

GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, Edition of 2021 and the Special Provisions.

Design Specifications - AASHTO LRFD Bridge Design Specifications, 9th Edition 2020.

Loading Class HL-93.

Bridge site is classified as Site Class B & E with Peak Ground Acceleration (PGA) = 0.051g. Horizontal and Spectral Acceleration Coefficients at period of 0.2 seconds (Ss) = 0.115g. (S1) = 0.031g. The Bridge is assigned to Seismic Zone 1.

Inventory and Operating Ratings for HL-93 are in accordance with AASHTO manual for Bridge Evaluation, 3rd Edition, 2018 with 2020 and 2022 Interim Revisions in accordance with the Load and Resistance Factor Rating Method.

Inventory Rating (RF) = 1.74
Operating Rating (RF) = 2.26

All concrete shall be "Class S" with one exception. For box culverts above 4000 feet in elevation, Silica Fume Concrete (SFC) is required for the top slab.

Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60.

All bends or hooks shall meet the requirements of AASHTO Article 5.10.2 unless noted otherwise. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise. All bend and hook dimensions not shown shall be standard bends and hooks.

All reinforcing steel shall have 2 inches clear cover unless noted otherwise.

All mechanical splices shall conform to the requirements for mechanical connections in Subsection 605-3.02 of Standard Specifications.

Refer to ADOT Construction Standard Drawings C-10.07 (sheets 1 and 2) for installation, and specifications for all structural components of the box culvert guardrail and posts.

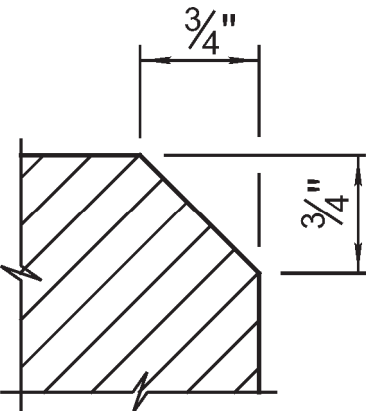
All welding shall conform to the requirements of AASHTO/ AWS D1-5 Bridge welding code and the subsequent interim specification.

Stresses:
Box Culvert f_c = 3.0 ksi
Grade 60 (Epoxy coated - Top Slab, Approach Slab & Barriers) f_s = 24 ksi
Service Limit Stress f_s = 24 ksi
All other grade 60 steel f_s = 60 ksi

See ADOT SD Dwgs. SD 5.01 and SD 5.02 for Notes and Details not shown in this sheet.

Chamfer all exposed corners $\frac{3}{4}$ " unless noted otherwise.

Dimensions shall not be scaled from the drawings.

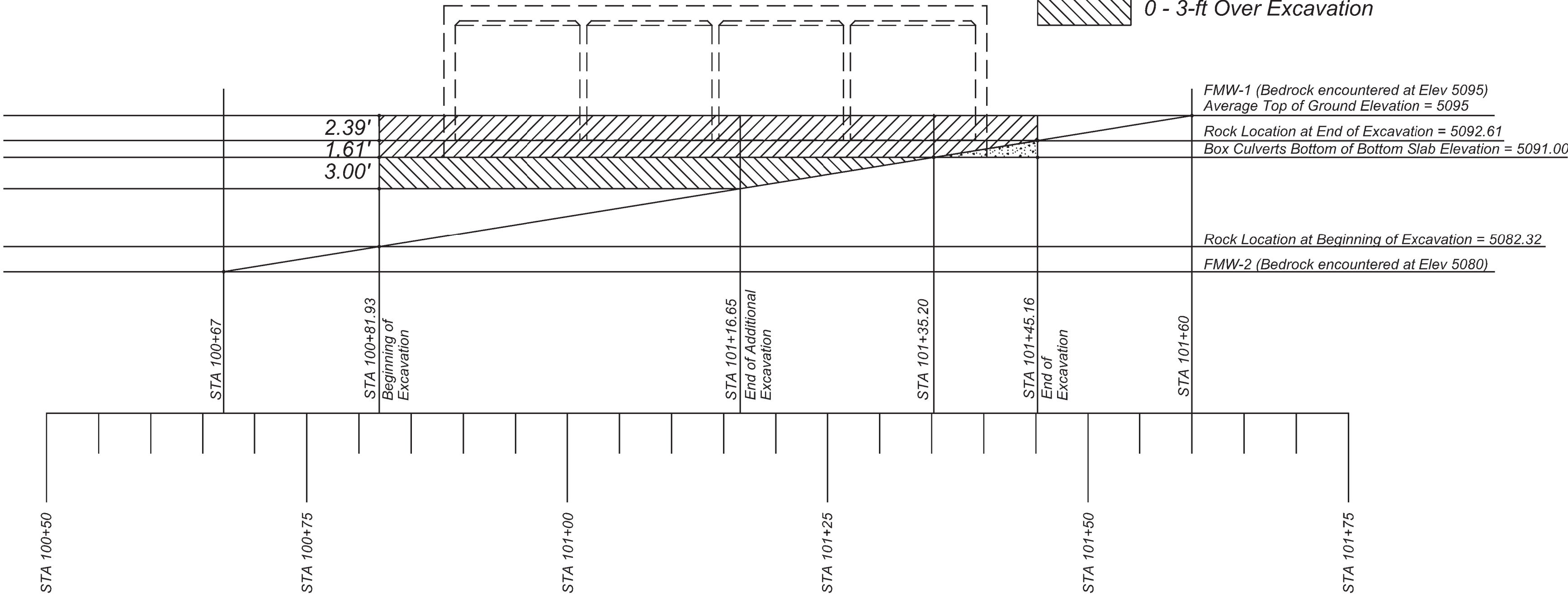


CHAMFER DETAIL
N.T.S.

APPROXIMATE QUANTITIES						
	STRUCTURAL EXCAVATION SOIL (CY)	STRUCTURAL OVER EXCAVATION SOIL (CY)	ROCK EXCAVATION ROCK (CY)	STRUCTURE BACKFILL (CY)	CLASS "S" CONCRETE $f_c=3,000\text{psi}$ (CY)	REINFORCING STEEL (LBS)
Box Culvert	970	520	65	155	352	57,145
Inlet Wingwall	50			40	46	4,535
Outlet Wingwall	55			40	56	5,430
Apron					25	1,850
Total	1,075	520	65	235	479	68,960

Remove Bridge 1 LS
Riprap Grouted 50 CY

- Rock Excavation
- Soil Excavation from Elev 5095 to 5091
- 0 - 3-ft Over Excavation



EXCAVATION CHART
No Scale



	NAME	DATE
DESIGN	KGR	04/26
DRAWN	AKM	04/26
CHECKED	SLG	04/26
NFra Inc. a transportation engineering firm 77 East Thomas Road, Suite 200 Phoenix, Arizona 85012		

ARIZONA DEPARTMENT OF TRANSPORTATION PROJECT DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP	
STA. 100+ FIVE MILE WASH BRIDGE GENERAL NOTES & QUANTITIES	

ROUTE US 180	F.H.W.A. Arizona Division	STATE ARIZ.	PROJECT NO. 180 NA 309	FEDERAL ID NO. 180-B(211)T	SHEET NO. 58	TOTAL SHEETS 116	RECORD DRAWING
MILEPOST 309.11		LOCATION FIVE MILE WASH & LITTLE COLORADO RIVER BRIDGES					SHEET S-1.02 OF
STRUCTURE NO. 20267	TRACS NO. F0313 01C					____ OF ____	

GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, Edition of 2021 and the special provisions.

Design Specifications - AASHTO LRFD Bridge Design Specifications, 9th Edition 2020.

Dead Load - Dead Load includes allowance of 25 pounds per foot for future wearing surface (FWS).

Stay-in-place deck forms will not be permitted. 

Bridge site is classified as Seismic Zone 1, site Class B & E with Peak Ground Acceleration (PGA) = 0.051g. Horizontal and Spectral Acceleration Coefficients at period of 0.2 seconds (Ss) = 0.115g, and period of 1 second (S1) = 0.031g. The Bridge is assigned to Seismic Zone 1.

Inventory and Operating Ratings for HL-93 are in accordance with AASHTO manual for Bridge Evaluation, 3rd Edition, 2018 with 2020 and 2022 Interim Revisions in accordance with the Load and Resistance Factor Rating Method.

- SPAN 1 -
Inventory Rating (RF) = 1.58
Operating Rating (RF) = 2.05

- SPAN 2 -
Inventory Rating (RF) = 1.55
Operating Rating (RF) = 2.00

All concrete shall be "Class S" with one exception. For bridges above 4000 feet in elevation, Silica Fume Concrete (SFC) is required for the deck, but not for the diaphragms.

Prestressing steel strands shall conform to AASHTO M203, grade 270, low relaxaton strands.

Reinforcing steel shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60.

All reinforcing steel located in, or that portion of reinforcing steel extending into the top slab/deck, barriers and approach slabs shall be epoxy coated.

All bends or hooks shall meet the requirements of AASHTO Article 5.10.2 unless noted otherwise. All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise. All bend and hook dimensions not shown shall be standard bends and hooks.

All reinforcing steel shall have 2 inches clear cover unless noted otherwise.

Dowel bars are considered included in the reinforcing steel bid item.

All mechanical splices shall conform to the requirements for mechanical connections in Subsection 605-3.02 of Standard Specifications.

Structural steel including steel piles shall conform to AASHTO M270 (ASTM A709) Grade 50 unless noted otherwise.

All welding shall conform to the requirements of AASHTO/ AWS D1-5 Bridge welding code and the subsequent interim specification.

Stresses:

Precast-Prestressed Girders (Span 1).....	f _c	=	9.5 ksi
Precast-Prestressed Girders (Span 2).....	f _c	=	5.0 ksi
Superstructure except barrier	f _c	=	4.5 ksi
Bridge Barriers and Approach slab.....	f _c	=	4.0 ksi
Abutments and Piers	f _c	=	4.0 ksi
Steel Pile (ASTM A252, Grade 3)	f _y	=	50 ksi
Miscellaneous Steel (Grade 36).....	f _y	=	36 ksi
Grade 60 (Epoxy coated deck)	f _s	=	24 ksi
Service Limit Stress	f _s	=	24 ksi
All other grade 60 steel	f _y	=	60 ksi

Chamfer all exposed corners 3/4" unless noted otherwise.

Dimensions shall not be scaled from the drawings.

GENERAL NOTES CONT'D:

See ADOT SD Dwgs. SD 5.01 and SD 5.02 for Notes and Details not shown in this sheet.

Barriers shall be constructed after spans have taken dead load deflection. Barriers shall not be slip formed.

The development of containment plan to avoid debris and construction materials falling into the wash / river shall be considered included in the cost of other contract items.

APPROXIMATE QUANTITIES

	STRUCTURAL EXCAVATION (CY)	STRUCTURAL EXCAVATION ROCK (CY)	* ROCK EXCAVATION (CY)	STRUCTURE BACKFILL (CY)	CLASS "S" CONCRETE f _c =4,000psi (CY)	SILICA FUME CONCRETE f _c =4,500psi (CY)	REINFORCING STEEL (LB)	REINFORCING STEEL (LB) (EPOXY)	FURNISH PILES 24" DIA (LF)	DRIVE PILES 24" DIA (LF)
Abutment 1	185	140	210	95	101		11,207			
Pier 1	230				227		26,391		1,580	1,580
Abutment 2	130			125	123		11,809		2,133	2,133
Superstructure						273	1,932	50,102		
Total	545	140	210	220	451	273	51,339	50,102	3,713	3,713

Remove Bridge 1 LS

Single Slope Bridge Concrete Barrier And

Transition (38") (SD 1.10) 383 LF

BT-34 Prestressed Girders 240 LF

BT-50 Prestressed Girders 585 LF

Deck Joint Assembly (4x4 Compression Seal) (SD 3.01) 41 LF

Approach Slab (SD 2.01) 1,228 SF

Restrainers, Vertical Earthquake (Fixed) 16 Ea

Restrainers, Vertical Earthquake (Expansion) 8 Ea

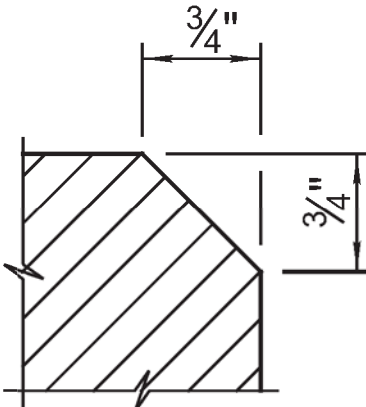
Rail Bank Protection

85 165 LF



Groove Bridge Deck..... 800 SY

* Rock Excavation is located in front of Abutment 1 to provide sufficient space between the ground surface and the bottom of the girders. See Sheet S-2.04 for Excavation Limits.



CHAMFER DETAIL

N.T.S.

NO	DESCRIPTION OF REVISIONS	DATE	
		MADE BY	KGR
1	Quantity Correction for Rail Bank Protection	KGR	04/26
2	Remove Stay-In-Place form requirement	KGR	04/26

	NAME		DATE	ARIZONA DEPARTMENT OF TRANSPORTATION PROJECT DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP		ROUTE	F.H.W.A. Arizona Division		STATE	PROJECT NO.	FEDERAL ID NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
	DESIGN		KGR	04/26	STA. 36+ LITTLE COLORADO RIVER BRIDGE GENERAL NOTES & QUANTITIES	MILEPOST 309.11	LOCATION FIVE MILE WASH & LITTLE COLORADO RIVER BRIDGES		ARIZ.	180 NA 309	180-B(211)T	70	116	SHEET S-2.03 OF ____ OF ____
	DRAWN		AKM	04/26										
	CHECKED		SLG	04/26										
	NFra Inc. a transportation engineering firm 77 East Thomas Road, Suite 200 Phoenix, Arizona 85012													

DRIVEN PILE NOTES:

Steel pipe for piles shall conform to ASTM A252 Grade 3 welded and seamless steel pipe pile.

For pile capacities, estimated pile tip elevations and pile lengths see driven pile data table below.

Concrete for filling steel shell cast-in-place concrete piles shall be Class "S", f'c = 4000 psi.

Reinforcing steel for piles shall conform to ASTM Specification A615. All reinforcing shall be furnished as Grade 60.

Pile splices shall not occur within 20 feet from the top of pile elevation.

Estimated pile tip elevations are approximate and shall be verified at the time of construction.

Splicing, concrete and rebar for the piles shall be considered included in the cost of furnishing and driving piles bid item.

The contractor shall be responsible for reviewing the project geotechnical exploration report.

Pile tip elevation shall be driven a minimum of 10-feet below depth of scour.

Tip elevation of piles at east abutment shall be avoided between elevation 5,025 feet and 5,010 feet.

Tip elevation of piles at pier shall be avoided between elevation 5,030 feet and 5,010 feet.

Abutment pile estimated length 78 ft, minimum bearing 36.5 ton

Pier pile estimated length 79 ft, minimum bearing 128.0 ton.

DRIVEN PILE DATA

Location	Pile Design Service Load (kips)	Pile Design Strength Load (kips)	Top Cutoff Elevation (ft)	Design Tip Elevation (ft)	Pile Length (ft)
Pier	190	256	5086.11	5007.11	79.00
Abut. #2	58	73	5104.95	5026.95	78.00

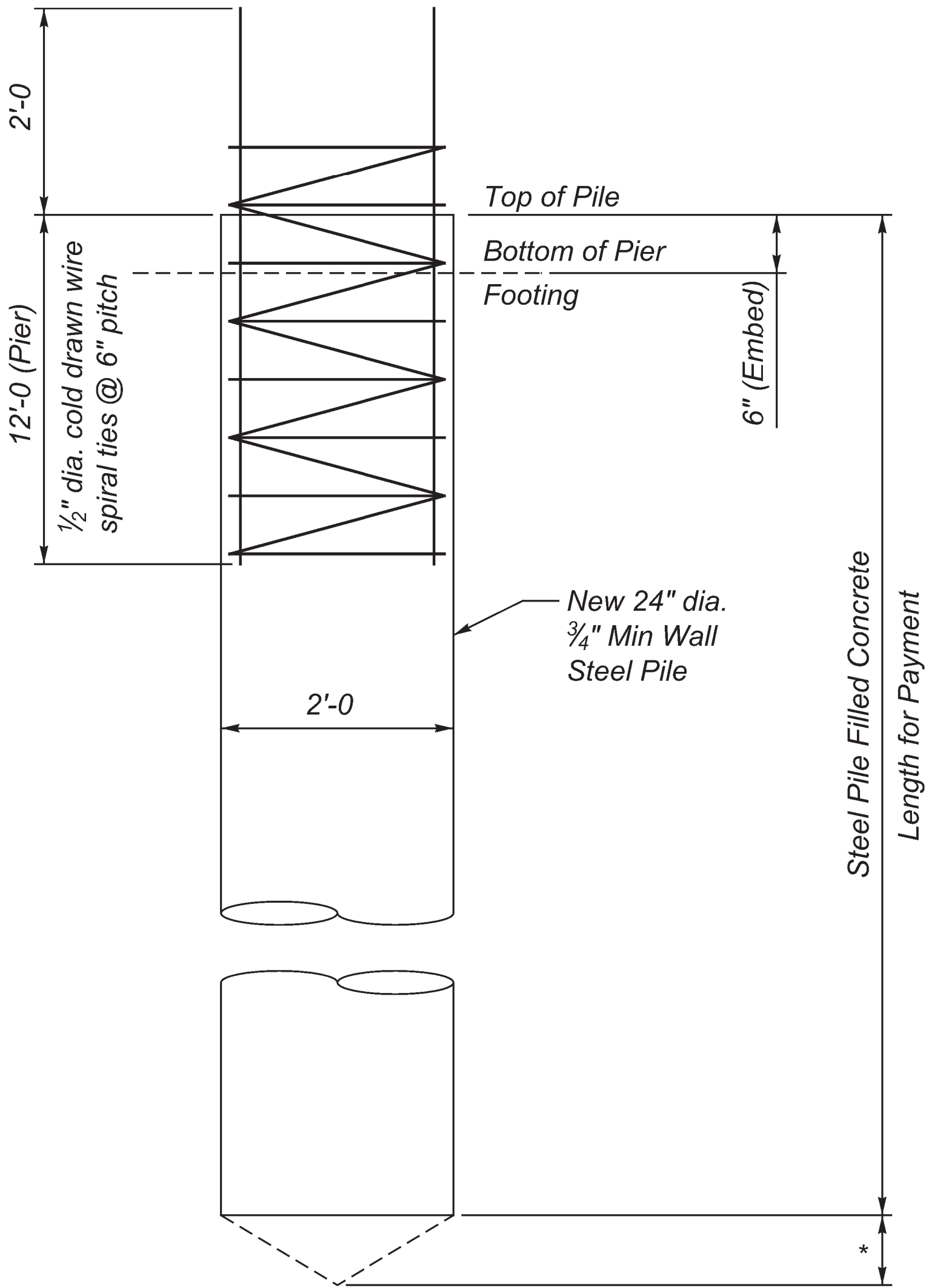
Top Cutoff Elevation = Bottom of footing elev. + 6in

PILE TESTING:

Field measurement of nominal pile bearing resistance is required for all piles. Testing shall be performed in accordance with Section 603-5.03 of the ADOT Standard Specifications for Road and Bridge Construction.

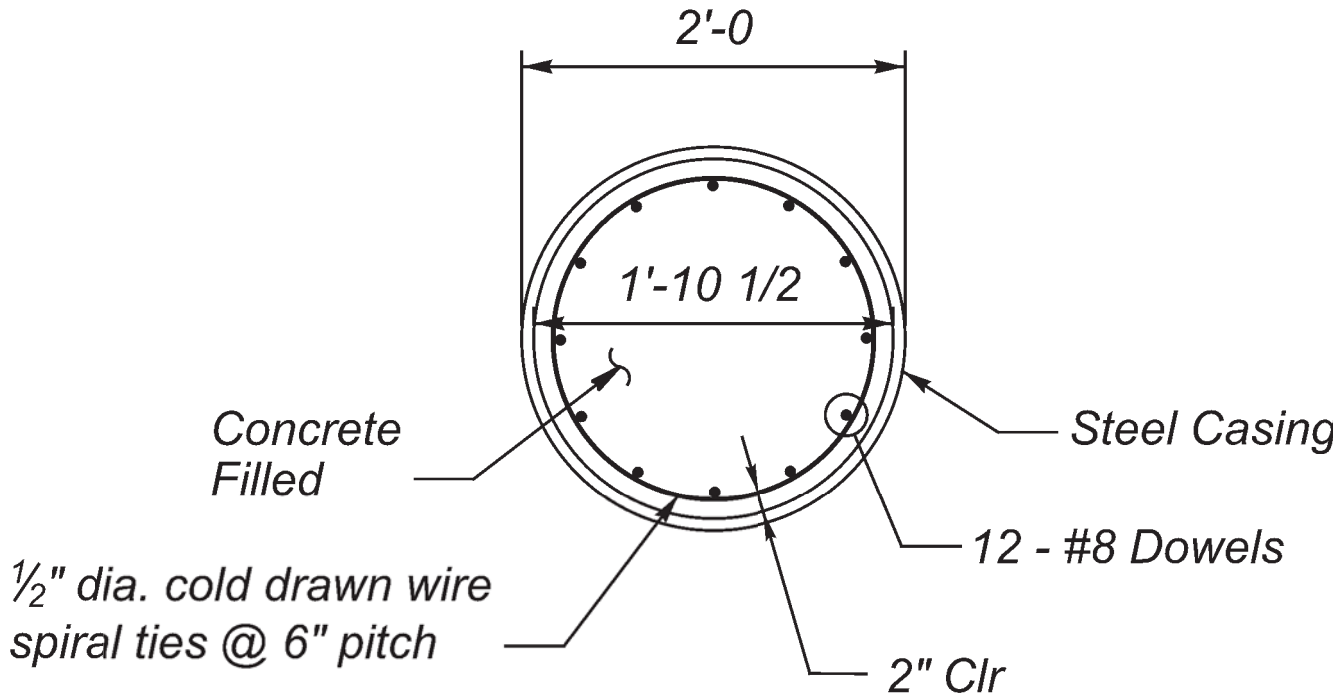
Costs for testing shall be considered included in the cost of driving piles.

No other measurement or payment will be made for the above testing.



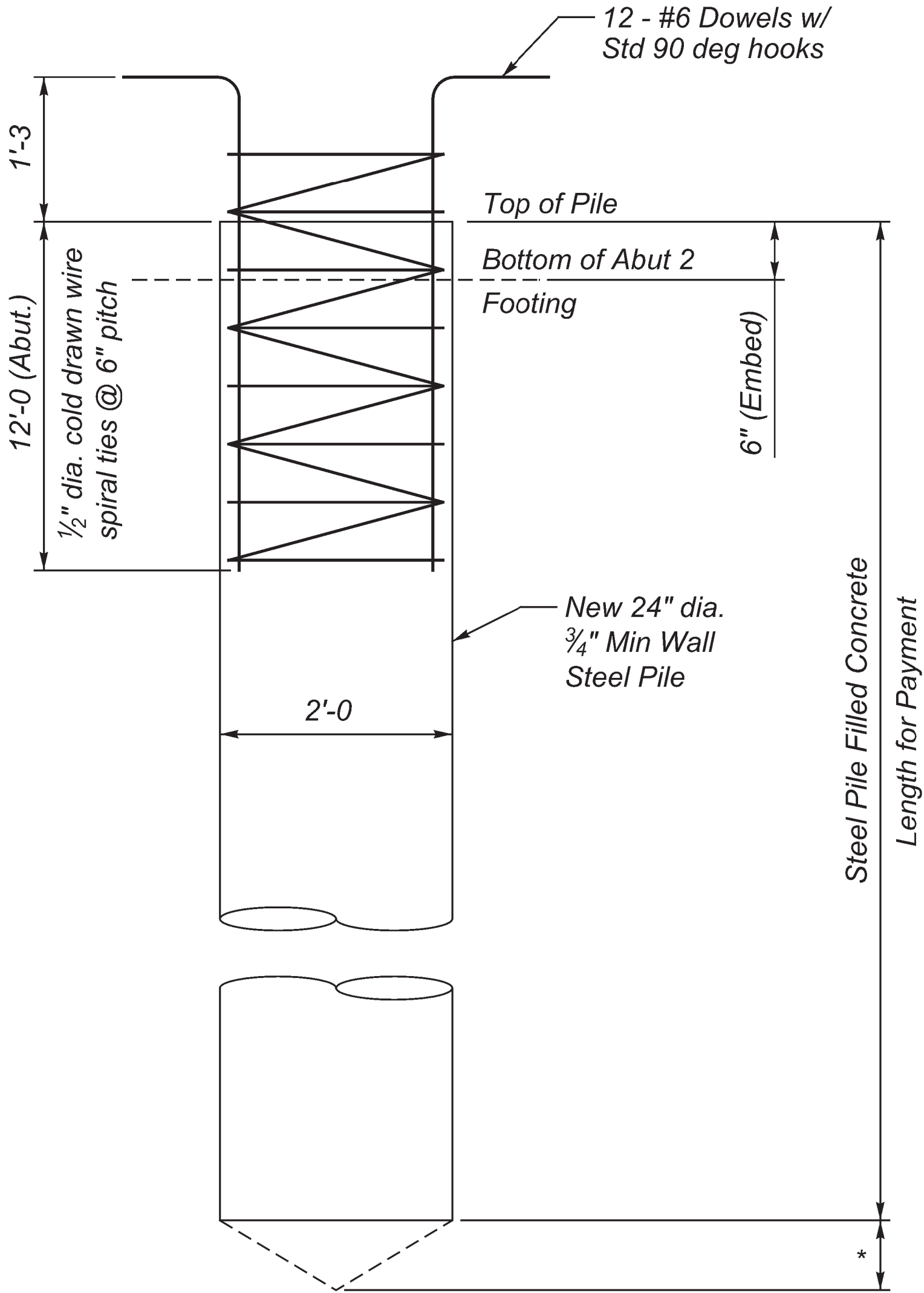
PILE ELEVATION AT PIER

Scale: N.T.S



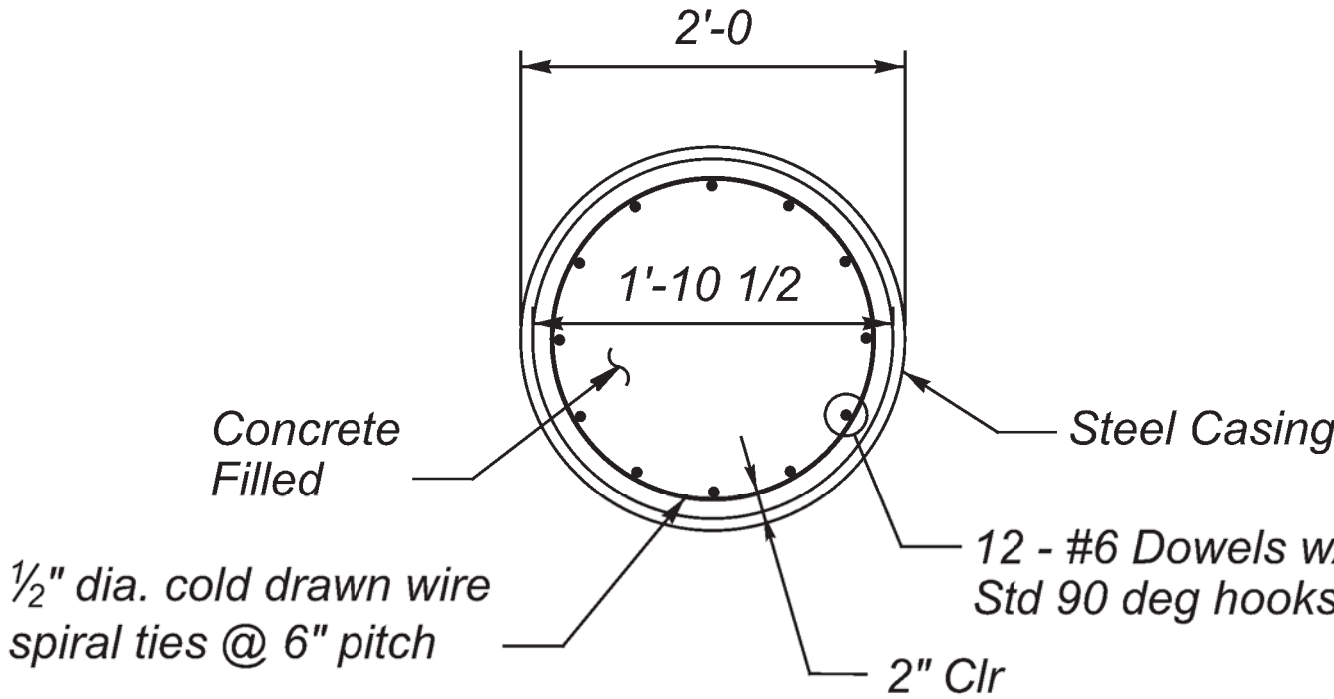
SECTION AT PIER

Scale: N.T.S



PILE ELEVATION AT ABUTMENT 2

Scale: N.T.S



SECTION AT ABUTMENT 2

Scale: N.T.S



DESIGN	NAME	DATE
DRAWN	KGR	04/26
CHECKED	AKM	04/26
	SLG	04/26

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77 East Thomas Road, Suite 200
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ARIZONA DEPARTMENT OF TRANSPORTATION PROJECT DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP
STA. 36+ LITTLE COLORADO RIVER BRIDGE DRIVEN PILE DETAILS

ROUTE US 180
MILEPOST 309.11
STRUCTURE NO. 20266

F.H.W.A. Arizona Division	STATE ARIZ.	PROJECT NO. 180 NA 309	FEDERAL ID NO. 180-B(211)T	SHEET NO. 74	TOTAL SHEETS 116	RECORD DRAWING
LOCATION FIVE MILE WASH & LITTLE COLORADO RIVER BRIDGES						SHEET S-2.07 OF
TRACS NO. F0313 01C						___ OF ___