LETTING DATE

CONSTRUCTION PROJECT NO.

DATE: 07-DEC-2011

FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton

SHEET LOCATION: TT

TRANSPORTATION CABINET
DEPARTMENT OF HIGHWAYS

PULASKI COUNTY
WHITLEY CITY–SOMERSET ROAD
US 27 OVER CUMBERLAND RIVER
Station 12+255.000

ESTIMATE OF QUANTITIES

	BID ITEM	CONCRETE CLASS A	CONCRETE CLASS AA	STEEL REINFORCEMENT	STEEL REINFORCEMENT EPOXY COATED	DECK DRAINS	STRUCTURE EXCAVATION SOLID ROCK	PPC I-BEAM TYPE 4	PPC I-BEAM TYPE 8	MASONRY COATING	STRUCTURAL STEEL (1)	SHEAR CONNECTORS (2)	FINGER DAMS	SUBSURFACE EXPLORATION	POLYMER SLURY	STRUCTURE GRANULAR BACKFILL	POLE BASE	75 mm CONDUIT	CSL ACCESS TUBING	3.35 METER DRILLED SHAFTS COMMON	3.35 METER DRILLED SHAFTS SOLID ROCK	0.915 METER DRILLED SHAFTS COMMON	0.915 METER DRILLED SHAFTS SOLID ROCK	BRIDGE LIGHTING			
	UNIT	Cu m	Cu m	kg	kg	Each	Cu m	meter	meter	Sq m	L.S.	L.S.	meter	Each	Each	Cu m	Each	meter	Each	meter	meter	meter	meter	L.S.			
Substructure	Abutment #1	65.8		4199			1388																				
	Pier #1	823.9		63556	17246		429			273																	
	Pier #2	764.3		67719						241									2	74.7	21.3						
	Pier #3	741.2		65678						241					2				2	87.5	20.5						
	Pier #4	718.5		63643						241					2				2	83.0	23.0						
	Pier #5	696.0		61897						241									2	62.1	19.9						
	Pier #6	541.2		28672	16895		178			260																	
	Abutment #2	50.0			6021									4		308						37.9	3.8				
Superstructure			3340.4		611765	52		134.75	233.275	4025			49.7				6	128.675						1			
BRIDGE TOTALS		4401.0	3340.4	355364	651927	52	1995	134.75	233.275	5522	(1)	(2)	49.7	4	4	308	6	128.675	8	307.3	84.7	37.9	3.8	1			

(1) Approximate Mass of Structural Steel = 2359268 kg

(2) Approximate Mass of Shear Connectors = 11146 kg

BILL OF INCIDENTAL MATERIALS

Material	Location
Ø 25 mm I.D. Plastic Pile	Barrier Transitions
Ø 50 mm I.D. Commercial Pipe Sleeve	Pier #1, Pier #6 & Abut. #2
10 mm Cork	Abut. #1, Pier #1, Pier #6 & Abut. #2
30 mm Cork	Abut. #1, Pier #1, Pier #6 & Abut. #2

INDEX OF SHEETS

SPECIAL NOTES

for Drilled Shafts

for Drilled Shafts Appendix

for Nondestructive Testing of Drilled Shafts

for Polymer Slurry

for Water Transportation

for Work in Navigable Streems

for Finger Dams

SPECIAL PROVISIONS

69G (94) Embankment at Bridge End Bent Structures

4K (94) Welding Steel Bridges

STANDARD DRAWINGS

BGX-006-07	Stencils for Structures
BGX-010-02	Barrier Transition
BGX-012-01	Geotechnical Legend
BBP-001-09	Elastomeric Bearing Pads for Prestressed Beams
BBP-002-03	Bearing Details
RGX-100-03	Treatment of Embankment @ End Bents
RGX-105-04	Treatment of Embankment @ End Bents
BJE-001-09	Neoprene Expansion Dams and Armored Edges

SPECIFICATIONS

1998 Standard Specifications for Road and Bridge Construction

1996 AASHTO Standard Specifications for Highway Bridges, including 1997 interim.

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: PULASKI

ROUTE: US 27 | CROSSING: CUMBERLAND RIVER

TITLE SHEET

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 1

DRAWING NO. 23692

GENERAL NOTES

SPECIFICATIONS: All references to the standard Specifications are to the current edition of the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction, with current supplemental specifications. All references to the AASHTO Specifications are to the current edition of the AASHTO Standard Specifications for Highway Bridges, with interim.

LIVE LOAD: This bridge is designed for HS25 live load or alternate military loading, whichever produces the greater stress. The HS25 live load is arrived at by increasing the standard HS20-44 truck and lane loads as specified in the AASHTO Specifications by 25%.

WIND LOAD: This bridge is designed for a wind load based on a wind velocity of 161 kph.

DESIGN METHOD: All reinforced concrete members are designed by the load factor method as specified in the current AASHTO Specifications.

STEEL REINFORCEMENT: Contrary to the Standard Specifications, steel reinforcement shall be in accordance with ASTM A 615/A 615M-96a, deformed for concrete reinforcement, Grade 420.

FOUNDATIONS: See Foundation Layout Sheet. Bottom of footings are not to be raised without the approval of the Bridge Designer. For footings on rock, vertical sides of footings shall be poured against rock. They shall be keyed a minimum of 300 mm in to solid rock. Contrary to the Standard Specifications, pay limits for rock excavation is the footing size.

For Abutment 1, Pier 1 and Pier 6 1.52 m deep precussion test holes drilled in intervals of at least one per 10 square meters of bearing surface between the borings drilled for the location. Each test hole shall be evaluated by using a "hooked" probe to detect the presence of any voids, clay seams or loose zones.

For the Drilled Shafts, the 28 day strength of the Class A Modified Concrete shall be 30 Mpa.

Permanent or temporary casing may be used in the construction of the drilled shafts. For the drilled shafts in the lake, any permanent casing shall be removed to elevation 200. Temprorary casing is not to be removed until the concrete is set.

Technique shafts will not be required.

CLASS "A" CONCRETE: Contrary to the Standardifications, 28 day compressive strength for Class "A" Concrete shall be 30 Mpa.

REINFORCEMENT: Dimensions shown from the face of concrete to bars are to center of bars unless otherwise shown. Spacing of bars is from center to center of bars. Clear distance to face of concrete is 50 mm unless otherwise noted. Any reinforcing bars designated by suffix (e) in the Plans shall be epoxy coated in accordance with section 811.10 of the Standard Specifications. Any reinforcing bars designated by suffix (s) in a Bill of Reinforcement shall be considered a stirrup for purposes of bend diameters. Couplers, where required, shall be incidental to the concrete.

BEVELED EDGES: All exposed edges shall be beveled 20 mm unless otherwise shown.

BILL OF INCIDENTAL MATERIAL: The Contractor is responsible for furnishing enough material to complete the work in accordance with the Plans and Specifications. The cost of these items is to be included in the unit price bid for Class "AA" concrete.

SHOP DRAWINGS: When any changes in the design plans are proposed by the fabricator or supplier, the shop drawings reflecting these changes shall be submitted to the Department through the Contractor.

SPIRAL COLUMN TIES: Splices for spirals where desired by the Contractor shall be made with a minimum of one and one-half turns of spiral. No additional payment will be made for these splices, and the cost will be considered incidental to the cost of the developed-length of spiral shown on the plans. Spiral reinforcement shall meet the requirements of subsection 811.02.01 of the Specifications.

Dimension "A" shown in the bill of reinforcement for spirals is the distance from top of footing to bottom layer of reinforcement in the pier cap. One and one-half closed coils shall be provided at the ends of each spiral unit. 4 channel, tee or angle spacers, weighing approximately 1.19 kg per meter of spacer, shall be provided for each spiral unit. They shall be equally spaced along the periphery of the coil. Weight of spacers and spiral reinforcement is included in the estimate of quantities for each pier.

SHEAR CONNECTORS: The minimum length of studs is 100 mm. Provide the necessary length to penetrate at least 50 mm above bottom of slab.

The "Lump Sum Bid" for shear connectors shall be full payment for all shear connectors, welding and welding material, and materials necessary to field weld or shop weld the shear connectors in place according to the Plans and Specifications.

If the Contractor wishes to use other than the stud shear connectors shown on the plans, the proposed arrangement shall be submitted for approval with the shop plans.

Studs shall be welded in accordance with AWS Specifications.

HIGH STRENGTH BOLT CONNECTIONS: Unless otherwise specified on the plans, all bolted connections shall be ASTM A325 1" diameter (25.4 mm) high strength bolts, nuts, and washers. Open holes shall be 27 mm diameter. Type 3 bolts suitable for use with weathering steel shall be used as described in AASHTO M 164. All high strength bolted field connections are to be installed using "direct tension indicators" (DTI's) in accordance with the Standard Specifications and ASTM F959. All DTI's shall be mechanically zinc coated with baked epoxy applied over the zinc coating. Installation details of the DTI's shall be shown on the shop plans.

DIMENSIONS: Dimensions are millimeters unless otherwise noted. Dimensions are for a normal temperature of 15.5 degrees Celsius. Layout dimensions are horizontal measurements.

PROHIBITED FIELD WELDING: Except as shown on the plans, no welding of any nature shall be performed on the load carrying members of the bridge without the written consent of the Director, Division of Bridge Design, and then only in the manner and at the locations designated in the authorization.

POURING SEQUENCE: The pouring sequence of the slab may not be changed without the written approval of the designer.

MATERIALS : ASTM or AASHTO Specifications as designated below shall govern the materials furnished.

MATERIAL	A.S.T.M.	AASHTO
Pintles and stud shear connectors, UNS G 1015		M-169
Sheet lead and Pig lead	B29-79	
Structural Steel	M-270 Grade 50W	

All flange and web material shall meet the longitudinal charpy V-Notch toughness test applicable to Zone 2 in accordance with the following:

Grade 50W - (up to 50 mm thickness) 34 J at 4 DEG. C.
Grade 50W - (over 50 to 100 mm thickness) 41 J at -7 DEG. C.

Sampling and testing procedures shall be in accordance with AASHTO T243, current edition, utilizing (H) frequency testing. When plate thickness exceeds 40 mm, frequency of testing shall be (P).

FINGER DAMS: The unit price bid for finger dams shall include all labor and material necessary to fabricate and install the finger dam, the trough, drain boxes and drain pipes. Shop plans will be required for the finger dams.

CAMBER: Web plates shall be cut to provide for the camber of the girder. Provide for possible warpage due to extra heat in top flange by virtue of shear connectors. Girders which do not conform to plan camber and grade in the erected position shall be considered as requiring, at no additional cost to the state, either an adjustment in depth of the concrete slab haunch over the steel supporting members or a reworking of the girder camber to meet the plan grade and slab thickness. However, in no case shall the shear connectors be allowed to penetrate the slab less than 50 mm.

FINGER DAMS: The unit price bid for finger dams shall include all labor and material necessary to fabricate and install the finger dam, the trough, drain boxes and drain pipes. Shop plans will be required for the finger dams.

ELASTOMERIC BEARING PADS: Bearings shall meet the requirements of Steel Reinforced Elastomeric Bearing Pads. Bearing pads for the expansion shoes of the steel spans were designed using Article 14.6.5 Division I of the AASHTO Specification and are to be included with the structural steel. The PCI Beam bearing pads shall be incidental to the PCI Beams. Shop plans shall be required for expansion pads of the steel spans.

BLAST CLEANING: All structural steel shall be blast cleaned.

WEATHERING STEEL: Since is important that the finished structure weather to a uniform dark russet color, special precautions must be taken to assure that all eposed surfaces are kept free of grease, dirt, concrete stains, paint or other foreign substances. Care should be taken to avoid gouges, scratches and dents. The use of acids to remove scale and stains in the field will not be permitted. No element of the structure will be painted unless otherwise noted. It is mandatory that all exposed surfaces in the complete structure be free of any type of shop markings or identification. Scale discoloration produced by welding shall be removed. Any material which adheres to the steel that would inhibit formation of the oxide film shall be removed as soon as practical.

The contractor shall protect Piers 1 to 6 from staining during construction. Any concrete staining will be removed prior to applying masonry coating. The cost of this protection shall be included in the Lump Sum Bid for Structural Steel.

The masonry coating on Piers 1 to 6 shall not be applied until the existing bridge has been removed.

UTILITIES: Provisions for utility attachments are to be made to the structure. The utilities will be carried on brackets attached at 18' centers to the exterior girders of the structure. The provisions are as follows:

Southeastern Water	8" maximum cast iron line between girders 1 and 2
Brunside Water	8" maximum cast iron line between girders 1 and 2
Burnside Sewer	8" maximum cast iron line between girders 6 and 7
GTE	4 - 4" I.D. STeel Conduit between girders 1 and 2
Falcon Cable	1 - 4" I.D. STeel Conduit between girders 1 and 2

Holes (18" I.D. for the water and sewer lines and 5" I.D. for the conduits) shall be formed in concrete diaphragms and end walls where shown in the plans.

Holes or inserts in girder webs and clip angles shall be provided in girder lines 1, 2, 6, and 7. The inserts shall be incidental to the PCI Beams. The clip angles and holes in girder webs whall be incidental to the Structural Steel.

The support channels shall be provided and installed between girder lines 1 and 2 and and between girder lines 6 and 7. They shall be incidental to the structural steel.

The following provisions will apply only if provisions for payment have been made elsewhere in the contract documents.

The support channels for Burnside Sewer shall be provided and installed between girders 6 and 7.

The material specification and hardware for sewer and water lines installation shall be as shown elsewhere in the contract documents, however the attachment details shall be approved by the bridge designer.

The material specifications and hardware for conduit instalation shall be as follows. 4" I.D. / 4.50 O.D. conduits shall be attached to the support brackets by 5/8" Stainless Steel "U" bolts, hex nuts and lockwashers. Couplings shall be threaded collars. Two (2) expansion joints are to be built in the conduit runs at the finger dam locations. The expansion joints shall be built using 28" sections of 5" I.D. / 5.56 O.D. steel pipe placed over the 4" I.D. / 4.5" O.D conduit in the following manner (based on 60 degrees F):

1. Place six (6) inches of the 4" conduit from the northern side of the expansion joint into the 28" piece of 5" pipe to form a sleeve and securely weld the sleeve to the 4" pipe.
2. Place eighteen (18) inches of the 4" conduit on the southern portion of the slip joint into the sleeve and allow it to remain free to move in either direction inside the sleeve for expansion or contraction.

The 4" metal conduit and the 5" Metal conduit for Sleeving shall be ASTM A-53 (Standard).

SLENDERNESS EFECTS: The piers are designed assuming that the longitudinal deflection of Piers 2 - 5 is limited by "bumpers" that will be installed at Piers 1 and 6. Since this condition will not occur until after the steel has been erected, the contractor should submit to the engineer his proposal to insure pier stability during steel erection. This proposal may be the results of an analysis meeting the reauirements of AASHTO 8.16.5.1.1 Division I if such an analysis indicates that the Piers are stable under the construction loads.

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY:	
DETAILED BY: A. Frank	EJ Proprost

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

GENERAL NOTES

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 2
DRAWING NO. 23692

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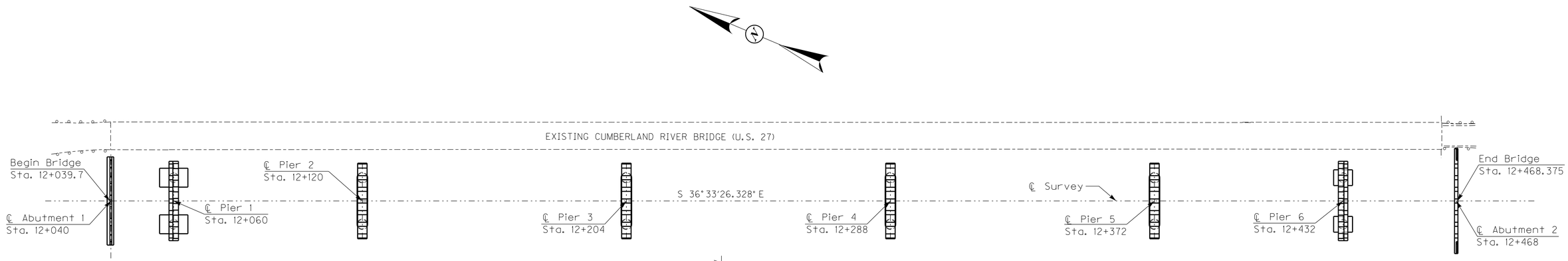
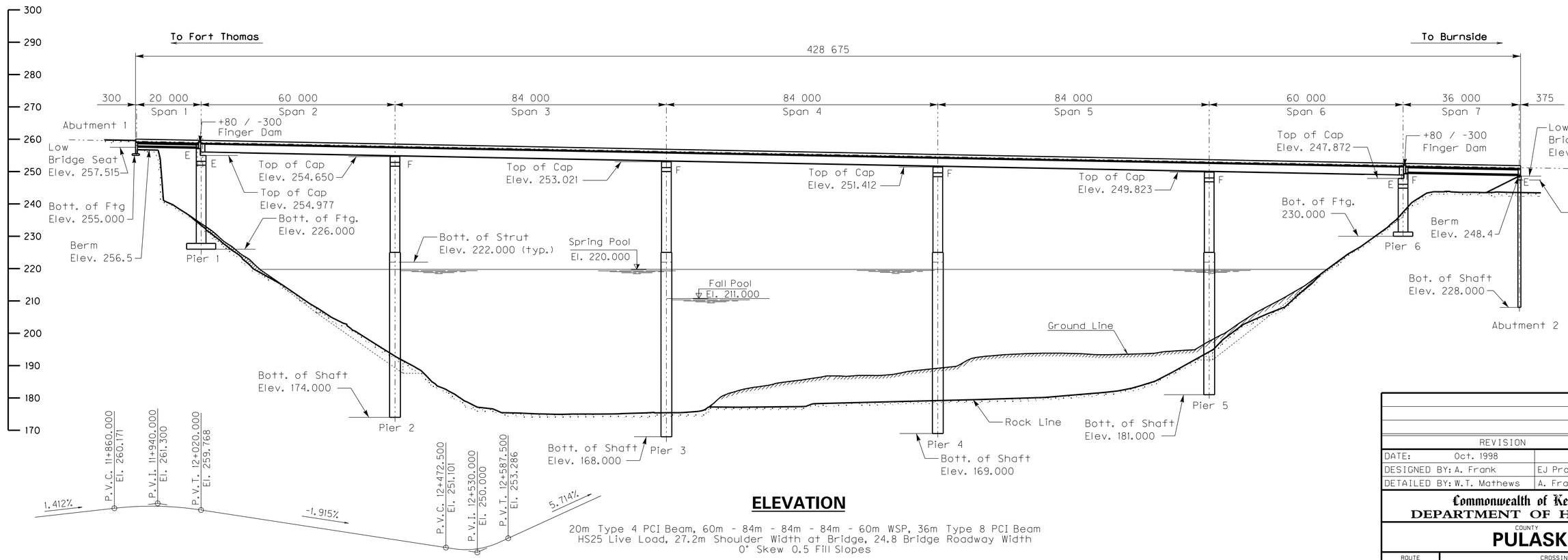
DATE: 07-DEC-2011



PLAN

Superstructure Not Shown



ELEVATION

20m Type 4 PCI Beam, 60m - 84m - 84m - 84m - 60m WSP, 36m Type 8 PCI Beam
HS25 Live Load, 27.2m Shoulder Width at Bridge, 24.8 Bridge Roadway Width
0° Skew 0.5 Fill Slopes

VERTICAL CURVE DIAGRAM

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	EJ Proprost
DETAILED BY: W.T. Mathews	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

LAYOUT

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 3

DRAWING NO. **23692**

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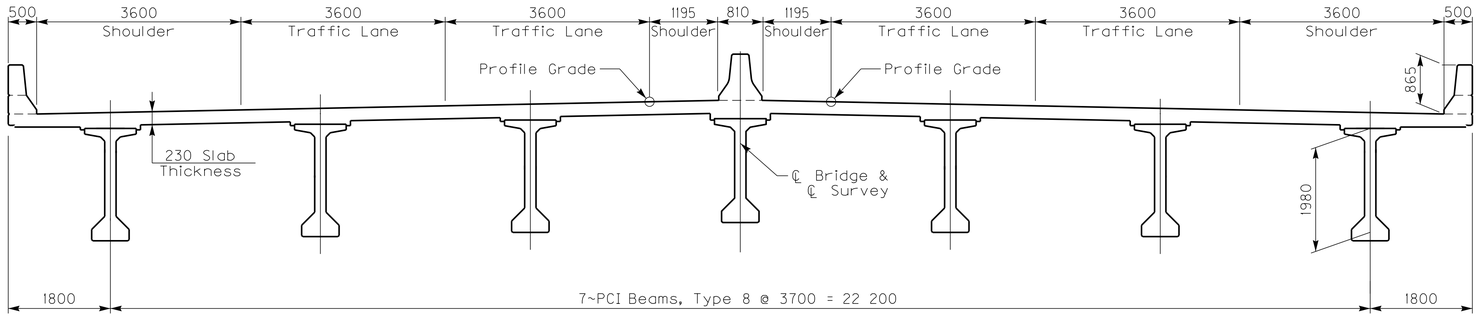
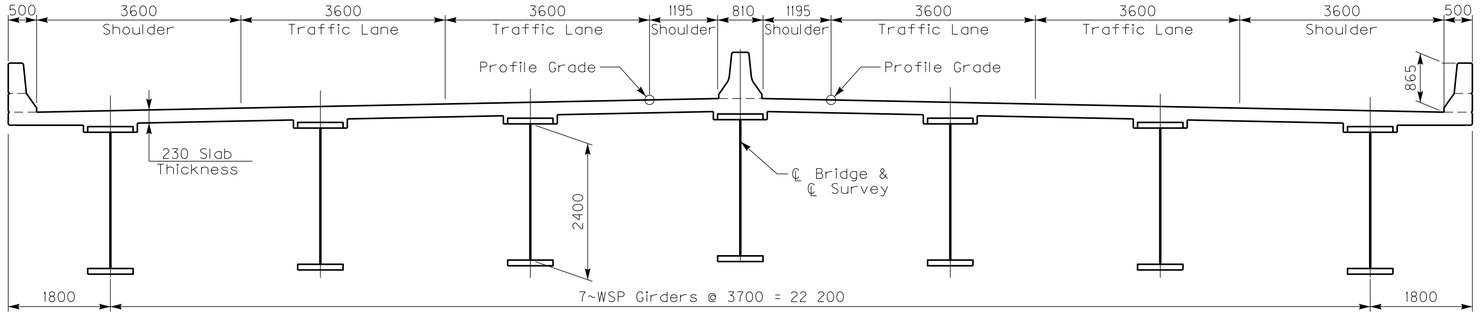
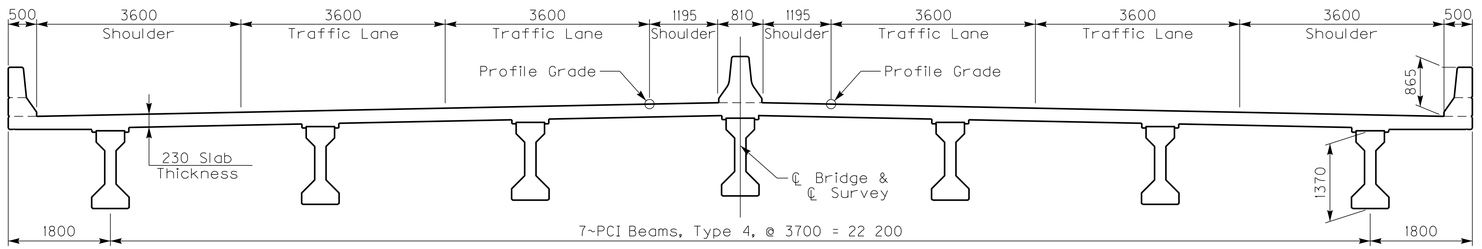


TYPICAL SECTION FOR SPAN 7



TYPICAL SECTION FOR SPANS 2–6



TYPICAL SECTION FOR SPAN 1

REVISION	DATE
DATE:	CHECKED BY
DESIGNED BY: A. Frank	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

TYPICAL SECTIONS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO.
4

DRAWING NO.
23692

SHEET LOCATION: AS
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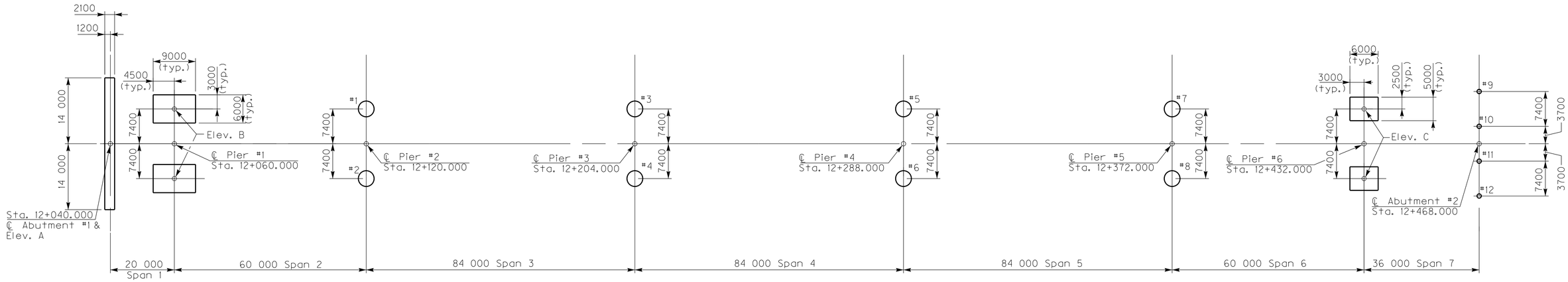
USERNAME: gary.newton
DATE: 07-DEC-2011



FOOTING & DRILLED SHAFT LAYOUT

Spread Footing Record Abutment #1 **		
Point	*Plan Footing Elevation*	*As-Built Footing Elevation*
A	255.000	

Footing is designed for a maximum pressure of 964.00 kPa.
The allowable bearing capacity is 4800.00 kPa.

Spread Footing Record Pier #1 **		
Point	*Plan Footing Elevation*	*As-Built Footing Elevation*
B	226.000	

Footing is designed for a maximum pressure of 583.00 kPa.
The allowable bearing capacity is 4800.00 kPa.

Spread Footing Record Pier #6 **		
Point	*Plan Footing Elevation*	*As-Built Footing Elevation*
C	230.000	

Footing is designed for a maximum pressure of 901.00 kPa.
The allowable bearing capacity is 2400.00 kPa.

** NOTE: After all foundations have been placed, the Project Resident Engineer shall record the bottom of footing elevation "As-Built" and shall submit one copy of this sheet with this data to:

Director, Division of Bridge Design
State Office Building, Room 725
Frankfort, KY 40622

NOTE: Contrary to the Specifications, bottom of footing elevations shall not be raised

NOTE: If the spread footing foundation is stepped due to unsuitable material found at the given elevation, the location and elevation of the step shall be shown on this sheet and submitted along with as-built elevations.

Drilled Shafts					
Drilled Shaft No.	*Top of Drilled Shaft Elevation*	*Top of Rock Elevation*	*Bottom of Hole Elevation*	*Total Lenght of Drilled Shaft Common*	*Total Lenght of Drilled Shaft Solid Rock*
		PIER #2			
1	222.000				
2	222.000				
		PIER #3			
3	222.000				
4	222.000				
		PIER #4			
5	222.000				
6	222.000				
		PIER #5			
7	222.000				
8	222.000				
		ABUTMENT #2			
9	247.400				
10	247.400				
11	247.400				
12	247.400				

NOTE: After completing the drilling operation, the Resident Engineer shall record for each drilled shaft the bottom of hole elevation and the top of rock elevation. After tabulating the length of drilled shaft, common and solid rock, he shall return one blue print copy of this sheet to the director of the Division of Bridge Design so that the data may be recorded on the original plans. This Drilled Shaft Record does not replace documentation required to be kept and submitted by the Resident Engineer.

NOTE: See Special Notes for Drilled Shafts for additional Drilled Shaft Records.

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

FOUNDATION LAYOUT

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 5
DRAWING NO. 23692

DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
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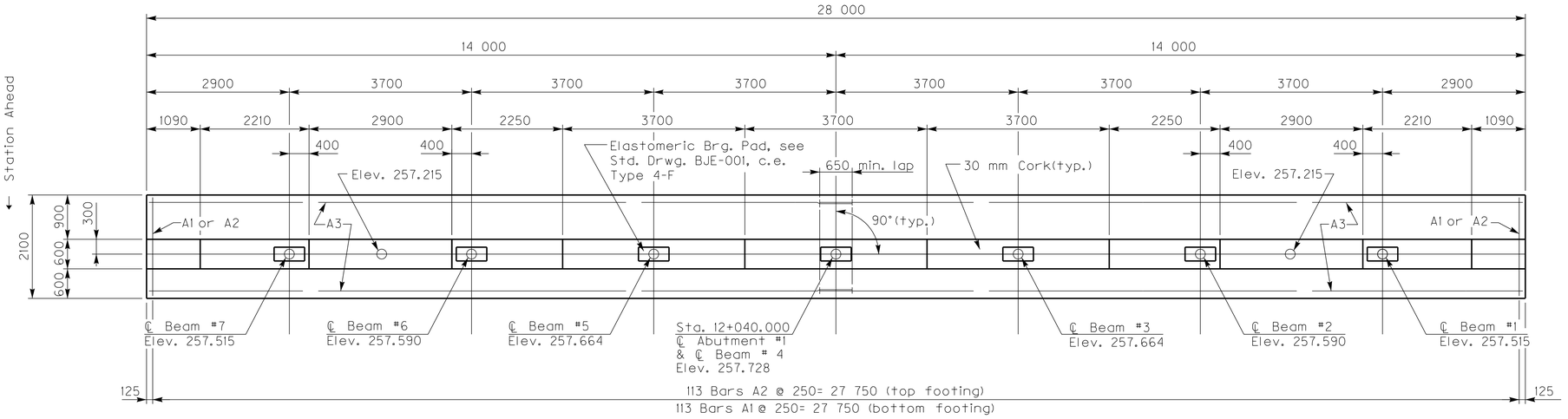
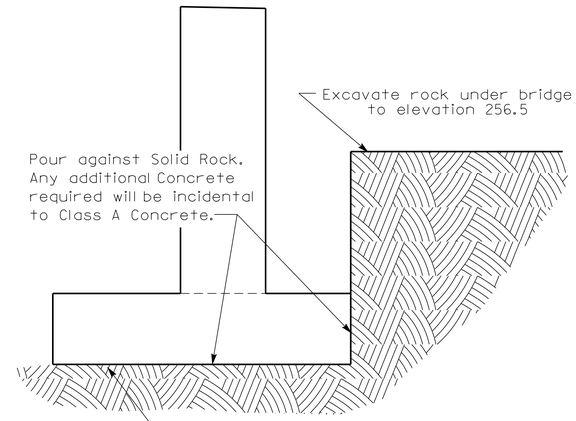


PLAN

NOTE:
Elevations shown are top of concrete.



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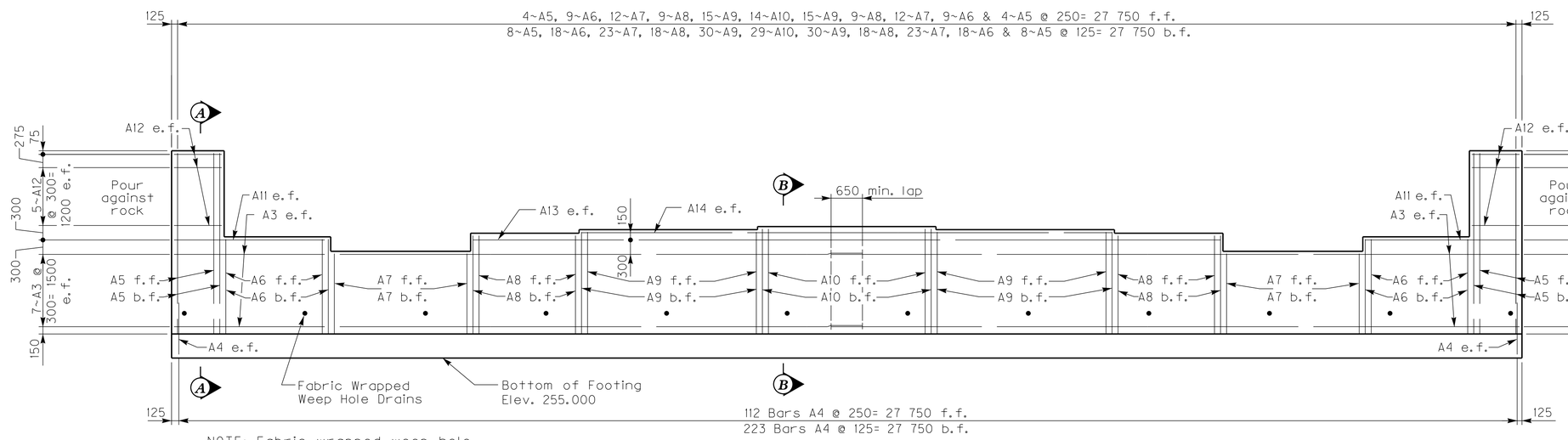

ELEVATION

NOTE: Fabric wrapped weep hole drains are to be located at elevations as determined by the Engineer. Drains are to be placed at 2.5 meter centers along the breastwall and wingwalls in accordance with Specifications.

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

ABUTMENT #1

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 6
DRAWING NO. 23692

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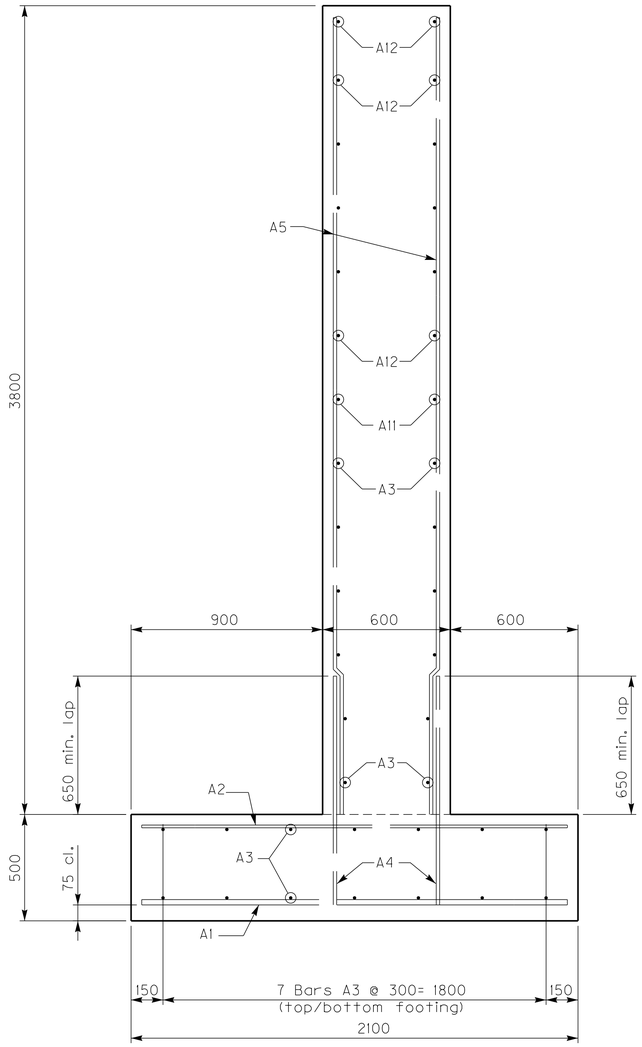

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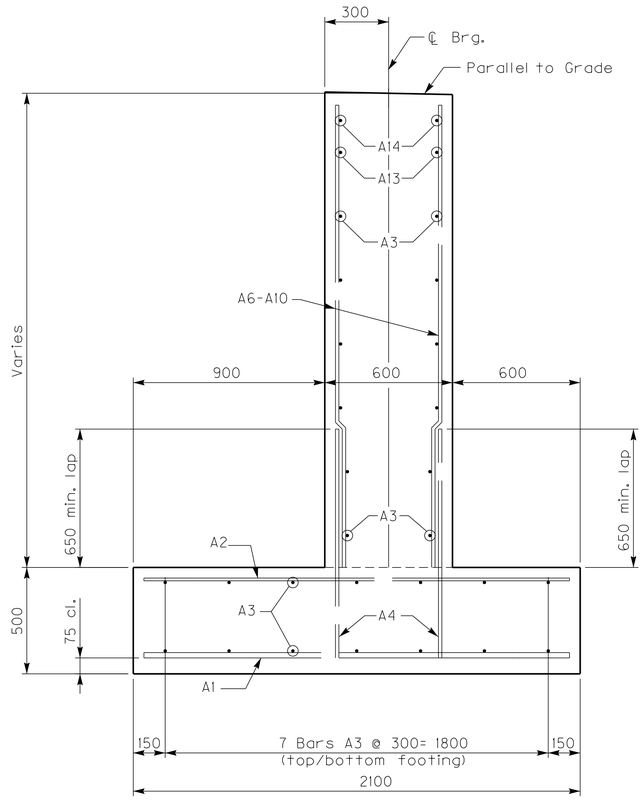

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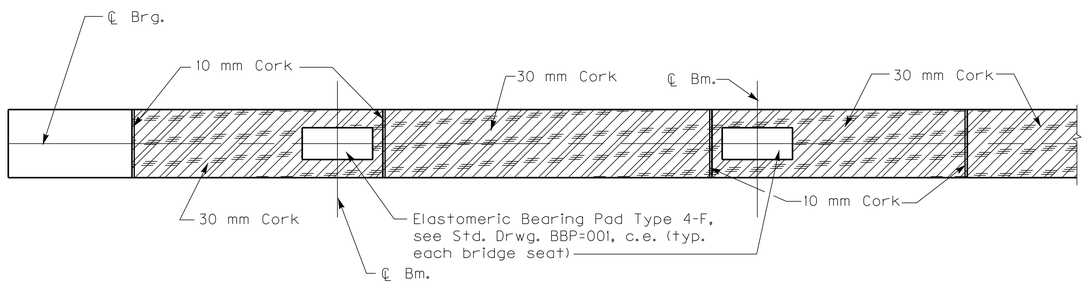


DETAIL ABOVE BRIDGE SEAT

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION
A1	Str.	113	25	2000	Bottom Footing
A2	Str.	113	13	2000	Top Footing
A3	Str.	40	16	14310	Top/Bottom Footing/Breastwall
A4	Str.	335	16	1890	Footing/Breastwall
A5	Str.	24	16	3750	Breastwall
A6	Str.	54	16	1060	Breastwall
A7	Str.	70	16	1660	Breastwall
A8	Str.	54	16	2040	Breastwall
A9	Str.	90	16	2410	Breastwall
A10	Str.	43	16	2170	Breastwall
A11	Str.	4	16	3200	Breastwall
A12	Str.	24	16	990	Wings
A13	Str.	2	16	15500	Breastwall
A14	Str.	2	16	11000	Breastwall

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

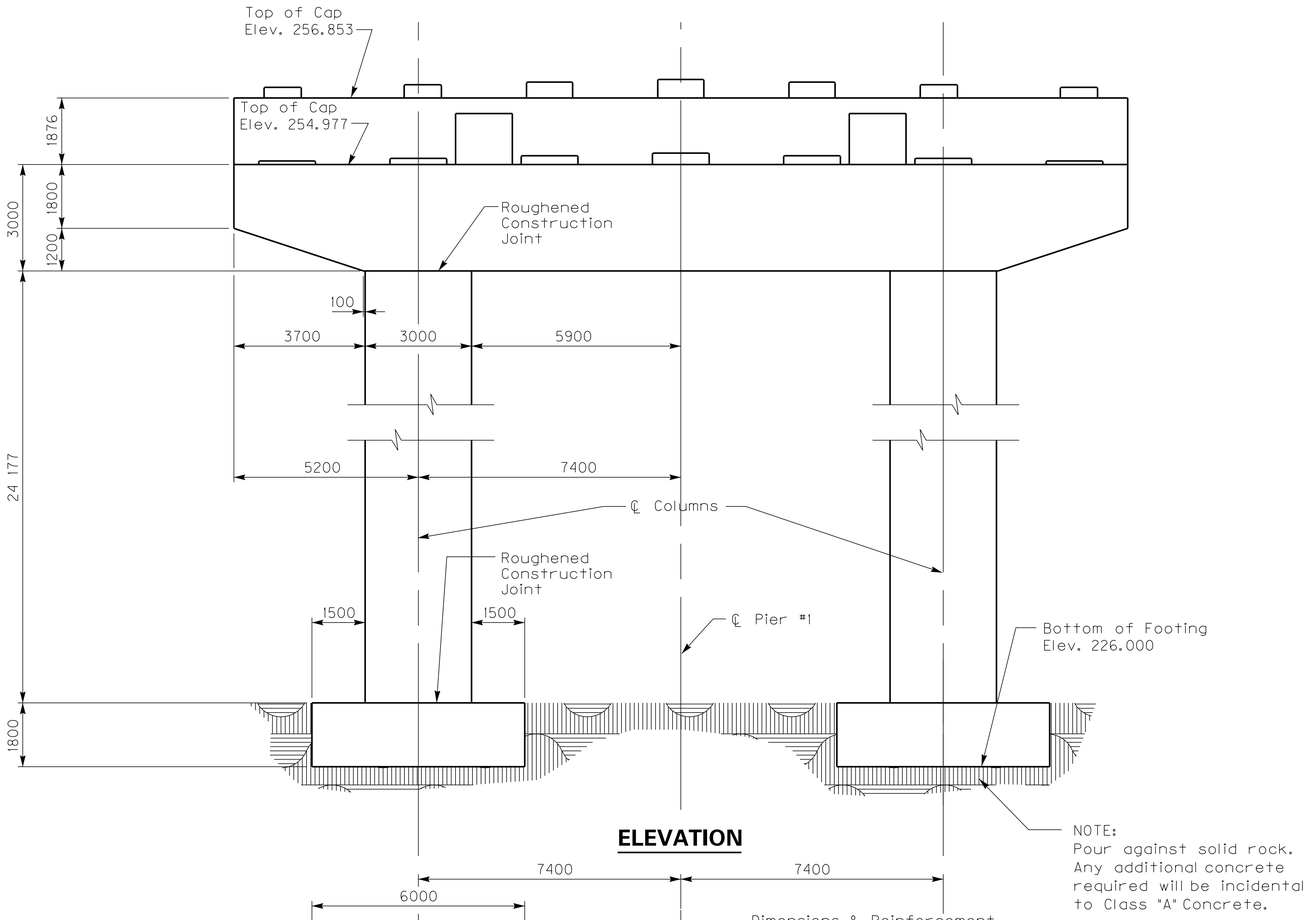
ABUTMENT #1

PREPARED BY
Division of Bridge Design
A. Frank Design Section

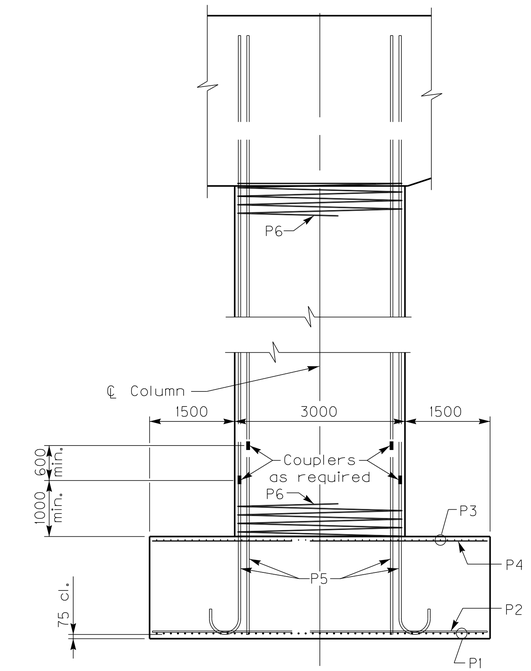
SHEET NO. 7

DRAWING NO. 23692

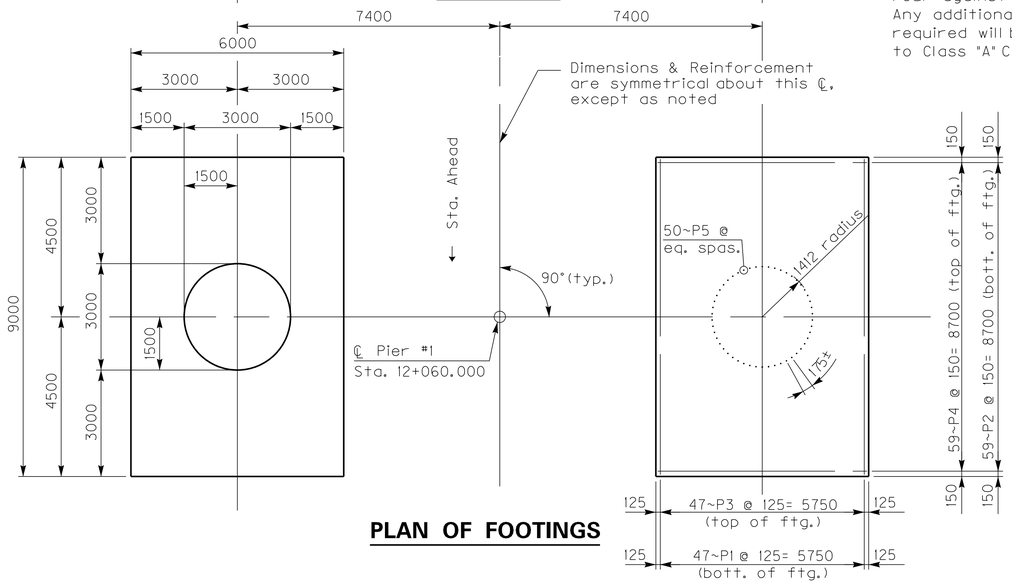
SHEET LOCATION: A1B
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011



ELEVATION



COLUMN ELEVATION



PLAN OF FOOTINGS

Showing Dimensions ***Showing Reinforcement***

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE **US 27** CROSSING **CUMBERLAND RIVER**

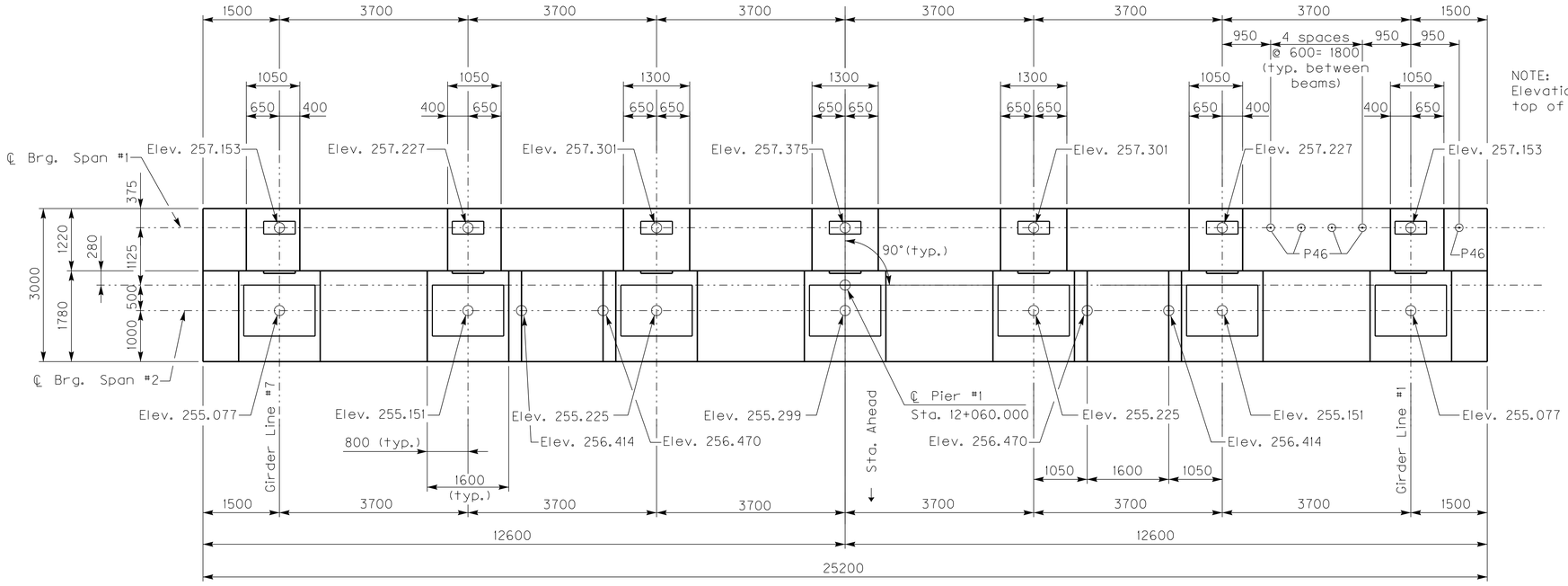
PIER #1

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 8

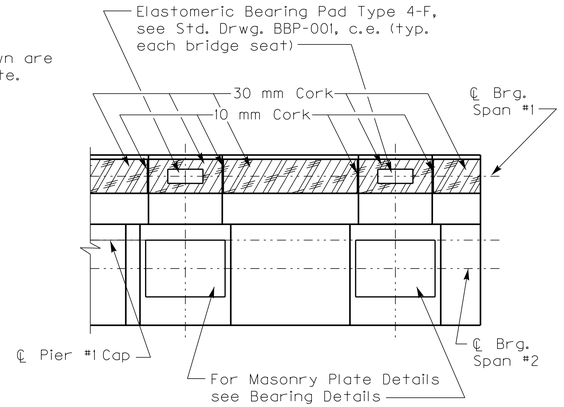
DRAWING NO. **23692**

SHEET LOCATION: P1 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



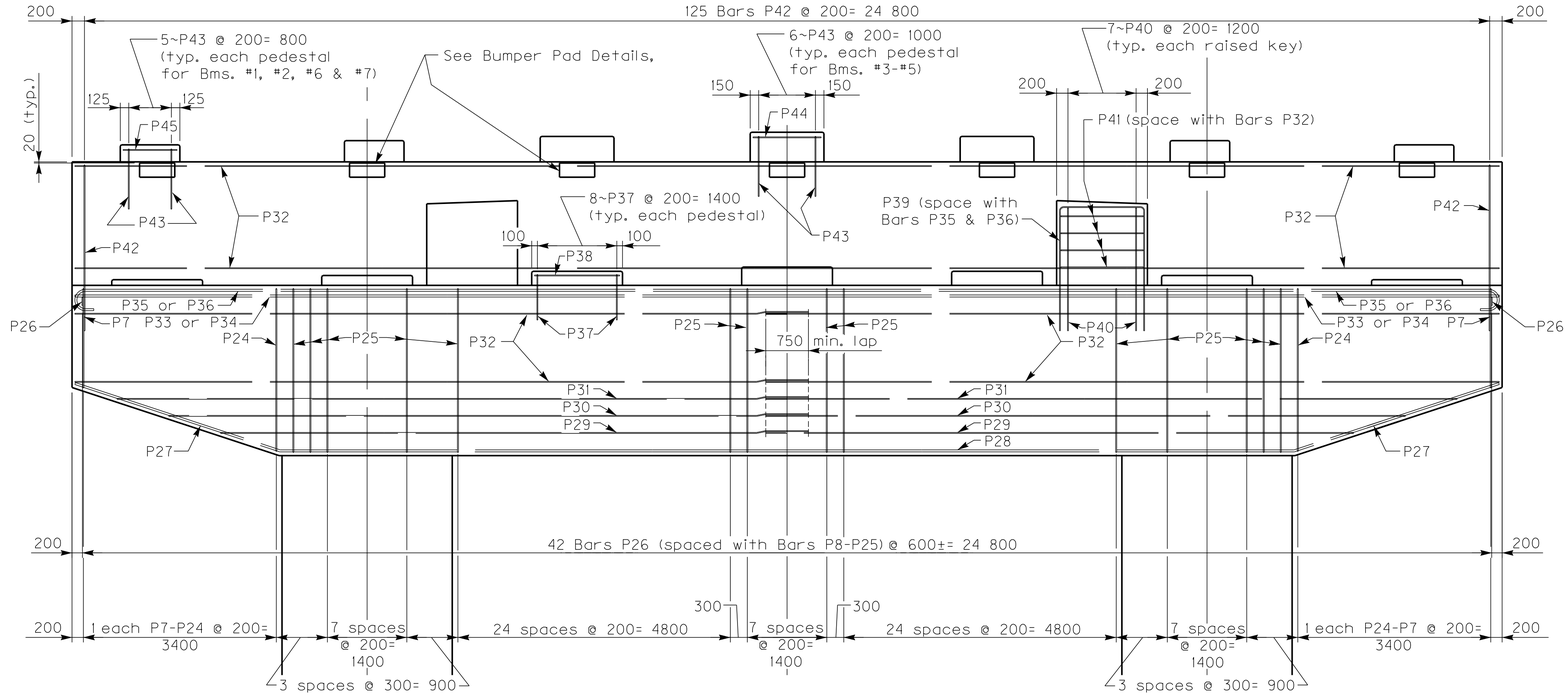
NOTE:
Elevations shown are top of concrete.

PLAN OF CAP



DETAIL ABOVE BRIDGE SEAT

NOTE:
Lap Bars P27 with Bars P28 760 min.
Lap Bars P33 with Bars P34 3100 min. and stagger.
Lap Bars P35 with Bars P26 3100 min. and stagger
Care shall be taken with the placement of cap reinforcement to avoid interferance with drill of anchor bolts.



ELEVATION OF CAP

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

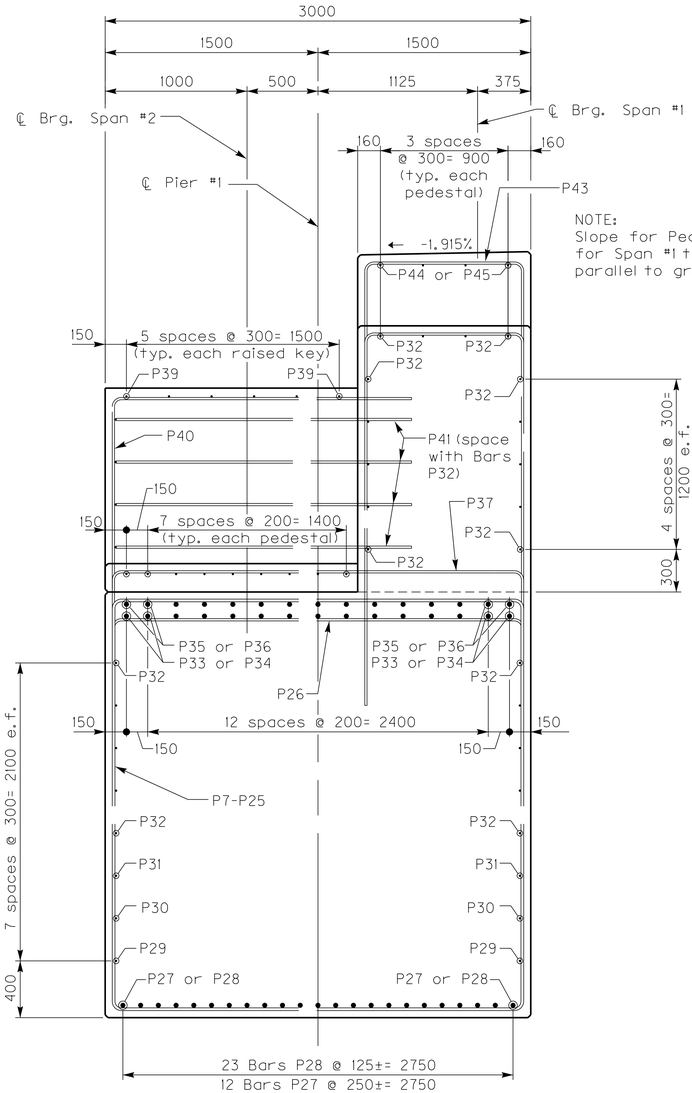
ROUTE	CROSSING
US 27	CUMBERLAND RIVER

PIER #1

PREPARED BY
Division of Bridge Design
A. Frank Design Section

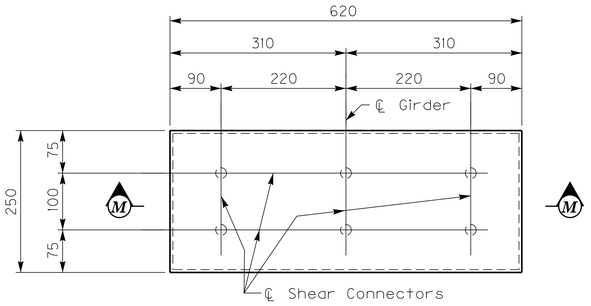
SHEET NO. 9
DRAWING NO. 23692

SHEET LOCATION: M2 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



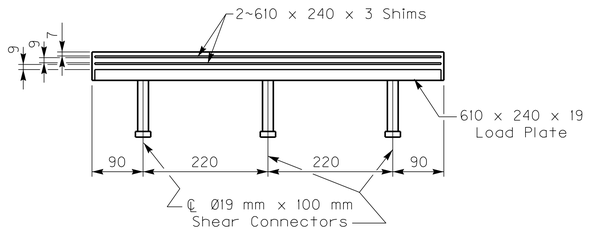
SECTION THRU CAP

~Showing Cap, pedestals & Raised Keys~



PLAN OF BUMPER PAD

~7 Required~

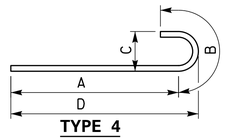


SECTION M–M

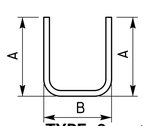
BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
P1	Str.	94	36	8900	Bottom of Footings				
P2	Str.	118	25	5900	Bottom of Footings				
P3	Str.	94	22	8900	Top of Footings				
P4	Str.	118	13	5900	Top of Footings				
P5	4	100	43	39440	Footings/Columns/Cap	38375	1060	550	38650
P6	18	2	13	2966230	Columns/Cap	24275	75	2900	
P7e	14s	2	19	9390	Cap	1765	2900		
P8e	14s	2	19	9520	Cap	1830	2900		
P9e	14s	2	19	9650	Cap	1895	2900		
P10e	14s	2	19	9790	Cap	1965	2900		
P11e	14s	2	19	9920	Cap	2030	2900		
P12e	14s	2	19	10050	Cap	2095	2900		
P13e	14s	2	19	10190	Cap	2165	2900		
P14e	14s	2	19	10320	Cap	2230	2900		
P15e	14s	2	19	10450	Cap	2295	2900		
P16e	14s	2	19	10590	Cap	2365	2900		
P17e	14s	2	19	10720	Cap	2430	2900		
P18e	14s	2	19	10850	Cap	2495	2900		
P19e	14s	2	19	10990	Cap	2565	2900		
P20e	14s	2	19	11120	Cap	2630	2900		
P21e	14s	2	19	11250	Cap	2695	2900		
P22e	14s	2	19	11390	Cap	2765	2900		
P23e	14s	2	19	11520	Cap	2830	2900		
P24e	14s	2	19	11650	Cap	2895	2900		
P25e	14s	82	19	11660	Cap	2900	2900		
P26e	2s	42	16	3130	Cap	150	2900		
P27e	8	24	16	4510	Bottom of Cap	3750	760	235	720
P28e	Str.	23	36	18000	Bottom of Cap				
P29e	Str.	4	16	10400	Cap				
P30e	Str.	4	16	11300	Cap				
P31e	Str.	4	16	12200	Cap				
P32e	Str.	52	16	12930	Cap				
P33e	Str.	15	36	12000	Top of Cap				
P34e	Str.	15	36	16200	Top of Cap				
P35e	4	15	36	12540	Top of Cap	11815	720	370	12000
P36e	4	15	36	16740	Top of Cap	16015	720	370	16200
P37e	2s	56	16	4970	Pedestals	1070	2900		
P38e	Str.	63	16	1500	Pedestals				
P39e	2s	18	16	5810	Raised Keys	2190	1500		
P40e	5	14	16	4250	Raised Keys	2190	2100		
P41e	2s	8	16	5600	Raised Keys	2100	1470		
P42e	2s	125	16	6300	Raised Cap	2625	1120		
P43e	2s	38	16	3590	Pedestals	1270	1120		
P44e	Str.	12	16	1200	Pedestals				
P45e	Str.	16	16	950	Pedestals				
P46e	Str.	26	*	600	Cap/Diaphragms/Dowels				

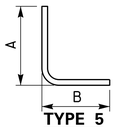
* 40mm Smooth Round Pin May be Commercial Grade Steel.



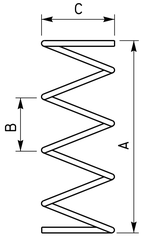
TYPE 4



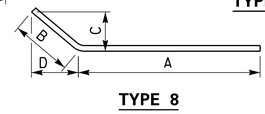
TYPE 2



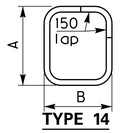
TYPE 5



TYPE 18



TYPE 8



TYPE 14

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

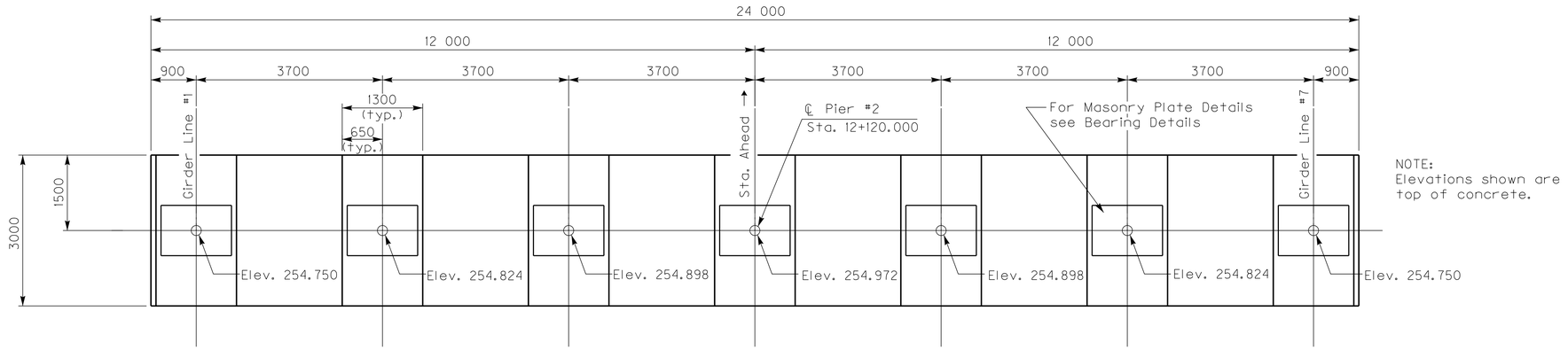
PIER #1

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 10

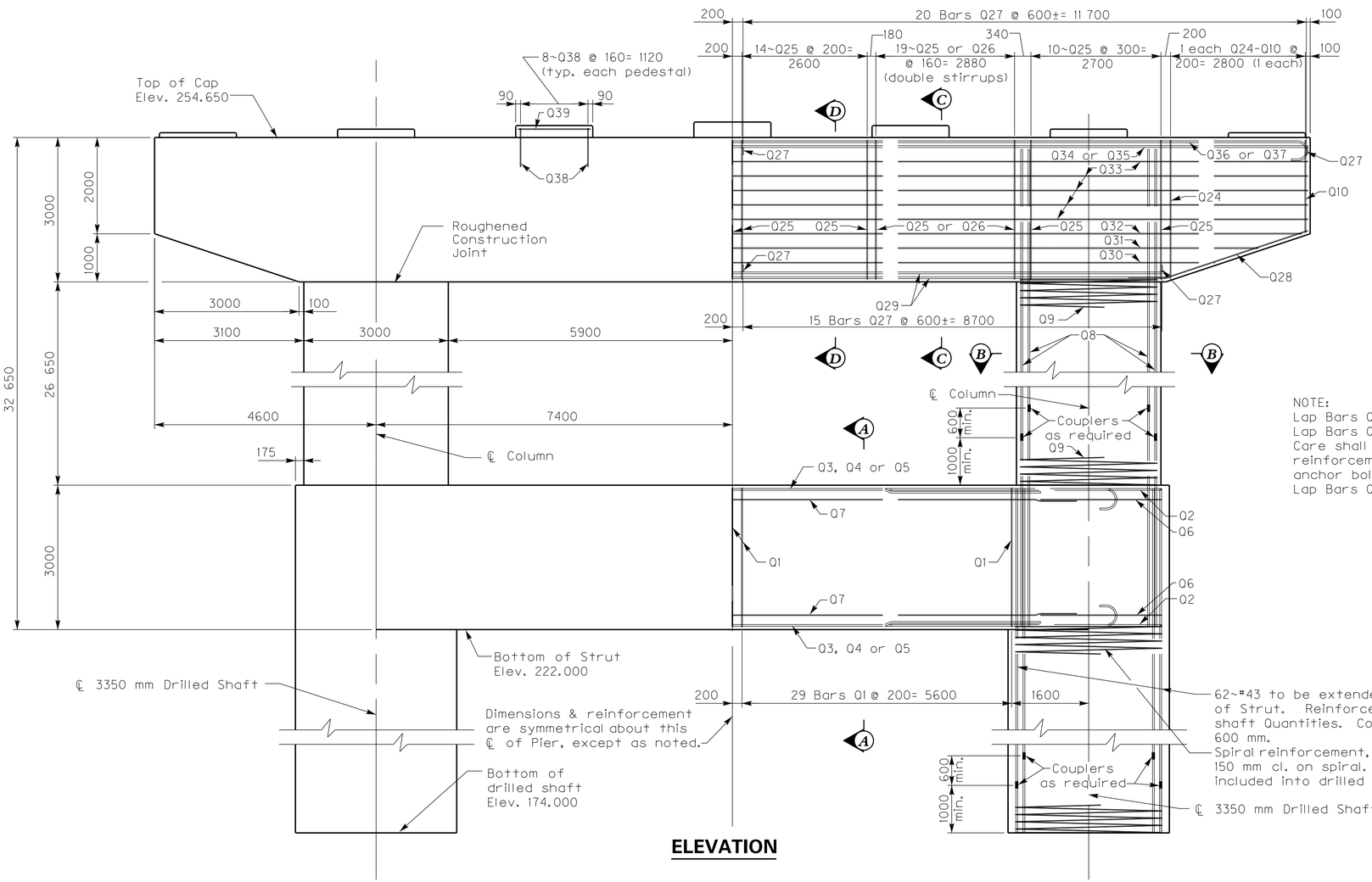
DRAWING NO. **23692**

SHEET LOCATION: G1 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



NOTE:
Elevations shown are top of concrete.

PLAN OF CAP



NOTE:
Lap Bars Q34 with Bars Q35 3100 min. and stagger.
Lap Bars Q36 with Bars Q27 3100 min. and stagger
Care shall be taken with the placement of cap reinforcement to avoid interferance with drill of anchor bolts.
Lap Bars Q30, Q31, Q32 & Q33 925 min.

62~#43 to be extended to within 50 mm from Top of Strut. Reinforcement to be included in drilled shaft Quantities. Couplers shall be staggered 600 mm.
Spiral reinforcement, #13 @ 150 mm pitch, with 150 mm cl. on spiral. Reinforcement to be included into drilled shaft Quantities.

ELEVATION

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **PULASKI**

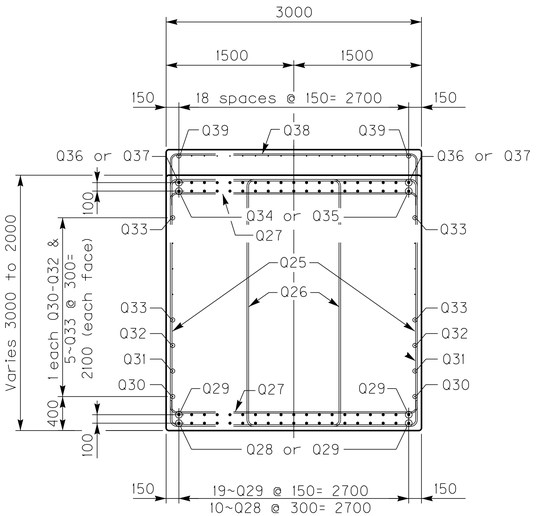
ROUTE: **US 27** | CROSSING: **CUMBERLAND RIVER**

PIER #2

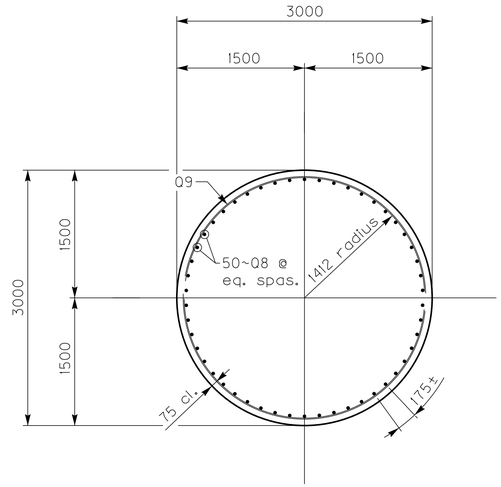
PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 11
DRAWING NO. **23692**

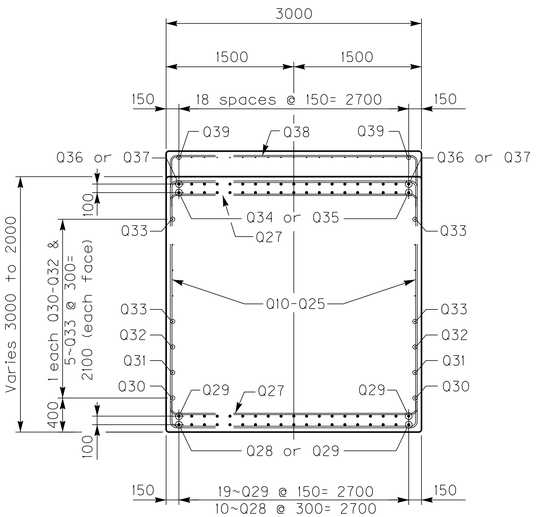
DATE: 07-DEC-2011
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton
SHEET LOCATION: P2



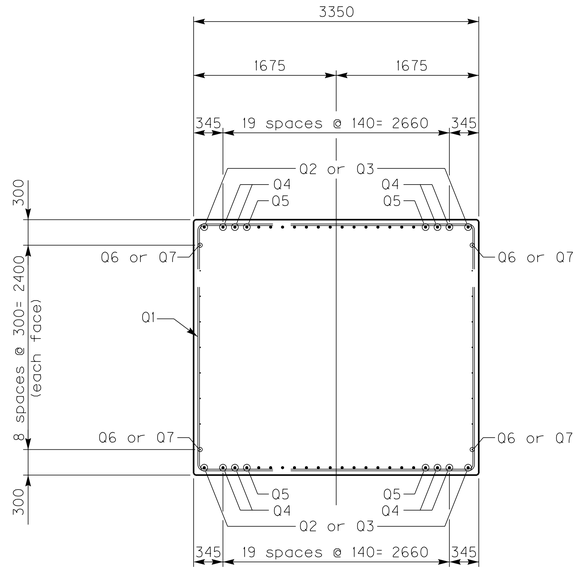
SECTION C–C



SECTION B–B



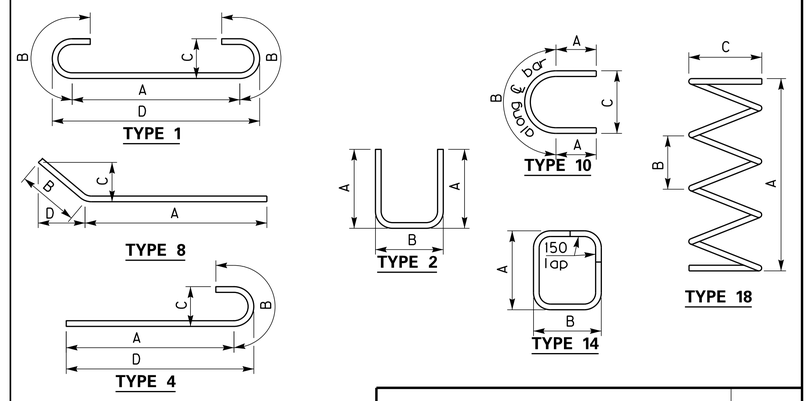
SECTION D–D



SECTION A–A

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
Q1	14s	59	19	12360	Strut	2900	3250		
Q2	10s	4	36	18210	Strut	6700	4815	3100	
Q3	Str.	4	36	8300	Strut				
Q4	1	8	36	16970	Strut	15530	720	370	15900
Q5	Str.	32	36	16800	Strut				
Q6	10s	18	16	18020	Strut	6500	5015	3210	
Q7	Str.	18	16	3650	Strut				
Q8	Str.	100	43	32400	Strut/Column/Cap				
Q9	18	2	13	1613600	Columns/Cap	26700	150	2850	
Q10	14s	2	19	9720	Cap	1930	2900		
Q11	14s	2	19	9850	Cap	1995	2900		
Q12	14s	2	19	9990	Cap	2065	2900		
Q13	14s	2	19	10120	Cap	2130	2900		
Q14	14s	2	19	10250	Cap	2195	2900		
Q15	14s	2	19	10390	Cap	2265	2900		
Q16	14s	2	19	10520	Cap	2330	2900		
Q17	14s	2	19	10650	Cap	2395	2900		
Q18	14s	2	19	10790	Cap	2465	2900		
Q19	14s	2	19	10920	Cap	2530	2900		
Q20	14s	2	19	11050	Cap	2595	2900		
Q21	14s	2	19	11190	Cap	2665	2900		
Q22	14s	2	19	11320	Cap	2730	2900		
Q23	14s	2	19	11450	Cap	2795	2900		
Q24	14s	2	19	11590	Cap	2865	2900		
Q25	14s	87	19	11660	Cap	2900	2900		
Q26	14s	38	19	8060	Cap	2900	1100		
Q27	2s	70	16	3130	Cap	150	2900		
Q28	8	20	16	3870	Cap	3120	750	235	710
Q29	Str.	38	36	17980	Cap				
Q30	Str.	4	16	10490	Cap				
Q31	Str.	4	16	11390	Cap				
Q32	Str.	4	16	12290	Cap				
Q33	Str.	20	16	12420	Cap				
Q34	Str.	19	36	18000	Cap				
Q35	Str.	19	36	9000	Cap				
Q36	4	19	36	18240	Cap	17515	720	370	17700
Q37	4	19	36	9840	Cap	9115	720	370	9300
Q38	2s	56	16	4970	Pedestals	1070	2900		
Q39	Str.	133	16	1200	Pedestals				



REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

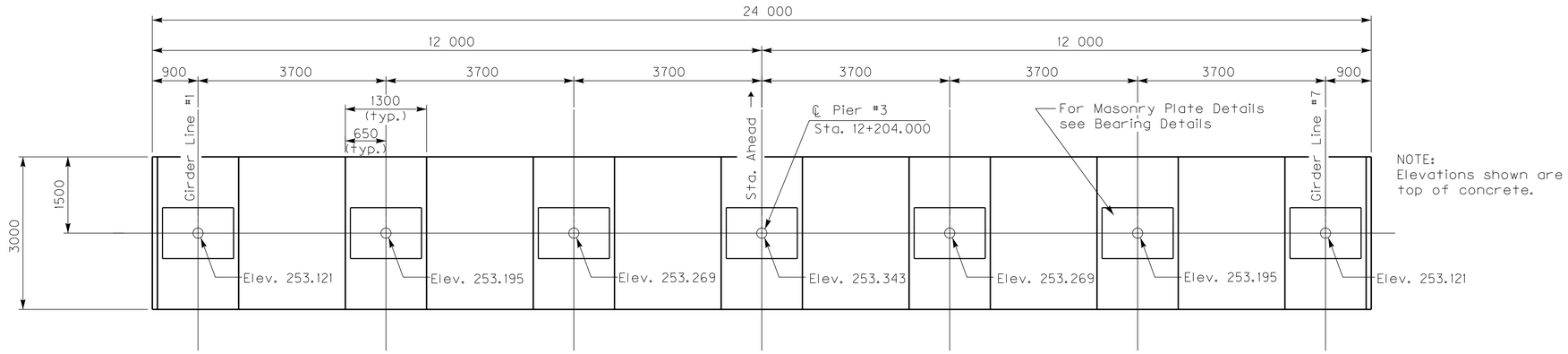
PIER #2

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO.
12

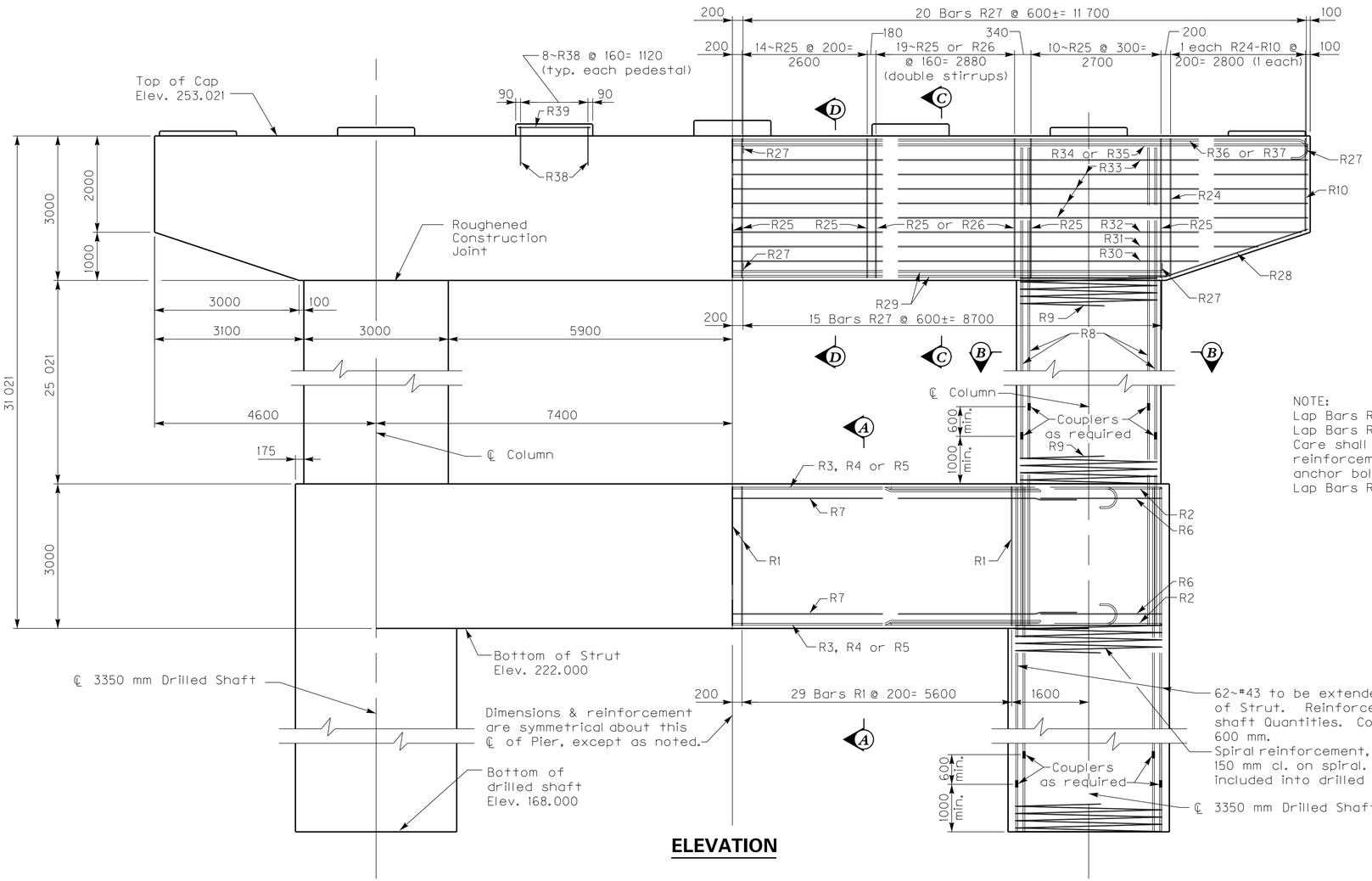
DRAWING NO.
23692

SHEET LOCATION: M3 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



NOTE:
Elevations shown are top of concrete.

PLAN OF CAP



NOTE:
Lap Bars R34 with Bars R35 3100 min. and stagger.
Lap Bars R36 with Bars R27 3100 min. and stagger
Care shall be taken with the placement of cap reinforcement to avoid interferance with drill of anchor bolts.
Lap Bars R30, R31, R32 & R33 925 min.

62~#43 to be extended to within 50 mm from Top of Strut. Reinforcement to be included in drilled shaft Quantities. Couplers shall be staggered 600 mm.
Spiral reinforcement, #13 @ 150 mm pitch, with 150 mm cl. on spiral. Reinforcement to be included into drilled shaft Quantities.

ELEVATION

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

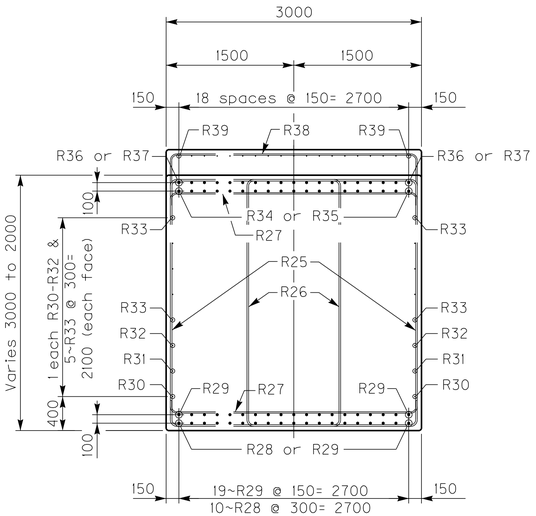
ROUTE: US 27
CROSSING: CUMBERLAND RIVER

PIER #3

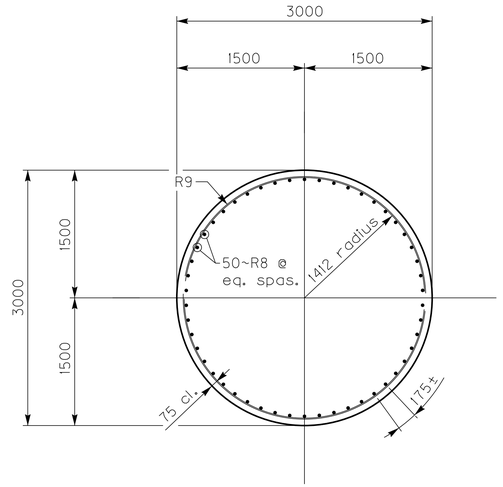
PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 13
DRAWING NO. 23692

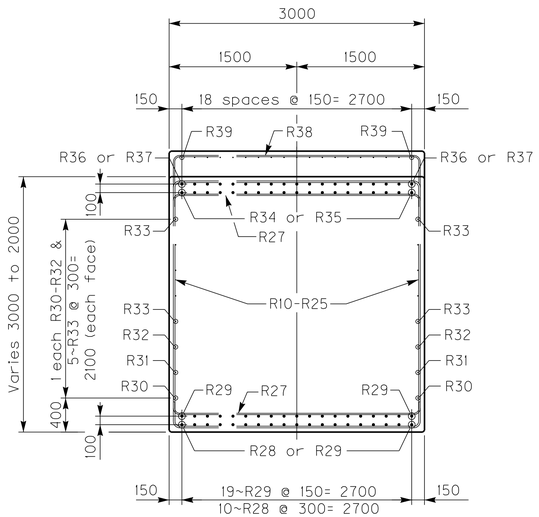
DATE: 07-DEC-2011
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton
SHEET LOCATION: P3



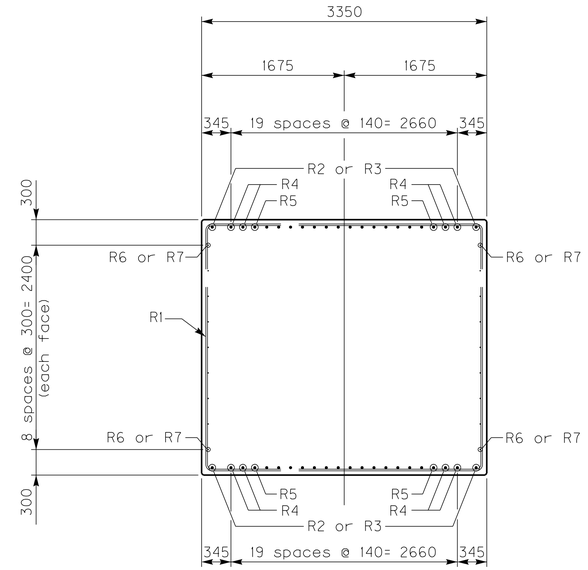
SECTION C–C



SECTION B–B



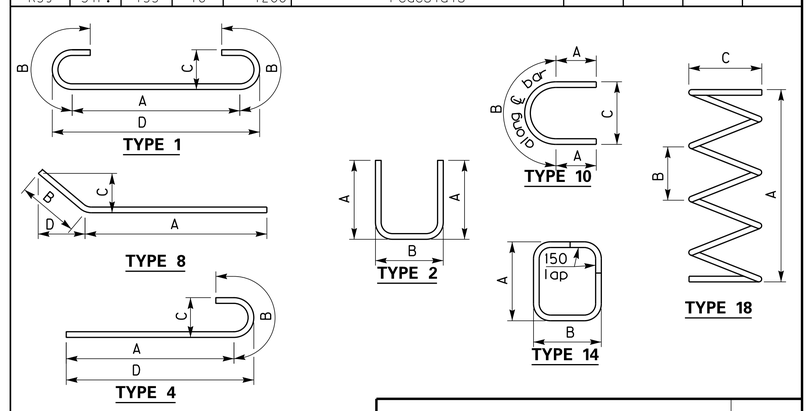
SECTION D–D



SECTION A–A

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
R1	14s	59	19	12360	Strut	2900	3250		
R2	10s	4	36	18210	Strut	6700	4815	3100	
R3	Str.	4	36	8300	Strut				
R4	1	8	36	16970	Strut	15530	720	370	15900
R5	Str.	32	36	16800	Strut				
R6	10s	18	16	18020	Strut	6500	5015	3210	
R7	Str.	18	16	3650	Strut				
R8	Str.	100	43	30770	Strut/Column/Cap				
R9	18	2	13	1524450	Columns/Cap	25070	150	2850	
R10	14s	2	19	9720	Cap	1930	2900		
R11	14s	2	19	9850	Cap	1995	2900		
R12	14s	2	19	9990	Cap	2065	2900		
R13	14s	2	19	10120	Cap	2130	2900		
R14	14s	2	19	10250	Cap	2195	2900		
R15	14s	2	19	10390	Cap	2265	2900		
R16	14s	2	19	10520	Cap	2330	2900		
R17	14s	2	19	10650	Cap	2395	2900		
R18	14s	2	19	10790	Cap	2465	2900		
R19	14s	2	19	10920	Cap	2530	2900		
R20	14s	2	19	11050	Cap	2595	2900		
R21	14s	2	19	11190	Cap	2665	2900		
R22	14s	2	19	11320	Cap	2730	2900		
R23	14s	2	19	11450	Cap	2795	2900		
R24	14s	2	19	11590	Cap	2865	2900		
R25	14s	87	19	11660	Cap	2900	2900		
R26	14s	38	19	8060	Cap	2900	1100		
R27	2s	70	16	3130	Cap	150	2900		
R28	8	20	16	3870	Cap	3120	750	235	710
R29	Str.	38	36	17980	Cap				
R30	Str.	4	16	10490	Cap				
R31	Str.	4	16	11390	Cap				
R32	Str.	4	16	12290	Cap				
R33	Str.	20	16	12420	Cap				
R34	Str.	19	36	18000	Cap				
R35	Str.	19	36	9000	Cap				
R36	4	19	36	18240	Cap	17515	720	370	17700
R37	4	19	36	9840	Cap	9115	720	370	9300
R38	2s	56	16	4970	Pedestals	1070	2900		
R39	Str.	133	16	1200	Pedestals				



REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

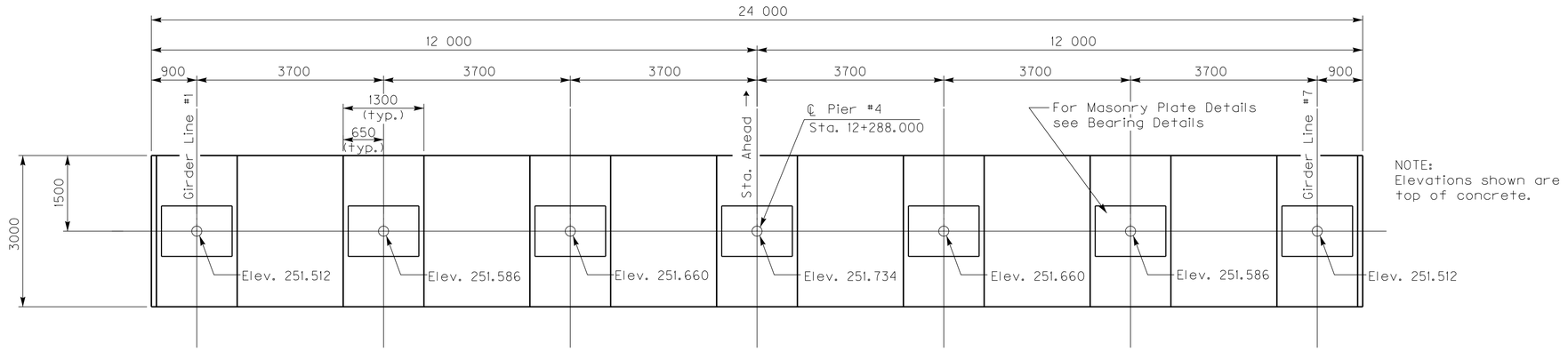
PIER #3

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO.
14

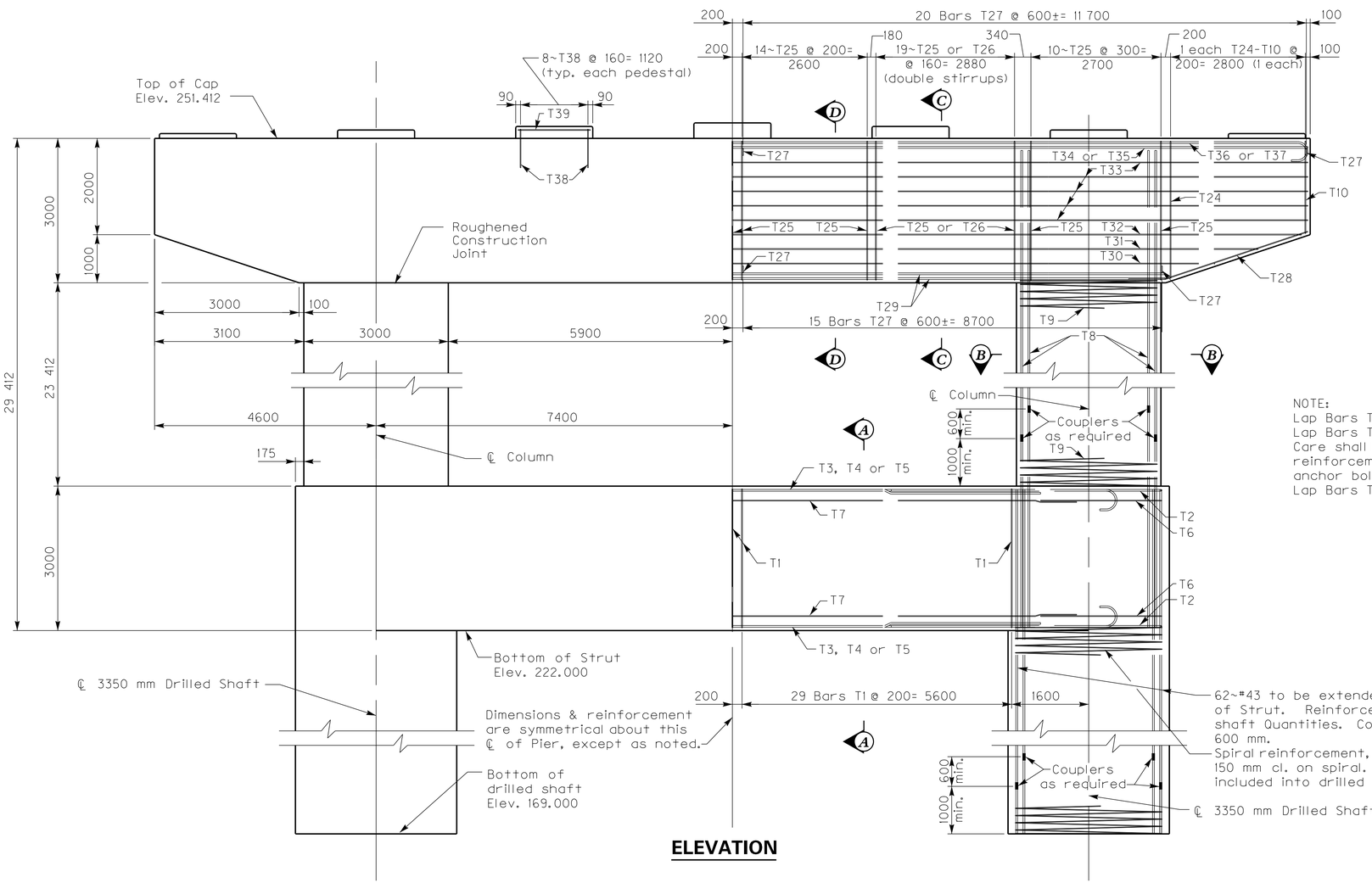
DRAWING NO.
23692

SHEET LOCATION: M4 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



NOTE:
Elevations shown are top of concrete.

PLAN OF CAP



NOTE:
Lap Bars T34 with Bars T35 3100 min. and stagger.
Lap Bars T36 with Bars T27 3100 min. and stagger
Care shall be taken with the placement of cap reinforcement to avoid interferance with drill of anchor bolts.
Lap Bars T30, T31, T32 & T33 925 min.

ELEVATION

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **PULASKI**

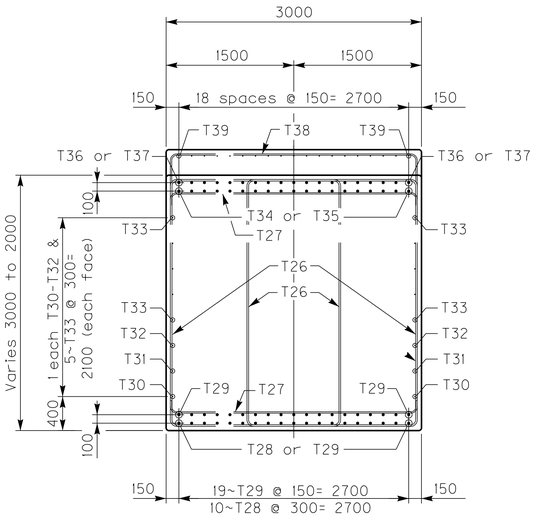
ROUTE: **US 27** | CROSSING: **CUMBERLAND RIVER**

PIER #4

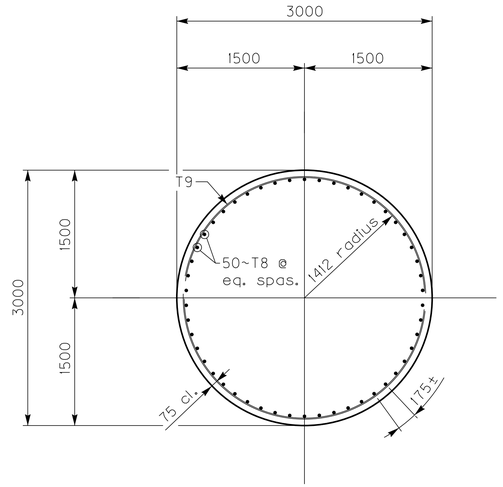
PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 15
DRAWING NO. **23692**

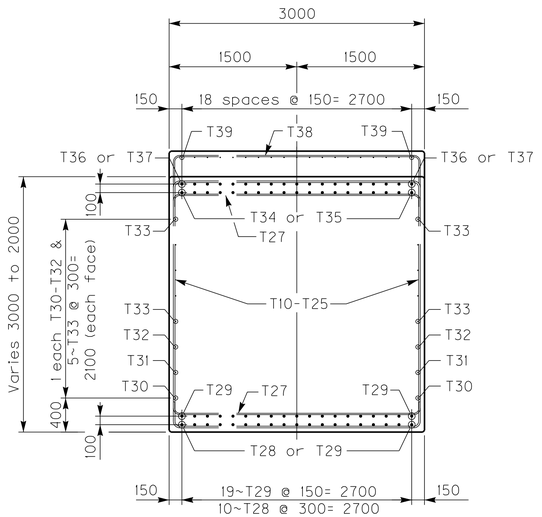
DATE: 07-DEC-2011
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton
SHEET LOCATION: P4



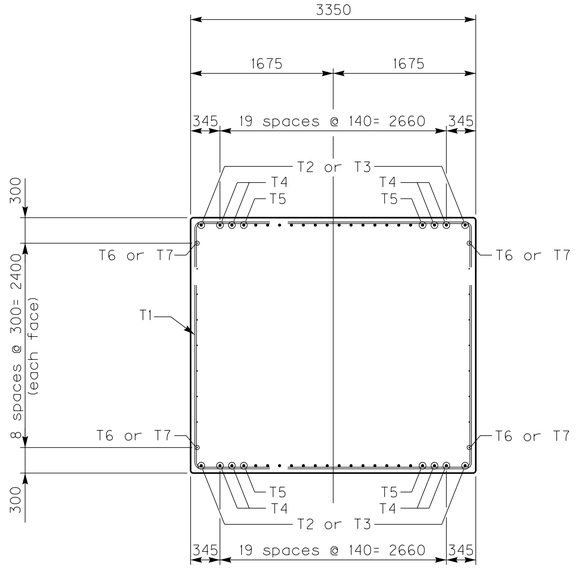
SECTION C–C



SECTION B–B



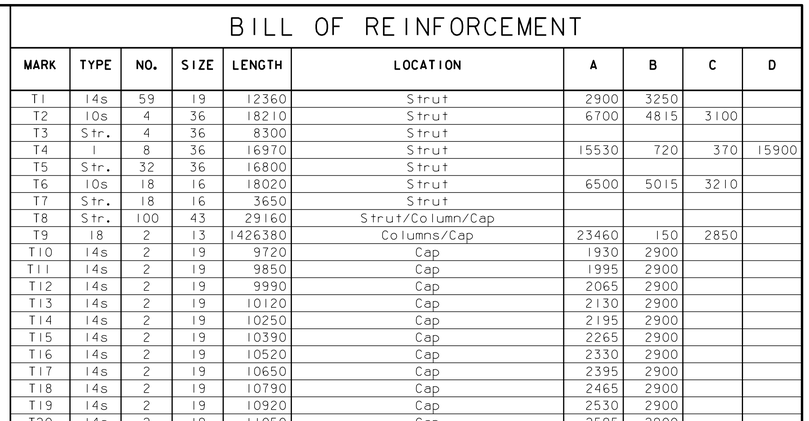
SECTION D–D



SECTION A–A

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
T1	14s	59	19	12360	Strut	2900	3250		
T2	10s	4	36	18210	Strut	6700	4815	3100	
T3	Str.	4	36	8300	Strut				
T4	1	8	36	16970	Strut	15530	720	370	15900
T5	Str.	32	36	16800	Strut				
T6	10s	18	16	18020	Strut	6500	5015	3210	
T7	Str.	18	16	3650	Strut				
T8	Str.	100	43	29160	Strut/Column/Cap				
T9	18	2	13	1426380	Columns/Cap	23460	150	2850	
T10	14s	2	19	9720	Cap	1930	2900		
T11	14s	2	19	9850	Cap	1995	2900		
T12	14s	2	19	9990	Cap	2065	2900		
T13	14s	2	19	10120	Cap	2130	2900		
T14	14s	2	19	10250	Cap	2195	2900		
T15	14s	2	19	10390	Cap	2265	2900		
T16	14s	2	19	10520	Cap	2330	2900		
T17	14s	2	19	10650	Cap	2395	2900		
T18	14s	2	19	10790	Cap	2465	2900		
T19	14s	2	19	10920	Cap	2530	2900		
T20	14s	2	19	11050	Cap	2595	2900		
T21	14s	2	19	11190	Cap	2665	2900		
T22	14s	2	19	11320	Cap	2730	2900		
T23	14s	2	19	11450	Cap	2795	2900		
T24	14s	2	19	11590	Cap	2865	2900		
T25	14s	87	19	11660	Cap	2900	2900		
T26	14s	38	19	8060	Cap	2900	1100		
T27	2s	70	16	3130	Cap	150	2900		
T28	8	20	16	3870	Cap	3120	750	235	710
T29	Str.	38	36	17980	Cap				
T30	Str.	4	16	10490	Cap				
T31	Str.	4	16	11390	Cap				
T32	Str.	4	16	12290	Cap				
T33	Str.	20	16	12420	Cap				
T34	Str.	19	36	18000	Cap				
T35	Str.	19	36	9000	Cap				
T36	4	19	36	18240	Cap	17515	720	370	17700
T37	4	19	36	9840	Cap	9115	720	370	9300
T38	2s	56	16	4970	Pedestals	1070	2900		
T39	Str.	133	16	1200	Pedestals				



REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

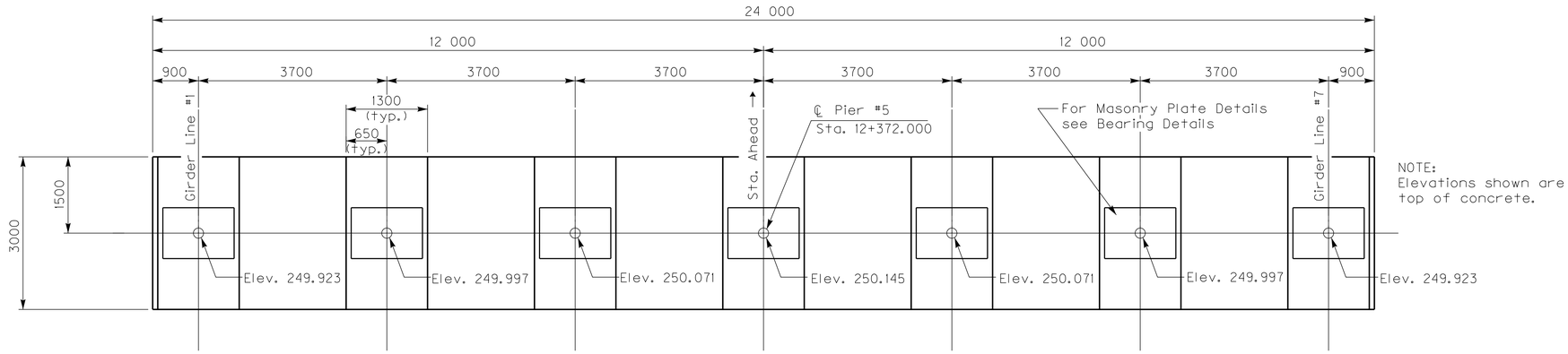
PIER #4

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO.
16

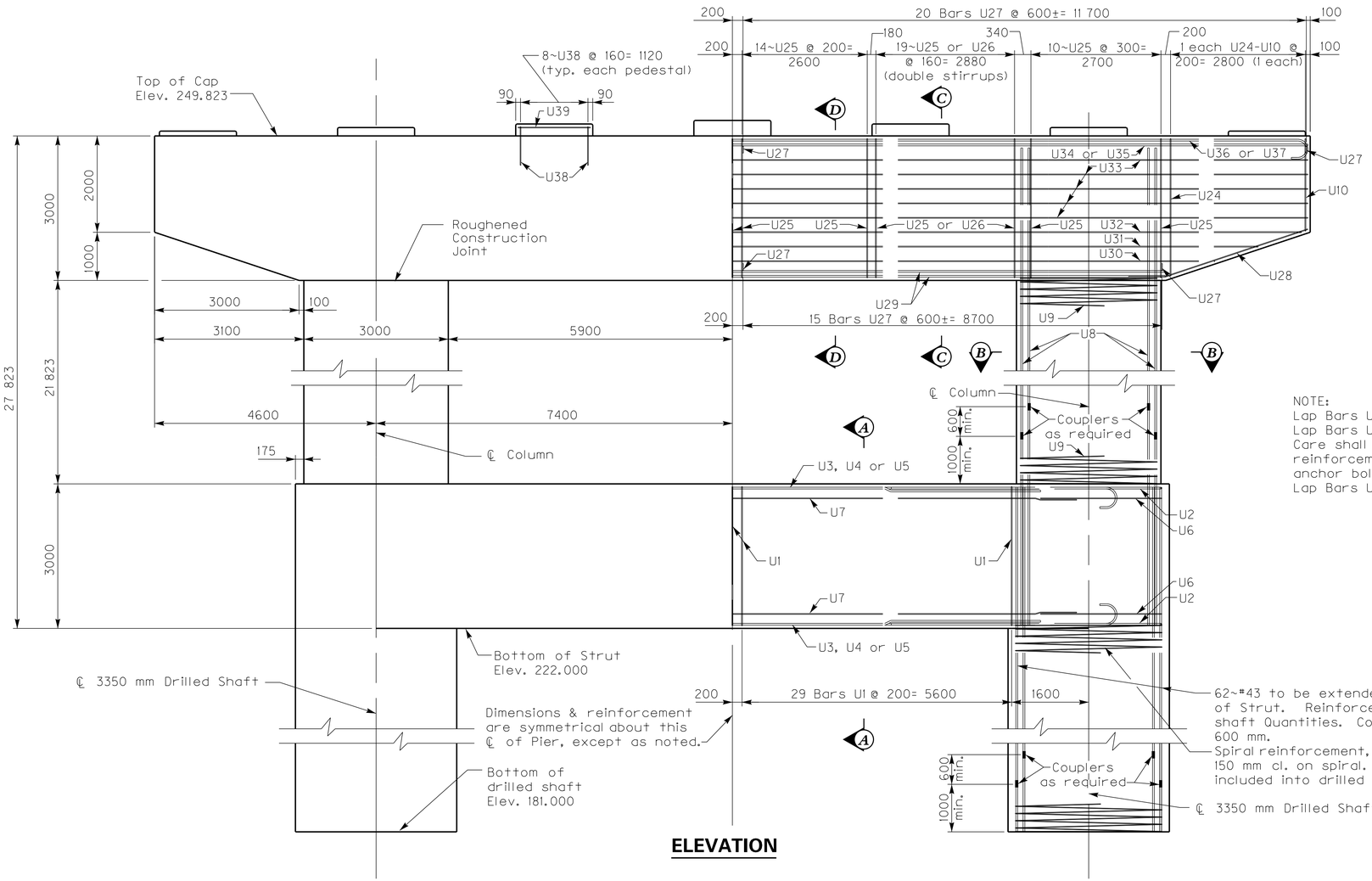
DRAWING NO.
23692

SHEET LOCATION: M5 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



NOTE:
Elevations shown are top of concrete.

PLAN OF CAP



NOTE:
Lap Bars U34 with Bars U35 3100 min. and stagger.
Lap Bars U36 with Bars U27 3100 min. and stagger
Care shall be taken with the placement of cap reinforcement to avoid interferance with drill of anchor bolts.
Lap Bars U30, U31, U32 & U33 925 min.

ELEVATION

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **PULASKI**

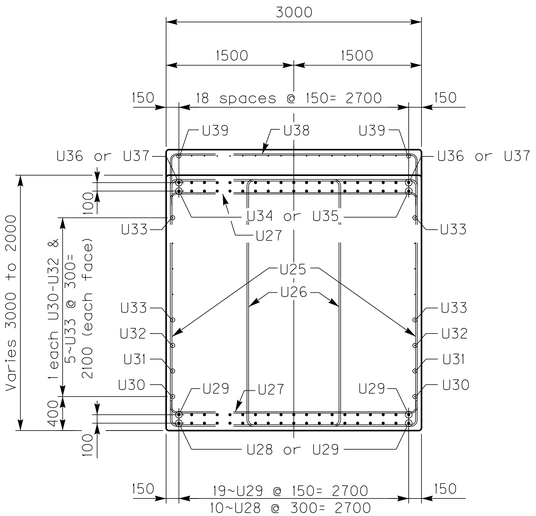
ROUTE: **US 27** | CROSSING: **CUMBERLAND RIVER**

PIER #5

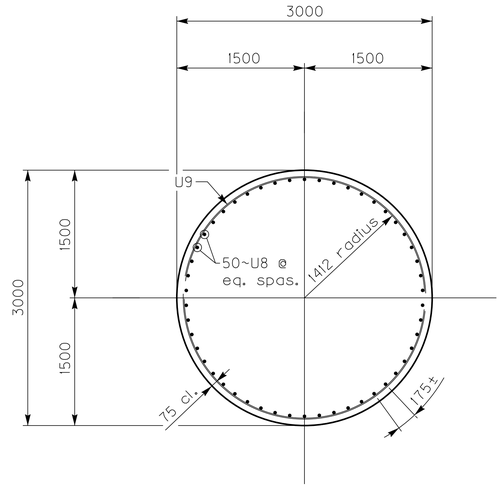
PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 17
DRAWING NO. **23692**

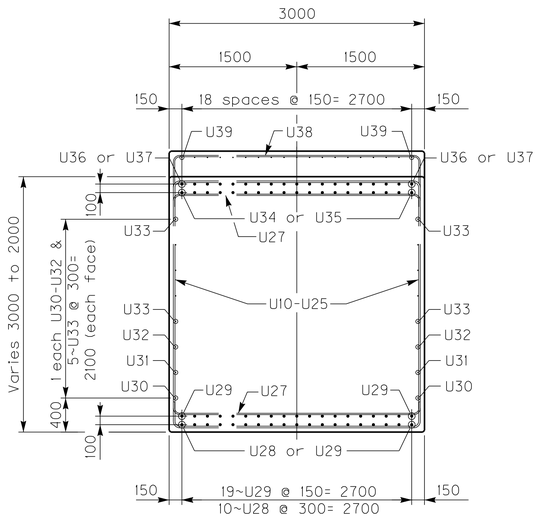
DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: [11]



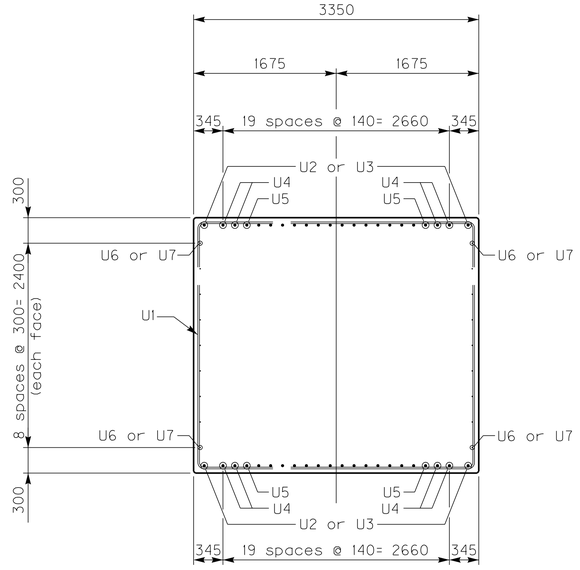
SECTION C–C



SECTION B–B



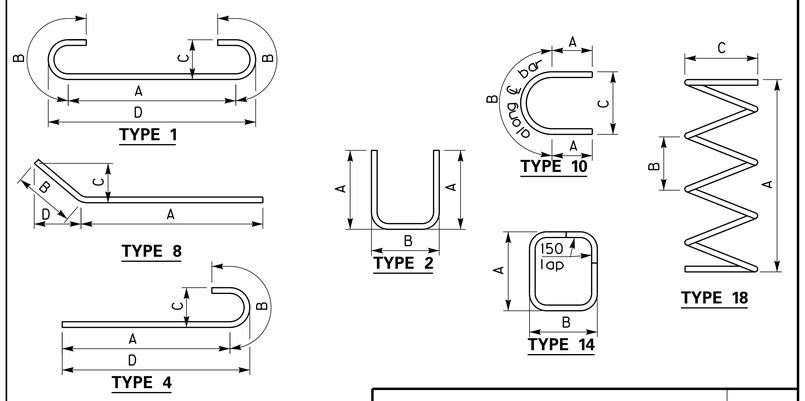
SECTION D–D



SECTION A–A

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
U1	14s	59	19	12360	Strut	2900	3250		
U2	10s	4	36	18210	Strut	6700	4815	3100	
U3	Str.	4	36	8300	Strut				
U4	1	8	36	16970	Strut	15530	720	370	15900
U5	Str.	32	36	16800	Strut				
U6	10s	18	16	18020	Strut	6500	5015	3210	
U7	Str.	18	16	3650	Strut				
U8	Str.	100	43	27580	Strut/Column/Cap				
U9	18	2	13	1453130	Columns/Cap	23880	150	2850	
U10	14s	2	19	9720	Cap	1930	2900		
U11	14s	2	19	9850	Cap	1995	2900		
U12	14s	2	19	9990	Cap	2065	2900		
U13	14s	2	19	10120	Cap	2130	2900		
U14	14s	2	19	10250	Cap	2195	2900		
U15	14s	2	19	10390	Cap	2265	2900		
U16	14s	2	19	10520	Cap	2330	2900		
U17	14s	2	19	10650	Cap	2395	2900		
U18	14s	2	19	10790	Cap	2465	2900		
U19	14s	2	19	10920	Cap	2530	2900		
U20	14s	2	19	11050	Cap	2595	2900		
U21	14s	2	19	11190	Cap	2665	2900		
U22	14s	2	19	11320	Cap	2730	2900		
U23	14s	2	19	11450	Cap	2795	2900		
U24	14s	2	19	11590	Cap	2865	2900		
U25	14s	87	19	11660	Cap	2900	2900		
U26	14s	38	19	8060	Cap	2900	1100		
U27	2s	70	16	3130	Cap	150	2900		
U28	8	20	16	3870	Cap	3120	750	235	710
U29	Str.	38	36	17980	Cap				
U30	Str.	4	16	10490	Cap				
U31	Str.	4	16	11390	Cap				
U32	Str.	4	16	12290	Cap				
U33	Str.	20	16	12420	Cap				
U34	Str.	19	36	18000	Cap				
U35	Str.	19	36	9000	Cap				
U36	4	19	36	18240	Cap	17515	720	370	17700
U37	4	19	36	9840	Cap	9115	720	370	9300
U38	2s	56	16	4970	Pedestals	1070	2900		
U39	Str.	133	16	1200	Pedestals				



REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

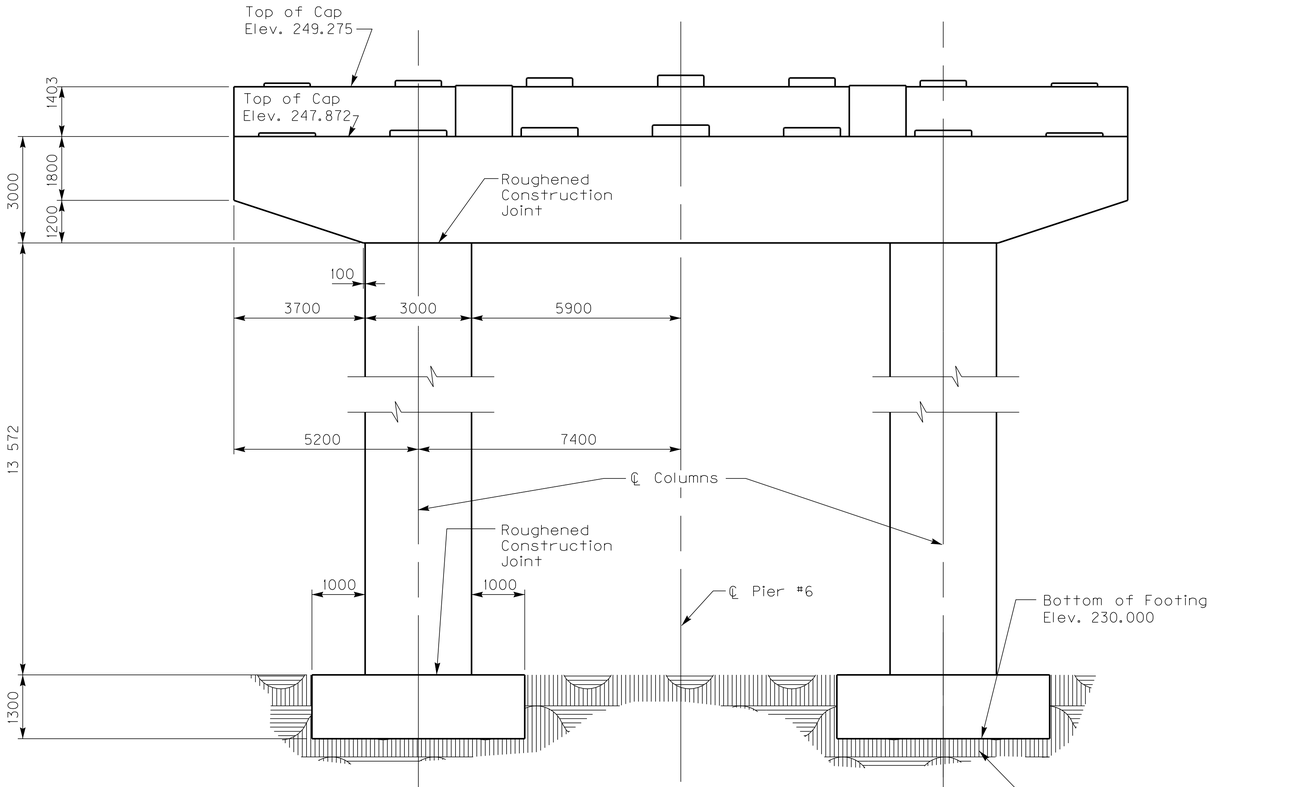
PIER #5

PREPARED BY
Division of Bridge Design
A. Frank Design Section

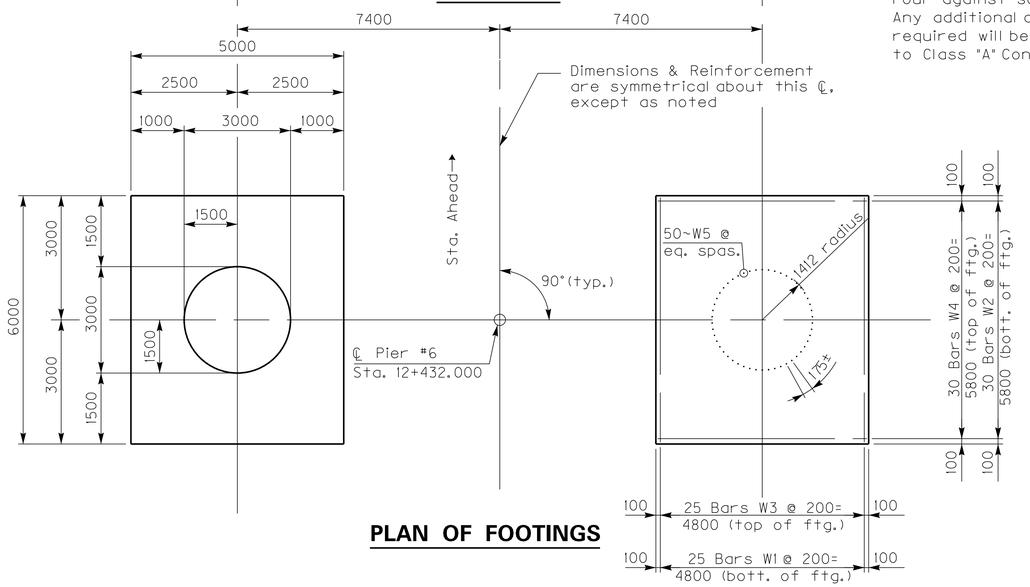
SHEET NO.
18

DRAWING NO.
23692

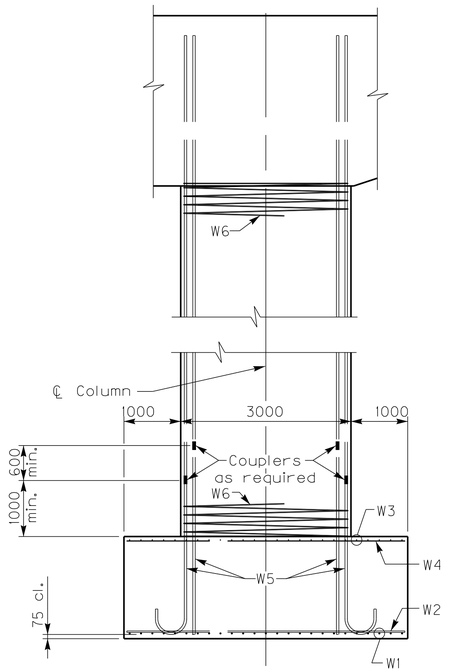
SHEET LOCATION: 11
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton
DATE: 07-DEC-2011



ELEVATION



PLAN OF FOOTINGS



COLUMN ELEVATION

Showing Dimensions ***Showing Reinforcement***

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

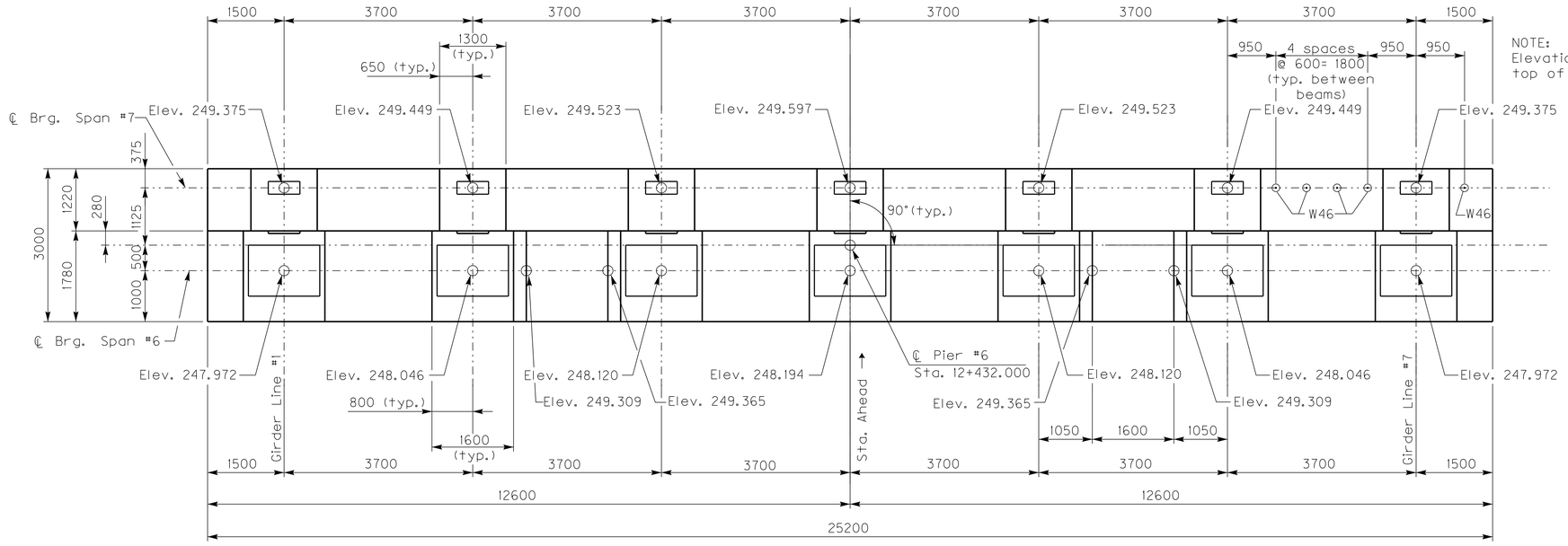
PIER #6

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 19

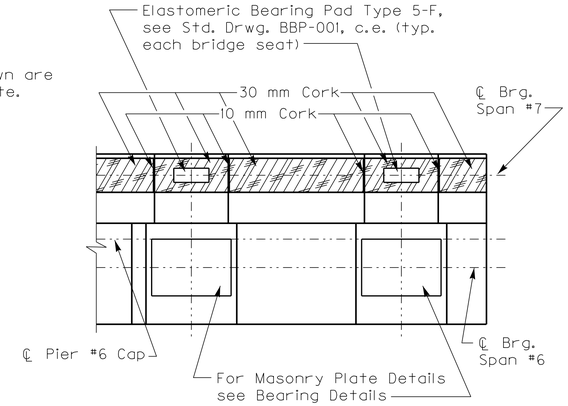
DRAWING NO. **23692**

DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: J1



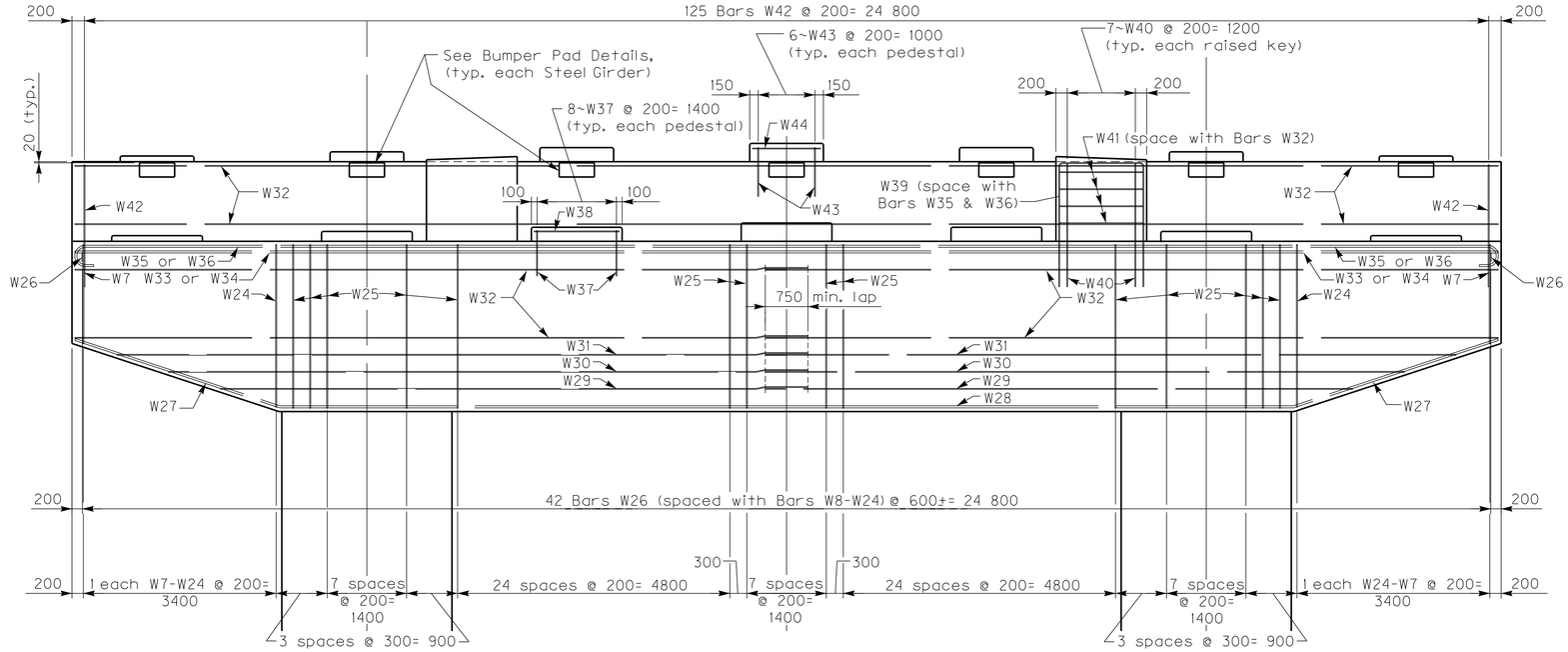
PLAN OF CAP

NOTE:
Elevations shown are top of concrete.



DETAIL ABOVE BRIDGE SEAT

NOTE:
Lap Bars W33 with Bars W34 3100 min. and stagger.
Lap Bars W35 with Bars W26 3100 min. and stagger
Care shall be taken with the placement of cap reinforcement to avoid interferance with drill of anchor bolts.



ELEVATION OF CAP

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

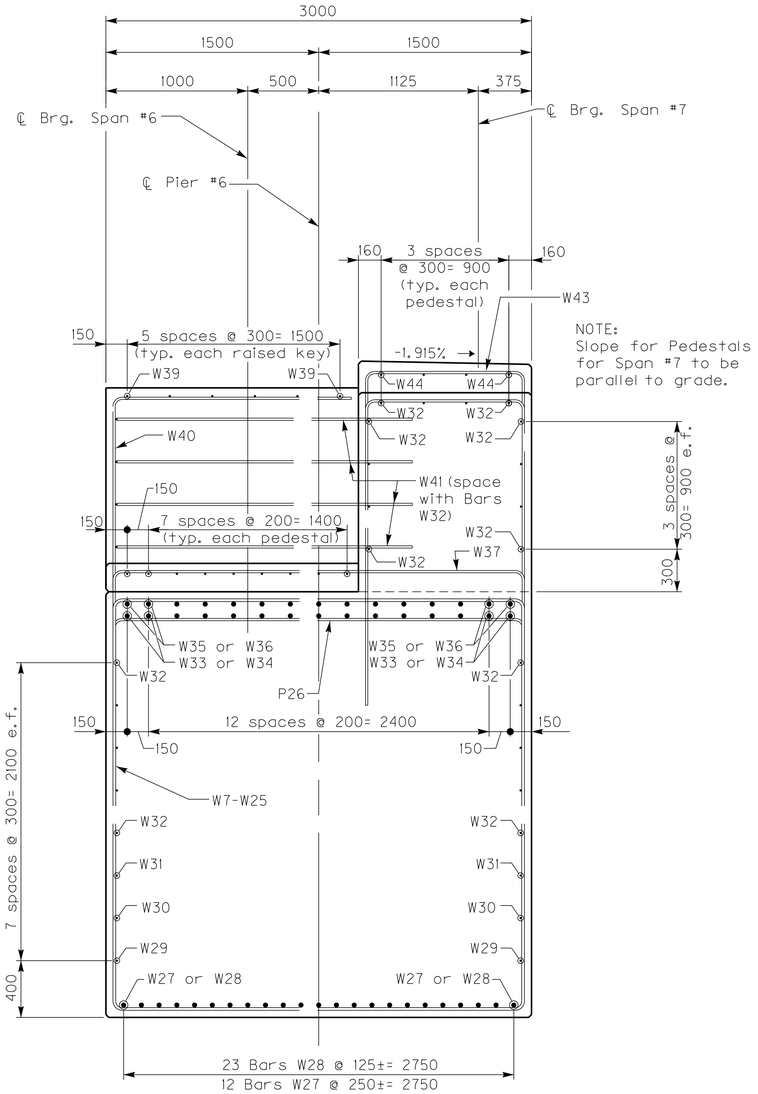
PIER #6

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 20

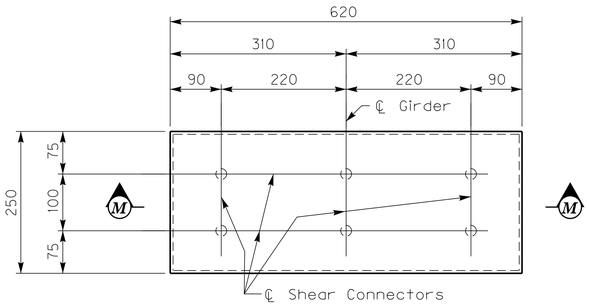
DRAWING NO. **23692**

SHEET LOCATION: K1 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



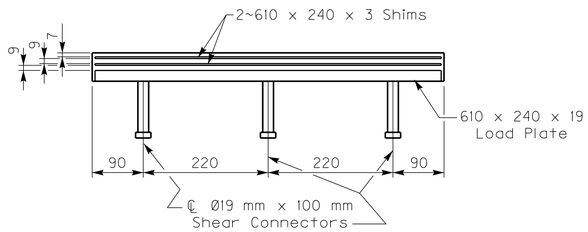
SECTION THRU CAP

~Showing Cap, pedestals & Raised Keys~



PLAN OF BUMPER PAD

~7 Required~

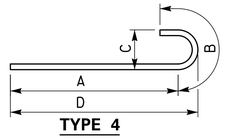


SECTION M–M

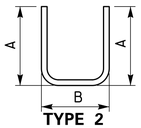
BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
W1	Str.	50	36	5900	Bottom of Footings				
W2	Str.	60	25	4900	Bottom of Footings				
W3	Str.	50	19	5900	Top of Footings				
W4	Str.	60	13	4900	Top of Footings				
W5	4	100	43	18330	Footings/Columns/Cap	17270	1060	550	17545
W6	18	2	13	1649080	Columns/Cap	13625	75	2850	
W7e	14s	2	19	9390	Cap	1765	2900		
W8e	14s	2	19	9520	Cap	1830	2900		
W9e	14s	2	19	9650	Cap	1895	2900		
W10e	14s	2	19	9790	Cap	1965	2900		
W11e	14s	2	19	9920	Cap	2030	2900		
W12e	14s	2	19	10050	Cap	2095	2900		
W13e	14s	2	19	10190	Cap	2165	2900		
W14e	14s	2	19	10320	Cap	2230	2900		
W15e	14s	2	19	10450	Cap	2295	2900		
W16e	14s	2	19	10590	Cap	2365	2900		
W17e	14s	2	19	10720	Cap	2430	2900		
W18e	14s	2	19	10850	Cap	2495	2900		
W19e	14s	2	19	10990	Cap	2565	2900		
W20e	14s	2	19	11120	Cap	2630	2900		
W21e	14s	2	19	11250	Cap	2695	2900		
W22e	14s	2	19	11390	Cap	2765	2900		
W23e	14s	2	19	11520	Cap	2830	2900		
W24e	14s	2	19	11650	Cap	2895	2900		
W25e	14s	82	19	11660	Cap	2900	2900		
W26e	2s	42	16	3130	Cap	150	2900		
W27e	8	24	16	4510	Bottom of Cap	3750	760	235	720
W28e	Str.	23	36	18000	Bottom of Cap				
W29e	Str.	4	16	10400	Cap				
W30e	Str.	4	16	11300	Cap				
W31e	Str.	4	16	12200	Cap				
W32e	Str.	44	16	12930	Cap				
W33e	Str.	15	36	12000	Top of Cap				
W34e	Str.	15	36	16200	Top of Cap				
W35e	4	15	36	12540	Top of Cap	11815	720	370	12000
W36e	4	15	36	16740	Top of Cap	16015	720	370	16200
W37e	2s	56	16	4970	Pedestals	1070	2900		
W38e	Str.	63	16	1500	Pedestals				
W39e	2s	18	16	5810	Raised Keys	2190	1500		
W40e	5	14	16	3830	Raised Keys	2190	1680		
W41e	2s	8	16	5600	Raised Keys	2100	1470		
W42e	2s	125	16	5360	Raised Cap	2155	1120		
W43e	2s	42	16	3190	Pedestals	1070	1120		
W44e	Str.	28	16	1200	Pedestals				
W45e	Str.	26	*	600	Pedestals/Dowels				

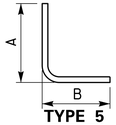
* 40mm Smooth Round Pin May be Commercial Grade Steel.



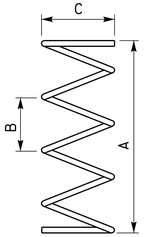
TYPE 4



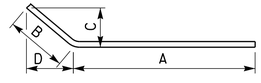
TYPE 2



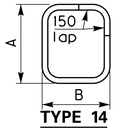
TYPE 5



TYPE 18



TYPE 8



TYPE 14

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

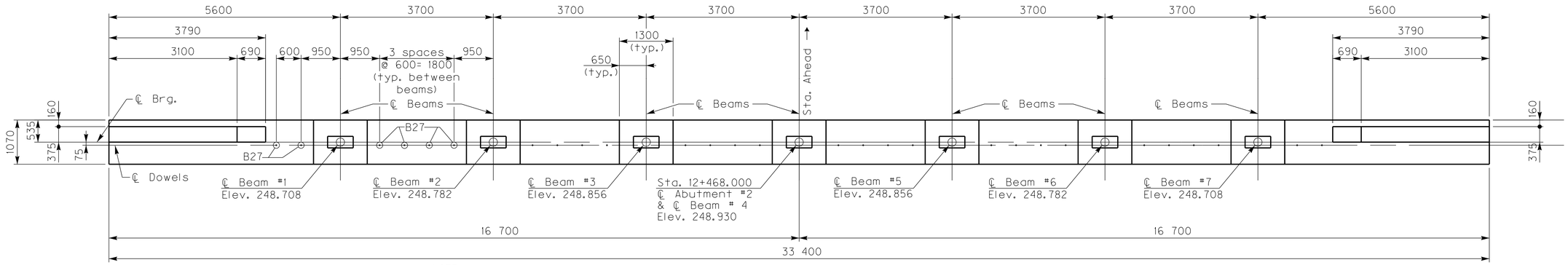
PIER #6

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 21

DRAWING NO. 23692

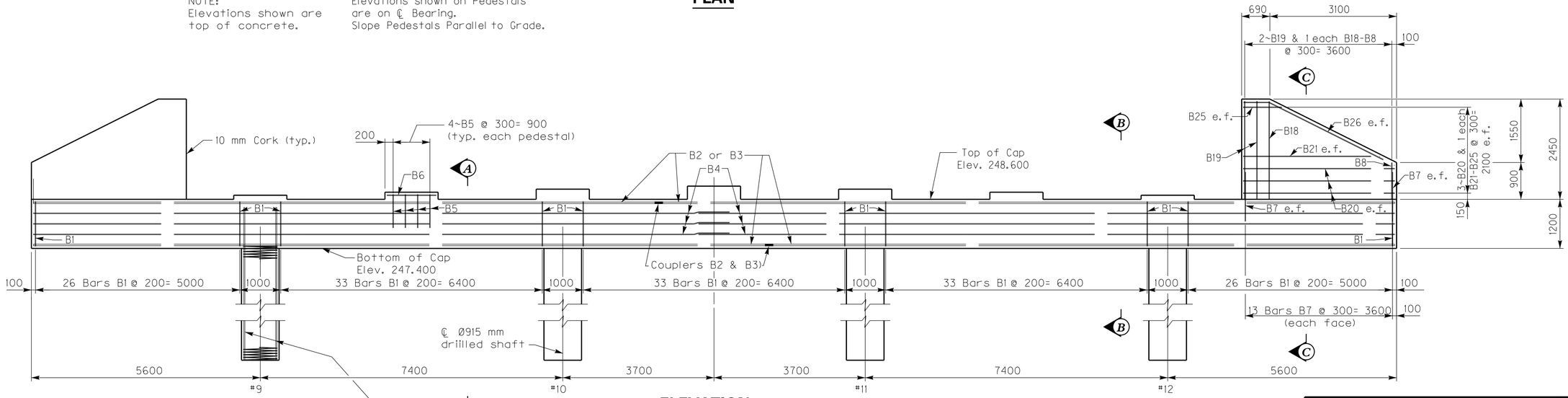
SHEET LOCATION: M6 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



NOTE:
Elevations shown are top of concrete.

NOTE:
Elevations shown on Pedestals are on ℄ Bearing.
Slope Pedestals Parallel to Grade.

PLAN



ELEVATION

13~#25 to be embeded 1000 mm into Cap.
Reinforcement to be included in drilled shaft Quantities.
Spiral reinforcement, #13 @ 150 mm pitch with one and half turns into cap.
Reinforcement to be included into drilled shaft Quantities.
150 mm clear to spirals.

NOTE:
Splice Bars B2 & B3 using Couplers.
Bars B4, 750 min. lap

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

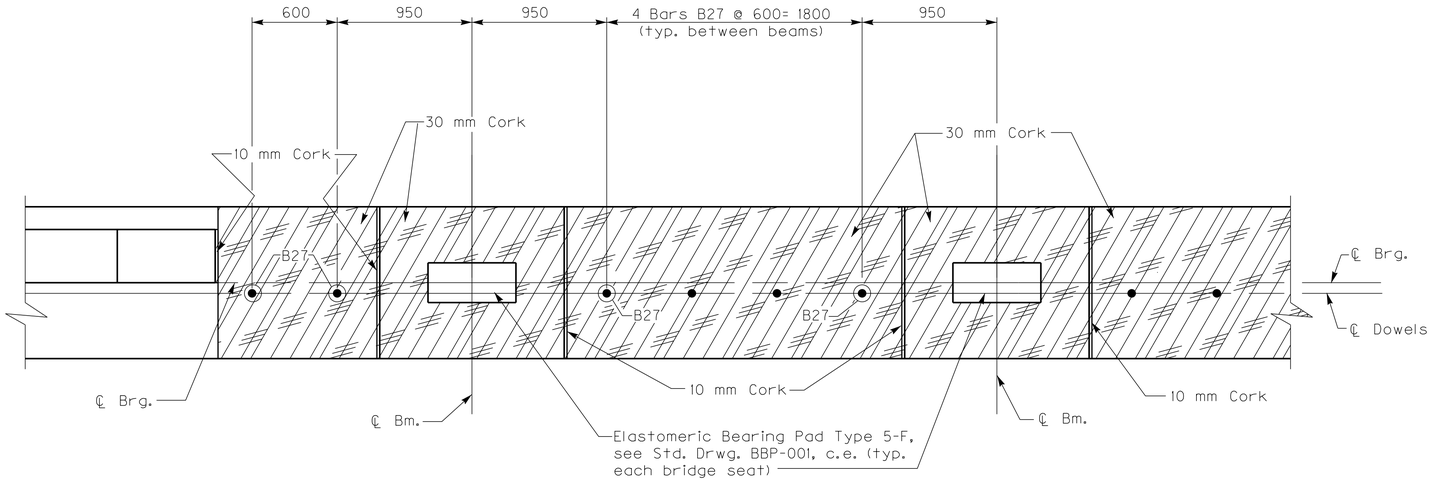
ABUTMENT #2

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO.
22

DRAWING NO.
23692

SHEET LOCATION: A2A
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011

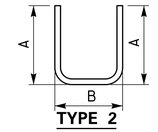


DETAIL ABOVE BRIDGE SEAT

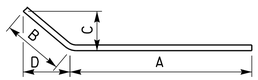
BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C	D
B1e	14s	151	16	4280	Cap	1100	970		
B2e	Str.	15	36	18000	Top/Bottom Cap				
B3e	Str.	15	36	15300	Top/Bottom Cap				
B4e	Str.	12	16	17030	Cap				
B5e	2s	28	16	2520	Cap/Pedestals	810	970		
B6e	Str.	35	16	1200	Pedestals				
B7e	Str.	52	16	1210	Cap/Wings				
B8e	2s	2	16	2010	Wings	900	275		
B9e	2s	2	16	2290	Wings	1040	275		
B10e	2s	2	16	2590	Wings	1190	275		
B11e	2s	2	16	2890	Wings	1340	275		
B12e	2s	2	16	3190	Wings	1490	275		
B13e	2s	2	16	3490	Wings	1640	275		
B14e	2s	2	16	3790	Wings	1790	275		
B15e	2s	2	16	4090	Wings	1940	275		
B16e	2s	2	16	4390	Wings	2090	275		
B17e	2s	2	16	4690	Wings	2240	275		
B18e	2s	2	16	4990	Wings	2390	275		
B19e	2s	4	16	5010	Wings	2400	275		
B20e	Str.	12	16	3690	Wings				
B21e	Str.	4	16	3330	Wings				
B22e	Str.	4	16	2730	Wings				
B23e	Str.	4	16	2130	Wings				
B24e	Str.	4	16	1530	Wings				
B25e	Str.	4	16	930	Wings				
B26e	8s	4	16	4050	Top of Wings	3430	620	275	555
B27e	Str.	28	*	600	Cap/Diaphragms/Dowels				

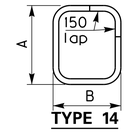
* 40mm Smooth Round Pin May be Commercial Grade Steel.



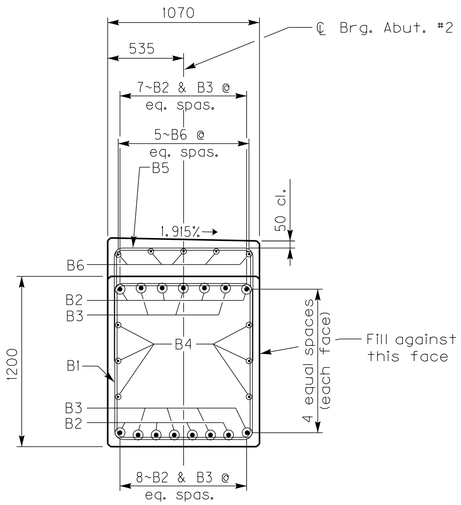
TYPE 2



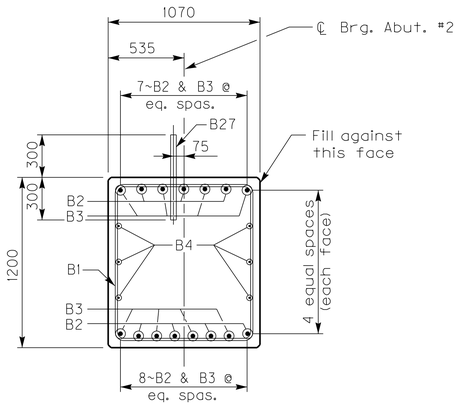
TYPE 8



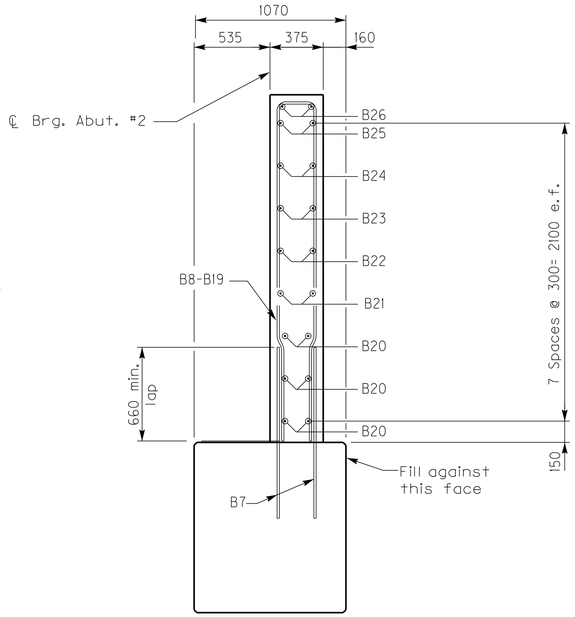
TYPE 14



SECTION A–A



SECTION B–B



SECTION C–C

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

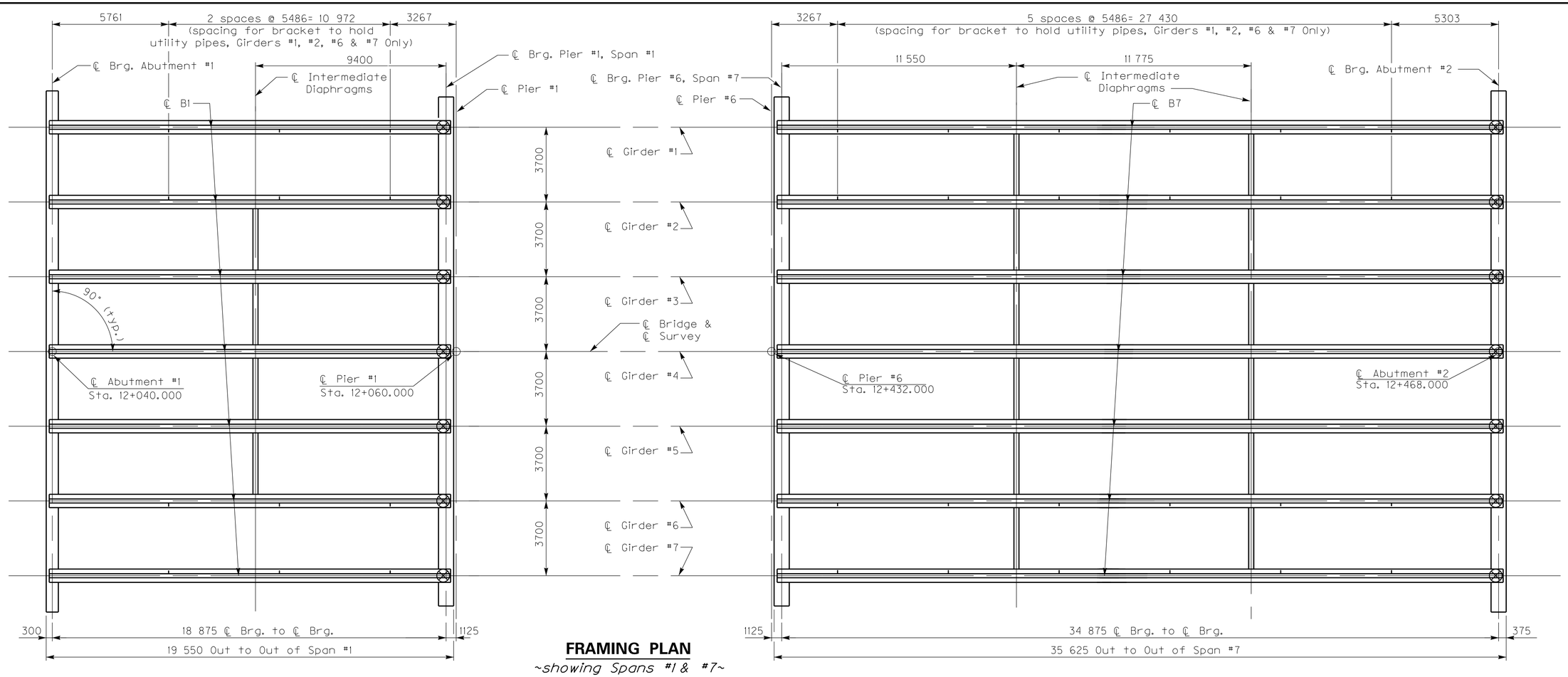
ABUTMENT #2

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 23

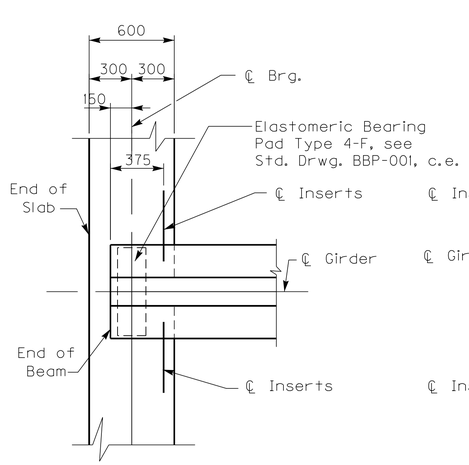
DRAWING NO. 23692

SHEET LOCATION: A2B FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011

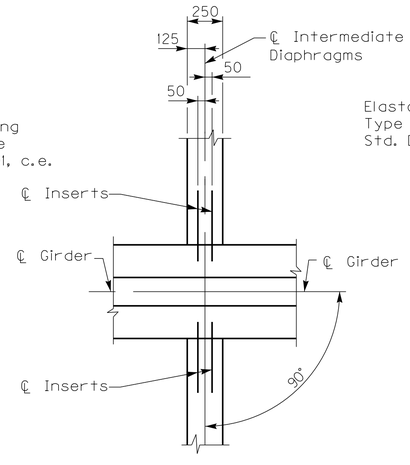


FRAMING PLAN

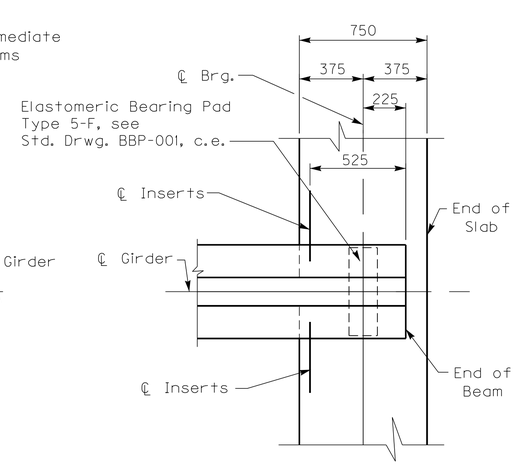
~showing Spans #1 & #7~



INSERT LOCATION @ ABUTMENT #1



INSERT LOCATION @ INTERMEDIATE DIAPHRAGMS SPANS #1 & #7)



INSERT LOCATION @ PIER #1, PIER #6 & ABUTMENT #2

NOTE:
See Utility Details Spans #1 & #7 for location of ⅝" Ø inserts.

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **PULASKI**

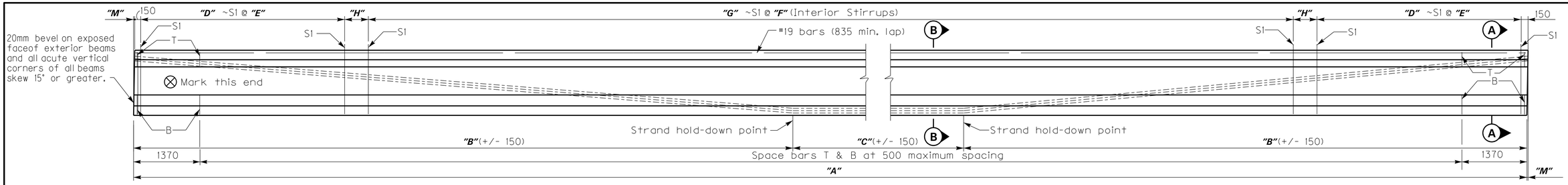
ROUTE: **US 27** | CROSSING: **CUMBERLAND RIVER**

FRAMING PLAN SPANS #1 & #7

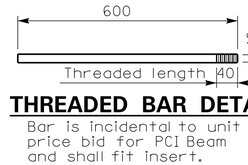
PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 24
DRAWING NO. **23692**

SHEET LOCATION: NJ2 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011

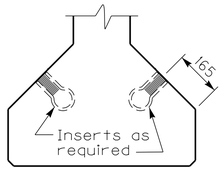


ELEVATION OF BEAM



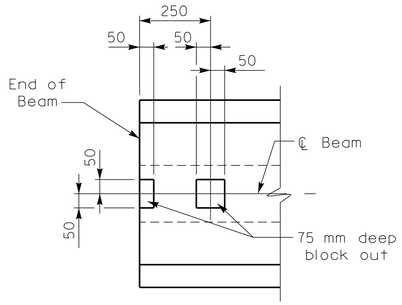
THREADED BAR DETAIL

Bar is incidental to unit price bid for PCI Beam and shall fit insert.



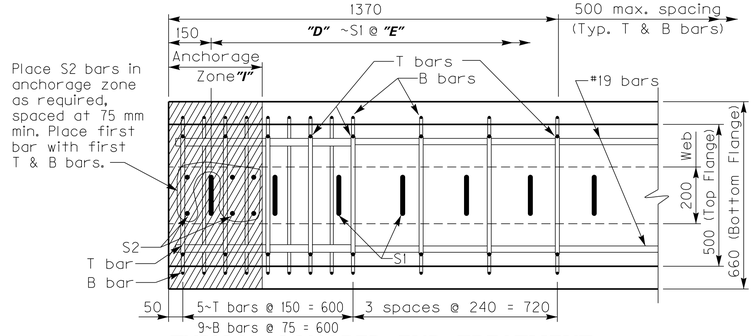
INSERT DETAIL

Inserts are to develop a safe load in tension of 11kN with an approximate safety factor of 3.



BLOCK OUT DETAIL

~under finger dam~



TYPICAL SQUARED END TREATMENT

GENERAL NOTES

CONCRETE: Prestressed girder concrete shall be in accordance with the Plans and Specifications.

MATERIAL DESIGN SPECIFICATIONS: For prestressed girder, FY = 415 MPa F'S = 1860 MPa

PRESTRESSING REINFORCEMENT: Prestressing strands shall be 12.7mm, Grade 270, low-relaxation (98.71 sq. mm area) strand conforming to AASHTO M 203M. If an alternate strand arrangement or strand type is preferred by the Contractor, the designer that developed the original plans shall provide the design and also revise the original plans to reflect the changes. These design and plan modifications shall be done at the Contractor's expense.

TENSIONING METHOD: Beams shall be pretensioned.

CONSTRUCTION METHOD: No bond stress shall be transferred to the concrete, nor shall end anchors be released until the concrete has attained f'ci (Shown in table) as shown by standard cylinders made and cured identically with the girders; f'c (shown in table) shall be attained at or prior to 28 days. An initial prestress force of 138,000 N per low relaxation strand shall be applied such as to develop a stress of 1395 MPa. Beams with honeycomb of such extent as to affect the strength of resistance to deterioration will not be accepted. An allowance of .0005L (length) shall be made for shortening of beams due to shrinkage and elastic change. Shop plans shall show a detensioning plan by numbering, in sequence, the strand pattern.

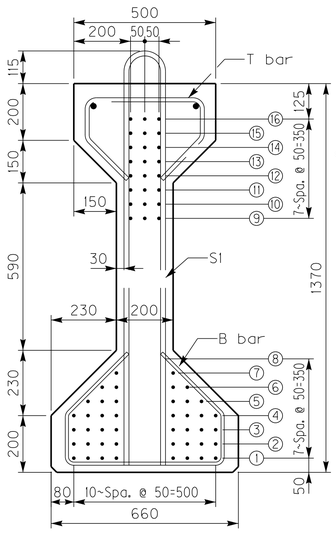
DEFORMED WIRE FABRIC: Fabric may be used in the precast beams in lieu of reinforcing bars, provided an equivalent area of steel is furnished. Wire fabric shall conform to the requirements of AASHTO specifications M221 (A497) and is to be made of deformed wire conforming to AASHTO specification M225 (A496).

LIFTING DEVICES: Dimensions for lifting devices shall be shown on shop plans for approval. Lifting shall be by equal loads to each device.

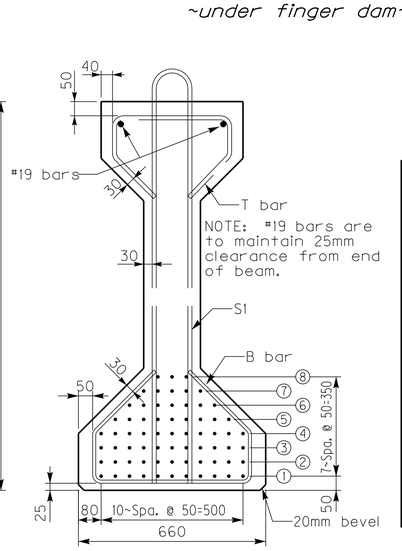
BEAM DIMENSIONS: Nominal concrete dimensions shown reflect hard-converted metric dimensions. Soft-conversion of an AASHTO Type 4 beam dimensions is allowed provided that the dimensions are shown on the shop plans. Spacing and sizing of reinforcement and strands shall be as shown on this sheet.

LEAD PLATES: The cost of the lead plates under the prestressed beams at the integral bents is to be included in the price per meter of precast beams.

ELASTOMERIC BEARING PADS: The material specifications for elastomeric bearing pads pads shall conform to the AASHTO Standard Specifications for Highway Bridges. The cost of this item is to be included in the price per meter for precast beams.

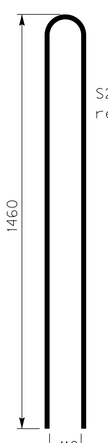


SECTION A–A

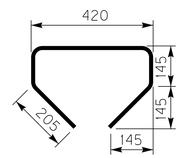


SECTION B–B

S2 (#16 bar)

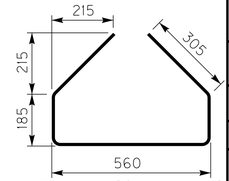


S1e (#13 bar)

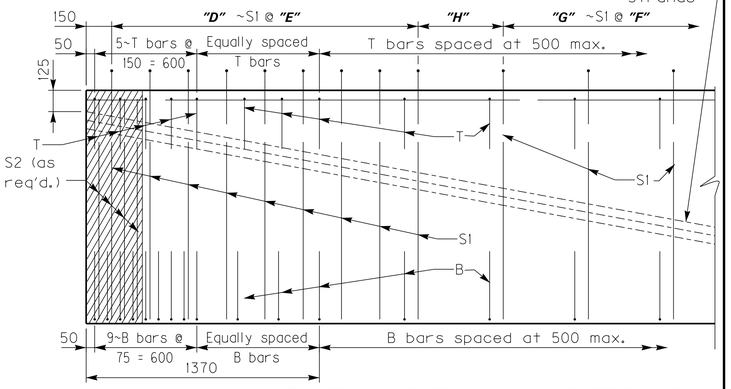


T bar (Size #13)

(Dimensioned for 0° skew)



B bar (Size #10)



PARTIAL SECTION ON CENTERLINE

Strand Data with number indicated in rows

Mark	Midspan (SECTION B–B) (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	End (SECTION A–A) (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	Total No.	Concrete Stress (MPa) f'ci	f'c	No. of S Bars S1	S2	Hold-Down Capacity kN
B1	11	11	3						11	11	1													2	25	30	35	54	3	37

Beam Data (measured along centerline)

Total No.	Dimensions A	B	C	D	E	F	G	H	I	M	Approximate Mass (kg/each)
7	19 250	8125	3000	16	250	500	22	475	300	26	23 165

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **PULASKI**

ROUTE: US 27 — CROSSING: CUMBERLAND RIVER

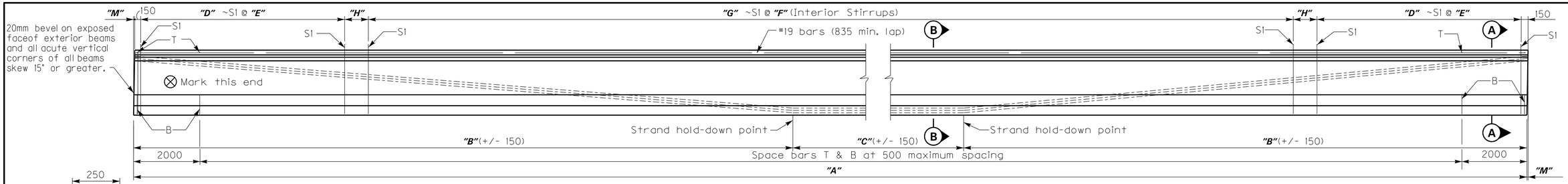
PPC I–BEAM, TYPE 4, DETAILS

PREPARED BY: Division of Bridge Design
A. Frank Design Section

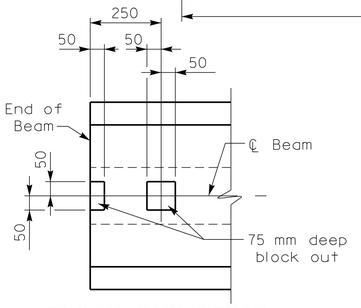
SHEET NO. 25

DRAWING NO. 23692

DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: PCI

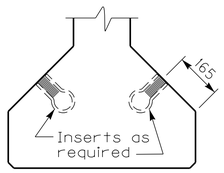


ELEVATION OF BEAM



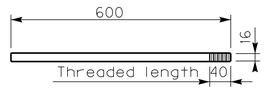
BLOCK OUT DETAIL

~under finger dam~



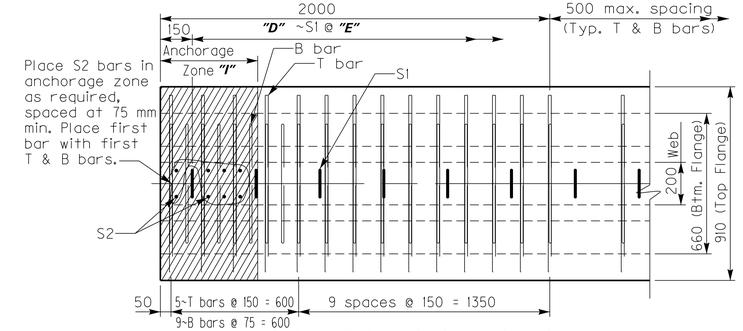
INSERT DETAIL

Inserts are to develop a safe load in tension of 11kN with an approximate safety factor of 3.



THREADED BAR DETAIL

Bar is incidental to unit price bid for PCI Beam and shall fit insert.



TYPICAL SQUARED END TREATMENT

GENERAL NOTES

CONCRETE: Prestressed girder concrete shall be in accordance with the Plans and Specifications.

MATERIAL DESIGN SPECIFICATIONS: For prestressed girder, FY = 415 MPa F'S = 1860 MPa

PRESTRESSING REINFORCEMENT: Prestressing strands shall be 13.38 mm, Grade 270, low-relaxation (107.74 sq. mm area) strand conforming to AASHTO M 203M. If an alternate strand arrangement or strand type is preferred by the Contractor, the designer that developed the original plans shall provide the design and also revise the original plans to reflect the changes. These design and plan modifications shall be done at the Contractor's expense.

TENSIONING METHOD: Beams shall be pretensioned.

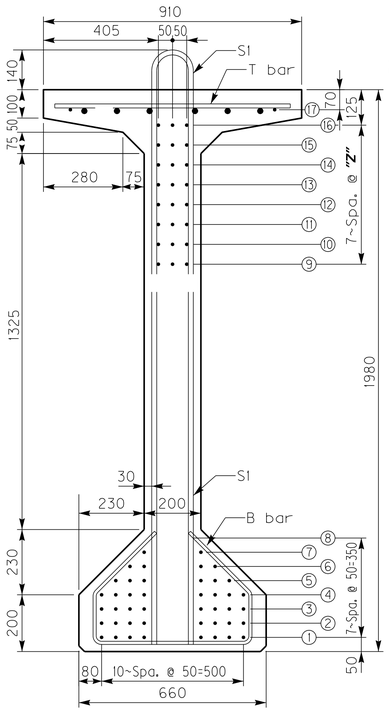
CONSTRUCTION METHOD: No bond stress shall be transferred to the concrete, nor shall end anchors be released until the concrete has attained f'ci (Shown in table) as shown by standard cylinders made and cured identically with the girders; f'c (shown in table) shall be attained at or prior to 28 days. An initial prestress force of 150,300 N per low relaxation strand shall be applied such as to develop a stress of 1395 MPa. Beams with honeycomb of such extent as to affect the strength of resistance to deterioration will not be accepted. An allowance of .0005L (length) shall be made for shortening of beams due to shrinkage and elastic change. Shop plans shall show a detensioning plan by numbering, in sequence, the strand pattern.

DEFORMED WIRE FABRIC: Fabric may be used in the precast beams in lieu of reinforcing bars, provided an equivalent area of steel is furnished. Wire fabric shall conform to the requirements of AASHTO specifications M221 (A497) and is to be made of deformed wire conforming to AASHTO specification M225 (A496).

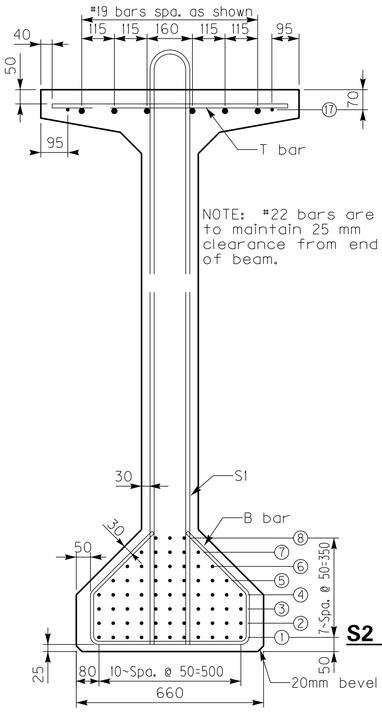
LIFTING DEVICES: Dimensions for lifting devices shall be shown on shop plans for approval. Lifting shall be by equal loads to each device.

BEAM DIMENSIONS: Nominal concrete dimensions shown reflect hard-converted metric dimensions. Soft-conversion of a AASHTO 78" I-Girder dimensions is allowed provided that the dimensions are shown on the shop plans. Spacing and sizing of reinforcement and strands shall be as shown on this sheet.

ELASTOMERIC BEARING PADS: The material specifications for elastomeric bearing pads pads shall conform to the AASHTO Standard Specifications for Highway Bridges. The cost of this item is to be included in the price per meter for precast beams.



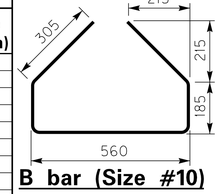
SECTION A–A



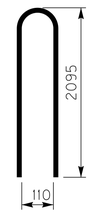
SECTION B–B

S2 (#22 bar)

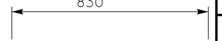
PARTIAL SECTION ON CENTERLINE



B bar (Size #10)



S1e (#16 bar)



T bar (Size #13)

(Dimensioned for 0° skew)

Strand Data with number indicated in rows

Mark	Midspan (SECTION B–B) (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(17)	End (SECTION A–A) (1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	Total No.	Concrete Stress (MPa) f'ci	f'c	No. of S Bars S1	S2	Hold-Down Capacity kN
B7	11	11	11	11	9	7	2		2	11	11	8	8	6	4						3	3	3	3	2	2	64	47	38	73	6	154

Beam Data (measured along centerline)

Mark	Total No.	Dimensions A	B	C	D	E	F	G	H	I	Z	M	Approximate Mass (kg/each)
B7	7	33 325	16 150	3025	2	200	500	69	315	370	150	38	54 177

REVISION	DATE
DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **PULASKI**

ROUTE: US 27 | CROSSING: CUMBERLAND RIVER

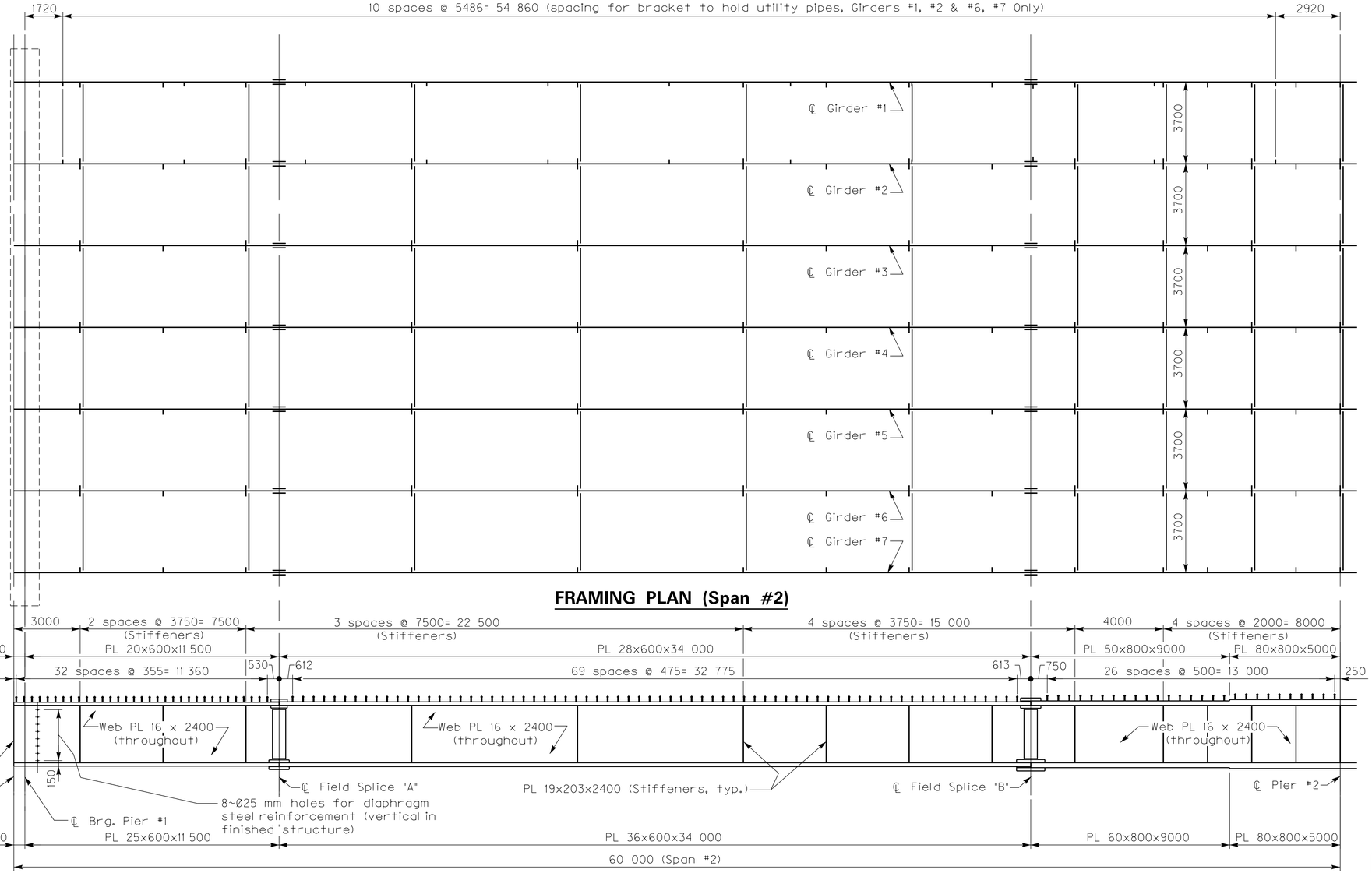
PCI I-BEAM, TYPE 8, DETAILS

PREPARED BY: Division of Bridge Design
A. Frank Design Section

SHEET NO. 26

DRAWING NO. 23692

DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: NJ1



FRAMING PLAN (Span #2)

GIRDER ELEVATION (Span #2)

Note: Intermediate stiffeners shall be on inside face of fascia girders.

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

STRUCTURAL STEEL DETAILS

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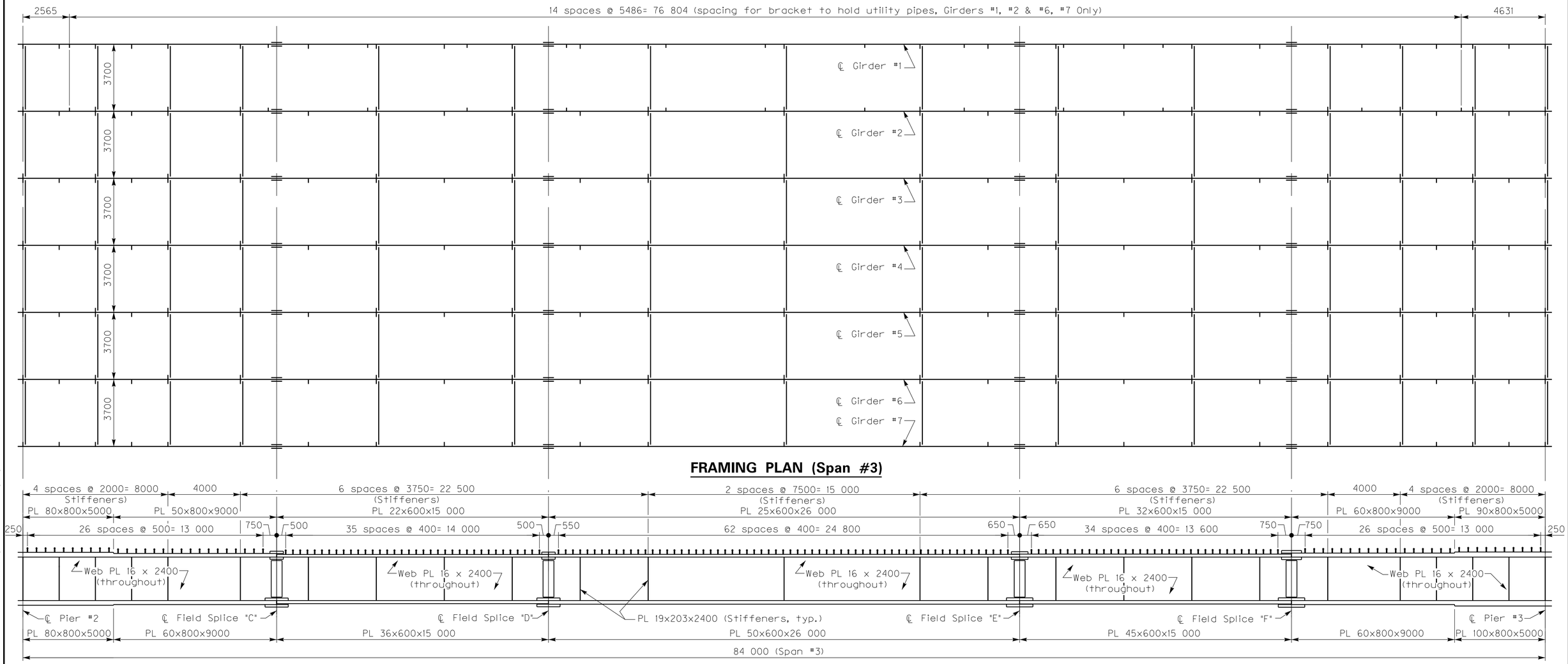
SHEET NO. 27
DRAWING NO. 23692

SHEET LOCATION: A1
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011



FRAMING PLAN (Span #3)

GIRDER ELEVATION (Span #3)

Note: Intermediate stiffeners shall be on inside face of fascia girders.

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DATE: Oct. 1998	CHECKED BY
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DETAILED BY: J.L. Flood	EJ Proprost

Commonwealth of Kentucky
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PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

STRUCTURAL STEEL DETAILS

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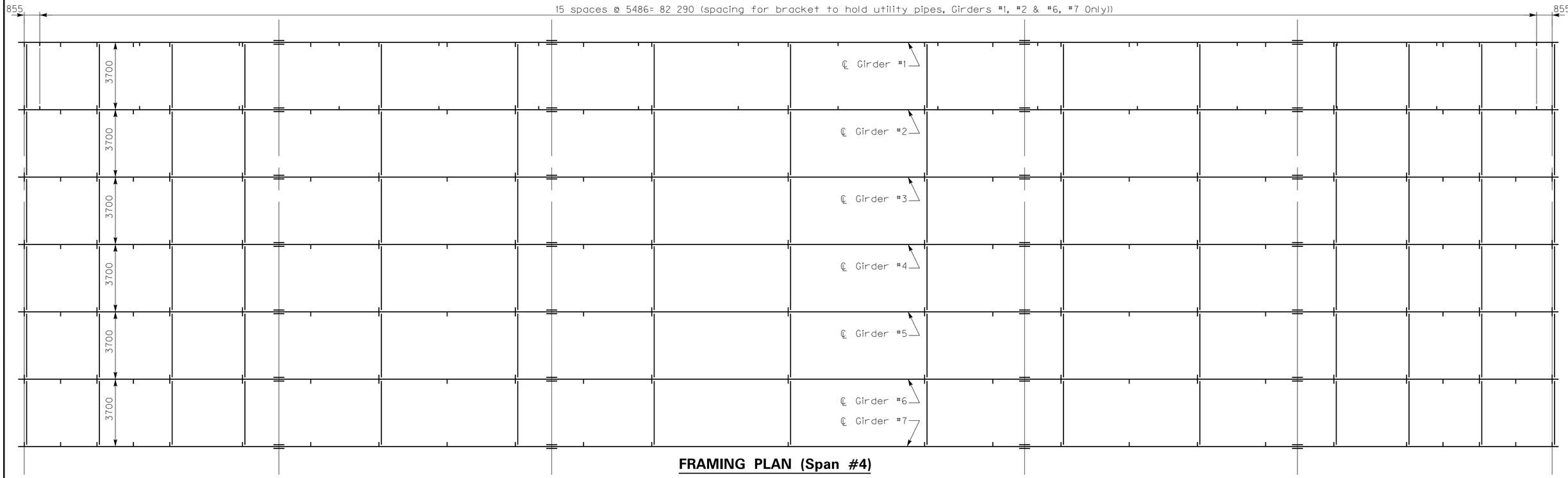
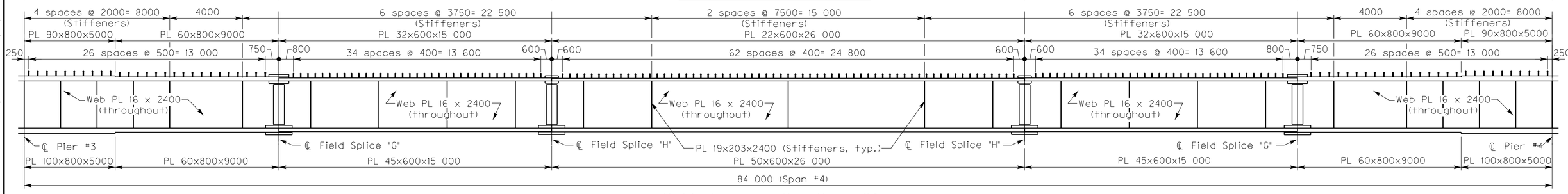
SHEET NO. 28

DRAWING NO. **23692**

SHEET LOCATION: A2 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



FRAMING PLAN (Span #4)



GIRDER ELEVATION (Span #4)

Note: Intermediate stiffeners shall be on inside face of fascia girders.

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DATE: Oct. 1998	CHECKED BY
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ROUTE	CROSSING
US 27	CUMBERLAND RIVER

STRUCTURAL STEEL DETAILS

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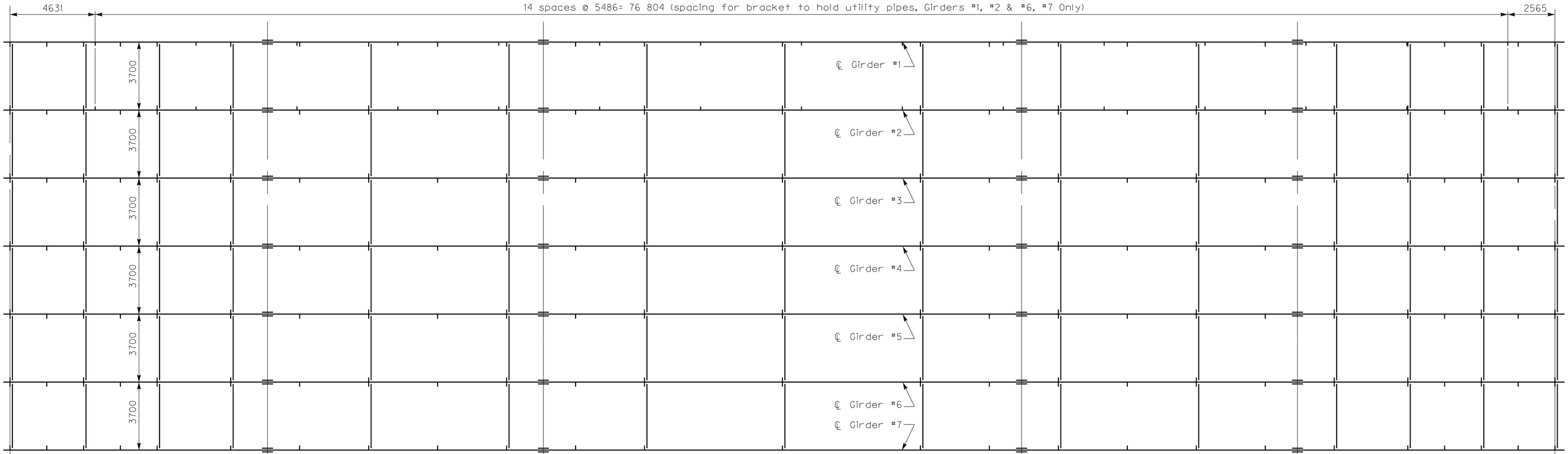
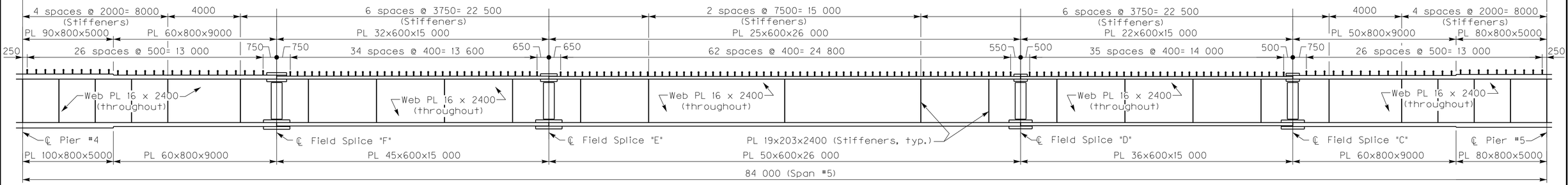
SHEET NO. 29
DRAWING NO. 23692

SHEET LOCATION: A3 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



FRAMING PLAN (Span #5)



GIRDER ELEVATION (Span #5)

Note: Intermediate stiffeners shall be on inside face of fascia girders.

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DATE: Oct. 1998	CHECKED BY
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DETAILED BY: J.L. Flood	EJ Proprost

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

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ROUTE
US 27

CROSSING
CUMBERLAND RIVER

STRUCTURAL STEEL DETAILS

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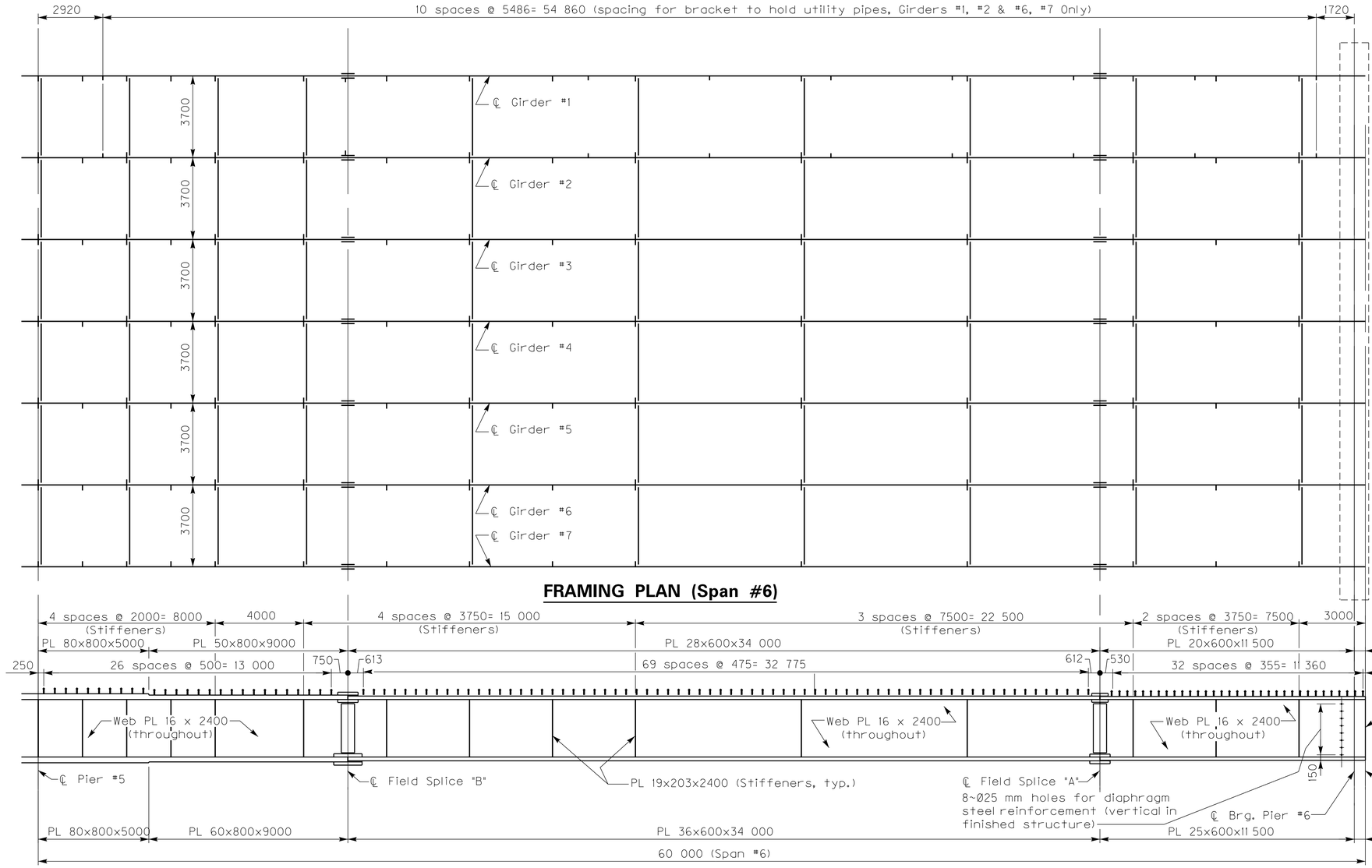
SHEET NO.
30

DRAWING NO.
23692

SHEET LOCATION: A4
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011



FRAMING PLAN (Span #6)

GIRDER ELEVATION (Span #6)

Note: Intermediate stiffeners shall be on inside face of fascia girders.

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
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US 27	CUMBERLAND RIVER

STRUCTURAL STEEL DETAILS

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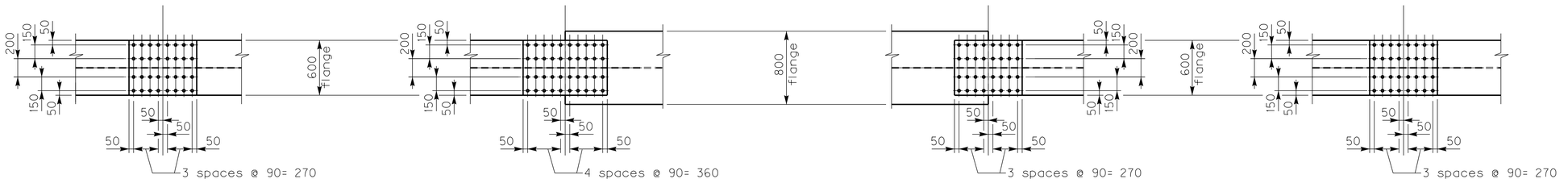
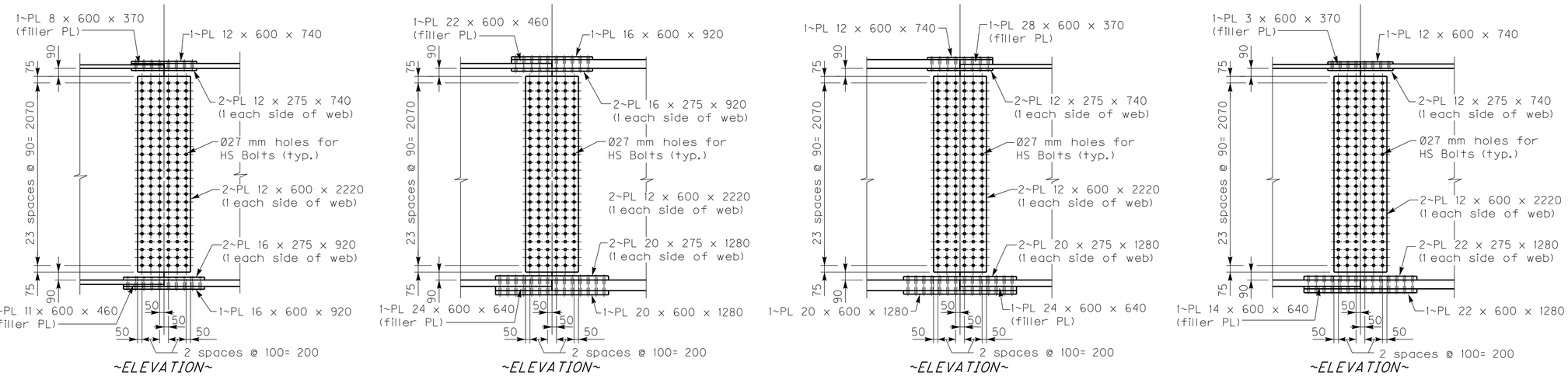
SHEET NO. 31

DRAWING NO. 23692

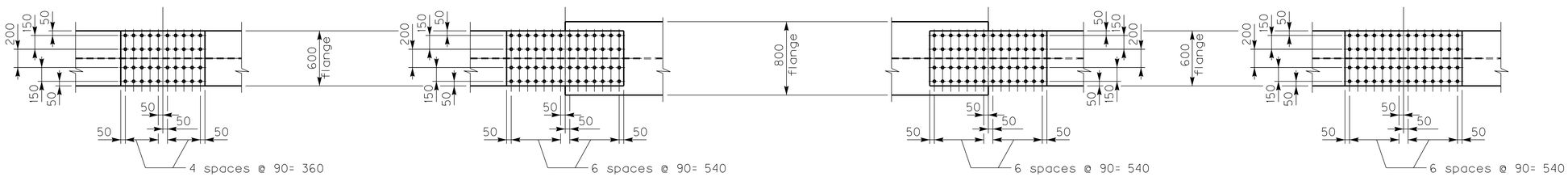
DATE: 07-DEC-2011
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
SHEET LOCATION: A5



~TOP FLANGE~



~ELEVATION~



~BOTTOM FLANGE~

FIELD SPLICE "A"

~BOTTOM FLANGE~

FIELD SPLICE "B"

~BOTTOM FLANGE~

FIELD SPLICE "C"

~BOTTOM FLANGE~

FIELD SPLICE "D"

NOTE:
Bolt threads are to be excluded from the shear planes.

REVISION	DATE

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Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

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ROUTE
US 27

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CUMBERLAND RIVER

STRUCTURAL STEEL DETAILS

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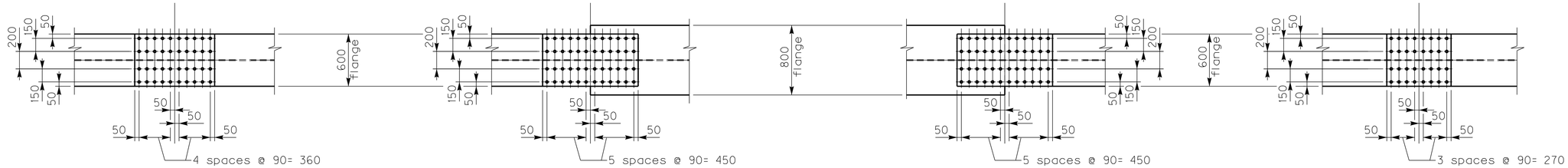
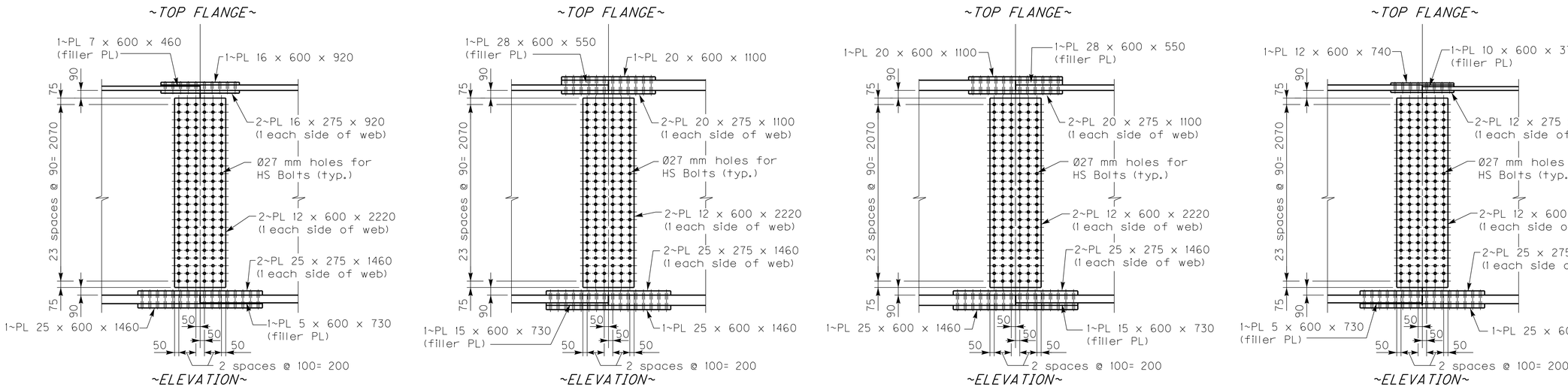
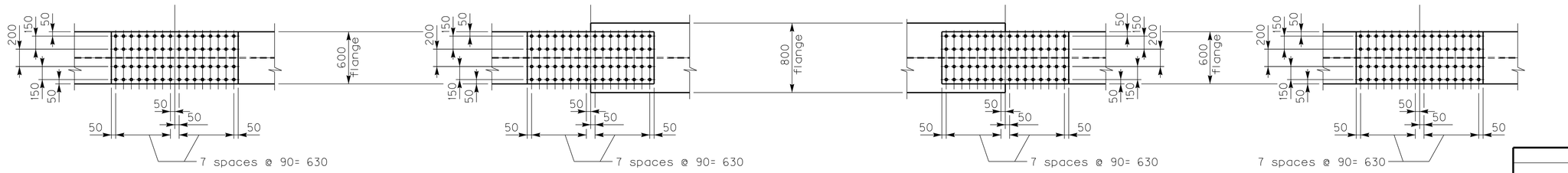
SHEET NO.
32

DRAWING NO.
23692

SHEET LOCATION: B1
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011







~BOTTOM FLANGE~
FIELD SPLICE "E"

~BOTTOM FLANGE~
FIELD SPLICE "F"

~BOTTOM FLANGE~
FIELD SPLICE "G"

~BOTTOM FLANGE~
FIELD SPLICE "H"

NOTE:
Bolt threads are to be excluded from the shear planes.

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
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Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

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ROUTE	CROSSING
US 27	CUMBERLAND RIVER

STRUCTURAL STEEL DETAILS

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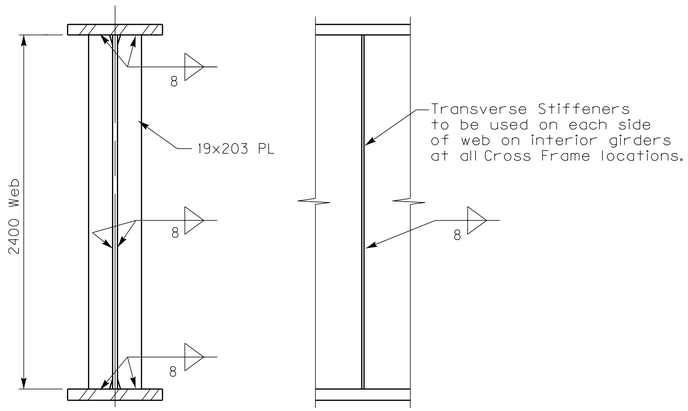
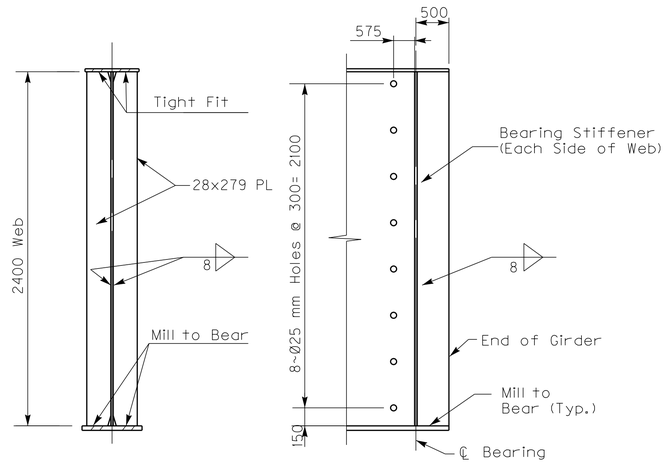
SHEET NO. 33
DRAWING NO. 23692

SHEET LOCATION: B2
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton
DATE: 07-DEC-2011



TRANSVERSE STIFFENER

Weld Intermediate Stiffeners
to the Top & Bottom Flange.

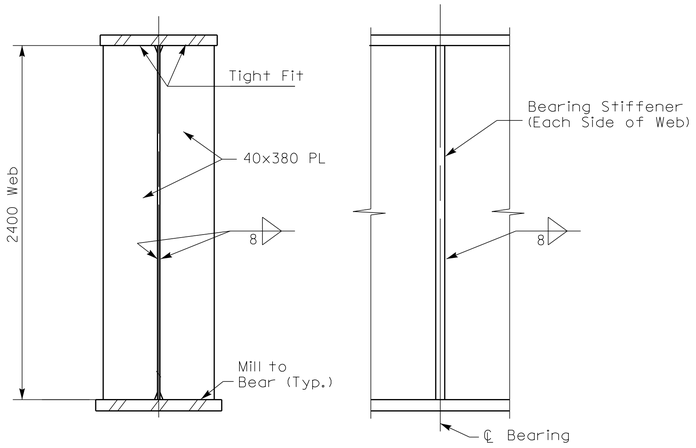


BEARING STIFFENER @ PIERS #1 & #6

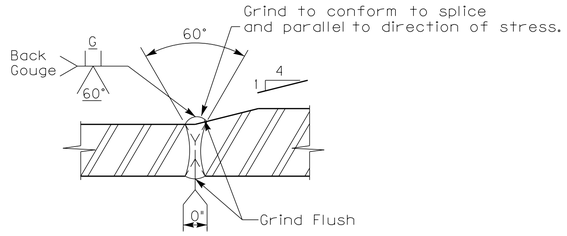
Note: Ends of web and all bearing stiffeners are to be vertical in the final erected position, Intermediate stiffeners are to be normal to the flange.

NOTES:

1. All shop splices in flange or web plates shall be made prior to welding flange plates to web plates.
2. Welds shall be ground flush on both sides. All grinding shall be parallel to the direction of stress.
3. Web splices shall be a minimum of 600 mm clear of shop flange splices, cross frame connections, and bearing stiffener plates.
4. All parts of each splice shall be completely assembled taking into account their relative position in the finished structure due to grade, camber, and curvature. Sections shall be match marked while so assembled.

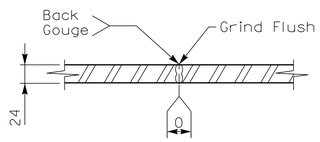


BEARING STIFFENER @ PIERS #2–#5



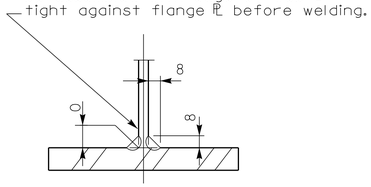
FLANGE BUTT WELD

(Shop Flange Splice)

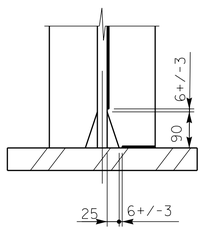


WEB BUTT WELD

(Shop Web Splice)

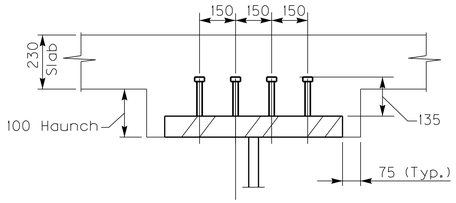


FLANGE TO WEB WELD



TERMINATION OF STIFFENER WELDS

Ø22 mm Studs welded to top flange, 4 per row.
(See Girder Elevation for row spacing)



SHEAR CONNECTORS

Use Ø22 mm Granular or Solid Flux filled
Headed Studs, Automatically End Welded

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

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ROUTE	CROSSING
US 27	CUMBERLAND RIVER

STRUCTURAL STEEL DETAILS

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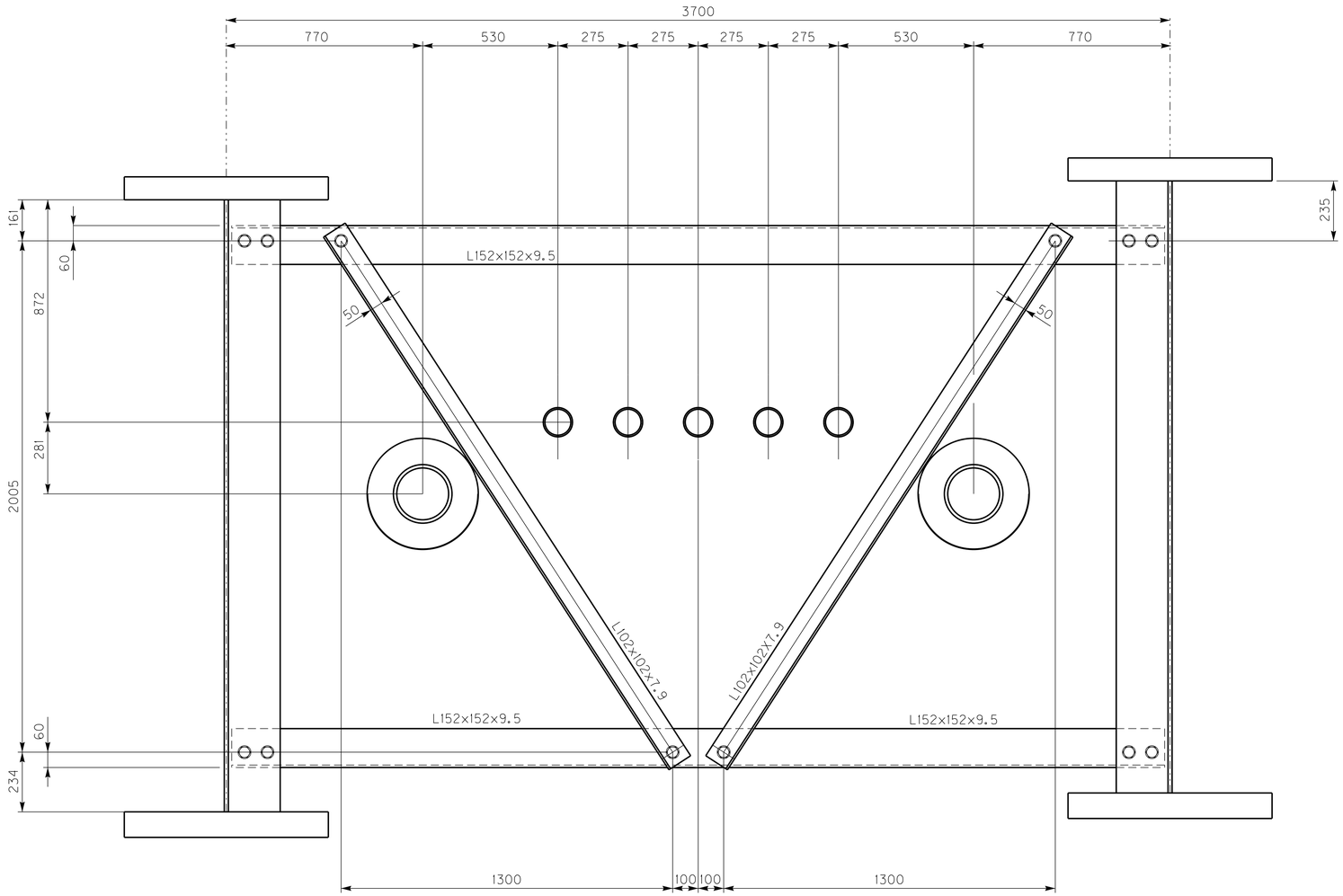
Division of Bridge Design
A. Frank Design Section

SHEET NO. 34
DRAWING NO. 23692

SHEET LOCATION: B3 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



CROSS–FRAME DETAIL SPANS 2–6

SHEET LOCATION: G2 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

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PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

CROSS–FRAME DETAIL SPANS 2–6

PREPARED BY
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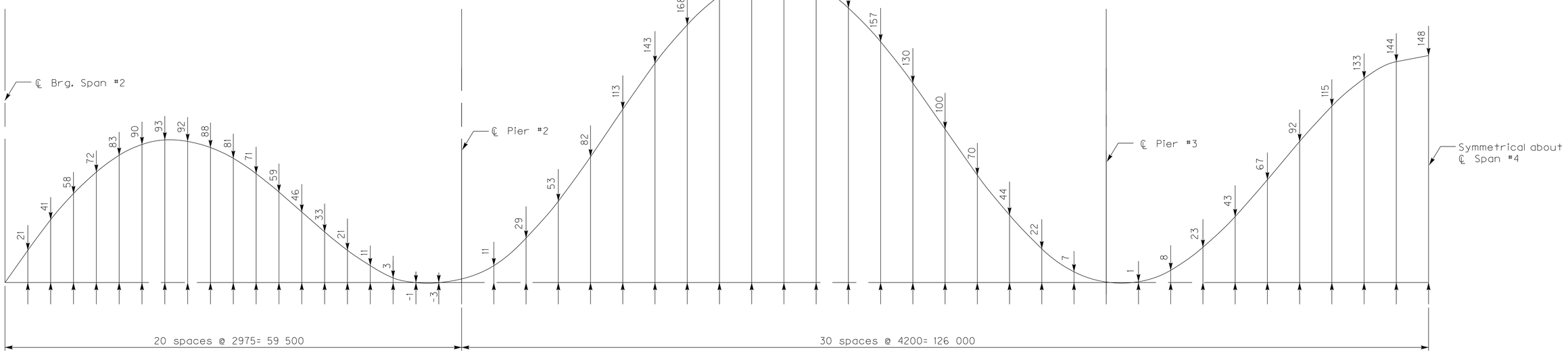
A. Frank Design Section

SHEET NO. 35
DRAWING NO. 23692



CAMBER DIAGRAM

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

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CAMBER DIAGRAM

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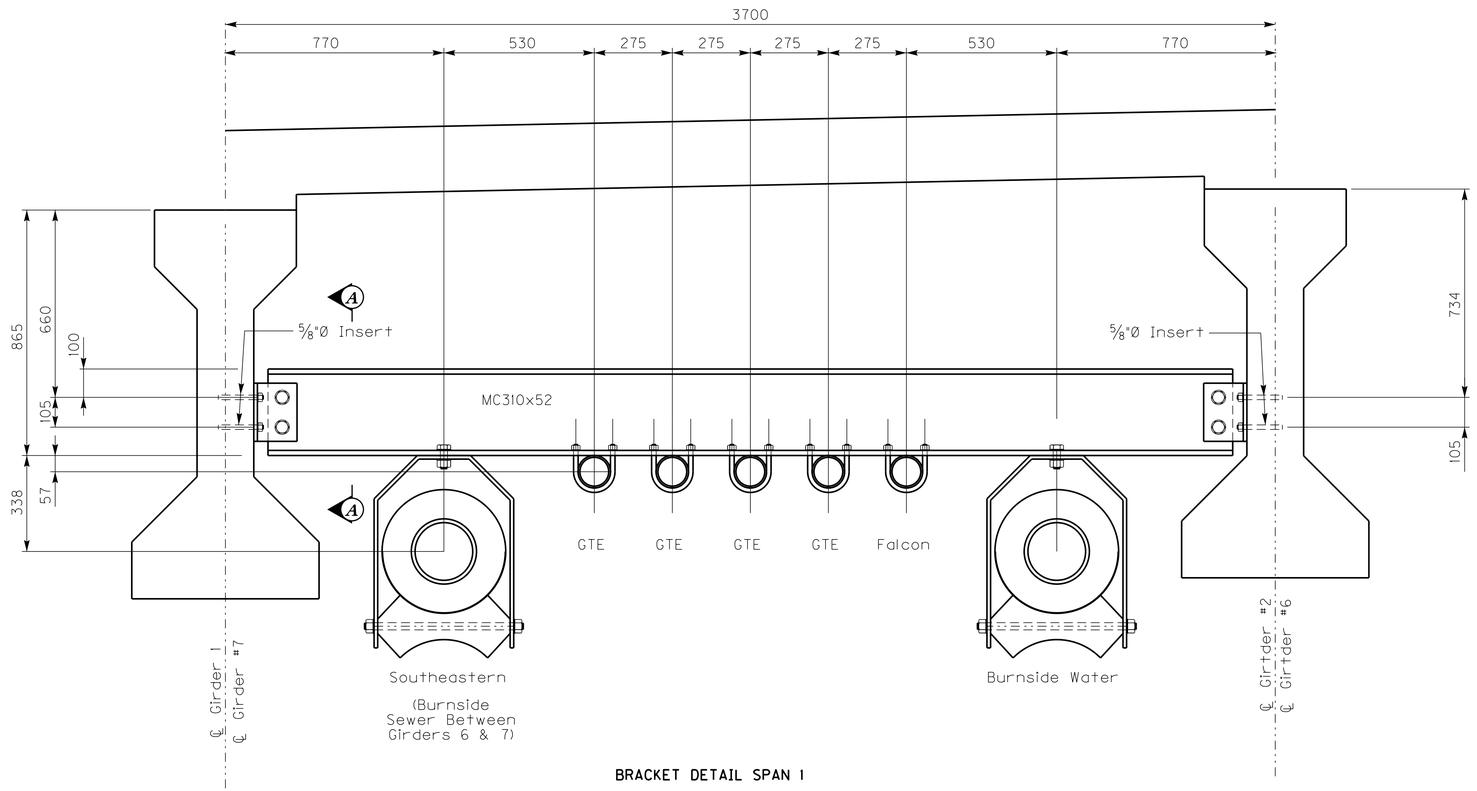
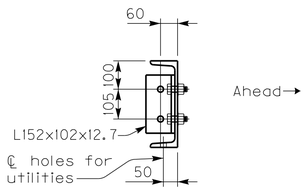
SHEET NO. 36
DRAWING NO. 23692

SHEET LOCATION: D5
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011

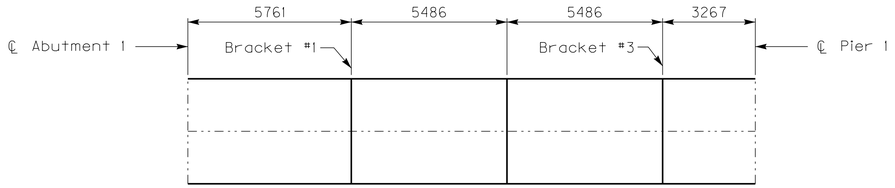


BRACKET DETAIL SPAN 1

BRACKET DETAIL SPAN 1



SECTION A–A



BRACKET INCERT SPACING SPAN 1

BRACKET INSERT SPACING SPAN 1

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

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ROUTE	CROSSING
US 27	CUMBERLAND RIVER

UTILITY DETAILS SPAN #1

PREPARED BY
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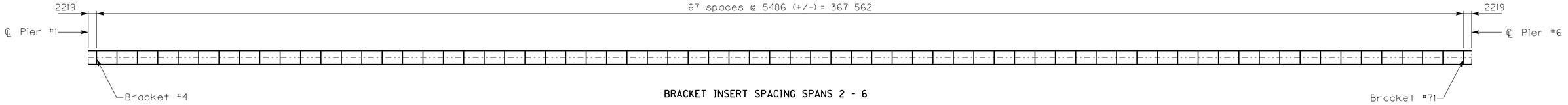
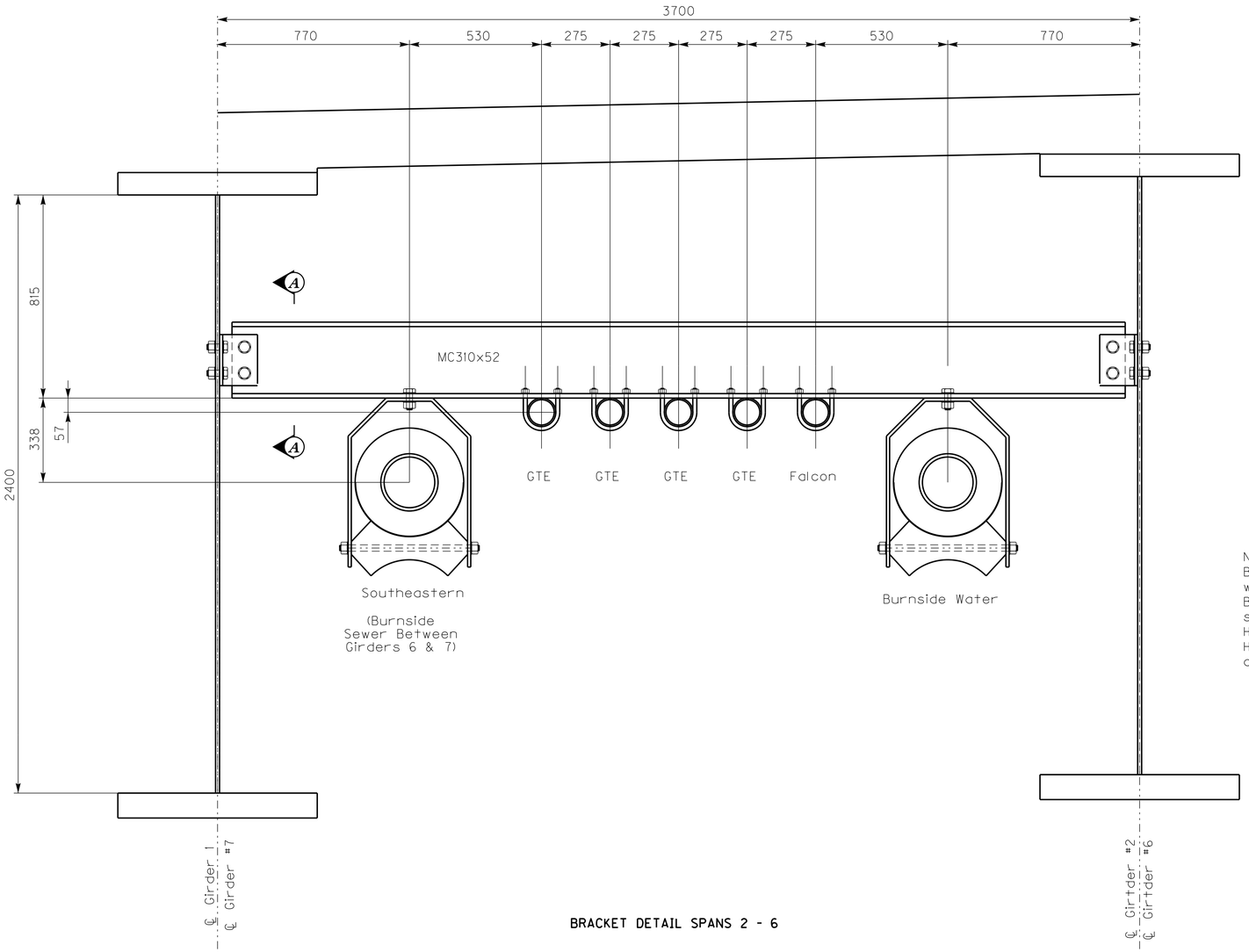
A. Frank Design Section

SHEET NO. 37
DRAWING NO. 23692

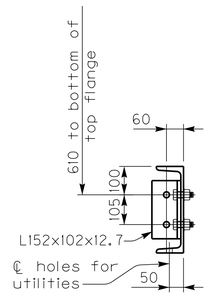
SHEET LOCATION: C5 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



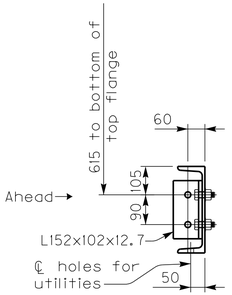
BRACKET INSERT SPACING SPANS 2 - 6



BRACKET DETAIL SPANS 2 - 6



SECTION A–A
~Normal Bracket~



SECTION A–A
~at Brackets #12 & 63~

NOTE:
Brackets #12 and #63 are attached to web splice plates at Field Splice "B".
Brackets #16 and #59 are attached to stiffeners.
Holes for Water and Sewer are Ø27 mm.
Holes for conduit are Ø21 mm at 130 mm centers.

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

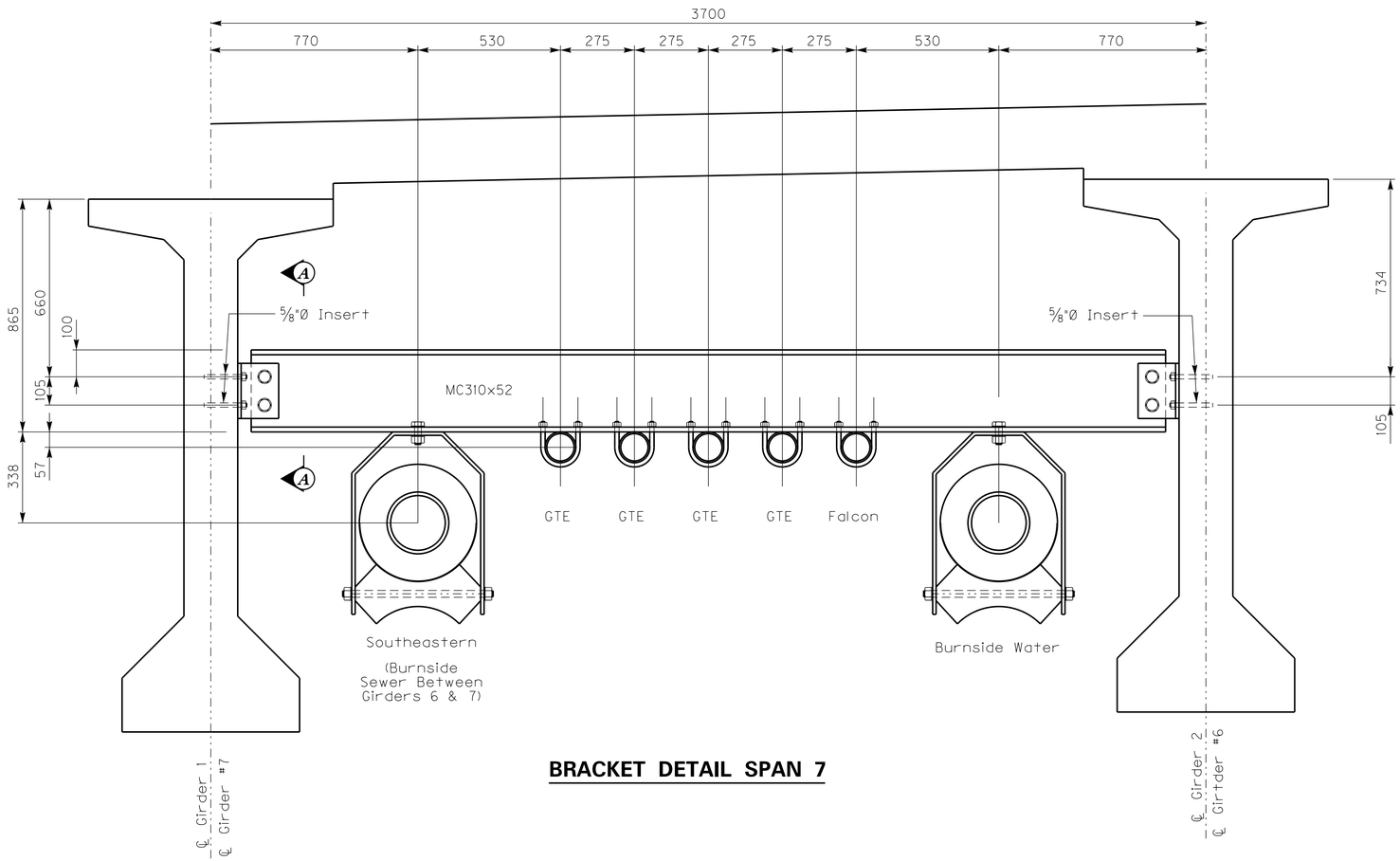
ROUTE	CROSSING
US 27	CUMBERLAND RIVER

UTILITY DETAILS SPANS 2–6

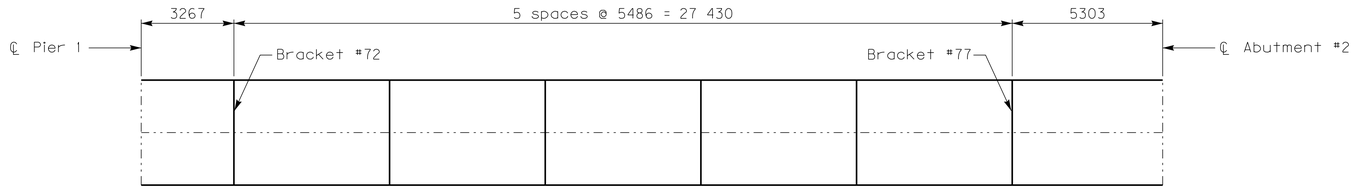
PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 38
DRAWING NO. 23692

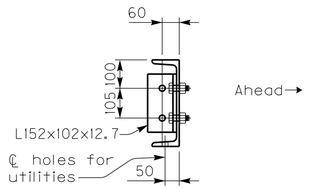
SHEET LOCATION: C3 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



BRACKET DETAIL SPAN 7



BRACKET INSERT SPACING SPAN 7



SECTION A–A

PLAN

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

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DEPARTMENT OF HIGHWAYS

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PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

UTILITY DETAILS SPAN #7

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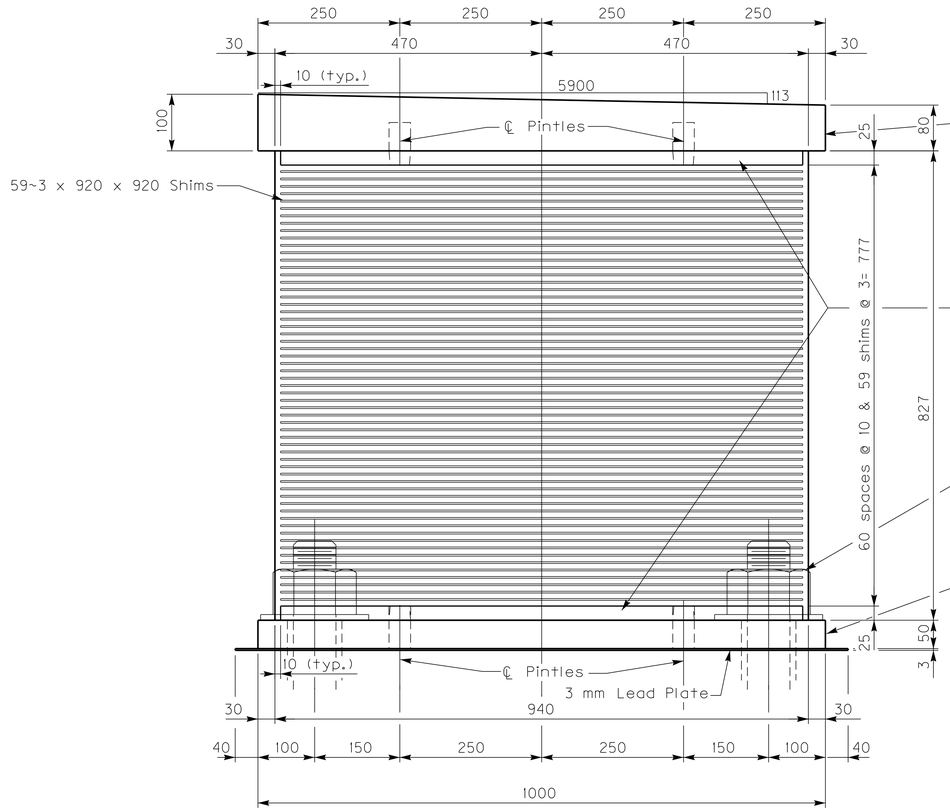
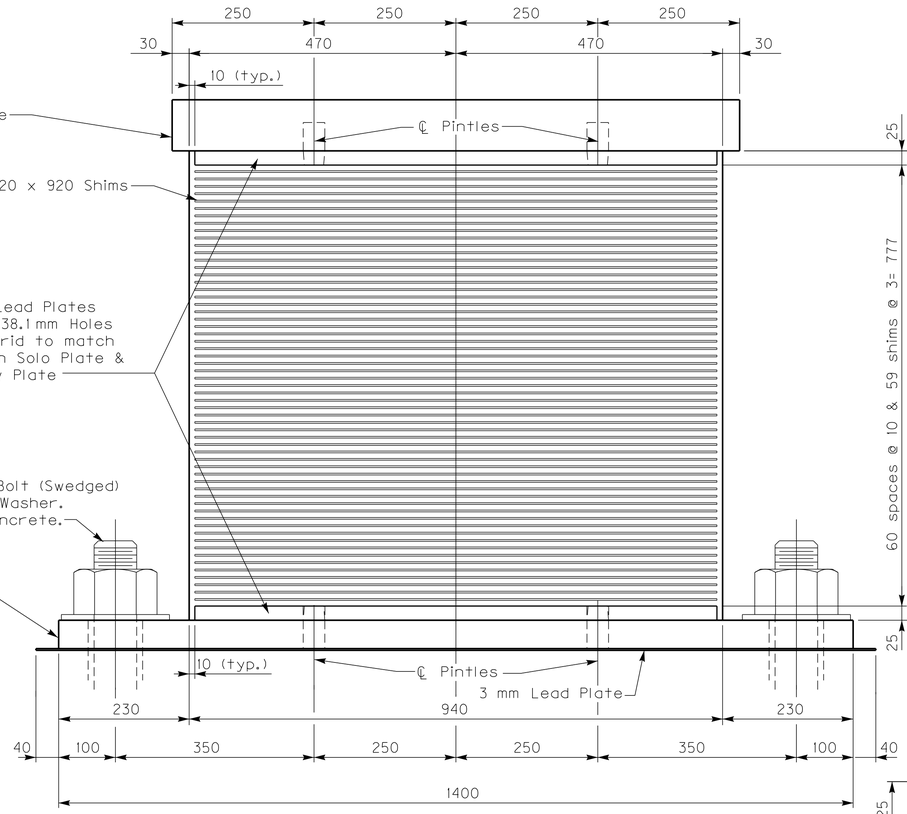
A. Frank Design Section

SHEET NO. 39
DRAWING NO. 23692

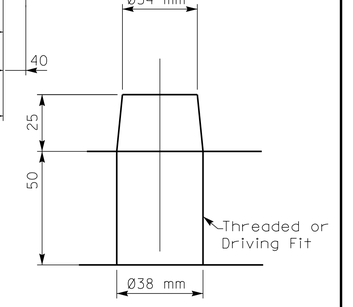
SHEET LOCATION: C4 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



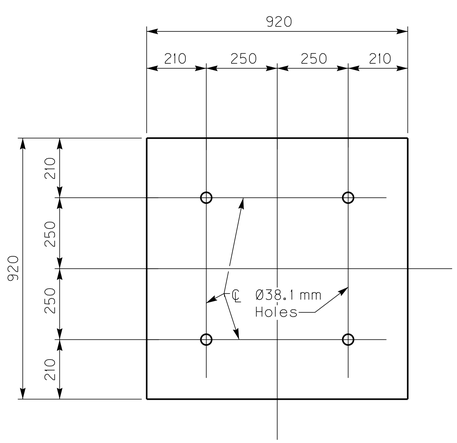
SIDE ELEVATION



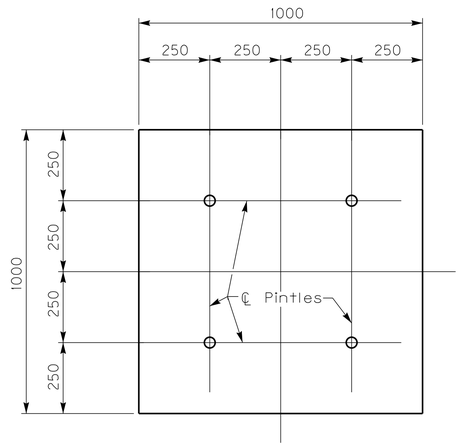
EXPANSION SHOE ELEVATION



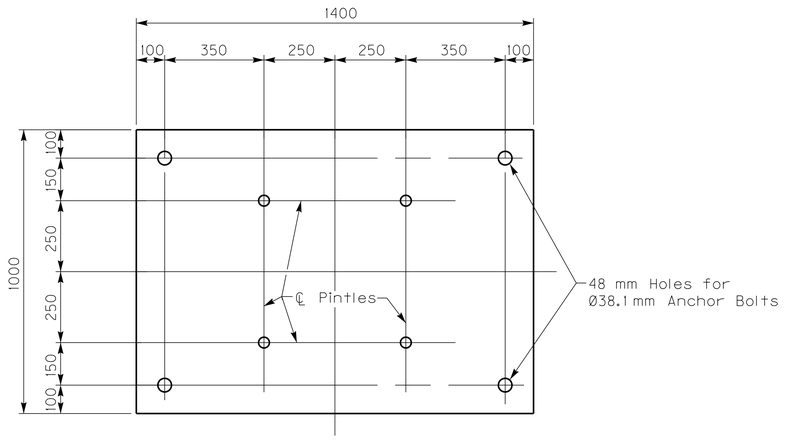
PINTLE DETAIL



25 mm LOAD PLATE



SOLE PLATE



MASONRY PLATE

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

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DEPARTMENT OF HIGHWAYS

COUNTY
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ROUTE	CROSSING
US 27	CUMBERLAND RIVER

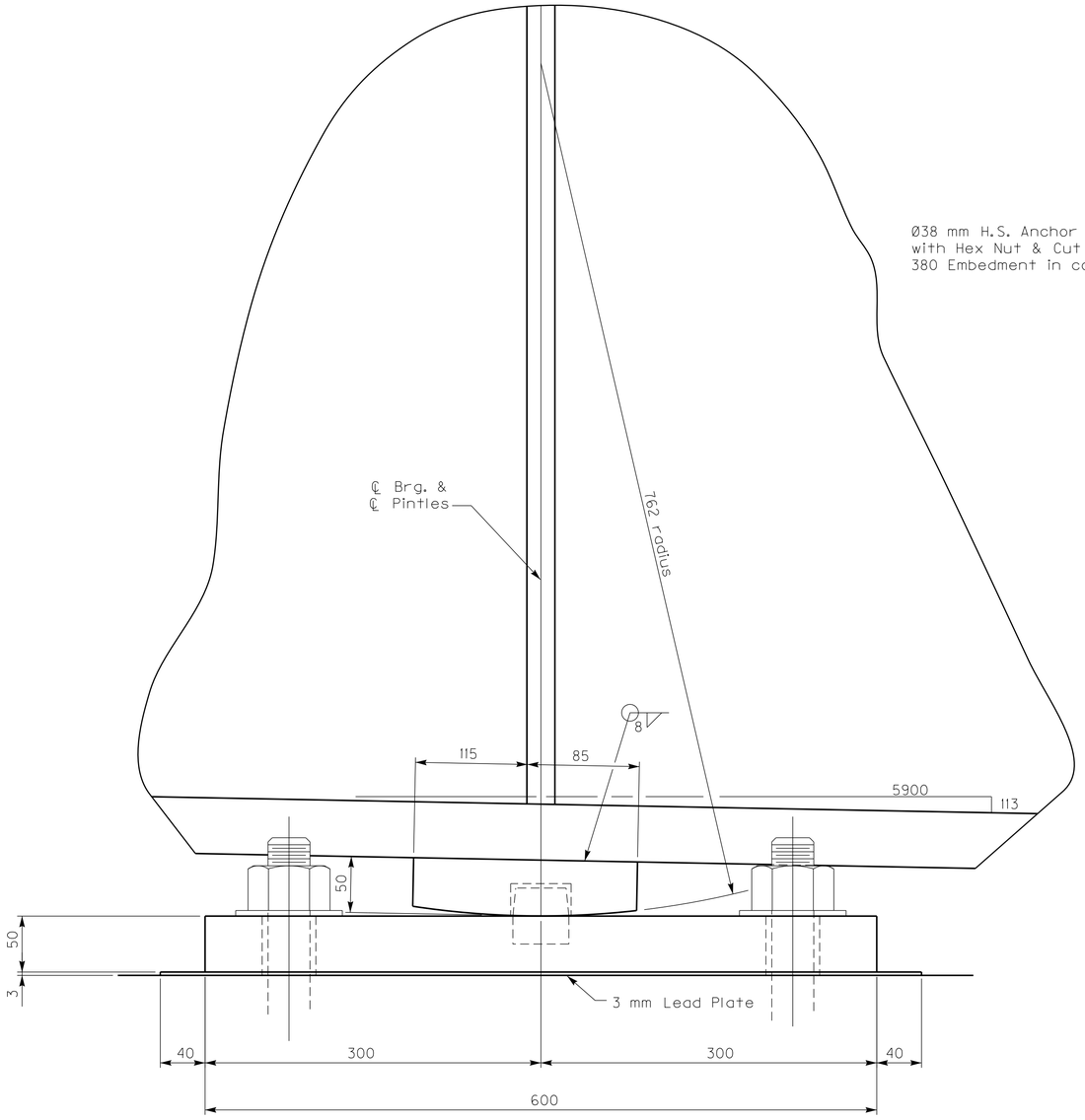
SHOE DETAILS ~ PIERS #1 & #6

PREPARED BY
Division of Bridge Design
A. Frank Design Section

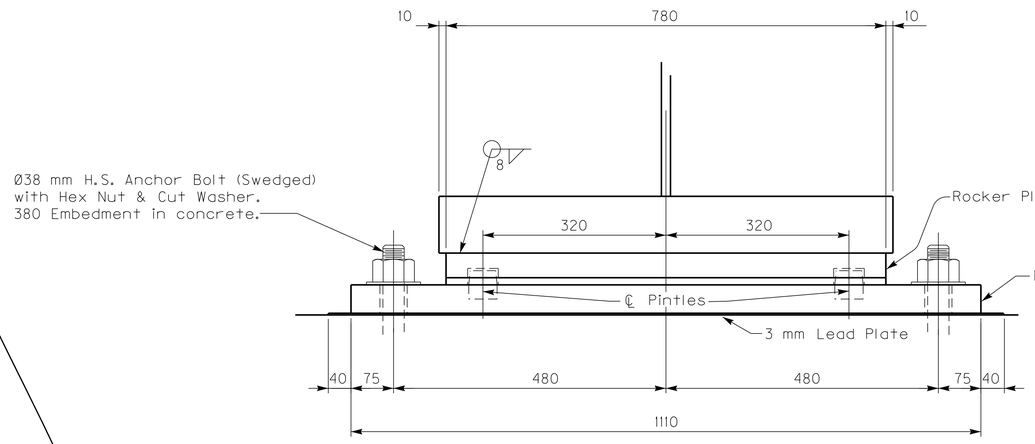
SHEET NO. 40

DRAWING NO. 23692

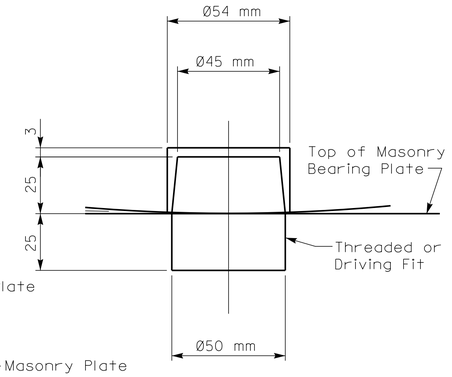
SHEET LOCATION: D2 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



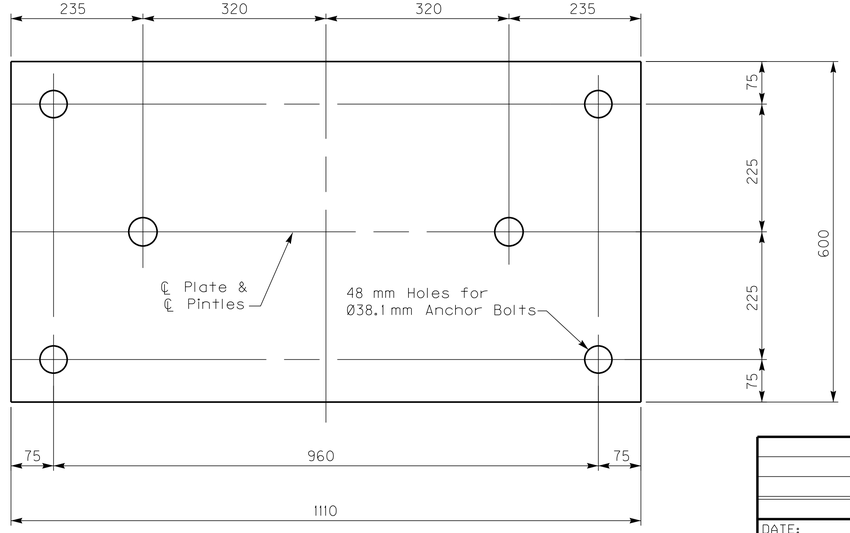
FIXED SHOE ELEVATION



SIDE ELEVATION



PINTLE DETAIL



MASONRY BEARING PLATE

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: EJ Proprost	A. Frank
DETAILED BY: J.L. Flood	EJ Proprost

Commonwealth of Kentucky
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US 27

CROSSING
CUMBERLAND RIVER

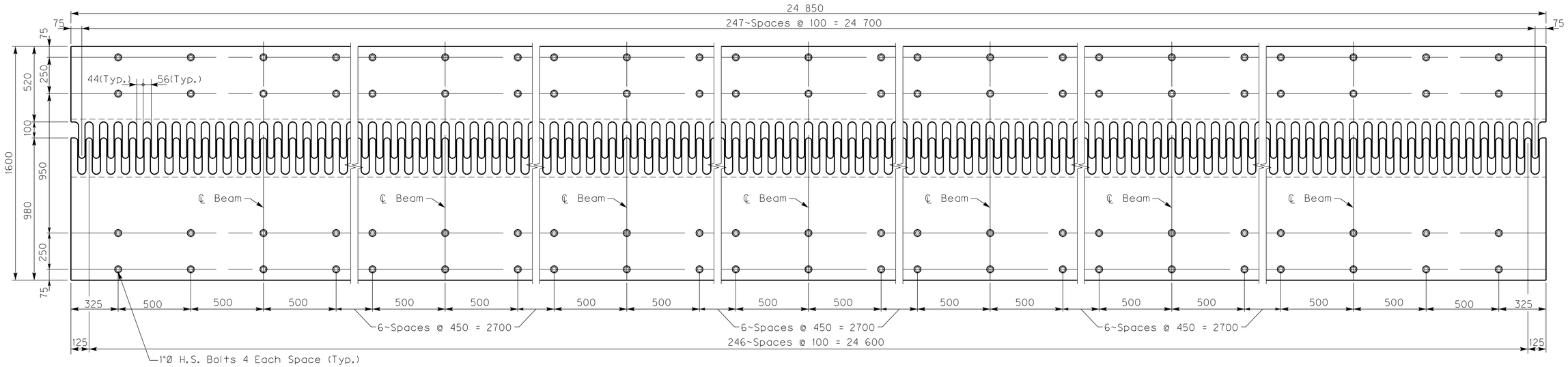
SHOE DETAILS ~ PIERS #2 thru #5

PREPARED BY
Division of Bridge Design
A. Frank Design Section

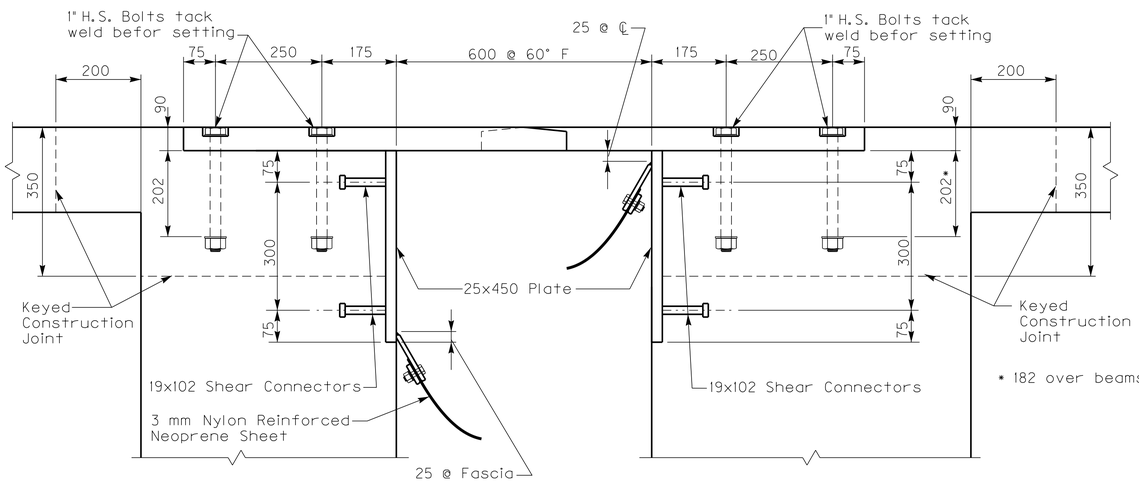
SHEET NO.
41

DRAWING NO.
23692

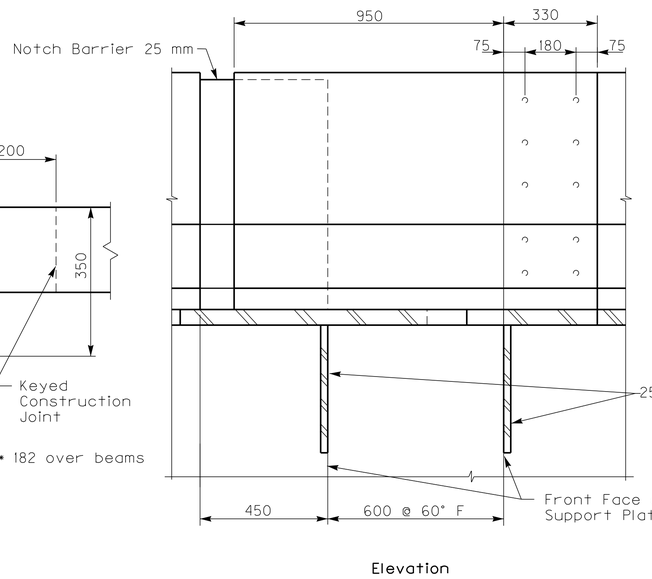
DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: D1



EXPANSION DAM ASSEMBLY PLAN

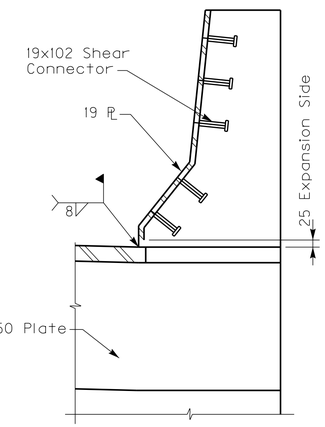


SECTION THROUGH EXPANSION DAM ASSEMBLY



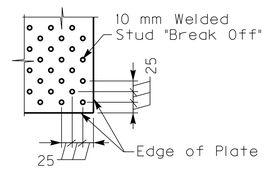
Elevation

BARRIER SLIDE PLATE



Note: Plate shall be in direction of traffic.

Section



ANTI-SKID PATTERN DETAIL

REVISION	DATE

DATE:	CHECKED BY
DESIGNED BY: A. Frank	EJ Proprost
DETAILED BY: W.T. Mathews	A. Frank

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COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

FINGER DAM

PREPARED BY
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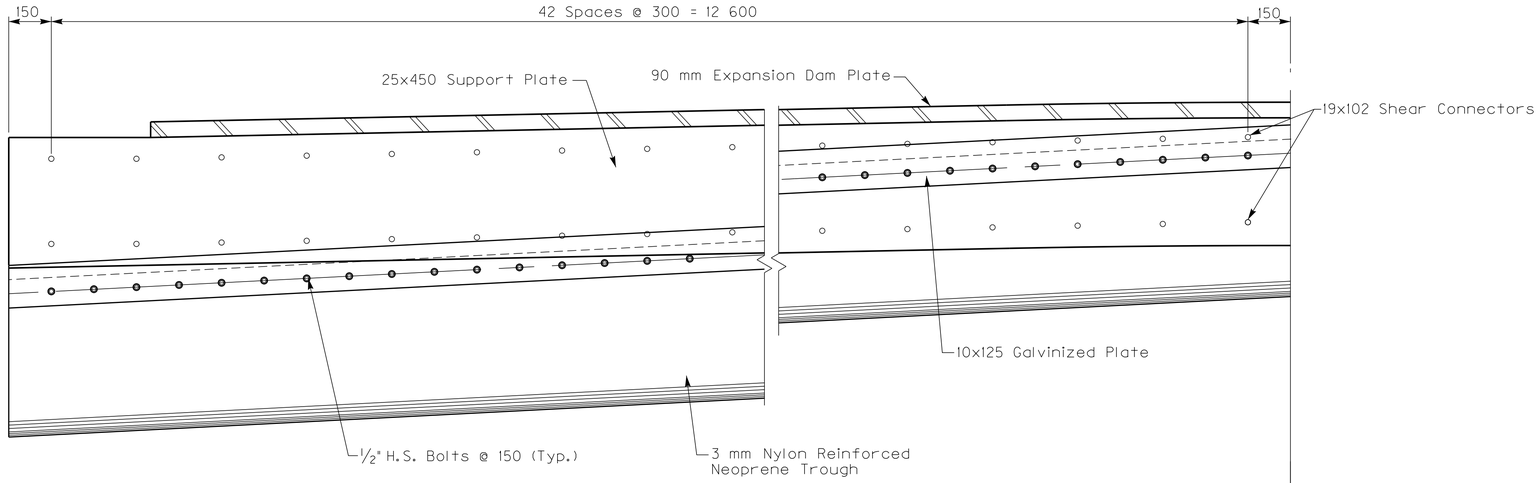
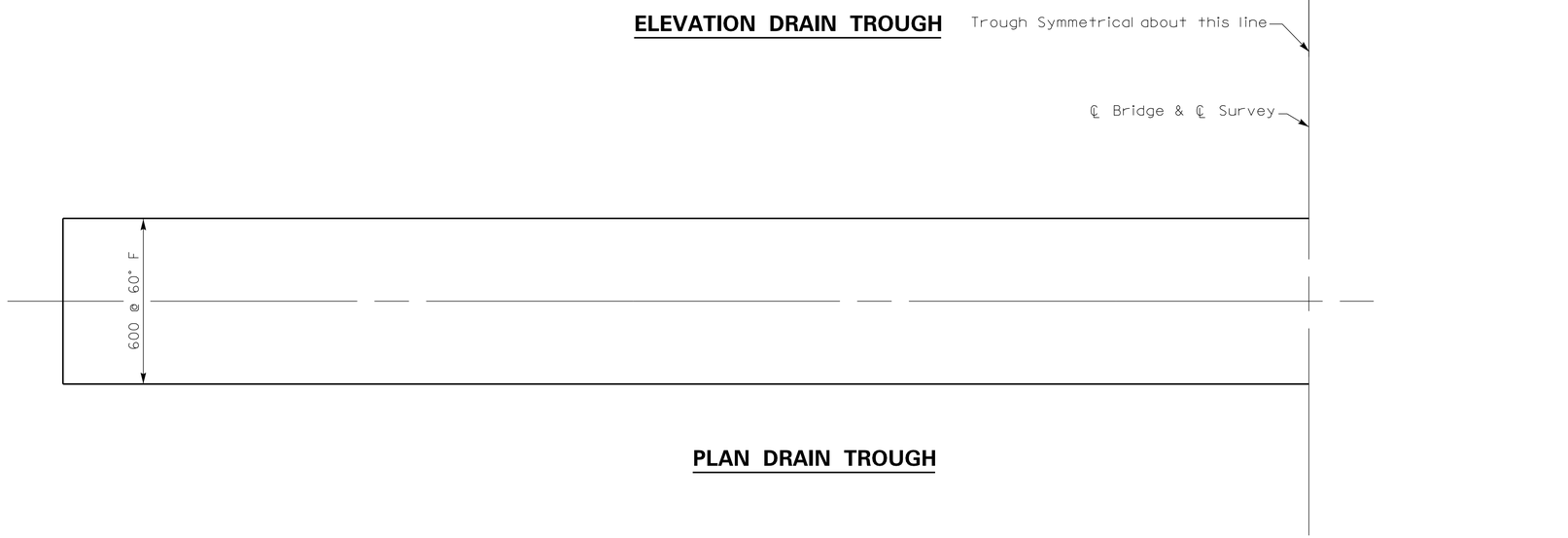
A. Frank Design Section

SHEET NO. 42
DRAWING NO. 23692

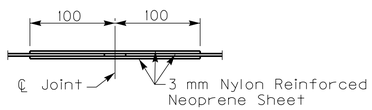
SHEET LOCATION: D3 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



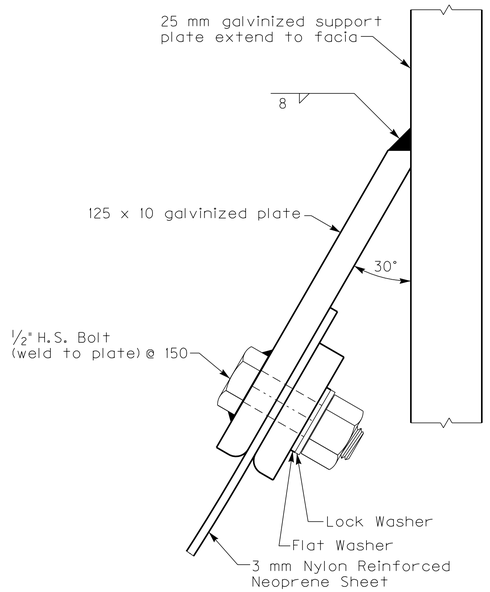
ELEVATION DRAIN TROUGH



PLAN DRAIN TROUGH



JOINT
(If Required)



NEOPRENE TROUGH CONNECTION

REVISION	DATE

DATE:	CHECKED BY
DESIGNED BY: A. Frank	EJ Proprost
DETAILED BY: W.T. Mathews	A. Frank

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ROUTE	CROSSING
US 27	CUMBERLAND RIVER

FINGER DAM

PREPARED BY
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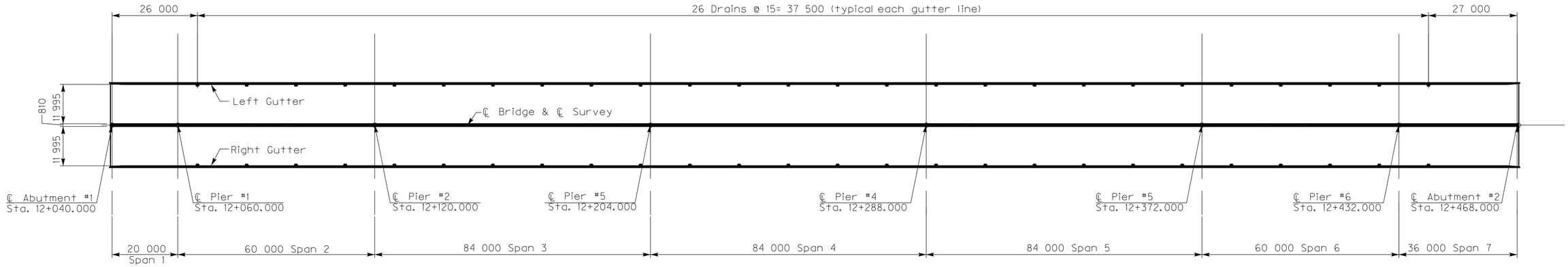
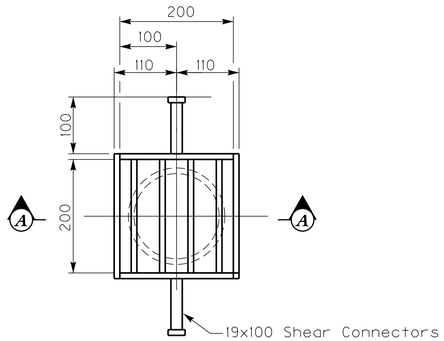
A. Frank Design Section

SHEET NO. 43
DRAWING NO. 23692

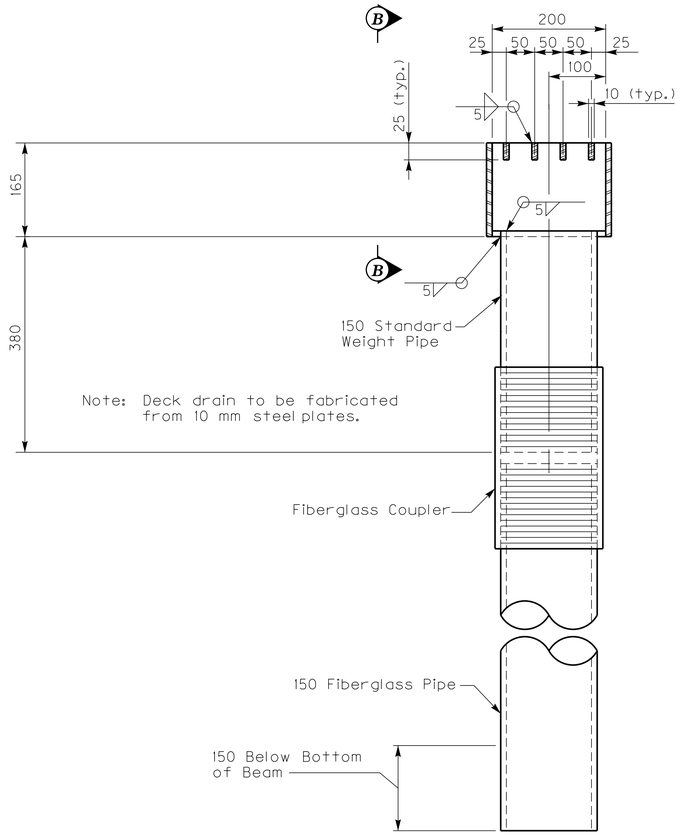
SHEET LOCATION: D4 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



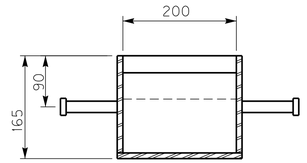
PLAN ~ DRAIN SPACING



PLAN OF DRAIN



SECTION A–A



SECTION B–B

FIBERGLASS BRIDGE DRAIN PIPE SYSTEMS SPECIFICATION

Fiberglass pipe and fittings shall be reinforced with thermosetting resin pipe (RTRP) systems meeting the requirements of ASTM Specification D2996. They shall qualify for a 207 MPa minimum short time rupture strength hoops tensile stress.

All connections of pipe and drain shown on the plans shall be made with a female - male threaded PVC plug. Adhesive bonded joints will be permitted for runs of pipe below such connections.

All reinforced fiberglass pipe fittings and expansion joints shall be handled and installed in accordance with guidelines and procedures recommended by the manufacturer of the material.

The final color of the reinforced pipe and fittings shall be pigmented to match the weathering steel (Federal Munsel No. 2.5YR3/4). Paint will not be acceped.

Pipe shall be incidental to unit price bid for drains.

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	EJ Proprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
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PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

DRAIN DETAILS

PREPARED BY
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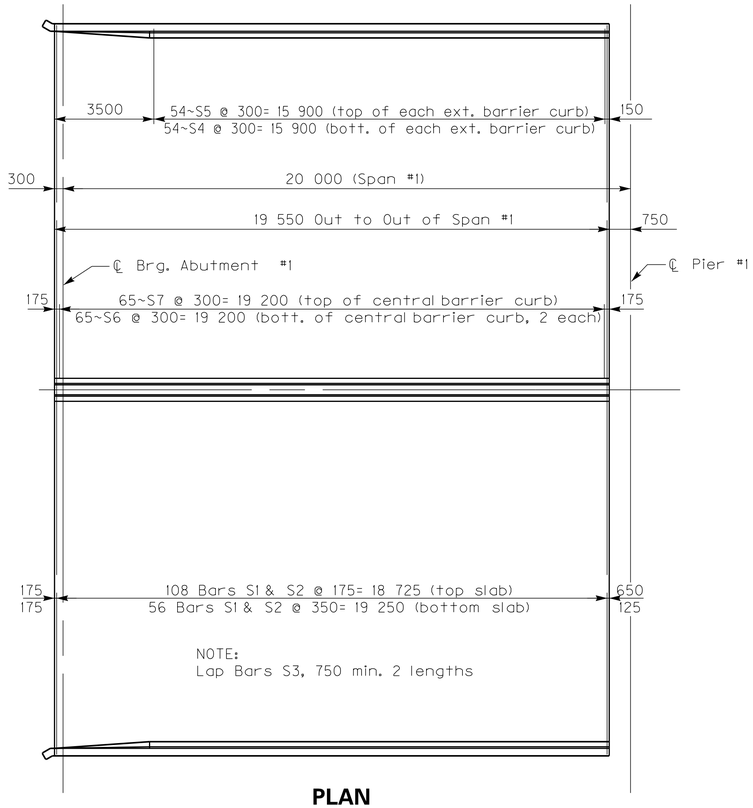
A. Frank Design Section

SHEET NO. 44

DRAWING NO. 23692

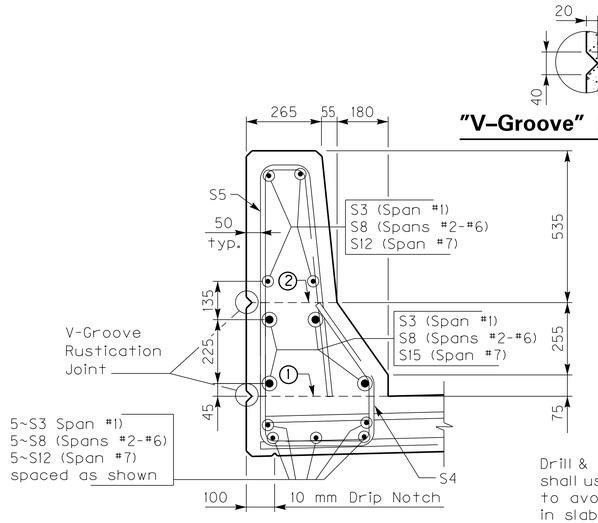
DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: B4

NOTE:
For barrier transition see
Std. Drwg. BGX-010, c.e.

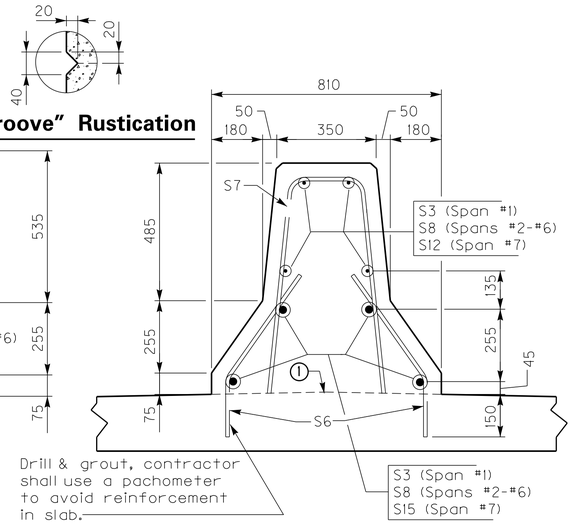


PLAN

~Showing Span #1~



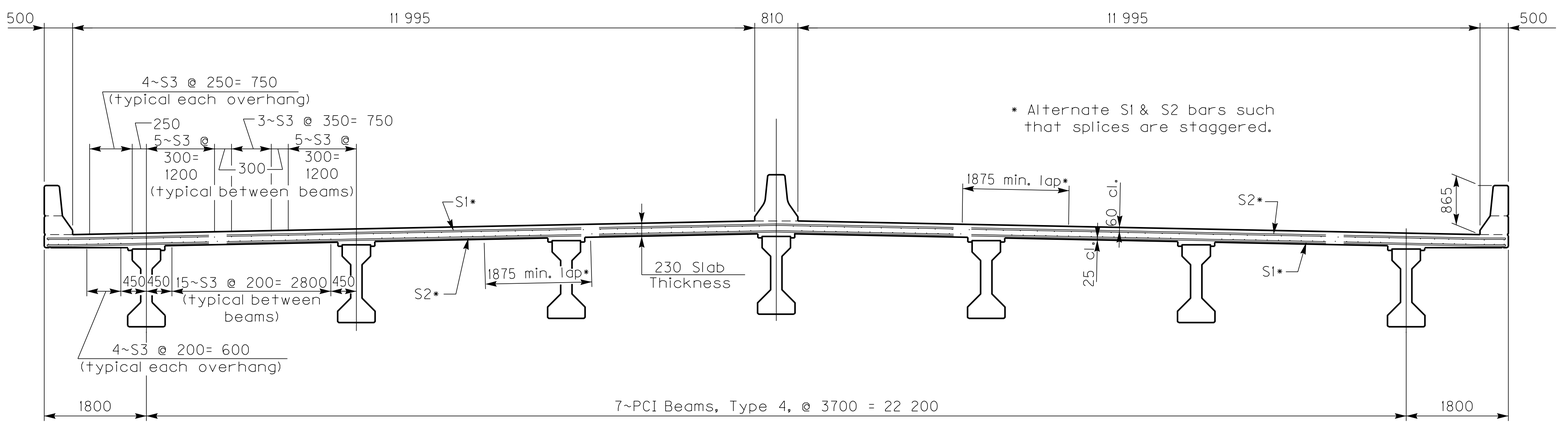
EXTERIOR BARRIER SECTION DETAILS



CENTER BARRIER SECTION DETAILS

① Mandatory roughened construction joint. Concrete above this joint is to be placed after slab has been properly cured.

② Permissible construction joint in top of barrier. "V-Groove" rustication joint is required if construction joint is used.



TYPICAL SECTION FOR SPAN 1

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

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ROUTE
US 27

CROSSING
CUMBERLAND RIVER

SUPERSTRUCTURE SLABS

PREPARED BY
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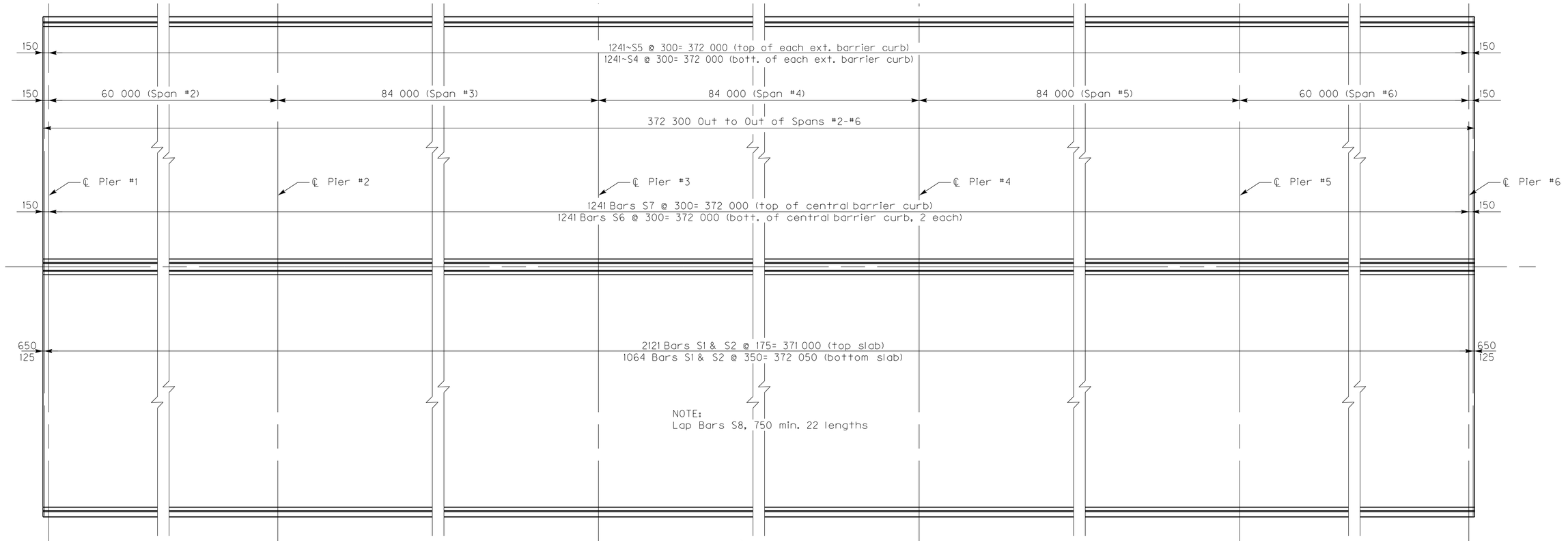
A. Frank Design Section

SHEET NO.
45

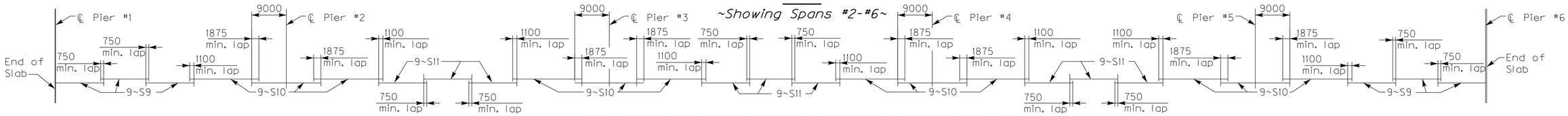
DRAWING NO.
23692

SHEET LOCATION: CE
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011

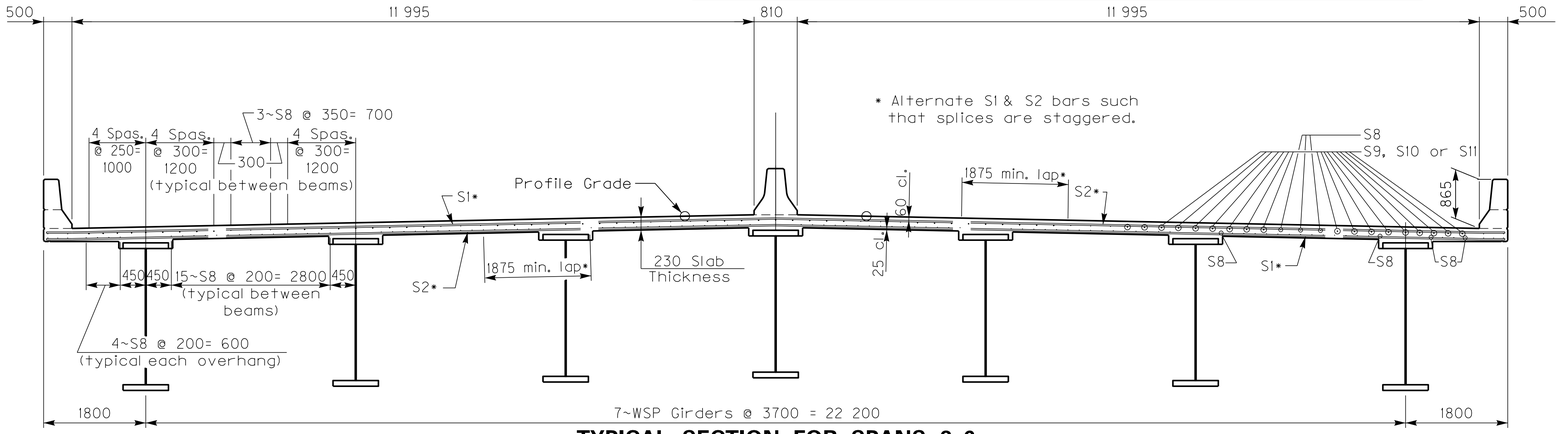


PLAN

~Showing Spans #2-#6~



NEGATIVE MOMENT REINFORCEMENT LAYOUT FOR SPANS 2–6



TYPICAL SECTION FOR SPANS 2–6

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
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COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

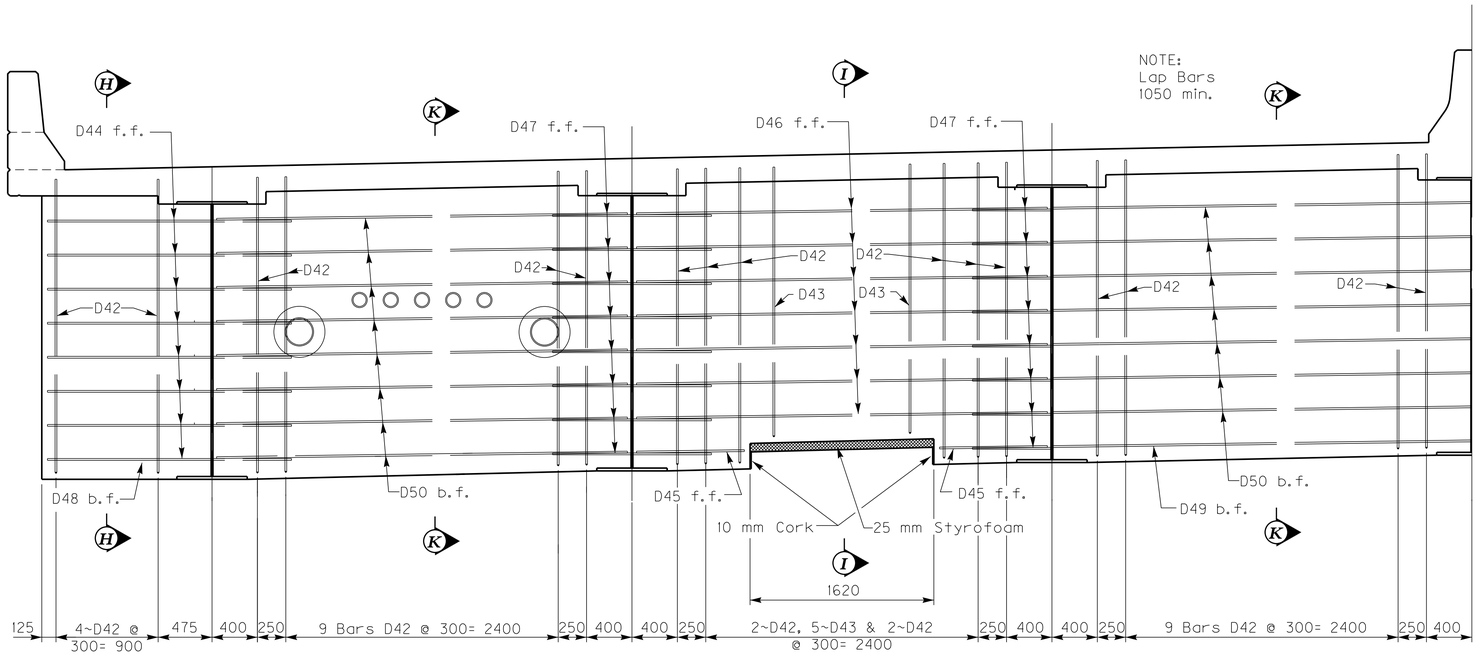
SUPERSTRUCTURE SLABS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 46

DRAWING NO. 23692

SHEET LOCATION: 1SS FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011

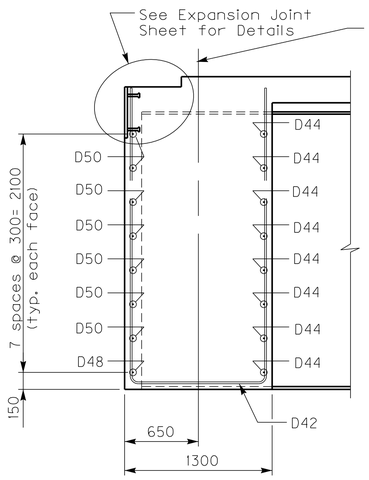


Note:
D44 & D47 on front face of diaphragm to be inserted through 1'Ø holes in web. Contractor shall shift bars in diaphragm to avoid utility lines.

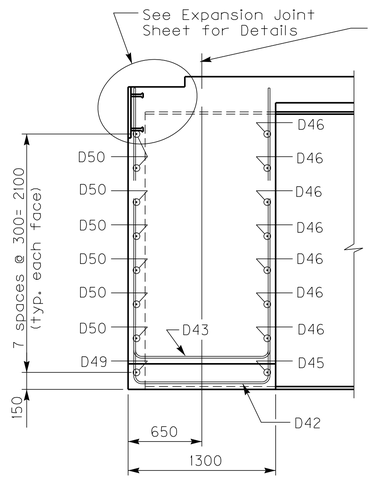
PIER #1, SPAN #2 & PIER #6, SPAN # 6 DIAPHRAGMS DETAILS

~Pier 6, Span #6 shown~

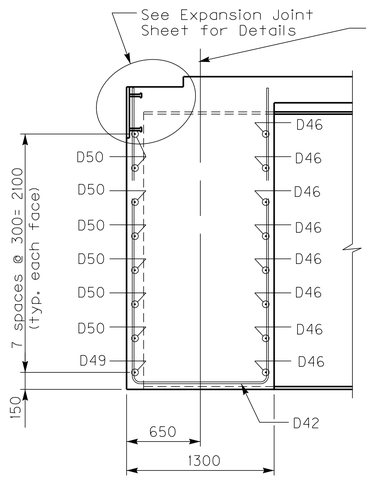
Note: All diaphragms must be poured and properly cured before the placement of the slab begins.



SECTION H–H



SECTION I–I



SECTION K–K

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

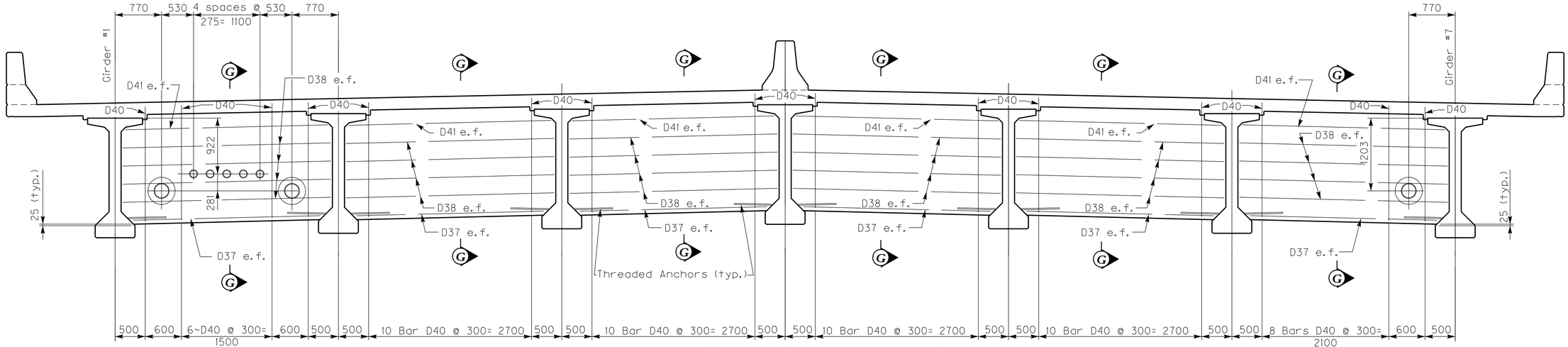
DIAPHRAGM DETAILS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO.
51

DRAWING NO.
23692

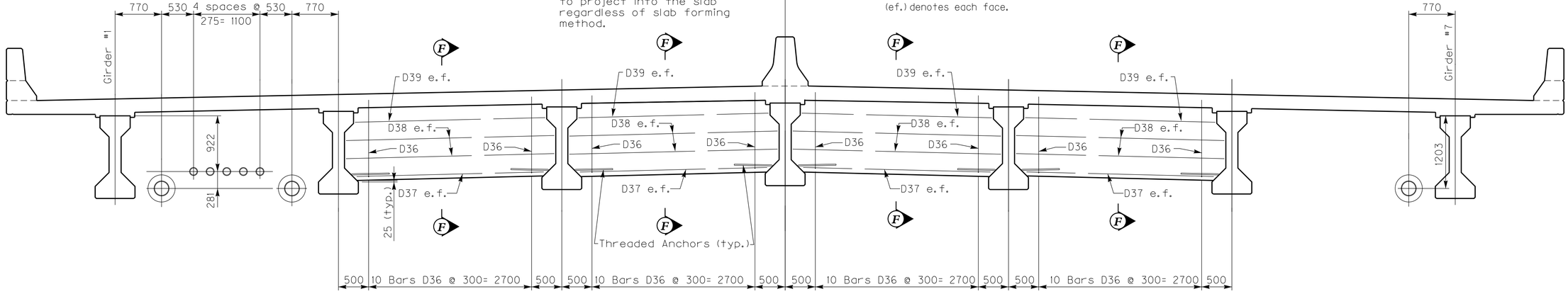
SHEET LOCATION: 6SS
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011



SPAN 7 INTERMEDIATE DIAPHRAGM DETAILS

Note:
Diaphragm stirrups are to project into the slab regardless of slab forming method.

Note:
(ff.) denotes front face
(bf.) denotes back face
(ef.) denotes each face.



SPAN 1 INTERMEDIATE DIAPHRAGM DETAILS

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

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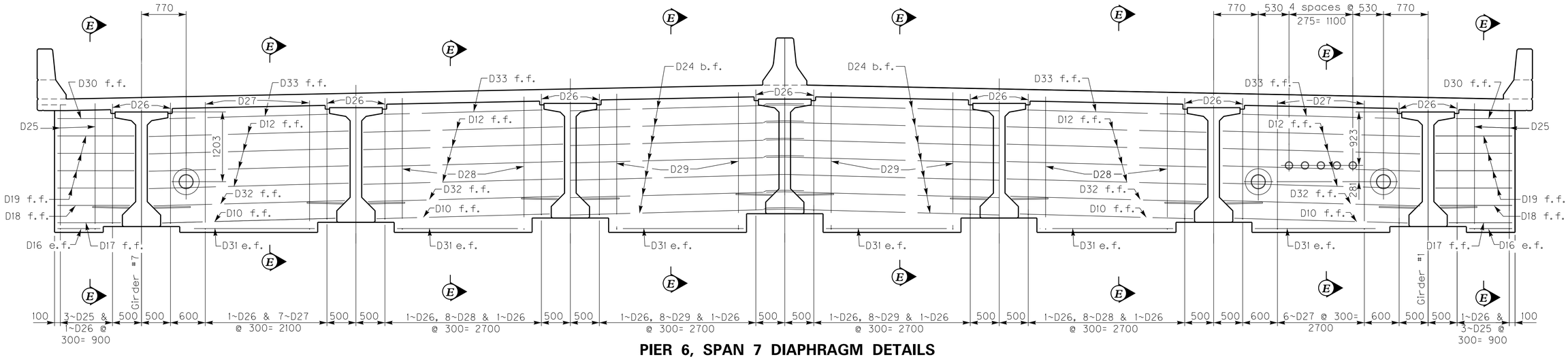
US 27	CUMBERLAND RIVER

DIAPHRAGM DETAILS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 50
DRAWING NO. 23692

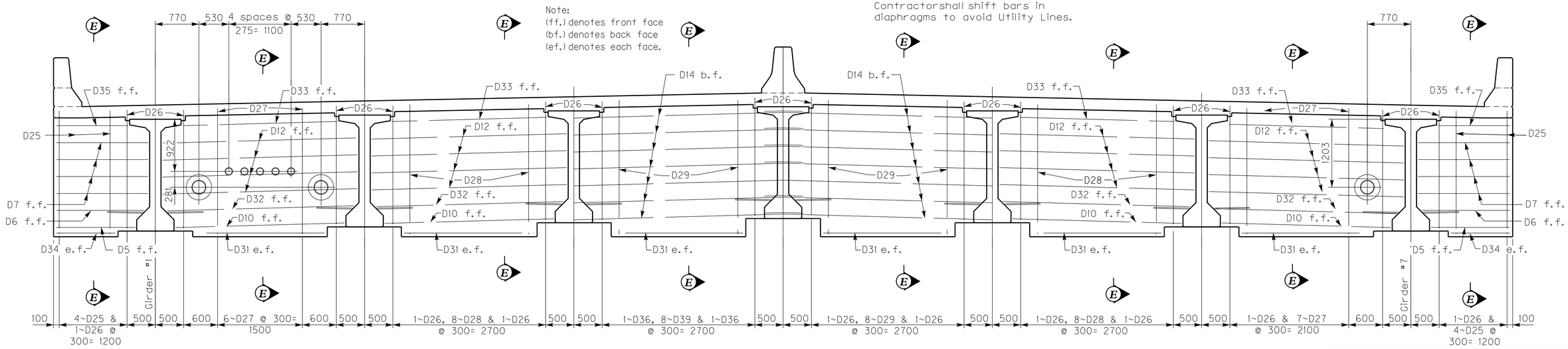
DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: SS



PIER 6, SPAN 7 DIAPHRAGM DETAILS

Note:
(ff.) denotes front face
(bf.) denotes back face
(ef.) denotes each face.

NOTE:
Contractorshall shift bars in diaphragms to avoid Utility Lines.



ABUTMENT 2, SPAN 7 DIAPHRAGM DETAILS

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

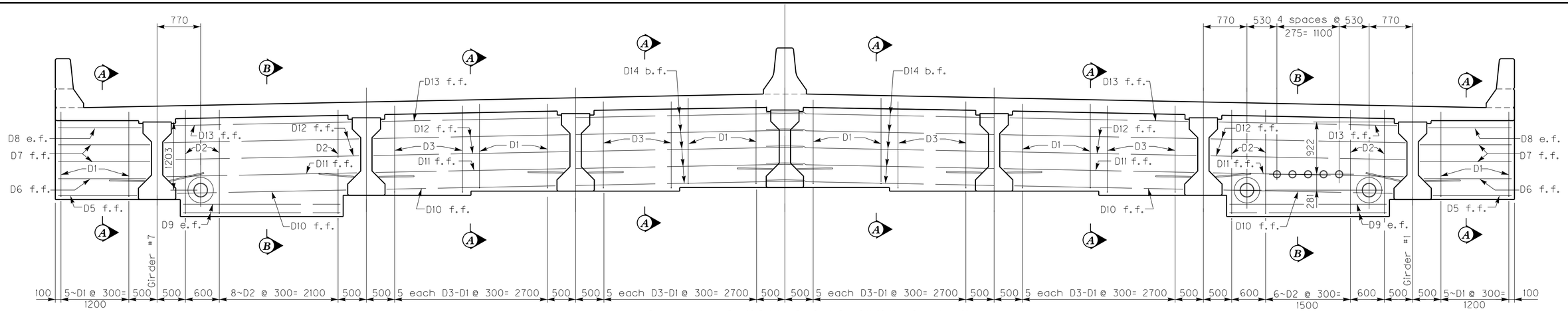
DIAPHRAGM DETAILS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 49

DRAWING NO. 23692

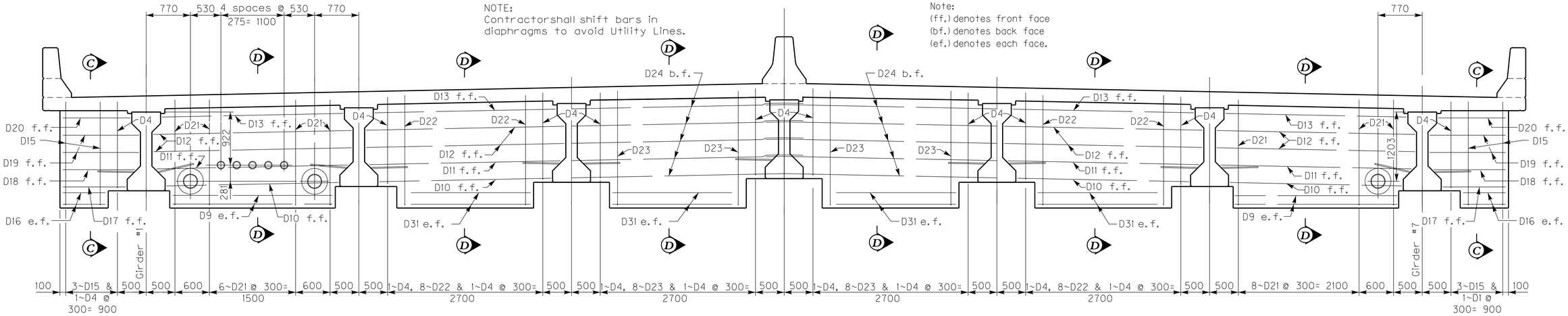
DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: 4SS



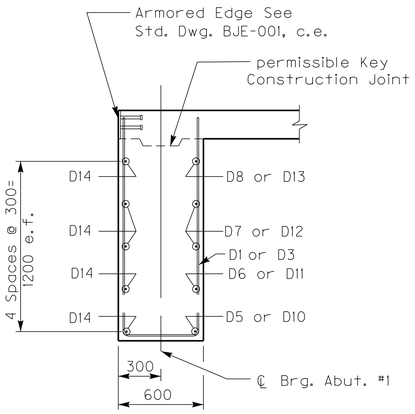
ABUTMENT 1, SPAN 1 DIAPHRAGM DETAILS

NOTE:
Contractorshall shift bars in diaphragms to avoid Utility Lines.

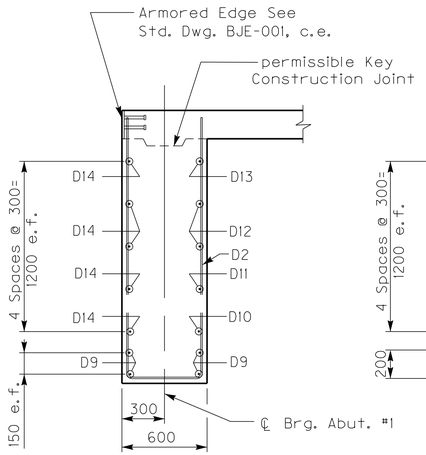
Note:
(ff.) denotes front face
(bf.) denotes back face
(ef.) denotes each face.



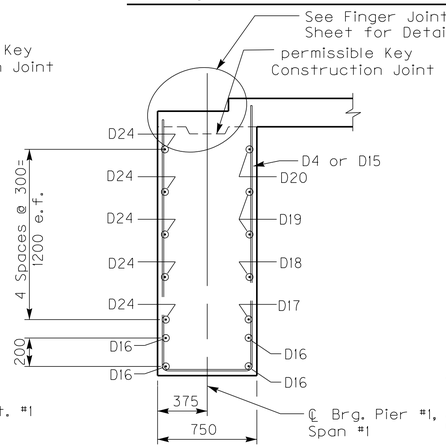
PIER 1, SPAN 1 DIAPHRAGM DETAILS



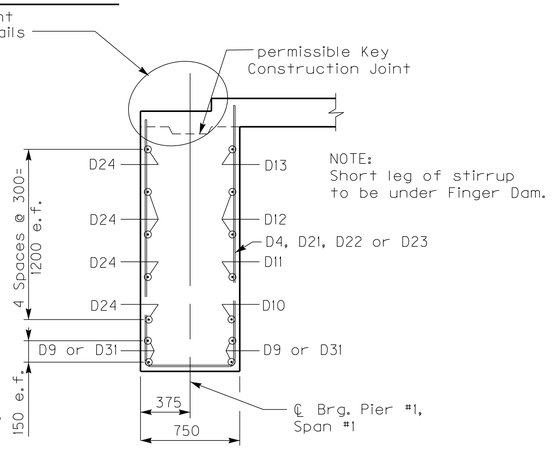
SECTION A–A



SECTION B–B



SECTION C–C



SECTION D–D

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY: **PULASKI**

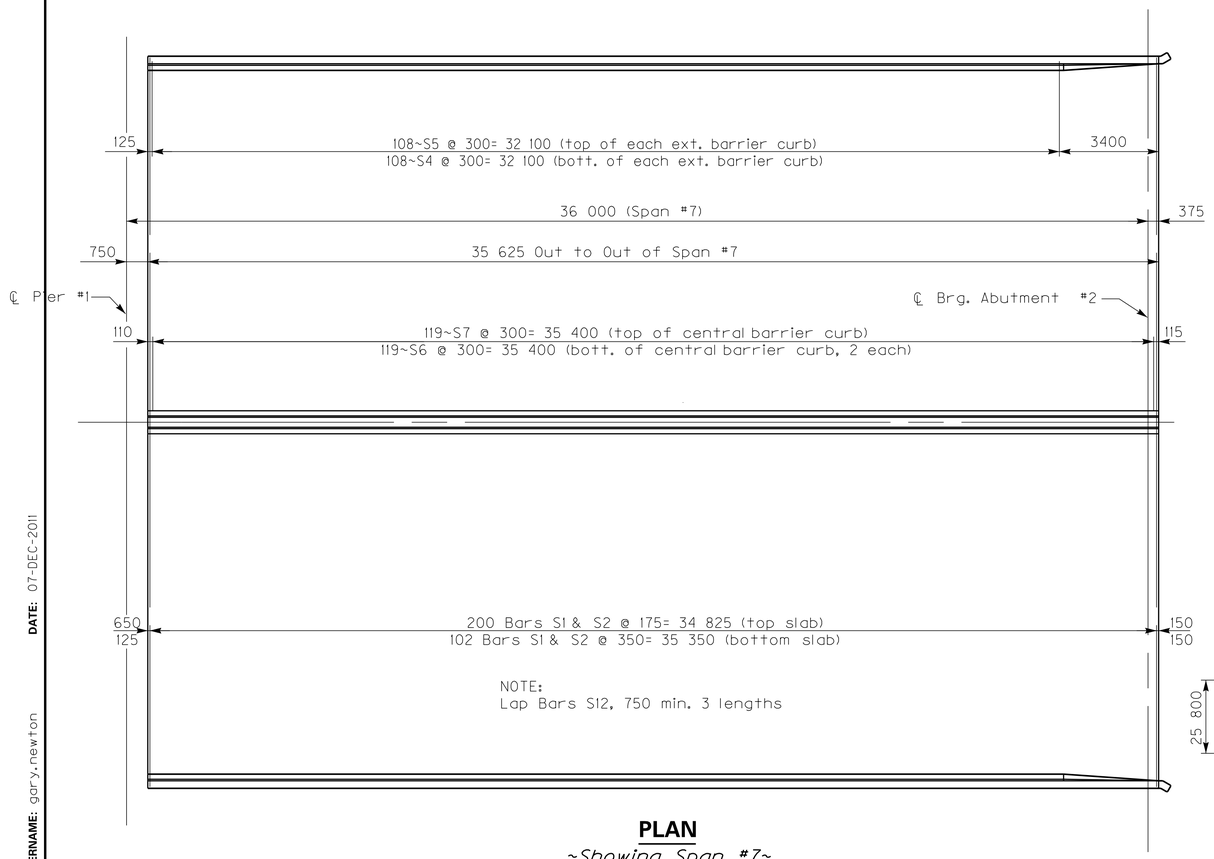
ROUTE: US 27 | CROSSING: CUMBERLAND RIVER

DIAPHRAGM DETAILS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 48
DRAWING NO. 23692

SHEET LOCATION: 3SS FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



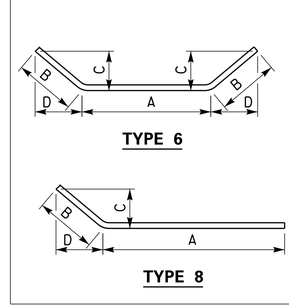
PLAN

~Showing Span #7~

NOTE:
For barrier transition see
Std. Drwg. BGX-010, c.e.

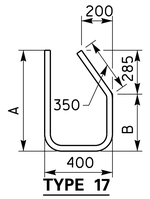
BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A/E	B/F	C/G	D/H
S1e	Str.	3651	25	18000	Top/Bottom Slab				
S2e	Str.	3651	25	9580	Top/Bottom Slab				
S3e	Str.	426	16	10110	Top/Bott. Slab/B.Curbs Span 1				
S4e	17s	2806	16	1490	Bottom Exterior Burrier Curbs	550	265		
S5e	16s	2806	16	1710	Top Exterior Barrier Curbs				
S6e	8	2850	16	600	Bottom Center Barrier	390	220	125	180
S7e	6	1425	16	1770	Top Center Barrier	250	760	80	755
S8e	Str.	3300	16	17660	Top/Bott. Slab/B.Curbs 2-6				
S9e	Str.	378	16	12540	Top Slab Spans 2-6				
S10e	Str.	756	25	18000	Top Slab Spans 2-6				
S11e	Str.	567	16	12550	Top Slab Spans 2-6				
S12e	Str.	639	16	12360	Top/Bott. Slab/B.Curbs Span 7				

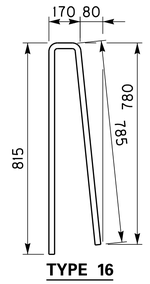


TYPE 6

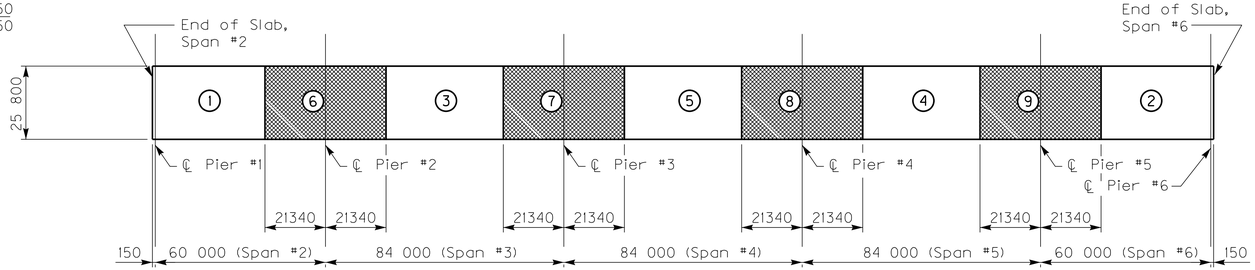
TYPE 8



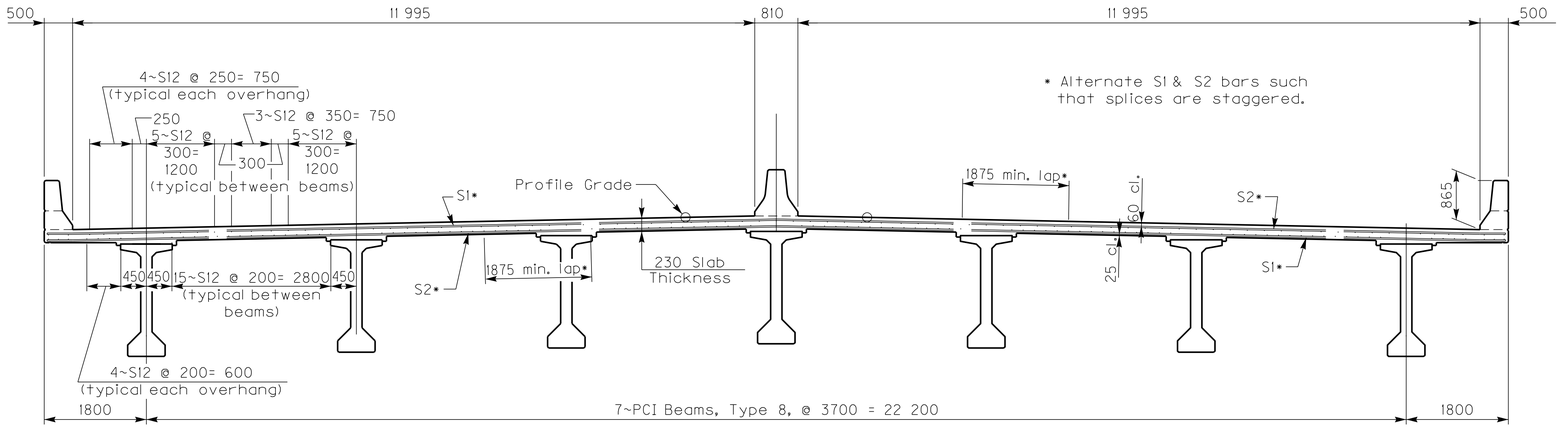
TYPE 17



TYPE 16



SLAB POURING SEQUENCE FOR SPANS #2-#6



TYPICAL SECTION FOR SPAN 7

REVISION	DATE
DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

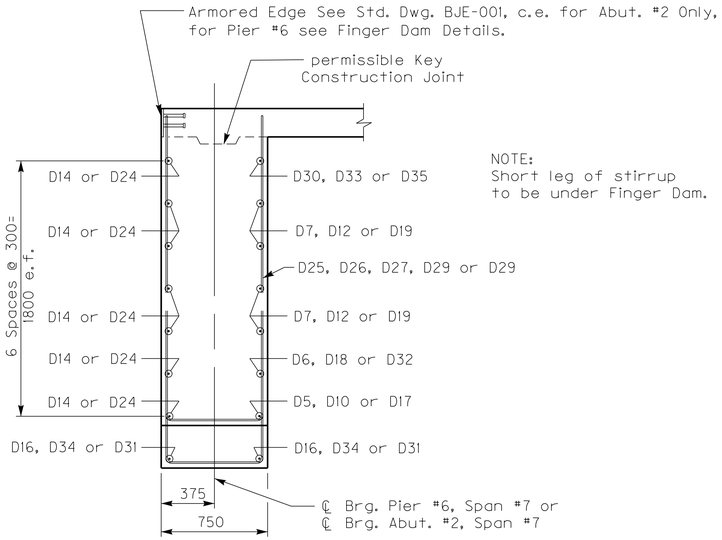
ROUTE: US 27
CROSSING: CUMBERLAND RIVER

SUPERSTRUCTURE SLABS

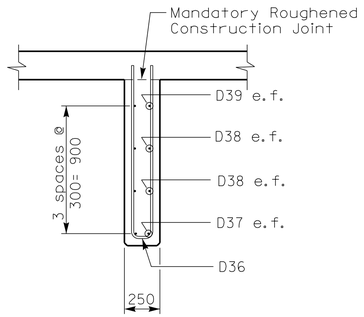
PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 47
DRAWING NO. 23692

SHEET LOCATION: 2SS FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011

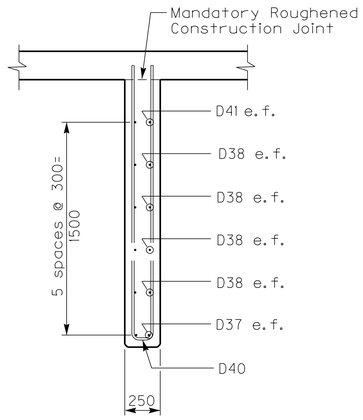


SECTION E–E



SECTION F–F

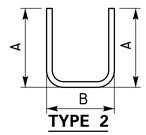
Note:
Diaphragm stirrups are to project into the slab regardless of slab forming method.



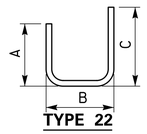
SECTION G–G

BILL OF REINFORCEMENT

MARK	TYPE	NO.	SIZE	LENGTH	LOCATION	A	B	C
D1e	2s	30	16	3410	Abut. 1 Diaphs.	1490	500	
D2e	2s	17	16	4090	Abut. 1 Diaphs.	1830	500	
D3e	2s	20	16	3490	Abut. 1 Diaphs.	1530	500	
D4e	22s	10	16	3560	Pier 1 Diaphs.	1455	650	1530
D5e	Str.	4	16	1390	Abuts. 1&2 Diaphs.			
D6e	Str.	4	16	1550	Abuts. 1&2 Diaphs.			
D7e	Str.	16	16	1620	Abuts. 1&2 Diaphs.			
D8e	Str.	2	16	1470	Abut. 1 Diaphs.			
D9e	Str.	16	16	2780	Abut. 1/Pier 1 Diaphs.			
D10e	Str.	24	16	2990	Abuts. 1&2/Piers 1&6 Diaphs.			
D11e	Str.	12	16	3370	Abut. 1/Pier 1 Diaphs.			
D12e	Str.	72	16	3450	Abuts. 1&2/Piers 1&6 Diaphs.			
D13e	Str.	12	16	3150	Abut. 1/Pier 1 Diaphs.			
D14e	Str.	24	16	13340	Abuts. 1&2 Diaphs.			
D15e	22s	6	16	4140	Pier 1 Diaphs.	1745	650	1820
D16e	Str.	12	16	740	Piers 1&6 Diaphs.			
D17e	Str.	4	16	1090	Piers 1&6 Diaphs.			
D18e	Str.	4	16	1250	Piers 1&6 Diaphs.			
D19e	Str.	12	16	1320	Piers 1&6 Diaphs.			
D20e	Str.	2	16	1170	Pier 1 Diaphs.			
D21e	22s	17	16	4210	Pier 1 Diaphs.	1855	650	1780
D22e	22s	16	16	4370	Pier 1 Diaphs.	1935	650	1860
D23e	22s	16	16	4520	Pier 1 Diaphs.	2010	650	1935
D24e	Str.	24	16	13040	Piers 1&6 Diaphs.			
D25e	22s	14	16	4950	Abut. 2/Pier 6 Diaphs.	2165	650	2215
D26e	22s	28	16	4780	Abut. 2/Pier 6 Diaphs.	2080	650	2130
D27e	22s	26	16	5050	Abut. 2/Pier 6 Diaphs.	2215	650	2265
D28e	22s	32	16	5180	Abut. 2/Pier 6 Diaphs.	2280	650	2330
D29e	22s	32	16	5330	Abut. 2/Pier 6 Diaphs.	2355	650	2405
D30e	Str.	2	16	970	Pier 6 Diaphs.			
D31e	Str.	40	16	2280	Abut. 2/Piers 1&6 Diaphs.			
D32e	Str.	12	16	3300	Abut. 2/Pier 6 Diaphs.			
D33e	Str.	12	16	2740	Abut. 2/Pier 6 Diaphs.			
D34e	Str.	4	16	1040	Abut. 2 Diaphs.			
D35e	Str.	2	16	1270	Abut. 2 Diaphs.			
D36e	2s	40	16	2630	Span 1 Inter. Diaphs.	1275	150	
D37e	Str.	32	16	3100	Spans 1&7 Inter. Diaphs.			
D38e	Str.	112	16	3450	Spans 1&7 Inter. Diaphs.			
D39e	Str.	8	16	3150	Span 1 Inter. Diaphs.			
D40e	2s	114	16	3850	Span 7 Inter. Diaphs.	1885	150	
D41e	Str.	24	16	3350	Span 7 Inter. Diaphs.			
D42e	22s	128	16	6320	Piers 1&6 Diaphs.	2575	1200	2620
D43e	22s	20	16	5740	Piers 1&6 Diaphs.	2285	1200	2330
D44e	Str.	32	16	2500	Piers 1&6 Diaphs.			
D45e	Str.	8	16	960	Piers 1&6 Diaphs.			
D46e	Str.	92	16	3620	Piers 1&6 Diaphs.			
D47e	Str.	80	16	2200	Piers 1&6 Diaphs.			
D48e	Str.	4	16	6140	Piers 1&6 Diaphs.			
D49e	Str.	2	16	9390	Piers 1&6 Diaphs.			
D50e	Str.	28	16	13080	Piers 1&6 Diaphs.			



TYPE 2



TYPE 22

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	C. So
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

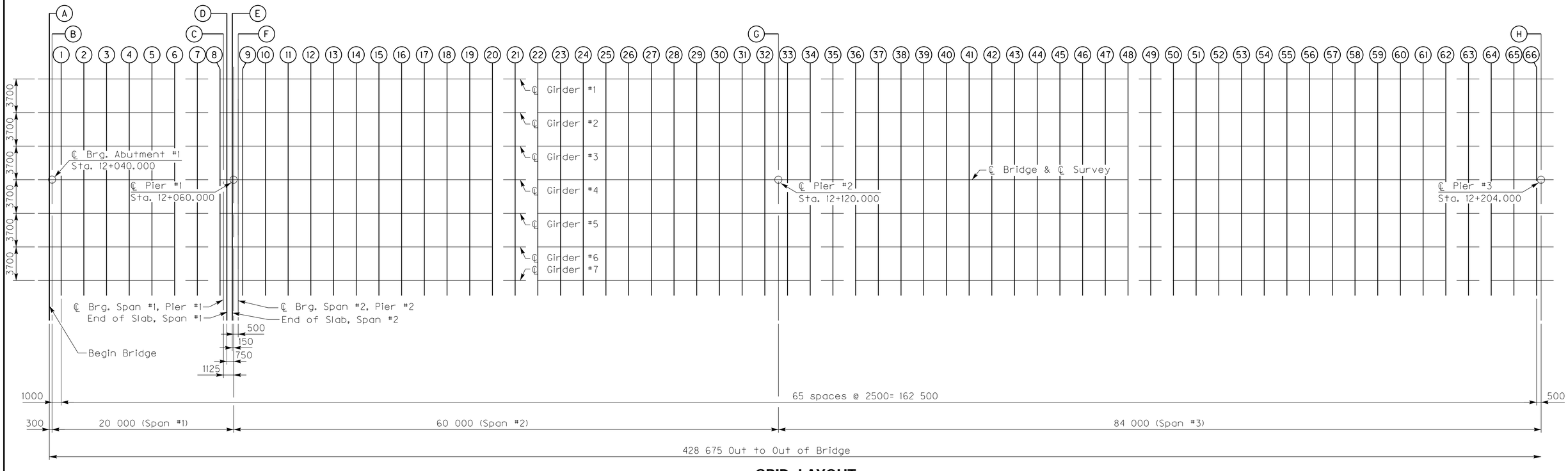
DIAPHRAGM DETAILS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO.
52

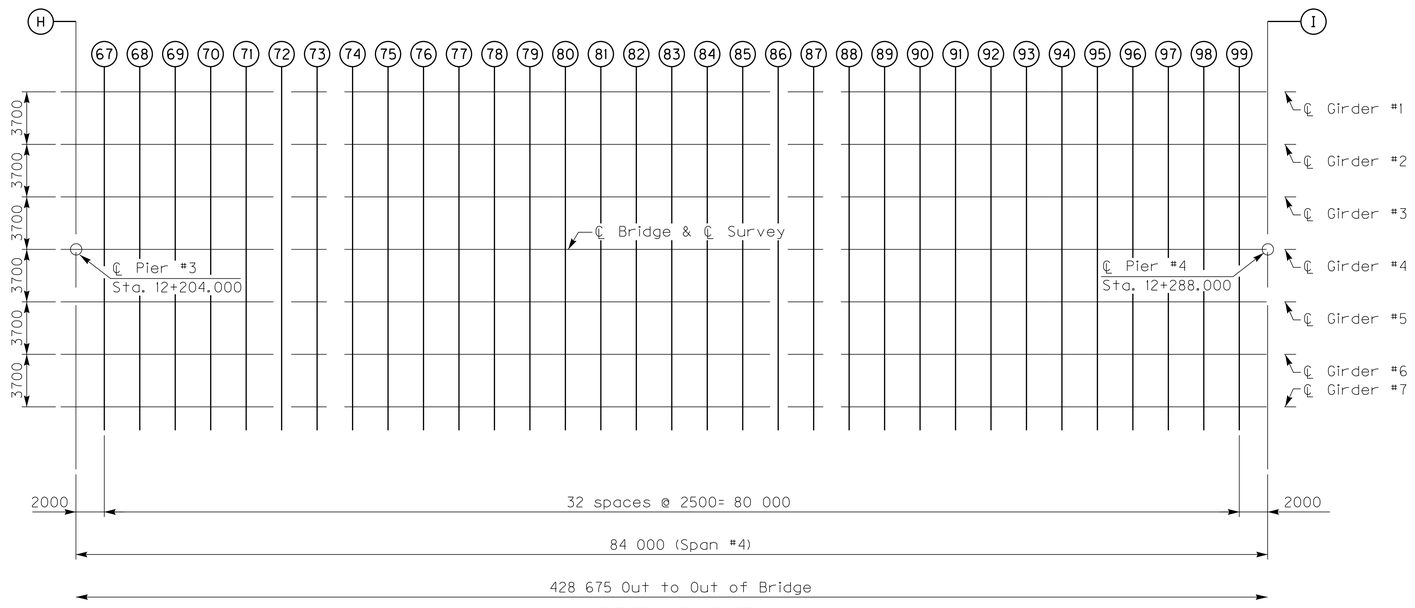
DRAWING NO.
23692

SHEET LOCATION: 7SS
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011



GRID LAYOUT

~Showing Spans #1, #2 & #3~



GRID LAYOUT

~Showing Span #4~

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

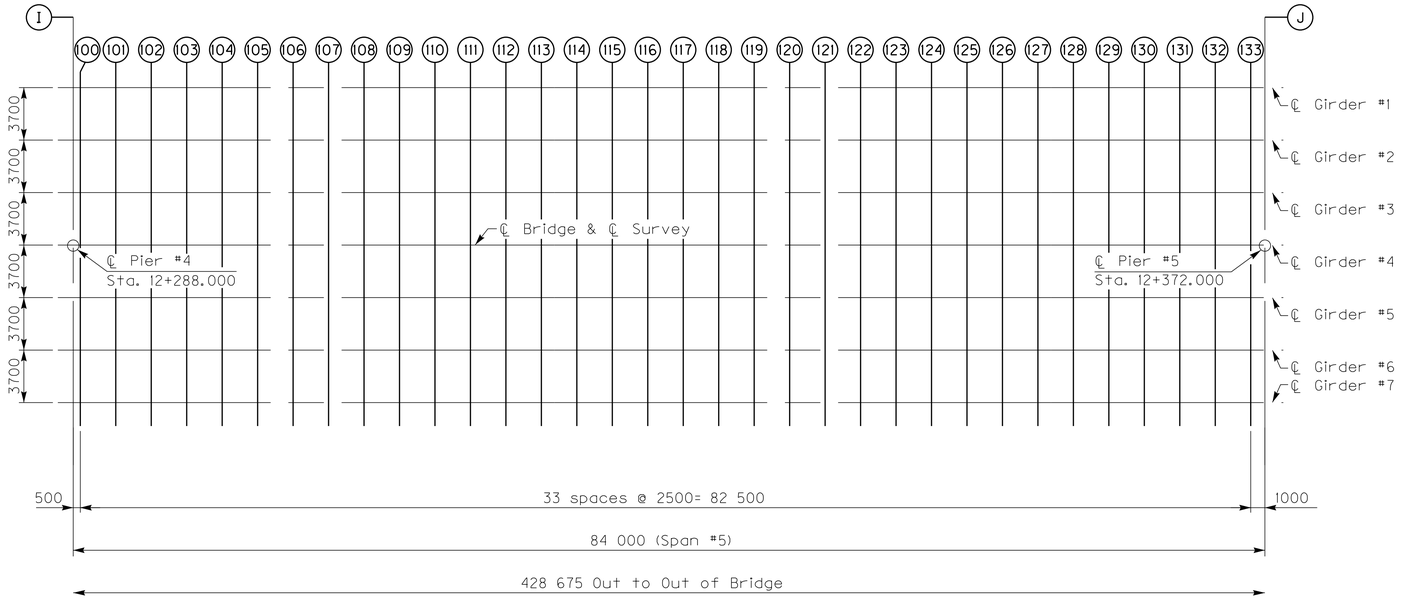
CONSTRUCTION ELEVATIONS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 53

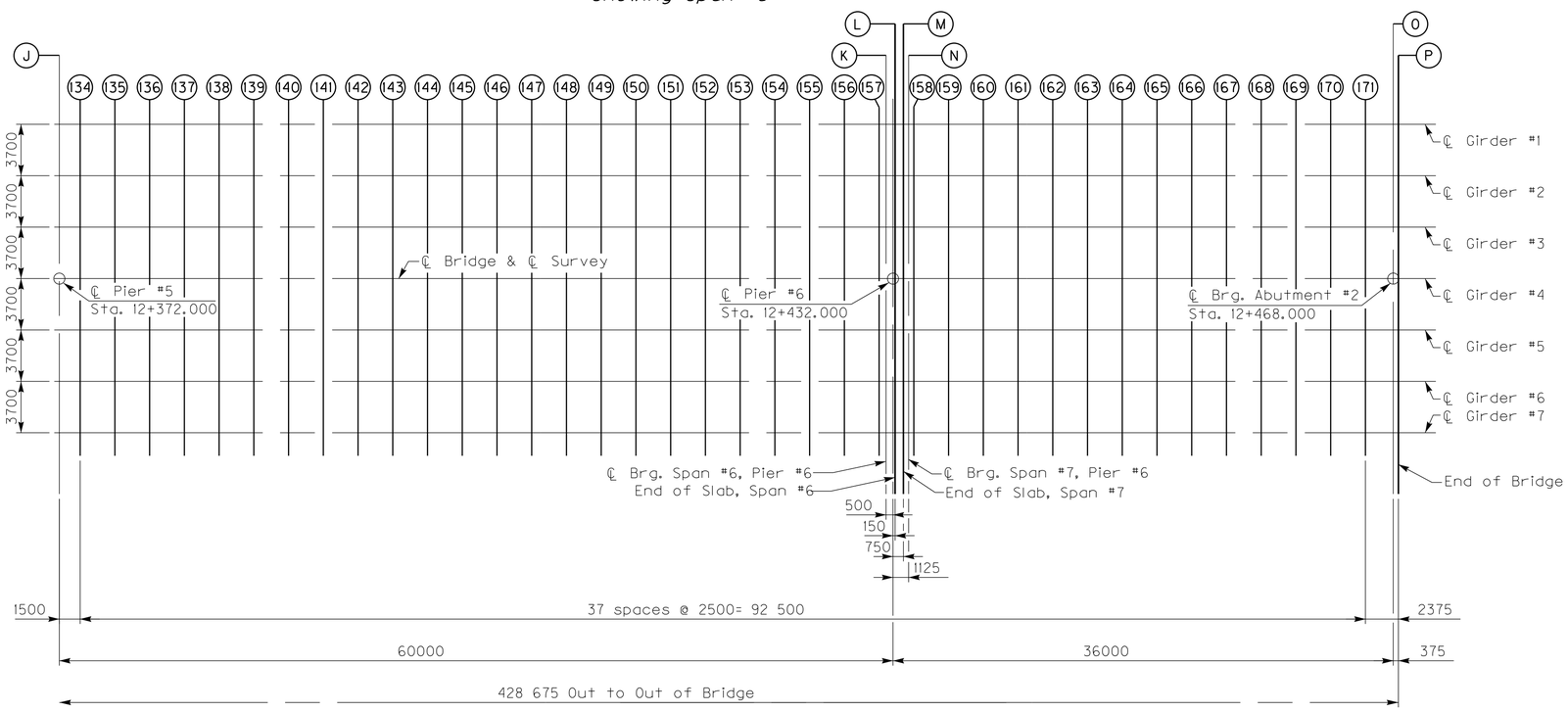
DRAWING NO. 23692

DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: E1



GRID LAYOUT

~Showing Span #5~



GRID LAYOUT

~Showing Spans #6 & #7~

REVISION	DATE
DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

CONSTRUCTION ELEVATIONS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 54

DRAWING NO. **23692**

DATE: 07-DEC-2011
USERNAME: gary.newton
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
SHEET LOCATION: E2

CONSTRUCTION ELEVATIONS

LOCATION	GIRDER 1			GIRDER 2			GIRDER 3			GIRDER 4			GIRDER 5			GIRDER 6			GIRDER 7		
	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"
SKEW LN AA TOP	259.200			259.274			259.348			259.422			259.348			259.274			259.200		
SKEW LN BB TOP	259.195			259.269			259.343			259.417			259.343			259.269			259.195		
SKEW LN CC TOP	258.833			258.907			258.981			259.055			258.981			258.907			258.833		
SKEW LN DD TOP	258.826			258.900			258.974			259.048			258.974			258.900			258.826		
SKEW LN EE TOP	258.815			258.889			258.963			259.037			258.963			258.889			258.815		
SKEW LN FF TOP	258.802			258.876			258.950			259.024			258.950			258.876			258.802		
SKEW LN GG TOP	257.663			257.737			257.811			257.885			257.811			257.737			257.663		
SKEW LN HH TOP	256.054			256.128			256.202			256.276			256.202			256.128			256.054		
SKEW LN II TOP	254.445			254.519			254.593			254.667			254.593			254.519			254.445		
SKEW LN JJ TOP	252.836			252.910			252.984			253.058			252.984			252.910			252.836		
SKEW LN KK TOP	251.697			251.771			251.845			251.919			251.845			251.771			251.697		
SKEW LN LL TOP	251.684			251.758			251.832			251.906			251.832			251.758			251.684		
SKEW LN MM TOP	251.673			251.747			251.821			251.895			251.821			251.747			251.673		
SKEW LN NN TOP	251.665			251.739			251.813			251.887			251.813			251.739			251.665		
SKEW LN OO TOP	250.997			251.071			251.145			251.219			251.145			251.071			250.997		
SKEW LN PP TOP	250.990			251.064			251.138			251.212			251.138			251.064			250.990		
GRID LN 1 TOP	259.178			259.252			259.326			259.400			259.326			259.252			259.178		
GRID LN 2 TOP	259.135			259.209			259.283			259.357			259.283			259.209			259.135		
GRID LN 3 TOP	259.091			259.165			259.239			259.313			259.239			259.165			259.091		
GRID LN 4 TOP	259.045			259.119			259.193			259.267			259.193			259.119			259.045		
GRID LN 5 TOP	258.996			259.070			259.144			259.218			259.144			259.070			258.996		
GRID LN 6 TOP	258.946			259.020			259.094			259.168			259.094			259.020			258.946		
GRID LN 7 TOP	258.894			258.968			259.042			259.116			259.042			258.968			258.894		
GRID LN 8 TOP	258.841			258.915			258.989			259.063			258.989			258.915			258.841		
GRID LN 9 TOP	258.796			258.870			258.944			259.018			258.944			258.870			258.796		
GRID LN 10 TOP	258.763			258.837			258.911			258.985			258.911			258.837			258.763		
GRID LN 11 TOP	258.729			258.803			258.877			258.951			258.877			258.803			258.729		
GRID LN 12 TOP	258.693			258.767			258.841			258.915			258.841			258.767			258.693		
GRID LN 13 TOP	258.656			258.730			258.804			258.878			258.804			258.730			258.656		
GRID LN 14 TOP	258.616			258.690			258.764			258.838			258.764			258.690			258.616		
GRID LN 15 TOP	258.575			258.649			258.723			258.797			258.723			258.649			258.575		
GRID LN 16 TOP	258.532			258.606			258.680			258.754			258.680			258.606			258.532		
GRID LN 17 TOP	258.486			258.560			258.634			258.708			258.634			258.560			258.486		
GRID LN 18 TOP	258.439			258.513			258.587			258.661			258.587			258.513			258.439		
GRID LN 19 TOP	258.389			258.463			258.537			258.611			258.537			258.463			258.389		
GRID LN 20 TOP	258.337			258.411			258.485			258.559			258.485			258.411			258.337		
GRID LN 21 TOP	258.284			258.358			258.432			258.506			258.432			258.358			258.284		
GRID LN 22 TOP	258.229			258.303			258.377			258.451			258.377			258.303			258.229		
GRID LN 23 TOP	258.173			258.247			258.321			258.395			258.321			258.247			258.173		
GRID LN 24 TOP	258.115			258.189			258.263			258.337			258.263			258.189			258.115		
GRID LN 25 TOP	258.058			258.132			258.206			258.280			258.206			258.132			258.058		
GRID LN 26 TOP	258.003			258.077			258.151			258.225			258.151			258.077			258.003		
GRID LN 27 TOP	257.947			258.021			258.095			258.169			258.095			258.021			257.947		
GRID LN 28 TOP	257.892			257.966			258.040			258.114			258.040			257.966			257.892		
GRID LN 29 TOP	257.838			257.912			257.986			258.060			257.986			257.912			257.838		
GRID LN 30 TOP	257.787			257.861			257.935			258.009			257.935			257.861			257.787		
GRID LN 31 TOP	257.737			257.811			257.885			257.959			257.885			257.811			257.737		
GRID LN 32 TOP	257.690			257.764			257.838			257.912			257.838			257.764			257.690		
GRID LN 33 TOP	257.645			257.719			257.793			257.867			257.793			257.719			257.645		
GRID LN 34 TOP	257.603			257.677			257.751			257.825			257.751			257.677			257.603		
GRID LN 35 TOP	257.563			257.637			257.711			257.785			257.711			257.637			257.563		
GRID LN 36 TOP	257.524			257.598			257.672			257.746			257.672			257.598			257.524		
GRID LN 37 TOP	257.487			257.561			257.635			257.709			257.635			257.561			257.487		
GRID LN 38 TOP	257.452			257.526			257.600			257.674			257.600			257.526			257.452		
GRID LN 39 TOP	257.418			257.492			257.566			257.640			257.566			257.492			257.418		
GRID LN 40 TOP	257.384			257.458			257.532			257.606			257.532			257.458			257.384		
GRID LN 41 TOP	257.351			257.425			257.499			257.573			257.499			257.425			257.351		
GRID LN 42 TOP	257.318			257.392			257.466			257.540			257.466			257.392			257.318		
GRID LN 43 TOP	257.285			257.359			257.433			257.507			257.433			257.359			257.285		
GRID LN 44 TOP	257.249			257.323			257.397			257.471			257.397			257.323			257.249		
GRID LN 45 TOP	257.211			257.285			257.359			257.433			257.359			257.285			257.211		
GRID LN 46 TOP	257.172			257.246			257.320			257.394			257.320			257.246			257.172		
GRID LN 47 TOP	257.129			257.203			257.277			257.351			257.277			257.203			257.129		
GRID LN 48 TOP	257.086			257.160			257.234			257.308			257.234			257.160			257.086		
GRID LN 49 TOP	257.039			257.113			257.187			257.261			257.187			257.113			257.039		
GRID LN 50 TOP	256.989			257.063			257.137			257.211			257.137			257.063			256.989		
GRID LN 51 TOP	256.939			257.013			257.087			257.161			257.087			257.013			256.939		
GRID LN 52 TOP	256.885			256.959			257.033			257.107			257.033			256.959			256.885		
GRID LN 53 TOP	256.829			256.903			256.977			257.051			256.977			256.903			256.829		
GRID LN 54 TOP	256.770			256.844			256.918			256.992			256.918			256.844			256.770		
GRID LN 55 TOP	256.710			256.784			256.858			256.932			256.858			256.784			256.710		
GRID LN 56 TOP	256.649			256.723			256.797			256.871			256.797			256.723			256.649		
GRID LN 57 TOP	256.587			256.661			256.735			256.809			256.735			256.661			256.587		
GRID LN 58 TOP	256.524			256.598			256.672			256.746			256.672			256.598			256.524		
GRID LN 59 TOP	256.462			256.536			256.610			256.684			256.610			256.536			256.462		
GRID LN 60 TOP	256.401			256.475			256.549			256.623			256.549			256.475			256.401		
GRID LN 61 TOP	256.340			256.414			256.488			256.562			256.488			256.414			256.340		
GRID LN 62 TOP	256.281			256.355			256.429			256.503			256.429			256.355			256.281		
GRID LN 63 TOP	256.224			256.298			256.372			256.446			256.372			256.298			256.224		
GRID LN 64 TOP	256.169			256.243			256.317			256.391			256.317			256.243			256.169		
GRID LN 65 TOP	256.115			256.189			256.263			256.337			256.263			256.189			256.115		

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

CONSTRUCTION ELEVATIONS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 55

DRAWING NO. 23692

SHEET LOCATION: E3
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011

CONSTRUCTION ELEVATIONS

LOCATION	GIRDER 1			GIRDER 2			GIRDER 3			GIRDER 4			GIRDER 5			GIRDER 6			GIRDER 7		
	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"
GRID LN 66 TOP	256.064			256.138			256.212			256.286			256.212			256.138			256.064		
GRID LN 67 TOP	256.015			256.089			256.163			256.237			256.163			256.089			256.015		
GRID LN 68 TOP	255.969			256.043			256.117			256.191			256.117			256.043			255.969		
GRID LN 69 TOP	255.925			255.999			256.073			256.147			256.073			255.999			255.925		
GRID LN 70 TOP	255.882			255.956			256.030			256.104			256.030			255.956			255.882		
GRID LN 71 TOP	255.841			255.915			255.989			256.063			255.989			255.915			255.841		
GRID LN 72 TOP	255.802			255.876			255.950			256.024			255.950			255.876			255.802		
GRID LN 73 TOP	255.764			255.838			255.912			255.986			255.912			255.838			255.764		
GRID LN 74 TOP	255.728			255.802			255.876			255.950			255.876			255.802			255.728		
GRID LN 75 TOP	255.692			255.766			255.840			255.914			255.840			255.766			255.692		
GRID LN 76 TOP	255.657			255.731			255.805			255.879			255.805			255.731			255.657		
GRID LN 77 TOP	255.620			255.694			255.768			255.842			255.768			255.694			255.620		
GRID LN 78 TOP	255.583			255.657			255.731			255.805			255.731			255.657			255.583		
GRID LN 79 TOP	255.544			255.618			255.692			255.766			255.692			255.618			255.544		
GRID LN 80 TOP	255.503			255.577			255.651			255.725			255.651			255.577			255.503		
GRID LN 81 TOP	255.461			255.535			255.609			255.683			255.609			255.535			255.461		
GRID LN 82 TOP	255.416			255.490			255.564			255.638			255.564			255.490			255.416		
GRID LN 83 TOP	255.370			255.444			255.518			255.592			255.518			255.444			255.370		
GRID LN 84 TOP	255.320			255.394			255.468			255.542			255.468			255.394			255.320		
GRID LN 85 TOP	255.270			255.344			255.418			255.492			255.418			255.344			255.270		
GRID LN 86 TOP	255.216			255.290			255.364			255.438			255.364			255.290			255.216		
GRID LN 87 TOP	255.161			255.235			255.309			255.383			255.309			255.235			255.161		
GRID LN 88 TOP	255.104			255.178			255.252			255.326			255.252			255.178			255.104		
GRID LN 89 TOP	255.045			255.119			255.193			255.267			255.193			255.119			255.045		
GRID LN 90 TOP	254.986			255.060			255.134			255.208			255.134			255.060			254.986		
GRID LN 91 TOP	254.926			255.000			255.074			255.148			255.074			255.000			254.926		
GRID LN 92 TOP	254.866			254.940			255.014			255.088			255.014			254.940			254.866		
GRID LN 93 TOP	254.807			254.881			254.955			255.029			254.955			254.881			254.807		
GRID LN 94 TOP	254.749			254.823			254.897			254.971			254.897			254.823			254.749		
GRID LN 95 TOP	254.692			254.766			254.840			254.914			254.840			254.766			254.692		
GRID LN 96 TOP	254.637			254.711			254.785			254.859			254.785			254.711			254.637		
GRID LN 97 TOP	254.584			254.658			254.732			254.806			254.732			254.658			254.584		
GRID LN 98 TOP	254.532			254.606			254.680			254.754			254.680			254.606			254.532		
GRID LN 99 TOP	254.483			254.557			254.631			254.705			254.631			254.557			254.483		
GRID LN 100 TOP	254.436			254.510			254.584			254.658			254.584			254.510			254.436		
GRID LN 101 TOP	254.391			254.465			254.539			254.613			254.539			254.465			254.391		
GRID LN 102 TOP	254.350			254.424			254.498			254.572			254.498			254.424			254.350		
GRID LN 103 TOP	254.309			254.383			254.457			254.531			254.457			254.383			254.309		
GRID LN 104 TOP	254.270			254.344			254.418			254.492			254.418			254.344			254.270		
GRID LN 105 TOP	254.233			254.307			254.381			254.455			254.381			254.307			254.233		
GRID LN 106 TOP	254.198			254.272			254.346			254.420			254.346			254.272			254.198		
GRID LN 107 TOP	254.164			254.238			254.312			254.386			254.312			254.238			254.164		
GRID LN 108 TOP	254.130			254.204			254.278			254.352			254.278			254.204			254.130		
GRID LN 109 TOP	254.097			254.171			254.245			254.319			254.245			254.171			254.097		
GRID LN 110 TOP	254.064			254.138			254.212			254.286			254.212			254.138			254.064		
GRID LN 111 TOP	254.029			254.103			254.177			254.251			254.177			254.103			254.029		
GRID LN 112 TOP	253.993			254.067			254.141			254.215			254.141			254.067			253.993		
GRID LN 113 TOP	253.956			254.030			254.104			254.178			254.104			254.030			253.956		
GRID LN 114 TOP	253.916			253.990			254.064			254.138			254.064			253.990			253.916		
GRID LN 115 TOP	253.874			253.948			254.022			254.096			254.022			253.948			253.874		
GRID LN 116 TOP	253.829			253.903			253.977			254.051			253.977			253.903			253.829		
GRID LN 117 TOP	253.783			253.857			253.931			254.005			253.931			253.857			253.783		
GRID LN 118 TOP	253.734			253.808			253.882			253.956			253.882			253.808			253.734		
GRID LN 119 TOP	253.682			253.756			253.830			253.904			253.830			253.756			253.682		
GRID LN 120 TOP	253.629			253.703			253.777			253.851			253.777			253.703			253.629		
GRID LN 121 TOP	253.572			253.646			253.720			253.794			253.720			253.646			253.572		
GRID LN 122 TOP	253.514			253.588			253.662			253.736			253.662			253.588			253.514		
GRID LN 123 TOP	253.454			253.528			253.602			253.676			253.602			253.528			253.454		
GRID LN 124 TOP	253.392			253.466			253.540			253.614			253.540			253.466			253.392		
GRID LN 125 TOP	253.329			253.403			253.477			253.551			253.477			253.403			253.329		
GRID LN 126 TOP	253.266			253.340			253.414			253.488			253.414			253.340			253.266		
GRID LN 127 TOP	253.205			253.279			253.353			253.427			253.353			253.279			253.205		
GRID LN 128 TOP	253.143			253.217			253.291			253.365			253.291			253.217			253.143		
GRID LN 129 TOP	253.082			253.156			253.230			253.304			253.230			253.156			253.082		
GRID LN 130 TOP	253.023			253.097			253.171			253.245			253.171			253.097			253.023		
GRID LN 131 TOP	252.966			253.040			253.114			253.188			253.114			253.040			252.966		
GRID LN 132 TOP	252.910			252.984			253.058			253.132			253.058			252.984			252.910		
GRID LN 133 TOP	252.857			252.931			253.005			253.079			253.005			252.931			252.857		
GRID LN 134 TOP	252.806			252.880			252.954			253.028			252.954			252.880			252.806		
GRID LN 135 TOP	252.758			252.832			252.906			252.980			252.906			252.832			252.758		
GRID LN 136 TOP	252.712			252.786			252.860			252.934			252.860			252.786			252.712		
GRID LN 137 TOP	252.667			252.741			252.815			252.889			252.815			252.741			252.667		
GRID LN 138 TOP	252.619			252.693			252.767			252.841			252.767			252.693			252.619		
GRID LN 139 TOP	252.581			252.655			252.729			252.803			252.729			252.655			252.581		
GRID LN 140 TOP	252.544			252.618			252.692			252.766			252.692			252.618			252.544		
GRID LN 141 TOP	252.504			252.578			252.652			252.726			252.652			252.578			252.504		
GRID LN 142 TOP	252.465			252.539			252.613			252.687			252.613			252.539			252.465		
GRID LN 143 TOP	252.427			252.501			252.575			252.649			252.575			252.501			252.427		
GRID LN 144 TOP	252.388			252.462			252.536			252.610			252.536			252.462			252.388		
GRID LN 145 TOP	252.347			252.421			252.495			252.569			252.495			252.421			252.347		
GRID LN 146 TOP	252.304			252.378			252.452			252.526			252.452			252.378			252.304		

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

CONSTRUCTION ELEVATIONS

PREPARED BY
Division of Bridge Design
A. Frank Design Section

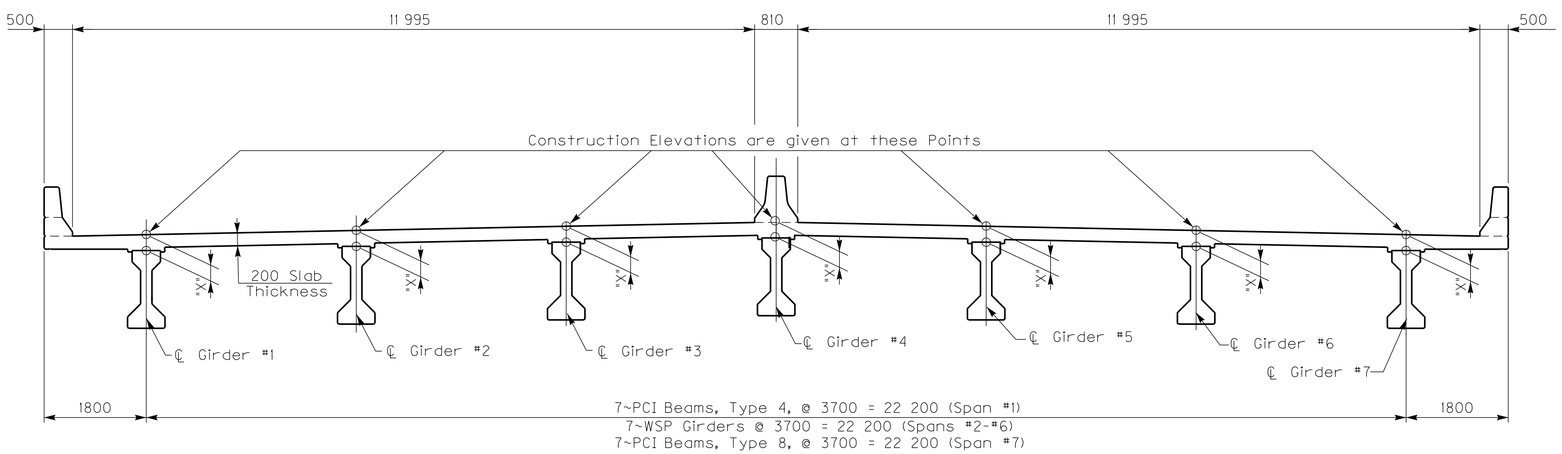
SHEET NO. 56

DRAWING NO. **23692**

SHEET LOCATION: E4
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn
USERNAME: gary.newton
DATE: 07-DEC-2011

CONSTRUCTION ELEVATIONS

LOCATION	GIRDER 1			GIRDER 2			GIRDER 3			GIRDER 4			GIRDER 5			GIRDER 6			GIRDER 7		
	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"	CONSTR. ELEV.	TOP OF BEAM	DIM. "X"
GRID LN 147 TOP	252.260			252.334			252.408			252.482			252.408			252.334			252.260		
GRID LN 148 TOP	252.214			252.288			252.362			252.436			252.362			252.288			252.214		
GRID LN 149 TOP	252.166			252.240			252.314			252.388			252.314			252.240			252.166		
GRID LN 150 TOP	252.116			252.190			252.264			252.338			252.264			252.190			252.116		
GRID LN 151 TOP	252.063			252.137			252.211			252.285			252.211			252.137			252.063		
GRID LN 152 TOP	252.009			252.083			252.157			252.231			252.157			252.083			252.009		
GRID LN 153 TOP	251.951			252.025			252.099			252.173			252.099			252.025			251.951		
GRID LN 154 TOP	251.892			251.966			252.040			252.114			252.040			251.966			251.892		
GRID LN 155 TOP	251.834			251.908			251.982			252.056			251.982			251.908			251.834		
GRID LN 156 TOP	251.772			251.846			251.920			251.994			251.920			251.846			251.772		
GRID LN 157 TOP	251.709			251.783			251.857			251.931			251.857			251.783			251.709		
GRID LN 158 TOP	251.660			251.734			251.808			251.882			251.808			251.734			251.660		
GRID LN 159 TOP	251.622			251.696			251.770			251.844			251.770			251.696			251.622		
GRID LN 160 TOP	251.584			251.658			251.732			251.806			251.732			251.658			251.584		
GRID LN 161 TOP	251.546			251.620			251.694			251.768			251.694			251.620			251.546		
GRID LN 162 TOP	251.505			251.579			251.653			251.727			251.653			251.579			251.505		
GRID LN 163 TOP	251.462			251.536			251.610			251.684			251.610			251.536			251.462		
GRID LN 164 TOP	251.417			251.491			251.565			251.639			251.565			251.491			251.417		
GRID LN 165 TOP	251.370			251.444			251.518			251.592			251.518			251.444			251.370		
GRID LN 166 TOP	251.321			251.395			251.469			251.543			251.469			251.395			251.321		
GRID LN 167 TOP	251.269			251.343			251.417			251.491			251.417			251.343			251.269		
GRID LN 168 TOP	251.215			251.289			251.363			251.437			251.363			251.289			251.215		
GRID LN 169 TOP	251.160			251.234			251.308			251.382			251.308			251.234			251.160		
GRID LN 170 TOP	251.103			251.177			251.251			251.325			251.251			251.177			251.103		
GRID LN 171 TOP	251.045			251.119			251.193			251.267			251.193			251.119			251.045		



TYPICAL SECTION

NOTES FOR ELEVATIONS TAKEN ON BEAMS

Take elevations on top of beam at points indicated by the grid layout. The beam elevations are to be read to three decimals, and entered in tables under "Top of Beam" elevations.

Compute dimension "X" as follows: "Construction Elevation" minus "Top of Beam" elevation equals dimension "X". Construction Elevations include camber due to weight of concrete slab and barrier. Measuring of dimension "X" gives the final check on beam tolerances for camber, beam damage, and errors in erection that produce reverse cambers, sags and unsightly fascia beams.

For setting templates, measure dimension "X" above top of beams for top of template. Do not set template by elevations.

Temporary supports or shoring will not be permitted under the girders when pouring the concrete floor slab or when taking "Top of Beam" elevations.

Construct barrier to roadway grade. Do not add camber to barrier.

REVISION	DATE

DATE: Nov. 1998	CHECKED BY
DESIGNED BY: A. Frank	E. Praprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

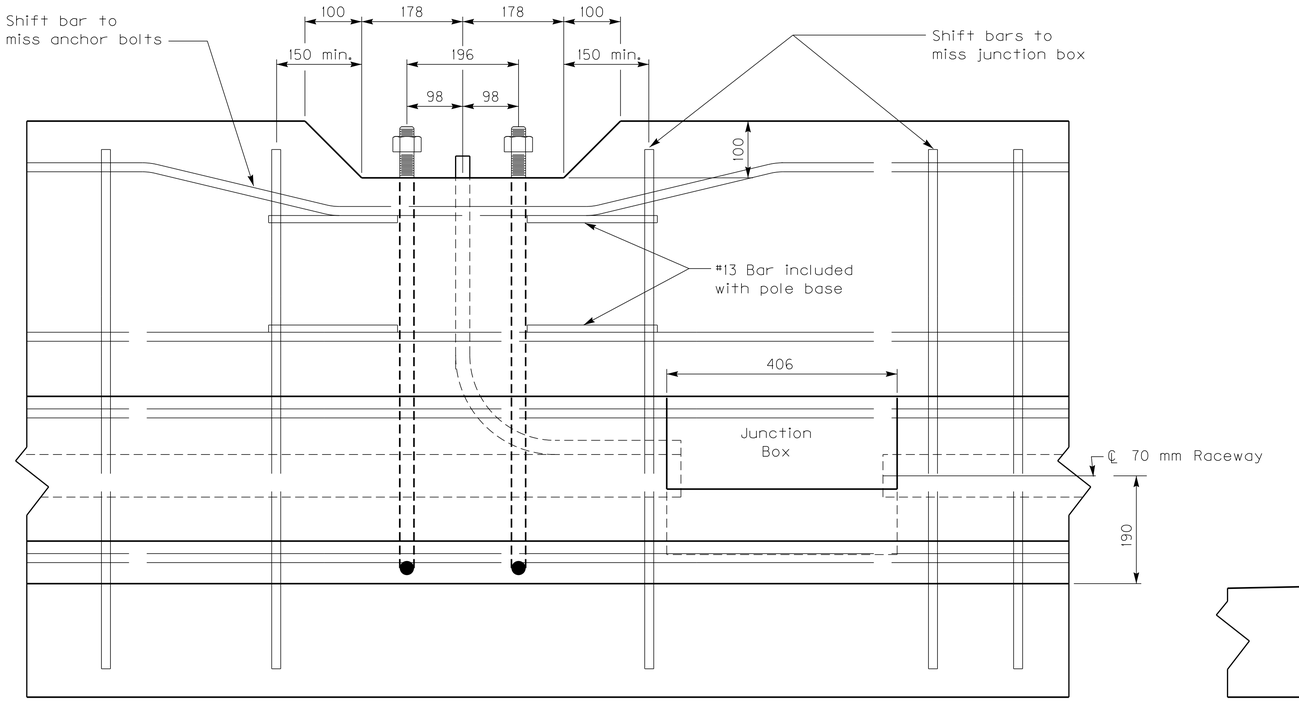
ROUTE	CROSSING
US 27	CUMBERLAND RIVER

CONSTRUCTION ELEVATIONS

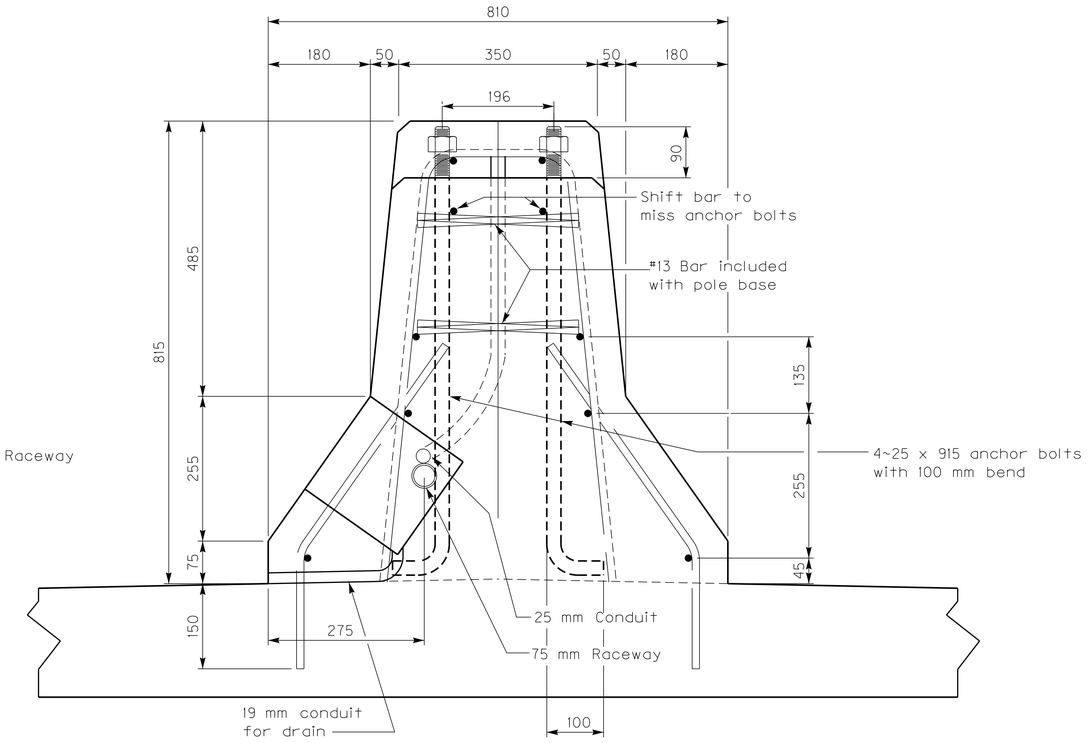
PREPARED BY
Division of Bridge Design
A. Frank Design Section

SHEET NO. 57
DRAWING NO. 23692

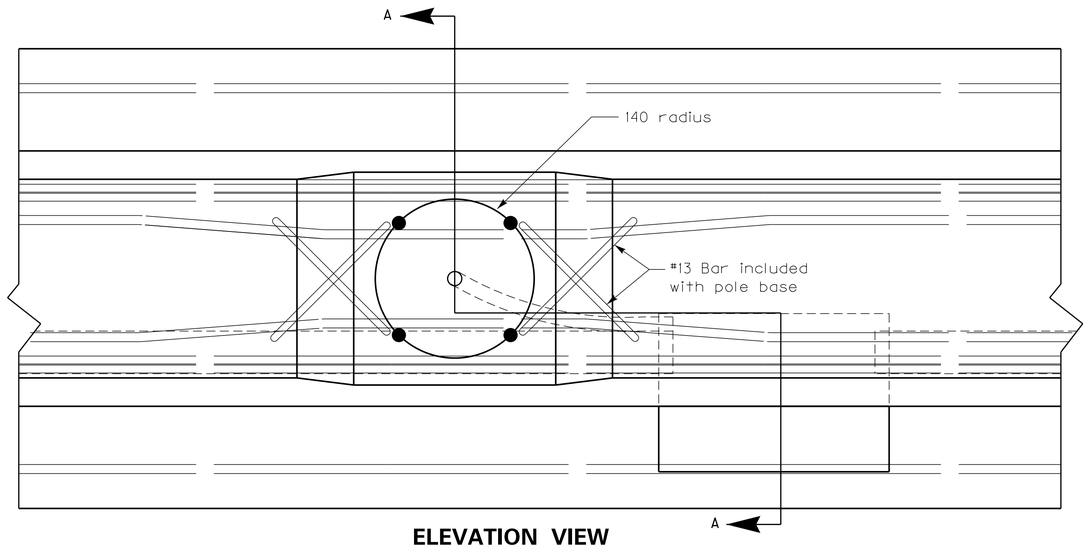
SHEET LOCATION: E5 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011



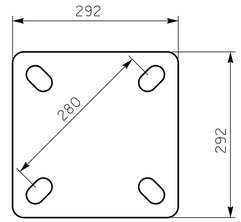
PLAN VIEW



SECTION A–A



ELEVATION VIEW



BASE PLATE DETAIL

NOTE:
Poles are to be installed on median barrier at Stations 12+049.0, 12+120.0, 12+124.0, 12+288.0, 12+372.0 & 12+456.0. The Contractor shall install them as indicated by this sheet.
All materials, labor and incidentals, with exception of the 75 mm raceway, shall be incidental to the bid item "Pole Base".

The Contractor shall provide and install sleeve type expansion devices capable of sustaining +80/-300 movement in the 75 mm raceway at the expanson joints.
The cost of these devices shall be incidental to the 75 mm raceway.

All conduit to be rigid steel.

REVISION	DATE

DATE: Oct. 1998	CHECKED BY
DESIGNED BY: A. Frank	EJ Proprost
DETAILED BY: J.L. Flood	A. Frank

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

LIGHTING DETAILS

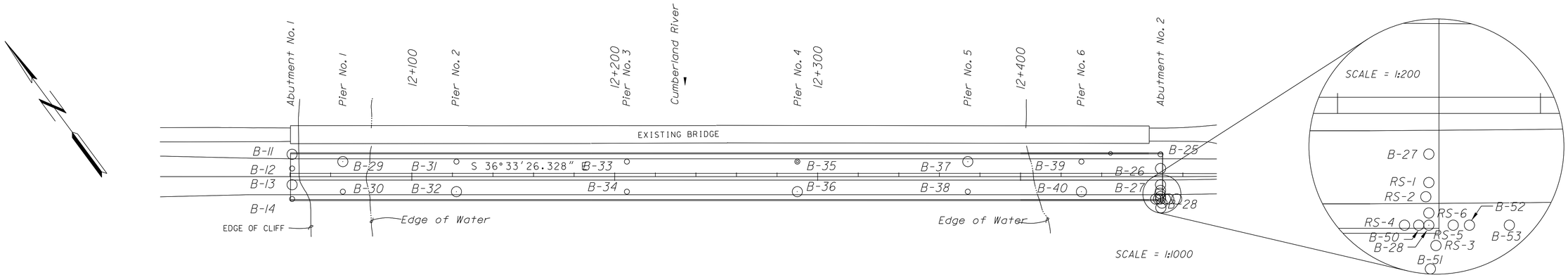
PREPARED BY
Division of Bridge Design
A. Frank Design Section

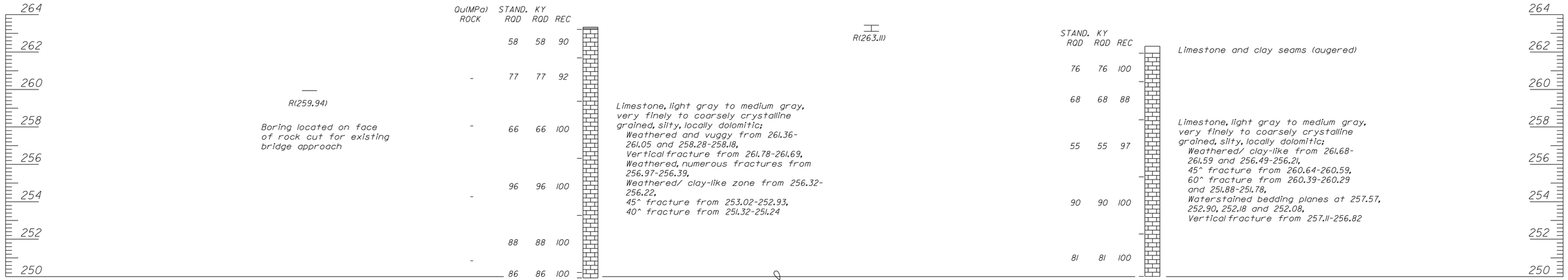
SHEET NO. 58

DRAWING NO. 23692

SHEET LOCATION: C1
FILE NAME: D:\bridges\PROJECTS\23692\23692_dgn USERNAME: gary.newton
DATE: 07-DEC-2011

SUBSURFACE DATA





STATE PLANE COORDINATES FOR 7-SPAN ALTERNATE					
BORING	STATION	OFFSET		NORTHING	EASTING
B-11	12+041.00	11.00	Lt.	74256.92	711282.10
B-12	12+041.00	4.00	Lt.	74252.75	711276.47
B-13	12+041.00	4.00	Rt.	74247.99	711270.05
B-14	12+041.00	11.00	Rt.	74243.82	711264.43
B-25	12+469.00	11.00	Lt.	73913.13	711537.03
B-26	12+469.00	4.00	Lt.	73908.96	711531.40
B-27	12+469.00	4.00	Rt.	73904.19	711524.98
B-28	12+469.00	11.00	Rt.	73900.02	711519.35
B-29	12+066.00	7.40	Lt.	74234.70	711294.10
B-30	12+066.00	7.40	Rt.	74225.88	711282.21
B-31	12+122.17	6.95	Lt.	74189.31	711327.19
B-32	12+122.95	6.55	Rt.	74180.65	711316.81
B-33	12+206.15	7.38	Lt.	74122.10	711377.56
B-34	12+206.23	7.09	Rt.	74113.43	711365.98
B-35	12+290.31	7.52	Lt.	74054.59	711427.80
B-36	12+290.37	7.24	Rt.	74045.75	711415.97
B-37	12+373.07	6.88	Lt.	73987.73	711476.58
B-38	12+373.04	6.72	Rt.	73979.65	711465.64
B-39	12+430.00	7.40	Lt.	73942.31	711510.90
B-40	12+430.00	7.40	Rt.	73933.49	711499.02

STATE PLANE COORDINATES FOR CONCRETE ALTERNATE					
BORING	STATION	OFFSET		NORTHING	EASTING
RS-1	12+469.00	6.80	Rt.	73902.52	711522.73
RS-2	12+468.70	8.20	Rt.	73901.93	711521.43
RS-3	12+469.70	13.00	Rt.	73898.27	711518.17
RS-4	12+466.60	11.00	Rt.	73901.95	711517.93
RS-5	12+471.40	11.00	Rt.	73898.09	711520.79
RS-6	12+469.00	9.80	Rt.	73900.73	711520.32
B-50	12+468.00	11.00	Rt.	73900.83	711518.76
B-51	12+469.00	15.00	Rt.	73897.64	711516.14
B-52	12+473.00	11.00	Rt.	73896.81	711521.74
B-53	12+477.00	11.00	Rt.	73893.60	711524.10

NOTES:

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2. All measurements are presented in SI Metric Units.
3. Silt thicknesses provided for lake borings are approximate, and may vary significantly at the time of construction.

SCALE 1:100
(VERTICAL ONLY)

REVISION	DATE

DATE:	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE
US 27

CROSSING
CUMBERLAND RIVER

SOUNDING LAYOUT

PREPARED BY
Fuller, Mossbarger, Scott & May

SHEET NO.
59

DRAWING NO.
23692

SR354\CUMBERLAND\PLDSCL.DWG

DATE: 07-DEC-2011
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton
SHEET LOCATION: BC1

SUBSURFACE DATA

Pier No. 1

B-29
Hole No.
Location 12+066.00
Offset 7.40 m Lt.
Elev. 232.47

Qu(MPa) ROCK	STAND. ROD	KY ROD	REC
	9	9	30
	28	28	82
	82	82	97
69.45			
	97	97	100
	4.80MPa•		
	226.0		
52.48			
	96	96	100
	100	100	100
26.45			
	100	100	100
41.84			
	100	100	100
66.19			
	100	100	100
31.19			

Overburden

Limestone boulders/slabs

Limestone, light gray to medium gray, finely to coarsely crystalline grained, dolomitic, locally argillaceous, some chert nodules.
Diagonal fracture (45^), water stained from 229.08-229.03,
Weathered/clay-like zone from 228.50-228.46

Limestone (Siltstone), dark gray.

Limestone, medium gray to dark gray, argillaceous to silty.

Top of Rock 229.81
Base of Weathered Rock 229.56

• Allowable bearing capacity for spread footings only. Refer to Geotechnical Report for recommendations regarding spread footings and drilled shafts.

B-30
Hole No.
Location 12+065.50
Offset 7.40 m Rt.
Elev. 230.33

STAND. ROD	KY ROD	REC
0	0	100
67	67	100
63	63	98
4.80MPa•		
226.0		
100	100	100
97	97	97
99	99	100
100	100	100
100	100	100

Overburden
Limestone boulders

Limestone, light gray to dark gray, micro to coarsely crystalline grained, dolomitic, locally argillaceous, thickly bedded
Weathered/clay-like from 226.88-226.77
Diagonal fracture (60^) from 226.65-226.52,
More argillaceous (silty, shaley) below 217.78,
Quartz nodules present below 216.60

Top of Rock 229.16
Base of Weathered Rock 229.13

• Allowable bearing capacity for spread footings only. Refer to Geotechnical Report for recommendations regarding spread footings and drilled shafts.

Datum

Pier No. 2

B-31
Hole No.
Location 12+122.0
Offset 6.95 m Lt.
Elev. 210.37

STAND. ROD	KY ROD	REC
0	0	93
12	12	40
73	73	99
100	20	100
90	34	100
84	0	100
100	0	100
100	0	100

11/13/97

Water

Silt

Overburden

Shale (siltstone), light gray, thin to thickly bedded, locally detrital with occasional limestone beds, locally calcareous;
Weathered/ waterstained zones from 186.89-184.22, 183.90-183.75, and at 183.46, 183.00, 182.86 and 180.53,
Soft zones from 186.43-186.41 and 185.20-184.94

Shale, dark gray, silty, locally calcareous, thickly bedded

Top of Rock 186.89
Base of Weathered Rock 183.8

B-32
Hole No.
Location 12+122.94
Offset 6.55 m Rt.
Elev. 210.43

Qu(MPa) ROCK	STAND. ROD	KY ROD	D_{50} mm 0.070 REC
	0	0	60
	15	0	43
131.77			
	76	76	95
96.43			
	75	0	97
48.03			
	63	63	93
54.43			
	84	0	100
8.29			
	100	100	100
16.25			

11/17/97

Water

Silt

N=13 — A-4(2), CL, S+C=50(36+14)
N=78/0.16

Limestone, light to medium gray, fine to coarsely crystalline grained, occasional shale stringers and partings, thin bedded
Voids from 187.44-187.11 and 187.00-186.39;
Weathered/ waterstained from 185.45-185.35

Voids

SDI (JS)
99 (6)
99 (6)
88 (6)
95 (6)
98 (6)
96 (5)
94 (3)

Shale (siltstone), light to medium gray, thin to thick bedded;
Weathered/ waterstained at 184.81, 184.54, from 184.06-183.98, and 183.27-183.07, at 181.93 and from 181.72-181.53

Shale, medium gray, thin to thickly bedded;
Weathered/ waterstained from 181.30-181.02

Limestone, light to medium gray, thin to thick bedded, fine to medium grained, occasional shale stringers and partings

Shale, light to medium gray, fine grained, thick bedded, silty

Top of Rock 188.32
Base of Weathered Rock 185.27

Datum

NOTES:

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2. All measurements are presented in SI Metric Units.
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SCALE 1:100
(VERTICAL ONLY)

REVISION	DATE

DATE:	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE **US 27** | CROSSING **CUMBERLAND RIVER**

SOUNDING LAYOUT

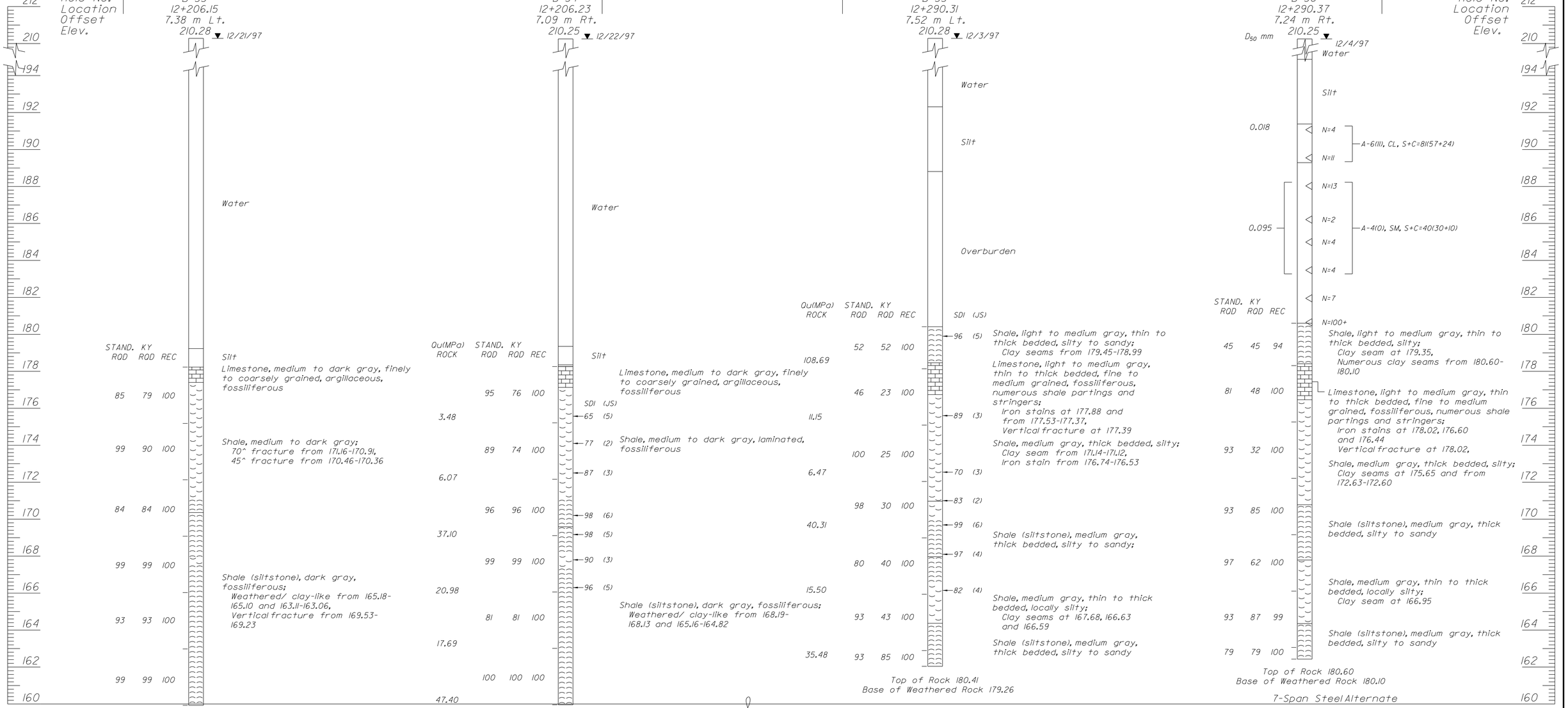
PREPARED BY
Fuller, Mossbarger, Scott & May

SHEET NO. 60
DRAWING NO. **23692**

SHEET LOCATION: BG2 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011

Pier No. 3

Pier No. 4



SUBSURFACE DATA

NOTES:

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SCALE 1:100
(VERTICAL ONLY)

REVISION	DATE

DATE:	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

SOUNDING LAYOUT

PREPARED BY
Fuller, Mossbarger, Scott & May

SHEET NO. 61

DRAWING NO. 23692

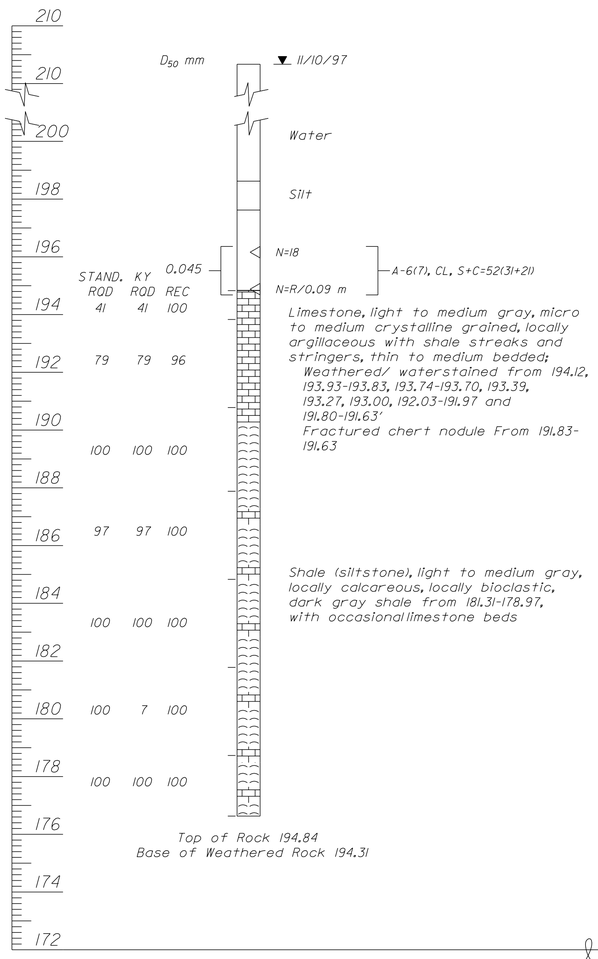
SHEET LOCATION: X1 FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton DATE: 07-DEC-2011

SUBSURFACE DATA

Pier No. 5

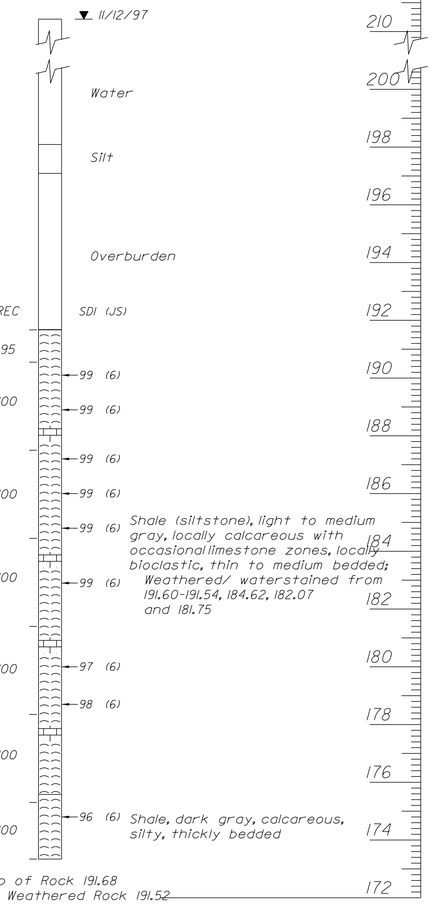
B-37

Hole No. B-37
Location 12+373.06
Offset 6.88 m Lt.
Elev. 210.67



B-38

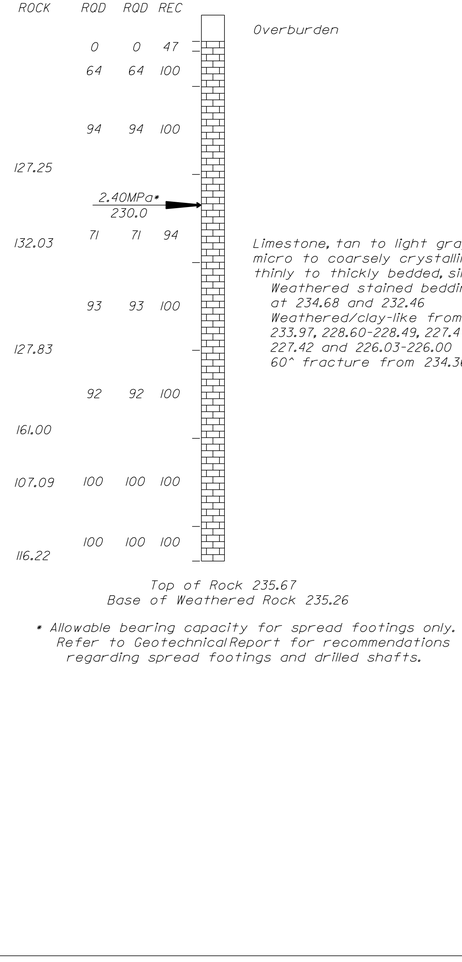
Hole No. B-38
Location 12+373.00
Offset 6.72 m Rt.
Elev. 210.43



Pier No. 6

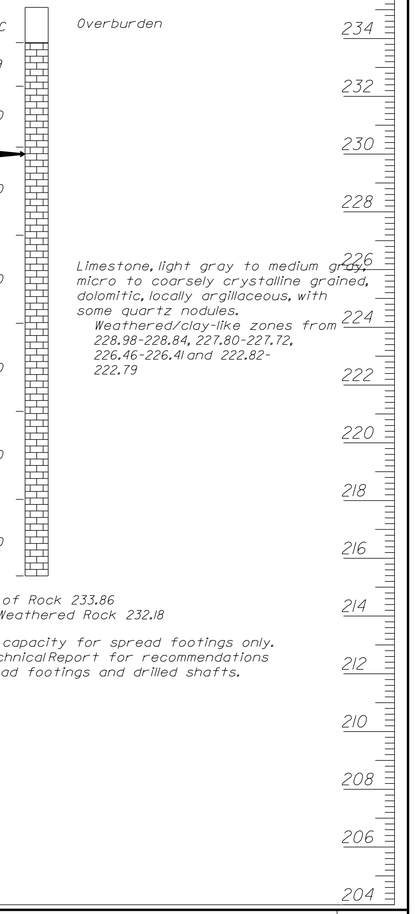
B-39

Hole No. B-39
Location 12+430.45
Offset 7.30 m Lt.
Elev. 236.58



B-40

Hole No. B-40
Location 12+430.10
Offset 7.70 m Rt.
Elev. 235.08



Datum

NOTES:

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SCALE 1:100
(VERTICAL ONLY)

REVISION	DATE

DATE:	CHECKED BY
DESIGNED BY:	
DETAILED BY:	

Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

SOUNDING LAYOUT

PREPARED BY
Fuller, Mossbarger, Scott & May

SHEET NO. 62
DRAWING NO. 23692

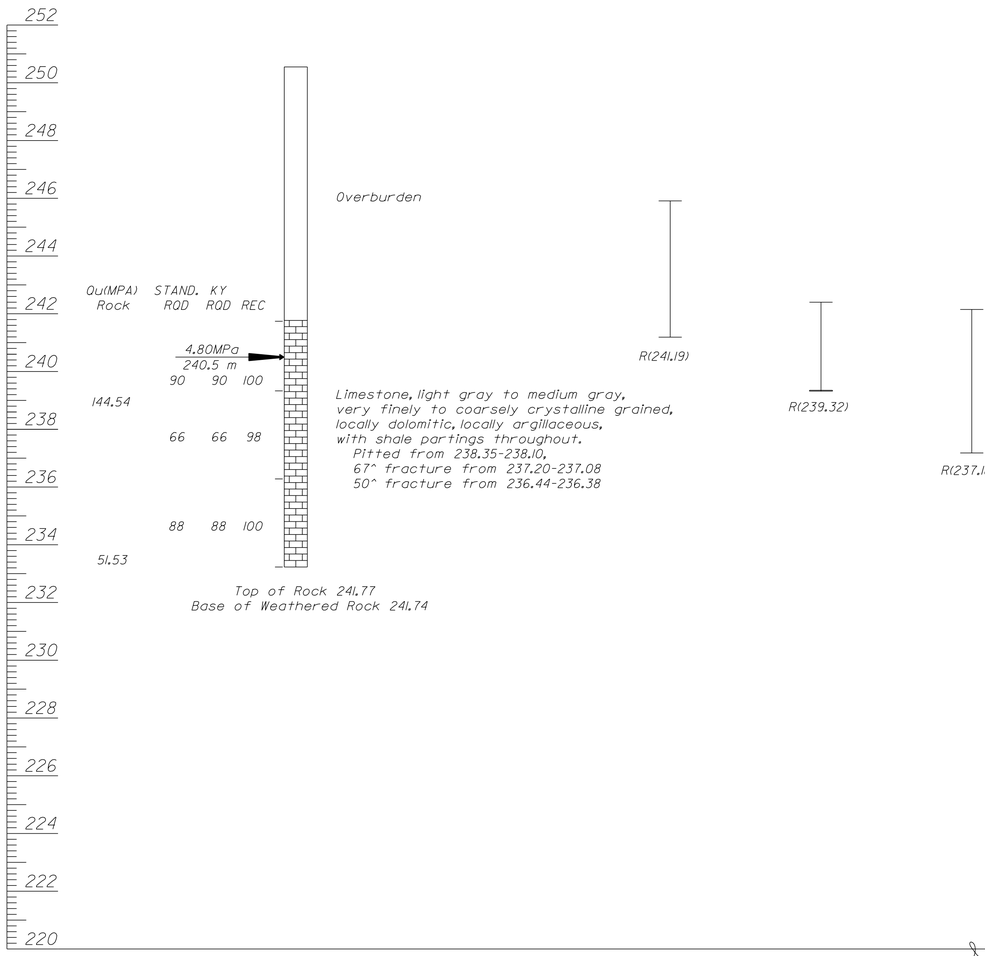
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton
DATE: 07-DEC-2011
SHEET LOCATION: X2

SUBSURFACE DATA

Abutment No. 2

Roadway Grade = 251.20

Hole No.	B-25	B-26	B-27	RS-1	RS-2	RS-6	RS-4	B-28	RS-5	RS-3
Location	12+469.30	12+469.00	12+469.00	12+469.00	12+468.70	12+469.00	12+466.60	12+469.00	12+471.40	12+469.70
Offset	11.90 m Lt.	4.00 m Lt.	4.00 m Rt.	6.80 m Rt.	8.20 m Rt.	9.80 m Rt.	11.00 m Rt.	11.00 m Rt.	11.00 m Rt.	13.00 m Rt.
Elev.	250.55	245.91	242.40	242.15	242.12	242.11	242.20	242.10	242.09	242.10



NOTES:

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SCALE 1:100
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REVISION	DATE

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Commonwealth of Kentucky
DEPARTMENT OF HIGHWAYS

COUNTY
PULASKI

ROUTE	CROSSING
US 27	CUMBERLAND RIVER

SOUNDING LAYOUT

PREPARED BY
Fuller, Mossbarger, Scott & May

SHEET NO. 63

DRAWING NO. **23692**

SHEET LOCATION: X3
FILE NAME: D:\bridges\PROJECTS\23692\23692.dgn USERNAME: gary.newton
DATE: 07-DEC-2011