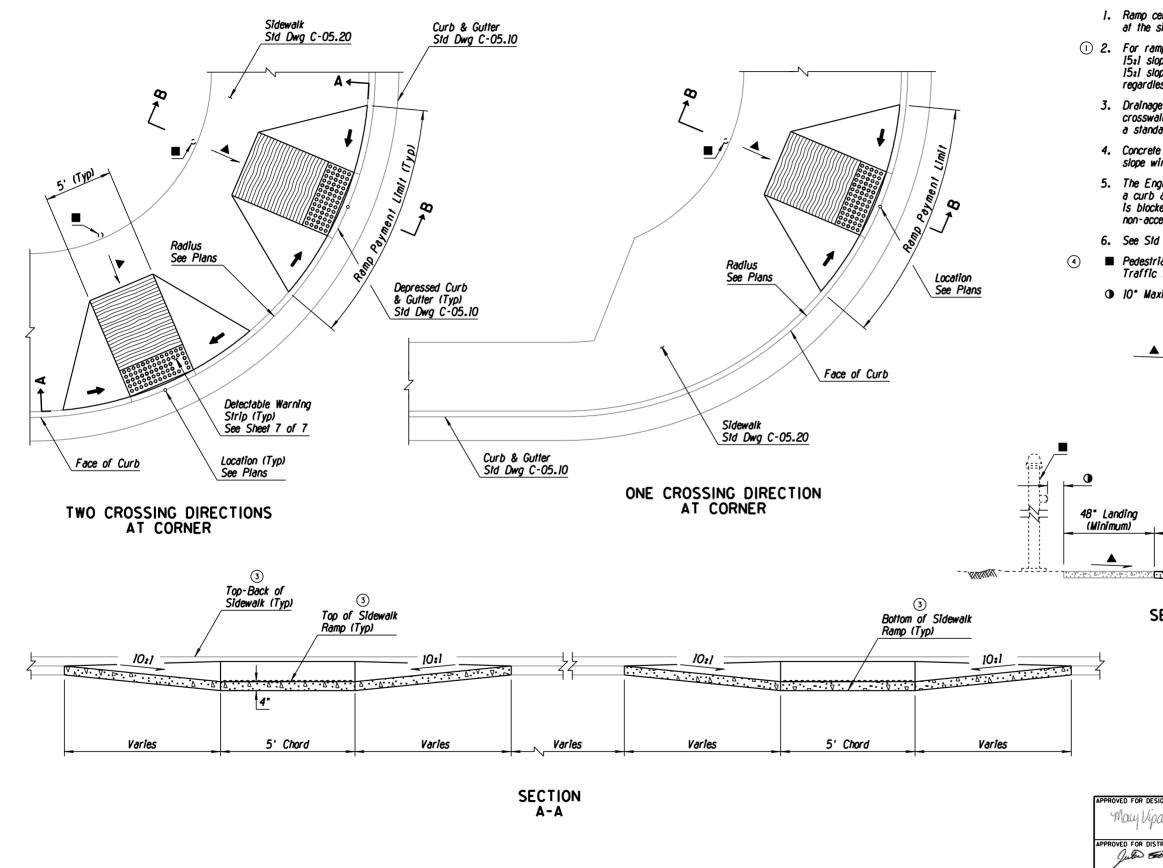
LEGEND

Minimum Slope = 100:1 (0.01 //1)

Maximum Slope = 50:1 (0.02 //1)

Bottom Ramp C	of	tion Joint
	RAMP CURB DETAIL	L
	ARALLEL SIDEWALK RAMP	
ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	I 5/07
	SIDEWALK RAMP TYPE A	DRAWING NO. C-05.30 Sheet 1 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	REVISED GENERAL NOTE 2	RLF	11/06
2	REVISED NOTE: REMOVED REFERENCE TO NOTE 3	RLF	11/06
3	REVISED CALLOUT: ADDED (TYP)	RLF	11/06
	DELETED GENERAL NOTE 7	RLF	5/07



1. Ramp centerline shall be radial from the face of the curb at the sidewalk ramp control point.

 For ramps 15-ft long or less, the 15:1 slope governs. If a 15:1 slope results in a ramp length longer than 15-ft, the 15:1 slope may be waived and the ramp length held at 15-ft, regardless of the slope.

 Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.

4. Concrete shall receive a rough broom finish as shown. The side slope wings do not receive a broom finish.

5. The Engineer may approve replacing the side slope wing with a curb at a location where access to the side of a ramp run is blocked by a pole, utility box, other obstruction, or by a non-accessible surface such as a dirt planter strip.

6. See Std Dwgs C-05.10 and C-05.20 for joint details.

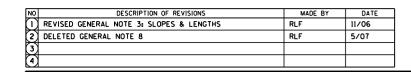
Pedestrian Push Button Pole When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information

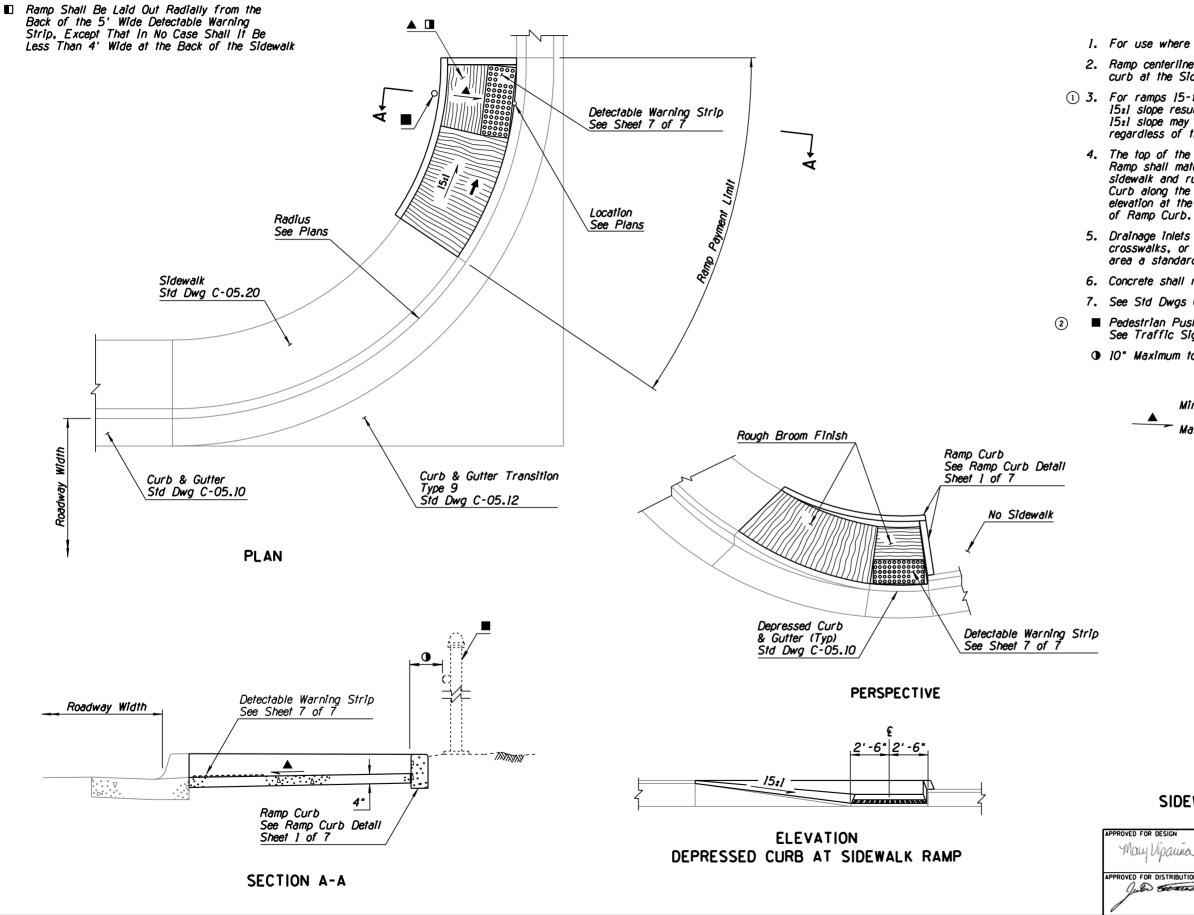
• 10" Maximum to Face of Pedestrian Push Button

LEGEND Minimum Slope = 100:1 (0.01 /m)

- Maximum Slope = 50:1 (0.02 //1)

SECTION B-B	Detectable Warning S See Sheet 7 of 7 Back of Depressed Curb Depressed Curb Std Dwg C-O	rb
pauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
STRIBUTION	SIDEWALK RAMP TYPE B	DRAWING NO. C-05.30 Sheet 2 of 7





1. For use where sidewalk is not continuous.

2. Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.

 For ramps 15-ft long or less, the 15:1 slope governs. If a 15:1 slope results in a ramp length longer than 15-ft, the 15:1 slope may be waived and the ramp length held at 15-ft, regardless of the slope.

4. The top of the Ramp Curb along the back of the Sidewalk Ramp shall match the elevation of the adjacent back of sidewalk and run parallel to the Sidewalk Ramp. The Ramp Curb along the side of the Sidewalk Ramp shall match the elevation at the back of the Curb & Gutter and the back of Ramp Curb.

5. Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.

6. Concrete shall receive a rough broom finish as shown.

7. See Std Dwgs C-05.10 and C-05.20 for joint details.

Pedestrian Push Button Pole When Shown on Traffic Plans. See Traffic Signal Plans for Additional Information

• 10" Maximum to Face of Pedestrian Push Button

LEGEND

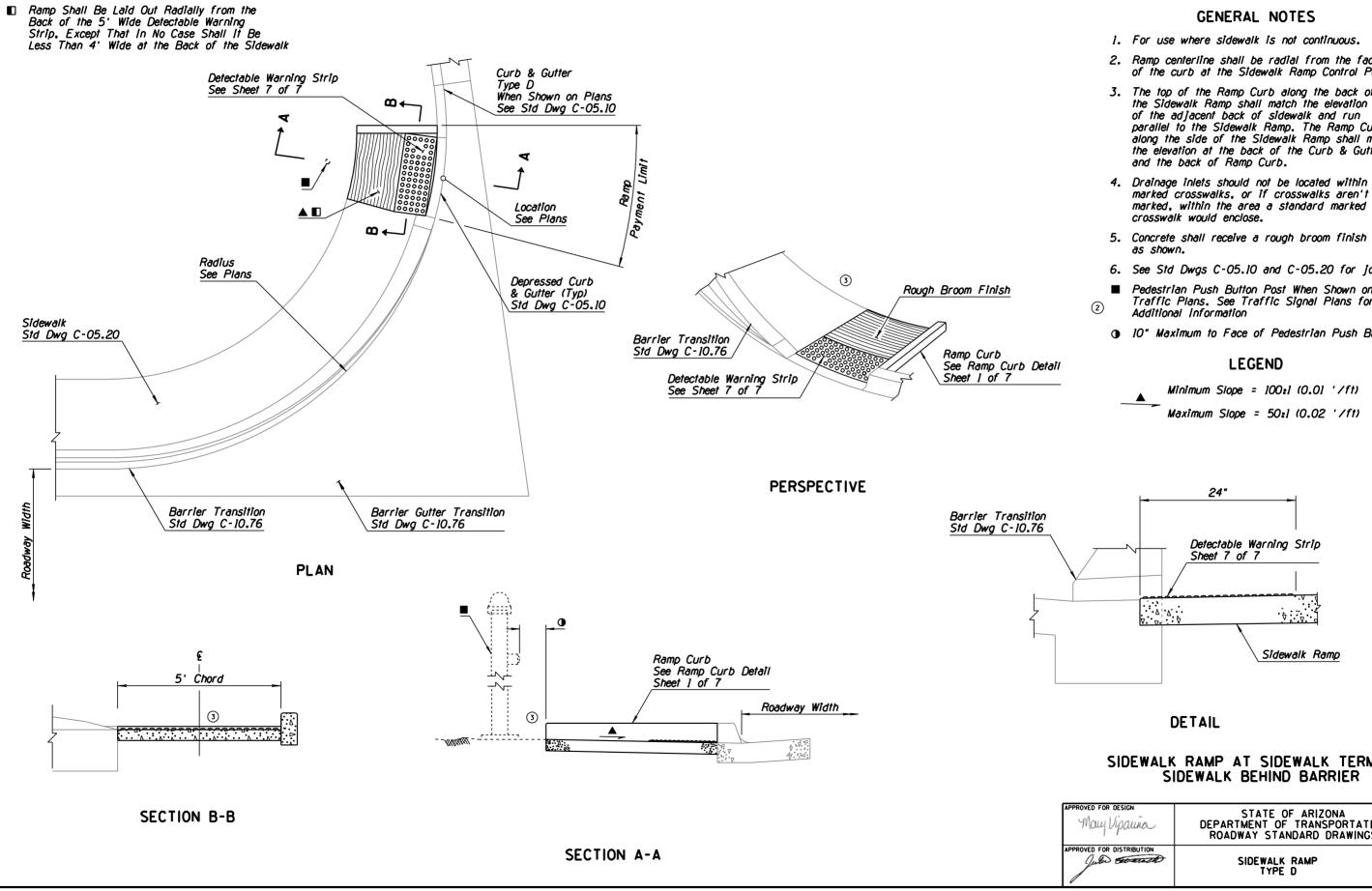
Minimum Slope = 100:1 (0.01 //rt)

- Maximum Slope = 50;1 (0.02 //ri)

SIDEWALK RAMP AT SIDEWALK TERMINUS

esion	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
ISTRIBUTION	SIDEWALK RAMP TYPE C	DRAWING NO. C-05.30 Sheet 3 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	REISSUED STANDARD DRAWING	RLF	4/06
2	DELETED GENERAL NOTE 7	RLF	5/07
3			



- 2. Ramp centerline shall be radial from the face of the curb at the Sidewalk Ramp Control Point.
- 3. The top of the Ramp Curb along the back of the Sidewalk Ramp shall match the elevation of the adjacent back of sidewalk and run parallel to the Sidewalk Ramp. The Ramp Curb along the side of the Sidewalk Ramp shall match the elevation at the back of the Curb & Gutter
- marked, within the area a standard marked
- 6. See Std Dwgs C-05.10 and C-05.20 for joint details.
- Pedestrian Push Button Post When Shown on Traffic Plans. See Traffic Signal Plans for
- 10" Maximum to Face of Pedestrian Push Button

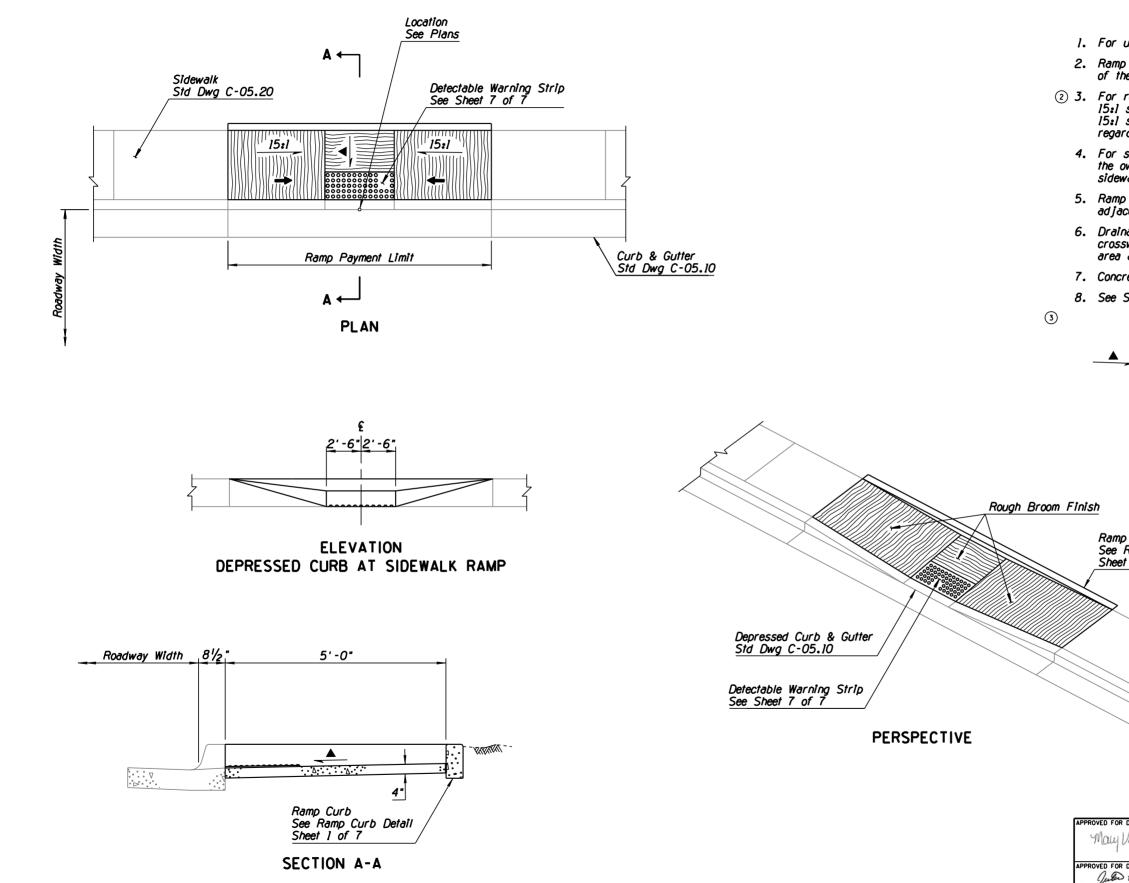
Minimum Slope = 100:1 (0.01 '/ft)

Maximum Slope = 50:1 (0.02 '/ft)

SIDEWALK RAMP AT SIDEWALK TERMINUS SIDEWALK BEHIND BARRIER

lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		^{REV.} 5/07
	SIDEWALK RAMP TYPE D	DRAWING	^{№0.} ()
		-	et 4 of 7

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REISSUED STD DWG	RLF	4/06
2	REVISED GENERAL NOTE	RLF	4/06
3	DELETED GENERAL NOTE 9	RLF	5/07



1. For use at mid-block locations.

2. Ramp centerline shall be perpendicular to the face of the curb at the Sidewalk Ramp Control Point.

② 3. For ramps 15-ft long or less, the 15:1 slope governs. If a 15:1 slope results in a ramp length longer than 15-ft, the 15:1 slope may be waived and the ramp length held at 15-ft, regardless of the slope.

 For sidewalk widths greater than shown on C-05.20, the overall Sidewalk Ramp depth shall match the sidewalk width.

5. Ramp curb height to match elevation at back of adjacent sidewalk.

6. Drainage inlets should not be located within the marked crosswalks, or if crosswalks aren't marked, within the area a standard marked crosswalk would enclose.

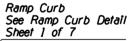
7. Concrete shall receive a rough broom finish as shown.

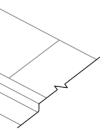
8. See Std Dwgs C-05.10 and C-05.20 for joint details.

LEGEND

Minimum slope = 100:1 (0.01 %t)

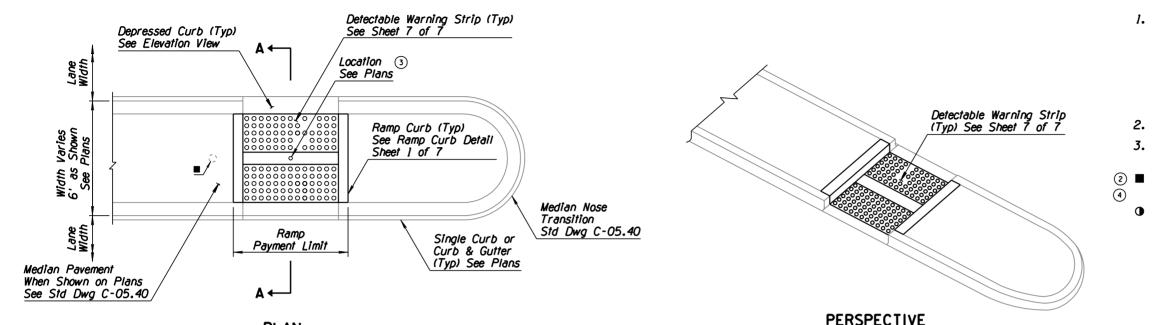
Maximum slope = 50:1 (0.02 /ft)



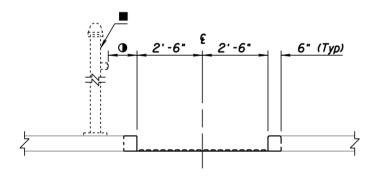


ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		^{REV.} 5/07
	SIDEWALK RAMP TYPE E	-	NO. -05.30 et 5 of 7

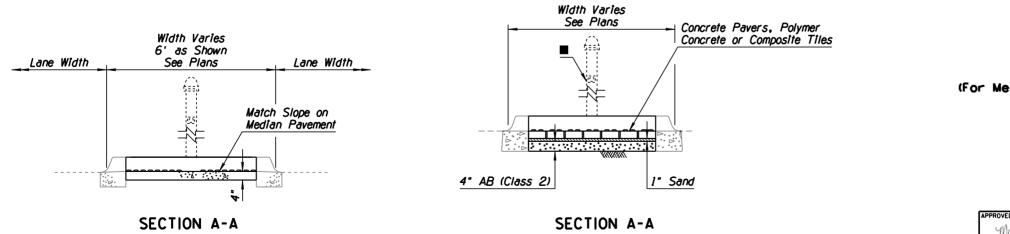
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	REISSUED STANDARD AS SHEET 6 OF 7	RLF	9/04
2	ADDED GENERAL NOTE 4	RLF	7/05
3	REVISED NOTE	RLF	7/05
	DELETED GENERAL NOTE 4	RLF	5/07







ELEVATION DEPRESSED CURB AT SIDEWALK RAMP



(For Median Widths Greater Than 5'-5")

(For Median Widths Less Than 5'-5")

(For Median Widths Greater Than 5'-5")

GENERAL NOTES

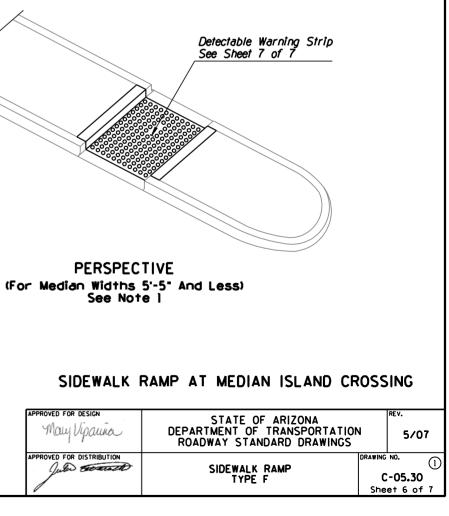
1. For median widths 5'-5" and less, the Detectable Warning Strip shall be continuous from back-of-curb to back-of-curb. The Detectable Warning Strip shall not extend beyond the back of curb. Modular units such as bricks or tiles shall be used to construct the Detectable Warning Strip. Partial domes at the edge of the Strip shall be ground flush with the brick or tile surface.

2. Use Type Al curb if median is to be landscaped.

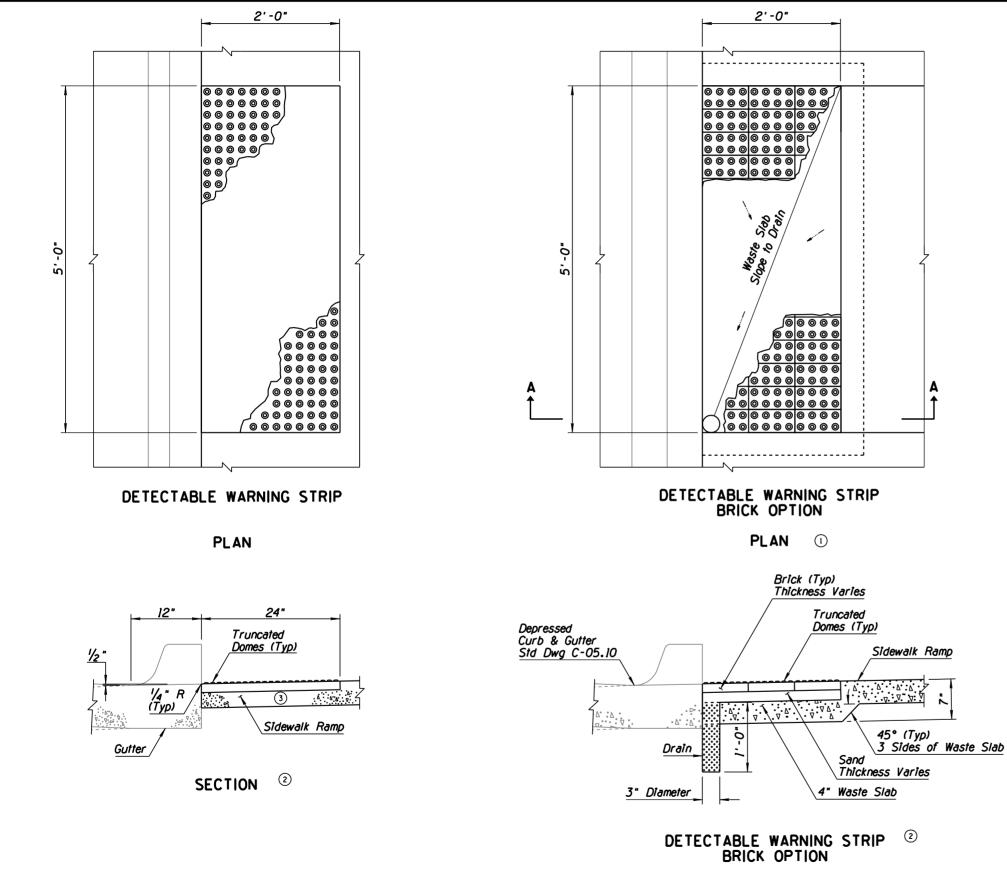
 Single curb shown; see plans for Curb & Gutter application.

(2) ■ Pedestrian Push Button Pole When Shown on Plans.
 (4) See Traffic Signal Plans for Additional Information

• 10" Maximum to Face of Pedestrian Push Button



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	ADDED PLAN & SECTION FOR BRICK OPTION	RLF	4/06
2	REVISED TITLE	RLF	4/06
3	ADDED LINE TO REPRESENT THICKNESS	RFL	4/06
	MODIFIED DIMENSION FORMAT TO IN.	RFL	5/07



PROVED FOR DISTRIBUTION

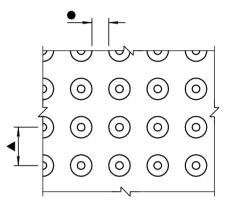
SECTION A-A

GENERAL NOTES

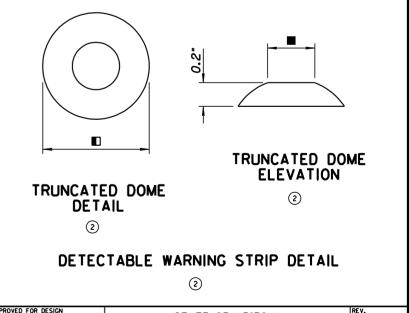
Drain shall be placed in low corner and filled with coarse aggregate (AASHTO N43 Size 7) securely tied in a long-life geotextile sack.

LEGEND (4)

- "/16" Minimum (Typ) (0.65 in. Minimum ADA Actual)
- ▲ 1% " to 2% " (Typ) (1.6 in. to 2.4 in. ADA Actual) ④
- \blacksquare $\frac{7}{8}$ " to $1\frac{3}{8}$ " (Typ) (0.9 in. to 1.4 in. ADA Actual) (4)
- 50% to 65% of ■



TEXTURE PATTERN DETAIL

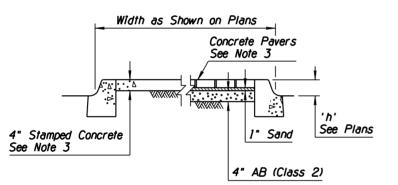


STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS May Vipauna 5/07 WING NO. $(\mathbf{1})$ SIDEWALK RAMP Jule Etrack C-05.30 DETECTABLE WARNING STRIP Sheet 7 of 7

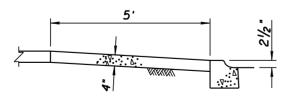
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
$\left(\cdot \right)$	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
(4)			

Median Paving See Plans (Typ) → Δ 5' В В Radius See Plans Single Curb Std Dwg C-05.10 PLAN

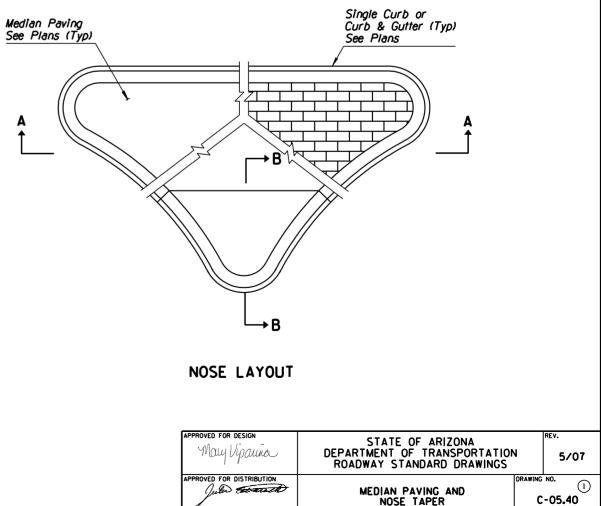
- not present.

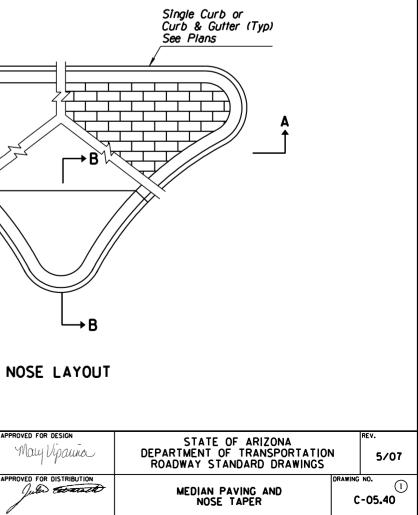


SECTION A-A



SECTION B-B





GENERAL NOTES

Traffic signal foundations, traffic sign foundations and pull boxes for traffic signs and traffic signals shall be installed prior to placement of median paving.

2. See Std Dwgs C-05.10 and C-05.20 for joint requirements.

3. Decorative median paving may be stamped concrete, concrete pavers, or as specified on the project plans.

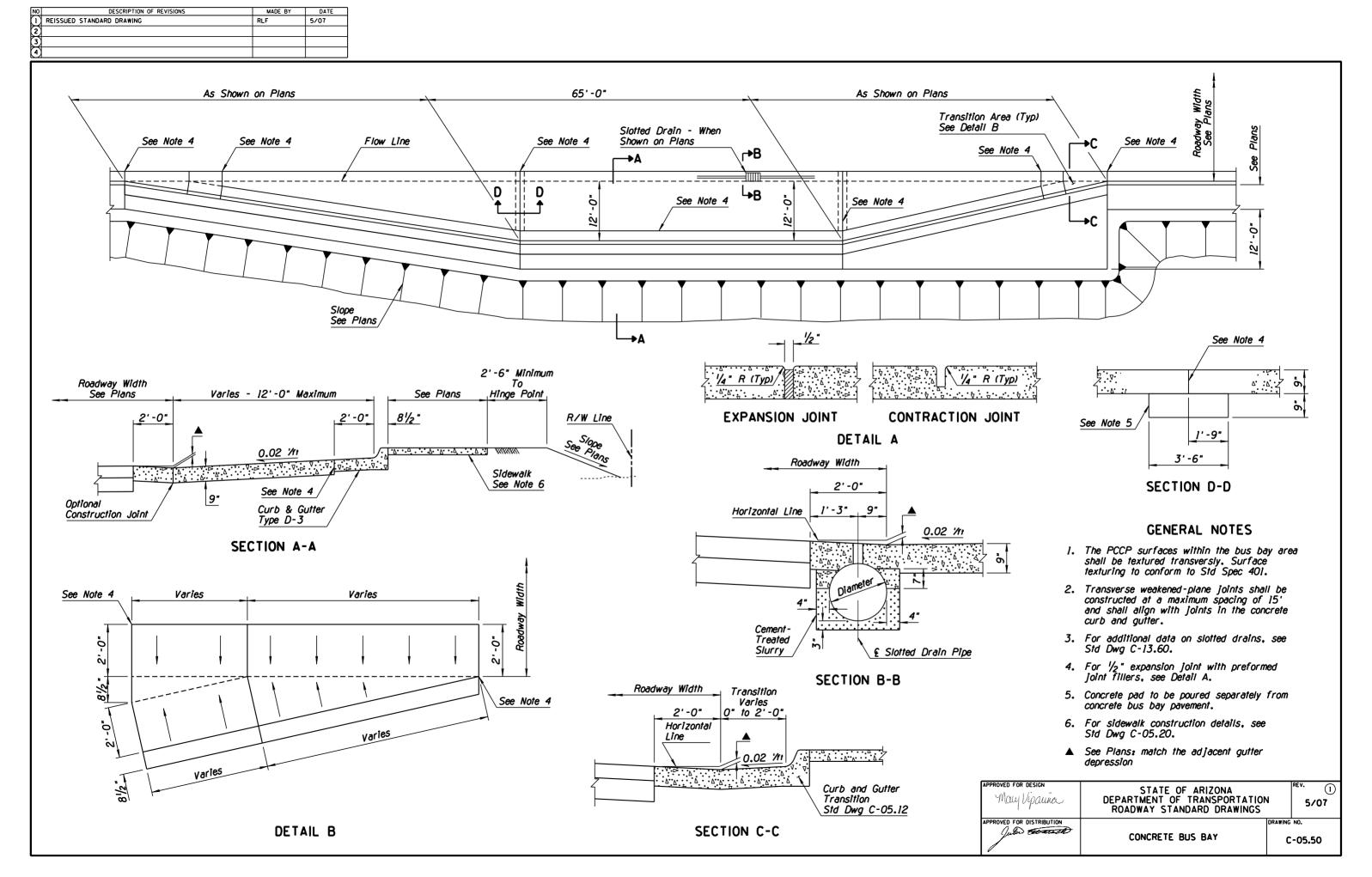
4. Decorative median paving shall not be placed on a median nose transition or on a median island on a structure.

5. A 4"x6" concrete header shall be used to end decorative paving at locations when concrete sidewalk ramps are

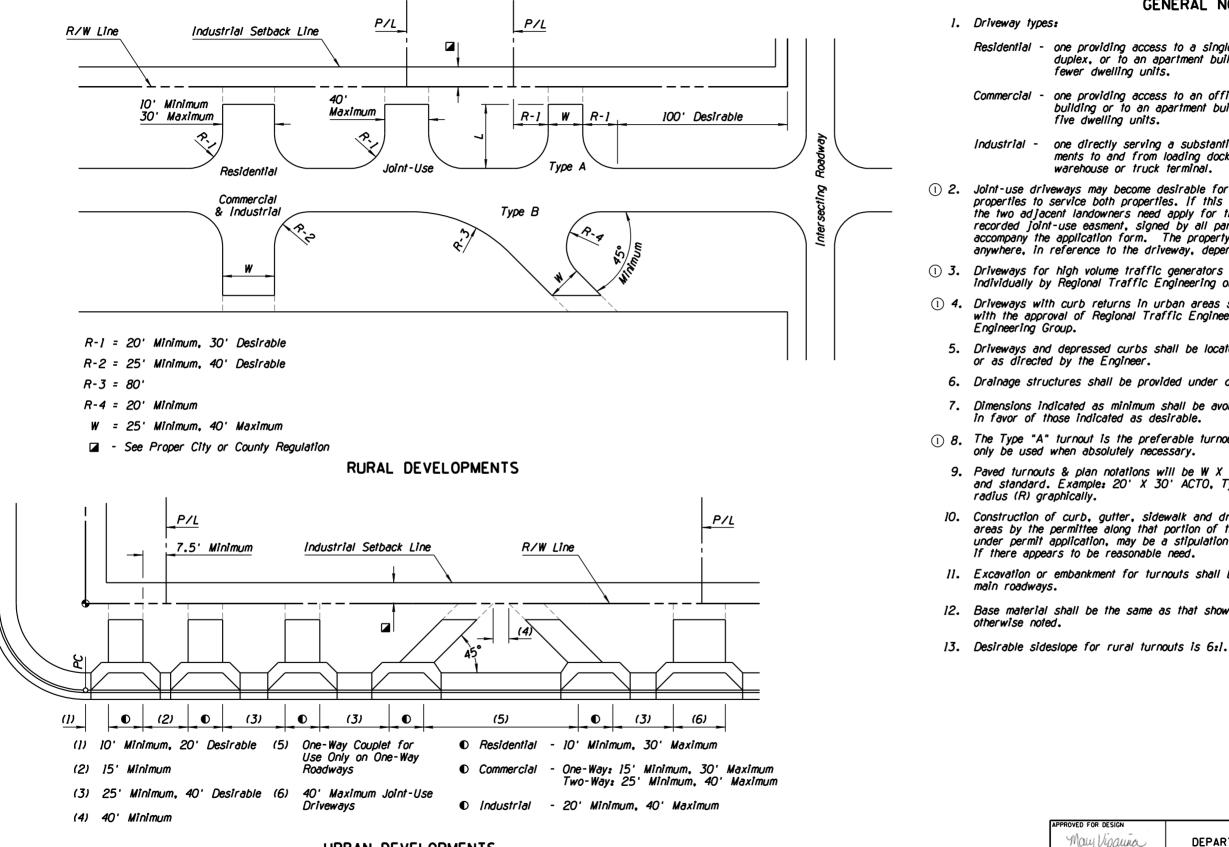
6. Median nose transitions shall not be placed on departure ends of raised medians.

7. See Bridge Group Plans for raised median on structures.

8. Median paving shall be Class B concrete.



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\Box	REVISED NOTE & REMOVED PREVIOUS TYPE B TURNOUT	RLF	9/04
2			
3			



URBAN DEVELOPMENTS

GENERAL NOTES

Residential - one providing access to a single family residence, to a duplex, or to an apartment building containing five or

Commercial - one providing access to an office, retail or institutional building or to an apartment building having more than

Industrial - one directly serving a substantial number of truck movements to and from loading docks of an industrial facility. warehouse or truck terminal.

(1) 2. Joint-use driveways may become desirable for landowners of adjacent properties to service both properties. If this is the case, only one of the two adjacent landowners need apply for the access permit, but a recorded joint-use easment, signed by all parties invloved, must accompany the application form. The property line can be located anywhere, in reference to the driveway, depending on mutual agreement.

(1) 3. Driveways for high volume traffic generators shall be approved individually by Regional Traffic Engineering or the Traffic Engineering Group.

(1) 4. Driveways with curb returns in urban areas shall be installed only with the approval of Regional Traffic Engineering or the Traffic

5. Driveways and depressed curbs shall be located as noted on plans

6. Drainage structures shall be provided under driveways where necessary.

7. Dimensions indicated as minimum shall be avoided whenever possible

() 8. The Type "A" turnout is the preferable turnout design. Type "B" shall

9. Paved turnouts & plan notations will be W X L, surface material, type and standard. Example: 20' X 30' ACTO, Type A, Std Dwg C-06.10. Show

10. Construction of curb, gutter, sidewalk and drainage facilities in urban areas by the permittee along that portion of the highway frontage under permit application, may be a stipulation of the permit approval

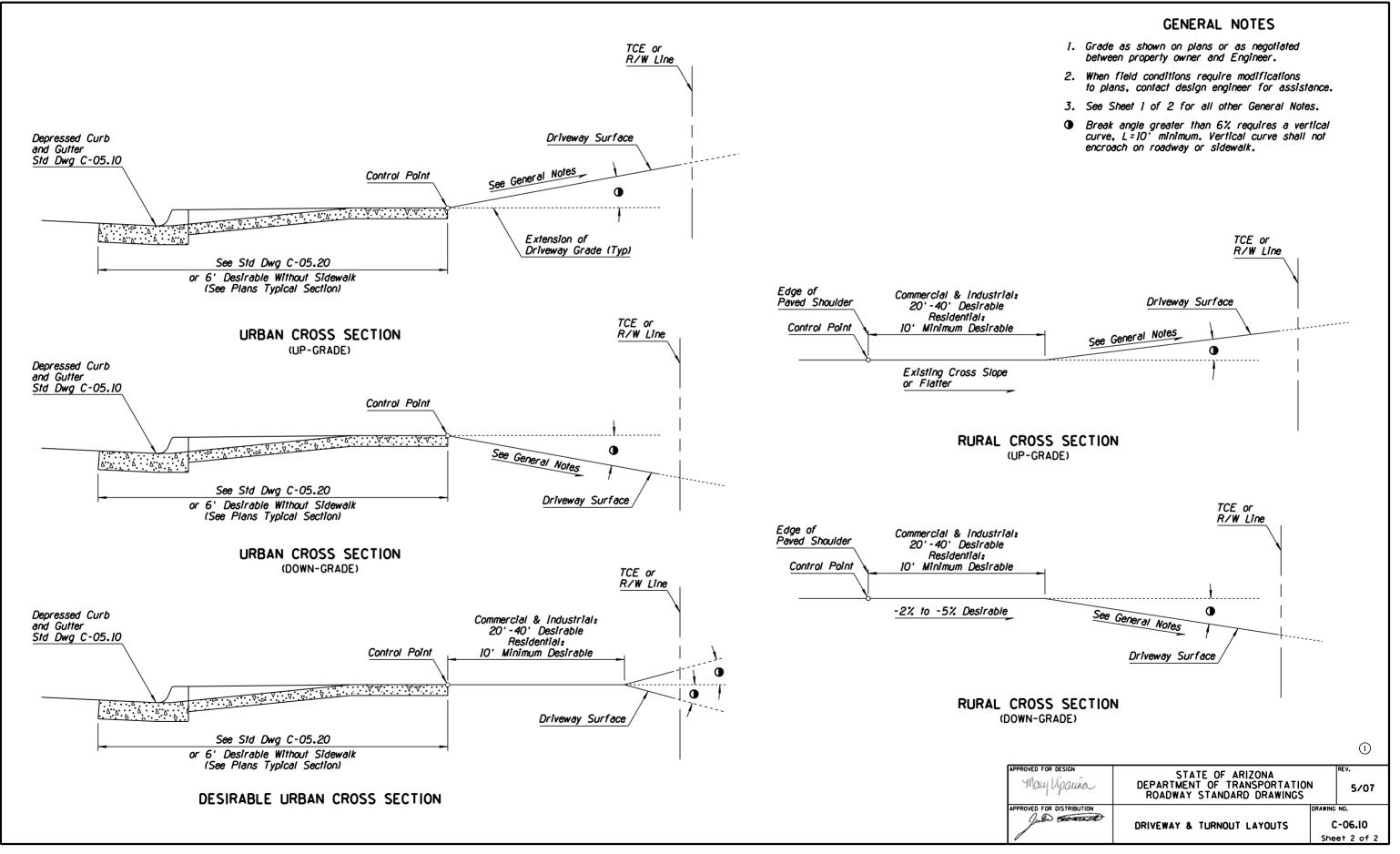
11. Excavation or embankment for turnouts shall be included in quantities for

12. Base material shall be the same as that shown for main roadway, unless

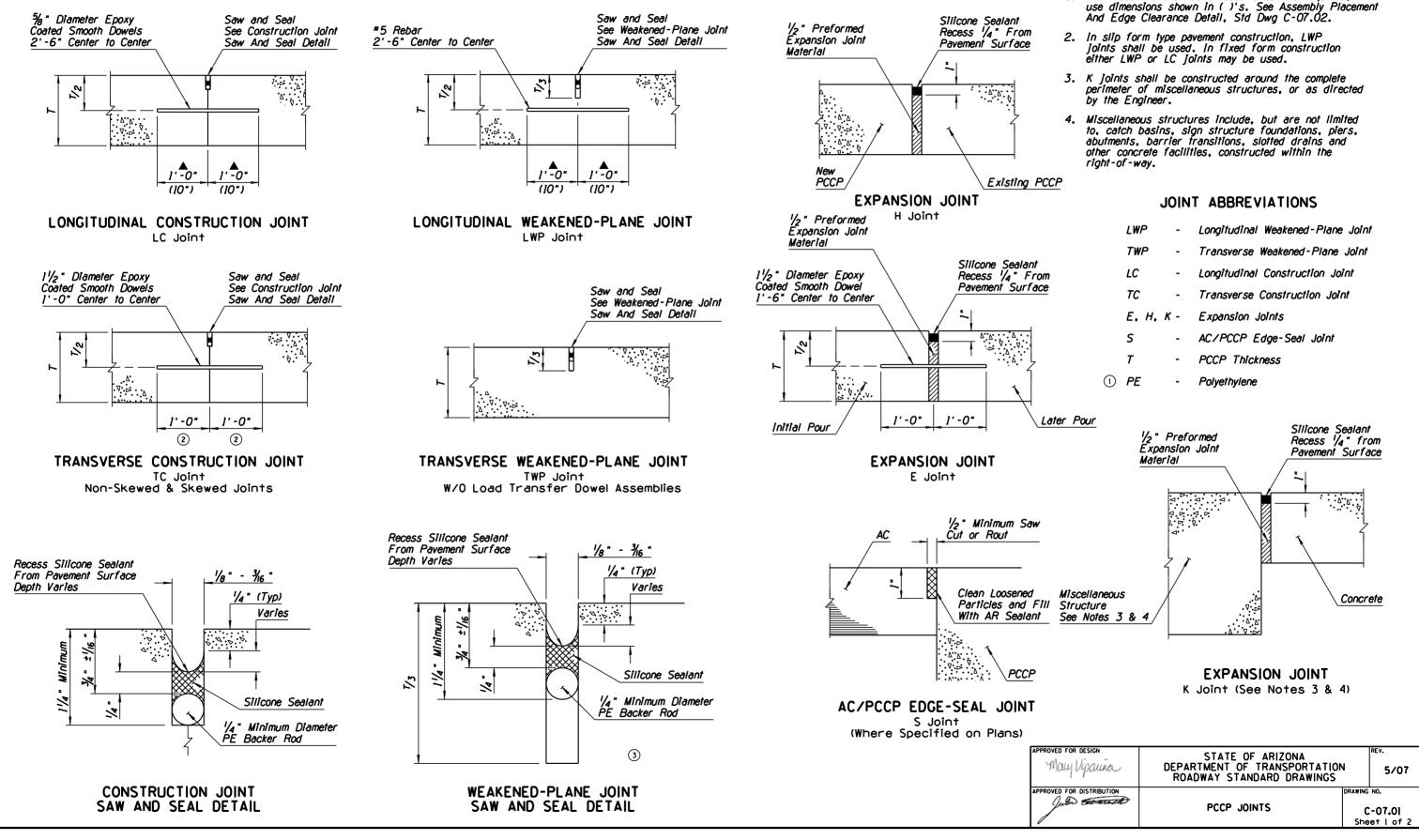
PPROVED FOR D Jules

	DRIVEWAY & TURNOUT LAYOUTS	(C-06.10 eet 1 of 2
DEPARTMENT OF TRANSPORTATION		rev.	
ROADWAY STANDARD DRAWINGS		5/07	

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	REISSUED STANDARD DRAWING	RLF	7/06
2			
3			
4			



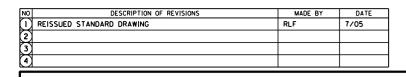
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	ADDED DEFINITION FOR 'PE'	RLF	9/04
2	REVISED DIMENSION FORMAT	RLF	7/05
3	REMOVED 'INITIAL SAWCUT' NOTATION	RLF	7/05

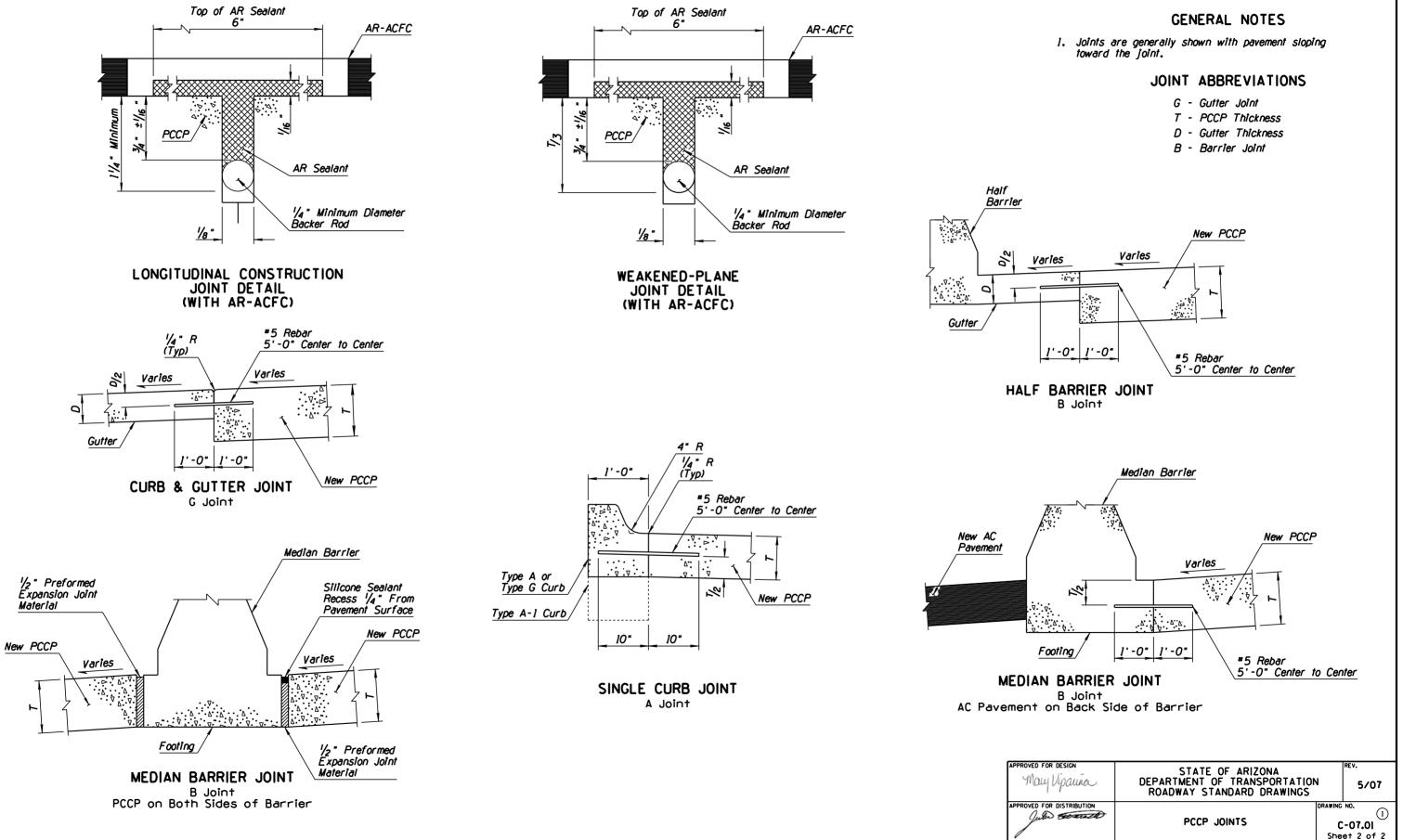


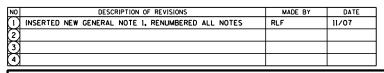
▲ 1. When load transfer dowel assemblies are required, use dimensions shown in ()'s. See Assembly Placement And Edge Clearance Detail, Std Dwg C-07.02.

LWP	-	Longitudinal Weakened-Plane Joint
TWP	-	Transverse Weakened-Plane Joint
LC	-	Longitudinal Construction Joint
ТС	-	Transverse Construction Joint
Е, Н,	К-	Expansion Joints
S	-	AC/PCCP Edge-Seal Joint
T	-	PCCP Thickness
PE	-	Polyethylene

pauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
ISTRIBUTION	PCCP JOINTS	DRAWING NO. C-07.01 Sheet 1 of 2



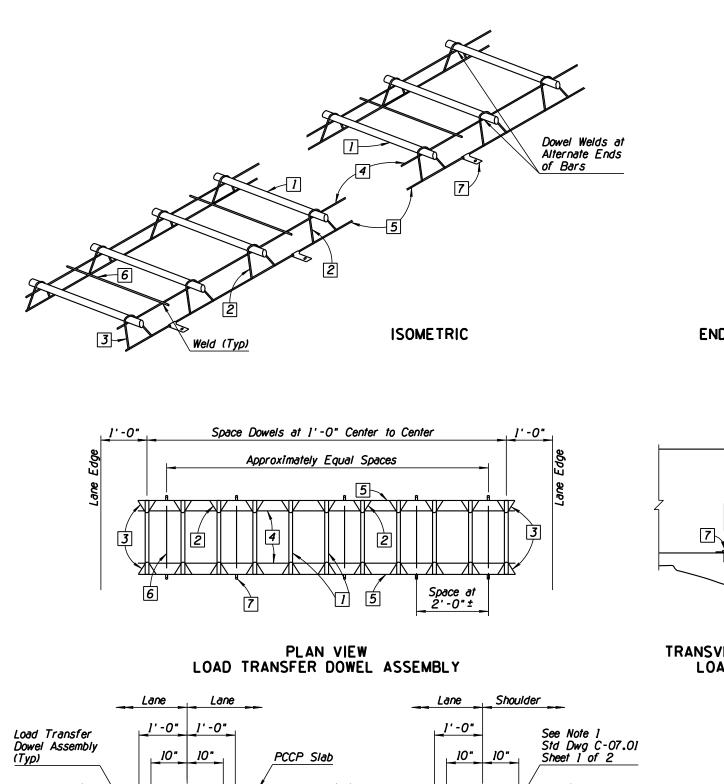




/ \

Joint

LC or LWP



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Structural Base

See Plans

LWP or LC

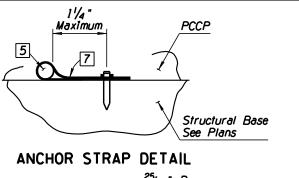
Joint

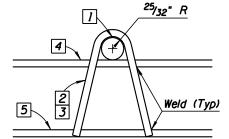
 \mathbf{T}

See Note 1 Std Dwg C-07.01

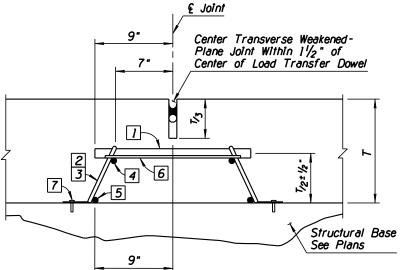
PLACEMENT AND EDGE CLEARANCE DETAIL

Sheet 1 of 2





END AND INTERMEDIATE LEG DETAIL



TRANSVERSE WEAKENED-PLANE JOINT WITH LOAD TRANSFER DOWEL ASSEMBLY

DIMENSION TABLE			
	Lane Width (Ft)		
	12]4	16
(Ft-[n))	10-4	12-4]4-4

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2. Load transfer dowel assemblies are used with non-skewed, mainline PCCP joints. 3. When used, load transfer dowel assemblies are to be placed at each transverse weakened-plane joint on the traveled lanes as shown on the plans. 4. See Std Dwgs C-07.01 through C-07.04 for additional information. 5. See plans or Std Dwgs C-07.03 through C-07.04 for transverse joint spacing. 6. See plans for pavement thickness less than 12" or greater than 14". Load transfer dowel assembly shall be assembled from the following materials: (See Quantity Table) Dowel bars - $l_{2}^{\prime\prime}$ " diameter x l'-6" plain round bars with coating. See Special Provisions. 1 2 Intermediate legs - 2 gauge or W-5.5 wire. 3 End legs - 2 gauge or W-5.5 wire. Upper space bar - 2 gauge or W-5.5 wire x (). (See Dimension Table) Lower space bar - 2 gauge or W-5.5 wire x ${\rm O}$. (See Dimension Table) Tie bars - W-1.5 wire x 16". Anchor strap - 1"x3" steel strap, 0.079 thick. Place with a $1'/_2"$ minimum length steel nail for LCB, 4" minimum length steel nail for ACB or AB, 0.145 diameter ASTM A227 Class 1 with 1/4" head or washer. OUANTITY TABLE Lane Width (Ft) Item No 12]4 16 1 11 13 15 2 18 22 26 3 4 4 4 4 2 2 2 5 2 2 2 6 5 6 7 7

GENERAL NOTES

1) 1. Load transfer dowel assemblies may be used when permitted in the project specifications.

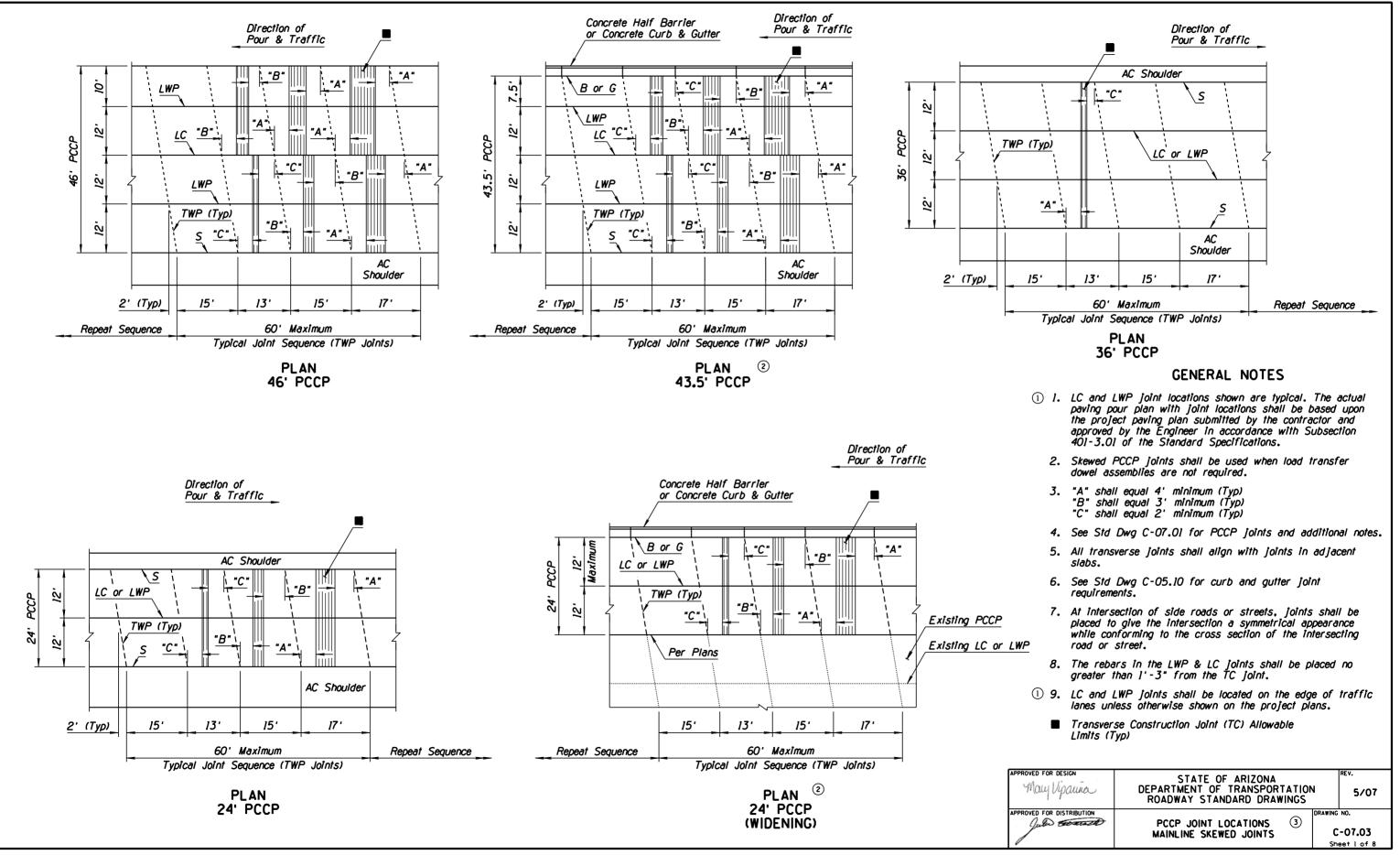
or design Vipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		REV.
OR DISTRIBUTION		DRAWING	NO.
to to the the	LOAD TRANSFER DOWEL ASSEMBLY	С	-07.02

12

14

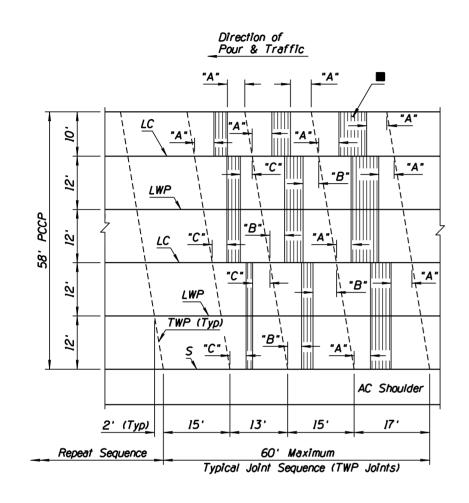
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NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			

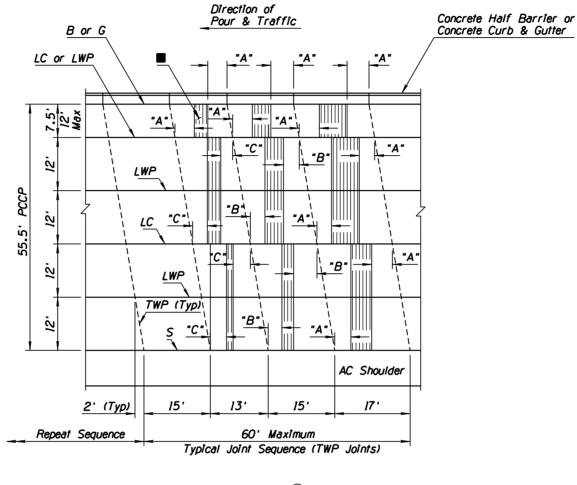


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			









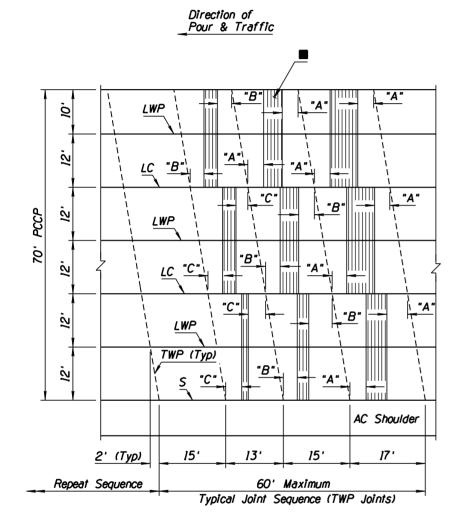
2 PLAN 55.5' PCCP

> PPROVED FOR D May V APPROVED FOR D Jules

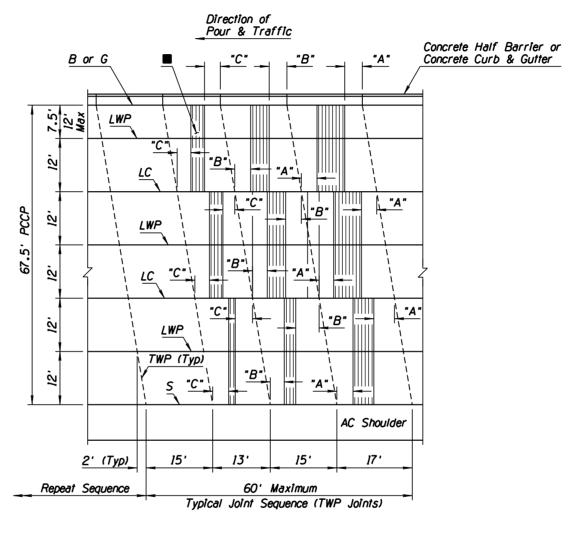
- (1) I. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer In accordance with Subsection 401-3.01 of the Standard Specifications.
 - 2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
 - "A" shall equal 4' minimum (Typ)
 "B" shall equal 3' minimum (Typ)
 "C" shall equal 2' minimum (Typ)
 - 4. See Std Dwg C-07.01 for PCCP joints and additional notes.
 - 5. All transverse joints shall align with joints in adjacent slabs.
 - 6. See Std Dwg C-05.10 for curb and gutter joint requirements.
 - 7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
 - 8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
- ① 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
 - Transverse Construction Joint (TC) Allowable Limits (Typ)

ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS			^{REV.} 5/07
	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS	3	DRAWING NO. C-07.03 Sheet 2 of 8	

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			



PLAN 70' PCCP



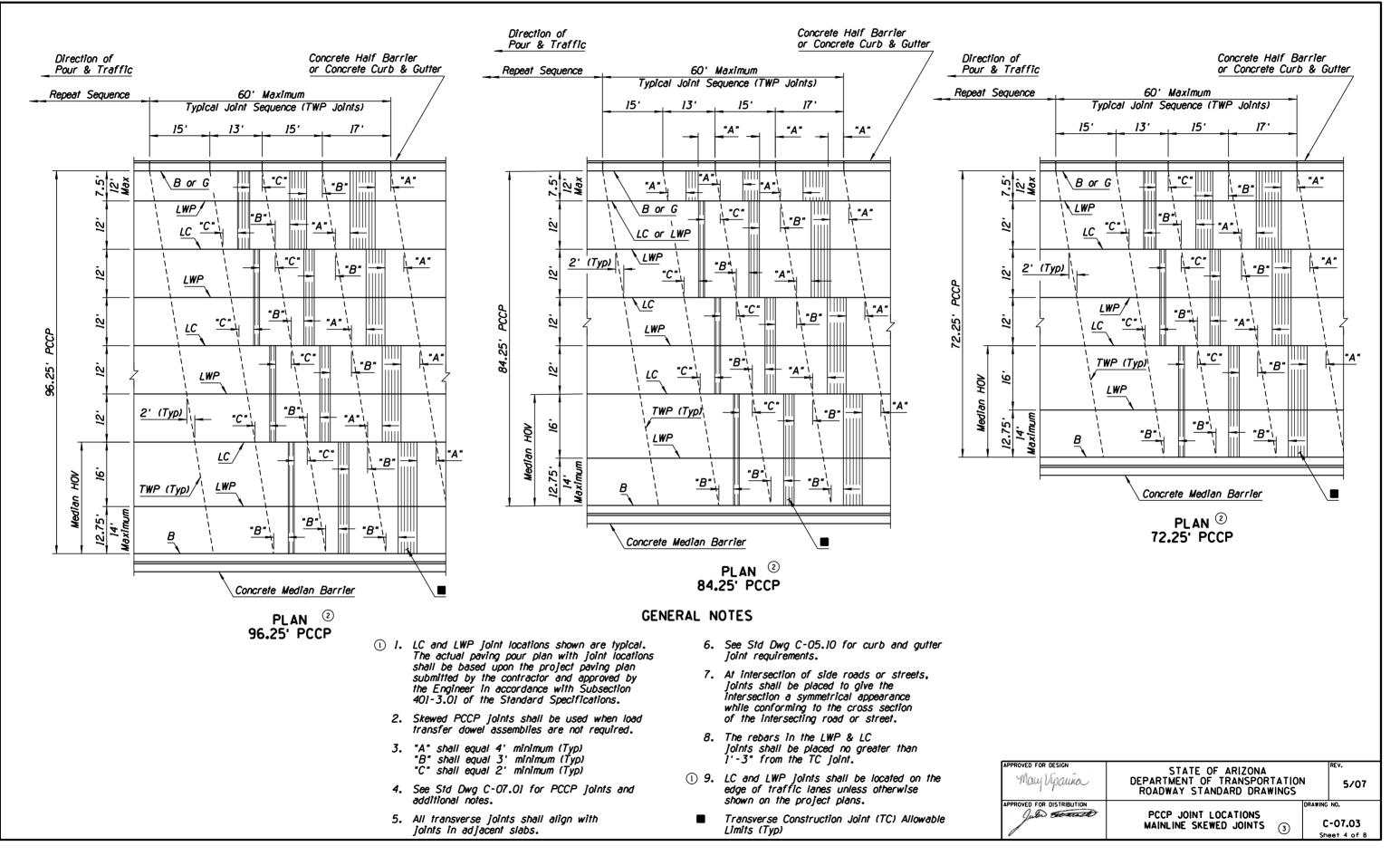
PLAN 67.5' PCCP

2

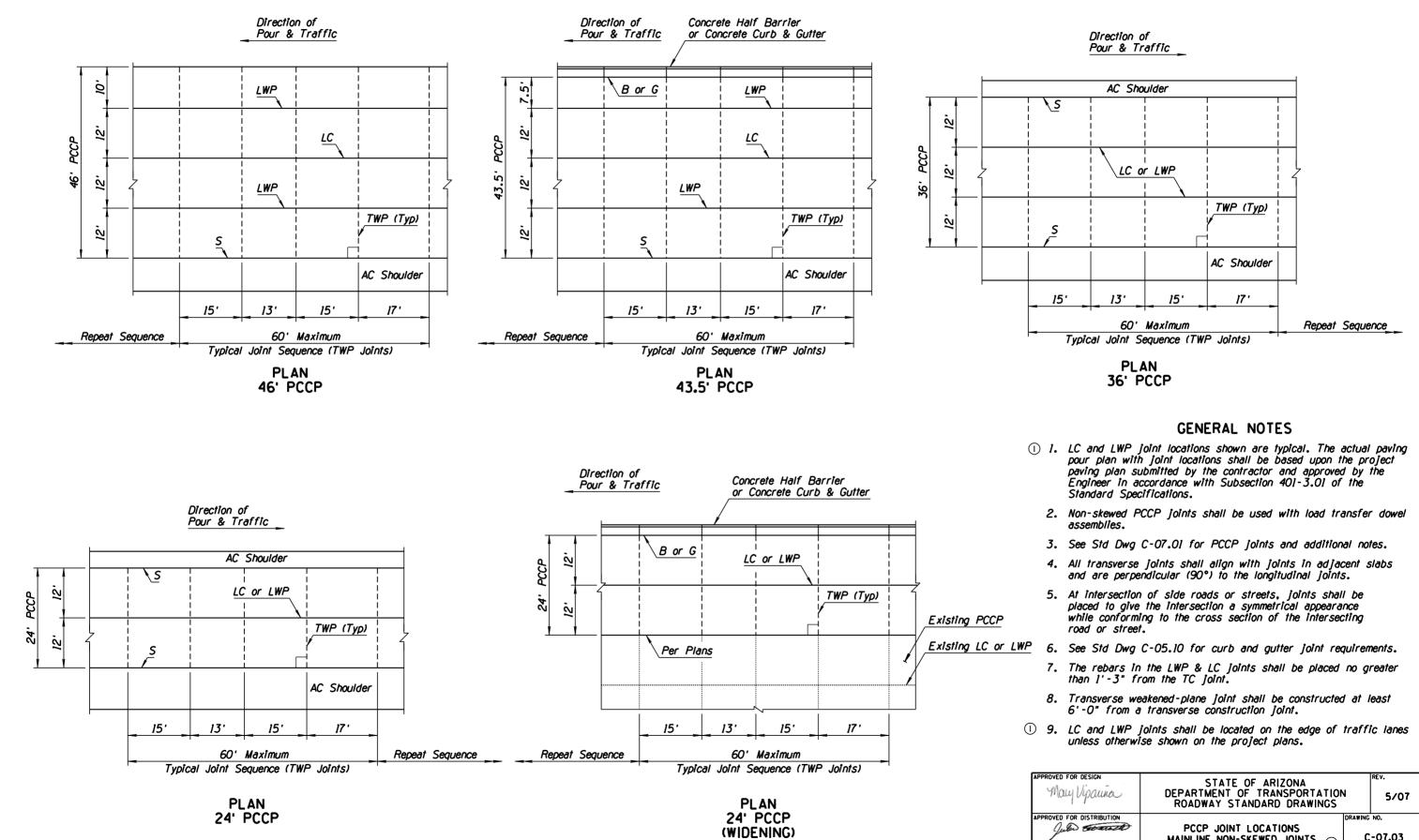
- I. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
 - 2. Skewed PCCP joints shall be used when load transfer dowel assemblies are not required.
 - "A" shall equal 4' minimum (Typ)
 "B" shall equal 3' minimum (Typ)
 "C" shall equal 2' minimum (Typ)
 - 4. See Std Dwg C-07.01 for PCCP joints and additional notes.
 - 5. All transverse joints shall align with joints in adjacent slabs.
 - 6. See Std Dwg C-05.10 for curb and gutter joint requirements.
 - 7. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
 - 8. The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
- 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
 - Transverse Construction Joint (TC) Allowable Limits (Typ)

esign	STATE OF ARIZONA DEPARTMENT OF TRANSPORT ROADWAY STANDARD DRAW			rev. 5/07
	PCCP JOINT LOCATIONS MAINLINE SKEWED JOINTS	3	DRAWING NO. C-07.03 Sheet 3 of 8	

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED JOINT ANGLE FOR CURB & GUTTER	RLF	9/04
3	REVISED TITLE	RLF	9/04
4			

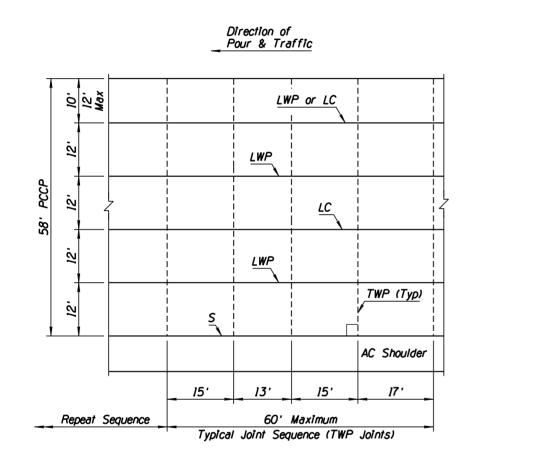


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
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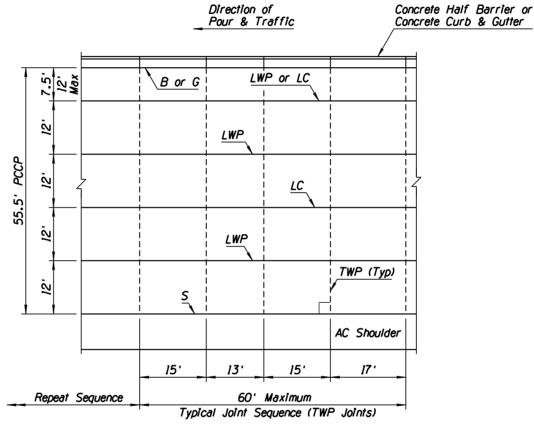


ISTRIBUTION		DRAWING NO.
Strack	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS (2)	C-07.03

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	ADDED GENERAL NOTES 1 & 9	RLF	9/04
(2)		RLF	9/04
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PLAN 58' PCCP



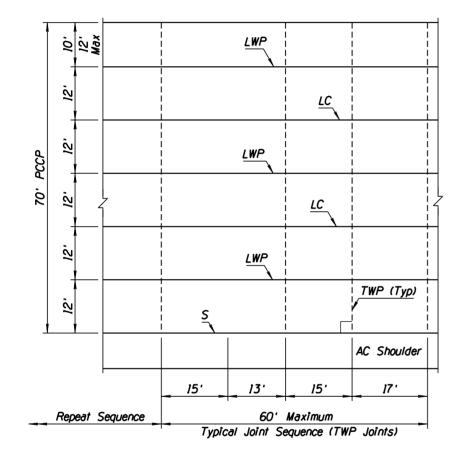
PLAN 55.5' PCCP

- () 1. LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
 - 2. Non-skewed PCCP joints shall be used with load transfer dowel assemblies.
 - 3. See Std Dwg C-07.01 for PCCP joints and additional notes.
 - 4. All transverse joints shall align with joints in adjacent slabs and are perpendicular (90°) to the longitudinal joints.
 - 5. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
 - 6. See Std Dwg C-05.10 for curb and gutter joint requirements.
 - The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
 - 8. Transverse weakened-plane joint shall be constructed at least 6'-0" from a transverse construction joint.
- 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

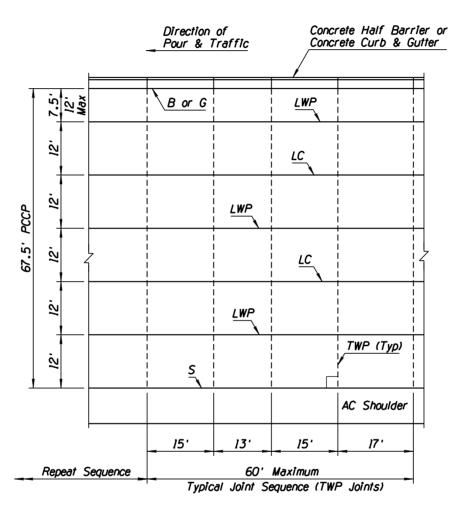
May Vipauna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	^{REV.} 5/07
APPROVED FOR DISTRIBUTION	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS (2)	RAWING NO. C-07.03 Sheet 6 of 8

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
4			

Direction of Pour & Traffic







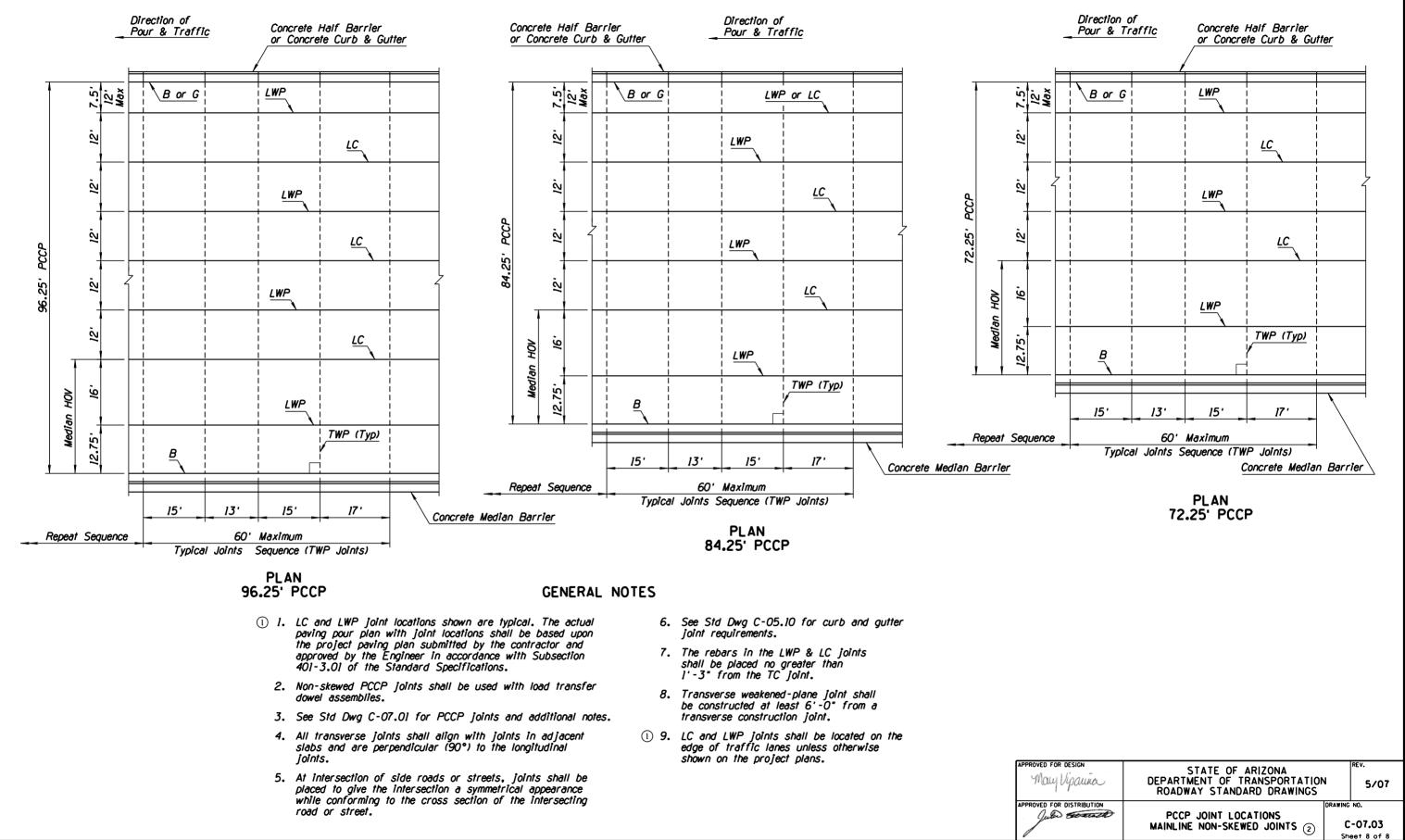
PLAN 67.5' PCCP



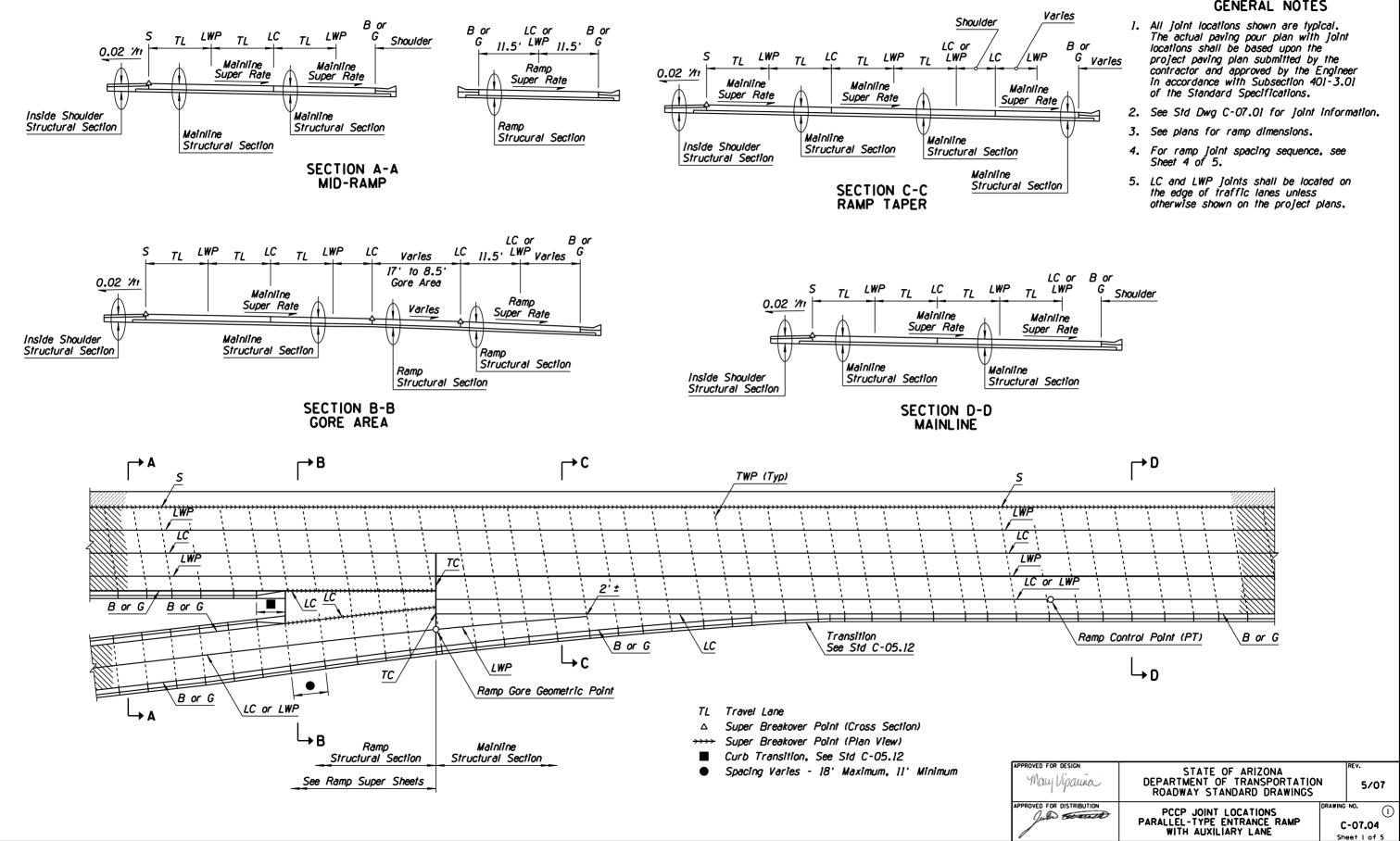
- LC and LWP joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
 - Non-skewed PCCP joints shall be used with load transfer dowel assemblies.
 - 3. See Std Dwg C-07.01 for PCCP joints and additional notes.
 - All transverse joints shall align with joints in adjacent slabs and are perpendicular (90°) to the longitudinal joints.
 - 5. At intersection of side roads or streets, joints shall be placed to give the intersection a symmetrical appearance while conforming to the cross section of the intersecting road or street.
 - 6. See Std Dwg C-05.10 for curb and gutter joint requirements.
 - The rebars in the LWP & LC joints shall be placed no greater than 1'-3" from the TC joint.
 - 8. Transverse weakened-plane joint shall be constructed at least 6'-0" from a transverse construction joint.
- 9. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.

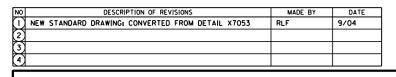
esion	ROADWAY STANDARD DRAWINGS		
ISTRIBUTION	PCCP JOINT LOCATIONS MAINLINE NON-SKEWED JOINTS (2)	DRAWING NO. C-07.03 Sheet 7 of 8	

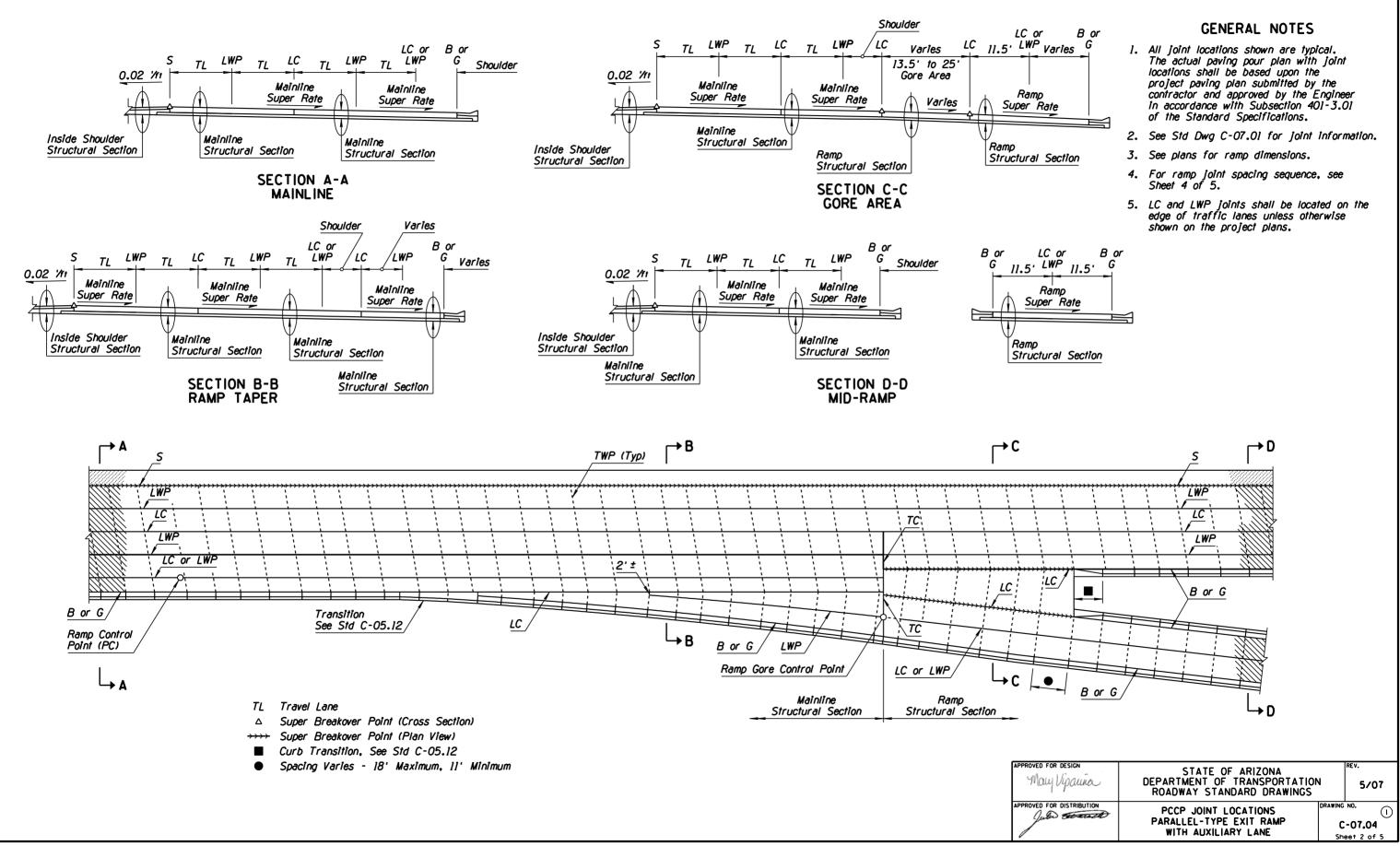
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	ADDED GENERAL NOTES 1 & 9	RLF	9/04
2	REVISED TITLE	RLF	9/04
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NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	NEW STANDARD DRAWING: CONVERTED FROM DETAIL X7043	RLF	9/04
2			
3			







NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	RENAMED FROM C-07.04 TO C-07.04, SHEET 3 OF 5	RLF	9/04
2			
3			
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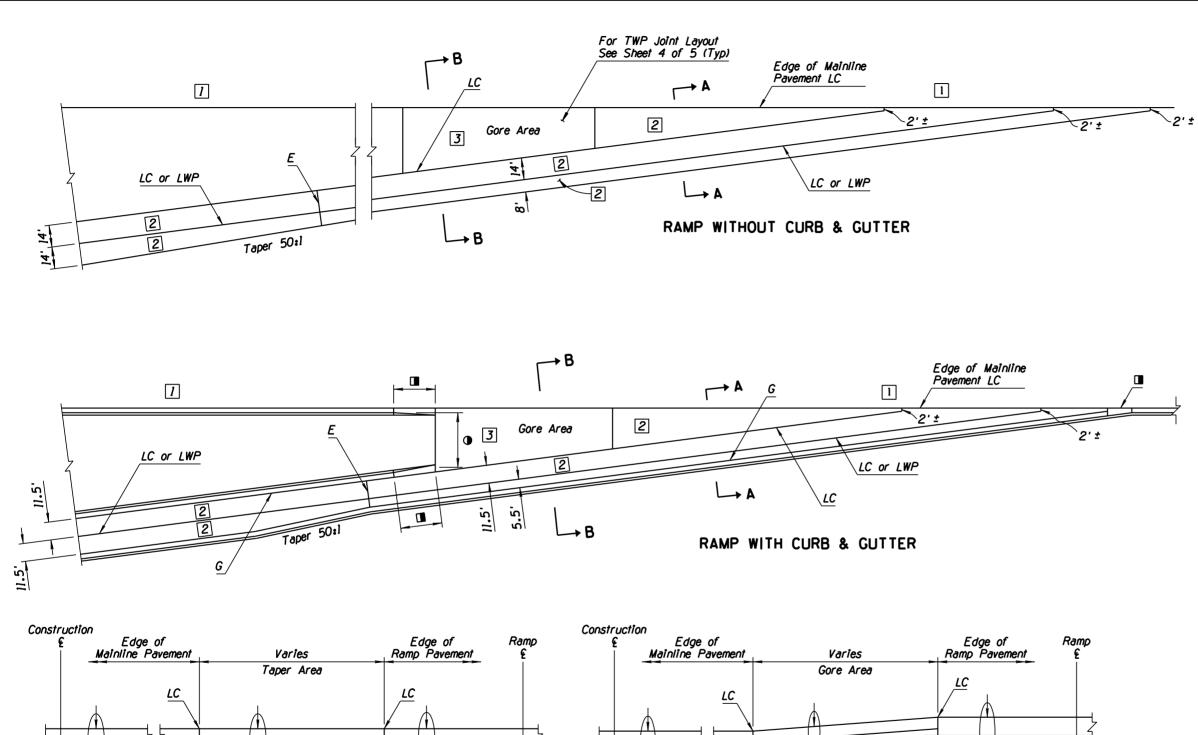
2 Structural Section

SECTION A-A RAMP TAPER

Structural Section

1

2 Structural Section



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Structural Section

2

3 Structural Section

SECTION B-B GORE AREA

Structural Section

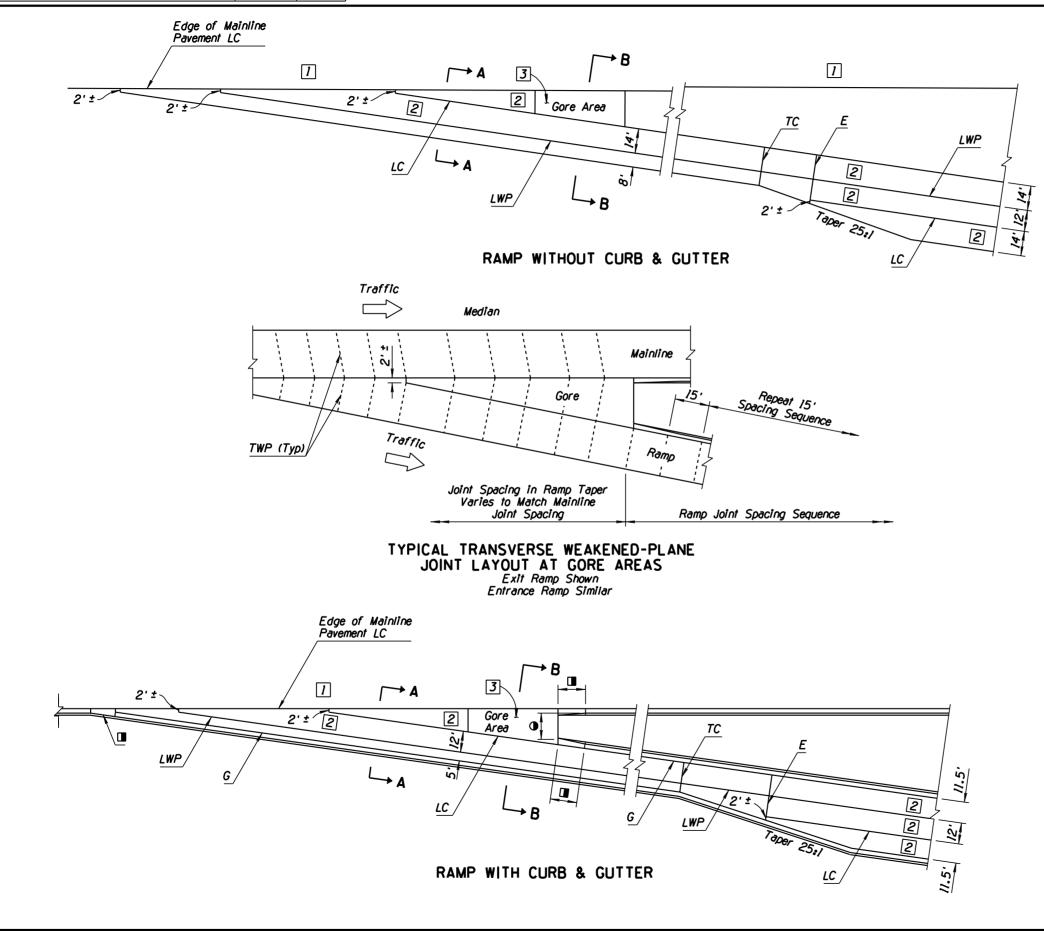
1

1.	All joint locations shown are typical.
	The actual paving pour plan with
	joint locations shall be based upon the
	project paving plan submitted by the
	contractor and approved by the Engineer
	in accordance with Subsection 401-3.01
	of the Standard Specifications.

- 2. Dimensions with a tolerance may be adjusted to align to the nearest transverse weakened-plane construction joint as directed.
- 3. See Std Dwg C-07.01 for joint information.
- 4. See plans for ramp dimensions.
- 5. For ramp joint spacing sequence, see Sheet 4 of 5.
- 6. LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
- Transition, See Std Dwg C-05.12
- 12' Face of Curb to Face of Curb 0 on Entrance Ramp
- Mainline Structural Section See Plans 1
- Ramp Structural Section 2 See Plans
- Gore Structural Section 3 See Plans

APPROVED FOR DESIGN Mary Vipania	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		^{REV.}
APPROVED FOR DISTRIBUTION		DRAWING	NO. (1)
Jules to and	TAPER-TYPE ENTRANCE RAMP		-07.04 eet 3 of 5

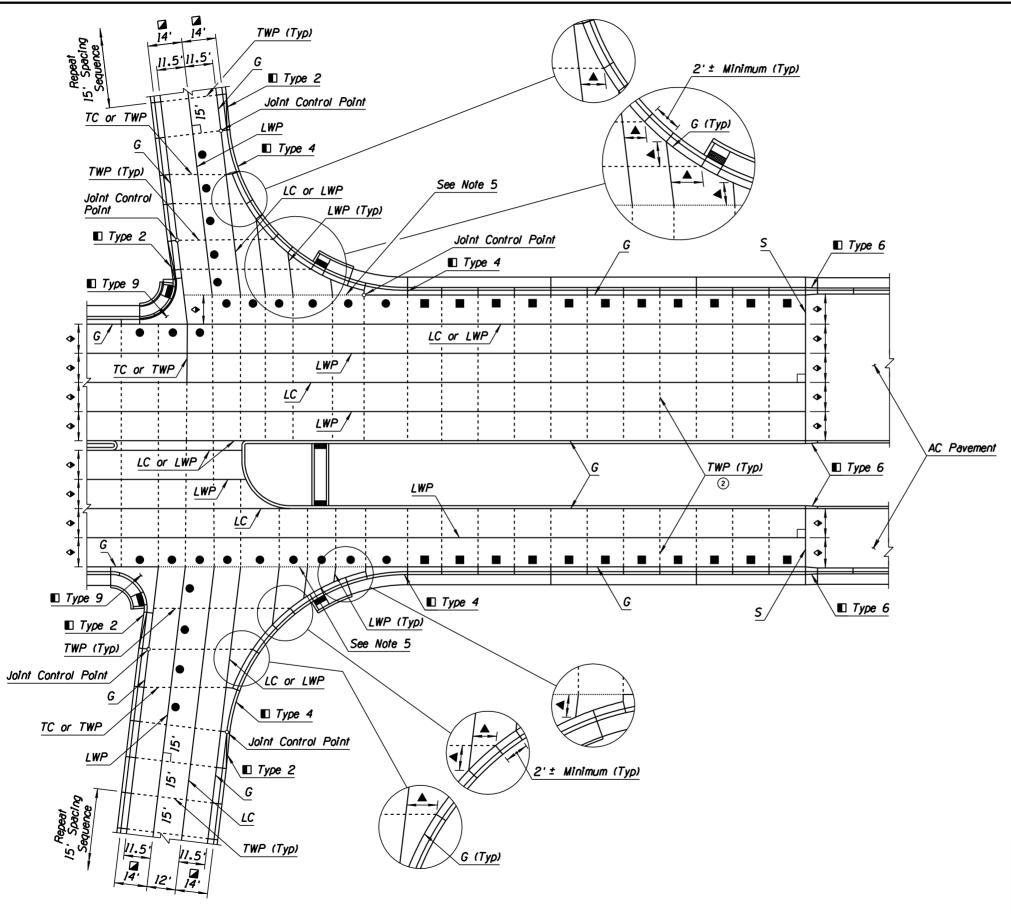
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	RENAMED FROM C-07.05 TO C-07.04, SHEET 4 OF 5	RLF	9/04
2			
3			



- 1. All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
- Dimensions with a tolerance may be adjusted to align to the nearest transverse weakened-plane construction joint as directed.
- 3. See Std Dwg C-07.01 for joint information.
- 4. See plans for ramp dimensions.
- Transition, See Std Dwg C-05.12
- 20' Face of Curb to Face of Curb on Exit Ramp
- Mainline Structural Section See Plans
- 2 Ramp Structural Section See Plans
- 3 Gore Structural Section See Plans

APPROVED FOR DESIGN	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07	
APPROVED FOR DISTRIBUTION	PCCP JOINT LOCATIONS	DRAWING	NO. ()	
June Sector	TAPER-TYPE EXIT RAMP		C-07.04 Sheet 4 of 5	

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	RENAMED FROM C-07.10 TO C-07.04, SHEET 5 OF 5	RLF	9/04
2	REARRANGED DRAWING	RT/RLF	9/04
3			
(1)			



- All joint locations shown are typical. The actual paving pour plan with joint locations shall be based upon the project paving plan submitted by the contractor and approved by the Engineer in accordance with Subsection 401-3.01 of the Standard Specifications.
- 2. See Std Dwg C-07.01 for joint information.
- The ratio of transverse to longitudinal joint spacing shall be greater than ²/₃ but not more than 1¹/₂.
- LC and LWP joints shall be located on the edge of traffic lanes unless otherwise shown on the project plans.
- 5. See Plans for Crossroad Paving Type E or H Joint if PCC Paving S Joint if AC Paving
- 6. Transverse joints shall be perpendicular (90°) to the longitudinal joints, except as shown at the ramp terminal.
- ▲ 6' Minimum

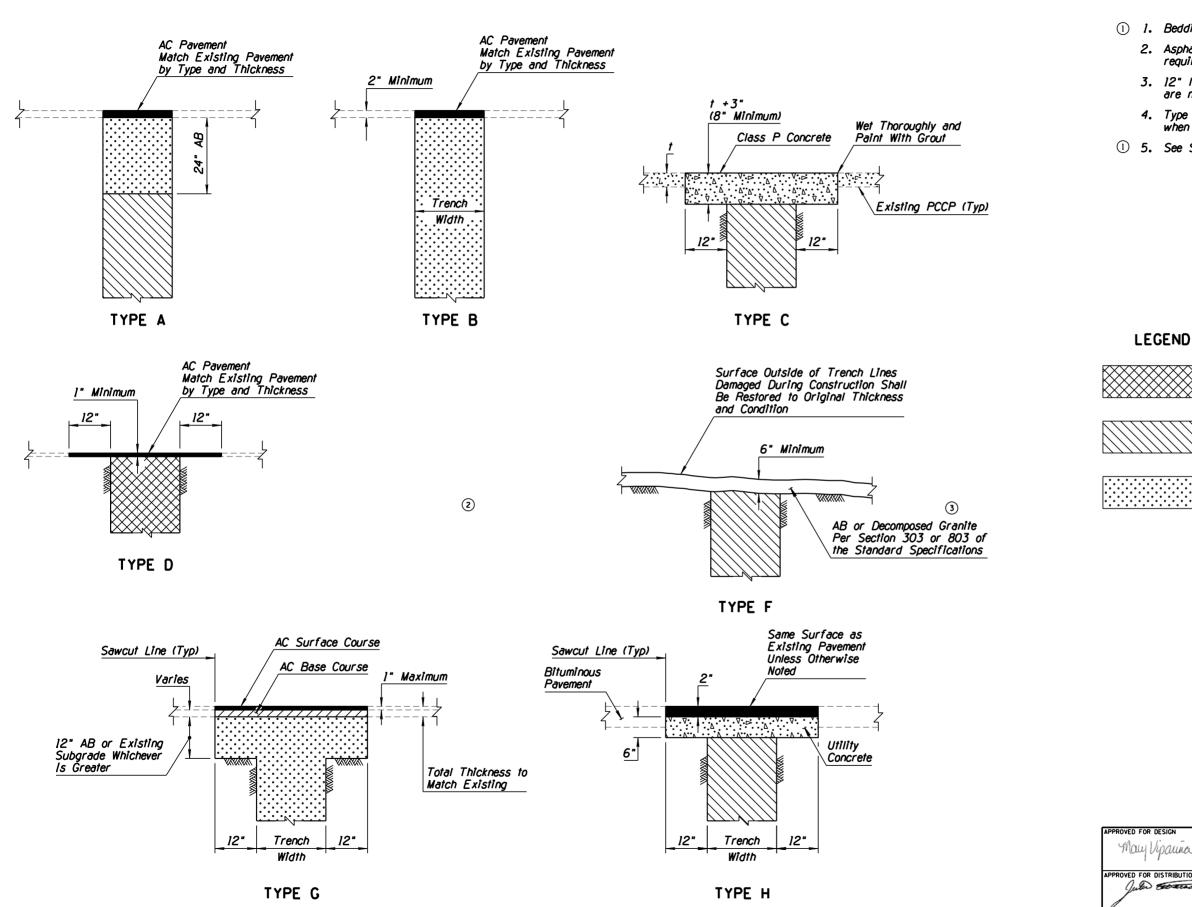
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- Varies 18' Maximum]]' Minimum
- Varies 12' when adjacent gutter widths are 2' or less - 15' when adjacent gutter widths are greater than 2'
- Without curb and gutter
- Transition. See Std Dwg C-05.12
- ♦ Varies 12' Typical or As Shown on Plans 17' Maximum

May Vipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	5/07
APPROVED FOR DISTRIBUTION		G NO. C-07.04 heet 5 of 5

REV.

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REVISED NOTE	PNB	10/95
2	DELETED TYPE E VIEW	RLF	7/05
3	MODIFIED STANDARD SPECIFICATION REFERENCE	RLF	7/05
4			



(1) 1. Bedding per Section 501 of the Standard Specifications.

2. Asphalt concrete shall be in accordance with the requirements of the Standard Specifications.

3. 12" lip is required on the sides of trenches that are not parallel at the center line of the street.

4. Type D requires 9" of AB at top of trench when there is an existing base.

① 5. See Std Dwg C-13.15 for typical pipe installation.

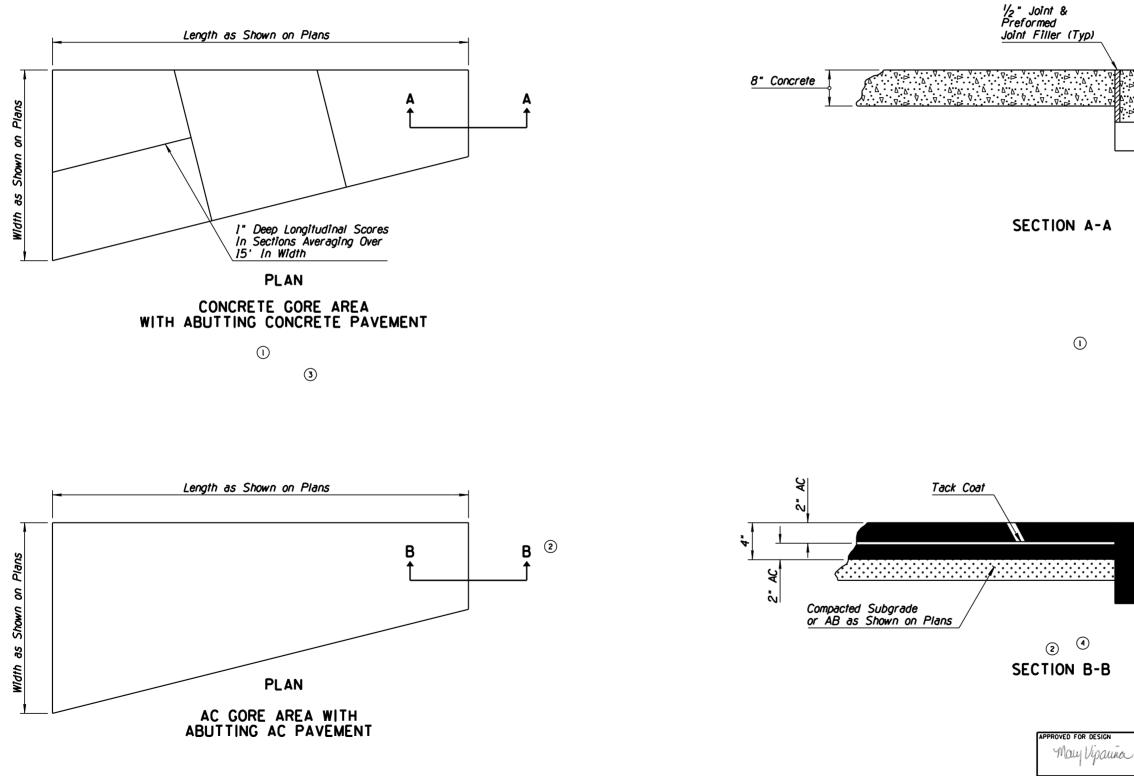
Compacted Backfill or Slurry Per Section 501 of the Standard Specifications

AB, Granular Backfill or Native Backfill Per Sections 303 and 501 (3) of the Standard Specifications

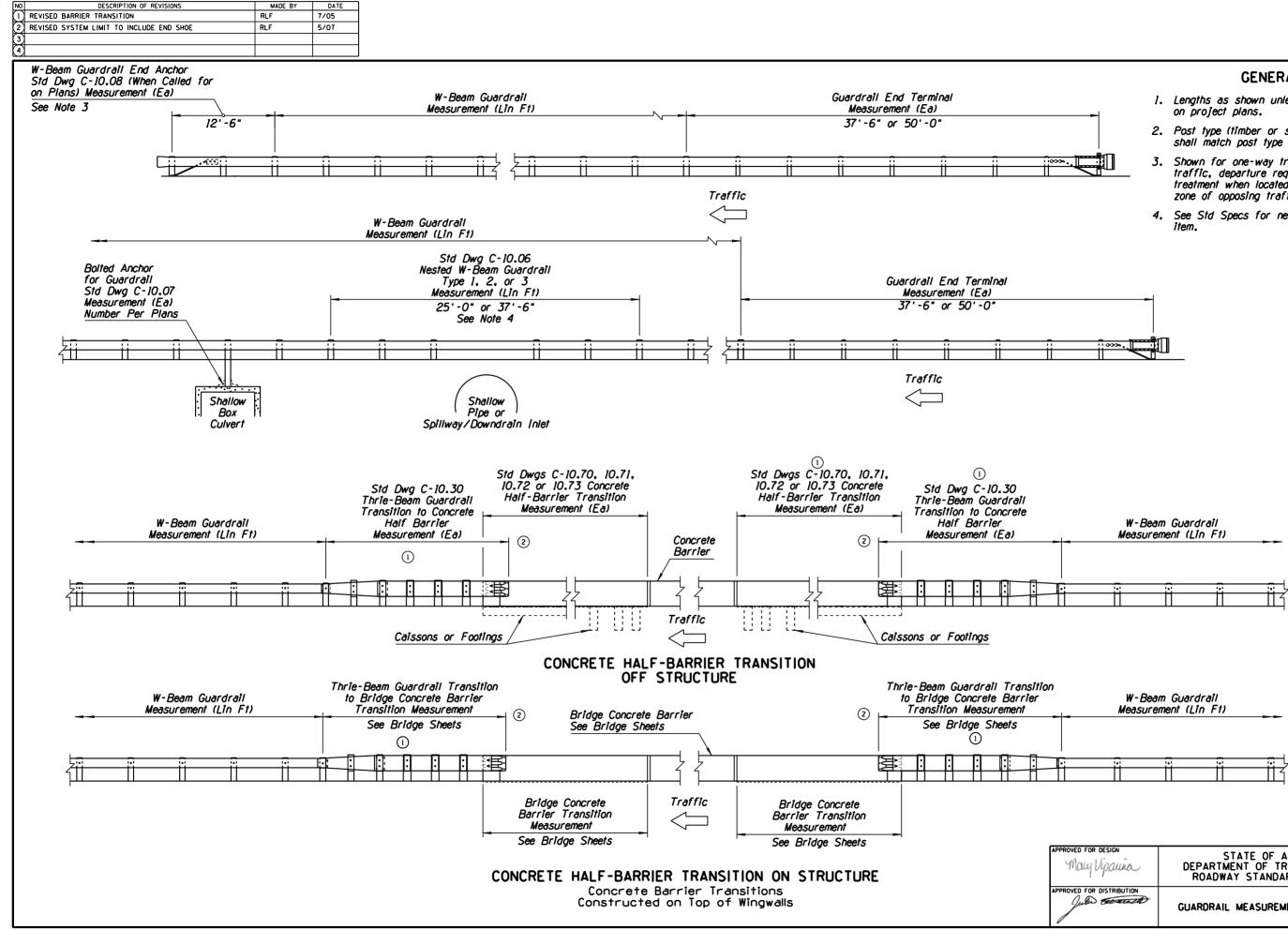
AB Per Sections 303 and 501 3 of the Standard Specifications

paura	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
ISTRIBUTION	TRENCH BACKFILL AND PAVEMENT REPLACEMENT	C-07.06

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	DELETED PLAN VIEW AND SECTION	RLF	9/04
2	REVISED & RENAMED SECTION	RLF	9/04
3	REMOVED TITLE	RLF	11/04
4	REVISED SECTION GRAPHICS	RLF	7/05



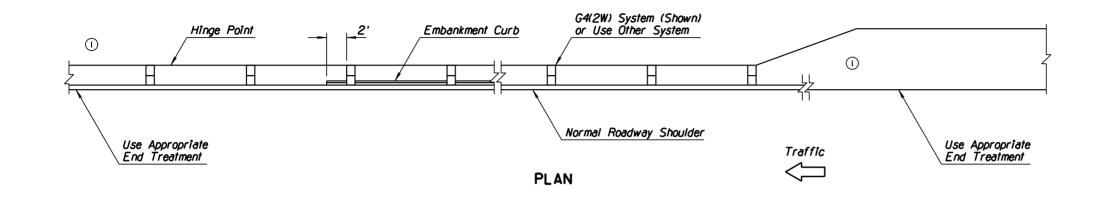
GENERAL NOTES 1. Paved gore area shall be Class S Concrete, f'c=4000 PSI or AC as shown on plans. See Std Dwgs C-07.01 and C-07.04 for joint layout and details. Structural Section See Plans Structural Section See Plans STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS 5/07 PROVED FOR DISTRIBUTION RAWING NO. Jule Etrack PAVED GORE AREA C-08.20

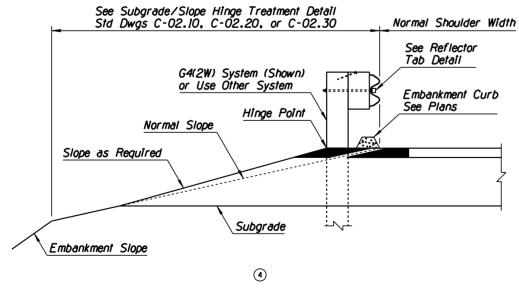


- 1. Lengths as shown unless otherwise indicated
- 2. Post type (timber or steel) for transitions shall match post type of adjoining guardrail.
- 3. Shown for one-way traffic. For two-way traffic, departure requires approach end treatment when located within the clear zone of opposing traffic.
- 4. See Std Specs for nested guardrail pay

esign	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07	
ISTRIBUTION	GUARDRAIL MEASUREMENT LIMITS	DRAWING NO. C-10.00	

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	MODIFIED PLAN VIEW GRAPHICS/REMOVED WIDTH DIMENSION	RLF	9/04
2	REVISED GENERAL NOTES 3 & 4	RLF	9/04
3	MODIFIED STANDARD DRAWING TITLE	RLF	9/04
(1)	REVISED SECTION VIEW TITLE	RLF	7/05

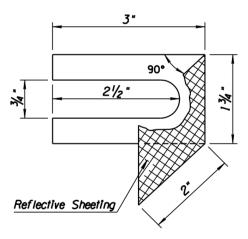








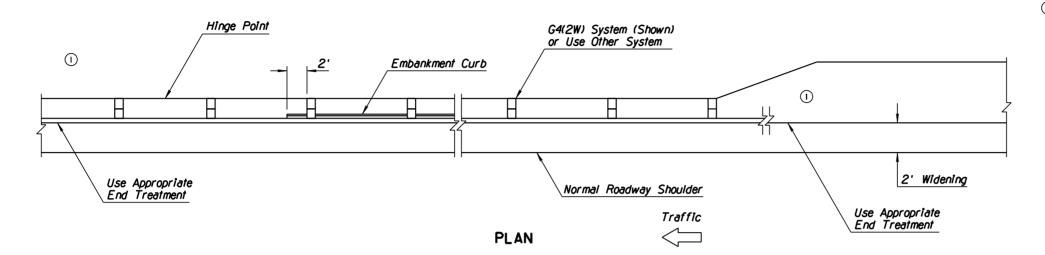
- 1. All embankment curb shall be protected by guardrail.
- 2. Guardrail shall extend beyond the limits of embankment curb.
- 2 3. See Std Dwg C-10.00 for measurement limits.
- 2 4. See Std Specs 703, 905 and 1012-3 for reflector tab and snow marker materials, reflective sheeting, and spacing requirements.
 - ▲ Top of Rail = 28" See General Note I Std Dwg C-10.03

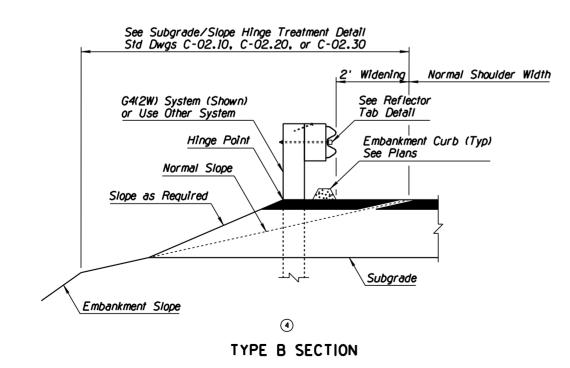


REFLECTOR TAB DETAIL

APPROVED FOR DESIGN	REV.	
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APPROVED FOR DISTRIBUTION	GUARDRAIL INSTALLATION ⁽³⁾ TYPE A AND REFLECTOR TAB	awing no. C-10.01

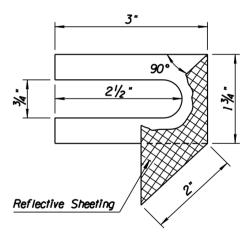
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REVISED PLAN VIEW GRAPHICS/REMOVED WIDTH DIMENSION	RLF	9/04
2	REVISED GENERAL NOTES 3 & 4	RLF	9/04
3	REVISED STANDARD DRAWING TITLE	RLF	9/04
(4)	REVISED SECTION VIEW TITLE	RLF	7/05







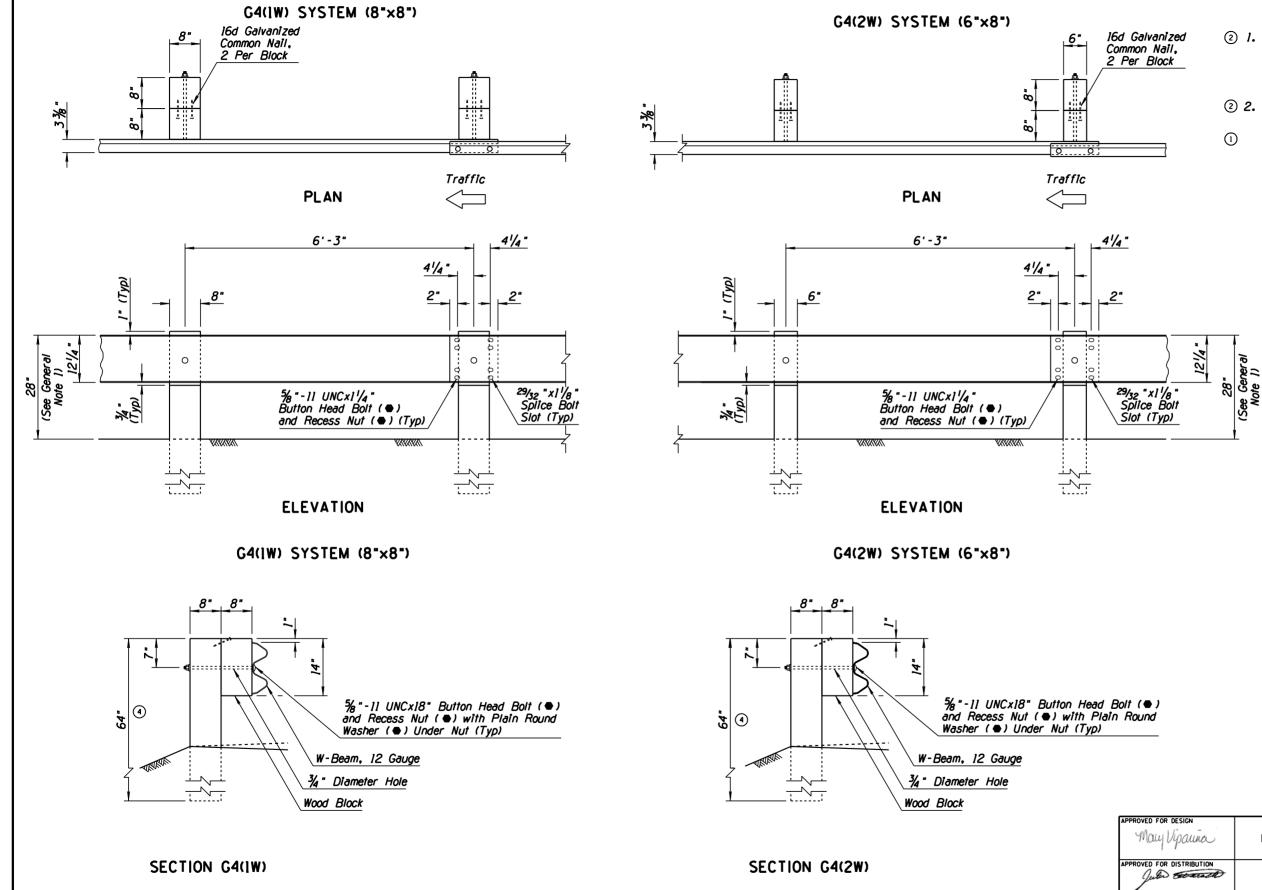
- 1. All embankment curb shall be protected by guardrail.
- 2. Guardrail shall extend beyond the limits of embankment curb.
- (2) 3. See Std Dwg C-10.00 for measurement limits.
- 2 4. See Std Specs 703, 905 and 1012-3 for reflector tab and snow marker materials, reflective sheeting, and spacing requirements.
 - ▲ Top of Rail = 28" See General Note 1 Std Dwg C-10.03



REFLECTOR TAB DETAIL

ipauna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	^{REV.}	
	GUARDRAIL INSTALLATION ³ TYPE B AND REFLECTOR TAB	C-10.02	

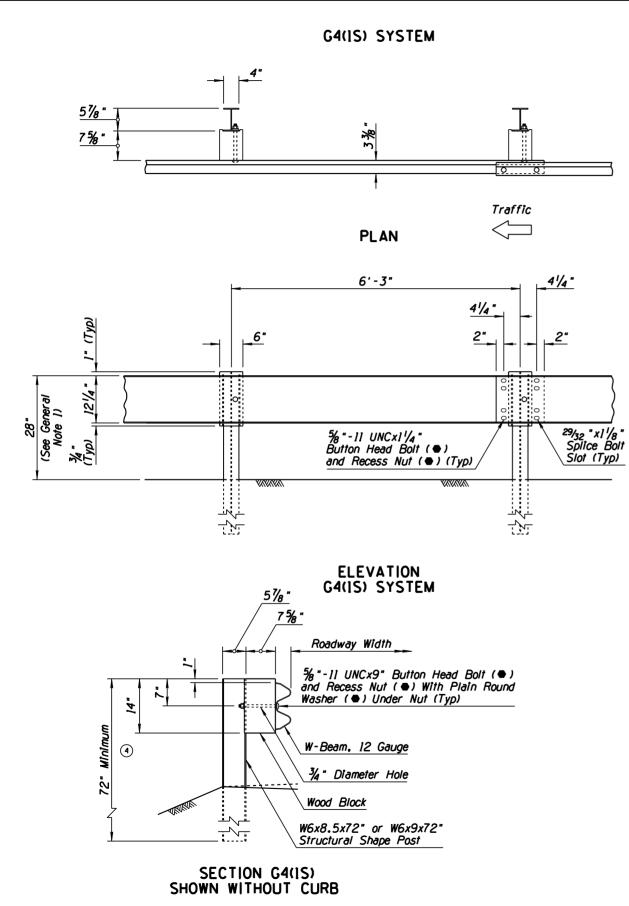
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	REVISED DESIGNATION	RLF	9/04
2	REVISED GENERAL NOTE 1 & ADDED GENERAL NOTE 2	RLF	9/04
3	RENAMED STD DRAWING FROM C-10.20 AND REVISED TITLE	RLF	9/04
$\overline{\mathbf{A}}$	REMOVED 29 INCH DIMENSION	RLF	7/05

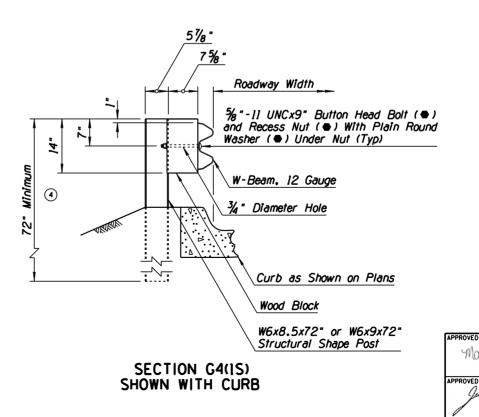


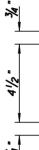
- (2) 1. The control height for guardrail system is 28" to the top of rail, measured at the face of rail from the normal finished shoulder elevation.
 - 2. Guardrail shall be lapped in the direction of adjacent traffic.
 - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation

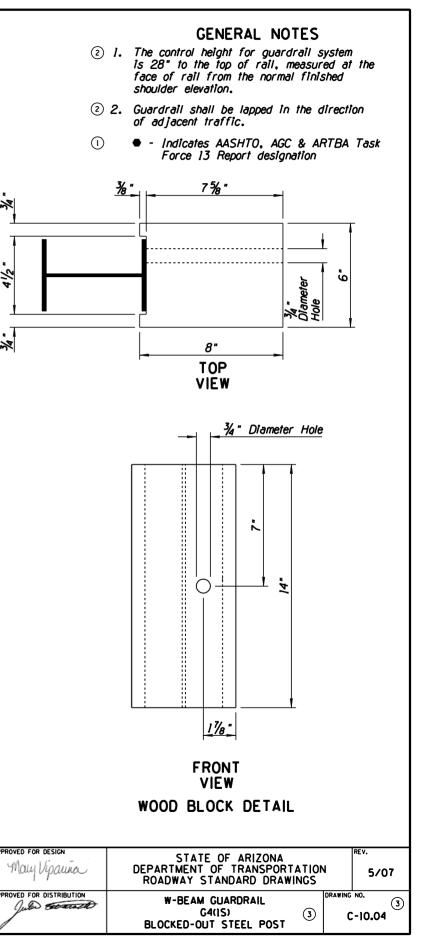
paulia	STATE OF ARIZONA DEPARTMENT OF TRANSPORT ROADWAY STANDARD DRAWI			rev. 5/07
	W-BEAM GUARDRAIL G4(1W) AND G4(2W) BLOCKED-OUT TIMBER POST	3	DRAWING	^{№.} 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	REVISED DESIGNATION	RLF	9/04
2	REVISED GENERAL NOTES 1 & 2	RLF	9/04
3	RENAMED STD DRAWING FROM C-10.21 & REVISED TITLE	RLF	9/04
	REMOVED 29 INCH DIMENSION	RLF	7/05

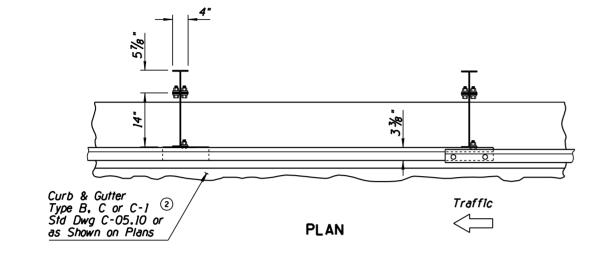


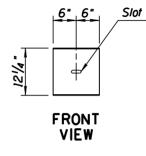




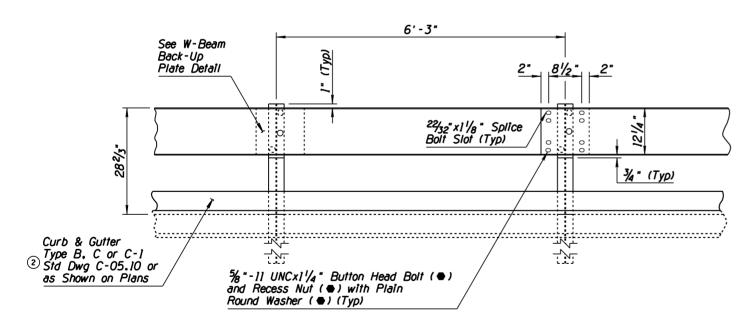


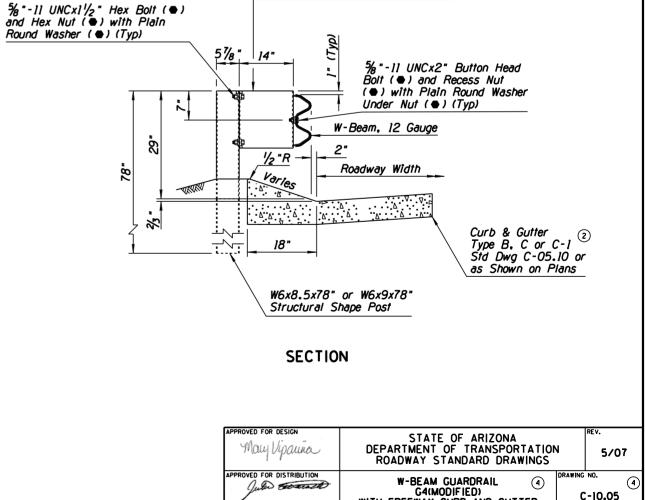
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REVISED DESIGNATION	RLF	9/04
2	DELETED REFERENCE TO TYPE B-1 CURB & GUTTER	RLF	9/04
3	ADDED GENERAL NOTE 2	RLF	9/04
(RENAMED STD DWG FROM C-10.22, SHEET 1 & MODIFIED TITLE	RLF	9/04





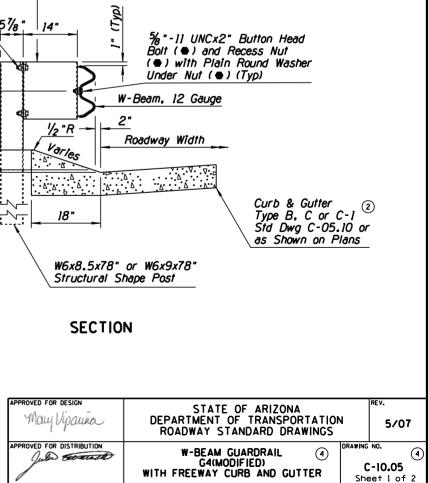
W-BEAM BACK-UP PLATE DETAIL





ELEVATION

G4(IS-MODIFIED)



GENERAL NOTES

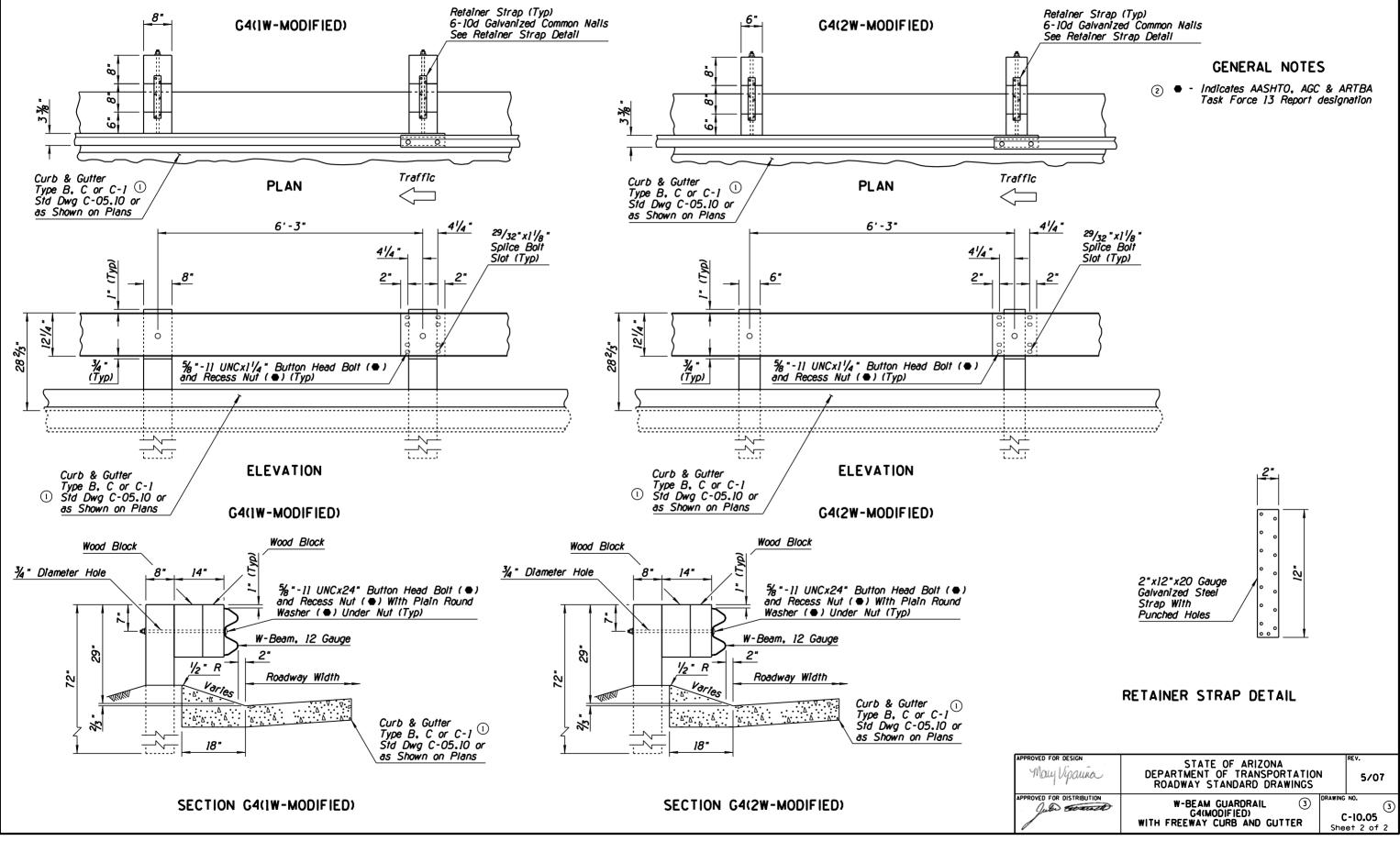
- 1. Height of curb shall not exceed 4 inches.
- (3) 2. Guardrail shall be lapped in the direction of adjacent traffic.
- Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation (\mathbf{I})

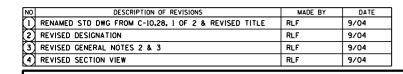
Slot 3/4 "x21/2"

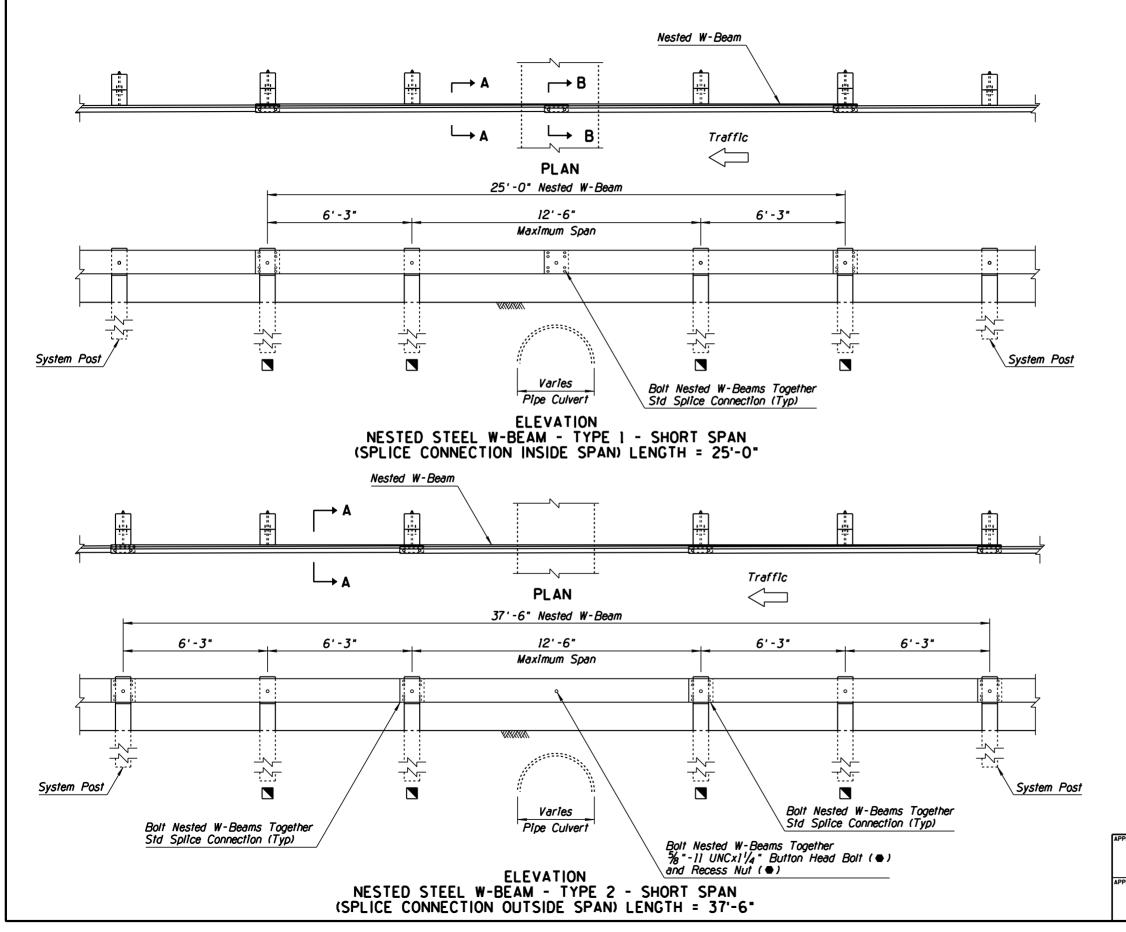


M14x17.2x14", M14x18x14" or W14x22x14" Structural Shape Block

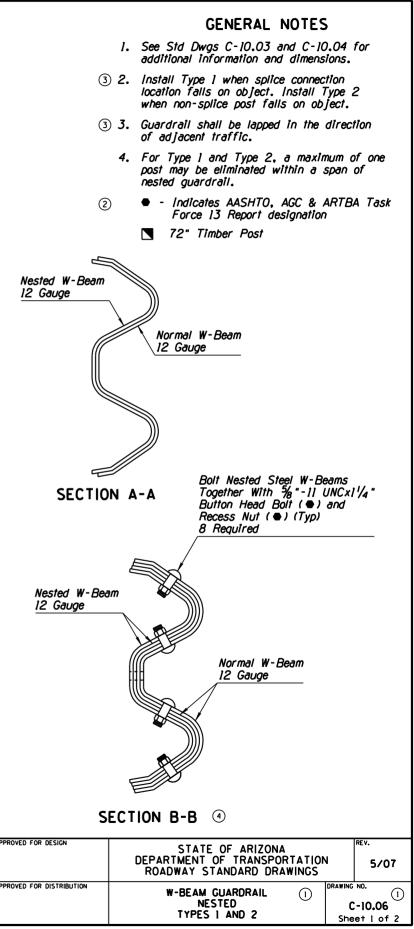
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	DELETED REFERENCE TO TYPE B-1 CURB & GUTTER	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	RENAMED STD DWG FROM C-10.22, SHEET 2 & REVISED TITLE	RLF	9/04



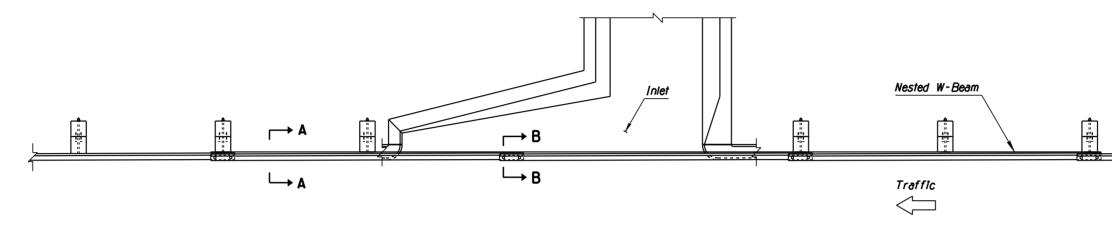




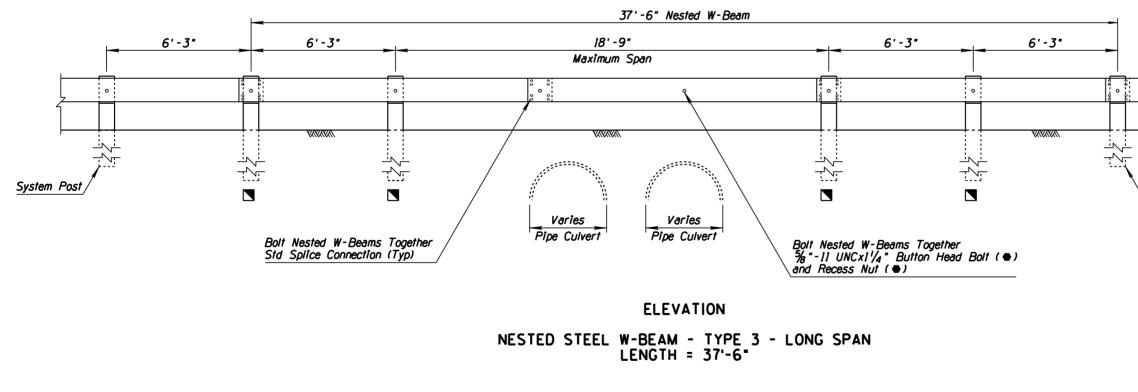
12 Gauge



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	RENAMED STD DWG FROM C-10.28, 2 OF 2 & REVISED TITLE	RLF	9/04
2	ADDED GENERAL NOTE 3	RLF	9/04
3	ADDED DESIGNATION	RLF	9/04
(1)			



PLAN



GENERAL NOTES

- Use Type 3 Nested W-Beam to span downdrain or spillway inlets as shown in the plan view.
- Use Type 3 Nested W-Beam to span multiple obstructions as shown in the elevation view.
- (2) 3. Guardrail shall be lapped in the direction of adjacent traffic.
 - For Type 3, a maximum of two posts may be eliminated within a span of nested guardrail.
 - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation
 - ► 72" Timber Post

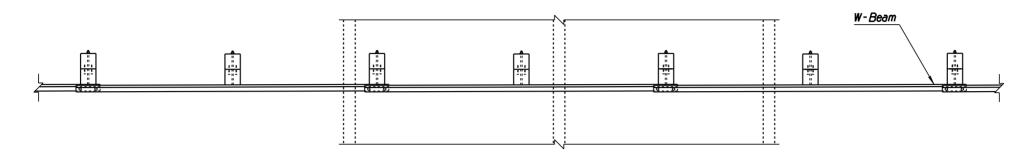
See Sheet 1 of 2 for Sections A-A and B-B

System Post

(3)

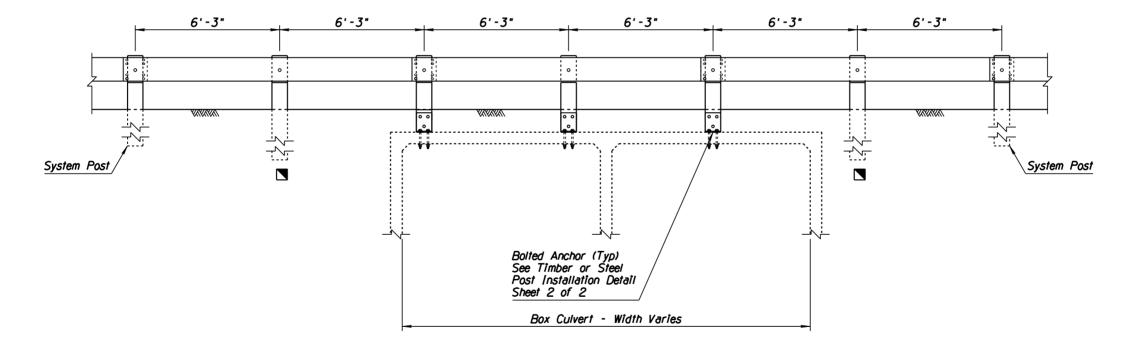
APPROVED FOR DESIGN Mary Vipanna	STATE OF ARIZONA DEPARTMENT OF TRANSPO ROADWAY STANDARD DRA	RTATION		rev. 5/07
APPROVED FOR DISTRIBUTION	W-BEAM GUARDRAIL NESTED TYPE 3	1	-	NO. 10.06 et 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	RENAMED FROM C-10.29, 1 OF 2 & REVISED TITLE	RLF	9/04
2	ADDED GENERAL NOTE 2	RLF	9/04
3	REVISED GENERAL NOTE 1	RLF	9/04
4			



PLAN



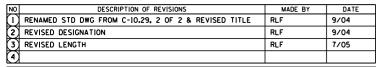


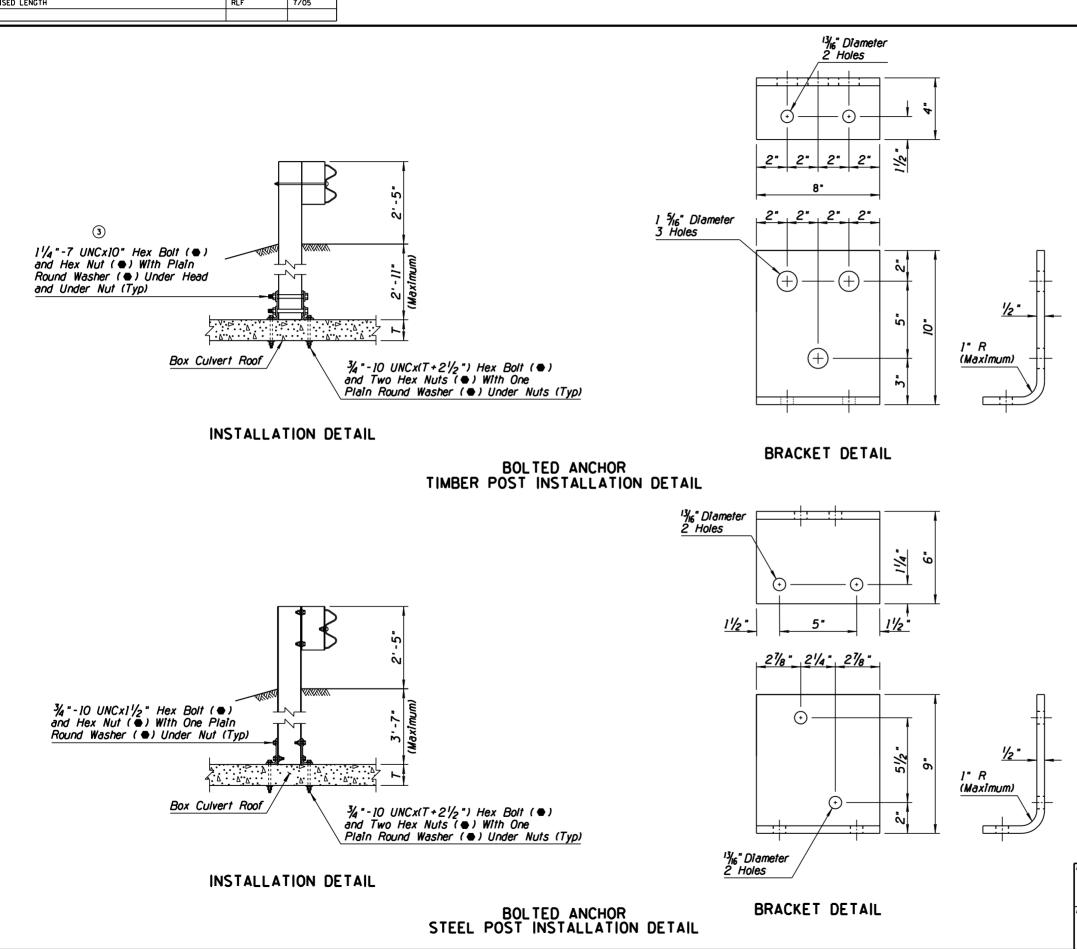
ELEVATION

BOLTED ANCHOR BOX CULVERT INSTALLATION

- (3) 1. See Std Dwgs C-10.03 and C-10.04 for additional information and dimensions.
- (2) 2. Guardrail shall be lapped in the direction of adjacent traffic.
 - 📘 72" Timber Post

APPROVED FOR DESIGN Mary Vipania	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
APPROVED FOR DISTRIBUTION	W-BEAM GUARDRAIL	WING NO. C-10.07 Sheet 1 of 2



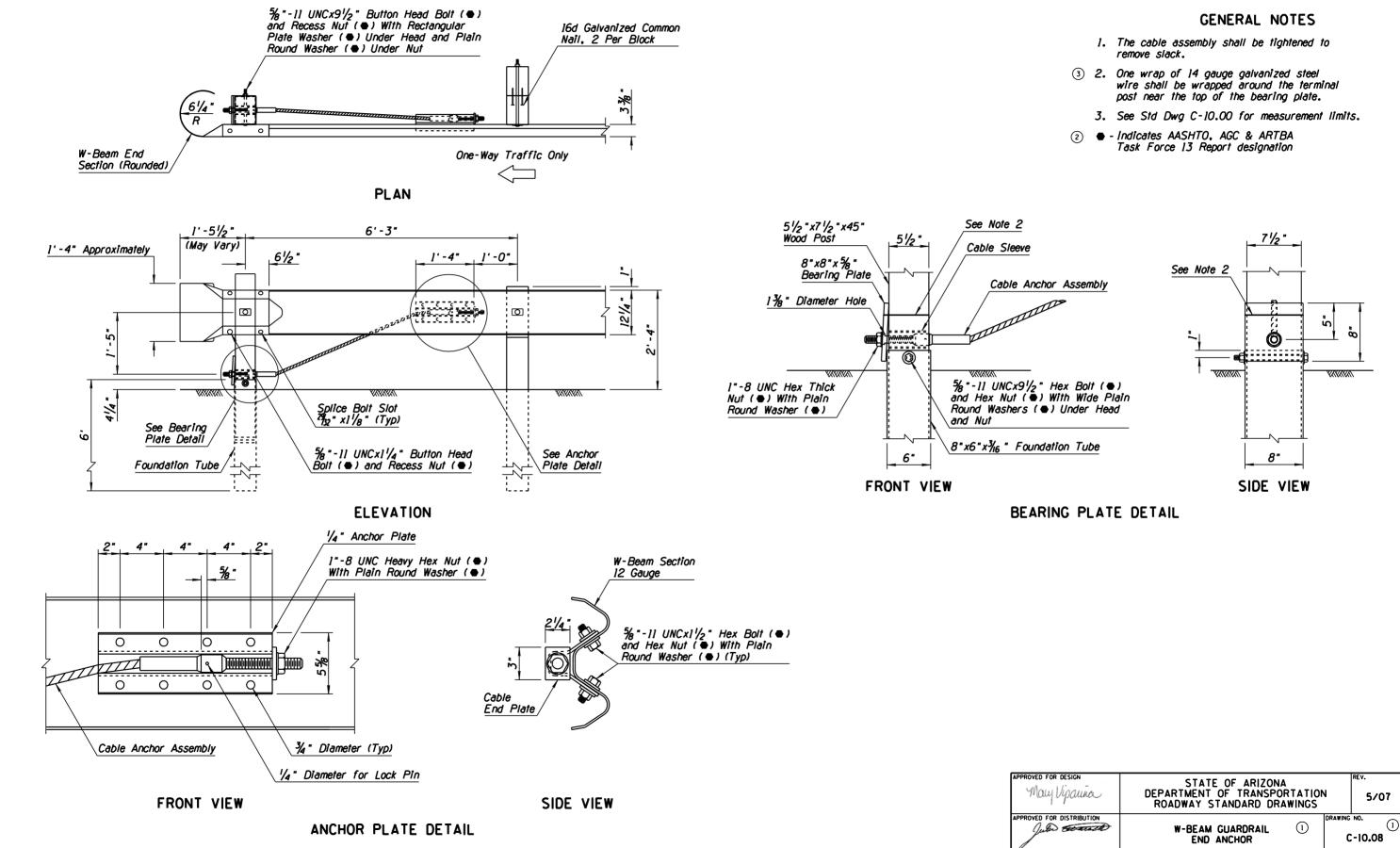


PROVED FOR

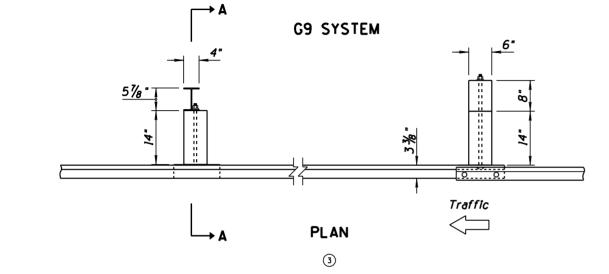
- 1. Bracket may be made of one piece hot bent, or two pieces welded together.
- 2. Short timber posts anchored to box culvert roof shall be 8" x 8" only.
- Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation (2)

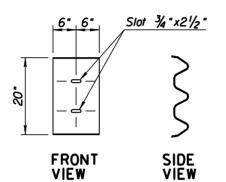
Mary Vipanna	DEPARTMENT OF TRANSPORTAT ROADWAY STANDARD DRAWING	5/07	
PROVED FOR DISTRIBUTION	W-BEAM GUARDRAIL BOLTED ANCHOR		3 NO. 1 C-10.07 eet 2 of 2

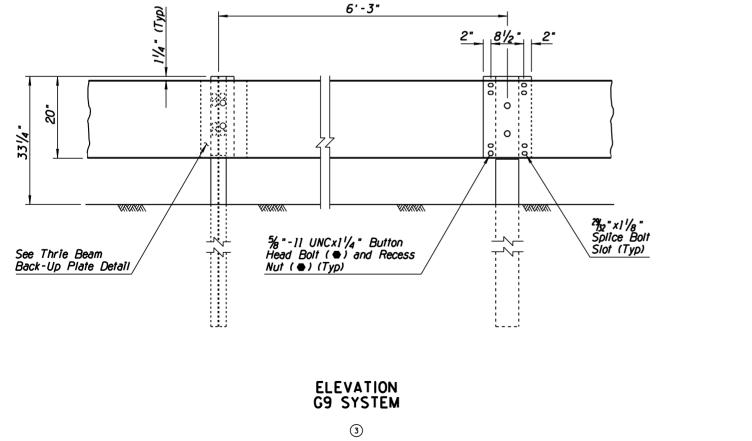
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	RENAMED STD DWG FROM C-10.45 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	REVISED GENERAL NOTE 2	RLF	9/04
4			

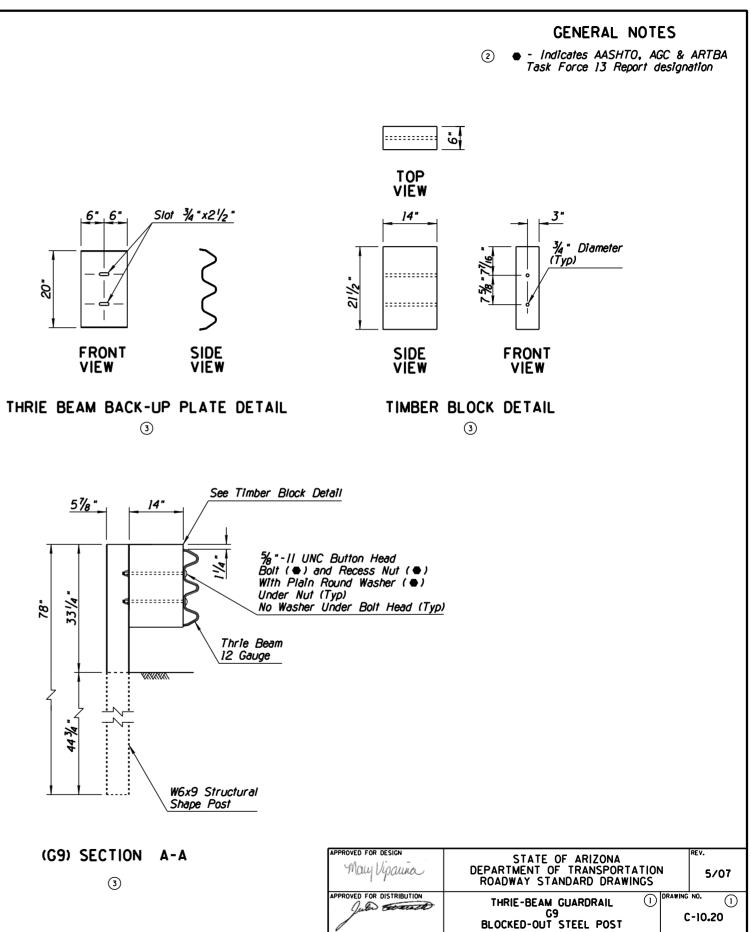


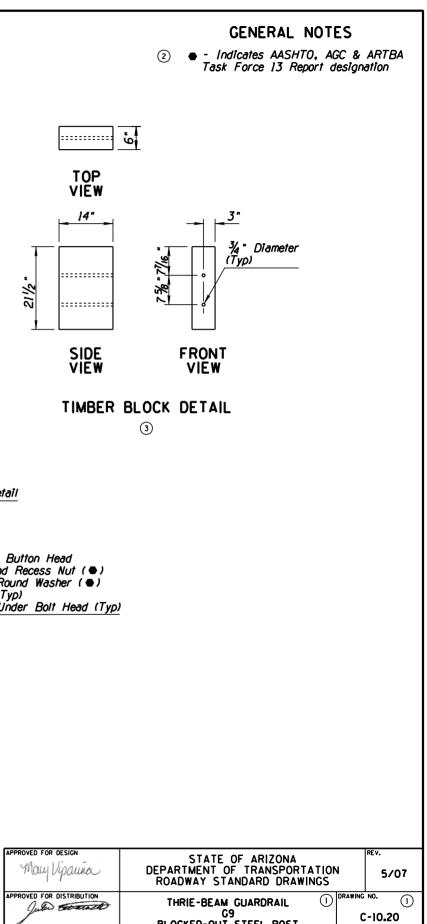
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\square	RENAMED STD DWG FROM C-10.24 & REVISED TITLE	RLF	9/04
2	REVISED DESIGNATION	RLF	9/04
3	REVISED PLAN, ELEVATION & SECTION VIEWS	RLF	9/04
4			



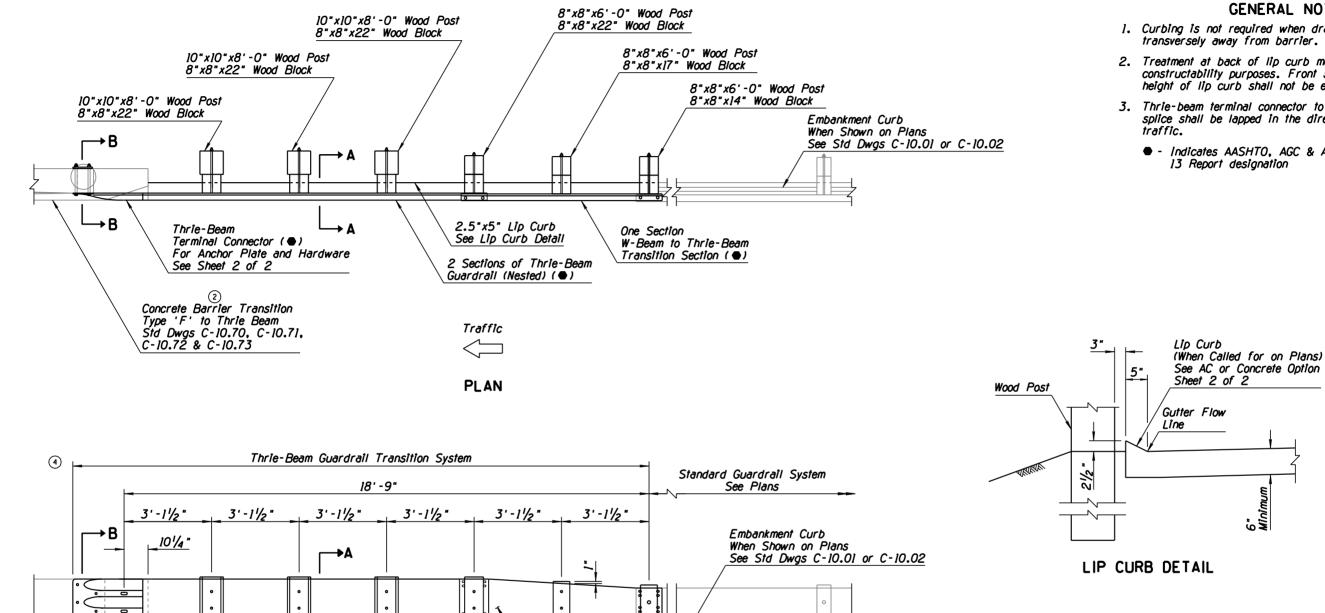


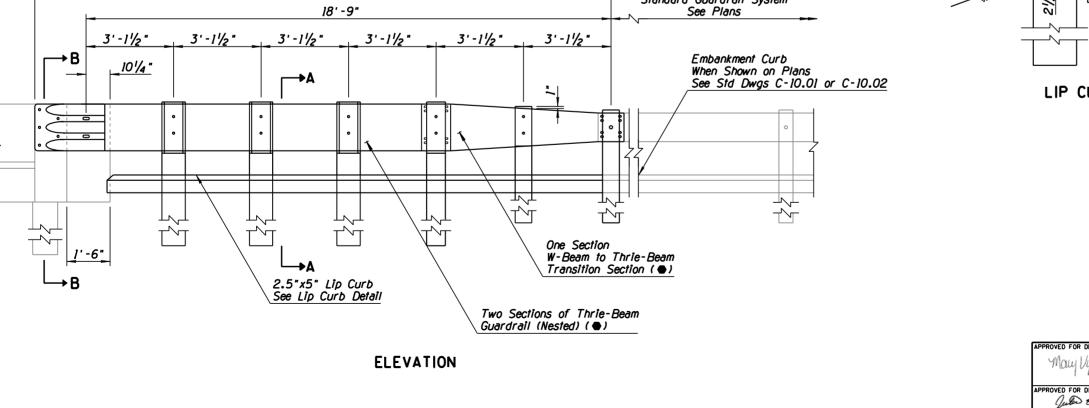






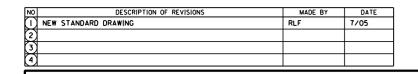
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\square	REMOVED (A325) REQUIREMENT	RLF	12/04
2	REVISED BARRIER TRANSITION CALLOUT	RLF	7/05
3	REISSUED AS STANDARD DRAWING C-10.30, SHEET 1 OF 2	RLF	7/05
	REVISED SYSTEM LIMIT TO INCLUDE END SHOE	RLF	5/07

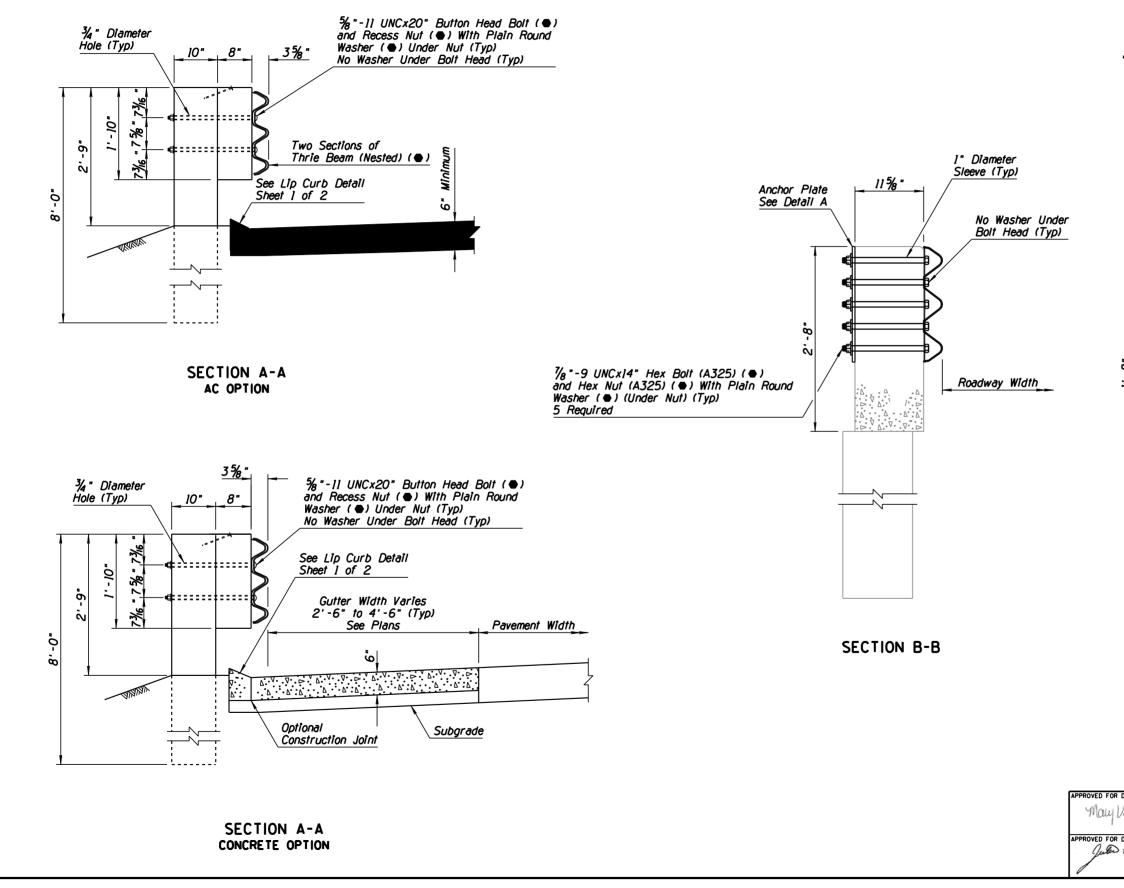




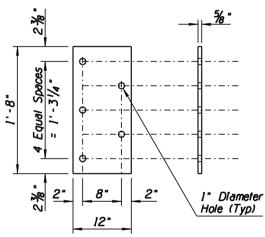
- 1. Curbing is not required when drainage flows transversely away from barrier.
- 2. Treatment at back of lip curb modified for constructability purposes. Front slope and height of lip curb shall not be exceeded.
- 3. Thrie-beam terminal connector to thrie-beam splice shall be lapped in the direction of adjacent
 - - Indicates AASHTO, AGC & ARTBA Task Force

esion	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
ISTRIBUTION	GUARDRAIL TRANSITION, THRIE BEAM TO CONCRETE HALF BARRIER 32° TYPE 'F'	DRAWING NO. C-10.30 Sheet 1 of 2





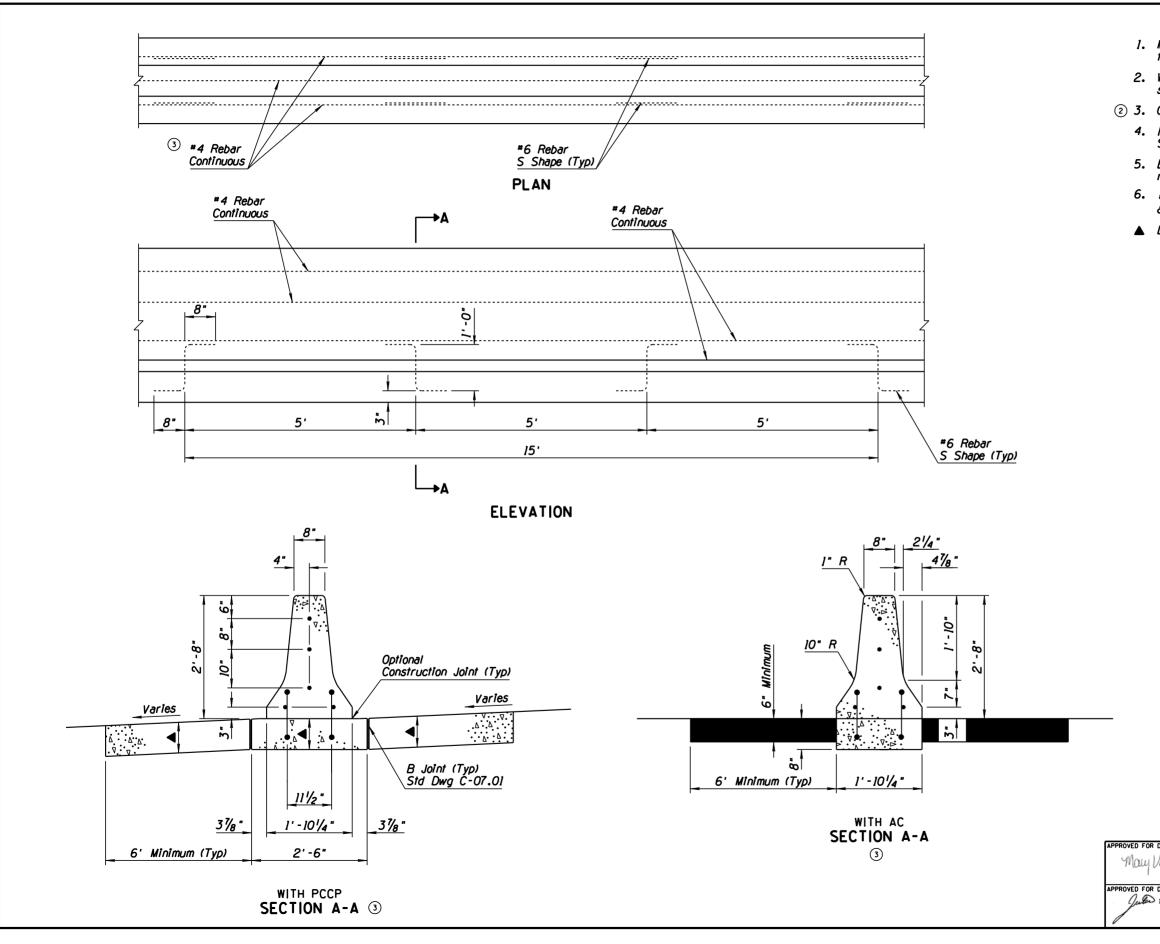
- 1. Anchor Plate shall conform to ASTM specification A36. Bolts, washers and Anchor Plate shall be galvanized or, at the contractors option, stainless steel bolts and washers may be used.
- Two-inch deep contraction joints shall be placed in the curb and the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand-tooled or sawn.
 - - Indicates AASHTO, AGC & ARTBA Task Force 13 Report designation



ANCHOR PLATE - DETAIL A

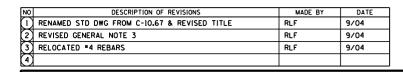
ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		^{REV.}
	GUARDRAIL TRANSITION THRIE-BEAM TO CONCRETE HALF BARRIER 32" TYPE 'F'	-	NO. -10.30 et 2 of 2

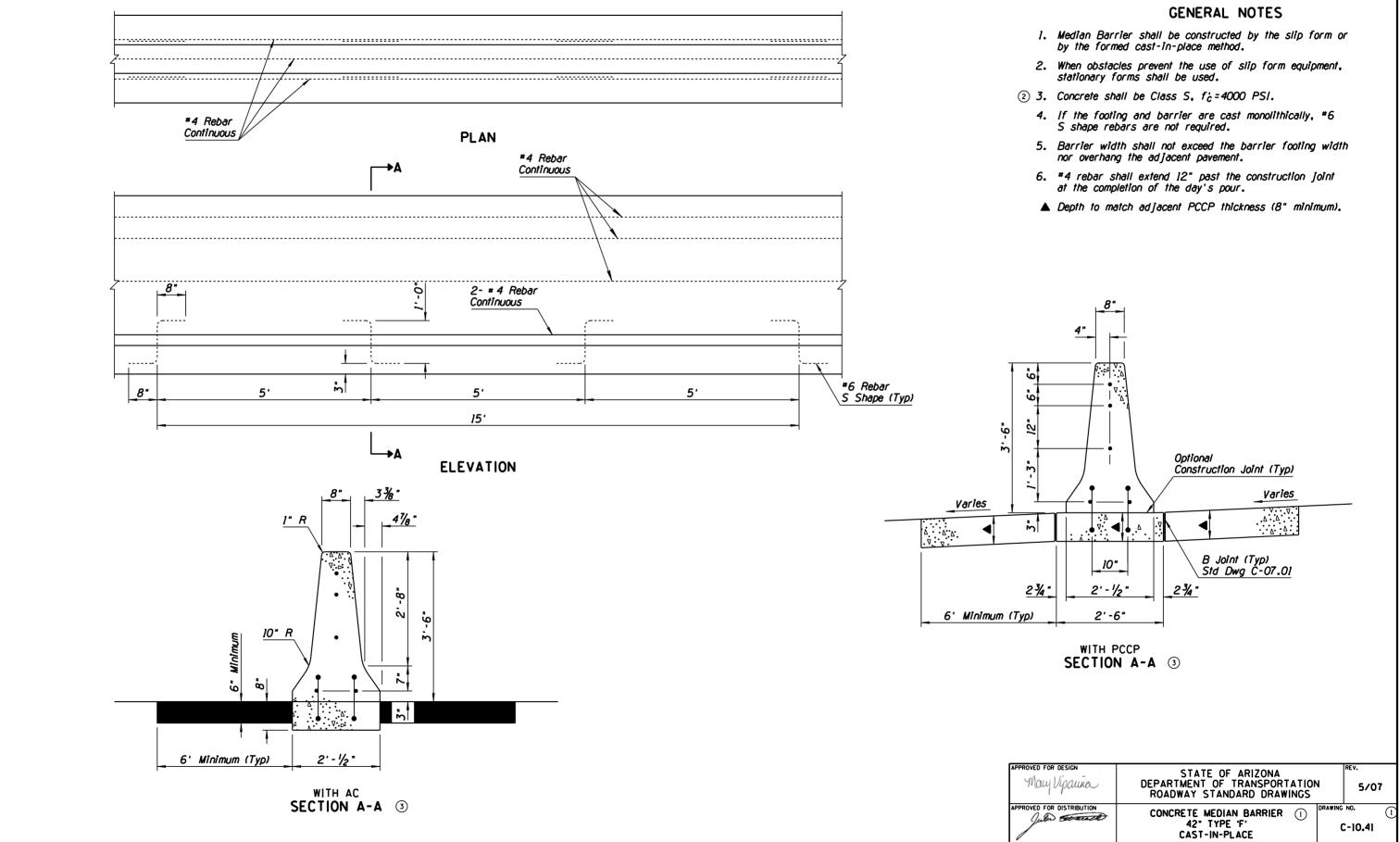
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	RENAMED STD DWG C-10.66 & REVISED TITLE	RLF	9/04
2	REVISED GENERAL NOTE 3	RLF	9/04
3	RELOCATED # 4 REBARS	RLF	9/04
4			

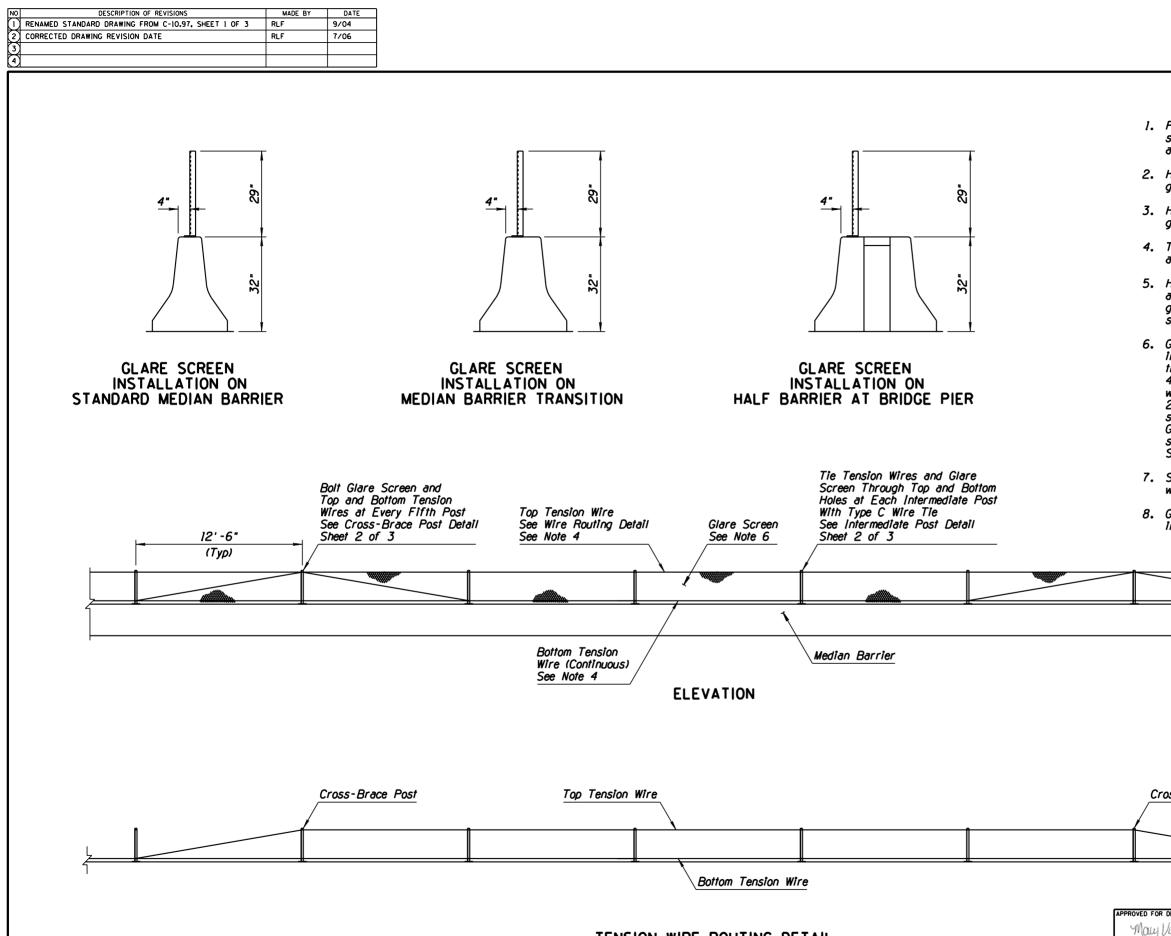


- Median Barrier shall be constructed by the slip form or formed cast-in-place method.
- 2. When obstacles prevent the use of slip form equipment, stationary forms shall be used.
- (2) 3. Concrete shall be Class S, $f'_c = 4000$ PSI.
 - 4. If the footing and barrier are cast monolithically, #6 S shape rebars are not required.
 - 5. Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.
 - 6. # 4 Rebar shall extend 12" past the construction joint at the completion of the day's pour.
 - ▲ Depth to match adjacent PCCP thickness (8" minimum).

ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
	CONCRETE MEDIAN BARRIER () 32° TYPE 'F' CAST-IN-PLACE	DRAWING NO. C-10.40







TENSION WIRE ROUTING DETAIL

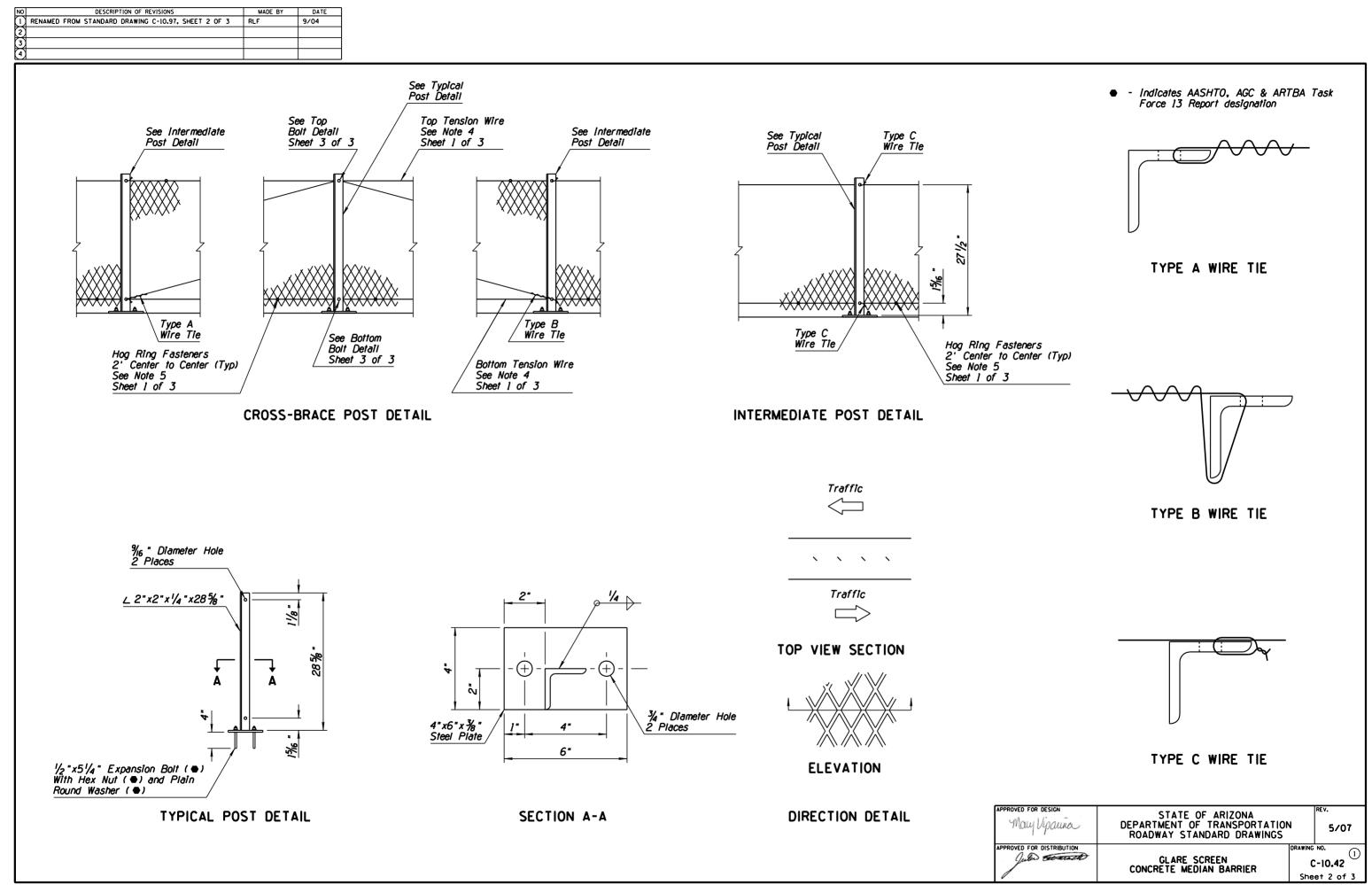
GENERAL NOTES

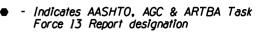
- 1. Posts shall be 12'-6" center to center. Structural steel shall conform to ASTM A36, galvanized in accordance with ASTM A123.
- 2. Hex head bolt shall conform to ASTM A307, galvanized in accordance with ASTM A153 Class C.
- 3. Helical spring lock washer shall conform to ASTM A313, galvanized in accordance with ASTM A153 Class C.
- 4. Tension wire: AWG number 9 (0.148") galvanized in accordance with ASTM A116 Class 2.
- Hog ring: AWG number 12 (0.105") galvanized in accordance with ASTM All6 Class 2. Fasten glare screen to top and bottom tension wire spaced approximately 2' apart.
- 6. Glare Screen: 18 gauge steel. ASTM A526, galvanized in accordance with ASTM A525/(G235), expanded to the following dimensions: 1.33" shortway of diamond and 4.0" longway of diamond (center to center of bridges) with a strand width of 0.250" angled at approximately 20° to the plane of the original sheet. Top edge to be shop curled and crimped on 12" center to center. Glare screen shall be installed such that flat portion of screen blocks light from headlights. See Direction Detail, Sheet 2 of 2.
- 7. Splices allowed in glare screen at posts only, with one full diamond overlap.
- 8. Glare screen shall be constructed without interruption to the greatest degree possible.

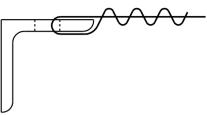


Cross-Brace Post

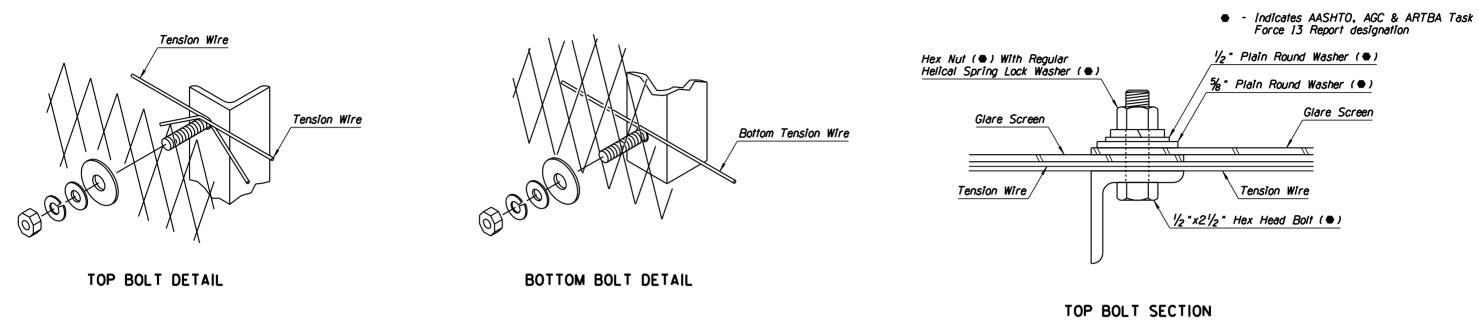
		0
May Vipauna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
peroved for distribution	GLARE SCREEN CONCRETE MEDIAN BARRIER	RAWING NO. (1) C-10.42 Sheet 1 of 3

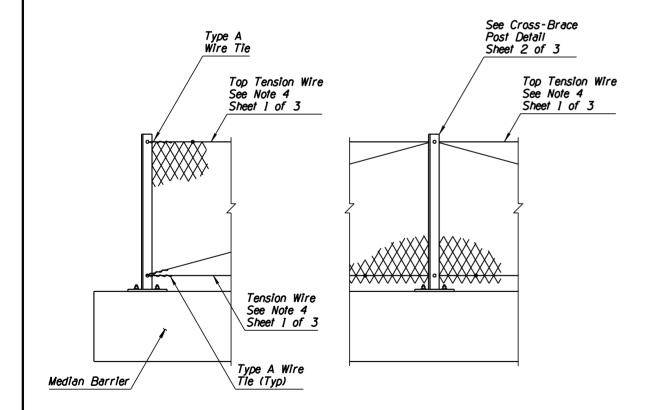


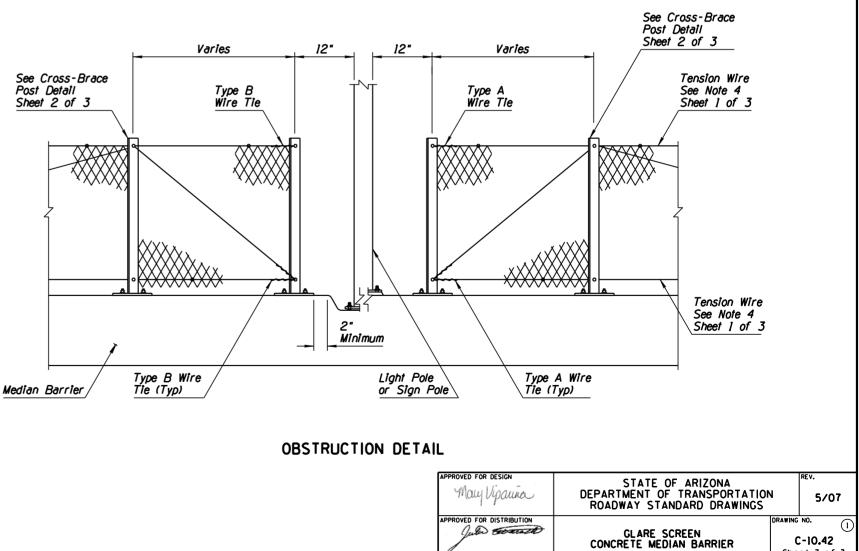


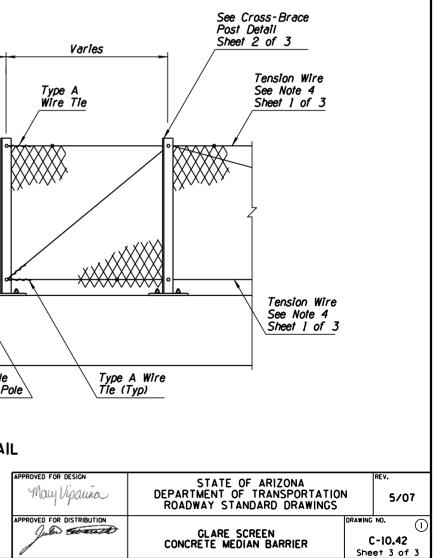


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(1)	RENAMED STANDARD DRAWING FROM C-10.97, SHEET 3 OF 3	RLF	9/04
(2)			
(3)			
(4)			

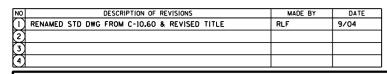


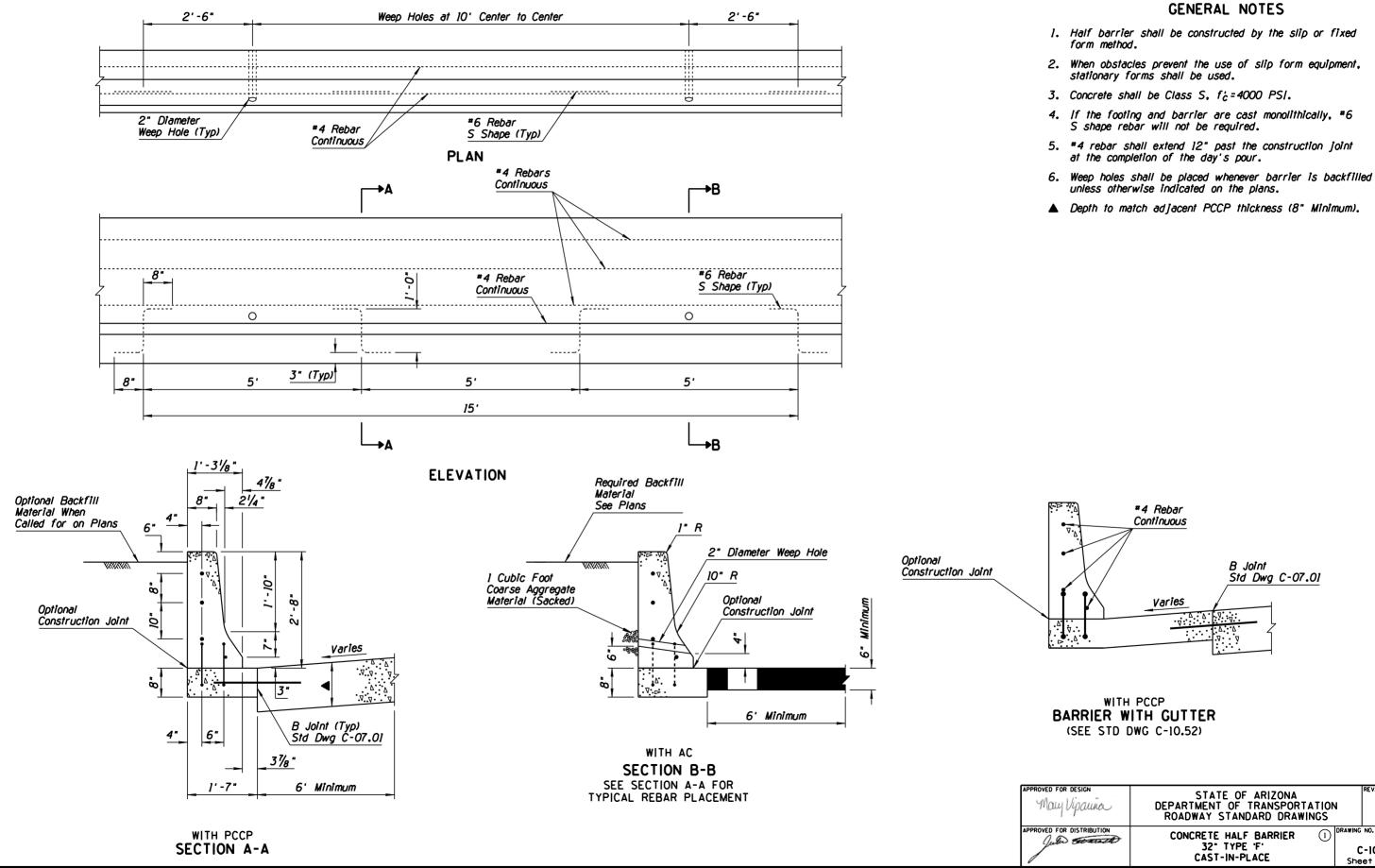




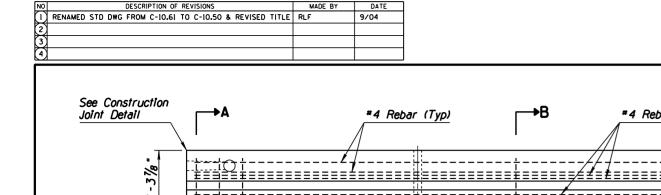


TERMINATION DETAIL

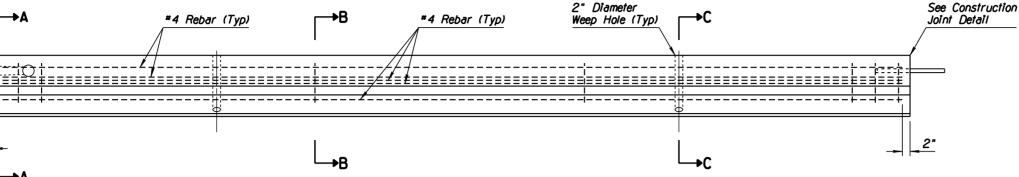




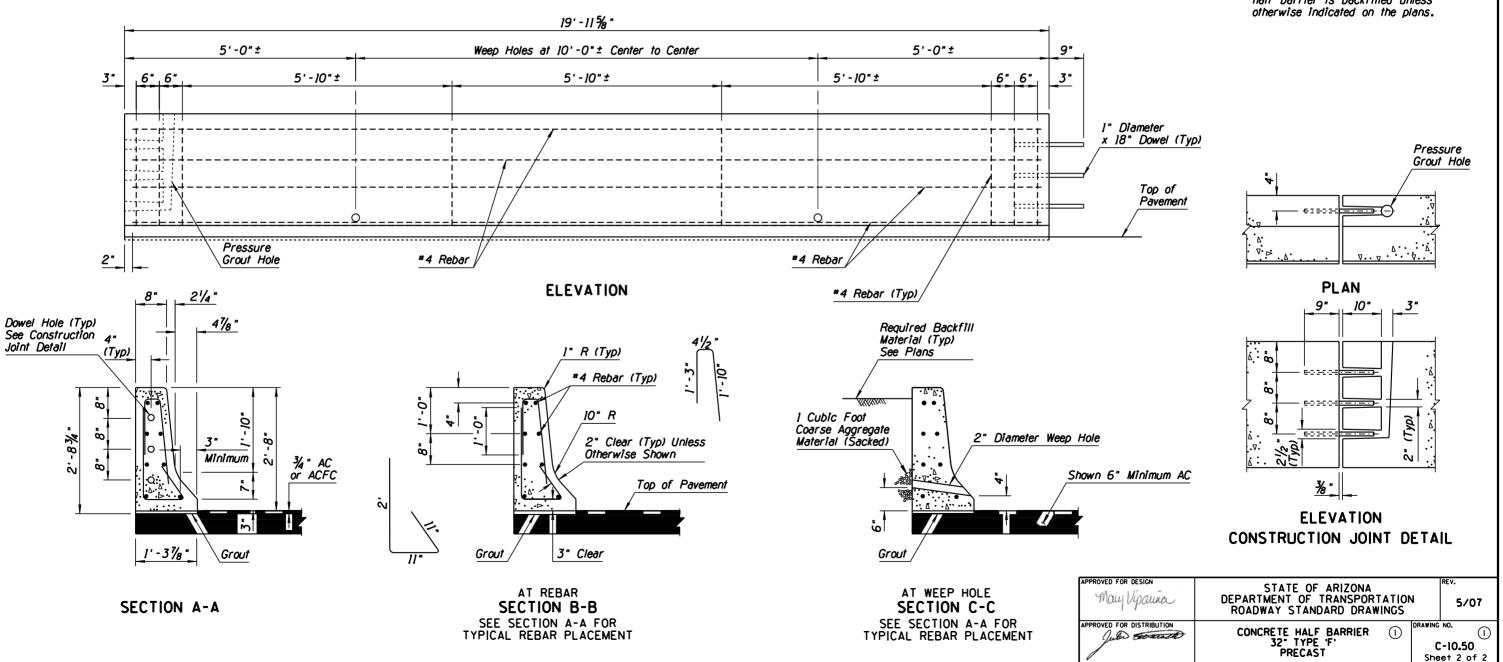
lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATIO ROADWAY STANDARD DRAWINGS	^{REV.} 5/07
	CONCRETE HALF BARRIER (1 32° TYPE 'F' CAST-IN-PLACE	NO. 1 C-10.50 eet 1 of 2



2"_

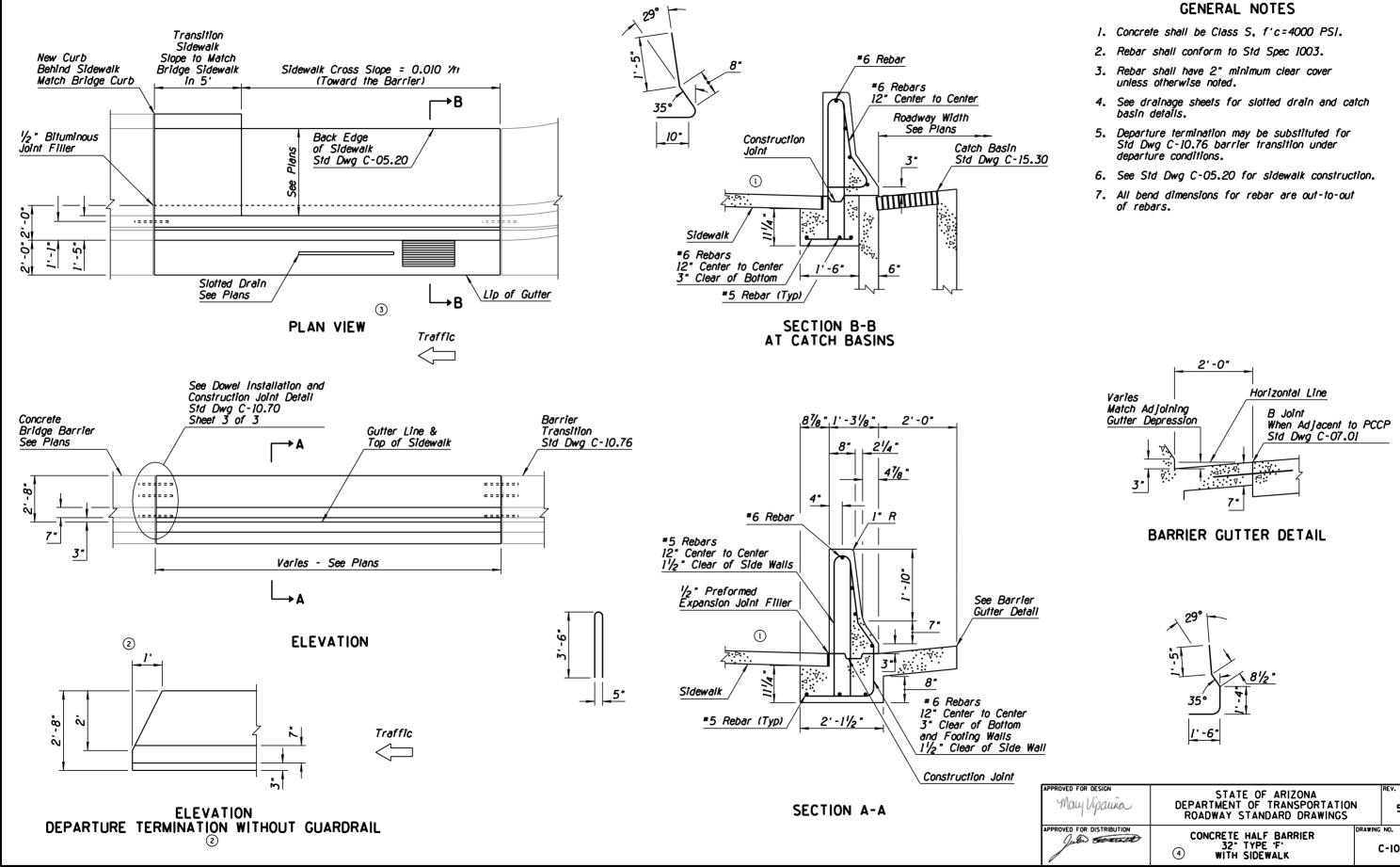




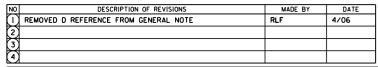


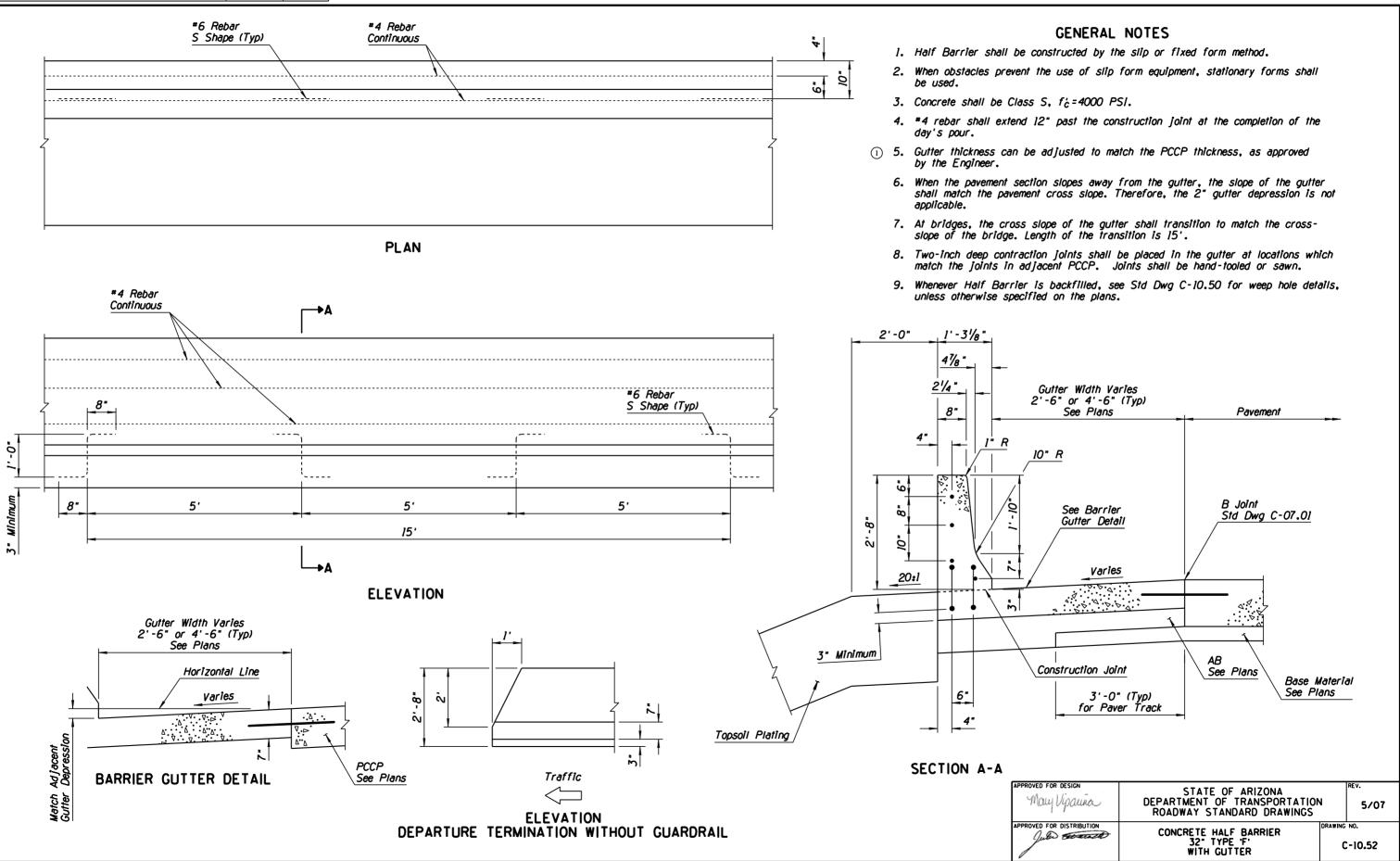
- 1. Concrete half barrier shall be precast.
- 2. Concrete shall be Class S. fc=4000 PSI.
- Pavement thickness adjacent to half barrier shall be ³/₄ " minimum.
- 4. The half barrier shall be placed upon a bed of grout in order to provide a uniform bearing.
- 5. Doweled joints shall be grouted under pressure until all of the openings and the joints are filled.
- 6. All bend dimensions for rebar are out-to-out of rebars.
- 7. Weep holes shall be placed whenever half barrier is backfilled unless

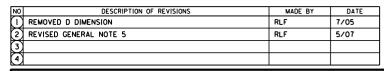
NO DESCRIPTION OF REVISIONS	MADE BY	DATE
1 MODIFIED SECTION VIEWS: REMOVED SLOPE SPECIFICATION	RLF	4/06
2 WAS 121/2 - IS NOW I & ADDED WITHOUT GUARTDRAIL TO TITLE	RLF	4/06
3 MODIFIED TITLE	RLF	4/06
A REVISED HEIGHT DIMENSION FROM 32' TO 32"	RLF	7/06

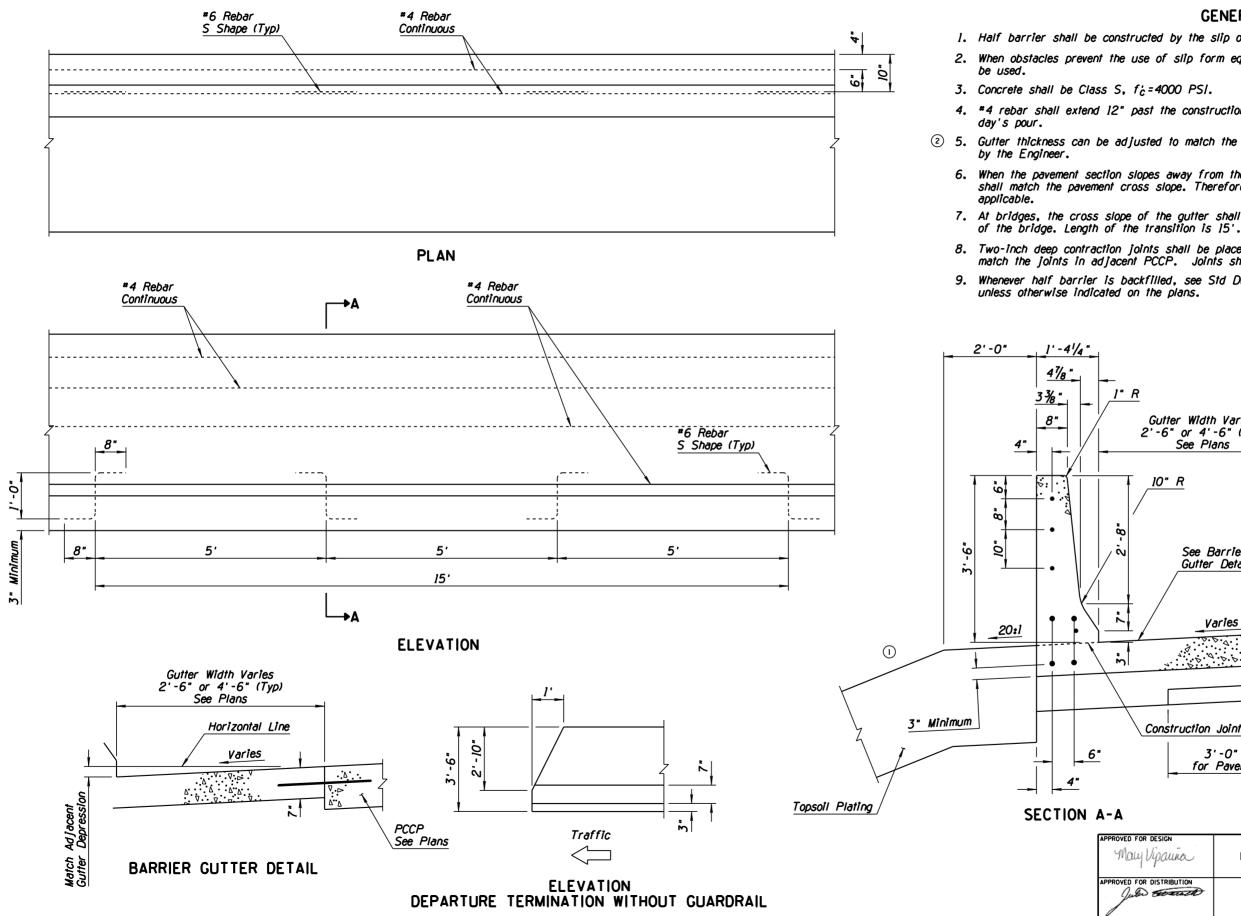


lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
	CONCRETE HALF BARRIER 32 TYPE F WITH SIDEWALK	DRAWING NO. C-10.51







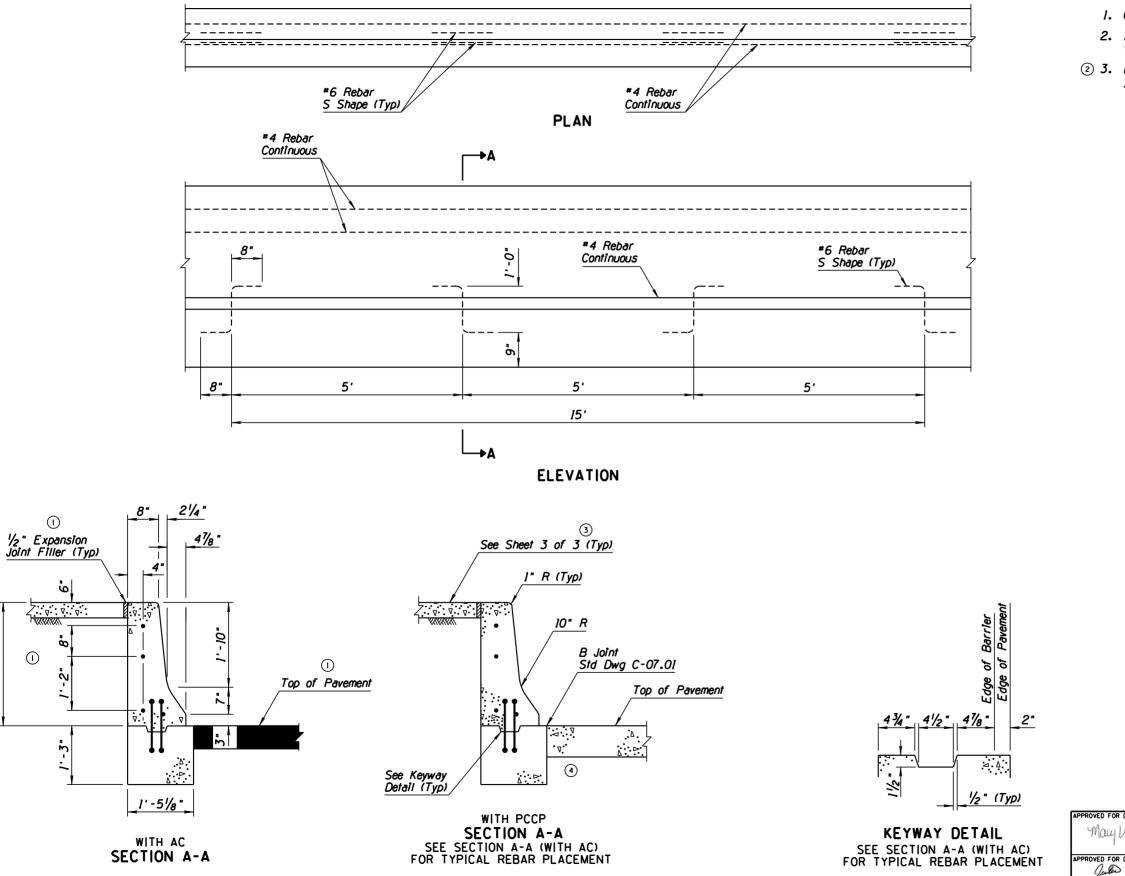


GENERAL NOTES 1. Half barrier shall be constructed by the slip or fixed form method. 2. When obstacles prevent the use of slip form equipment, stationary forms shall 4. #4 rebar shall extend 12" past the construction joint at the completion of the 2 5. Gutter thickness can be adjusted to match the PCCP thickness, as approved 6. When the pavement section slopes away from the gutter, the slope of the gutter shall match the pavement cross slope. Therefore, the 2" gutter depression is not 7. At bridges, the cross slope of the gutter shall transition to match the cross slope 8. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP. Joints shall be hand tooled or sawn. 9. Whenever half barrier is backfilled, see Std Dwg C-10.50 for weep hole details, Gutter Width Varies 2'-6" or 4'-6" (Typ) See Plans Pavement 10" R B Joint Std Dwg C-07.01 See Barrier Gutter Detail Varies , **7** 4 AB Construction Joint See Plans Base Material 3'-0" (Typ) See Plans for Paver Track STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION May Vipauna 5/07 ROADWAY STANDARD DRAWINGS RAWING NO. CONCRETE HALF BARRIER Jule Estate 42" TYPE 'F' WITH GUTTER C-10.53

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	REVISED SECTION A-A: ADDED CONCRETE CAP & NOTES	RLF	11/06
2	REVISED GENERAL NOTE 3	RLF	11/06
3	ADDED (Typ)	RLF	11/06
(4)	REMOVED DOWEL FROM JOINT	RLF	5/07

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APPROVED FOR (Jules

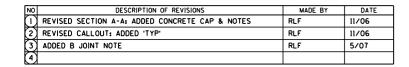
GENERAL NOTES

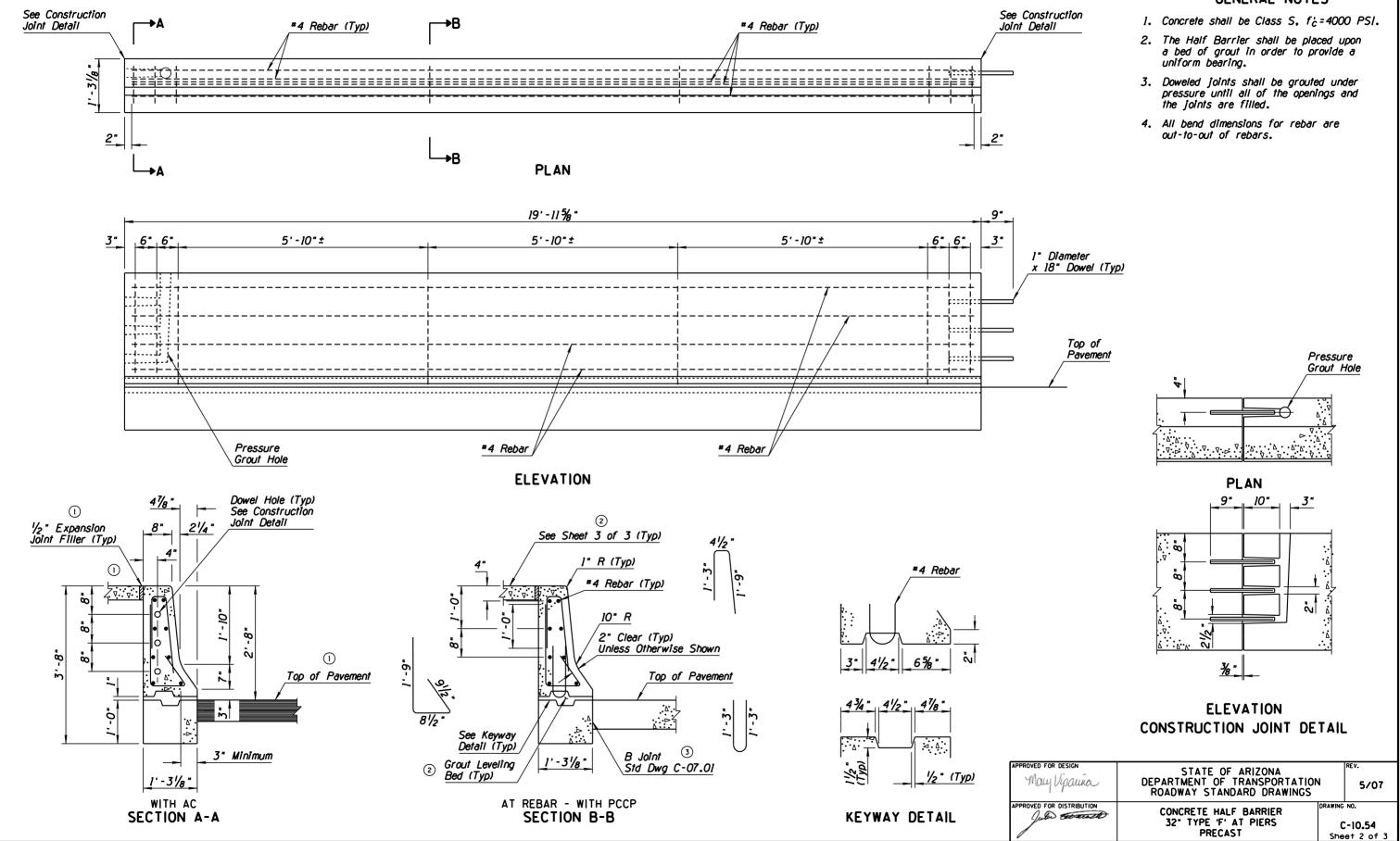
1. Concrete shall be Class S, fc = 4000 PSI.

If the footing and Half Barrier are cast monolithically, #6 S shape rebars are not required.

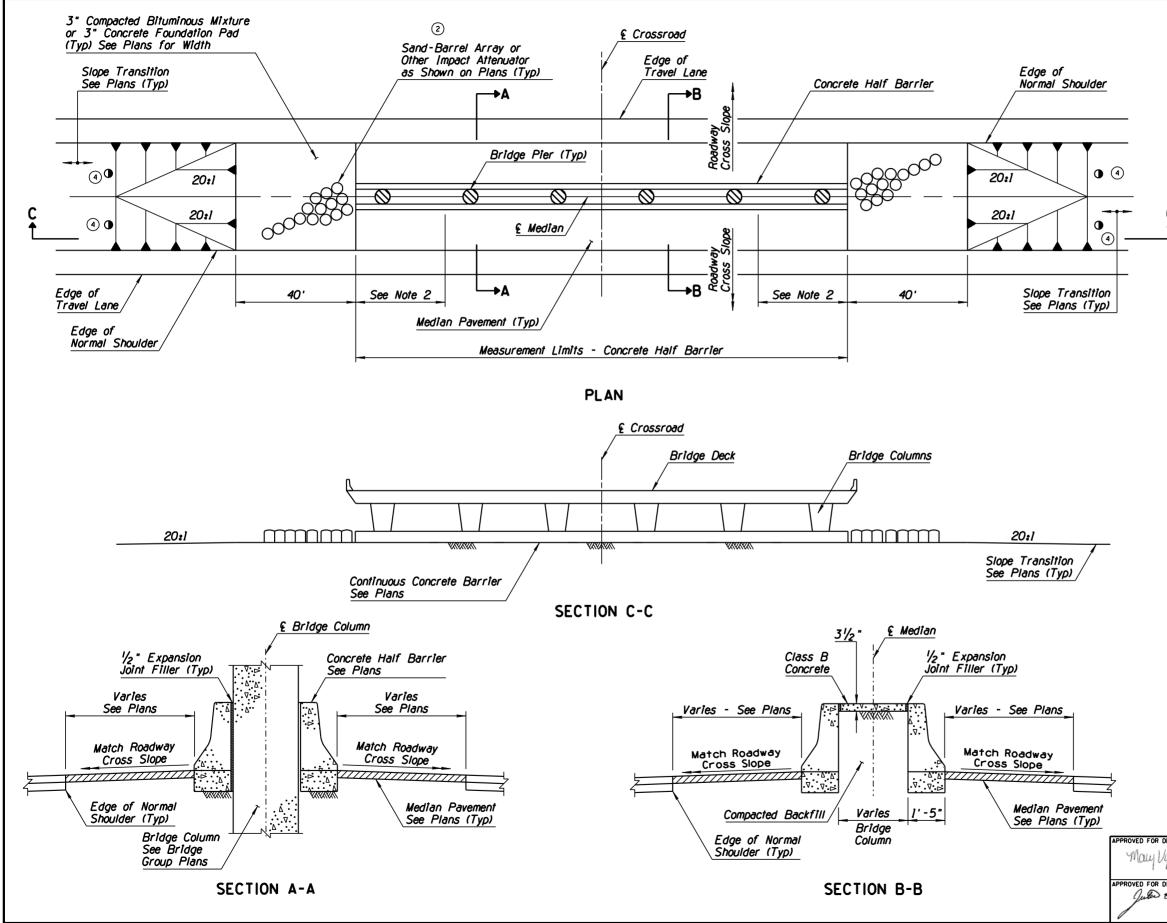
(2) 3. Longitudinal rebar shall extend 12" past the construction joint at the completion of each incremental pour.

lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	rev. 5/07
	CONCRETE HALF BARRIER 32° TYPE 'F' AT PIERS CAST-IN-PLACE	NO. -10.54 et 1 of 3





NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	RENAMED STANDARD FROM C-10.15 TO C-10.54, 3 OF 3	RLF	9/04
2	REVISED SAND BARREL REFERENCE	RLF	9/04
3	ADDED GENERAL NOTE	RLF	9/04
(4)	MODIFIED SLOPE CALLOUT	RLF	9/04

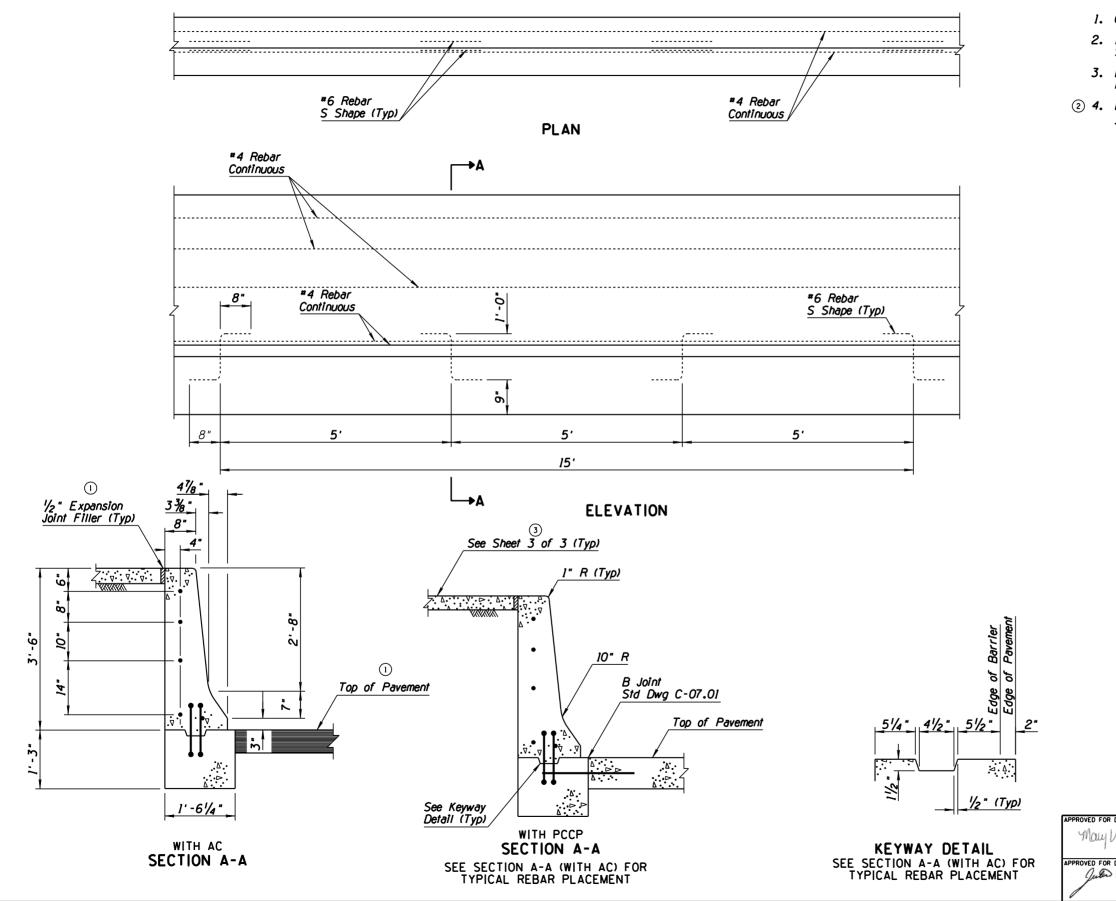


- 1. Transition median paving cross slope to meet level foundation pad. See plans for length and location.
- (3) 2. Compacted backfill and Class B concrete shall be placed between bridge columns or piers only.
 - (4) Slope as shown on Plans

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ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTAT ROADWAY STANDARD DRAWING	REV.
	CONCRETE HALF BARRIER 32" TYPE 'F' AT PIERS LAYOUT	16 NO. (1) C-10.54 Neet 3 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REVISED SECTION A-A: ADDED CONCRETE CAP & NOTES	RLF	11/06
2	REVISED GENERAL NOTE 4	RLF	11/06
3	ADDED (Typ)	RLF	11/06
(4)			



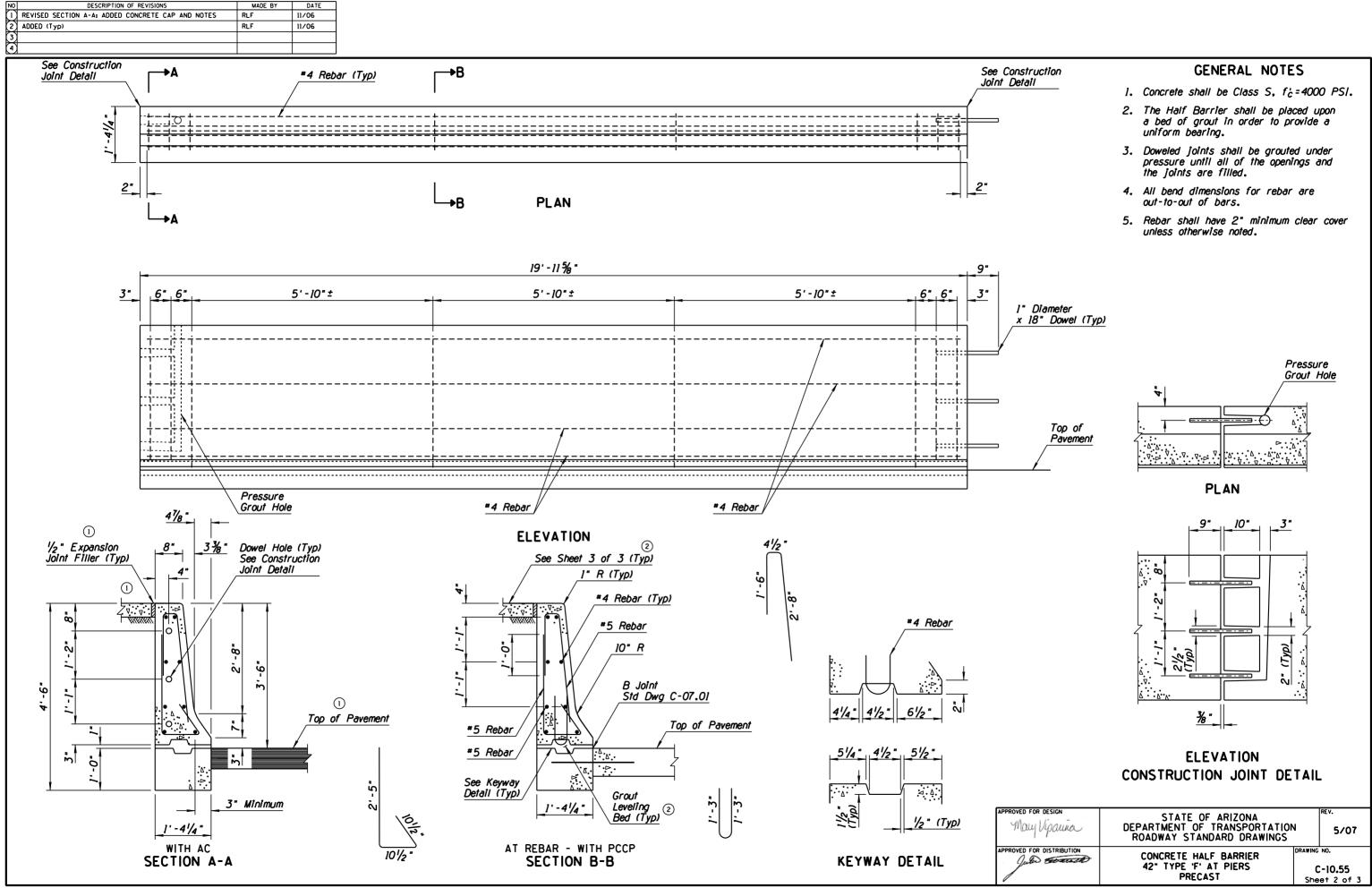
1. Concrete shall be Class S, fc = 4000 PSI.

2. If the footing and barrier are cast monolithically, *6 S shape rebars are not required.

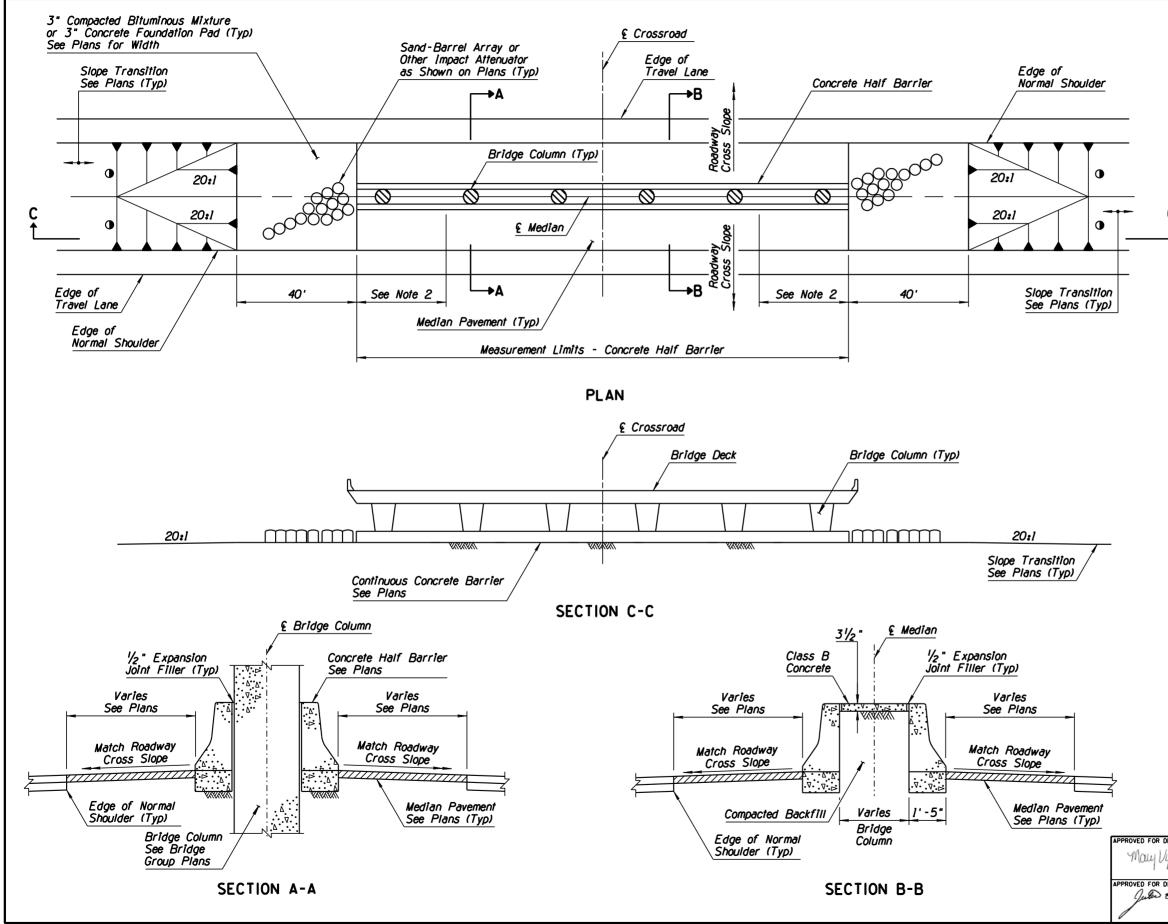
3. Barrier width shall not exceed the barrier footing width nor overhang the adjacent pavement.

(2) 4. Longitudinal rebar shall extend 12" past the construction joint at the completion of each incremental pour.

ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	1	^{REV.}
	CONCRETE HALF BARRIER 42° TYPE 'F' AT PIERS CAST-IN-PLACE	-	NO. C-10.55 Bet 1 of 3



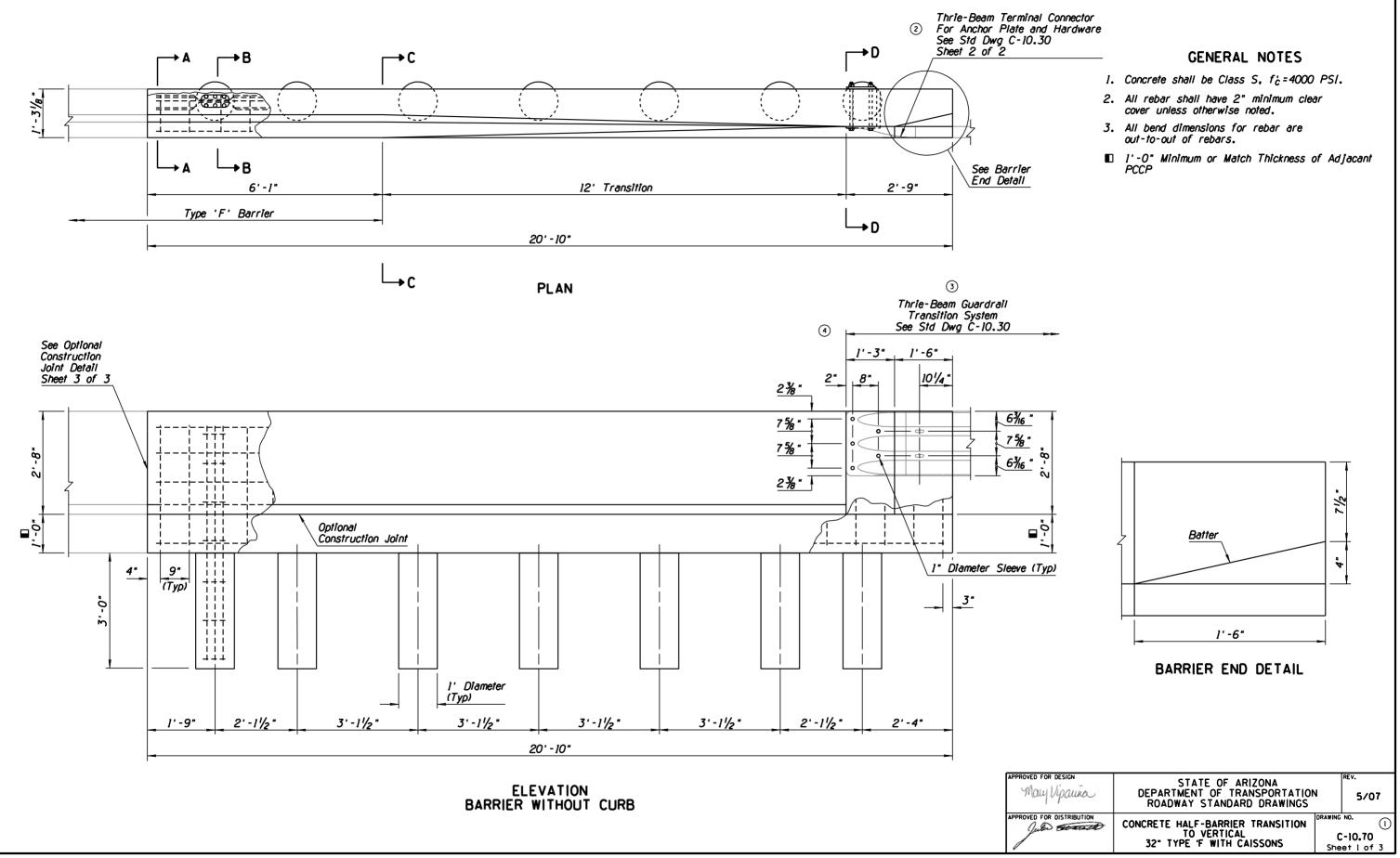
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	NEW STANDARD DWG	RLF	9/04
2			
3			
4			

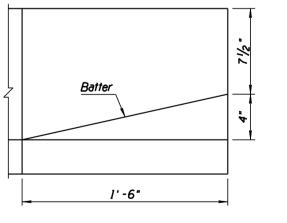


- 1. Transition median paving cross slope to meet level foundation pad. See plans for length and location.
- Compacted backfill and Class B concrete shall be placed between bridge columns or piers only.
 - Slope as shown on Plans

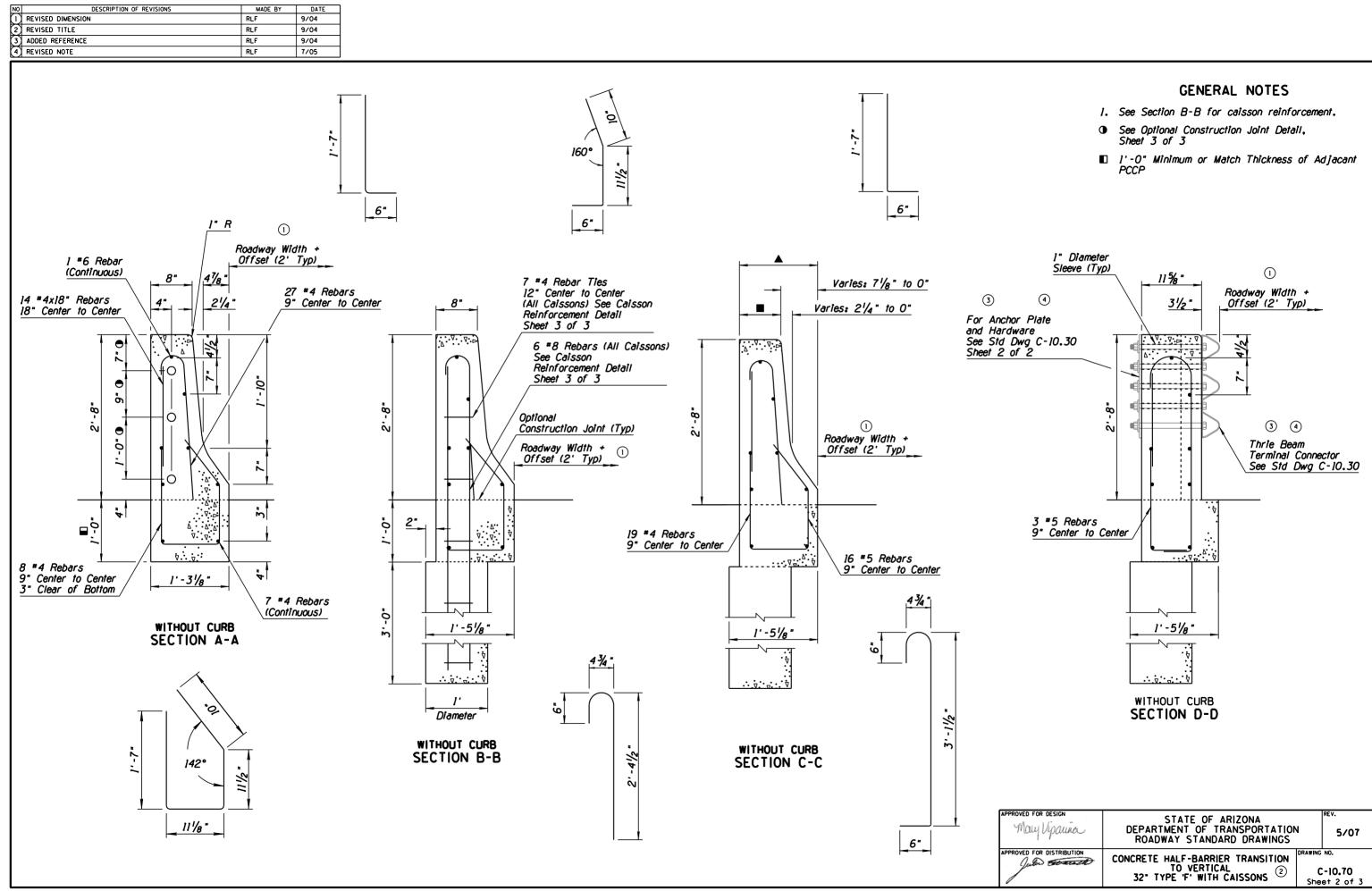
esion	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07
	CONCRETE HALF BARRIER 42" TYPE 'F' AT PIERS LAYOUT	-	ND. -10.55 et 3 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REISSUED STANDARD DRAWING	RLF	9/04
2	REVISED TERMINAL CONNECTOR NOTE	RLF	7/05
3	REVISED TRANSITION SYSTEM NOTE	RLF	7/05
(1)	REVISED SYSTEM LIMIT TO INCLUDE END SHOE	RLF	5/07

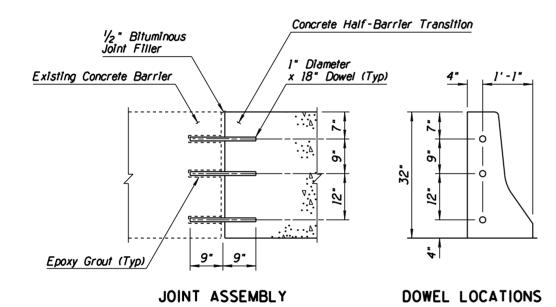




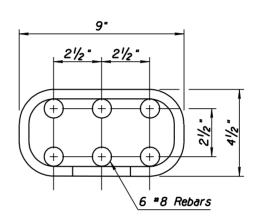




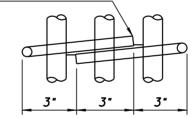
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	REVISED TITLE	RLF	9/04
2	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
3			



CONSTRUCTION JOINT DETAIL (OPTIONAL)



#4 Rebar Tie 12" Center to Center

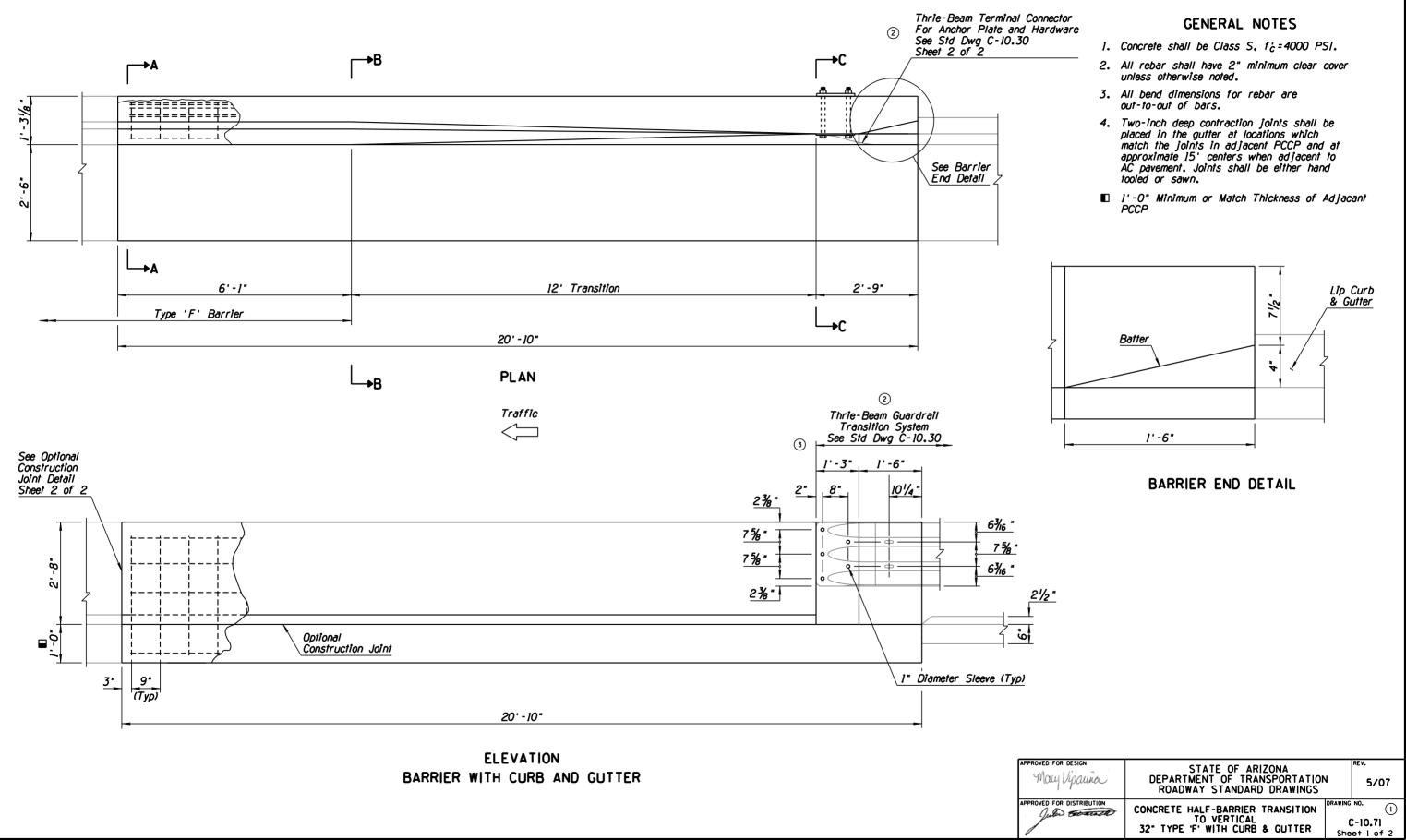


CAISSON REINFORCEMENT



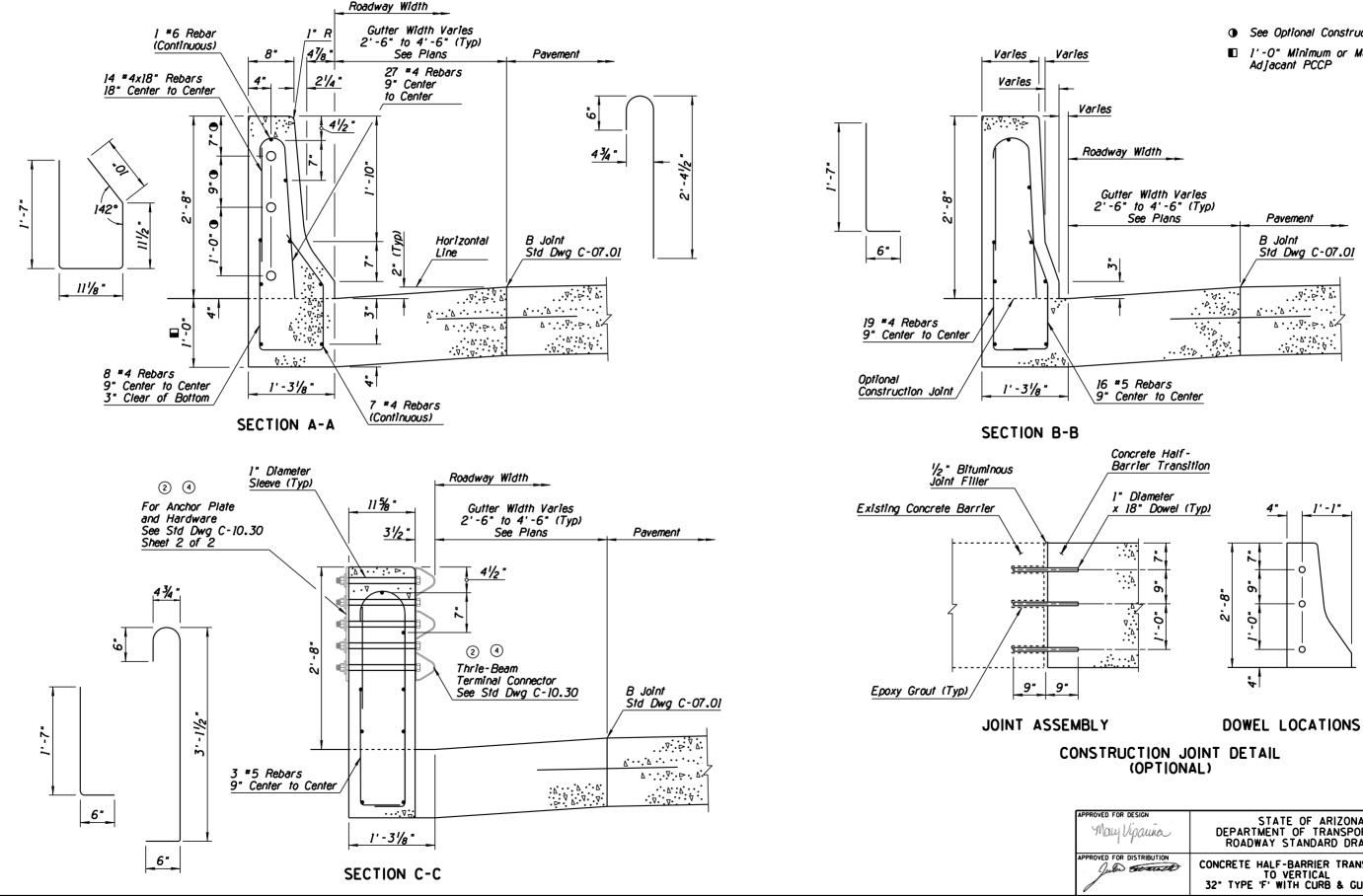
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MENT	
Mary Vipauna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS
APPROVED FOR DISTRIBUTION	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 32" TYPE 'F' WITH CAISSONS (1) Sheet 3 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REISSUED STANDARD DRAWING	RLF	9/04
2	REVISED NOTE	RLF	7/05
3	REVISED SYSTEM LIMIT TO INCLUDE END SHOE	RLF	5/07
4			



r are		GENERAL NOTES
	1.	Concrete shall be Class S, fc=4000 PSI.
	2.	All rebar shall have 2" minimum clear cover unless otherwise noted.
	3.	All bend dimensions for rebar are out-to-out of bars.
	4.	Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand tooled or sawn.
		l'-O" Minimum or Match Thickness of Adjacant PCCP
		Lip Curb
		Batter
		Y
4		1'-6"
		BARRIER END DETAIL

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REISSUED STD DWG	RLF	9/04
2	ADDED REFERENCE	RLF	9/04
3	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
	REVISED NOTE	RLF	7/05



- See Optional Construction Joint Detail
- 1'-O" Minimum or Match Thickness of

δĮ

11/2

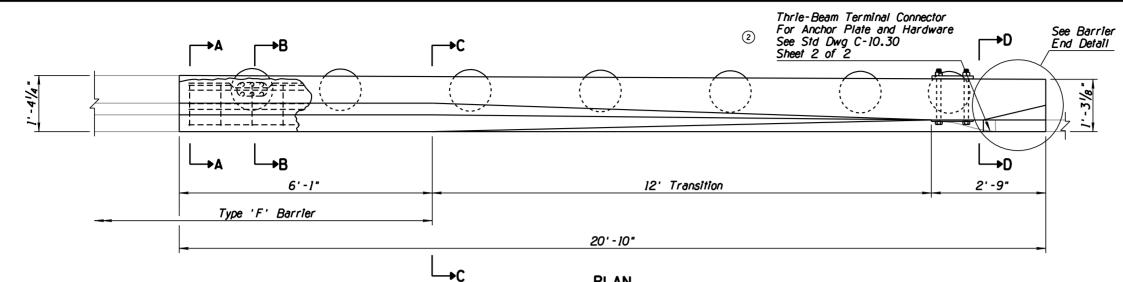
160°

6"

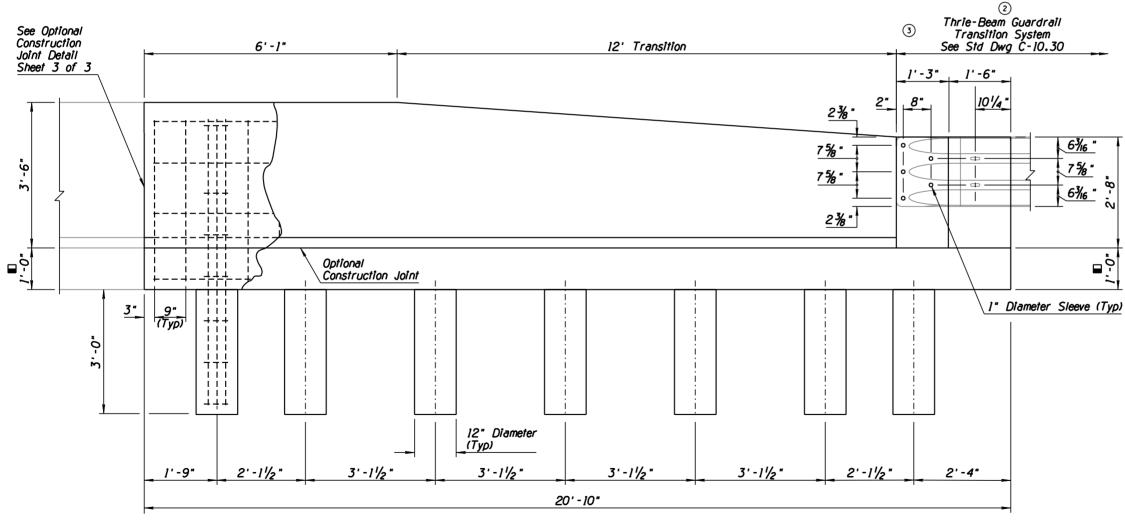
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lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07	
	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 32" TYPE 'F' WITH CURB & GUTTER	DRAWING NO. C-10.71 Sheet 2 of 2	

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	REISSUED STANDARD DRAWING	RLF	9/04
2	REVISED NOTE	RLF	7/05
3	REVISED SYSTEM LIMIT TO INCLUDE END SHOE	RLF	5/07



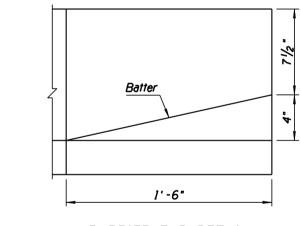
PLAN



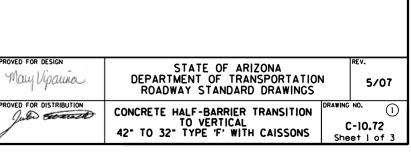
ELEVATION BARRIER WITHOUT CURB

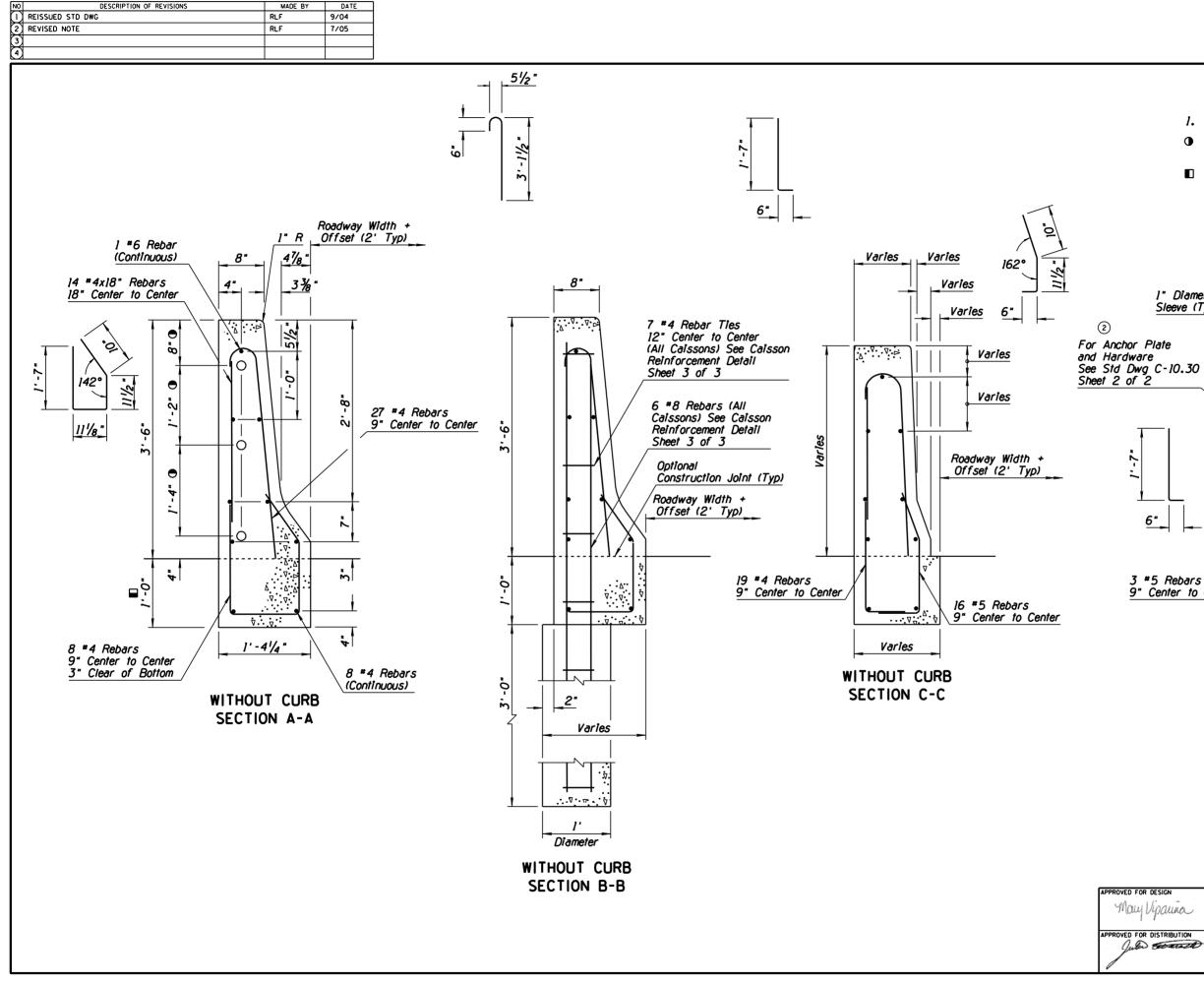
GENERAL NOTES

- 1. Concrete shall be Class S, fc = 4000 PSI.
- 2. All rebar shall have 2" minimum clear cover unless otherwise noted.
- 3. All bend dimensions for rebar are out-to-out of rebars.
- 1'-0" Minimum or Match Thickness of Adjacant PCCP



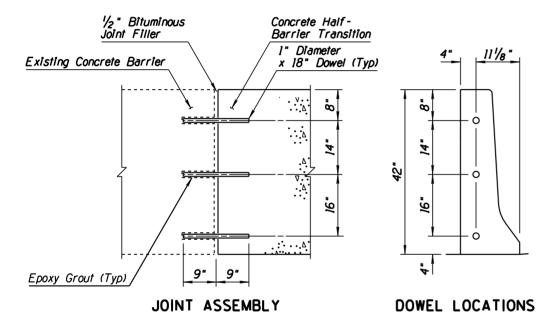
BARRIER END DETAIL



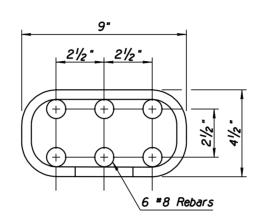


GENERAL NOTES 1. See Section B-B for caisson reinforcement. • See Optional Construction Joint Detail. Sheet 3 of 3 ■ 1'-O" Minimum or Match Thickness of Adjacant PCCP I" Diameter Sleeve (Typ) 11 5% " Roadway Width + Offset (2' Typ) 31/2 ⁻ 4½" Ð ້ວ່ (2) Thrie-Beam Ē **A**1 Terminal Connector See Std Dwg C-10.30 51/2" 3 #5 Rebars 9" Center to Center -11/2 ···· V., ů 1'-31/8" , È WITHOUT CURB SECTION D-D 6"_ STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS 5/07 AWING NO. CONCRETE HALF-BARRIER TRANSITION Jule Etrack TO VERTICAL 42" TO 32" TYPE 'F' WITH CAISSONS C-10.72 Sheet 2 of 3

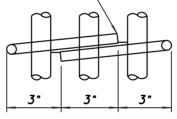
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REVISED TITLE	RLF	9/04
2	REMOVED ANCHOR PLATE DETAIL	RLF	9/04
3			
4			



CONSTRUCTION JOINT DETAIL (OPTIONAL)



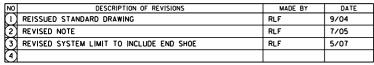
***4** Rebar Tie 12" Center to Center

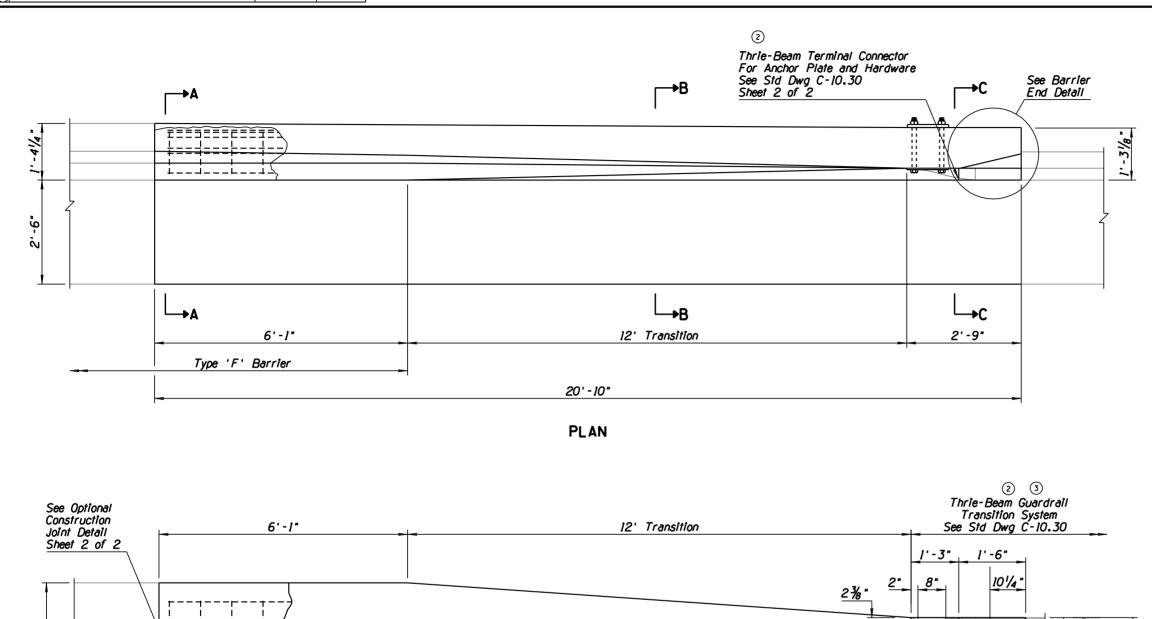


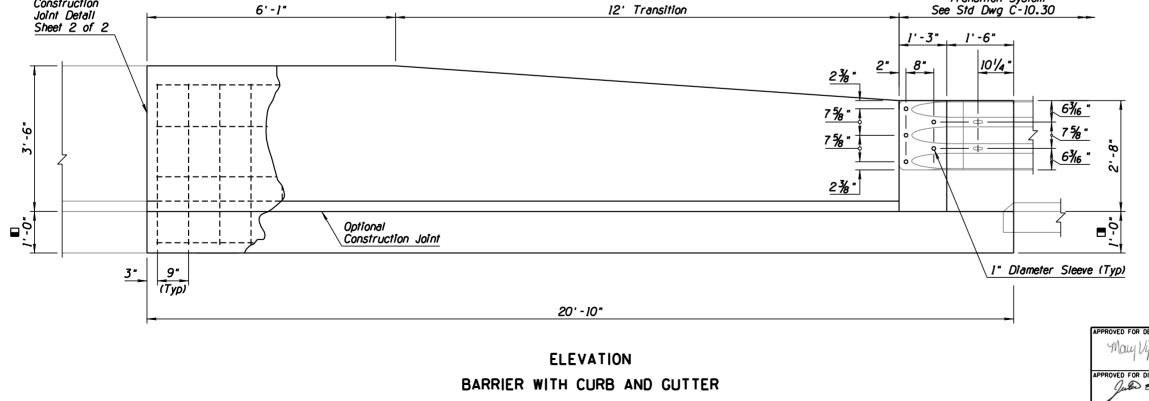
CAISSON REINFORCEMENT



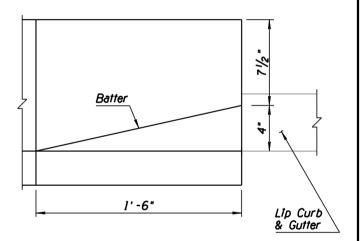
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ESIGN	STATE OF ARIZONA	RE V.
рашка ISTRIBUTION СС 42	DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	5/07 NO. -10.72 et 3 of 3





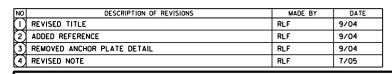


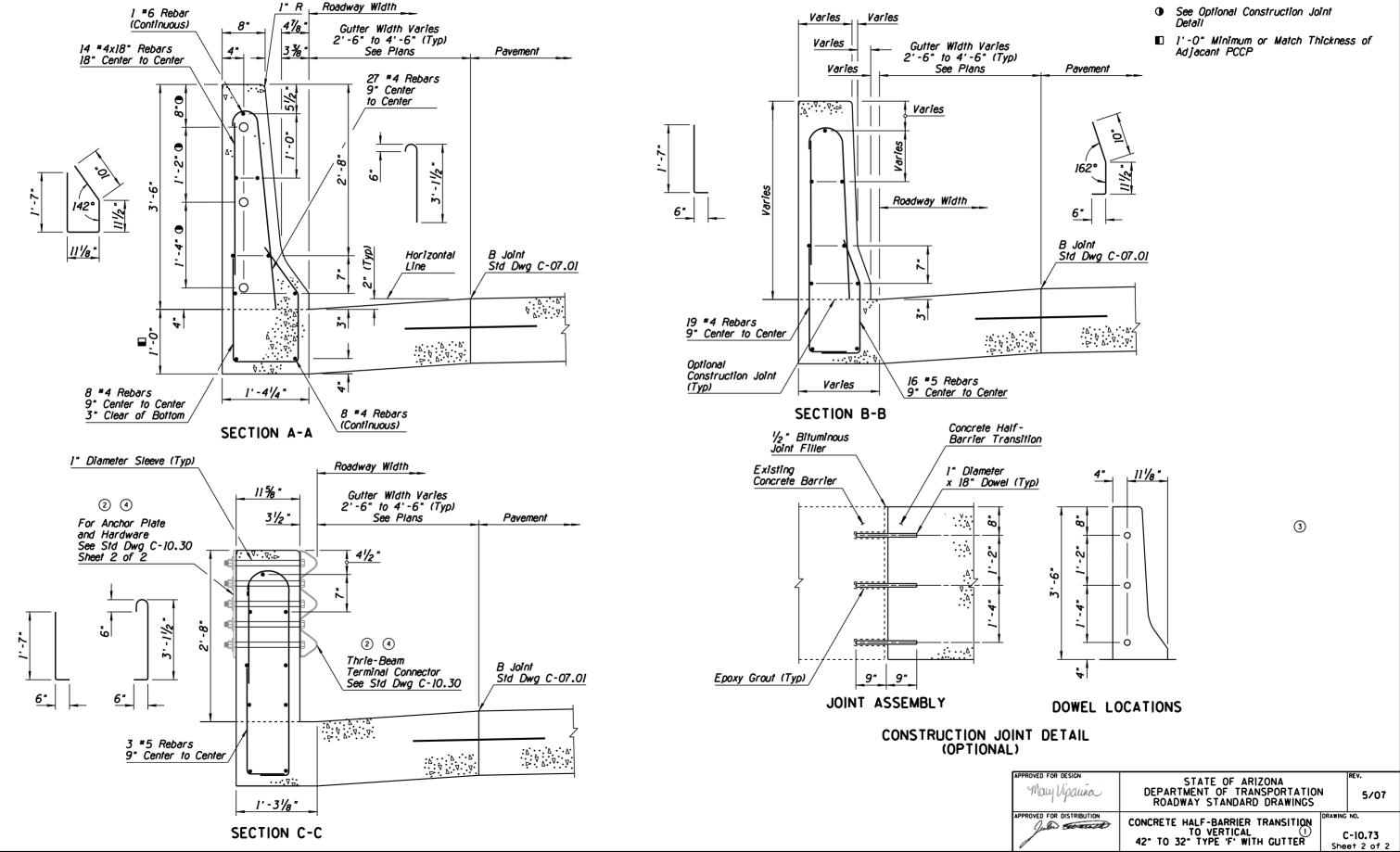
- 1. Concrete shall be Class S, fc=4000 PSI.
- 2. All rebar shall have 2" minimum clear cover unless otherwise noted.
- 3. All bend dimensions for rebar are out-to-out of rebars.
- 4. Two-inch deep contraction joints shall be placed in the gutter at locations which match the joints in adjacent PCCP and at approximate 15' centers when adjacent to AC pavement. Joints shall be either hand-tooled or sawn.
- 1'-O" Minimum or Match Thickness of Adjacant PCCP



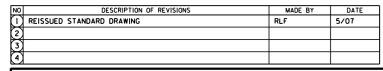
BARRIER END DETAIL

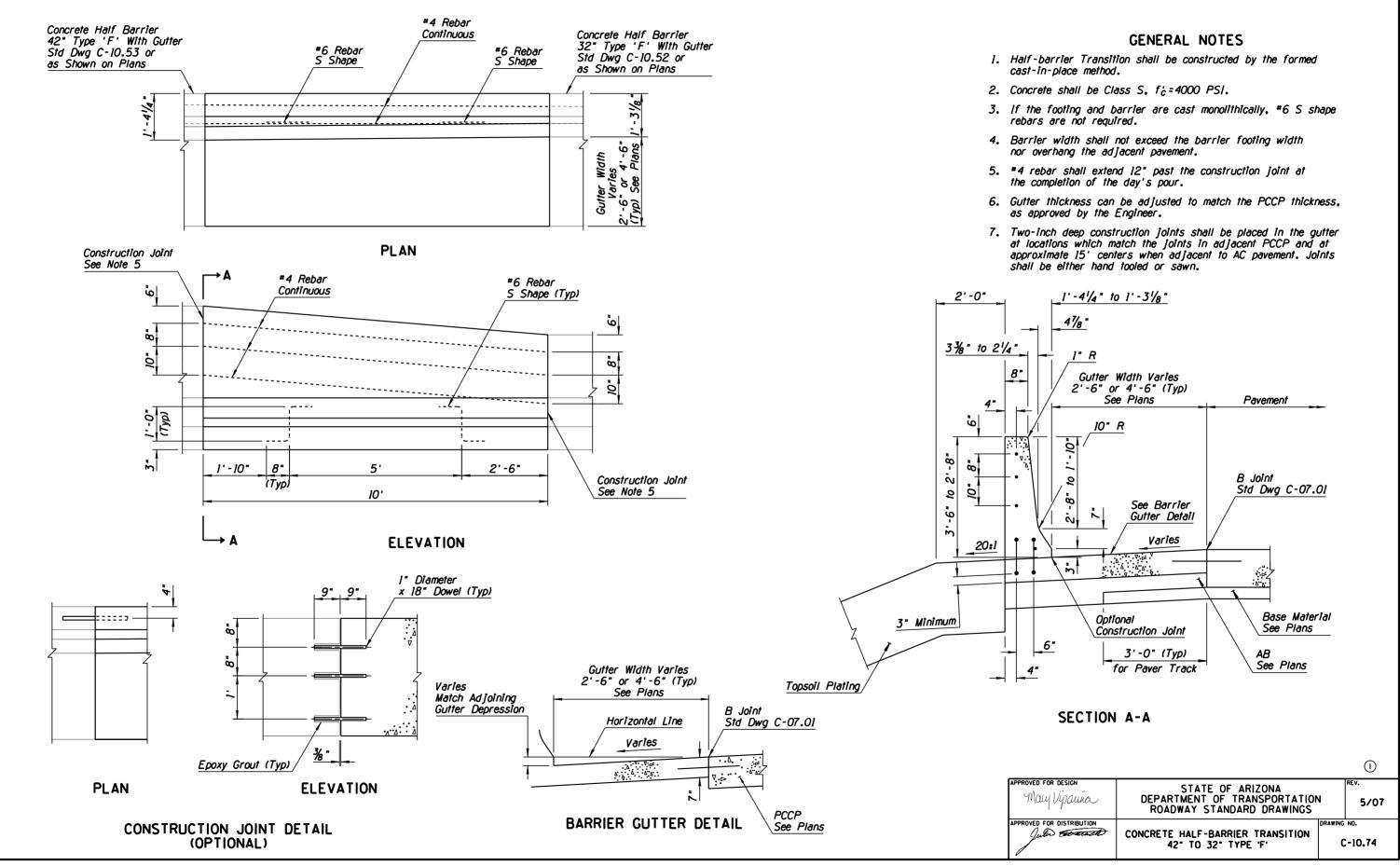
pauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07
STRIBUTION	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH GUTTER	-	NO. -10.73 et 1 of 2





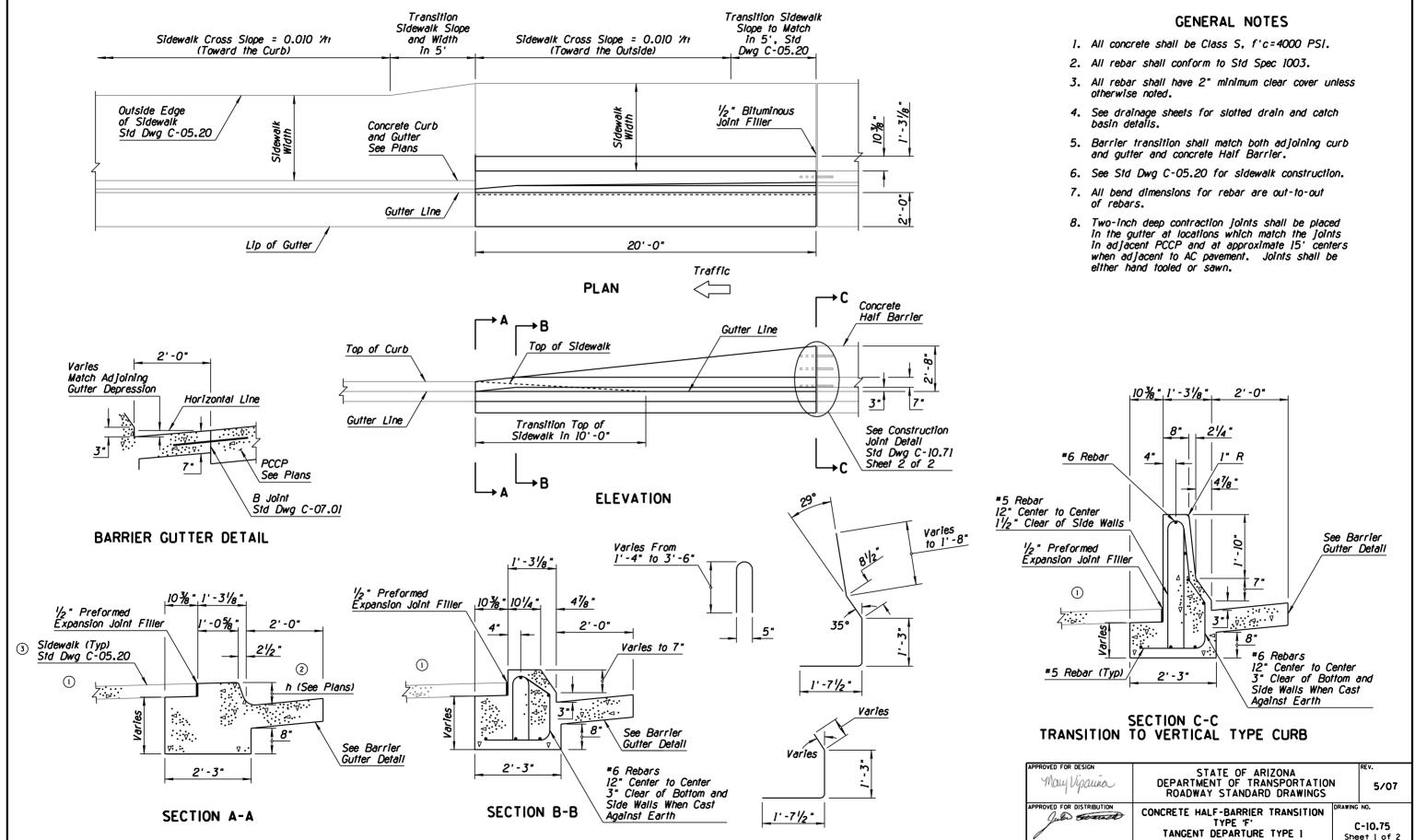
lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07	
	CONCRETE HALF-BARRIER TRANSITION TO VERTICAL 42" TO 32" TYPE 'F' WITH GUTTER	DRAWING NO. C-10.73 Sheet 2 of 2	





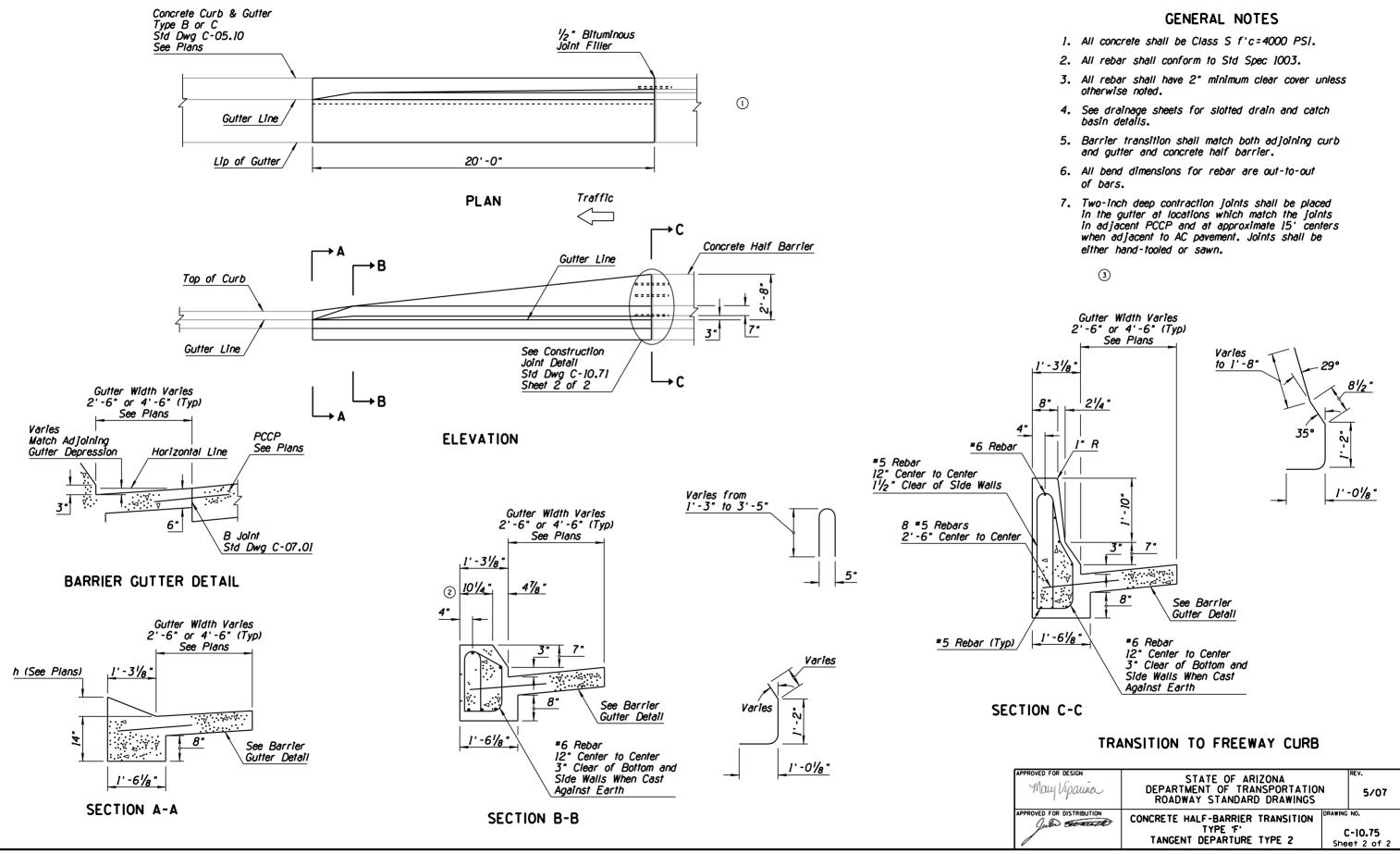
			\odot
design lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07
DISTRIBUTION	CONCRETE HALF-BARRIER TRANSITION 42" TO 32" TYPE 'F'	DRAWING NO. C-10.74	

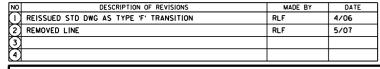
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	REVISED SECTION VIEW GRAPHICS	RLF	4/06
2	REVISED 'H' HEIGHT DESIGNATION TO 'h'	RLF	4/06
3	REVISED NOTE	RLF	5/07
4			

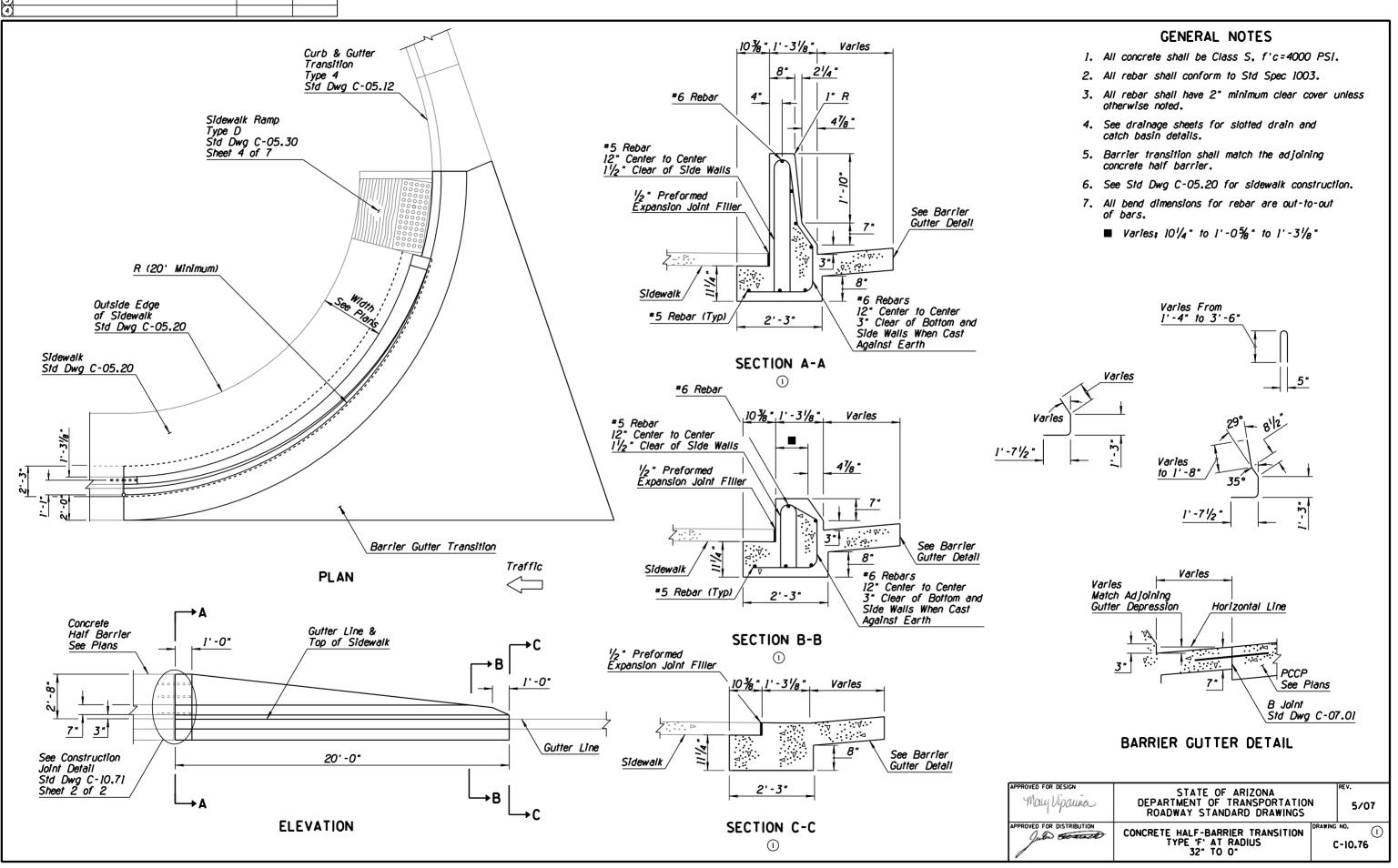


	RUADWAT STANDARD DRAWINGS	
TRIBUTION	CONCRETE HALF-BARRIER TRANSITION TYPE 'F' TANGENT DEPARTURE TYPE 1	DRAWING NO. C-10.75 Sheet 1 of 2

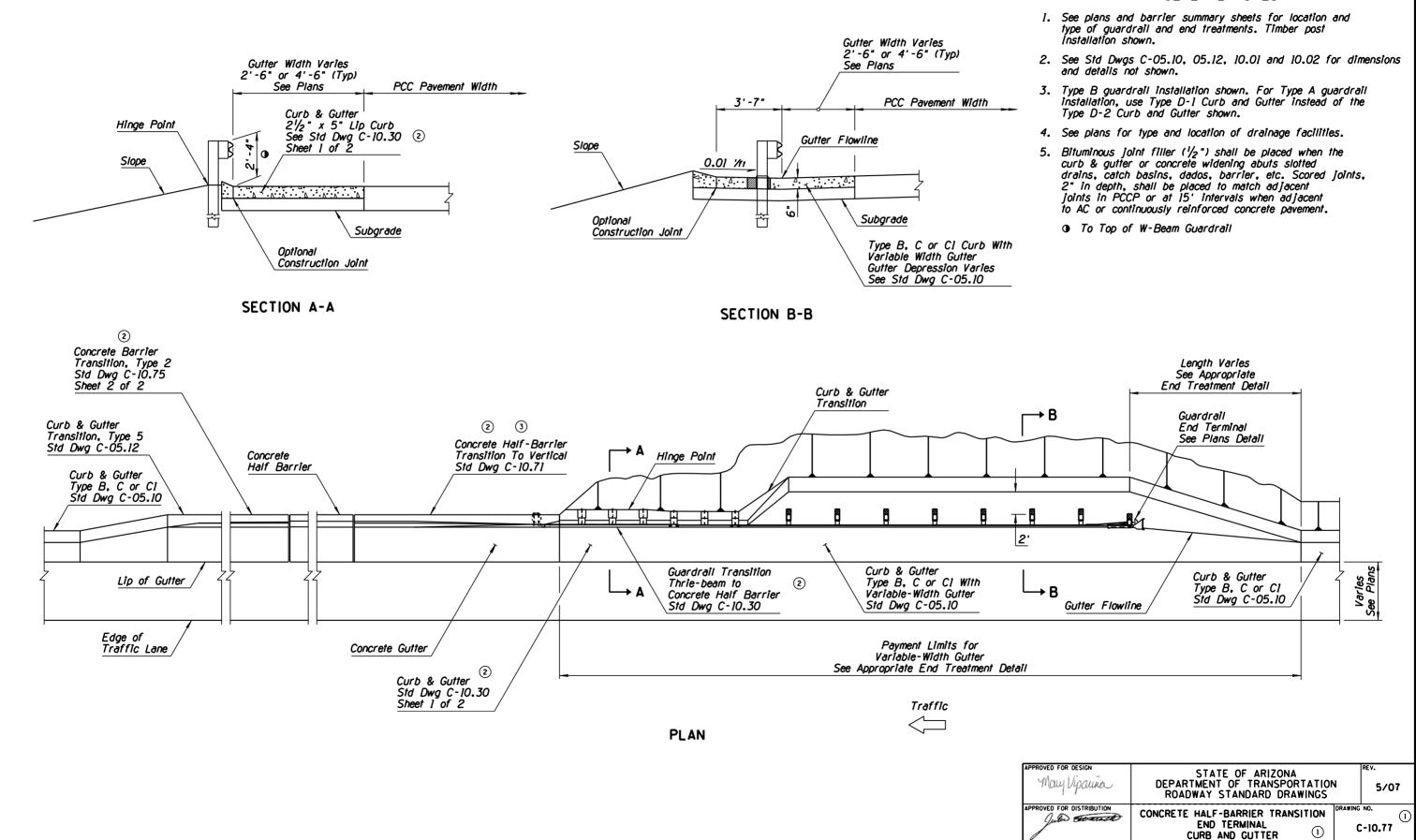
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REMOVED DIMENSIONS	RLF	4/06
2	REMOVED SYMBOL - ADDED DIMENSION	RLF	5/07
3	REMOVED NOTES	RLF	5/07
(1)			

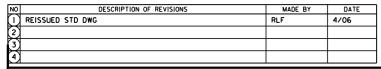


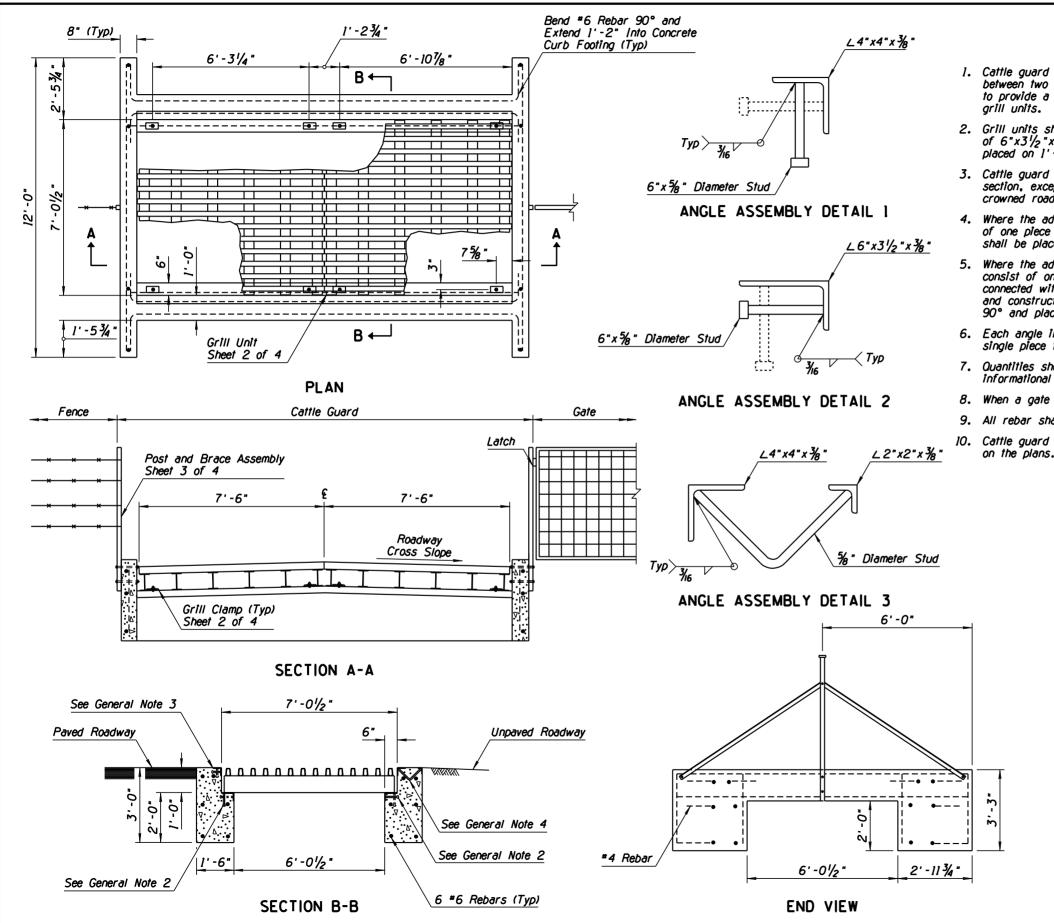




NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\Box	RENAMED STD DWG FROM C-10.06 AND REVISED TITLE	RLF	9/04
2	MODIFIED REFERENCE	RLF	4/06
3	MODIFIED REFERENCE & DRAWING DATE	RLF	7/06
4			







- 5. Where the adjacent roadway is unpaved, an angle iron assembly shall consist of one 4"x4"x%" angle iron, one 2"x2"x%" angle iron, and connected with studs. The assembly shall be crowned at the centerline 90° and placed on 1'-0" centers. See Angle Assembly Detail 3.
- 6. Each angle iron and angle iron assembly shall be fabricated to form a single piece for the full length of the cattle guard.
- 7. Quantities shown for concrete and rebar are approximations for informational purposes only.
- 8. When a gate is to be installed, it shall be called out on the plans.
- 10. Cattle guard beams shall be HS-20 loading unless otherwise shown on the plans.

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GENERAL NOTES

1. Cattle guard shall include two (2) clamps per Sheet 4 at each gap between two (2) grill units, one at each end. Clamps shall be adjusted to provide a $\frac{1}{4}$ -inch, plus or minus $\frac{1}{16}$ -inch gap between adjacent

2. Grill units shall be set on an angle iron assembly consisting of one piece of $6^*x_3'/_2^*x_3''$ angle iron and studs with a head. The studs shall be placed on 1'-0" alternate centers. See Angle Assembly Detail 2.

3. Cattle guard shall be sloped to conform to the roadway grade and crosssection, except that where an odd number of grill units is specified in a crowned roadway, the center grill unit shall have a level cross slope.

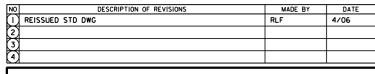
4. Where the adjacent roadway is paved, an angle iron assembly shall consist of one piece of 4"x4"x³/₄" angle iron and studs with a head. The studs shall be placed on 1'-0" alternate centers. See Angle Assembly Detail 1.

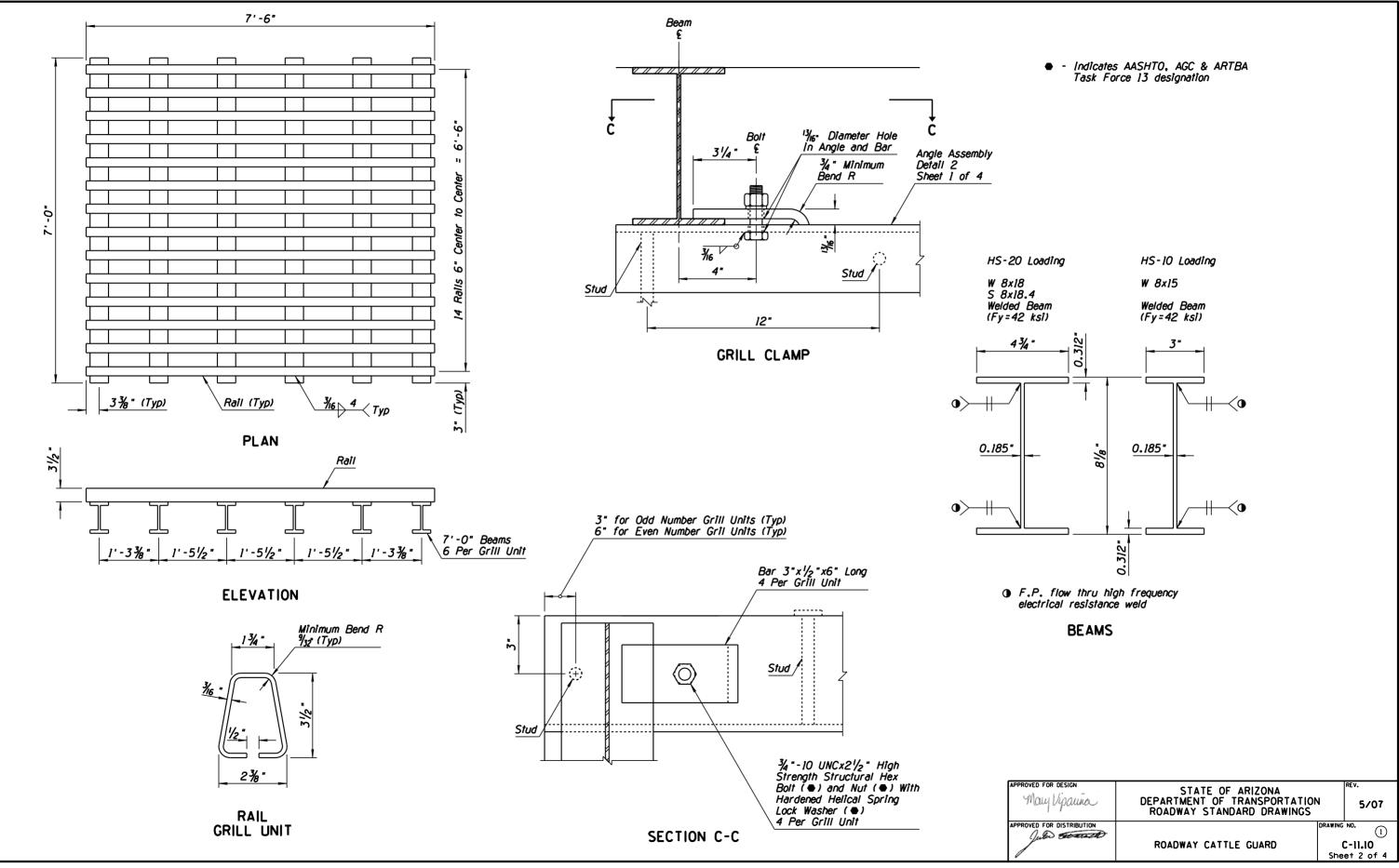
and constructed with a bevel cut and welded. The studs shall be bent

9. All rebar shall have a minimum cover of 3", or as shown on the plans.

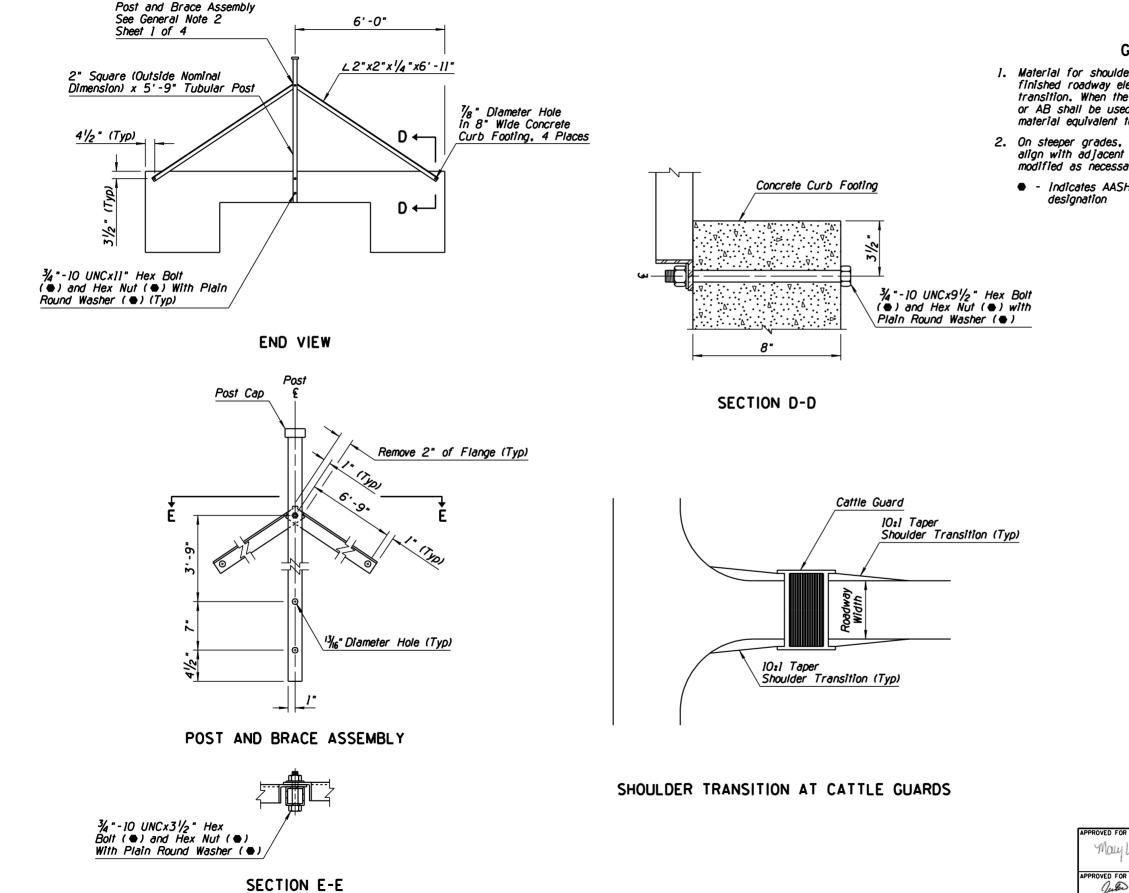
UNIT TABLE					
lway h (ft)	Grill Units Required	Concrete (Cu Yd)	Rebar (Lbs)		
2	2	5.8	175		
6	3	8.0	240		
0	4	10.3	310		
8	5	12.5	375		
4	6]4.7	445		
6	6	14.7	445		
8	7	16.9	510		
0	7	16.9	510		

May Vipaura STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		REV. 5/07
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NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
1) REISSUED S	TD DWG	RLF	4/06
2)			
3			
4)			



SECTION E-E

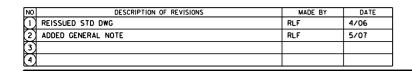
GENERAL NOTES

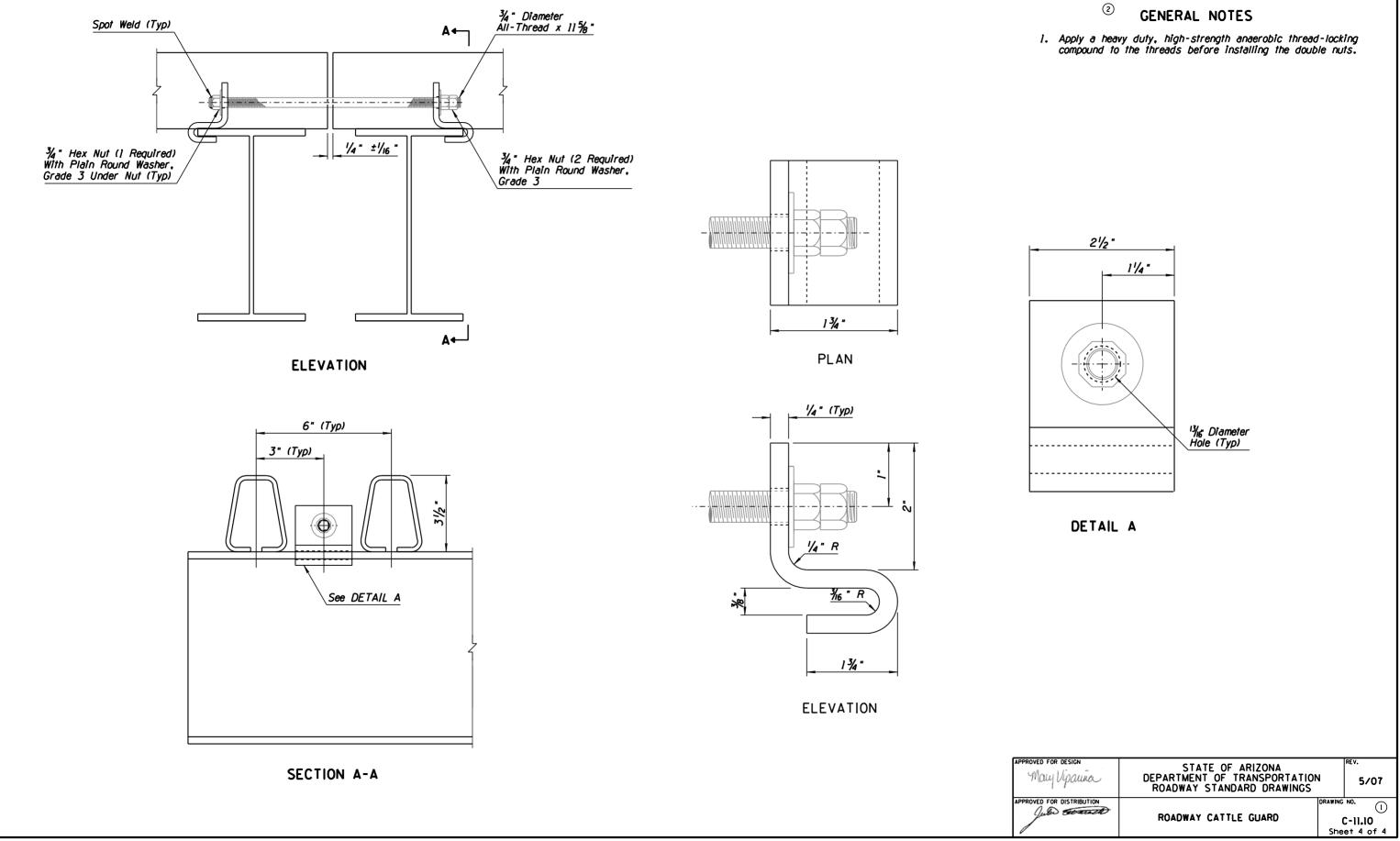
1. Material for shoulder transition shall be placed to the finished roadway elevation for the entire length of the transition. When the roadway is paved, aggregate subbase or AB shall be used. When the roadway is unpaved, a material equivalent to the existing roadway shall be used.

On steeper grades, the post shall be installed plumb to align with adjacent fencing. The brace assembly may be modified as necessary to support the post.

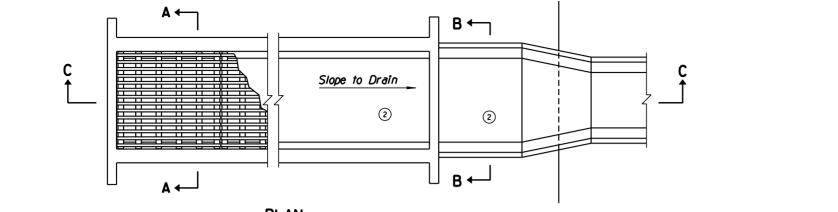
● - Indicates AASHTO, AGC & ARTBA Task Force 13

ROADWAY CATTLE GUARD		C-11.10 et 3 of 4

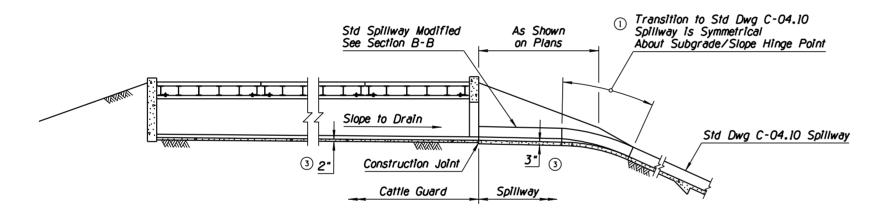




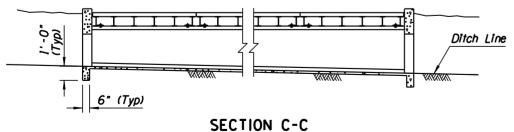
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	MODIFIED NOTE	PNB	7/94
2	REMOVED CONCRETE NOTES	RLF	7/06
3	ADDED CONCRETE DEPTH DIMENSIONS	RLF	7/06
(1)			



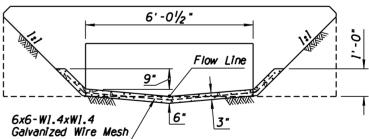


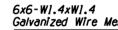






WHERE USED FOR THROUGH DRAINAGE CATTLE GUARD OPEN BOTH ENDS

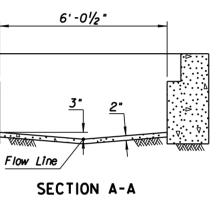






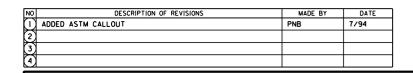
GENERAL NOTES

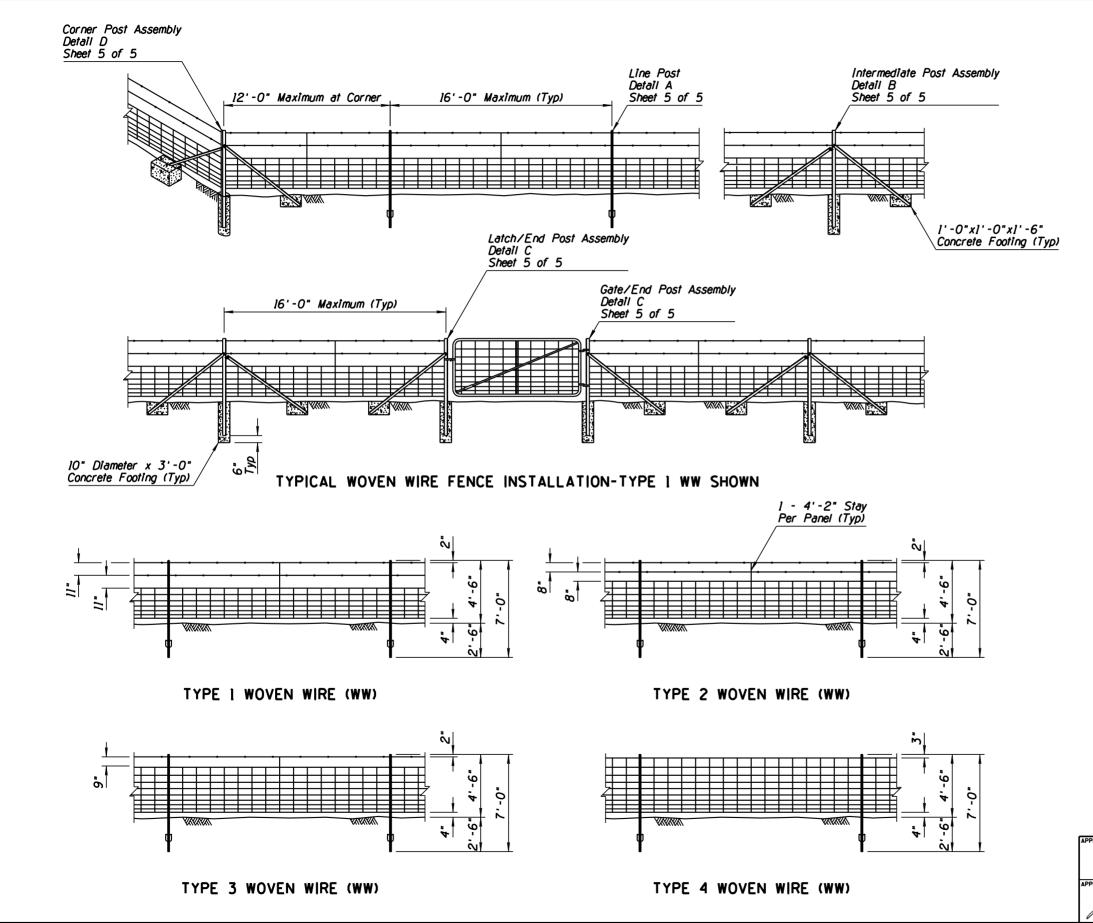
- 1. See Std Dwgs C-11.10 for all other Cattle Guard details.
- 2. This standard shall be used in embankment or where highly erodable soil is found.
- 3. All concrete shall be Class B.



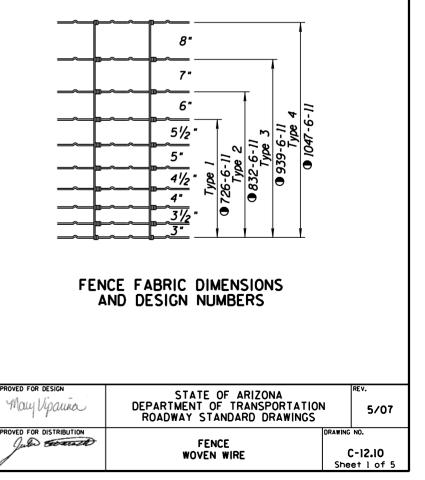
SECTION B-B

design lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
	CATTLE GUARD, DRAINAGE	DRAWING NO. C-11.20

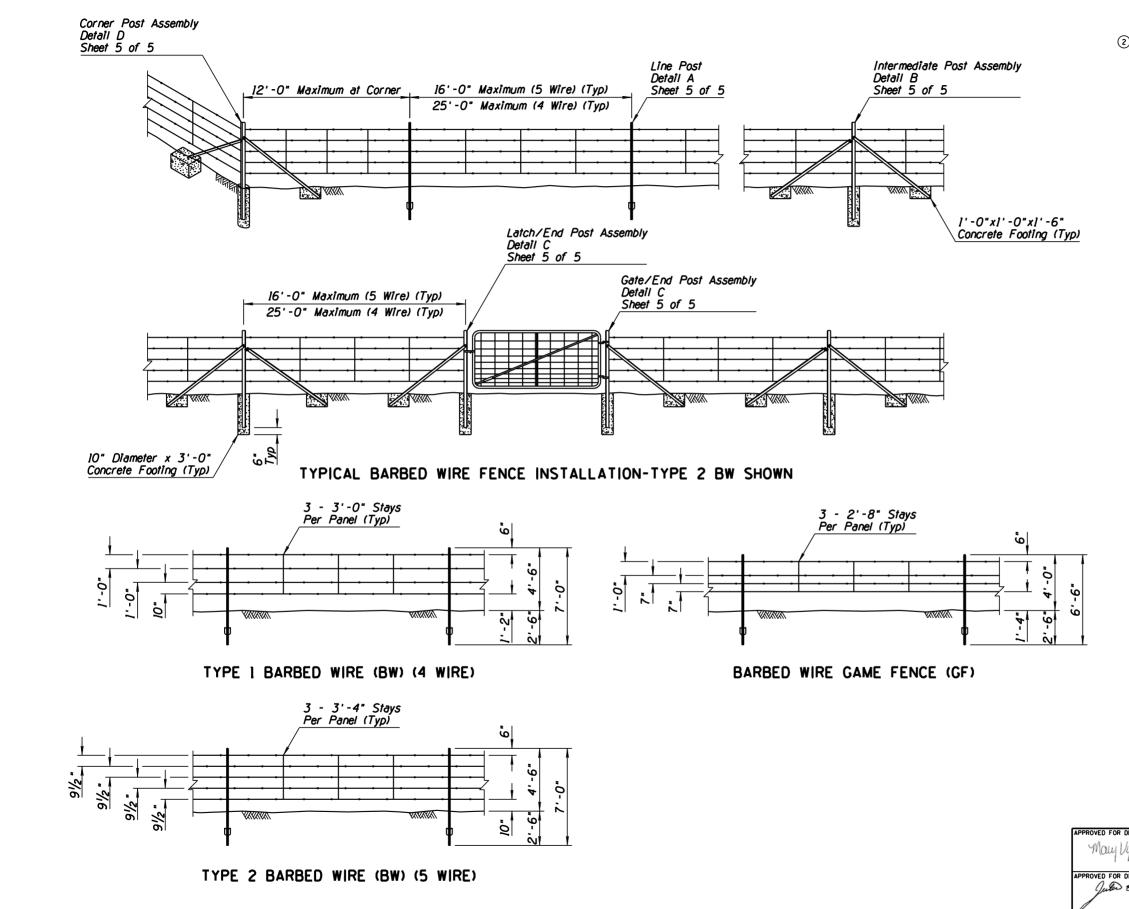




- Length of post and braces shall not be less than 7'-0".
- 2. Woven wire fence fabric shall be attached to the post at the top, bottom, and intermediate wires.
- Intermediate Post Assemblies shall be located as shown and at intervals to utilize standard rolls to minimize cutting and waste.
- 4. A twisted wire stay shall be centered between posts.
- () ASTM design number

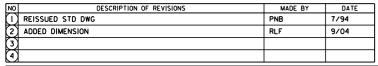


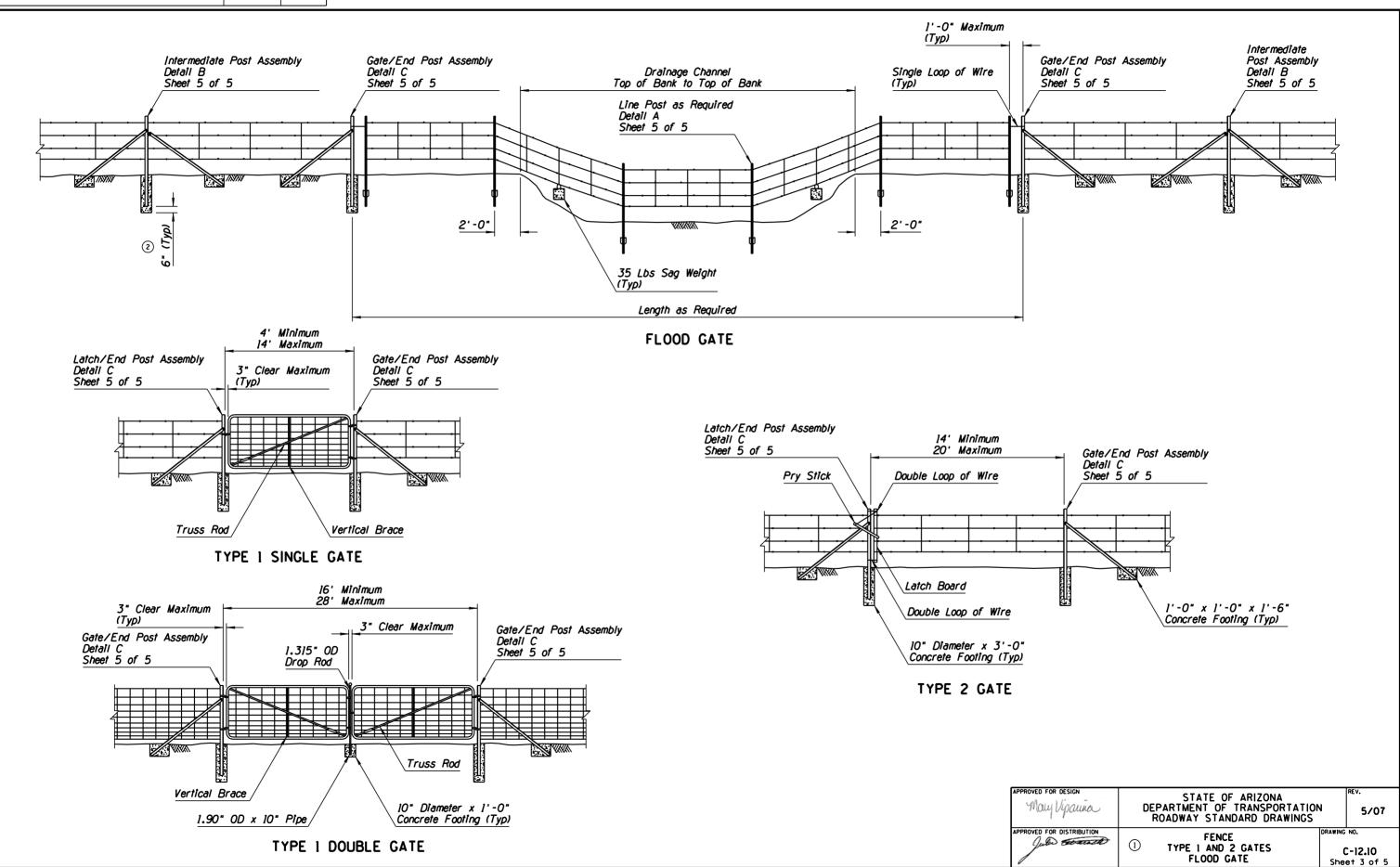
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	REISSUED STD DWG	PNB	7/94
2	REVISED GENERAL NOTE 1	RLF	7/05
3			
4			



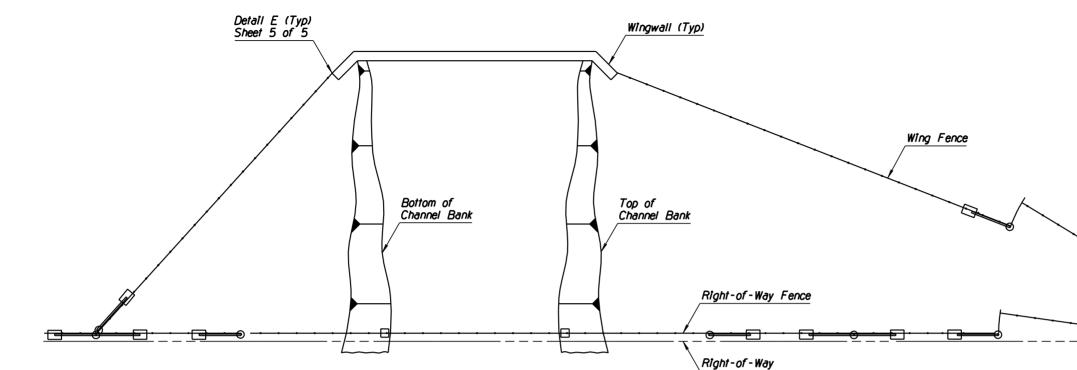
- (2) 1. Intermediate Post Assemblies shall be located as shown and at intervals not to exceed 650', or midway between all braced posts.
 - 2. For game fence the bottom wire shall be barbless.
 - 3. The stays on game fence shall have their ends turned up to prevent injuries to game.

ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N	rev. 5/07
	1 FENCE BARBED WIRE		NO. C-12.10 et 2 of 5

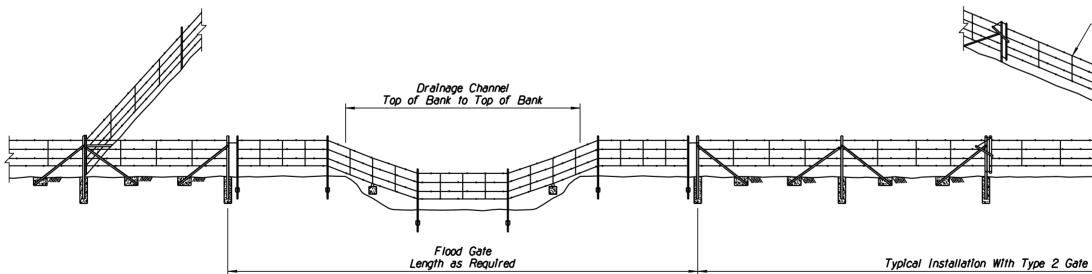




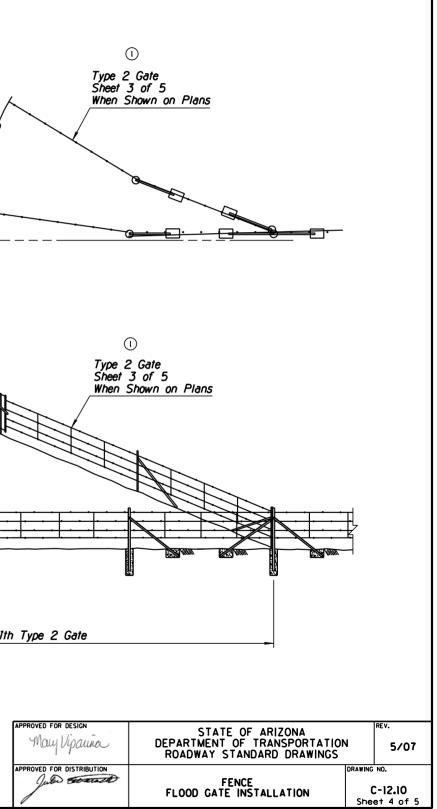
NO DESCRIPTION OF REVISIONS	MADE BY	DATE
1 ADDED TYPE 2 GATE	RLF	9/04
2		
3		
(4)		



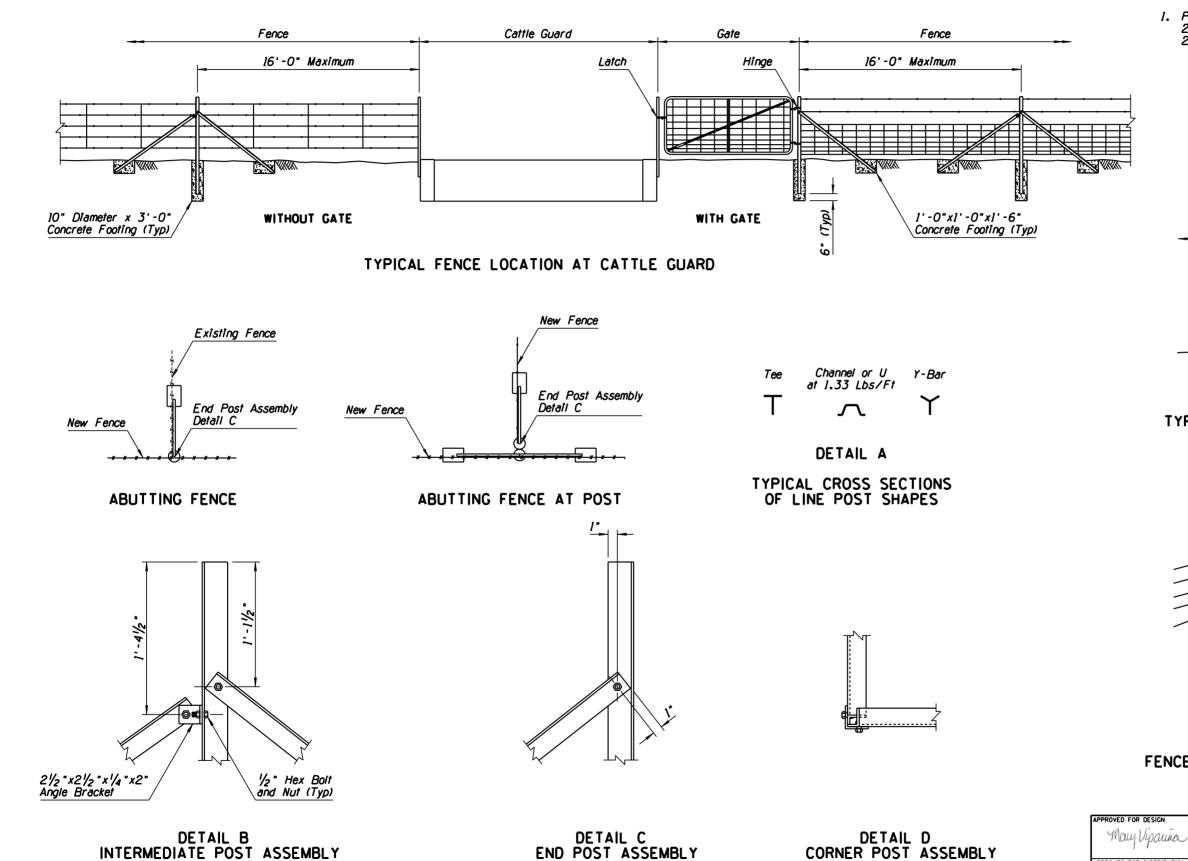
PLAN



ELEVATION TYPICAL FLOOD GATE INSTALLATION



PNB	7/94
	PNB

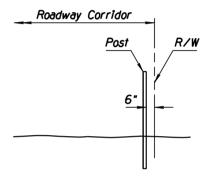


END POST ASSEMBLY

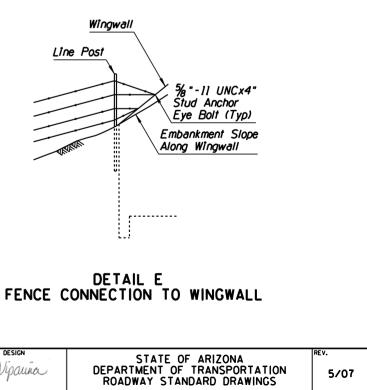
CORNER POST ASSEMBLY

GENERAL NOTES

Post assemblies shall consist of an upright angle 2½"x2½"x¼" at 4.10 lbs/ft, and brace angles 2"x2"x¼" at 3.19 lbs/ft.



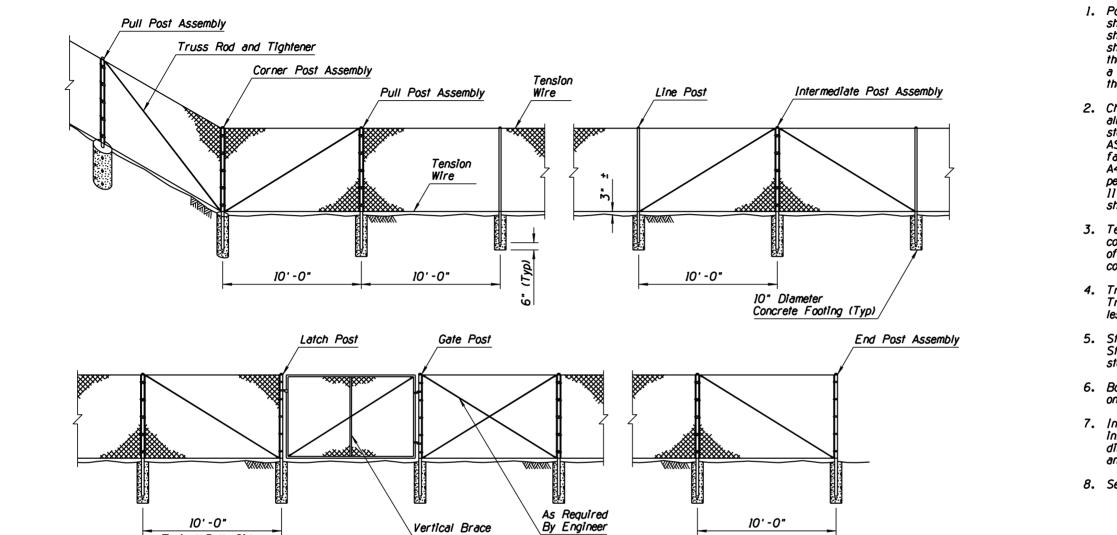
TYPICAL FENCE LOCATION



APPROVED FOR DISTRIBUTION		DRAWING NO.
Jule toward	1 FENCE MISCELLANEOUS DETAILS	C-12.10 Sheet 5 of 5

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2			
3			
(4)			

Typical Both Sides



TYPICAL CHAIN LINK FENCE INSTALLATION - TYPE I SHOWN

\mathbb{U}									
	TYPICAL POST DIMENSIONS								
Fabric	Corner, End, Intermediate, Gate, Latch and Pull Posts Line Posts								
Height (In)	Length	Round	Roll For	med (n)	Length	Round		Roll Formed	
(117	(Ft-[n)	(OD) (In)	L	0	(Ft-/n)	(OD) (In)	H-Section (n)	[] (In)	
36	6-0	2.375	3.50 x 3.50	2.25 x 1.70	5-6	1.900	1.875 x 1.625	1.875 x 1.625	
48	7-0	2.375	3.50 x 3.50	2.25 x 1.70	6-6	1.900	1.875 x 1.625	1.875 x 1.625	
60	8-0	2.375	3.50 x 3.50	2.25 x 1.70	7-6	1.900	1.875 x 1.625	1.875 x 1.625	
72	9-0	2.375	3.50 x 3.50	2.25 x 1.70	8-6	1.900	1.875 x 1.625	1.875 x 1.625	
Over 72	Height + 3-0	2.875	3.50 x 3.50	2.50 x 2.50	Height +2-6	2.375	2.250 x 2.000	1.875 x 1.625	

1	7	1
(ı	1
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GENERAL NOTES

 Posts shall be round, H-section, or roll-formed and shall conform to the nominal dimensional requirements shown on the plans. Dimensional tolerances for all shapes shall be according to ASTM A500. In addition, the material of which posts are fabricated shall have a nominal thickness, before galvanizing, of not less than 0.111" for line posts and 0.130" for terminal posts.

2. Chain link fabric shall be either zinc-coated or aluminum-coated steel wire fence fabric. Zinc-coated steel fabric shall conform to the requirements of ASTM A392, Class 1 coating. Aluminum-coated steel fabric shall conform to the requirements of ASTM A491, with a minimum weight of coating of 0.40 ounce per square foot of wire surface area. Fabric shall be 11 gauge for all fence fabric 60" or less in height and shall be 9 gauge for fabrics greater than 60" in height.

 Tension wires shall be 7 gauge (0.177" diameter) coil spring steel wire with a minimum tensile strength of 75,000 PSI and shall be zinc-coated or aluminumcoated.

4. Truss rods shall be $\frac{3}{8}$ " diameter adjustable rods. Truss tighteners shall have a strap thickness of not less than $\frac{1}{4}$ ".

 Stretcher bars shall be ³/₁₆ "x³/₄" steel flat bars. Stretcher bar bands shall be ¹/₈"x 1" preformed steel bands.

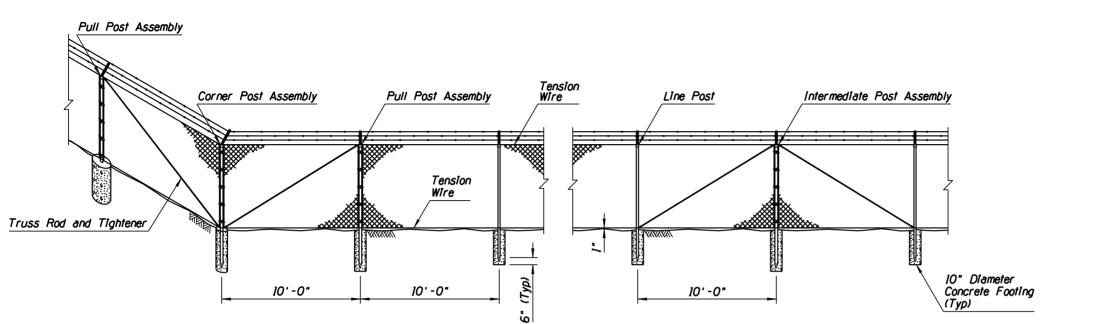
6. Bottom tension wire shall be 3" from top of crown on concrete footings.

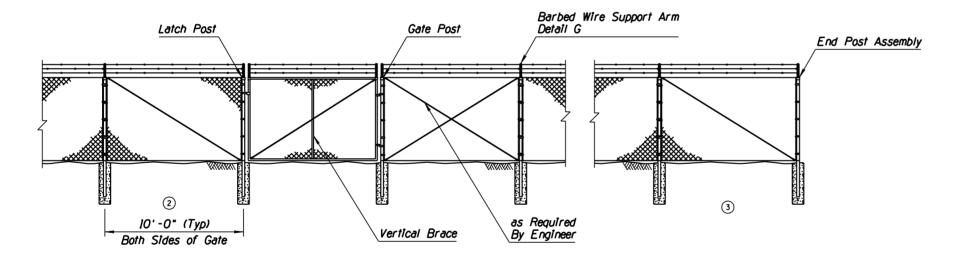
7. Intermediate post assemblies shall be spaced at 500' intervals or midway between pull posts when the distance between such posts is less than 1,000' and more than 500'.

8. See Sheet 3 of 3 for typical fence location.

ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
	FENCE CHAIN LINK TYPE 1	DRAWING NO. C-12.20 Sheet 1 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2	MODIFIED DIMENSION TE T	RLF	10/05
3	DELETED DIMENSION	RLF	10/05
4			





TYPICAL CHAIN LINK FENCE INSTALLATION - TYPE 2 SHOWN

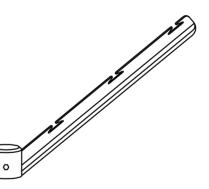
	\heartsuit									
Γ	TYPICAL POST DIMENSIONS									
Γ	Corner, End, Intermediate, Line Posts Fabric Gate, Latch and Pull Posts									
	Height (In)	Length	Round	Roll F	ormed	Length	Round	H-Section	Roll Formed	
	.,,,,,	(Ft- n)	(OD) (In)	Ľ(/n)	C (/n)	(Ft- n)	(OD) (In)	(In)	[] (In)	
	72	8-6	2.375	3.50 x 3.50	2.50 x 2.50	8-0	1.900	1.875 x 1.625	1.875 x 1.625	

 \bigcirc



GENERAL NOTES

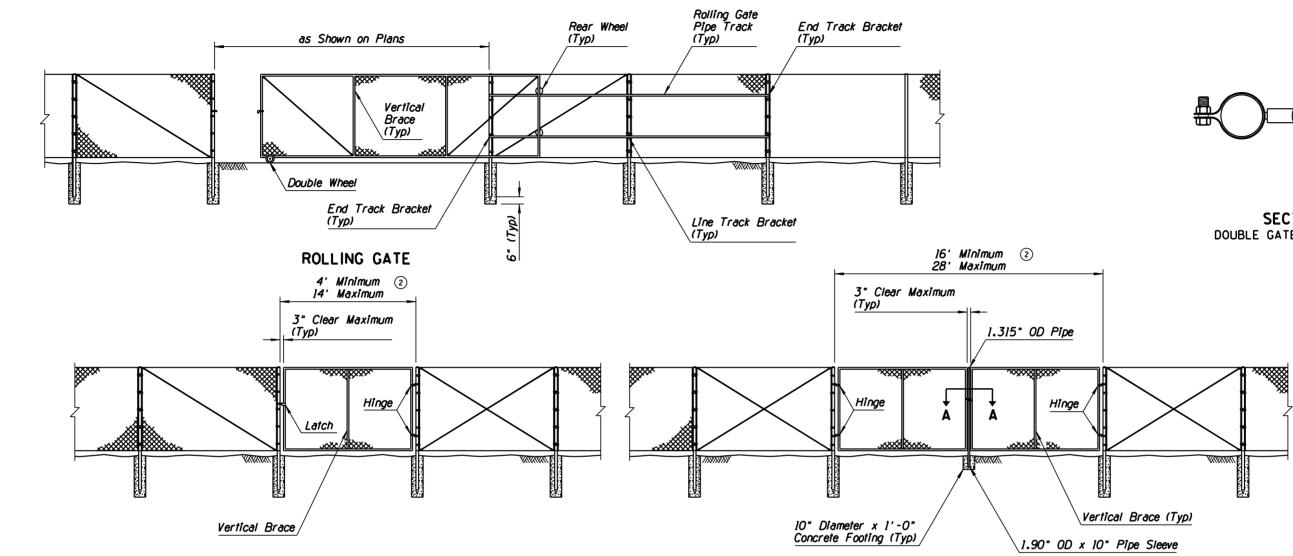
- 1. Barbed wire for use with Type 2 chain link fence shall be 12 gauge steel wire with 4 point 14 gauge barbs spaced 5" apart and shall be either zinc-coated or aluminum-coated. inc-coated steel wire shall conform to the requirements of ASTM A121, Class 1 coating. Aluminum-coated steel wire shall conform to the requirements of ASTM 1585, Type 1, Class 1 coating.
- 2. Barbed wire support arm shall be of the type shown on the plans, shall be fabricated from commercial quality steel, and shall be zinc-coated in accordance with the requirements of AASHTO MIII.
- 3. Bottom tension wire shall just clear top of crown on concrete footings.
- 4. For details and notes not shown, see chain link fence, Type 1, Sheet 1 of 3.
- 5. See Sheet 3 of 3 for typical fence location.



DETAIL G BARBED WIRE SUPPORT ARM

esion	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
ISTRIBUTION	FENCE CHAIN LINK TYPE 2	DRAWING NO. C-12.20 Sheet 2 of 3

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
2	MODIFIED DIMENSION TEXT	RLF	10/05
3			
4			



SINGLE GATE

DOUBLE GATE

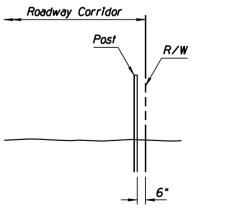
				TYPICAL	_ GATE DIM	ENSIONS			
	SI	NGLE AND DOU	BLE SWING GATE	ES			ROLLING GAT	TES	
Gate Width (Ft)	Vertical	Gate Post Size	Gate Width (Ft)	Vertical	Gate Post Size	Gate Width (Ft)	(Et) Spaced Vertical		Gate Post Size
6'Ht or Less	Braces	OD (In)	Over 6' Ht	Braces	OD (In)	1	Braces	Braced Panel	OD (In)
3 to 8	0	2.875	3 to 8	0	2.875	6 to 13	1	0	2.875
8 to 16	1	4.000	8 to 16	1	4.000	13 to 16	1	1	2.875
16 to 18	2	4.000				16 to 21	2	1	2.875
						21 to 27	2	1	2.875
						28 and Larger	3	1	2.875

APPROVED FOR DE Mary Vi APPROVED FOR DI

GATES FOR CHAIN LINK FENCE - TYPE | SHOWN (Type 2, With Barbed Wire Typical)

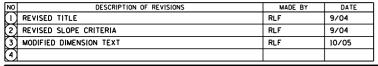


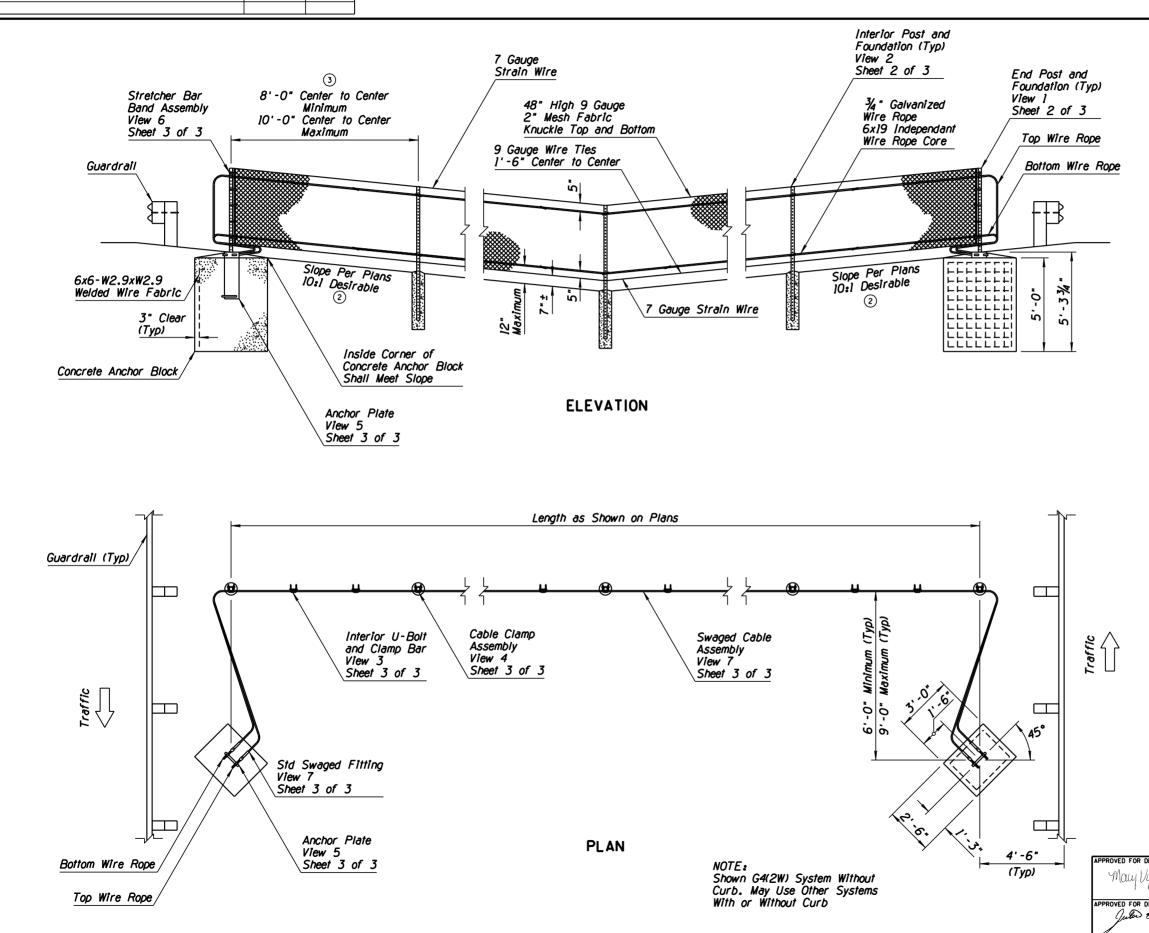
SECTION A-A DOUBLE GATE LATCH ASSEMBLY



TYPICAL FENCE LOCATION

lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
	FENCE CHAIN LINK GATES	DRAWING NO. C-12.20 Sheet 3 of 3

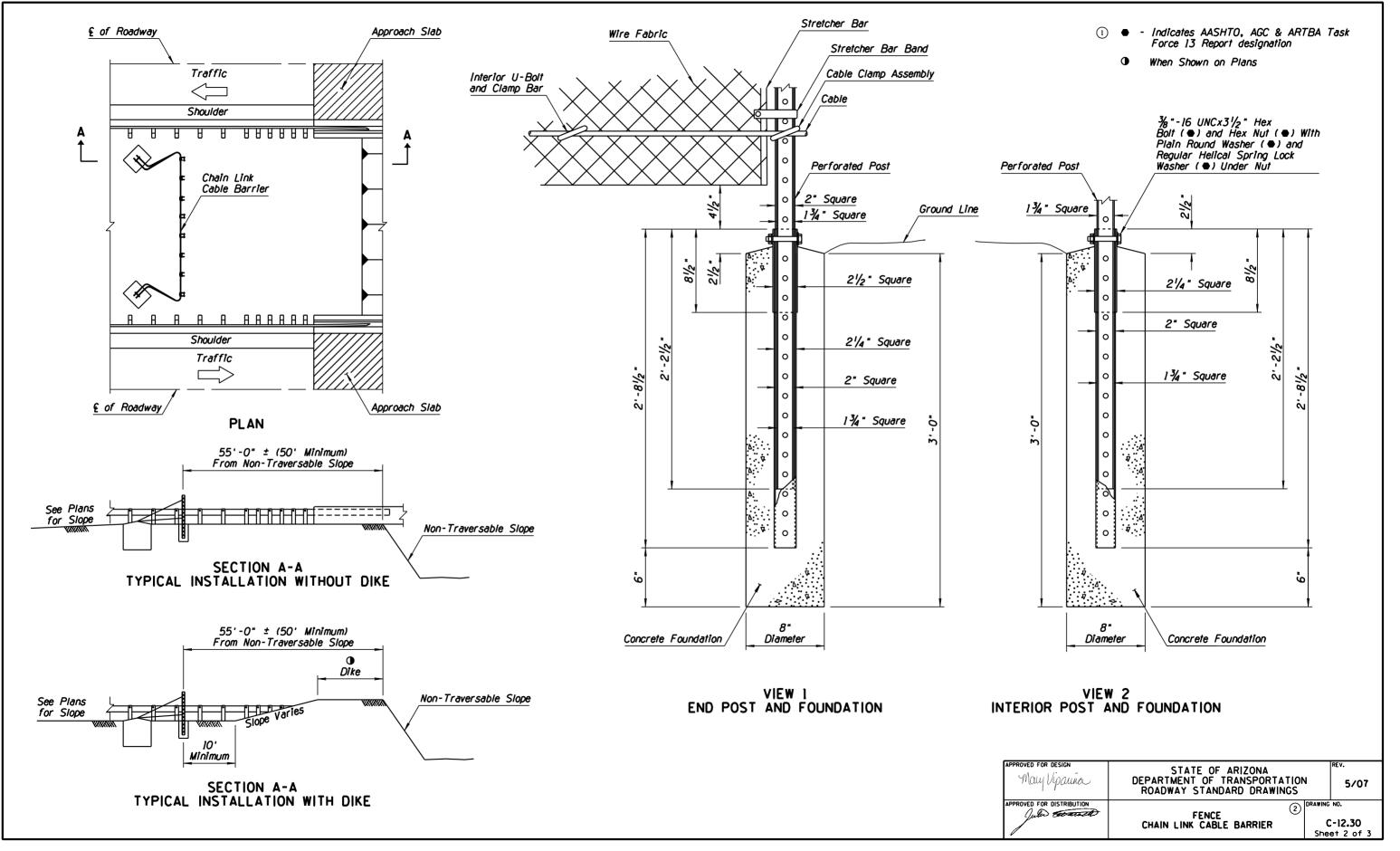




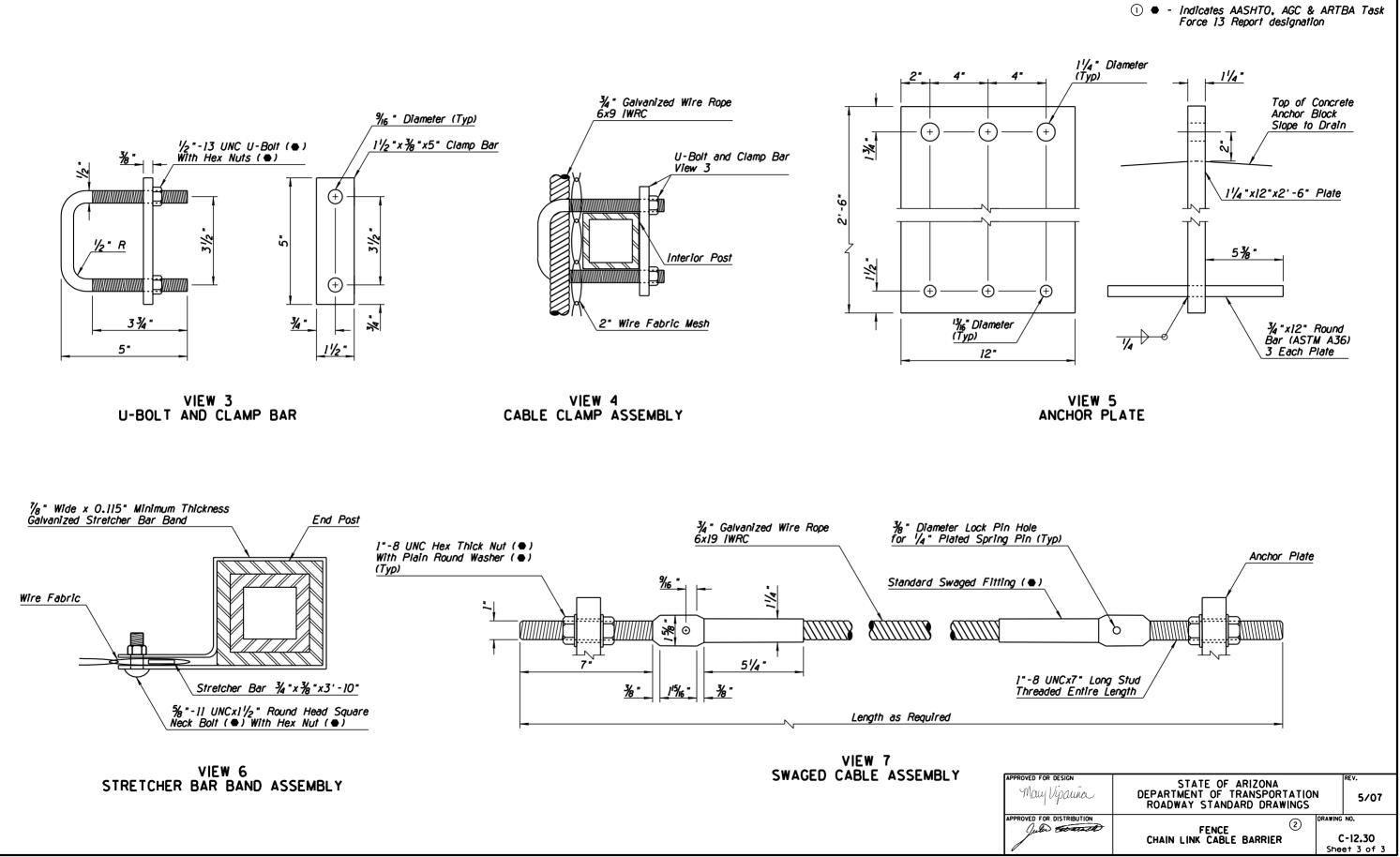
- 1. All concrete shall be Class S, f'c=4000 PSI.
- 2. All bolts, nuts, washers and fittings shall meet the dimensional requirements of the American National Standards Institute, unless otherwise designated and shall be galvanized in accordance with ASTM A153.
- 3. Galvanized swaged fitting and U-Bolt shall conform to ASTM A449.
- 4. The ³/₄ " galvanized wire rope shall conform to AASHTO M30 Class B, Type 2.
- 5. The wire fabric, ties, bands, stretcher bars, and other fittings and hardware shall conform to AASHTO M181.
- 6. The wire fabric fence shall follow contour of the graded median.
- 7. The excavation for the concrete anchor blocks shall be to neat lines. Maximum excess shall be 3".
- 8. Perforated posts shall be square tube formed from 0.105" USS gauge ASTM A366/A366M cold rolled carbon steel. The square tubes shall be welded directly in the corner by high frequency resistance welding or equal. The posts to be externally scarfed to agree with standard corner radii of $\frac{7}{32}$ " ± $\frac{1}{16}$ ".
- 9. Perforated posts shall be galvanized to the requirements of ASTM A653/A653M. Coating designator shall be Z275.
- 10. The cables shall have enough tension to prevent sagging. The location of the concrete anchor blocks may also be varied to provide enough tension to help prevent sagging.
- 11. Two interior U-bolt and clamp bars shall be spaced at $\frac{1}{3}$ of the distance between posts.
- 12. See Standard Drawing C-12.20 for 48" fabric details.
- 13. An alternate to rectangular concrete anchor block shall be a 36" diameter round footing with an additional depth of 4".
- 14. The median approach grade within 100' ± of the Chain Link Cable Barrier should not exceed a grade break of 10 percent.

ESIGN pauña ISTRIBUTION	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
wardt	FENCE () CHAIN LINK CABLE BARRIER	C-12.30 Sheet 1 of 3

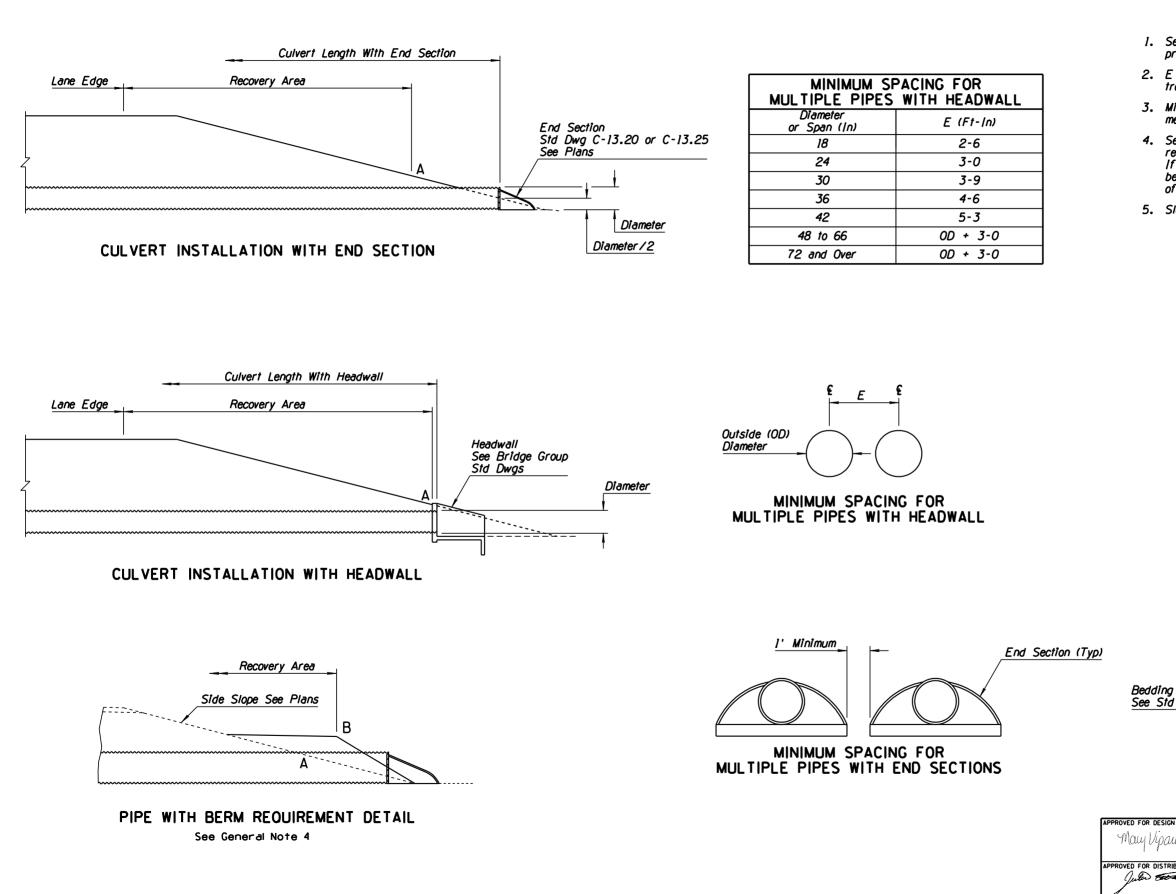
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	ADDED DESIGNATION	RLF	9/04
2	REVISED TITLE	RLF	9/04
3			
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NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	ADDED DESIGNATION	RLF	9/04
2	REVISED TITLE	RLF	9/04
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NO DESCRIPTION OF REVISIONS	MADE BY	DATE
1 REISSUED STANDARD DRAWING	RLF	7/05
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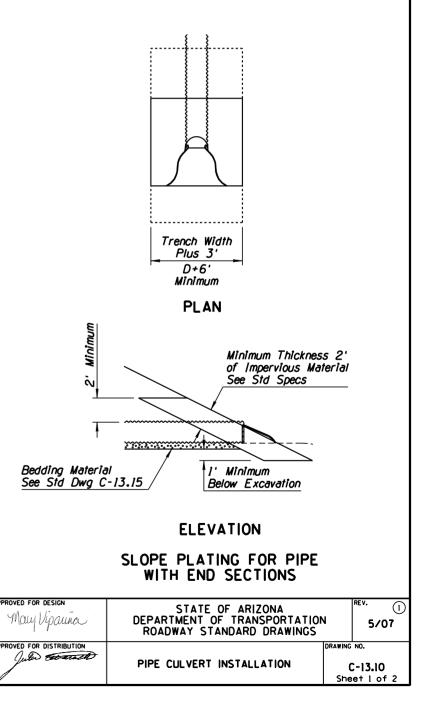
1. See plans for any required inlet and/or outlet protection.

2. E dimension applies to both non-trench and trench conditions.

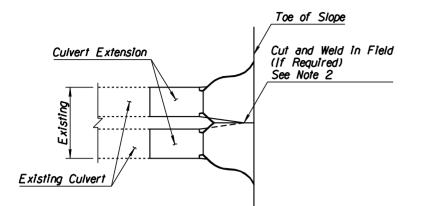
3. Minimum cover over pipe culverts shall be 1'. measured from the top of pipe.

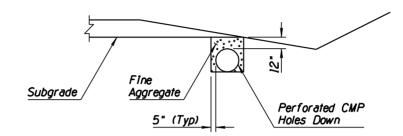
4. See Pipe Berm Requirement Detail for pipe berm requirements and Std Dwg C-03.10 for installation. If Point A is within the recovery area, then a pipe berm is required and Point B is set at the edge of the recovery area.

5. Slope plating shall conform to Std Spec 501.



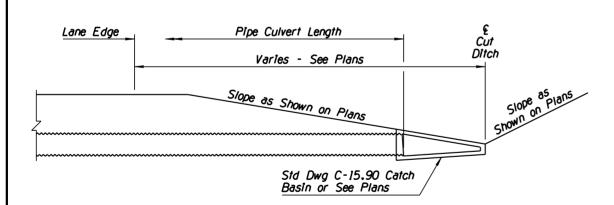
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{r})	NEW GENERAL NOTE 2	RLF	9/04
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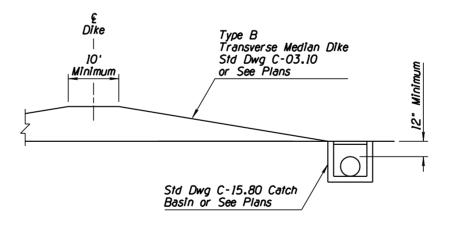


SPECIAL MULTIPLE PIPE END SECTION DETAIL FOR PIPE CULVERT EXTENSIONS ONLY





PIPE AND CATCH BASIN INSTALLATION AT SAG CONDITION OF CUT DITCH

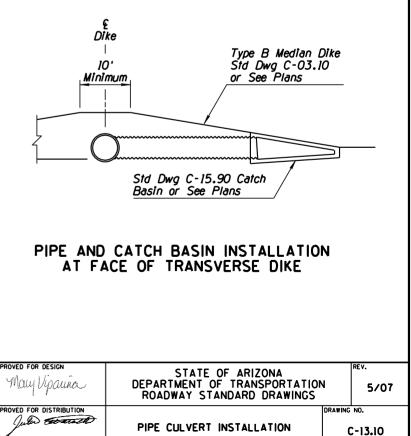


PIPE AND CATCH BASIN INSTALLATION AT BASE OF TRANSVERSE DIKE

> May Vipania PROVED FOR DISTRIBUTION

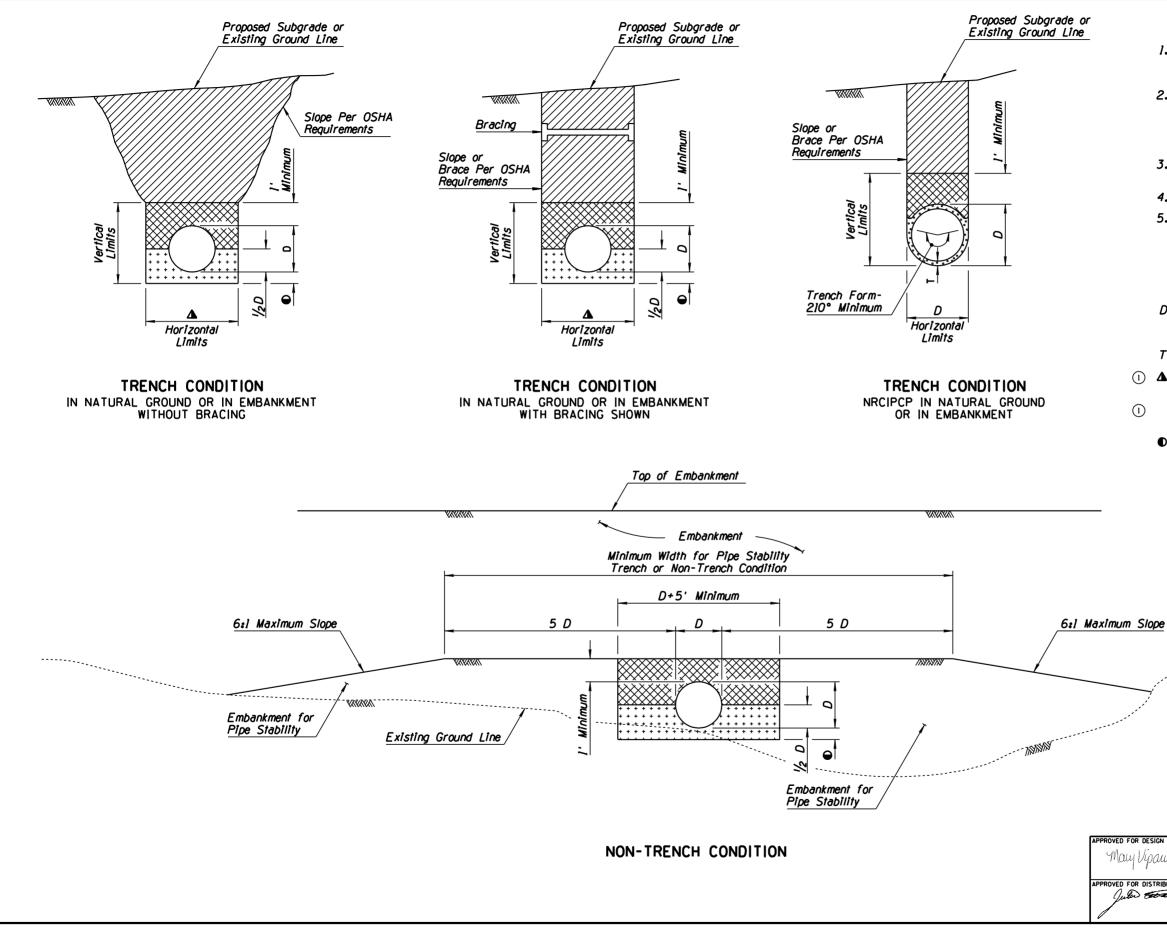
GENERAL NOTES

- 1. Minimum cover over pipe culverts shall be 12", measured from the top of pipe.
- After welding, the damaged coating shall be cleaned by a wire brush and painted with at least one full coat of Paint Number 4, or given two coats of an approved hot asphalt paint, as directed by the Engineer.



Sheet 2 of 2

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	REVISED SPECIFICATIONS	RLF	9/04
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- 1. Pipes shall be installed either in a trench condition or in a non-trench condition in natural ground or in embankment.
- 2. In a trench condition, the vertical and horizontal limits shall be maintained. If horizontal limits are exceeded or the vertical limits are not maintained, a non-trench condition exists.
- 3. Bracing and sloping shall conform to OSHA requirements.
- 4. Pipe backfill may be bedding material.
- 5. In a non-trench condition, the embankment for pipe stability shall be constructed in lifts to the limits shown in the detail simultaneously with the bedding material and pipe backfill. If the contractor chooses to construct it as a trench condition, the embankment shall be constructed before excavating the trench.
- D Outside diameter of full circle pipe or outside dimension (span or rise) of arch. arch pipe, elliptical pipe.
- T Minimum wall thickness for NRC/PCP: See Plans.

(1) \triangle For D < than 4': D + 6" each side, minimum D + 2' each side, maximum

> For D ≥ than 4': D + 1' each side, minimum D + 3' each side, maximum

 \bullet - 6 inches except when on unvielding or unstable material. See Std Specs.

 $\overline{}$ TRENCH BACKFILL

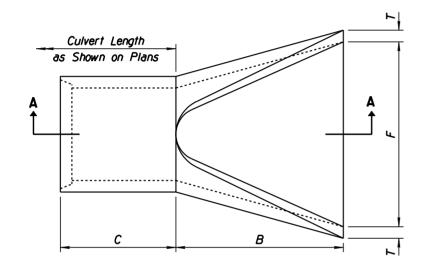
 \boxtimes PIPE BACKFILL

* * * * * BEDDING

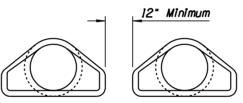
esion pauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07
ISTRIBUTION	TYPICAL PIPE INSTALLATION	DRAWING	NO. C-13.15

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	NEW GENERAL NOTE 1	RLF	9/04
(2)			
3			
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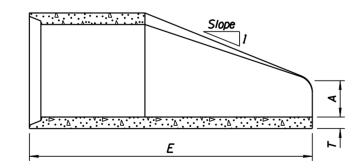
Pipe Diameter	Approximate		D	e	o (I)		Acarovimato
	Weight (Lbs)	Т	A	В	С	Ε	F	Approximate Slope
24	1520	3	91/2	431/2	30	731/2	48	3
27	1930	31/4	101/2	491/2	24	731/2	54	3
30	2190	31/2	12	54	19	73	60	3
36	4100	4	15	63	34	97	72	3
42	5380	41/2	21	63	35	98	78	3

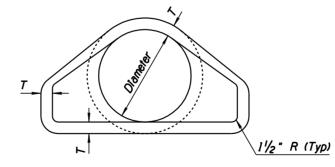


PLAN

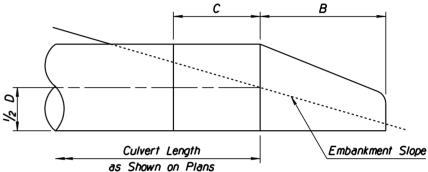


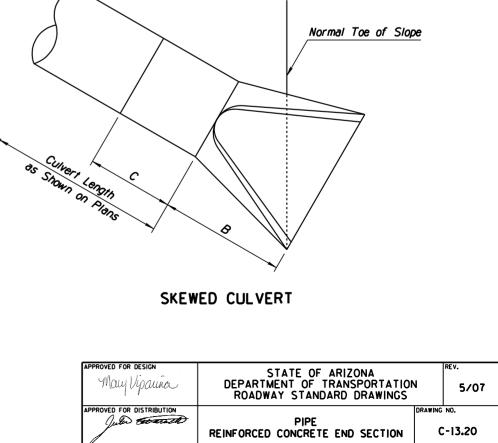
SPACING FOR MULTIPLE INSTALLATION





FRONT ELEVATION







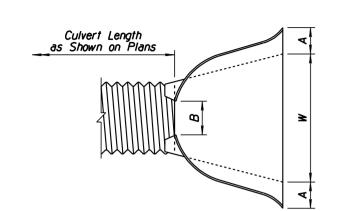
1

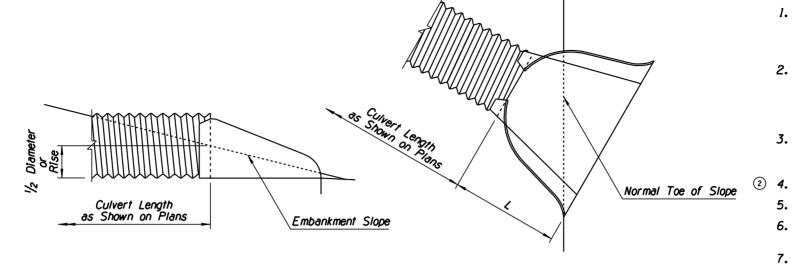
GENERAL NOTES

- End section joint type shall match the pipe joint type.
- 2. Embankment slope shall be warped to match slope of end section.

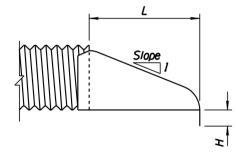
RIGHT-ANGLE CULVERT

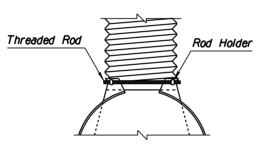
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\Box	MODIFIED DATA TABLE	BAF	6/98
2	REMOVED 'TYPE 5' REFERENCE	RLF	7/06
3			
4			



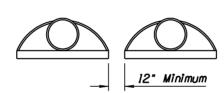


RIGHT ANGLE CULVERT





TYPE 2 THREADED ROD CONNECTIONS



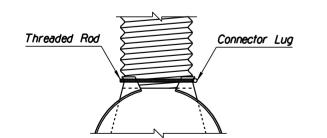
SPACING FOR MULTIPLE

INSTALLATION

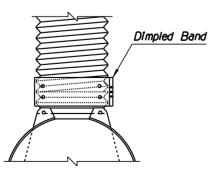
SKEWED CULVERT

Dim Circular Pipe Diameter А ±] Gauge (n)Maxi 18 8 16 1 24 10 16 1. 12 30]4 121/4 36]4 141/2 1 42 12 17 1

					-				
	Pipe Arc	'n	D	imen	sions				
TIPE AICH			А	В	н	L.,	w	Approximate	Connection
Span ([n)	Rise (n)	Gauge	±1	Max	±1	±11/2	±2	Slope	Туре
21	15	16	7½	11	6	24	36	21/2	2. 3. 4
28	20	16	8	16	6	32	48	21/2	2, 3, 4
35	24]4	10	16	6	39	60	21/2	2, 4
42	29]4	12	12	71/2	46	75	21/2	2, 4
49	33	12	131/2	20	9	53	84	21/2	3



TYPE 3 THREADED ROD CONNECTIONS



TYPE 4 DIMPLED BAND CONNECTIONS



GENERAL NOTES

 The end section may be joined to the pipe or connector section by bolts, rivets, dimpled bands, slip-seam bands or threaded rod type fasteners. For allowable connector types, see table.

2. The Type 1 connector is bolted or riveted. Maximum circumferential fastener spacing shall be 12" and with a minimum of 8 fasteners per joint. The Type 1 joint may be used with either annular or helical corrugations.

 Type 2 and 3 connectors shall only be used with annular or helical pipe with a requisite number of annular corrugations.

2 4. Type 4 connector shall only be used with helical pipe.

5. All steel end section components shall be galvanized.

6. Toe of embankment shall be warped to match toe of skewed end section.

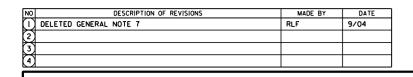
7. A berm shall be added to abnormal projections per Std Dwg C-13.10.

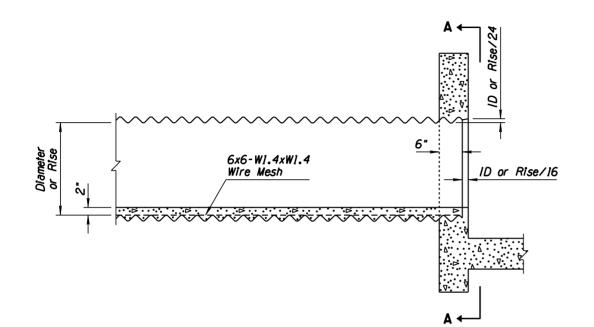
8. The foregoing applies to all cross-section configurations.

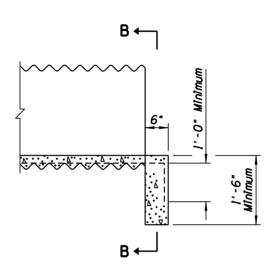
(1	

nens	sions	(n)			
B imum	H ±]	L ±1½	₩ ±2	Approximate Slope	Connection Type
8	6	31	36	21/2	2, 3, 4
3	6	4]	48	21/2	2. 3. 4
?/2	8	51	57	21/2	2, 4
2	9	60	72	21/2	2.4
1	101/2	69	84	21/2	3

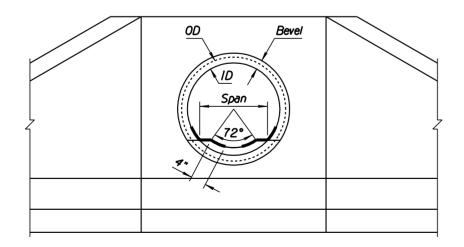
esign	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV.	7
ISTRIBUTION	PIPE CORRUGATED METAL END SECTION	C-13.25	

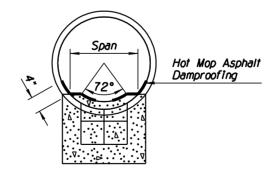






HEADWALL INSTALLATION (SEE STANDARD DRAWING B-11.12) PROJECTING INSTALLATION





SECTION A-A

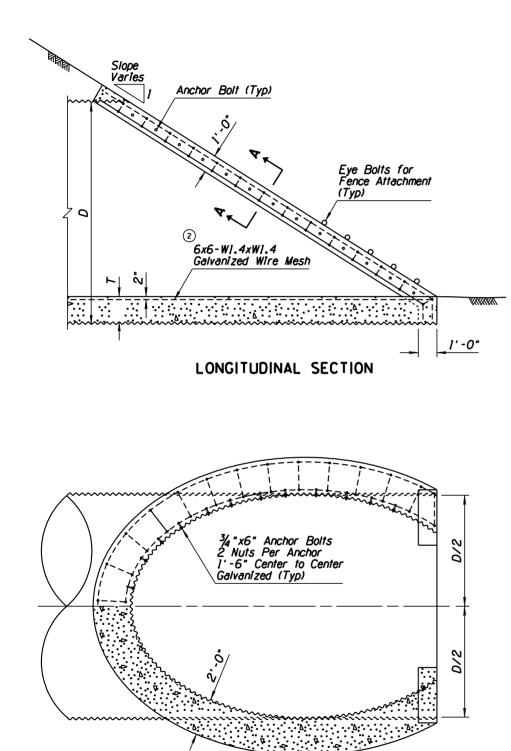
SECTION B-B



- 1. For lateral dimensions of invert paving, use 72° control for CMP and span for CMPA.
- Paving shall be scored laterally at 1'-6" minimum intervals along the length of the pipe.
- 3. Use bevel on inlet headwall only.
- Wire mesh shall be fastened or welded to corrugation crests at intervals and in a manner approved by the Engineer. Laps shall be 6" minimum.
- 5. Paving shall not be placed until backfilling is completed.
- 6. Concrete shall be Class B.
- 1

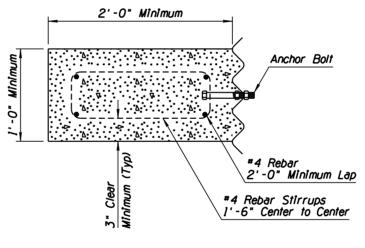
ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
	PIPE AND PIPE ARCH CORRUGATED METAL CONCRETE INVERT PAVING	DRAWING NO. C-13.30

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	MODIFIED TABLE & MEASUREMENT FORMAT	RLF	9/04
2	REVISED WIRE MESH DESIGNATION	RLF	9/04
3			
4			

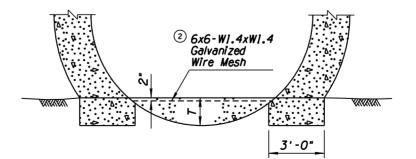


	D ([n)	T ([n)
Combination Vehicle and Cattle Pass]44	18
Cattle Pass Only	120	6

1



SECTION A-A

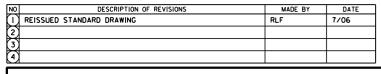


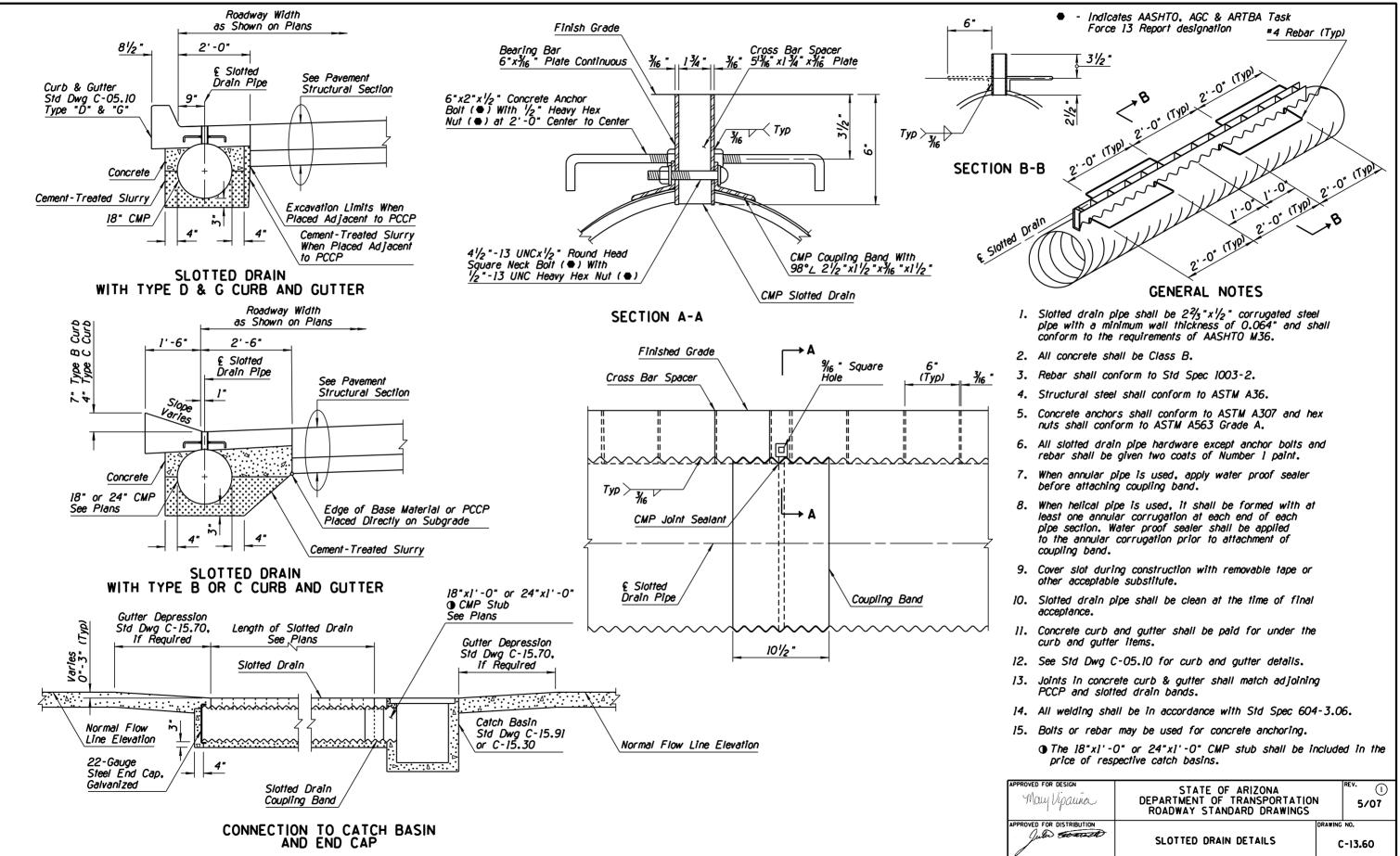
PLAN NORMAL TO SLOPE

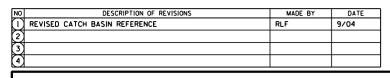
END ELEVATION

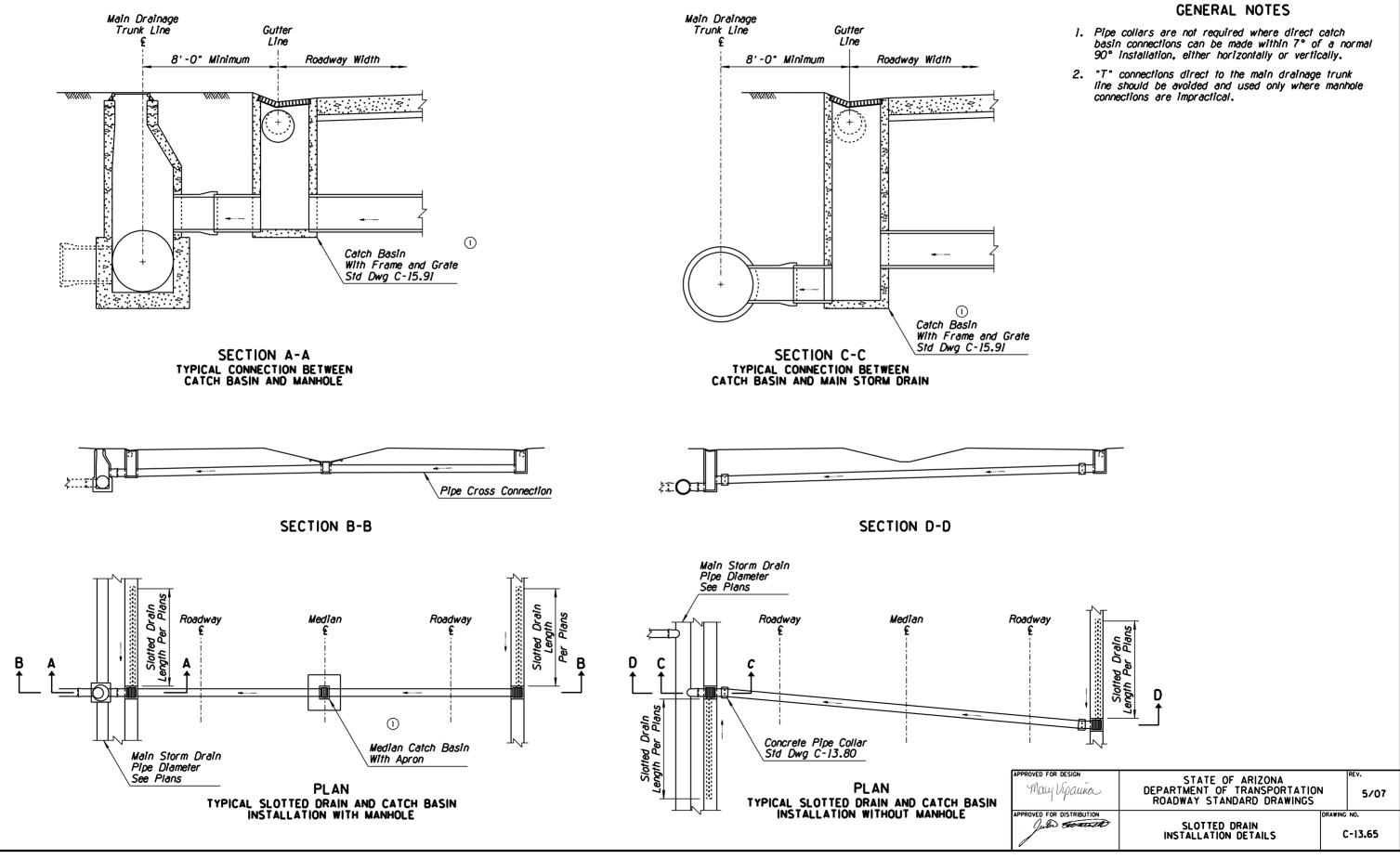
- 1. This end treatment is to be used only for those cattle and/or vehicle passes not used for drainage.
- All concrete shall be Class B. An optional 12" AB invert paving base course and 6" of concrete may be used in the 144" diameter pipe.
- Anchor bolts shall be retained in a horizontal position during pour with final tightening a minimum of 7 days after pour.
- 4. Pipe shall be backfilled before concrete bond beam is constructed. Minimum forming may be used.
- 5. Edges of wire mesh shall be fastened or welded to corrugation crests at intervals and in a manner approved by the Engineer. Laps shall be a minimum of 6".
- 6. For installation normal to roadway centerline only.

ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	5/01
DISTRIBUTION	PIPE CATTLE/VEHICLE PASS MITERED END TREATMENT	DRAWING NO. C-13.55

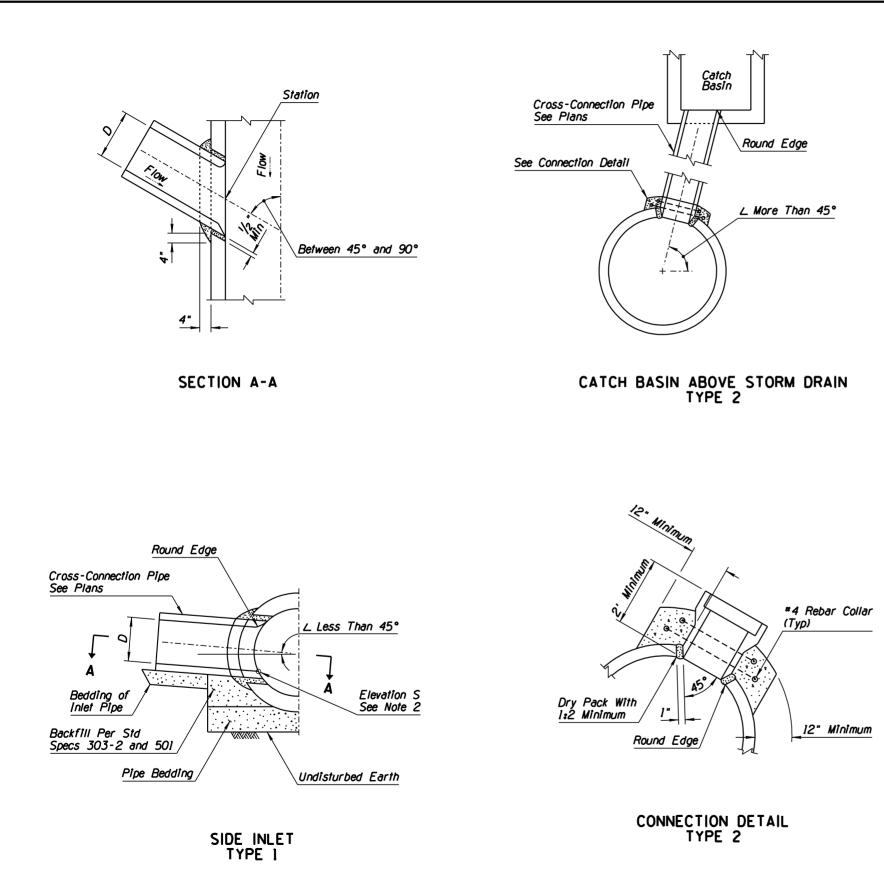








NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{i})	REARRANGED STD DWG	PNB	7/94
(2)			
3			
4)			

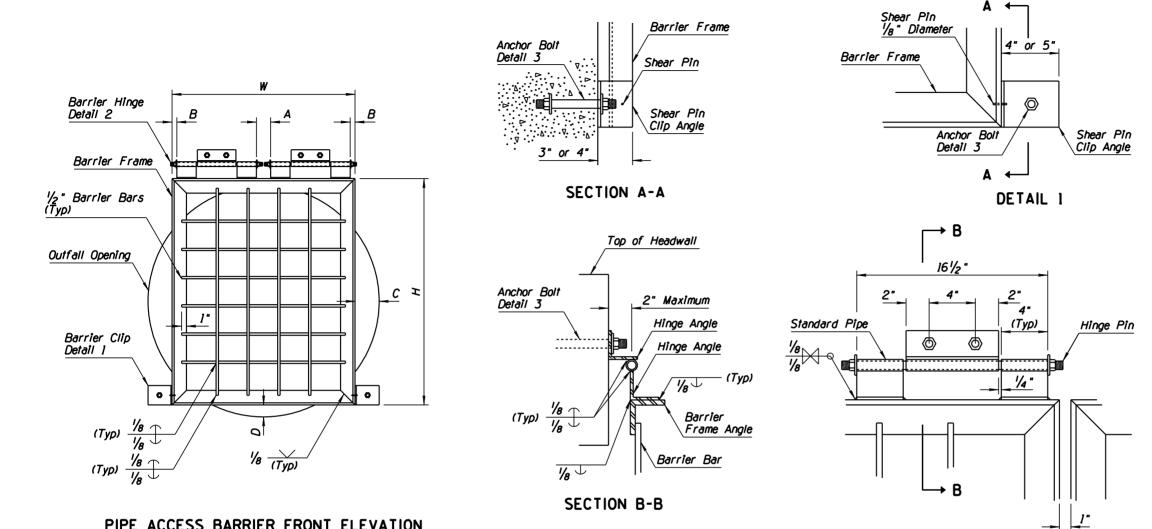


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- 1. Prefabricated tees shall be used when the outside diameter of the inlet pipe exceeds one half of the inside diameter of the main storm drain, except when the manholes are shown on plans.
- Centerline of the inlet pipe shall intersect the centerline of the main storm drain except when elevation "S" is shown on plans.
- 3. If \angle is 45° or less, Type 1 connection shall be used.
- 4. All concrete shall be Class B.
- 5. All rebar shall conform to Std Specs 1003-1 & 2.
- 6. Rebar shall have 2" minimum cover.

ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
	1 STORM DRAIN CONNECTION DETAILS	DRAWING NO. C-13.70

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	RENAMED STANDARD	RLF	9/04
2	MODIFIED TABLE MEASUREMENT FORMAT	RLF	9/04
3	MODIFIED STEEL QUANTITIES	RLF	9/04



PIPE ACCESS BARRIER FRONT ELEVATION

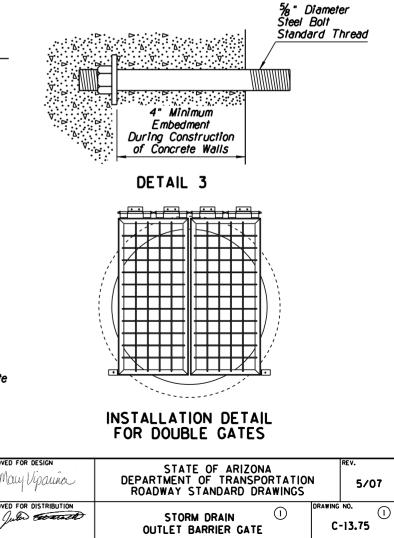
						2									
	ACCESS BARRIER GATE DIMENSION SCHEDULE														
Outfall Pipe ID ([n)	Number of Barrier Gates	Frame Angles	Shear Pin Clip Angles	Hinge Pin Diameter (n)	Hinge Angles	Hinge Std Pipe Diameter (n)	Number & Length of Vertical Bars	Number & Length of Horizontal Bars	H ([n)	W ([n)	A ([n)	B ([n)	C (In)	D (In)	3 Structural Steel (Lbs)
30	1	2 x2 x1/4	4 x4 x1/4	1/2	2 x2 x1/4	3/4	4-31	4-34	33	36	3	0	-3	2	80
36	1	2 x2 x1/4	4 x4 x1/4	1/2	2 x2 x1/4	3/4	4-31	4-34	33	36	3	0	0	3.5	80
42	1	2 x2 x1/4	4 x4 x1/4	1/2	2 x2 x1/4	3/4	4-4]	5-34	43	36	3	0	3	0.5	90
48	1	3 x3 x ⁷ /16	5 x3 x1/4	3/4	21/2 x21/2 x1/4	1	4-46	6-34	50	38	3	1	5	1	180
54	1	3 x3 x ⁷ /16	5 x3 x1/4	3/4	21/2 x21/2 x1/4	1	5-52	7- <i>4</i> 0	56	44	5	3	5	2	205
60	1	3 x3 x ⁷ /16	5 x3 x1/4	3/4	21/2 x21/2 x1/4	1	6-58	8-46	62	50	9	4	5	3	235
66	1	3 x3 x ⁷ /16	5 x3 x1/4	3/4	21/2 x21/2 x1/4	1	7-64	9-52	68	56	11	6	5	4	265
72	2	3 x3 x ⁷ /16	5 x3 x1/4	3/4	21/2 x21/2 x1/4	1	4-69 *	9-34 *	73	38	3	1	-2.5	5	445
78	2	3 x3 x ⁷ /16	5 x3 x1/4	3/4	21/2 x21/2 x1/4	1	4-75 *	10-34 *	79	38	3	1	0.5	5	470
84	2	3 x3 x ⁷ /16	5 x3 x1/4	3/4	21/2 x21/2 x1/4	1	4-8] *]-34 *	85	38	3	1	3.5	5	495
90	2	3 x3 x ⁷ / ₁₆	5 x3 x1/4	3/4	21/2 x21/2 x1/4	1	4-87 *	12-36 *	91	40	3	2	4.5	5	525
96	2	3 x3 x ⁷ /16	5 x3 x1/4	3/4	21/2 x21/2 x1/4	1	5-93 *	13-39 *	97	43	4	3	4.5	5	580

* Per Grate

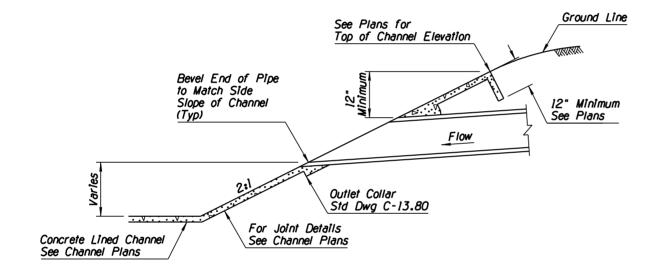
DETAIL 2



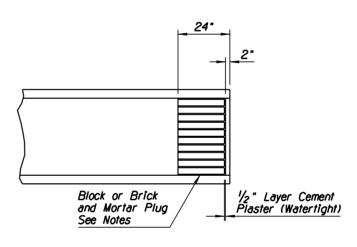
- 1. All shear pin angles shall fit snug and true to face. Cover with waterproof grease prior to installation of pin.
- 2. Shear pin holes in the angle shall be drilled for a tight fit of the pins.
- 3. Both ends of the shear pins shall be peened after installation.
- 4. Shear pin material shall be commercially pure aluminum wire alloy 1100, Temper 0, Federal Spec QQ-A411.
- 5. Galvanize all ferrous parts after fabrication.
- 6. Frame and hinge angles shall have the outstanding leas out.
- 7. All steel shall be in accordance with ASTM A36.
- 8. Barrier bars shall be equally spaced.
- 9. Hinge pin material shall be bolt stock and threaded on both ends so nut and lock washer are flush with the lower angle. Cover pin with waterproof grease prior to installation. Upset or damage exposed threads after installation.
- 10. All welding shall be in accordance with Std Spec 604-3.06.



NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	RENAMED STANDARD FROM C-13.75, SHEET 2	RLF	9/04
(2)			
3			
(1)			







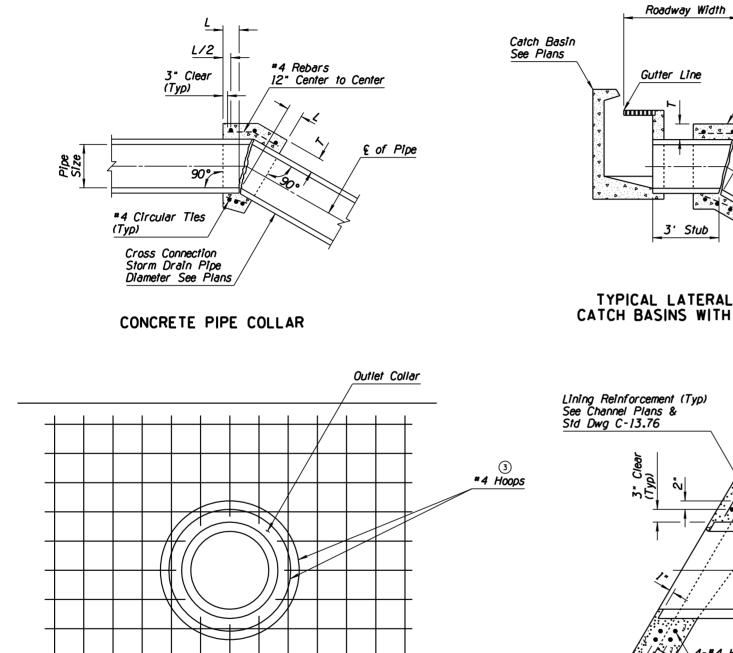
STORM DRAIN PLUG



- 1. Compact soil at end of pipe plug to 95% of maximum density.
- If depth of cover is less than 5' or greater than 10', increase plug thickness a minimum of 4".

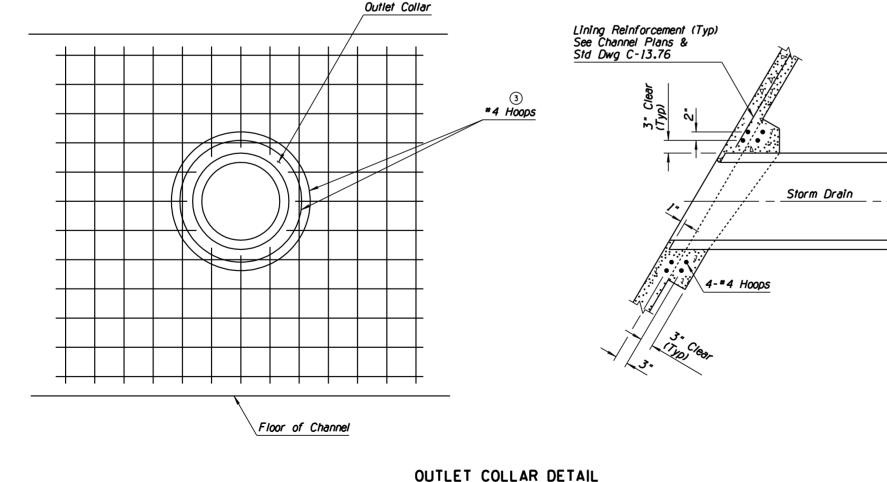
APPROVED FOR DESIGN Mary Vipanna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07
APPROVED FOR DISTRIBUTION	STORM DRAIN OUTLET () AND STORM DRAIN PLUG	DRAWINGI NO. C-13.76

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\odot	MODIFIED TABLE VALUES	RLF	9/04
2	MODIFIED GENERAL NOTE 2	RLF	9/04
3	ADDED CALLOUT	RLF	9/04
4			



Vertical and/or Horizontal Alignment Concrete Pipe Collar Connection Pipe may Extend from any Wall Location as Shown on Plans Catch Other Basi

TYPICAL LATERAL CONNECTIONS TO CATCH BASINS WITH CONCRETE COLLARS



GENERAL NOTES

1. All concrete shall be Class B.

(2) 2. All rebar shall conform to Std Spec 1003-1.2.

3. All rebar shall have 3" minimum clear cover.

 A concrete collar shall be required where pipes of different diameters or materials are joined or where the design change in alignment or grade exceeds that allowed for a standard joint.

5. When pipes of different diameters are joined with a concrete collar, "L" & "T" shall be those of the larger diameter.

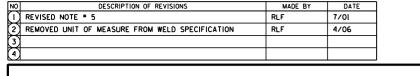
6. The diameter of the circular ties shall be the outside diameter of pipe + T.

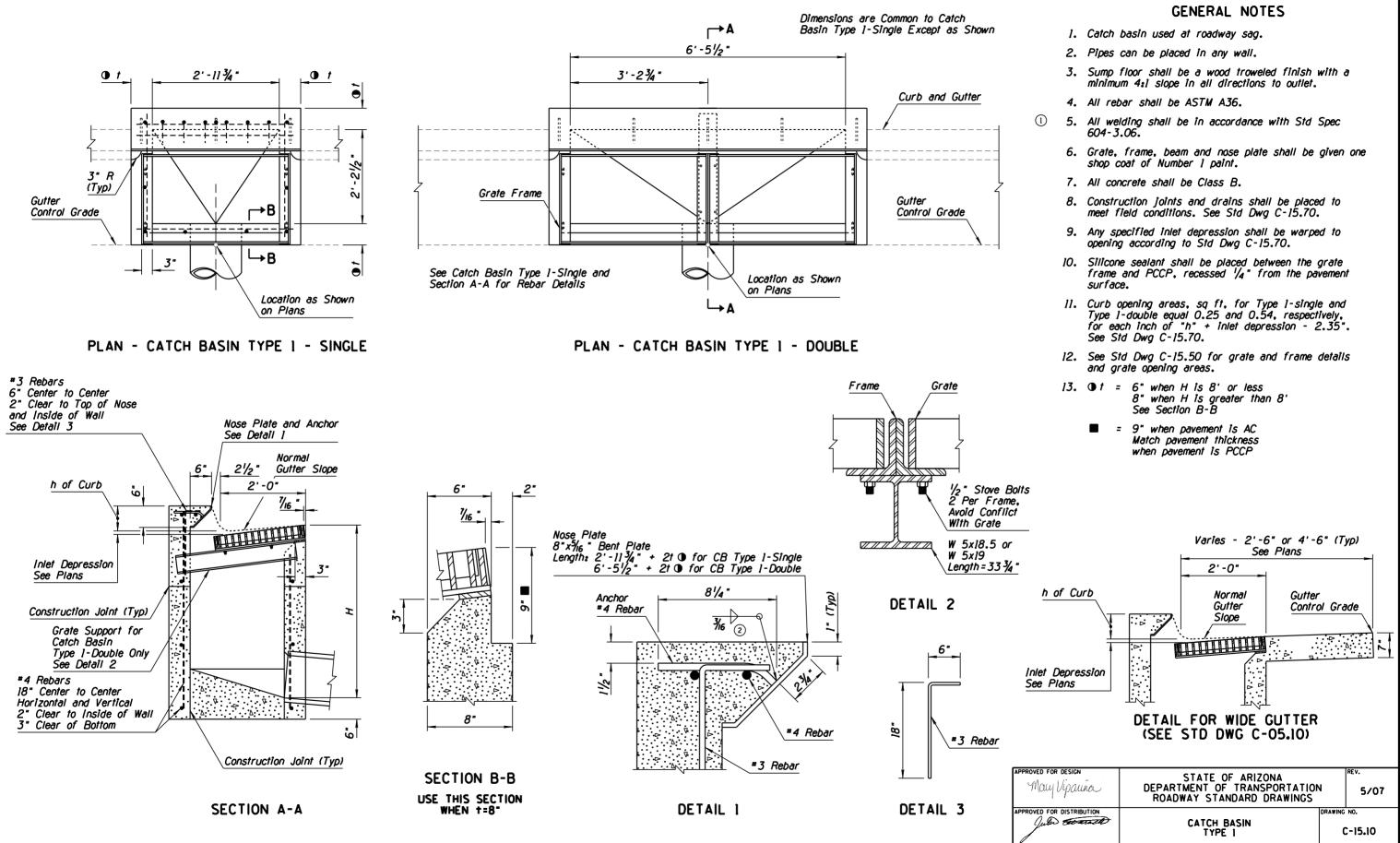
7. Pipe ends to be trimmed such that the maximum distance between pipes at any point is 2".

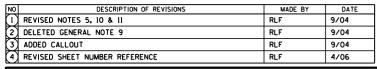
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(1)	
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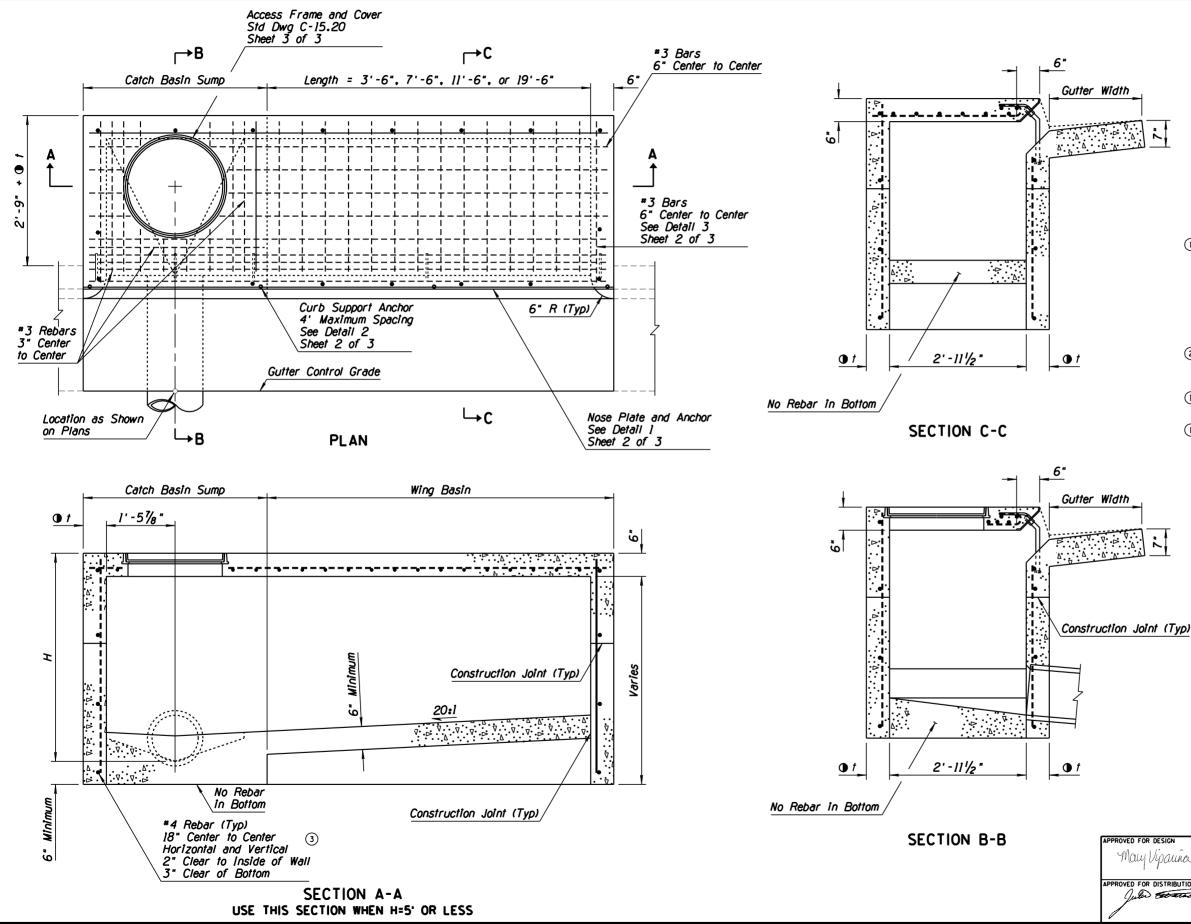
PIPE COLLAR TABLE				
Pipe Size (n)	L (Ft-[n)	T ([n)	#4 Ties	
12	1-0	4	3	
18	1-0	5	3	
24	1-0	6	3	
30	1-6	8	3	
36	1-6	8	3	
42	1-9	10	4	
48	1-9	10	4	
52	1-9	10	4	
60	1-9	11	4	
66	2-0	11	5	
72	2-0]4	5	
78	2-0]4	5	
84	2-3	16	5	
<i>9</i> 6	2-3	16	5	

PPROVED FOR DESIGN Mary Vipanna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07
PPROVED FOR DISTRIBUTION	PIPE COLLAR DETAILS	DRAWING	NO. -13.80



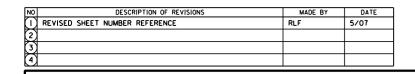


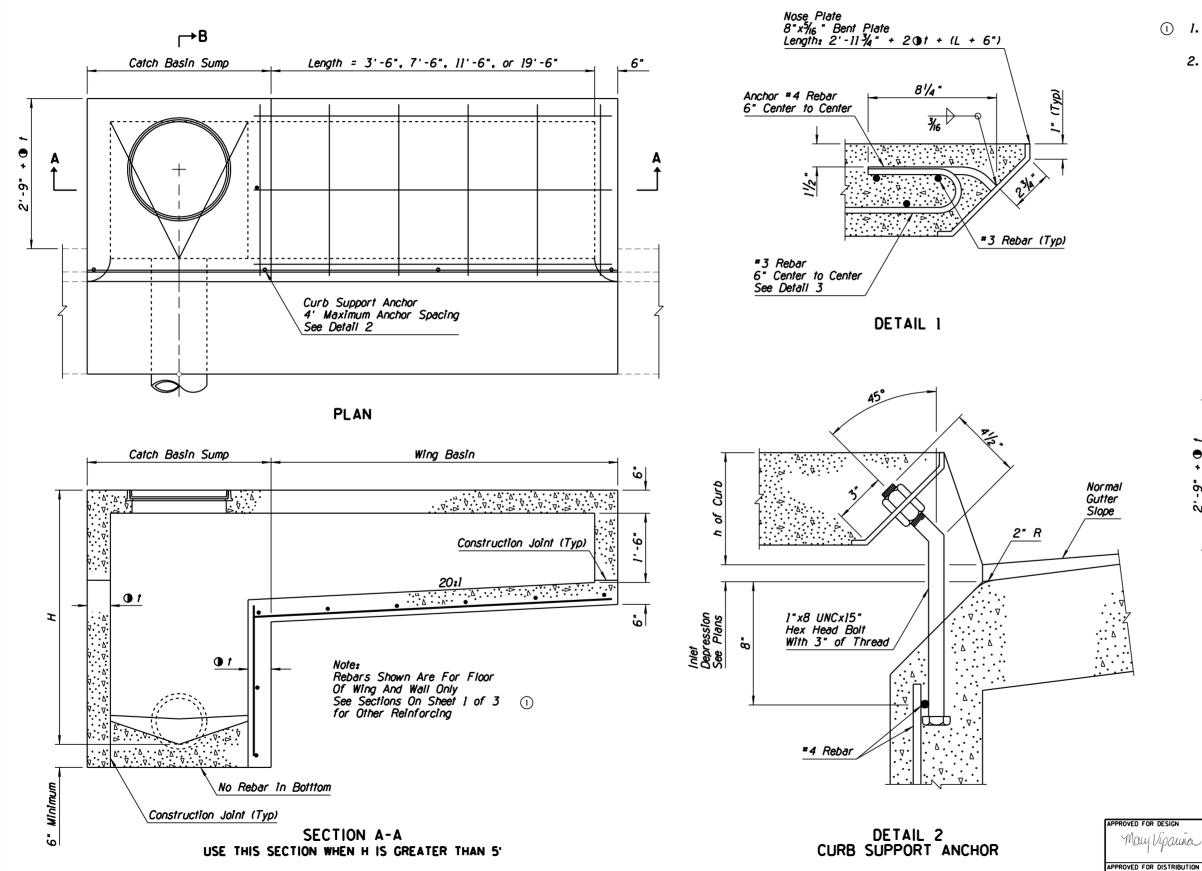


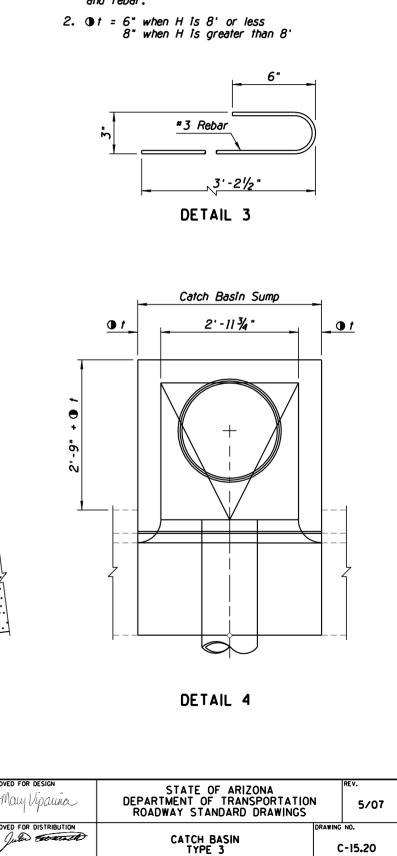


- 1. Catch basin can be used on grade or at roadway saq.
- 2. Catch basin has three configurations:
- Sump Only-Sump portion of catch basin (See Detail 4, Sheet 2 of 3). Single Wing (Illustrated)-Sump with wing basin upstream. (4) Double Wing-Sump with symetrical wing basins each side.
- 3. Pipes can be placed in any wall except wall adjacent to wing basin.
- 4. Floor shall be a wood troweled finish. Slope of the sump portion of the catch basin along the axis of the pipe shall be 4:1.
- () 5. Any specified inlet depression shall be warped to opening according to Std Dwg C-15.70.
 - 6. All rebar shall be ASTM A36.
 - 7. Nose plate, access frame and cover shall be given one shop coat of Number 1 paint.
 - 8. All concrete shall be Class B.
- (2) 9. Curb opening area (sq ft) per inch of curb "h" + gutter depression = curb opening length (ft) x 0.0833.
- (1) 10. All welding shall be in accordance with Std Spec 604-3.06.
- 1) 11. Construction joints and drains shall be placed to meet field conditions. See Std Dwg C-15.70.
- 12. $\mathbf{O}^{\dagger} = 6^{"}$ when H is 8' or less. 8" when H is greater than 8'.

ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		^{REV.}
	CATCH BASIN TYPE 3	DRAWING NO. C-15.20 Sheet 1 of 3	



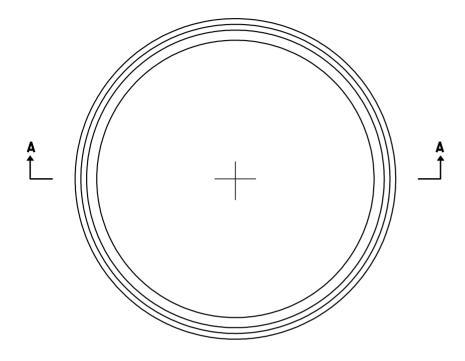


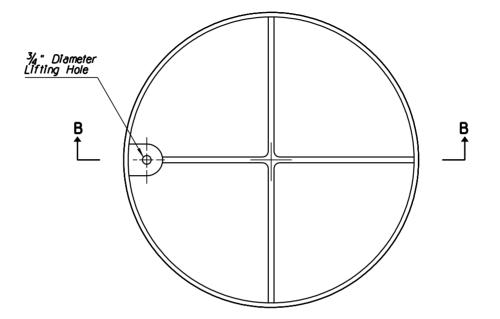


C-15.20 Sheet 2 of 3

() 1. See Sheet 1 of 3 for other dimensions, notes and rebar.

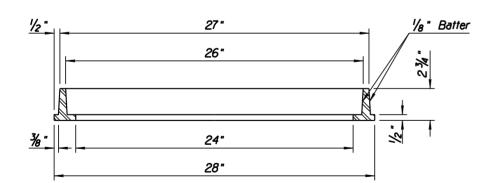
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	RENAMED STANDARD FROM C-15.65 TO C-15.20, SHEET 3 OF 3	RLF	9/04
2			
3			
(4)			



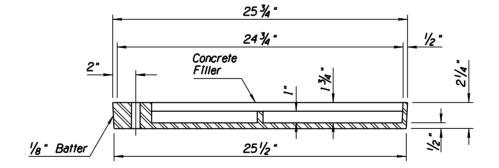










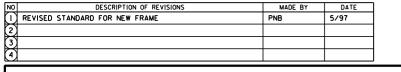


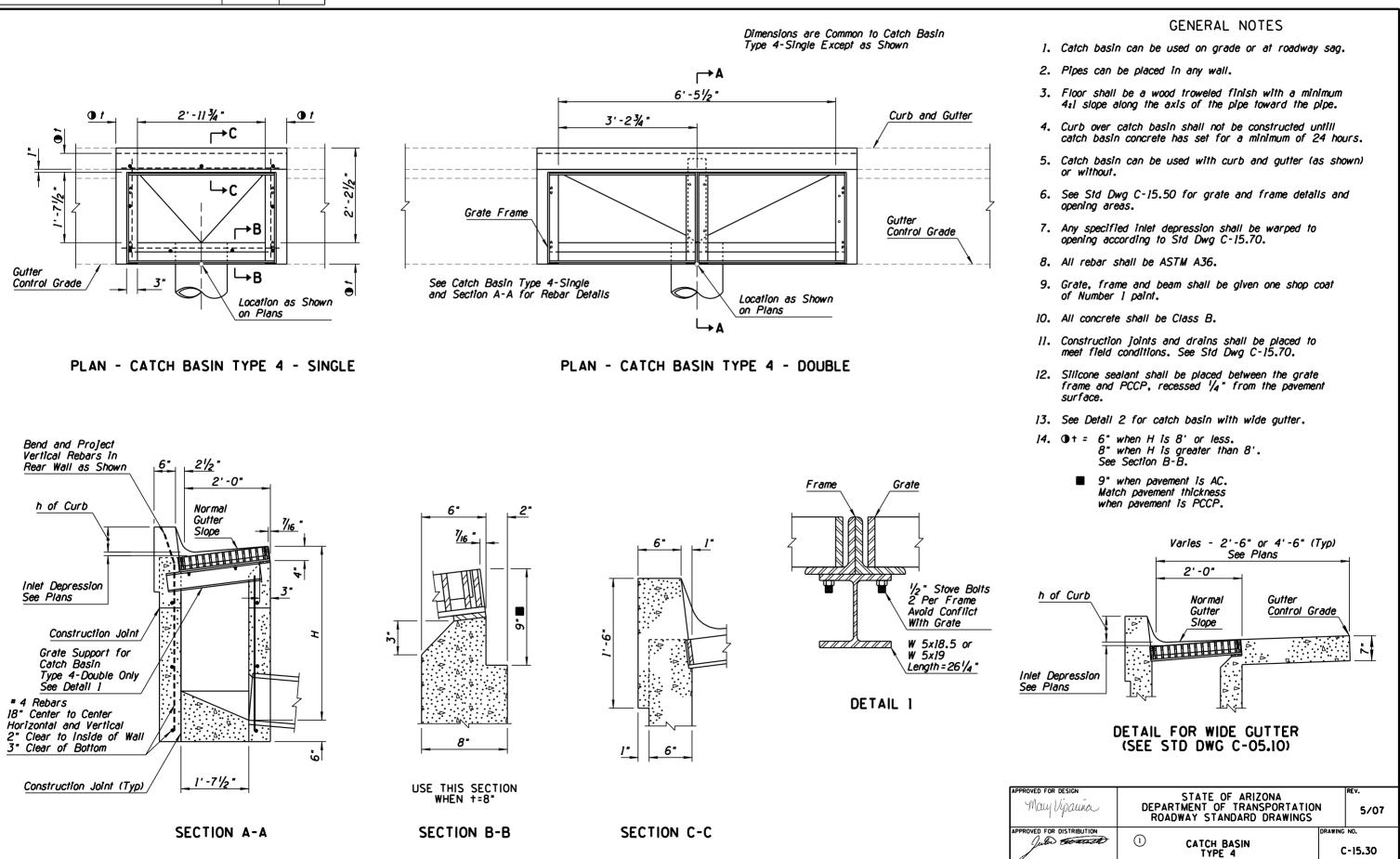




- 1. Cover shall be non-locking.
- Frame and cover shall be cast iron or structural steel.
- Catch basin access frame and cover is for use in sidewalk area only.
- 4. Cover shall be filled with concrete and broom finished.

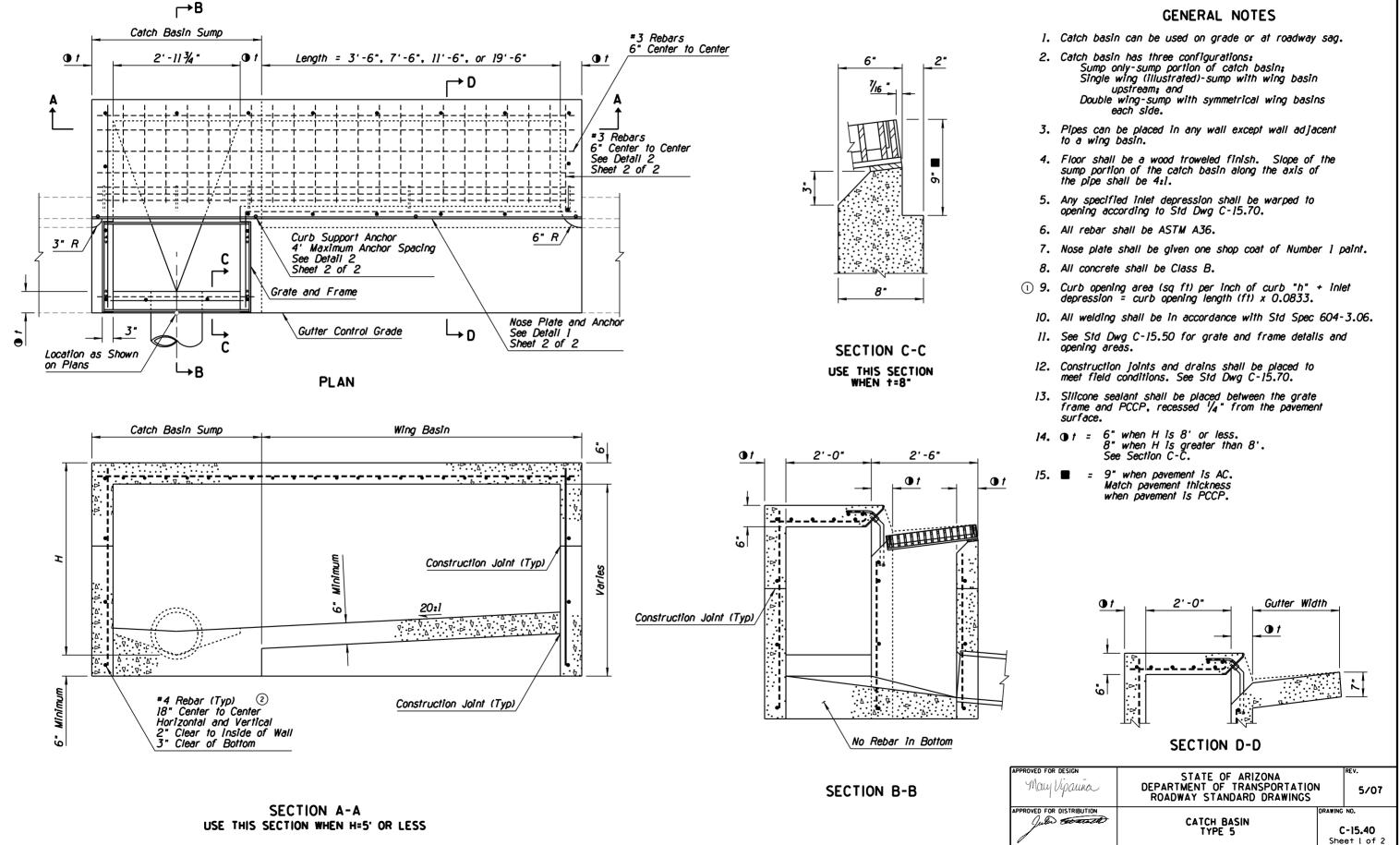
Dauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		5/07
STRIBUTION	CATCH BASIN ACCESS FRAME AND COVER DETAILS	-	NO. 1 15.20 et 3 of 3

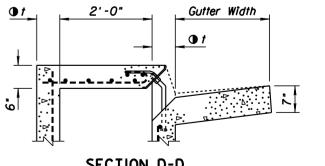


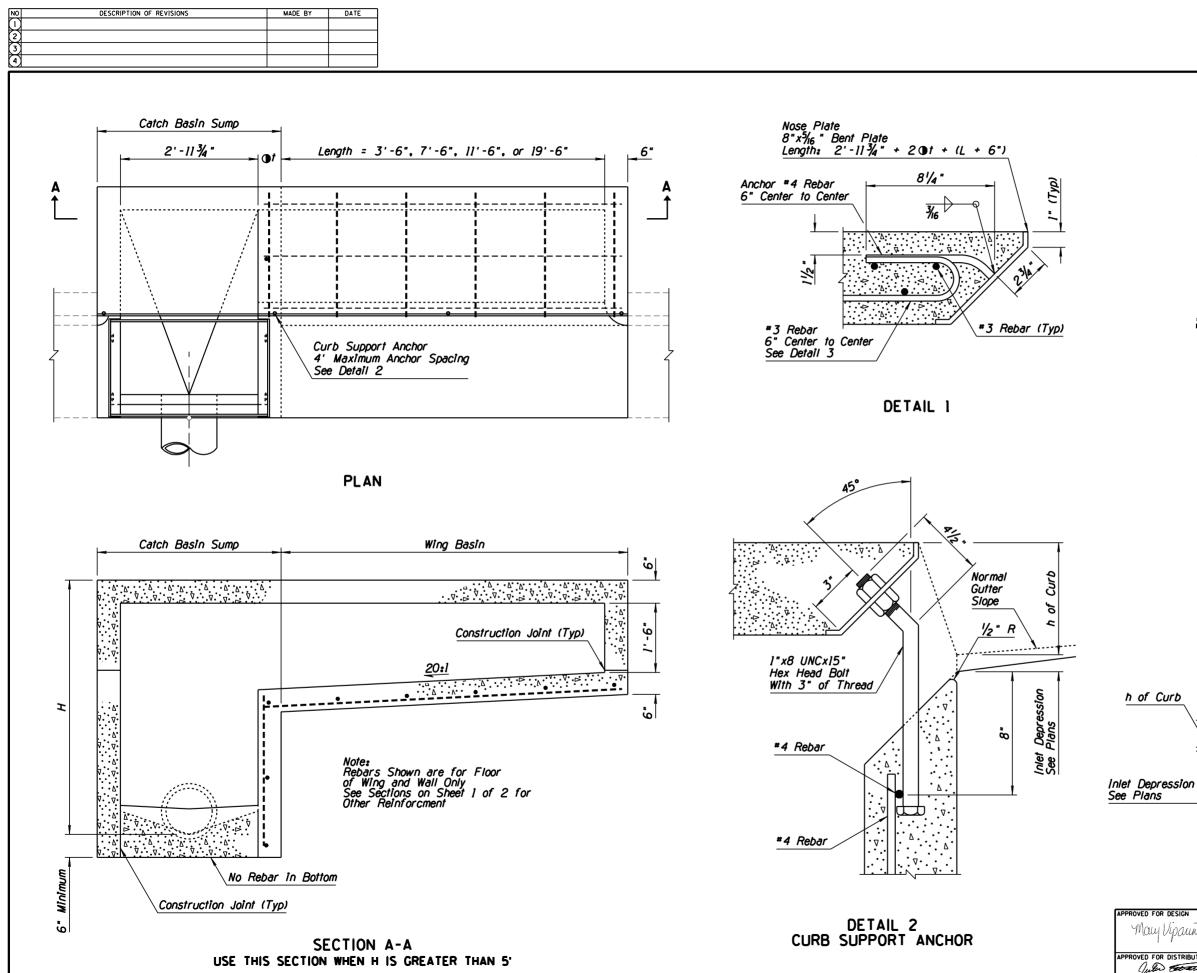


	ĸ	UADWAT STANDARD D	RAWINGS	
STRIBUTION			DRAW	ING NO.
to and	(1)	CATCH BASIN TYPE 4		C-15.30

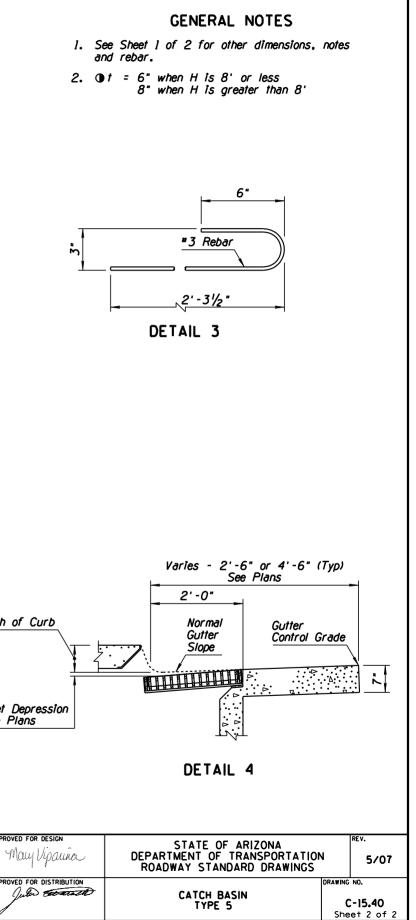
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	DELETED GENERAL NOTE 9, RENUMBERED ALL AFTER 8	RLF	9/04
(2)	ADDED CALLOUT	RLF	9/04
3			
(1)			



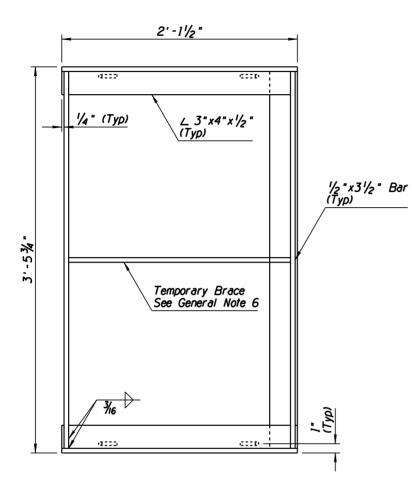




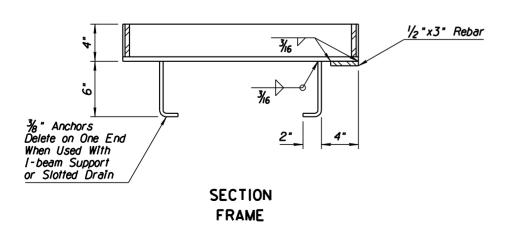
PROVED FOR DISTRIBUTION

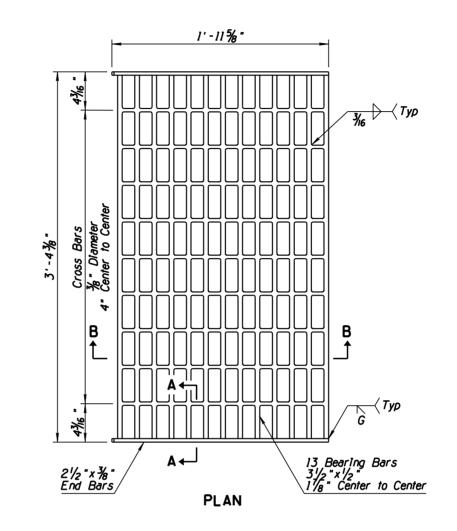


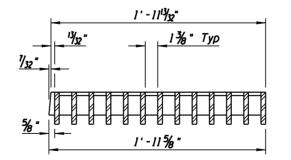
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\Box	REVISED GRATE DIMENSIONS AND REISSUED STANDARD	RT/RLF	7/01
2			
3			



PLAN







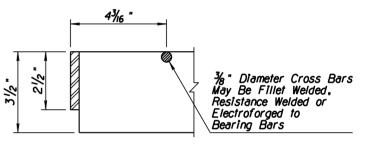






GENERAL NOTES

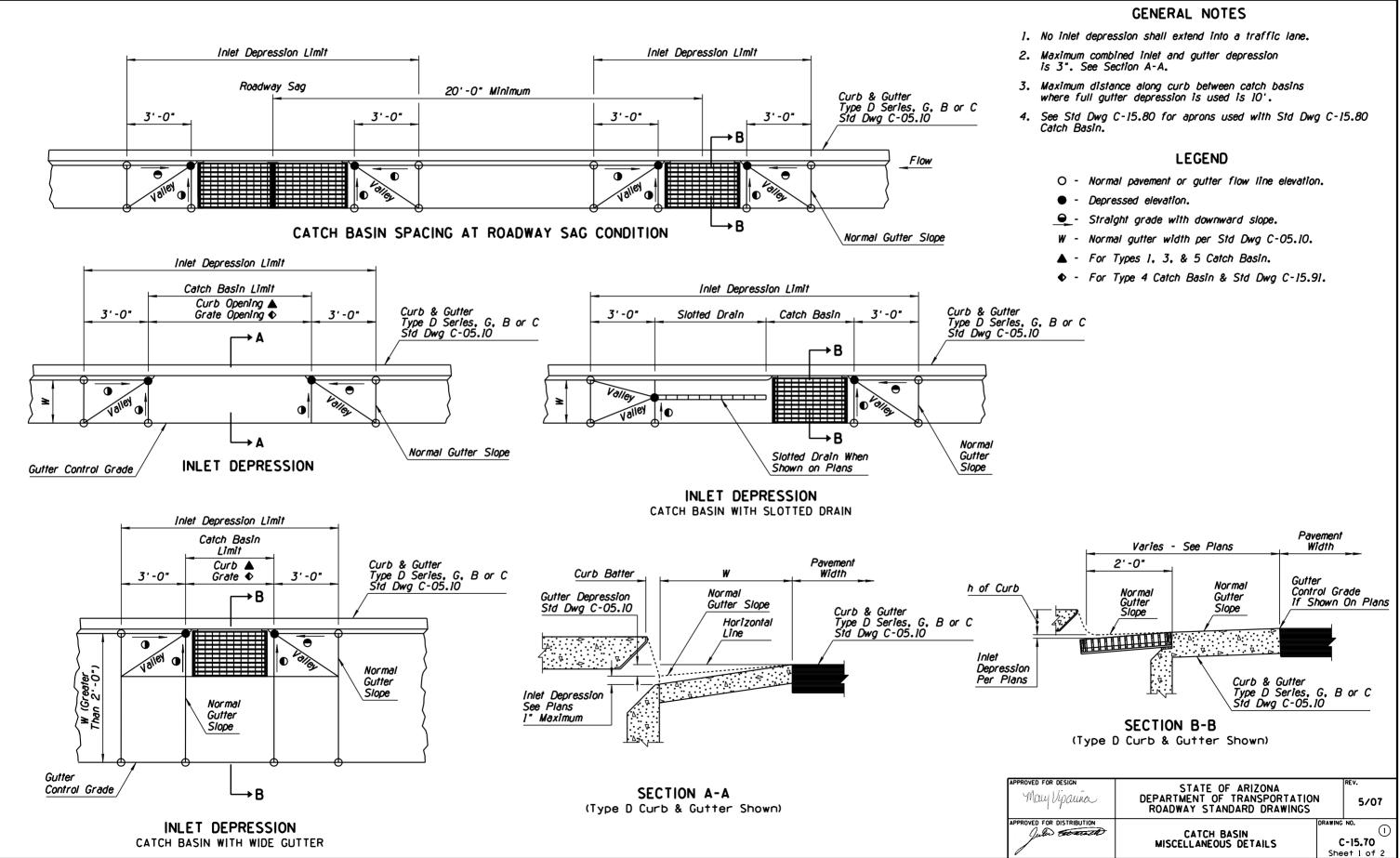
- 1. Grating units and frames shall be fabricated from structural steel ASTM A36 except as noted.
- 2. All welding shall be in accordance with Std Spec 604-3.06.
- 3. The completed assembly shall be given one shop coat of Number 1 paint.
- 4. Frames and grates shall fit to a maximum rock of $\frac{3}{32}$ at any point.
- 5. Grate opening is 3.60 Sq Ft.
- 6. Bracing of frame is recommended for handling and placement purposes.
- Frame and Grate to be used with Std Dwgs C-15.10, C-15.30 and C-15.40.
- 8. Grate may be used with Std Dwg C-15.92 Frame.



SECTION A-A

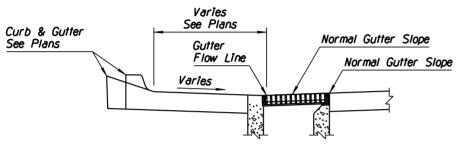
	Beveled Side of Grate Toward Curb		
C	YPICAL INSTALLATION -15.10 Catch Basin Shown ilar for C-15.30 and C-15.40		RE V.
sign	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	1	5/07
STRIBUTION	CATCH BASIN FRAME AND GRATE	DRAWING	^{№.}

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
(4)			

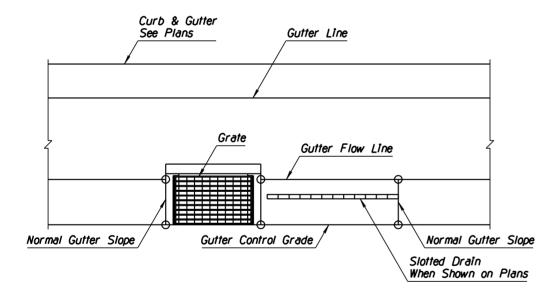


NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\bigcirc	REMOVED CMP DESIGNATION	RLF	9/04
2	ADDED NOTE	RLF	9/04
3			
(4)			

Construction drain may be deleted at the option of the Engineer.



SECTION



Plug With Concrete Upon Completion of Paving

CATCH BASIN CONSTRUCTION DRAIN

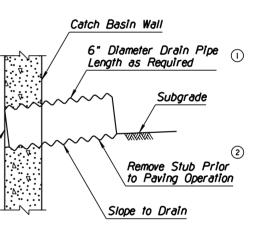
TYPE 4 CATCH BASIN WITHOUT CURB



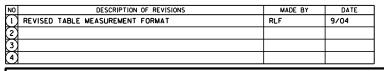
GENERAL NOTES

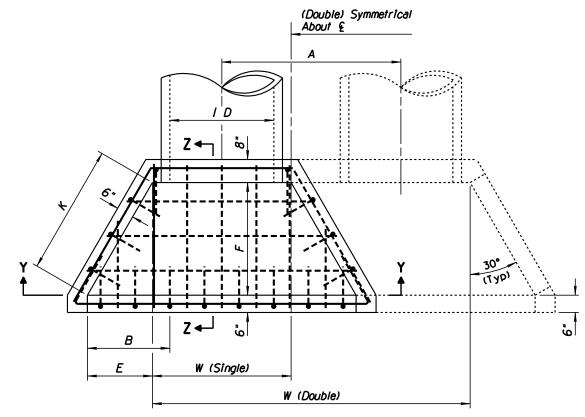
LEGEND

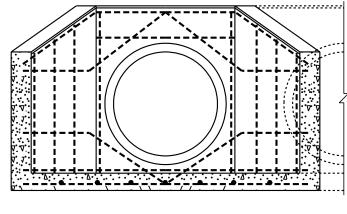
O - Normal pavement or gutter flow line elevation.



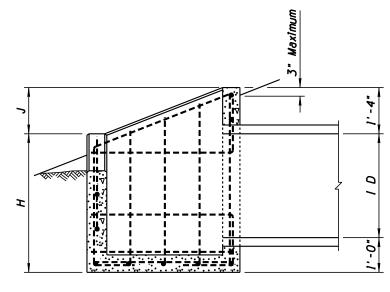
ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	rev. 5/07
STRIBUTION	CATCH BASIN MISCELLANEOUS DETAILS	NO. - 15.70 et 2 of 2







SECTION Y-Y



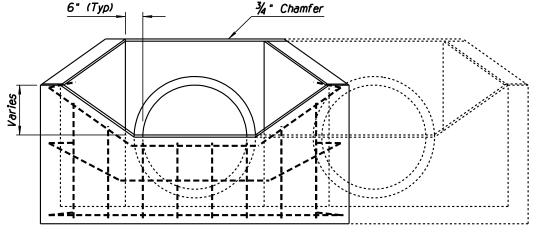
SECTION Z-Z

PIPE DIMENSIONS (Ft-In)							OUANTIT	IES (Based (on CMP Inst	allation)			
ID	V	V		В	F	E	н	,	ĸ	Concret	Concrete (CY)		Steel (Lbs)
(In)	Single	Double	A	Б	E		п	J	Ň	Single	Double	Single	Double
18	2 -6	5-2	2 -8	1-3	0-9	1-35%	3 -1	0-9	1-6	0.7	1.1	75	105
24	3-0	6 -6	3-6	1 -71/2	1 -11/2	1 -113/8	3-5	0-11	2-3	1.0	1.6	90	135
30	3-6	7 -10	4 - 4	2 -0	1 -6	2 -71/4	3-9	1 -1	3-0	1.5	2.3	110	165
36	4 -0	9-2	5-2	2 -41/2	1 -101/2	3-3	4 -0] -4	3-9	2.0	3.0	145	215
42	4 -6	10 -6	6 -0	2 -9	2-3	3 -10 ³ /4	4 - 4	1-6	4 -6	2.5	3.8	190	280

1





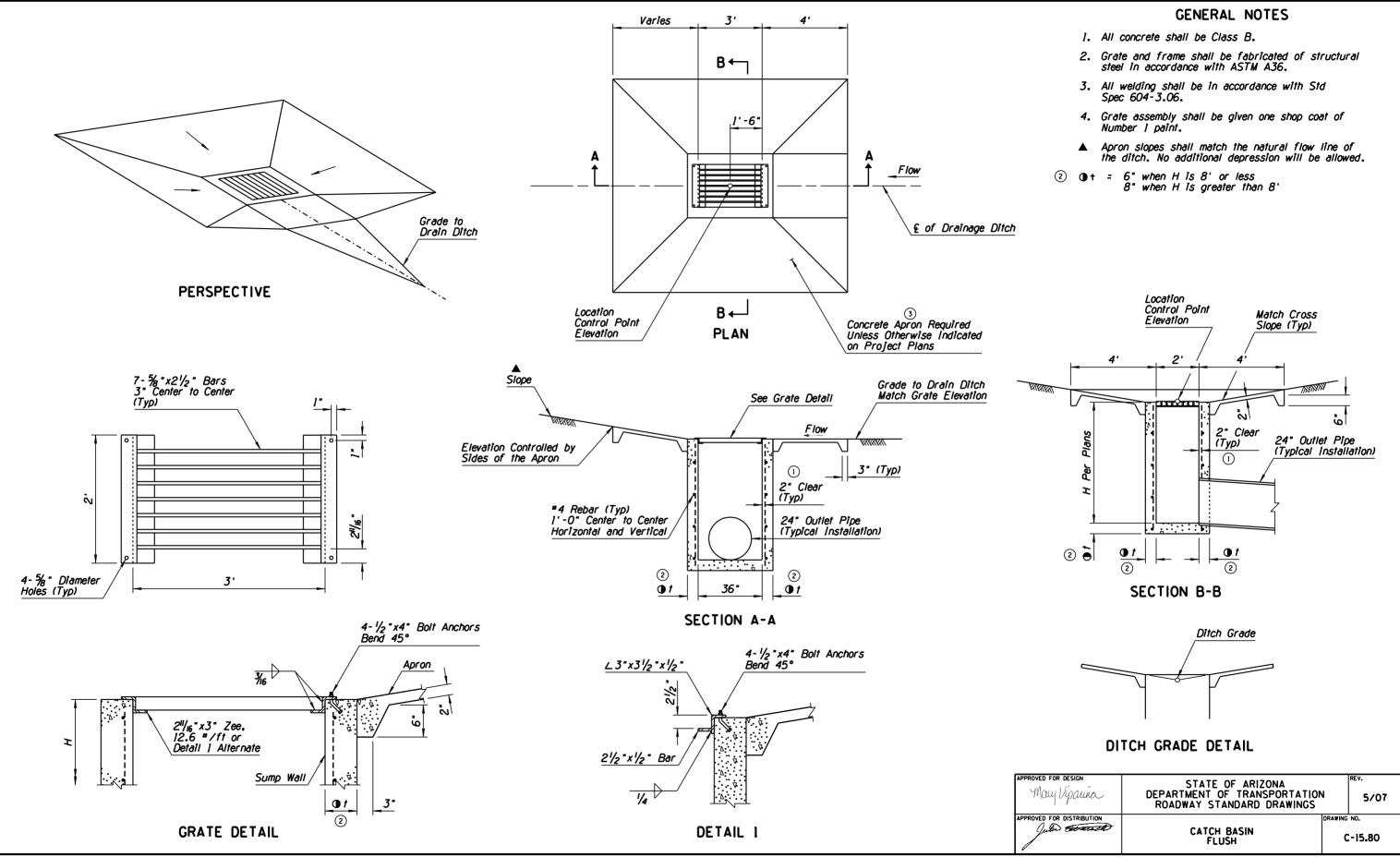


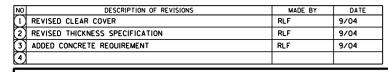
ELEVATION

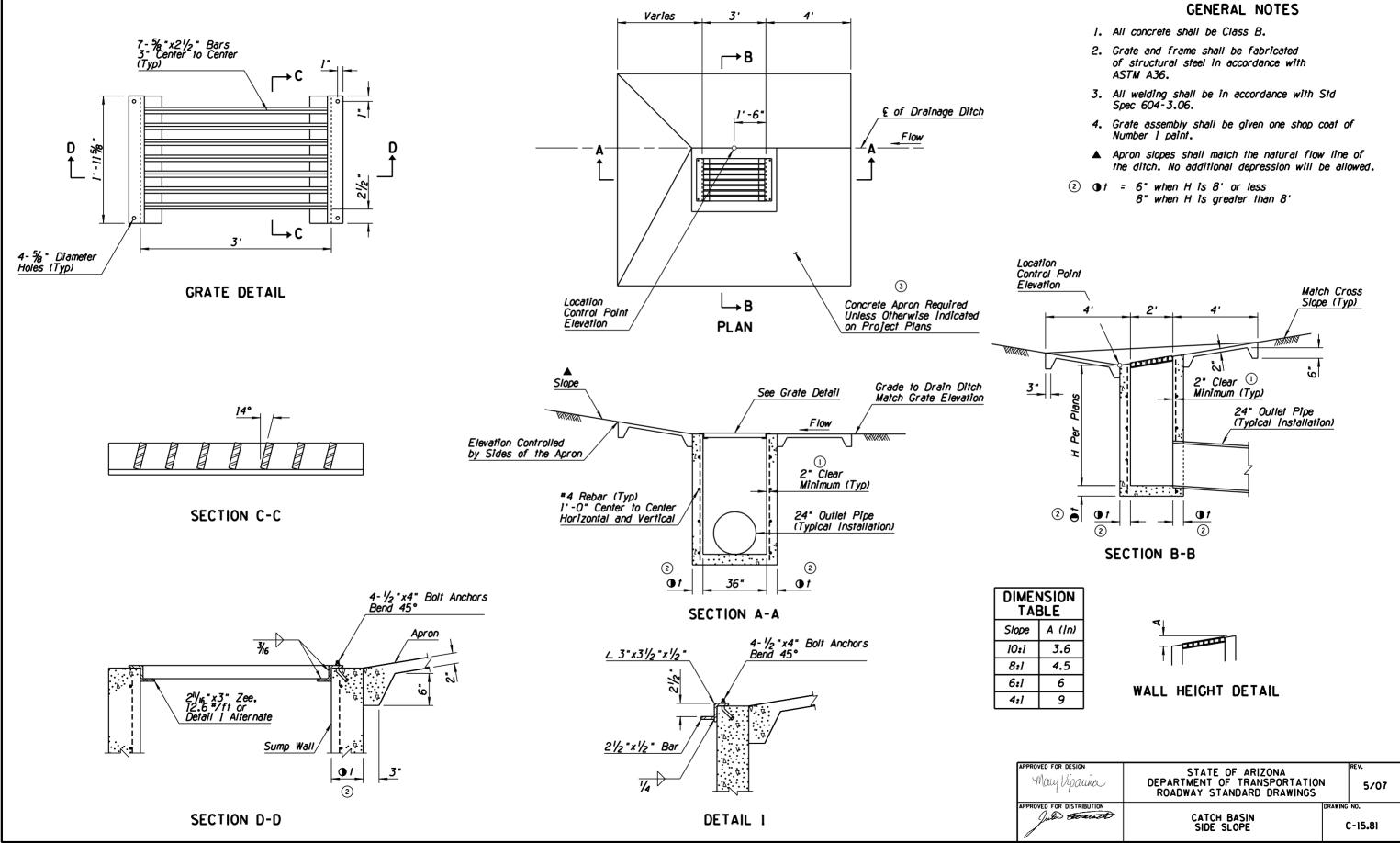
- 1. See also Std Dwg C-13.10.
- 2. High point of headwall shall not project more than 3" above slope.
- 3. All concrete shall be Class B.
- All rebar shall be *4, 1'-O" center to center, with 3" minimum clear to inside of walls and floor.

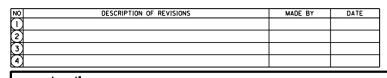
DEPARTMENT OF TRANSPORTATION S/C ROADWAY STANDARD DRAWINGS 5/C	7
OR DISTRIBUTION CATCH BASIN DROP INLET C-15.75)

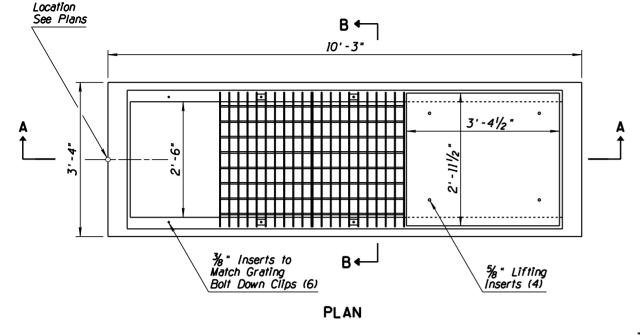
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REVISED CLEAR COVER	RLF	9/04
2	REVISED THICKNESS SPECIFICATION	RLF	9/04
3	ADDED CONCRETE REQUIREMENT	RLF	9/04
(4)			

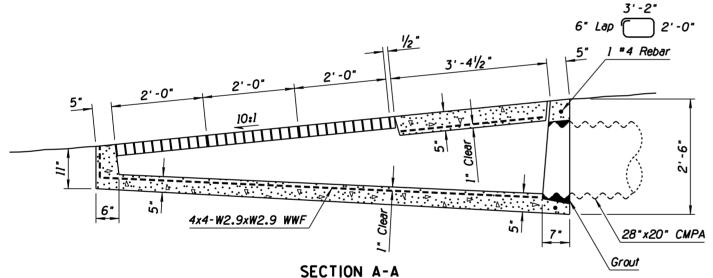


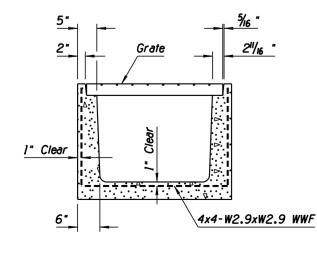


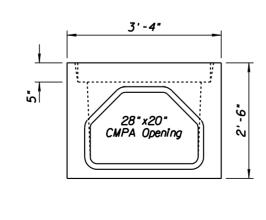


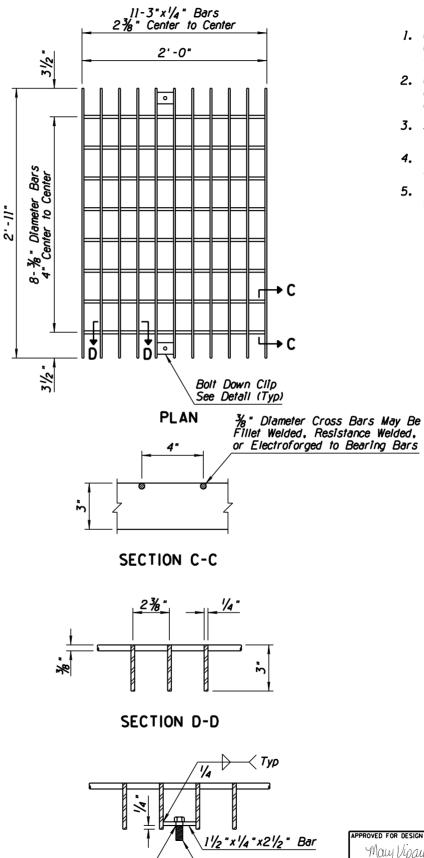












SECTION B-B

END VIEW

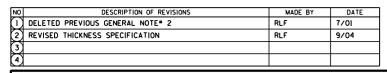
BOLT DOWN CLIP DETAIL

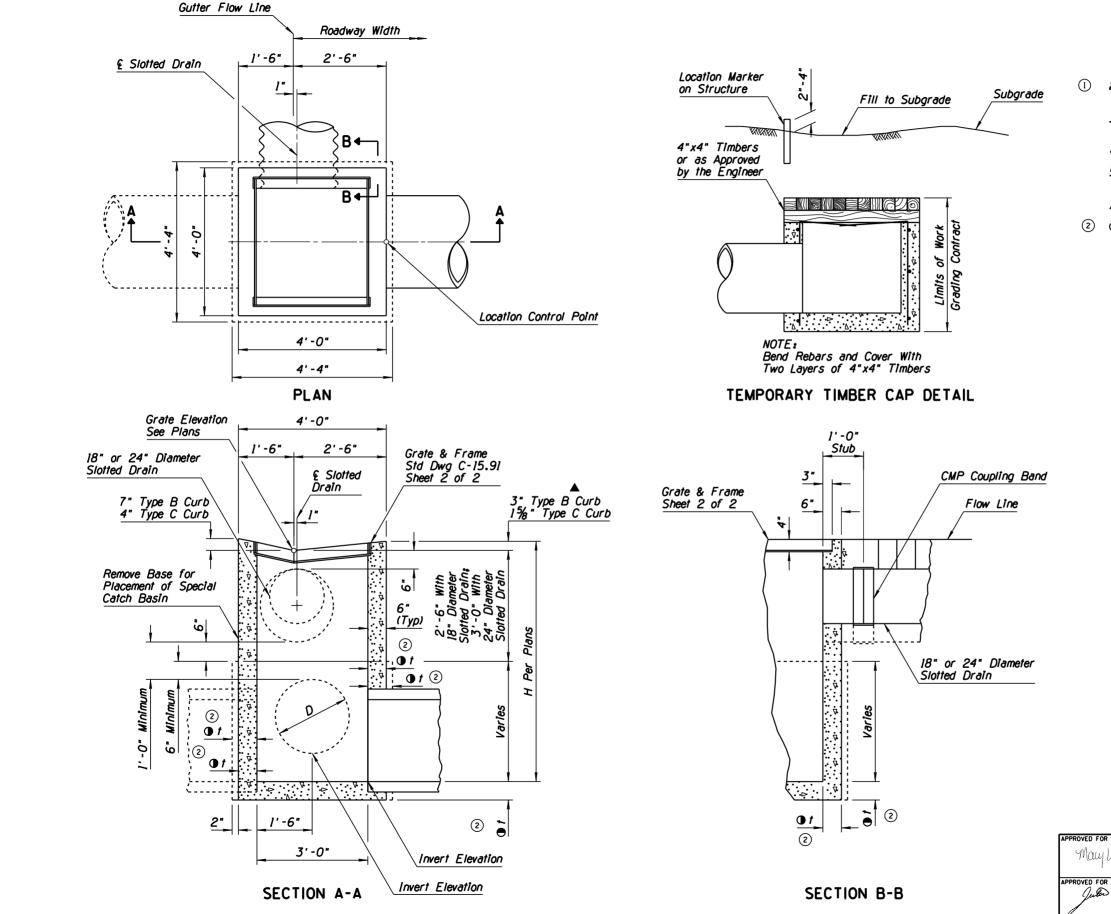
⁷∕₁₆ " Diameter Hole

3% "x1 1/4 " Bolt

- 1. Concrete shall conform to the requirements for Class S Concrete. The minimum strength shall be 4000 PSI.
- 2. Grout shall be in accordance with the Std Specs except water content shall be such that the consistency is proper for smooth troweling.
- 3. All welding shall be in accordance with Std Spec 604-3.06.
- 4. The completed grate shall be given one shop coat of Number 1 paint.
- 5. Foundation soil and backfill shall be in accordance with Std Spec 203-5.

PPROVED FOR DESIGN Mary Vipauna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		REV. 5/07	•
PPROVED FOR DISTRIBUTION		DRAWING	NO. C-15.90	

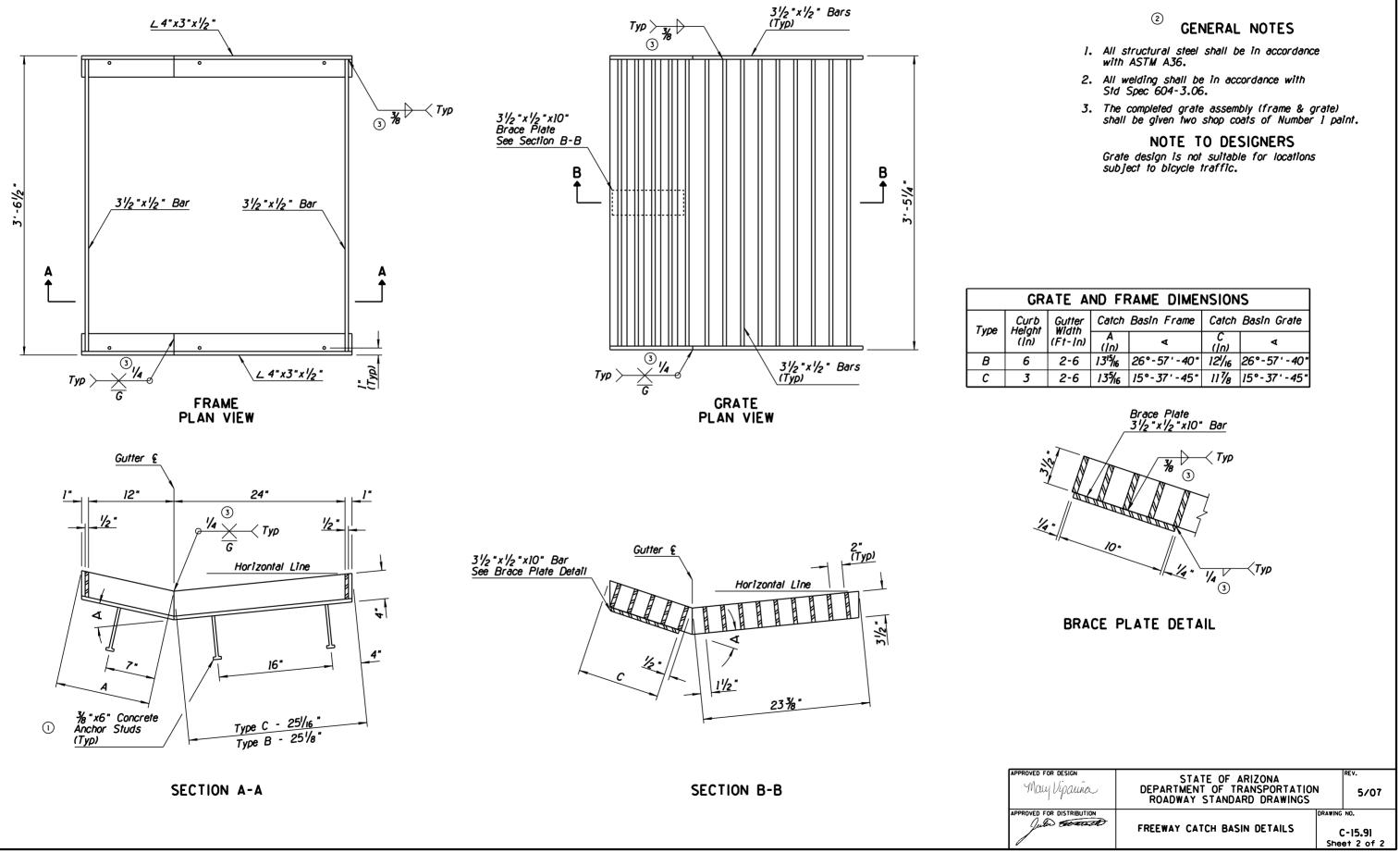




- 1. All concrete shall be Class B.
- 2. All rebar shall have 2" minimum clear cover unless otherwise noted.
- 3. #4 rebar shall be placed 12" center to center horizontal & vertical in walls.
- 4. Pipe may be placed in any wall.
- 5. See Std Dwgs C-13.60 and C-13.65 for more information and dimensions of slotted drains.
- ▲ Includes 1" Inlet Depression
- t = 6" when H is 8' or less
 8" when H is greater than 8'

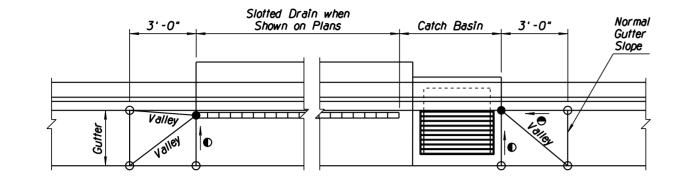
DISTRIBUTION	■ FREEWAY CATCH BASIN DETAILS	RAWING NO. C-15.91 Sheet I of 2
design lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	REV. 5/07

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	REVISED CONCRETE ANCHOR STUD LENGTH	RLF	9/04
2	REARRANGED GENERAL NOTES	RLF	9/04
3	REVISED WELD SIZE NOTATIONS ON DRAWING	RLF	4/06

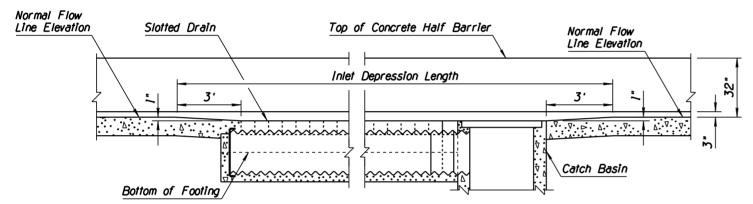


E AND FRAME DIMENSIONS						
utter lidth	Catch	Basin Frame	Catch	Basin Grate		
t-[n)	A ([n)	۲	C ([n)	۷		
2-6	1315/16	26°-57'-40"	121/16	26°-57′-40"		
2-6	135/16	15°-37'-45"	117/8	15°-37'-45"		

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\Box	REISSUED STANDARD DRAWING	RLF	9/04
2			
3			
4			

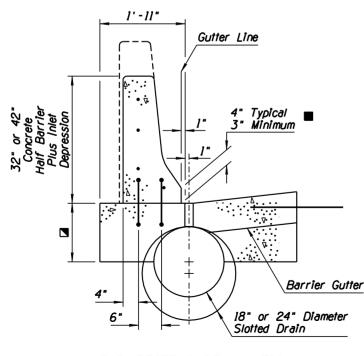




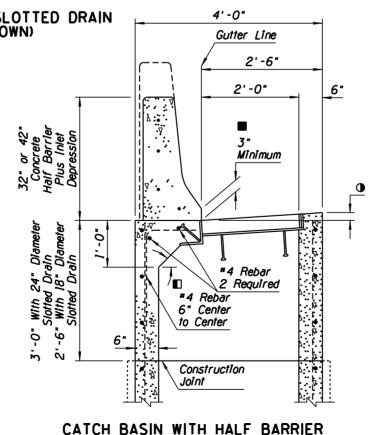


ELEVATION





HALF BARRIER INSTALLATION AT SLOTTED DRAIN LOCATIONS



- basin.

 - inlet depression

 - as specified



1. See Std Dwg C-15.91 for dimensions, sizes and details not shown for construction of catch basin.

2. See Std Dwgs C-10.52 and C-10.53 for dimensions, sizes and details not shown for construction of barrier.

3. See Std Dwg C-13.60 for dimensions, sizes and details not shown for construction of slotted drain.

4. Only longitudinal reinforcing steel shall be placed in half barrier within 1' of catch basin frame. S-shape bars shall not be placed in the rear wall of the catch

I'-3" for 18" diameter slotted drain I'-6" for 24" diameter slotted drain

Angle varies. approximately 45°

Varies in increased height over catch basin and slotted drain

Depressed elevation.

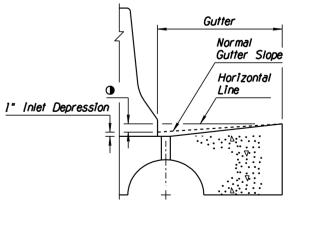
O Normal pavement or gutter flow line elevation.

• Match adjacent gutter depression. Additional inlet depression

Straight grade with downward slope.

NOTE TO DESIGNERS

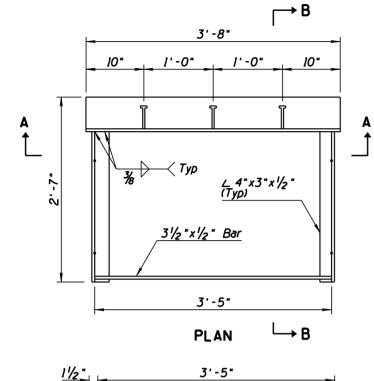
Grate design shown is not suitable for locations subject to bicycle traffic. Use Std Dwg C-15.50 grate with Std Dwg C-15.92 frame (Sheet 2 of 2) for locations with bicycle traffic.

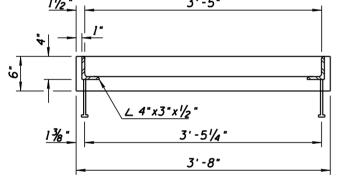


GUTTER DEPRESSION AT SLOTTED DRAIN LOCATIONS

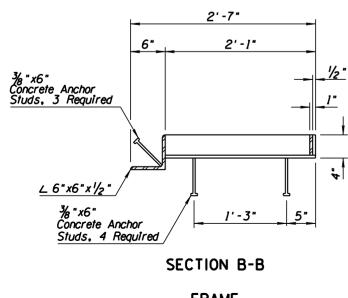
ipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		rev. 5/07
DISTRIBUTION	CATCH BASIN WITH	DRAWING	
	TYPE 'F' CONCRETE HALF BARRIER	-	-15.92 et 1 of 2

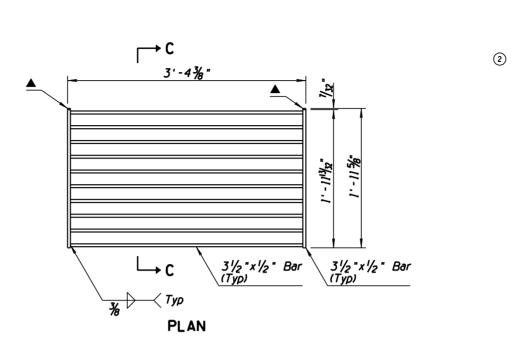
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	REISSUED STANDARD DRAWING	RLF	9/04
2	DELETED GENERAL NOTE	RLF	4/06
3	REVISED NOTE TO DESIGNERS	RLF	5/07
4			

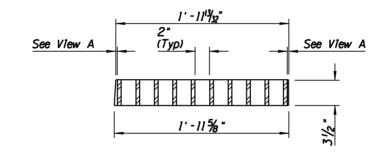


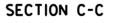




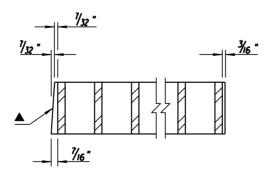








GRATE







GENERAL NOTES

All welding shall be in accordance with Std Spec 604-3.06.
 Grate opening for grate shown is 4.75 Sq Ft.

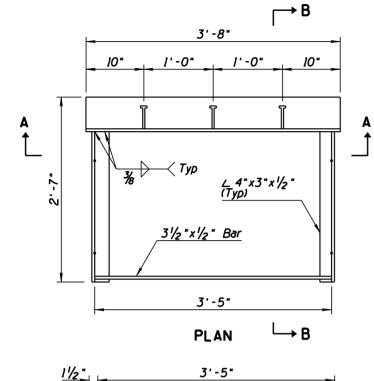
▲ Beveled side of grate toward barrier

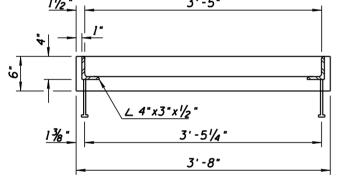
③ NOTE TO DESIGNERS

Grate design shown is not suitable for locations with bicycle traffic. Use Std Dwg C-15.50 grate with Std Dwg C-15.92 frame (Sheet 2 of 2) for locations with bicycle traffic.

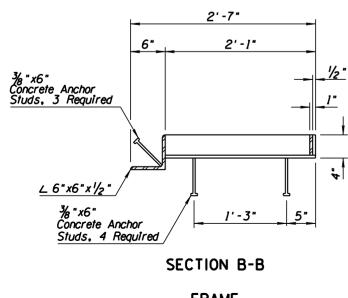
lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	1	rev. 5/07
	CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER	DRAWING NO. (1) C-15.92 Sheet 2 of 2	

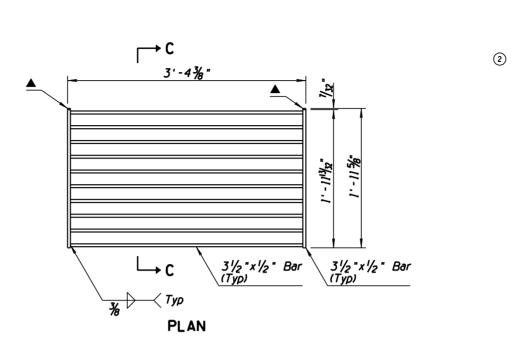
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	REISSUED STANDARD DRAWING	RLF	9/04
2	DELETED GENERAL NOTE	RLF	4/06
3	REVISED NOTE TO DESIGNERS	RLF	5/07
4			

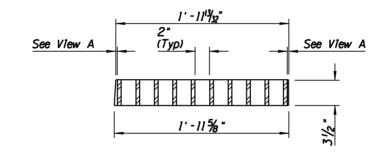


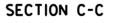




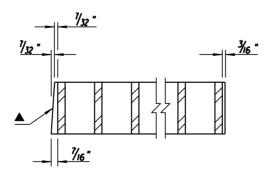








GRATE







GENERAL NOTES

All welding shall be in accordance with Std Spec 604-3.06.
 Grate opening for grate shown is 4.75 Sq Ft.

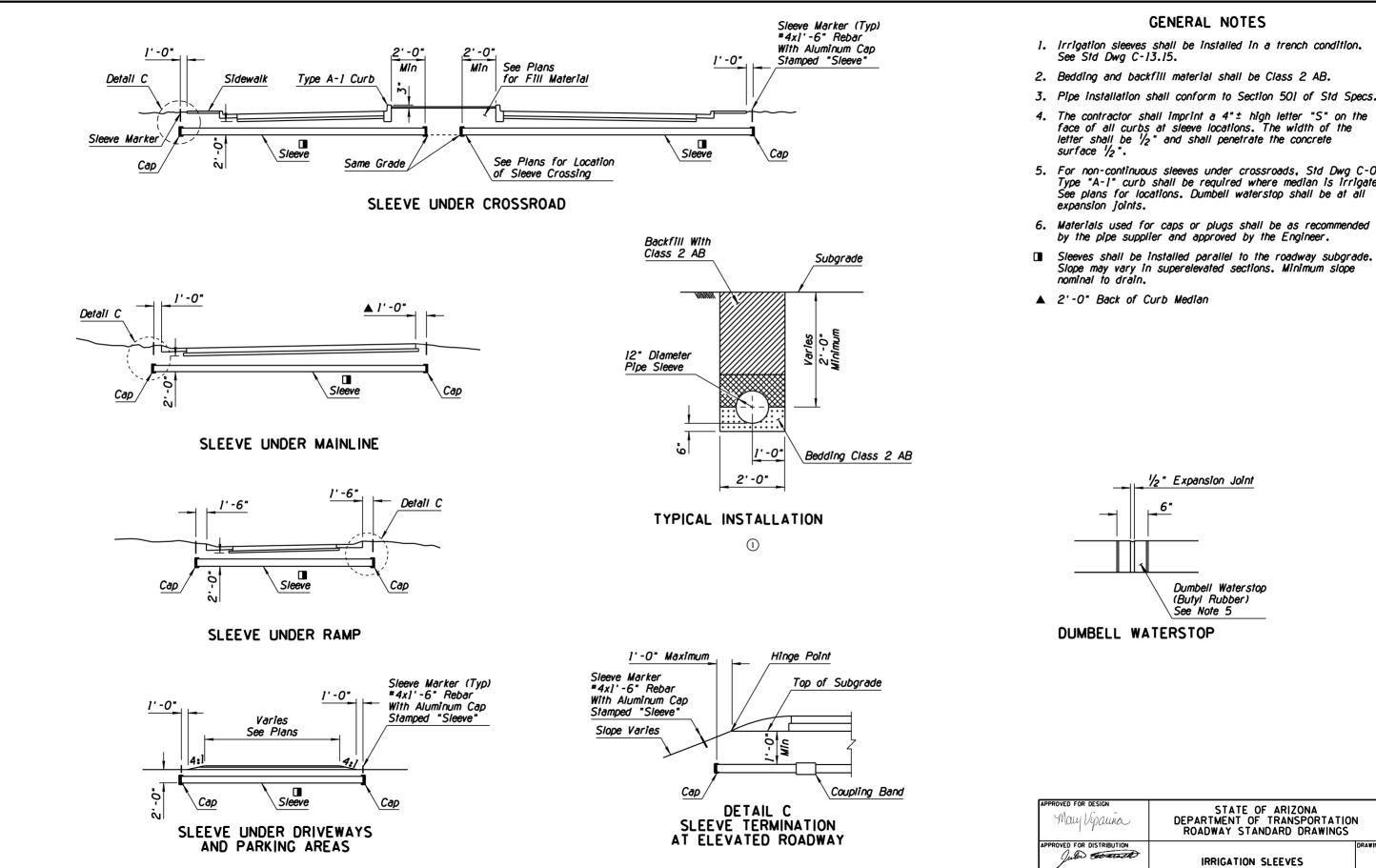
▲ Beveled side of grate toward barrier

③ NOTE TO DESIGNERS

Grate design shown is not suitable for locations with bicycle traffic. Use Std Dwg C-15.50 grate with Std Dwg C-15.92 frame (Sheet 2 of 2) for locations with bicycle traffic.

lipauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	1	rev. 5/07
	CATCH BASIN WITH TYPE 'F' CONCRETE HALF BARRIER	DRAWING NO. (1) C-15.92 Sheet 2 of 2	

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	REVISED GRAPHICS	RLF	9/04
2			
3			
4			



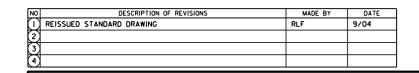
3. Pipe installation shall conform to Section 501 of Std Specs.

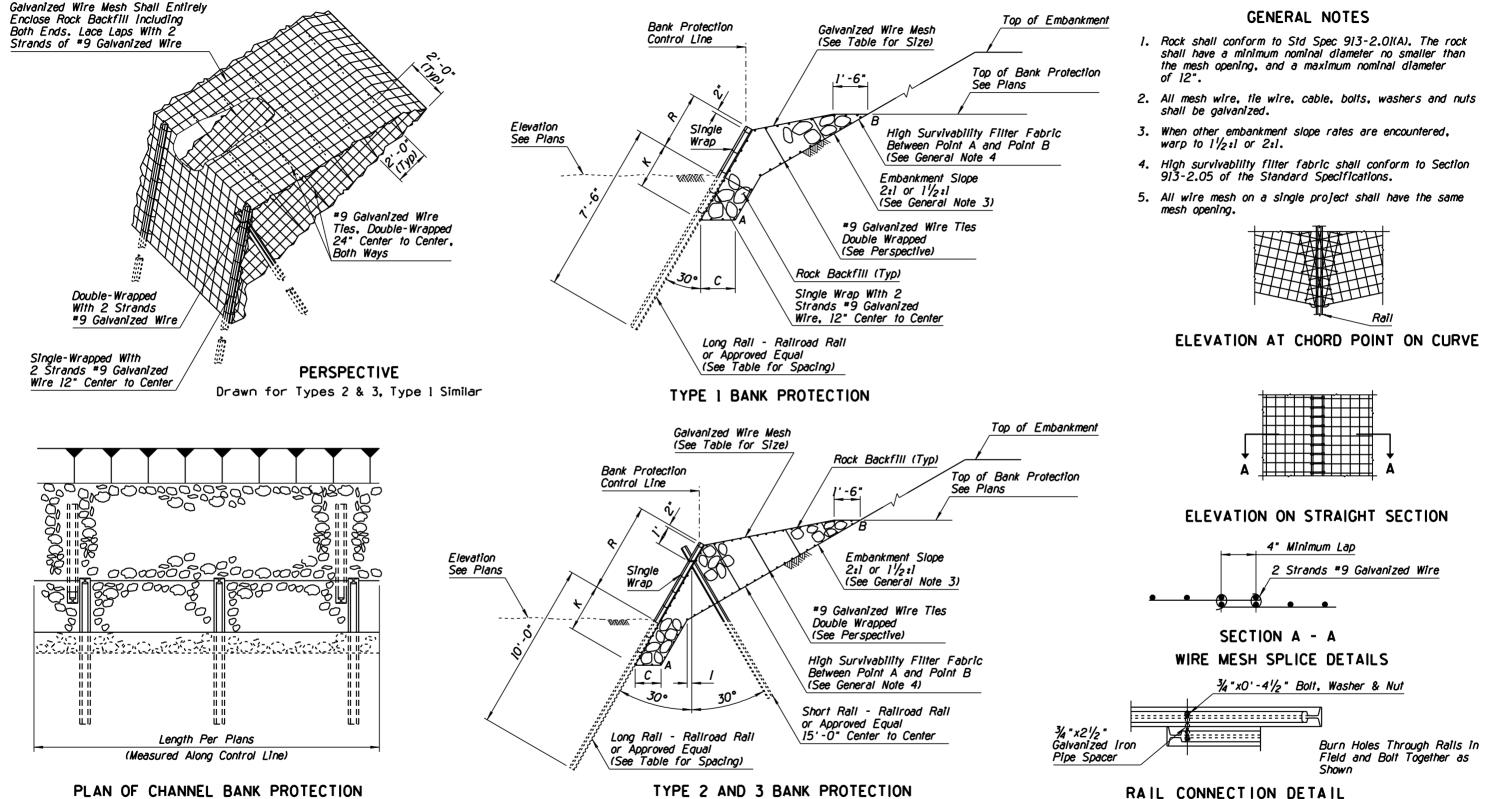
5. For non-continuous sleeves under crossroads, Std Dwg C-05.10 Type "A-1" curb shall be required where median is irrigated. See plans for locations. Dumbell waterstop shall be at all

6. Materials used for caps or plugs shall be as recommended by the pipe supplier and approved by the Engineer.

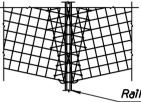
Sleeves shall be installed parallel to the roadway subgrade. Slope may vary in superelevated sections. Minimum slope

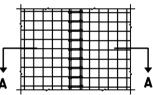
esion	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	5/01
ISTRIBUTION	IRRIGATION SLEEVES	DRAWING NO. C-16.40



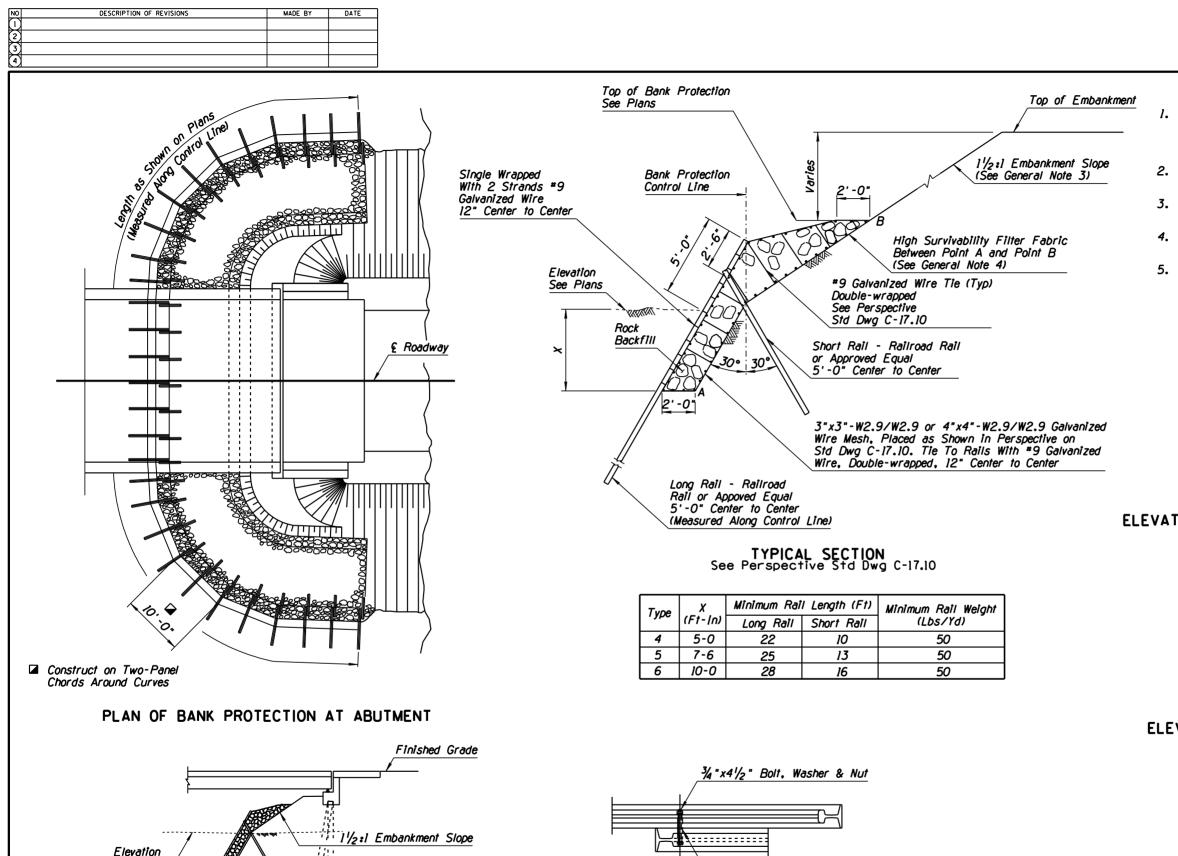


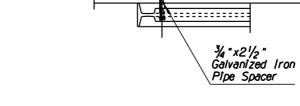
													 AFFROVED FOR DE
	Туре	SHORT RAIL LENGTH (Ft)	SHORT RAIL WT (Lbs/Yd)		LONG RAIL WT (Lbs/Yd)	LONG RAIL SPACING (Ft-In) (Center to Center)	MESH DESIGNATION	C (Ft-[n)	 (Ft)	K (Ft-[n)	R (Ft-[n)	TOP OF BANK PROTECTION ABOVE THE STREAM BED (Ft)	Mary Vý
	1	N/A	N/A	10	20 Min	7-0	3"X3"-W].4/W].4	1-6	0	2-0	2-6	2 to 4	APPROVED FOR DIS
	2	10	20 Min	15	50 Min	7-6	or	1-6	0	3-0	5-0	4 to 7	Jule 5
[3	12	20 Min	17	50 Min	7-6	4"X4"-W].4/W].4	2-0	1	4-0	7-0	6 to 12	





esion pauña	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		^{REV.} 5/07
ISTRIBUTION	RAIL BANK PROTECTION FOR DRAINAGEWAYS TYPES 1, 2 & 3	DRAWING	^{№.} () 2-17.10





RAIL CONNECTION DETAIL Burn Holes Through Rails In Field and Bolt Together as Shown

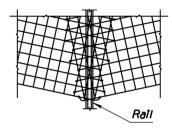


SECTION ON & ROADWAY

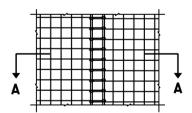
See Plans

GENERAL NOTES

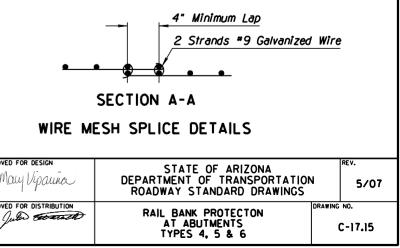
- 1. Rock shall conform to Section 913-2.01(A) of the Standard Specifications. The rock shall have a minimum nominal diameter no smaller than the mesh opening, and a maximum nominal diameter of 12".
- 2. All mesh wire, tie wire, cable, bolts, washers and nuts shall be galvanized.
- 3. When other embankment slope rates are encountered, warp to 11/2:1 or 2:1.
- 4. High survivability filter fabric shall conform to Section 913-2.05 of the Standard Specifications.
- 5. All wire mesh on a single project shall have the same mesh opening.

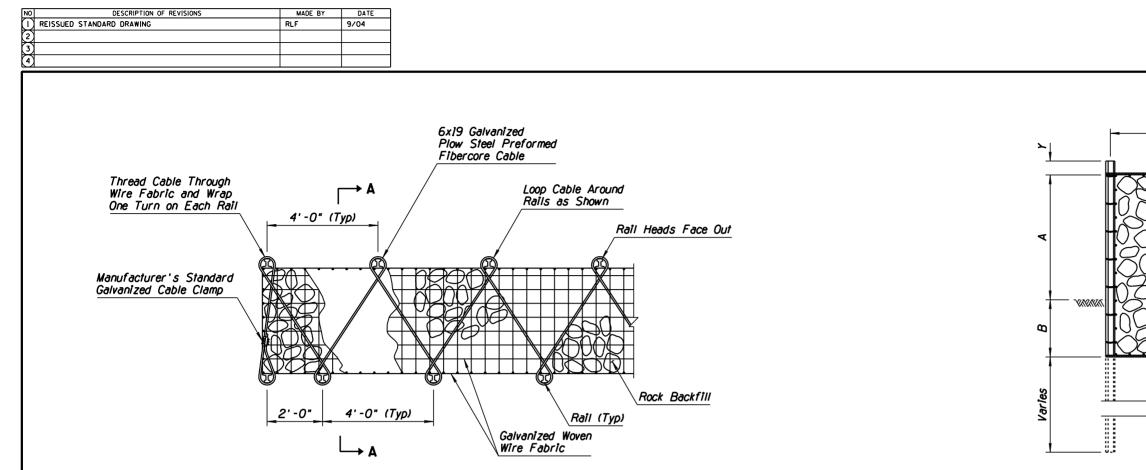


ELEVATION AT CHORD POINT ON CURVE



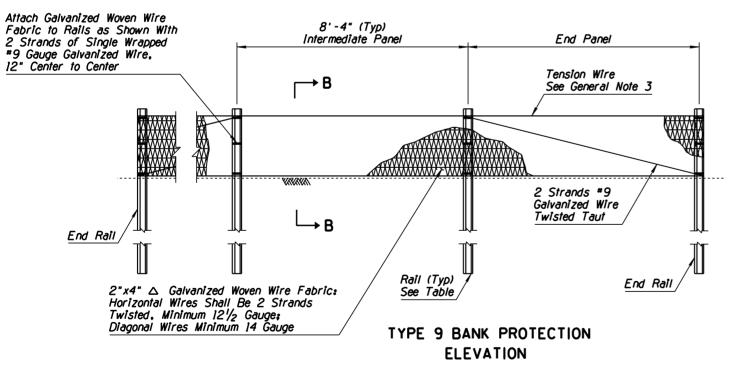
ELEVATION ON STRAIGHT SECTION



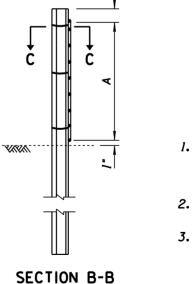


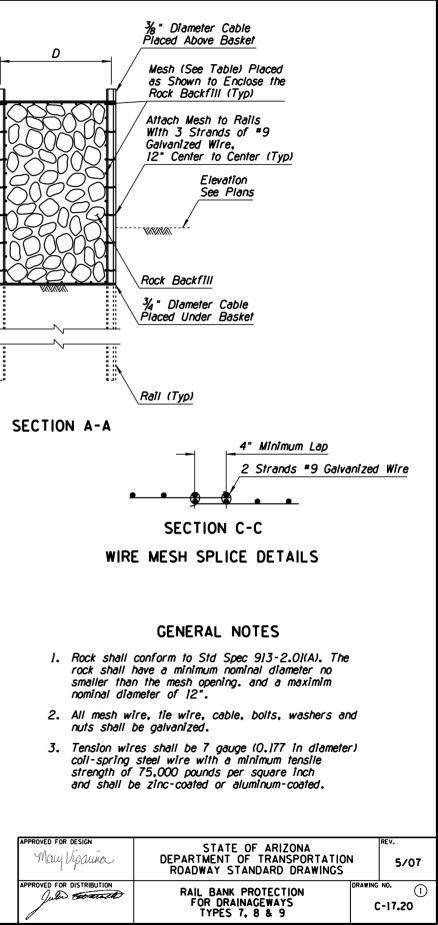


TYPE 7 AND 8 BANK PROTECTION

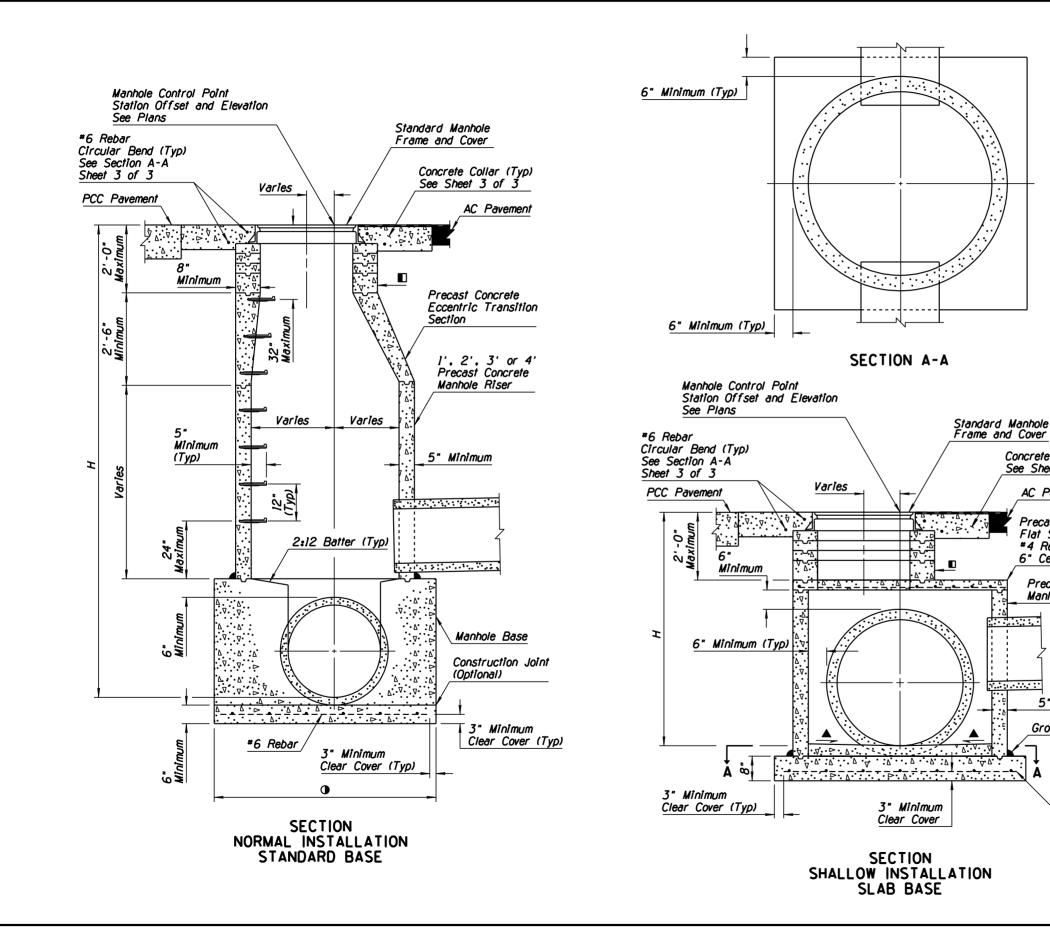


Туре	MIN RAIL LENGTH (Ft)	MIN RAIL WT (Ibs/Yd)	MESH	A (Ft-]n)	B (Ft-[n)	D (Ft)	Y ([n)
7	15	50	3"X3"-W].4/W].4	4 - 0	2 - 0	4	6
8	18	50	4"X4"-W].4/W].4	7 - 0	3 - 0	5	6
9	10	15	N/A	2 - 2	N/A	N/A	3





NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
()	RENAMED STD DWG FROM C-18.40 TO C-18.10, SHEET 1 OF 3	RLF	9/04
2	REVISED GENERAL NOTE	RLF	7/05
3	DELETED ORIGINAL NOTE 5: CHANGED NUMBERS 6 & 7	RLF	5/07
	ADDED NOTE TO DESIGNERS	RLF	5/07



are cast.

on plans.

▲ 1/4"/ft

Concrete Collar (Typ)

See Sheet 3 of 3

AC Pavement

#4 Rebars

Flat Slab Top Section

6" Center to Center

Precast Concrete

5" Minimum (Typ)

*6 Rebar @ 12"

Grout Bead

Manhole Riser

• See Sheet 2 of 3

PPROVED FOR D May Vi

GENERAL NOTES

1. Pipe sizes and elevations are shown on plans.

2. The manhole height, H, shall be measured from the lowest invert elevation to the top of the manhole frame.

3. Concrete for cast-in-place manholes shall be Class B.

(2) 4. All manholes deeper than 56 inches shall have steps. Manhole steps shall be constructed in accordance with AASHTO M199. Where precast manholes are used. the steps shall be installed at the same time sections

(3) 5. Precast manhole sections shall be manufactured in accordance with AASHTO M199, except that the compressive strength of each section shall be determined and accepted in accordance with Std Spec 1006-7.

3 6. Manhole size, location and elevation shall be as shown

(3) (2) 7. Backfill material shall be compacted to at least 95 percent of the maximum density per the applicable test method of the ADOT Materials Testing Manual.

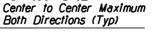
■ 4", 6", 8" or 12" (30" Inside Diameter) Grade Rinas

(4)

NOTE TO DESIGNERS

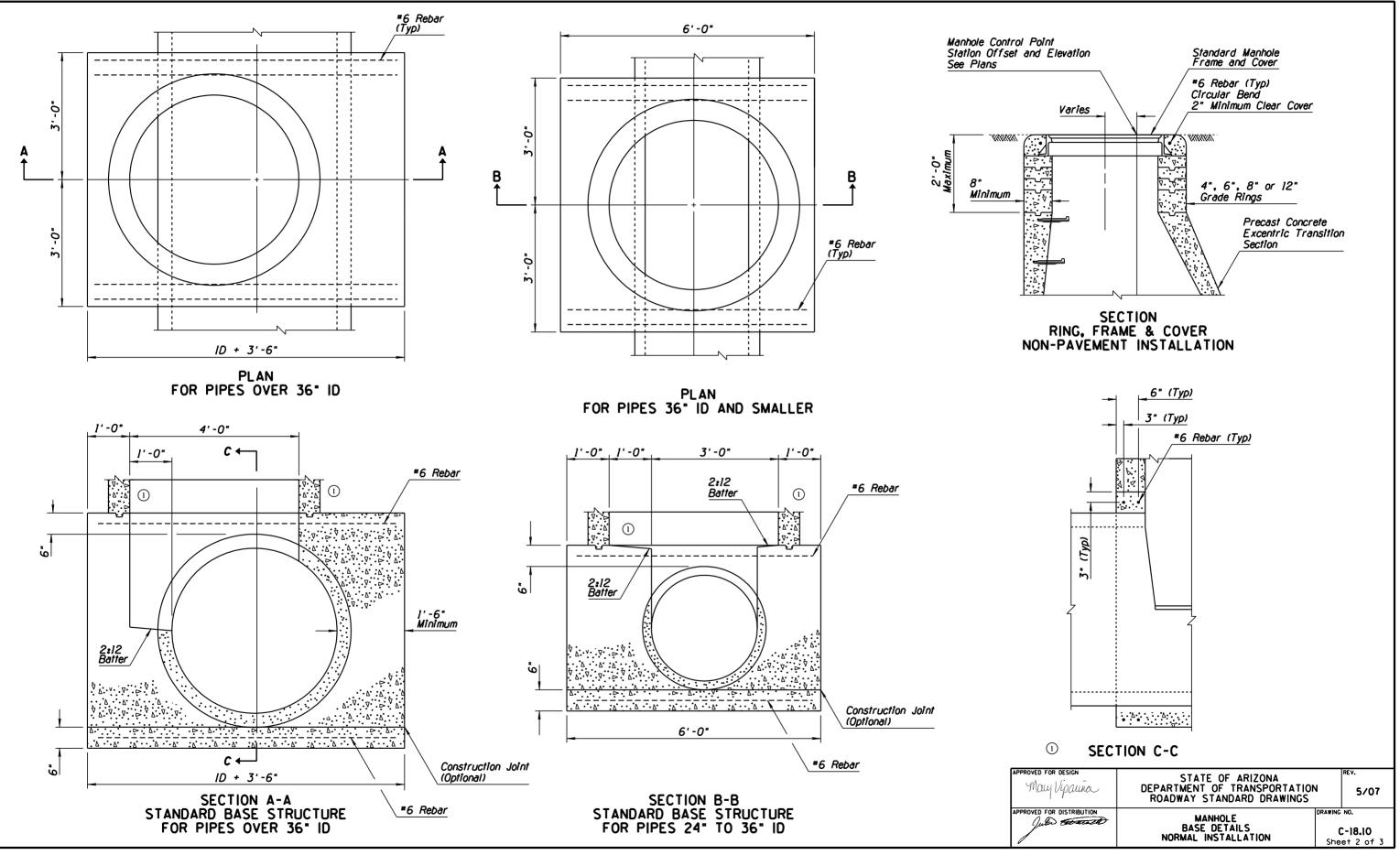
Per OSHA requirements, special treatments are required for heights exceeding 30 ft.

Precast Reinforced Concrete

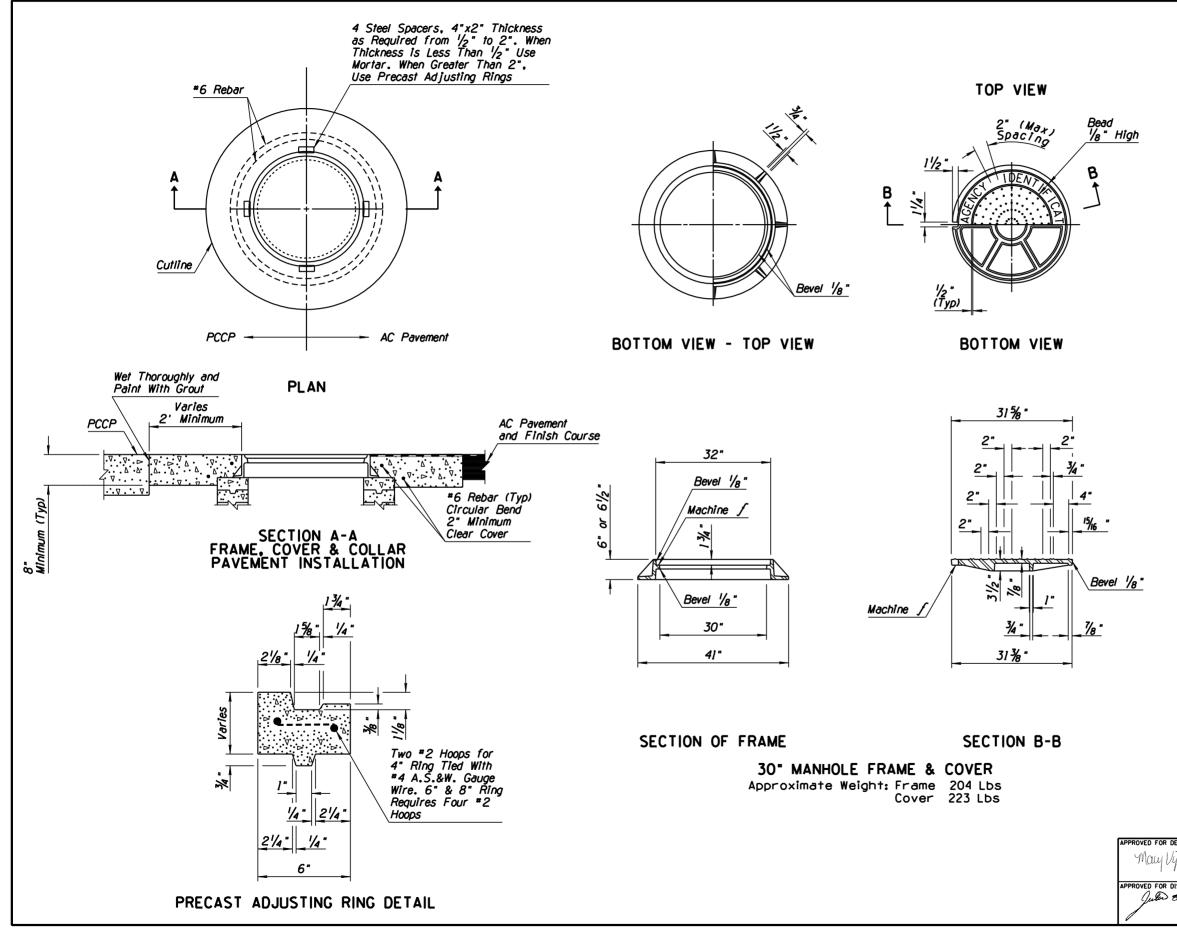


May Vipauna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS		5/07	
PPROVED FOR DISTRIBUTION		DRAWING	NO. (Î)
Jule toract	MANHOLE RISER DETAILS	-	-18.10 et 1 of 3	

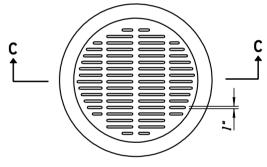
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\square	RENAMED STD DWG TO C-18.10, SHEET 2 OF 3	RLF	9/04
2	REVISED SECTION A-A THROUGH C-C GRAPHICS	RLF	4/06
3			
4			



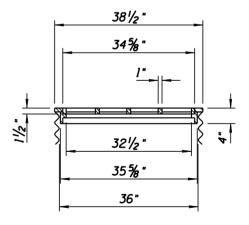
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	RENAMED STD DWG FROM C-18.20 TO C-18.10, SHEET 3 OF 3	RLF	9/04
2)			
3)			
4)			



- 1. All frames, grates, and covers shall support HS20 loading, minimum.
- Casting weights shown are minimum weights and are either for cast-iron or ductile-iron castings. Casting weight shall not exceed 110 % of the weights shown.
- Covers (excluding grates) shall conform to the following:
 - A. Manhole covers to contain the agency name and utility, as directed;
 - B. Letters shall be 2 inches in height and raised $\frac{1}{8}$ -inch above the plane of the cover;
 - C. Letters and words to be equally spaced; and
 - D. Letter font and layout shall be as approved by the Engineer.
- 4. Details shown are typical. Alternative designs of manhole frames and covers may be used upon approval of the Engineer, as long as the minimum loading and weight criteria (see above) are met.



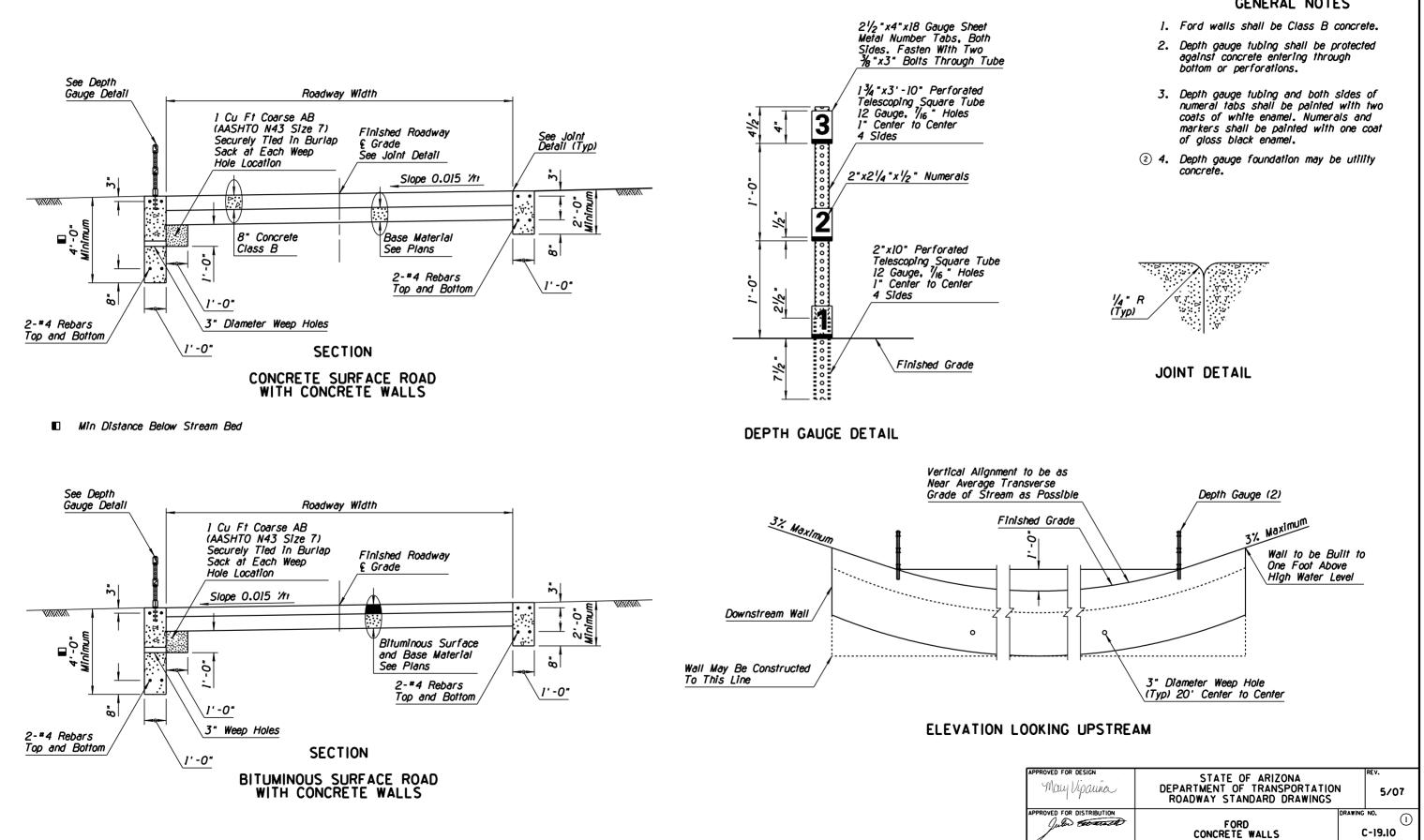




SECTION C-C 36" NOMINAL CMP FRAME & GRATE Approximate Weight: Frame 125 Lbs Cover 167 Lbs

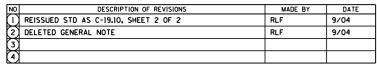
SIGN Dauna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS	N 5/07
STRIBUTION	MANHOLE FRAME AND COVER DETAILS	DRAWING NO. (1) C-18.10 Sheet 3 of 3

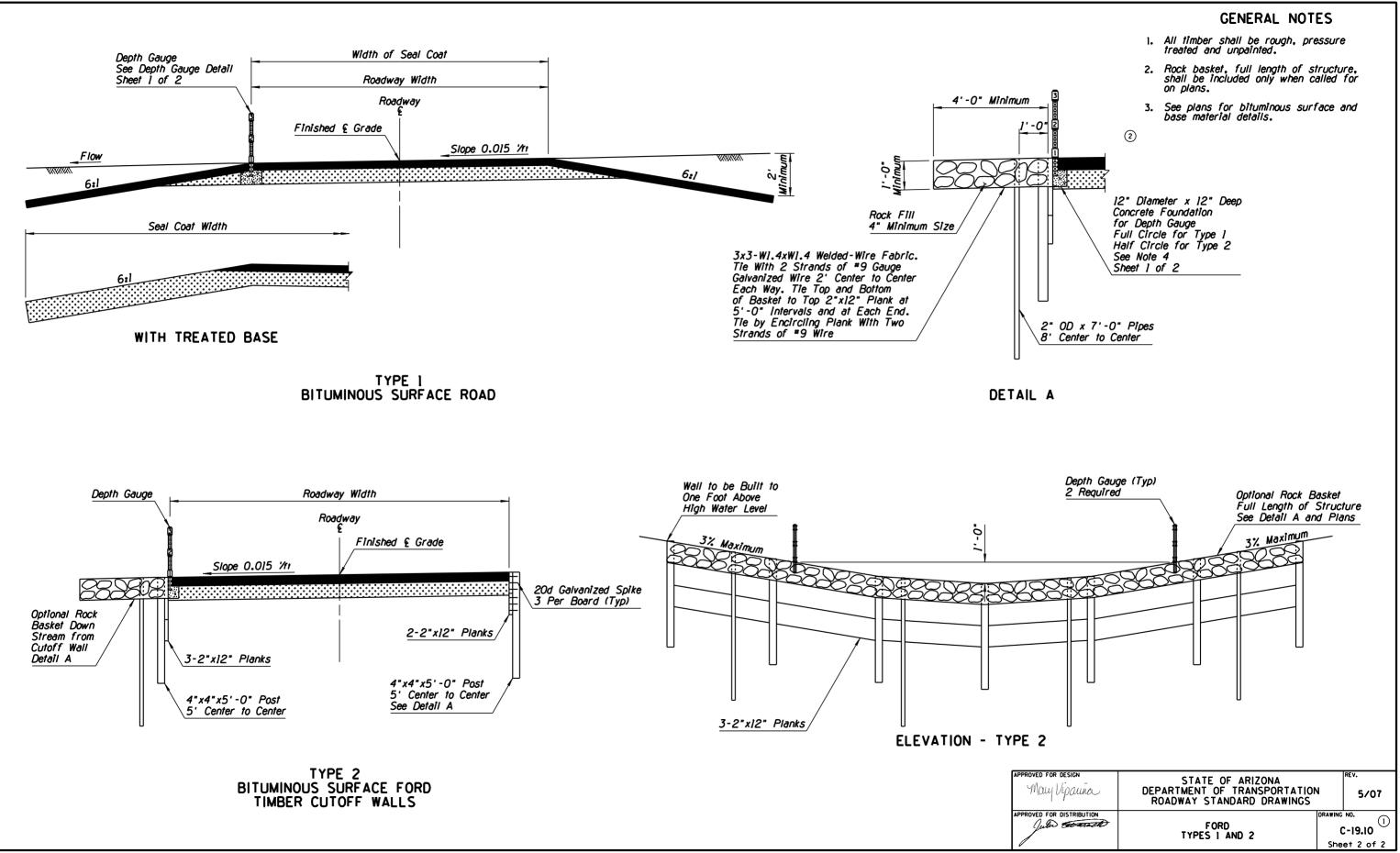
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
(\mathbf{I})	REISSUED STD AS C-19.10, SHEET 1 OF 2	RLF	9/04
2	ADDED GENERAL NOTE 4	RLF	9/04
3			
4			



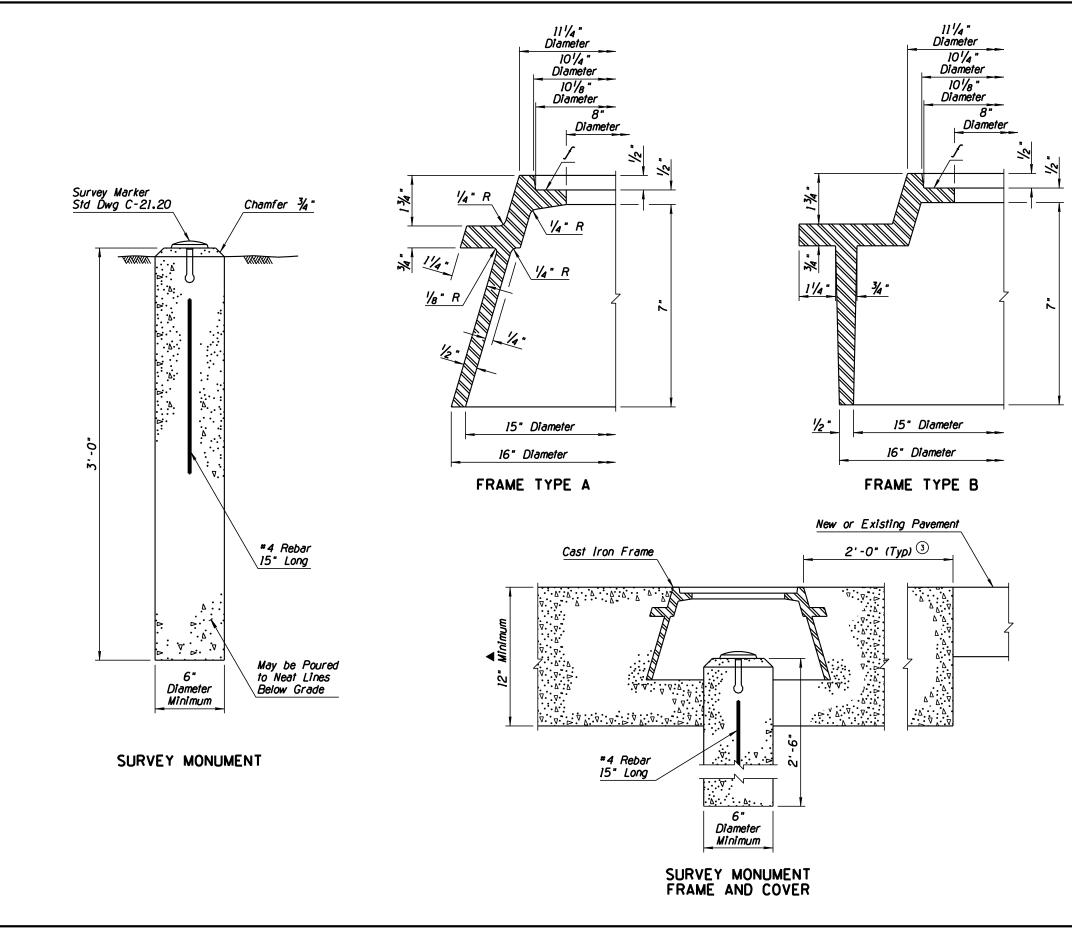
Sheet 1 of 2



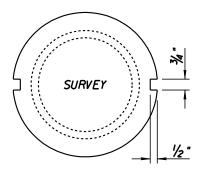




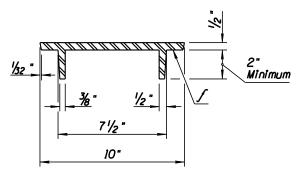
NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\Box	REMOVED RIGHT-OF-WAY MARKER DETAILS	RLF	11/07
2	ADDED VIEW TITLE	RLF	11/07
3	ADDED (Typ) AND PATTERNING	RLF	11/07
4			



- 1. A survey monument and frame & cover, complete-in-place, shall be considered a unit.
- 2. All markers shall be placed as shown on the plans or as directed by the Engineer.
- 3. Frames may be either Type A or Type B.
- 4. Frames shall weigh at least 53 pounds.
- 5. Covers shall weigh at least 16 pounds.
- 6. Machined portions of the frame and cover are shown by the symbol " f ". The allowable tolerance for machined areas is $\pm \frac{1}{64}$ ". Concrete shall conform to Std Spec 922.
- 7. Survey monuments shall be magnetically detectable.
- 8. For R/W monumentation, see ADOT R/W Plans Section Right-of-Way Monumentation Procedures and Standards.
- ▲ 12" or pavement structure thickness, whichever is greater.



2 COVER PLAN

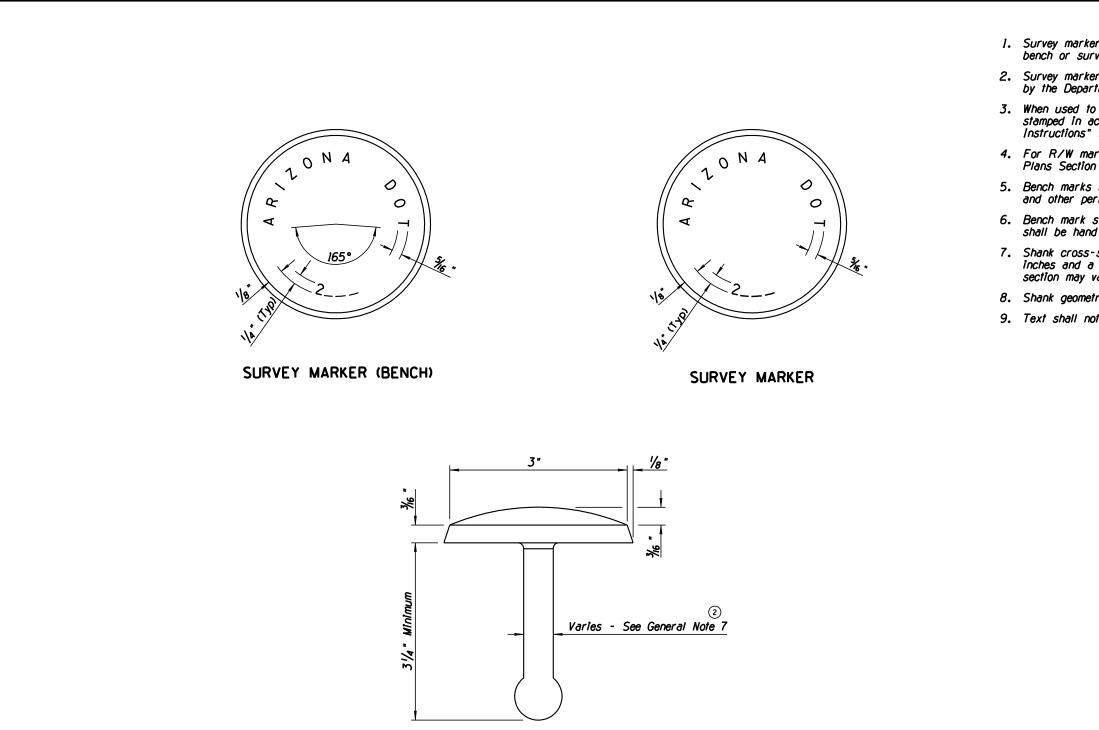


COVER SECTION

APPROVED F

PPROVED FOR DESIGN Mary Vipauna	STATE OF ARIZON. DEPARTMENT OF TRANSPO ROADWAY STANDARD DR	RTATION		REV.
PPROVED FOR DISTRIBUTION	SURVEY MONUMENT FRAME AND COVER	1	DRAWING (^{NO.} C-21.10

NO	DESCRIPTION OF REVISIONS	MADE BY	DATE
\Box	REMOVED RIGHT-OF-WAY MARKER DETAILS	RLF	11/07
2	REVISED GENERAL NOTE REFERENCE	RLF	11/07
3			
4			



SURVEY MARKER

GENERAL NOTES

- 1. Survey marker may be used with survey monument, and as bench or survey control marker.
- 2. Survey marker shall be made of brass and will be furnished by the Department. Cast-in lettering format may vary.
- 3. When used to define section lines, the marker shall be stamped in accordance with the BLM "Manual of Surveying Instructions" including the land surveyor's registration number.
- 4. For R/W marker information, refer to current ADOT R/W Plans Section R/W Monumentation Procedures and Standards.
- 5. Bench marks shall be established on headwalls, bridge walls and other permanent structures as directed by the Engineer.
- 6. Bench mark station, elevation, year, and/or other information shall be hand stamped in field, as approved by the Engineer.
- Shank cross-sectional area shall be a minimum of 0.31 square inches and a maximum of 0.60 square inches. Shank cross-section may vary and is not a critical feature of this standard.
- 8. Shank geometry shall provide for secure anchorage in concrete.
- 9. Text shall not obscure survey point.

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proved for design May Vipauna	STATE OF ARIZONA DEPARTMENT OF TRANSPORTATION ROADWAY STANDARD DRAWINGS			REV.
PROVED FOR DISTRIBUTION			DRAWING	NO.
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