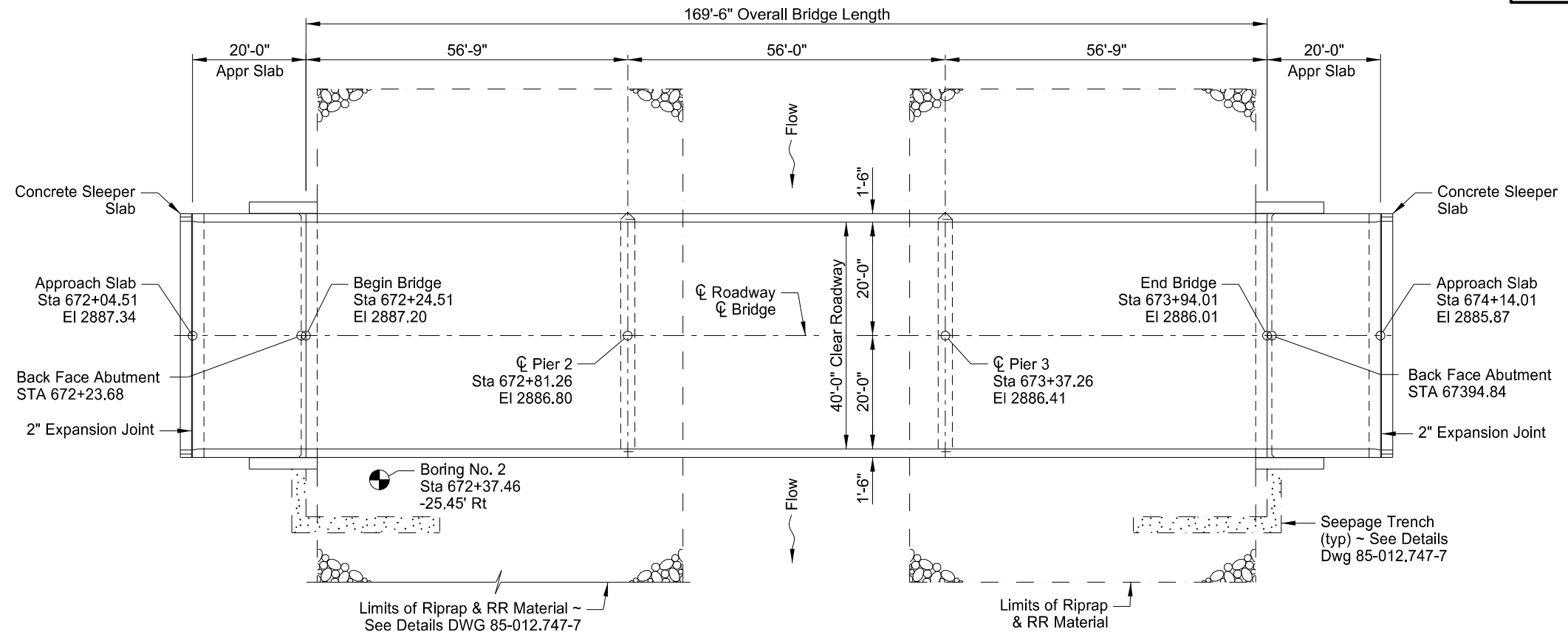


Boring No. 1
Sta 673+66.24
-75.05' Lt

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	1



PLAN

HYDRAULIC DATA:

Drainage Area	52.9	sq mi
Design Frequency	50	yr
Design Discharge	2,366.3	cfs
Design Stage (upstream)	2,879.79	ft
Stream Gradient	0.000902	ft/ft
Waterway Provided Below Design Stage	1,149.56	sq ft
Waterway Provided Below Clearance Elevation	1,734.68	sq ft
Average Velocity of Flow in Natural Channel	3.11	fps
Depth of Flow	10.28	ft
Velocity of Flow Under Bridge	2.06	fps
100-Year Frequency Discharge	2,923.3	cfs
100-Year Frequency Stage	2,880.37	ft
Overtopping Stage	2,886.01	ft
Overtopping Discharge	11,750	cfs

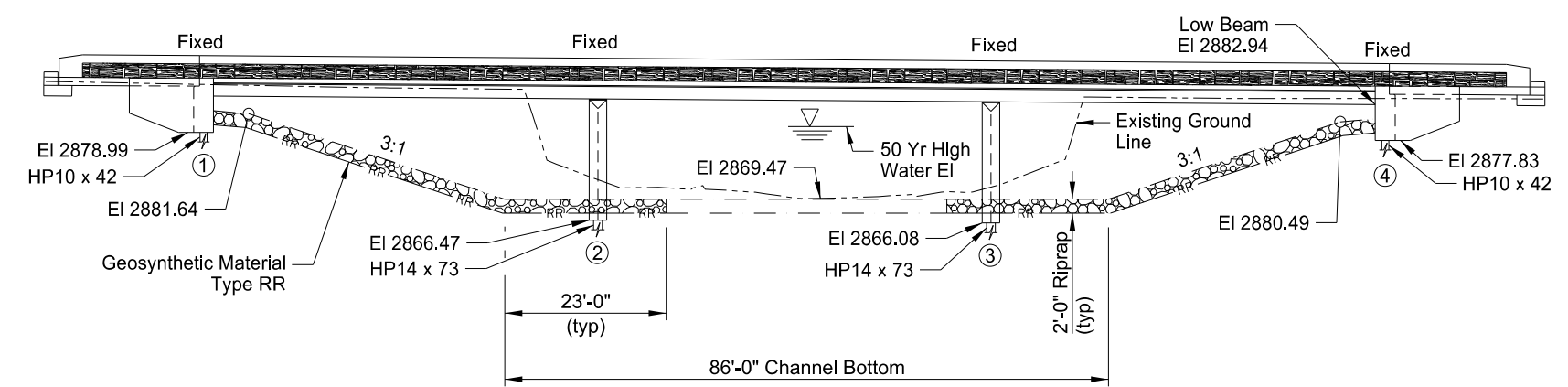
DESIGN STRENGTHS:

f'c = 4,000 psi ~ Bridge Substructure Concrete
 f'c = 4,000 psi ~ Bridge Deck Concrete
 f'c = 4,000 psi ~ Bridge Barrier Concrete
 f'c = 7,000 psi ~ Prestressed Beam Concrete
 fy = 60,000 psi ~ Reinforcing Steel

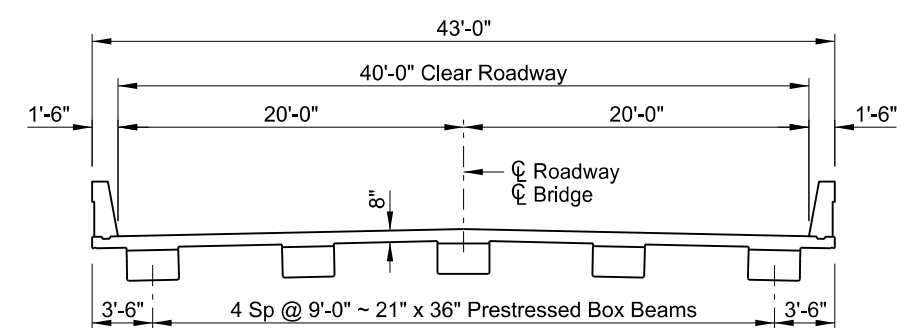
Load & Resistance Factor Design

SURVEY CONTROL POINTS

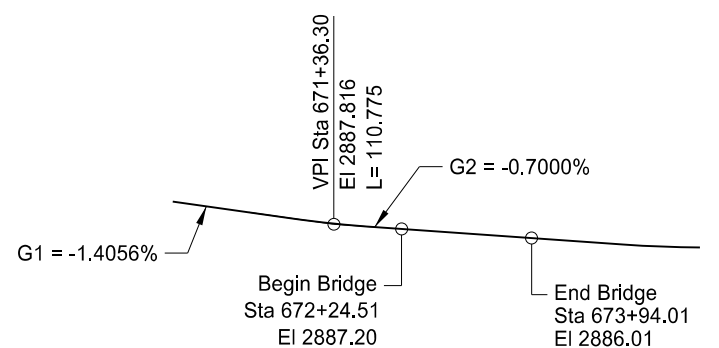
POINT	NORTHING	EASTING	ELEVATION
RTK 51772	180,817.250	1,230,787.235	2879.801
RTK 51773	180,863.897	1,230,606.643	2875.867



ELEVATION



TYPICAL SECTION



VERTICAL CURVE

This drawing is preliminary and not for construction or implementation purposes.

SPECIAL PROVISIONS

SSP 2	MIGRATORY BIRD TREATY ACT
49(25)	PILE DYNAMIC ANALYZER (PDA)
SP 56(25)	ARCHITECTURAL FORM LINER

STANDARD DRAWINGS

D-622-1, D-714-18, D-754-83, D-900-1

F.W.S. 15 PSF

HL-93 DESIGN LOADING

SPRING CREEK
4 SOUTH OF JCT US 12

BRIDGE LAYOUT

ND DEPARTMENT OF TRANSPORTATION
BRIDGE DIVISION

DRAWING NO.	85-012.747-1
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NOTES

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	2

- 100 SCOPE OF WORK: This project consists of building a new 3-span prestressed concrete box beam bridge with an overall bridge length of 169'-6" and a clear roadway width of 40'-0".
- 100 GENERAL: Include the cost of furnishing and placing preformed expansion joint filler, concrete inserts, rebar couplers, silicone sealant, waterproof membrane, and other miscellaneous items in the price bid for the appropriate concrete bid items.
- 202 REMOVAL OF STRUCTURE: The existing structure is a 3-span reinforced concrete slab bridge, 80'-0" long with a clear roadway width of 28'-0". The substructure consists of reinforced concrete abutments and piers, supported on timber piling. The structure has abandoned stream crest gauges attached to the south abutment and south pier.

 Remove the abutment concrete in its entirety. Remove the pier concrete to 1 foot below the bottom of rip rap elevation. Remove all timber piling at the abutments to 1'-0" below the bottom of the rip rap elevation. Explosives are not permitted.

 Install a below-deck containment system over the river to capture any falling deconstruction materials, debris, or slurry. Construct the system to capture debris or slurry and allow removal without releasing debris or slurry into the river.

 Remove all deconstruction materials or debris and capture all slurry generated in removal.

 Remove any deconstruction materials, debris, or material within 14 days that accidentally falls or escapes containment during construction or demolition.

 Large structural elements may be dropped and removed if the elements are large enough to be visible and remain intact after dropping. Remove these elements within 48 hours of dropping and dispose or stockpile in an upland area.

 Include all costs for the removals, including the abandoned stream gauges, and the containment system in the contract unit price for "Removal of Structure."
- 210 EXCAVATION: Include the excavation cost at the abutments, as shown in the "Detail at Abutment", in the lump sum bid item, "Class 1 Excavation." Include the excavation costs at the piers, as shown, in the lump sum bid item, "Class 2 Excavation."
- 210 CHANNEL EXCAVATION: Include all excavation required to shape the channel in the lump sum bid item "Channel Excavation." The extents of the channel excavation are detailed in Section 70 and the estimated quantities are provided in the Section 11 Earthwork Tables. Suitable material from channel excavation can be used in place of borrow for embankment construction, if approved by the Engineer. If the Contractor elects to use channel excavation material as embankment, include the costs for placing the embankment, in accordance with 203.04 G.1 & G.3, in the price bid for channel excavation. Excess material not used as embankment becomes property of the Contractor.

- 602 BRIDGE CONCRETE: Design a mix that meets Section 802 and will attain a minimum compressive strength of 4,000 psi at 28-days.

The Engineer will verify the mix design using materials that are to be used on the project. Supply samples of materials as specified in the table below. Provide additional materials upon request.

Material	Sample Size
Cement	100 lbs
SCM	35 lbs
Aggregate	1000 lbs
Admixtures	½ pint each

Deliver the samples and the mix design, including the test results, to the Materials and Research Division a minimum of 14 calendar days before placing concrete. Attach a tag to all samples identifying the Department's project number and the type of material. On the day the material is delivered, provide the Engineer with a copy of the mix design and test results, and notify the Engineer the samples have been delivered.

- 602 FALSEWORK: Brace the exterior beams to prevent rotation during deck placement. Design the strength of the bracing to resist the forces induced by the weight of the concrete, forms, equipment, and workers. Submit a bracing plan and design, stamped by a Professional Engineer, to the Engineer for review.
- 602 DIAPHRAGMS AND ENDWALLS: Place the pier diaphragm and endwall concrete at the same time as the deck concrete.
- 602 DECK PLACEMENT: Place the deck concrete at a minimum rate of 35 CY per hour.
- 602 FORM LINERS: Include the cost to provide and install the form liners in the price bid for the appropriate concrete bid items.
- 602 BARRIERS: Do not construct V-grooves through form liner areas.
- 602 WATER WASHING EQUIPMENT: In addition to the water-washing equipment listed in Section 602.02 D, a cold water pressure washer that provides a minimum nozzle pressure of 3,000 psi may be used.
- 602 PENETRATING WATER REPELLENT TREATMENT: Apply penetrating water repellent to the driving surface of the bridge deck and approach slabs prior to crack sealing. Do not allow traffic on the driving surfaces until the solution has completely penetrated and the entire driving surface is dry.

This document
is preliminary
and not for
construction or
implementation
purposes.

PRELIMINARY

NOTES

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	3

602 CRACK SEALING: After the penetrating water repellent has been applied and is dry, the Engineer will perform a visual inspection of the bridge deck and approach slabs to determine the need for crack sealing. Mark and repair all visible cracks on the top surface measuring 0.012" or greater in width at the widest segment or as directed by the Engineer.

Immediately before applying the sealer, clean the cracks by removing all dust and debris with compressed air. Seal the cracks with a two-part epoxy in accordance with the manufacturer's recommendations. Chase crack with the sealant application to the limits of the crack, including those portions that are narrower than 0.012" wide. Use Paulco TE-2501 (Viking Paints, Inc.), Dural 50 LM (Euclid Chemical Co.), TK-9000 or TK-2110 (TK Products), or an approved equal epoxy sealer.

Include all material, labor, and equipment required to crack seal the bridge deck and approach slabs in the price bid for Bridge Deck Concrete.

602 SPECIAL SURFACE FINISH: Clean the surfaces that are to receive the Tex-Cote surface finish using sandblasting, shot blasting, or water-washing equipment to remove all dirt, grease, oil, efflorescence, and laitance. Ensure any curing compounds and release agents have been completely removed from the surfaces to receive the Tex-Cote surface finish.

Apply Tex-Cote XL 70 Bridge Cote with Silane to the areas listed below. Apply the surface finish in accordance with the manufacturer's recommended application procedures to attain a dry film thickness of 15 mils. Do not apply Tex-Cote special surface finish to any form liner areas.

- All exposed substructure surfaces
- Outside edges of the bridge deck
- Underside of the bridge deck overhang
- Outside and bottom surfaces of the exterior beams
- Exposed endwall areas outside the exterior beams
- All bridge and approach slab barrier surfaces (except form liner areas)

Finish the surface with a uniform texture, color, and appearance free from fins, projections, cavities, and porous areas. Use a sand textured finish. Use gray surface finish color number 36424 meeting AMS-STD-595 for the inside and top surfaces of the bridge and approach slab barriers. Use a color matching the lightest shade of brown used in the Architectural Surface Finish, as it looks applied to the barrier form liner areas, for all other surfaces. Submit to the Engineer a 1' x 1' sample of the brown surface finish.

Include all special surface finish costs in the price bid for the appropriate concrete bid items.

602 WEATHER LIMITATIONS: All requests in accordance with 602.04 C.4 "Weather Limitations" require approval from the NDDOT Bridge Division.

602 REMOVAL OF FORMS: Leave deck slab forms in place for a minimum of 1 day after completion of curing period and the bridge deck concrete has reached 70 percent of the required design strength.

604 PRESTRESSED BEAMS: Set prestressed beams on bearing seats without field bending substructure or beam reinforcing steel.

616 STRUCTURAL STEEL: Approximately 1,016 lbs of structural steel has been estimated for the ice noses. Provide steel in accordance with 834.01 A. Include all costs to provide and install the ice noses in the price bid for "Structural Steel." Shop drawings for ice nose structural steel are not required.

622 PILING: Drive piling using a diesel hammer meeting the minimum specifications listed below for each substructure unit. The operating energy is the energy a hammer is capable of producing during pile driving under actual project conditions, and shall be estimated to be no greater than 85% of the hammer's maximum rated energy as specified in the manufacturer's literature. Submit specifications for all pile hammers proposed for use on the project to the Engineer for review at least 14 calendar days prior to beginning pile driving operations.

Abutment Piling: Minimum Ram Weight = 2,500 lbs
Minimum Operating Energy = 29,000 foot-pounds

Pier Piling: Minimum Ram Weight = 5,500 lbs
Minimum Operating Energy = 56,000 foot-pounds

Run the hammer at an energy that produces a penetration at bearing between 1/2" and 3 inches in the last 10 blows.

If the pile has not reached bearing 10 feet beyond the estimated depth, stop driving the pile and wait 24 hours to allow pile setup to occur. After 24 hours, warm the hammer with a minimum of 20 blows by striking the ground or timber mats. If bearing was not achieved during restrike, continue to drive the pile until bearing is achieved.

930 CONCRETE SLEEPER SLAB: Construct a concrete sleeper slabs at the ends of the bridge approach slabs as shown in the plans. The sleeper slab includes a concrete header adjacent to the HMA approach roadway, forming a sealed butt joint with the HMA pavement.

Provide Bridge Concrete in accordance with Section 602 and reinforcing steel in accordance with Section 612.

Finish the surface of the sleeper slab smooth. Allow the sleeper slab to cure for 24 hours before performing additional work on or adjacent to the slab. Place a double layer of 4 or 4 mil polyethylene sheeting as a bond breaker between the sleeper slab and approach slab interface. Include all to labor, materials and equipment needed to install the sleeper slab and header in the contract unit price of "Concrete Sleeper Slab".

930 POLYURETHANE FOAM JOINT SEAL: Install a pre-compressed, polymer-impregnated polyurethane foam expansion joint seal at the sleeper slab, with a nominal joint width as specified in the plans. Provide a seal coated with highway-grade silicone providing a permanent, weather-tight barrier. Use a compatible two-component epoxy adhesive to bond the seal to the joint faces.

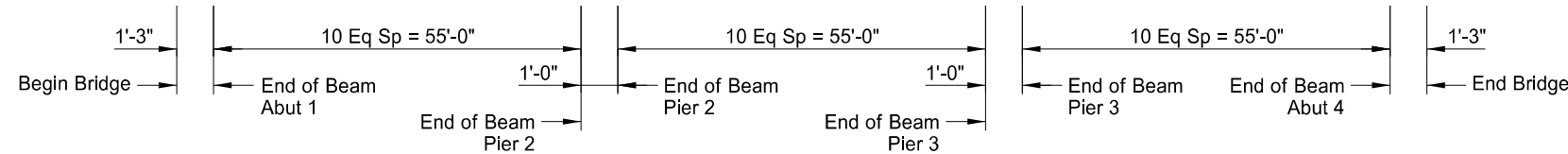
The joint seal may be Wabo FS Bridge Seal (Watson Bowman Acme); BEJS Bridge Expansion Joint System (Emseal); Iso-Flex Silfast XL (LymTal International); or an approved equal. Prepare the joint opening and install the joint seal according to the manufacturer's recommendations. Do not install the joint until the approach slab concrete has been in place for a minimum of 21 days. Provide a joint seal the full length of the clear roadway width between barriers, with an additional 6 inches at each end to be turned up vertically matching the inside face of the curb.

Include all to labor, materials and equipment needed to install the polyurethane foam joint seal in the unit price bid for "Polyurethane Foam Joint Seal."

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REVISED 2-19-2026	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-5-085(086)012	170	4

CL BEAM 5	CL BEAM 4	CL BEAM 3	CL BEAM 2	CL BEAM 1
2886.82	2887.01	2887.20	2887.01	2886.82
2886.81	2887.00	2887.19	2887.00	2886.81
2886.82	2887.01	2887.19	2887.01	2886.82
2886.82	2887.00	2887.19	2887.00	2886.82
2886.81	2887.00	2887.18	2887.00	2886.81
2886.79	2886.98	2887.16	2886.98	2886.79
2886.76	2886.94	2887.13	2886.94	2886.76
2886.71	2886.90	2887.09	2886.90	2886.71
2886.65	2886.84	2887.03	2886.84	2886.65
2886.59	2886.77	2886.96	2886.77	2886.59
2886.51	2886.70	2886.89	2886.70	2886.51
2886.43	2886.62	2886.80	2886.62	2886.43
2886.42	2886.61	2886.80	2886.61	2886.42
2886.43	2886.61	2886.80	2886.61	2886.43
2886.43	2886.61	2886.80	2886.61	2886.43
2886.42	2886.60	2886.79	2886.60	2886.42
2886.40	2886.58	2886.77	2886.58	2886.40
2886.36	2886.55	2886.74	2886.55	2886.36
2886.32	2886.51	2886.69	2886.51	2886.32
2886.26	2886.45	2886.64	2886.45	2886.26
2886.19	2886.38	2886.57	2886.38	2886.19
2886.12	2886.31	2886.49	2886.31	2886.12
2886.04	2886.23	2886.41	2886.23	2886.04
2886.03	2886.22	2886.41	2886.22	2886.03
2886.03	2886.22	2886.41	2886.22	2886.03
2886.03	2886.22	2886.41	2886.22	2886.03
2886.02	2886.21	2886.40	2886.21	2886.02
2886.00	2886.19	2886.38	2886.19	2886.00
2885.97	2886.16	2886.35	2886.16	2885.97
2885.93	2886.11	2886.30	2886.11	2885.93
2885.87	2886.06	2886.25	2886.06	2885.87
2885.80	2885.99	2886.18	2885.99	2885.80
2885.73	2885.91	2886.10	2885.91	2885.73
2885.65	2885.83	2886.02	2885.83	2885.65
2885.64	2885.82	2886.01	2885.82	2885.64



Beam 1 is the west beam.
 SCREED ELEVATION

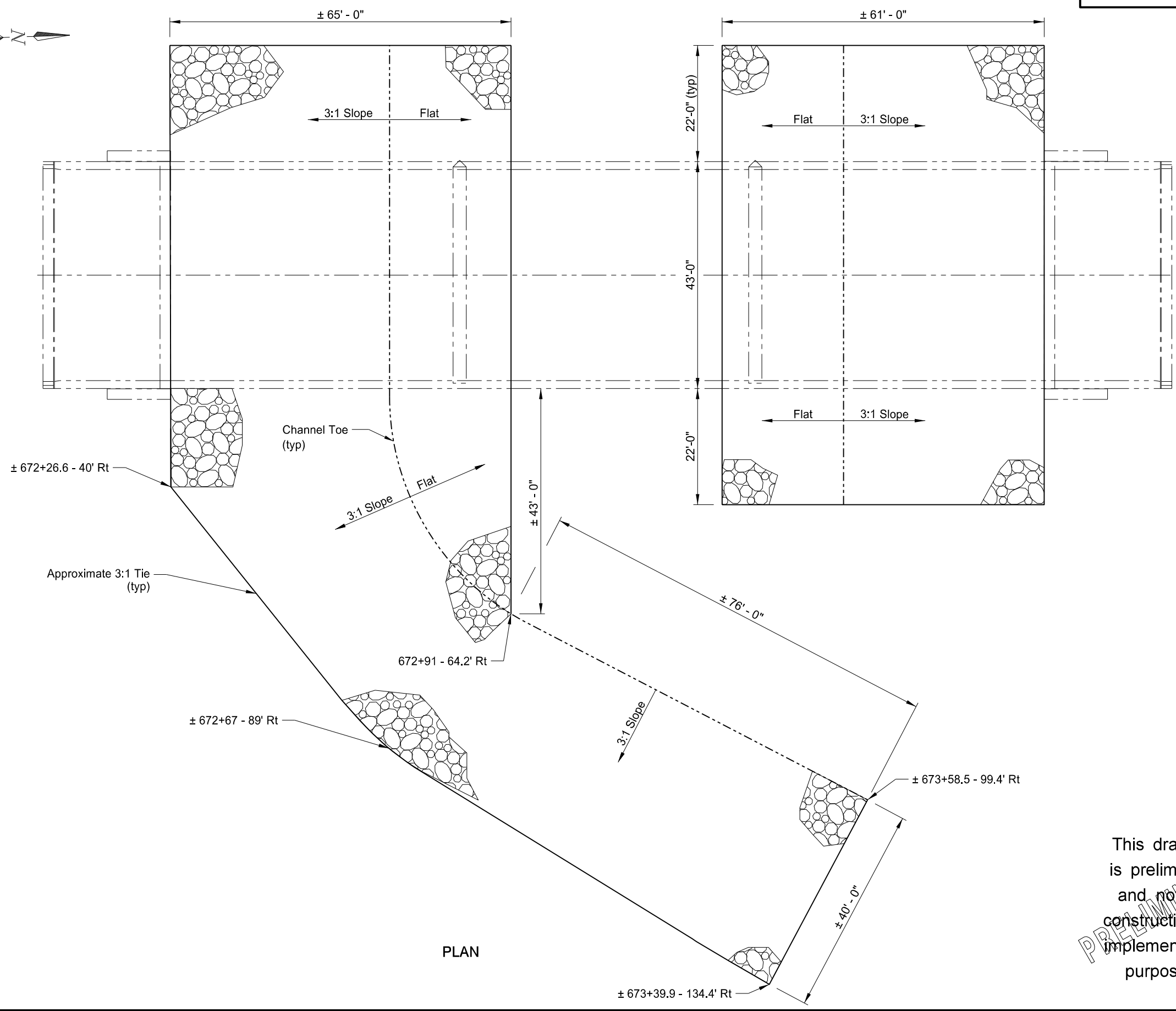
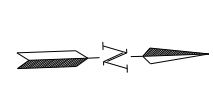
BRIDGE BID ITEMS

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0105	REMOVAL OF STRUCTURE	L SUM	1
210	0099	CLASS 1 EXCAVATION	L SUM	1
210	0111	CLASS 2 EXCAVATION	L SUM	1
210	0127	CHANNEL EXCAVATION	L SUM	1
210	0201	FOUNDATION PREPARATION	EA	1
256	0200	RIPRAP GRADE II	CY	1,210
602	0500	BRIDGE SUBSTRUCTURE CONCRETE	CY	200.4
602	0510	BRIDGE DECK CONCRETE	CY	225.4
602	0520	BRIDGE BARRIER CONCRETE	CY	45.2
602	1133	CONCRETE BRIDGE APPROACH SLAB	SY	191.2
602	1250	PENETRATING WATER REPELLENT TREATMENT	SY	612.0
604	9600	PRESTRESSED BOX BEAM-21IN	LF	825
612	0116	REINFORCING STEEL-GRADE 60-EPOXY COATED	LBS	65,164
616	0360	STRUCTURAL STEEL	LBS	1,016
622	0020	STEEL PILING HP 10 X 42	LF	360
622	0060	STEEL PILING HP 14 X 73	LF	540
622	7001	DYNAMIC PILE TEST	EA	4
709	0155	GEOSYNTHETIC MATERIAL TYPE RR	SY	1,815
930	3000	BRIDGE BENCH MARKS	SET	1
930	8600	ELASTOMERIC BEARING PAD	SF	68
930	8670	CONCRETE SLEEPER PAD	EA	2
930	8850	POLYURETHANE FOAM JOINT SEAL	LF	82
930	9537	ABUTMENT UNDERDRAIN SYSTEM	EA	2

This drawing is preliminary and not for construction or implementation purposes.

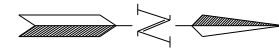
SPRING CREEK 4 SOUTH OF JCT US 12	
SCREED ELEVATIONS & BID ITEM QUANTITIES	
DRAWING NO.	85-012.747-4

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	5



This drawing is preliminary and not for construction or implementation purposes.

QUANTITIES	
RIPRAP FABRIC	1,815 SY
RIPRAP	1,210 CY
SPRING CREEK 4 SOUTH OF JCT US 12 RIPRAP LAYOUT	
DRAWING NO.	85-012.747-5



STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	6

NOTE:

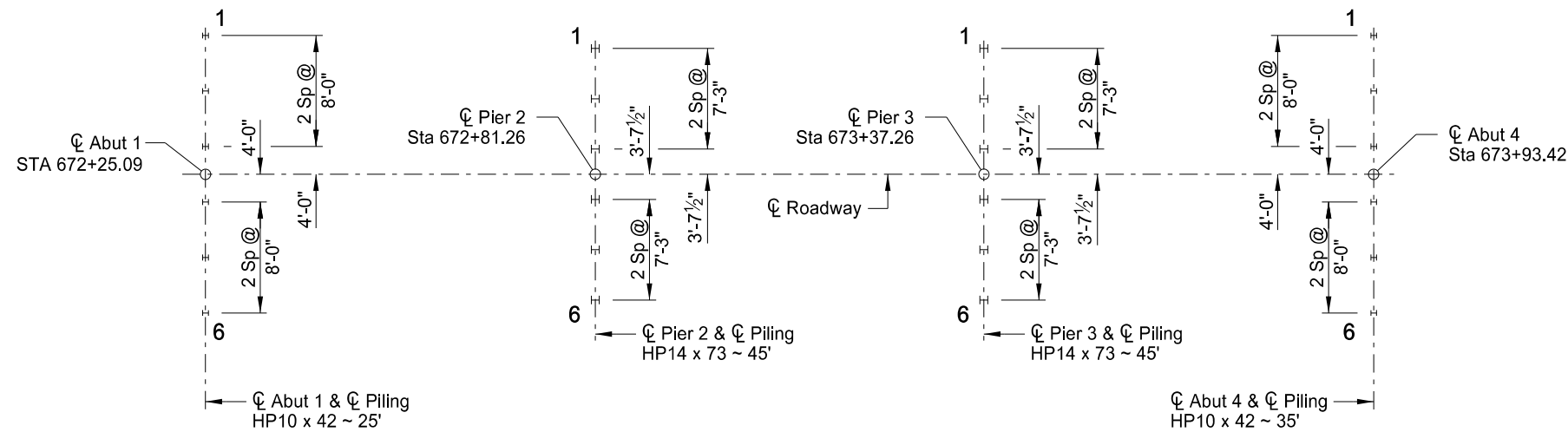
For double acting or single acting diesel hammers, calculate the bearing resistance of piles by the following formula:

$$\Phi R_n = \frac{4.5E}{S + 0.2} \times \frac{W + 0.2M}{W + M}$$

Where:

- ΦR_n = Factored pile bearing resistance, in pounds. The Φ factor is included in equation.
- W = Weight of striking parts (ram), in pounds.
- M = Weight of parts being driven, in pounds. Includes pile weight, anvil (if any), driving cap, etc.
- E = Energy per blow, in foot-pounds.
- S = Average penetration of pile in inches per blow for last ten blows.

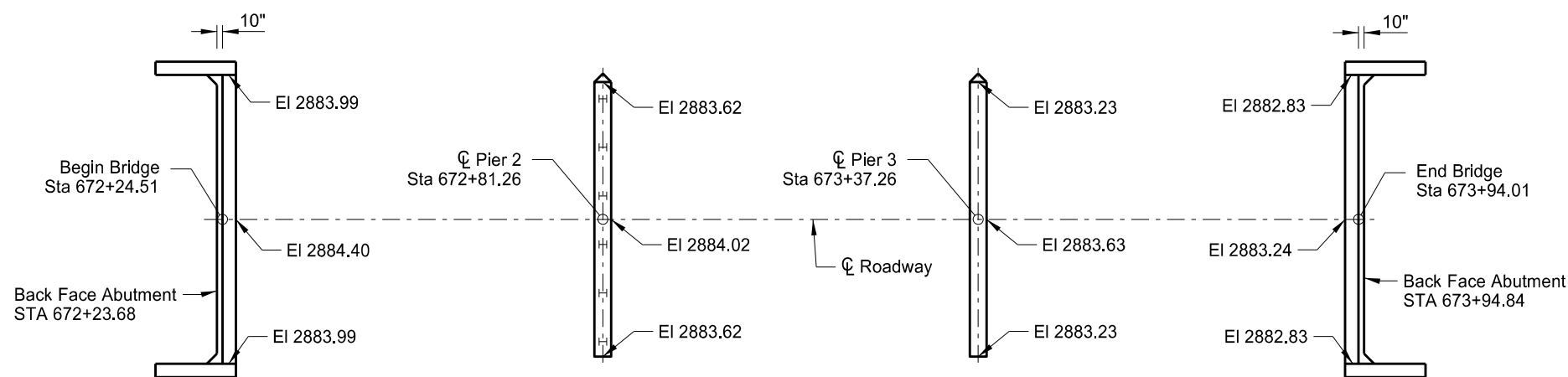
For single acting hammers, calculate E by multiplying observed stroke (ft) and W (lbs).



Drive the HP10 x 42 Pile to a bearing resistance of 105 tons.
 Drive the HP14 x 73 Pile to a bearing resistance of 180 tons.

PILING LAYOUT

PILE COORDINATES			
	PILE	NORTHING	EASTING
ABUT 1	1	180,739.97	1,230,655.87
	6	180,738.53	1,230,695.84
PIER 2	1	180,796.04	1,230,659.78
	6	180,794.73	1,230,696.00
PIER 3	1	180,852.00	1,230,661.80
	6	180,850.69	1,230,698.02
ABUT 4	1	180,908.20	1,230,661.95
	6	180,906.75	1,230,701.93



Elevations shown are to top of finished concrete.

BEARING ELEVATIONS

This drawing is preliminary and not for construction or implementation purposes.

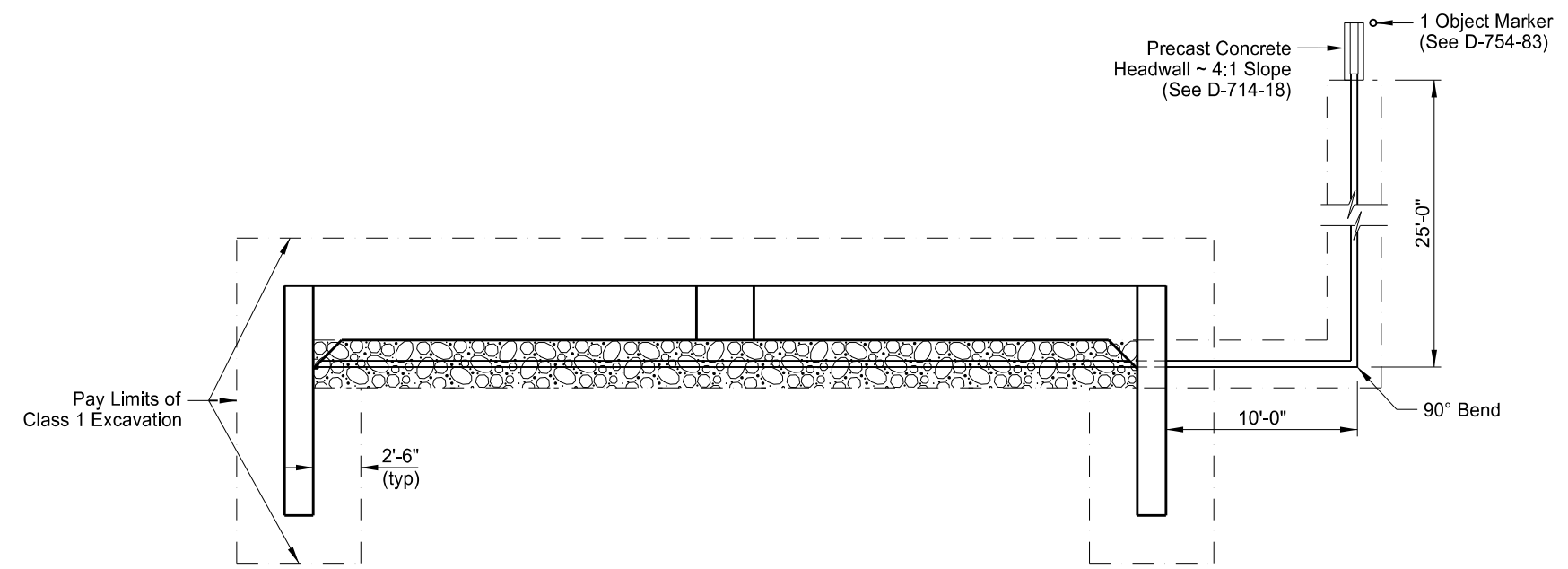
SPRING CREEK 4 SOUTH OF JCT US 12	
PILING LAYOUT & BEARING ELEVATIONS	
DRAWING NO.	85-012.747-6

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	7

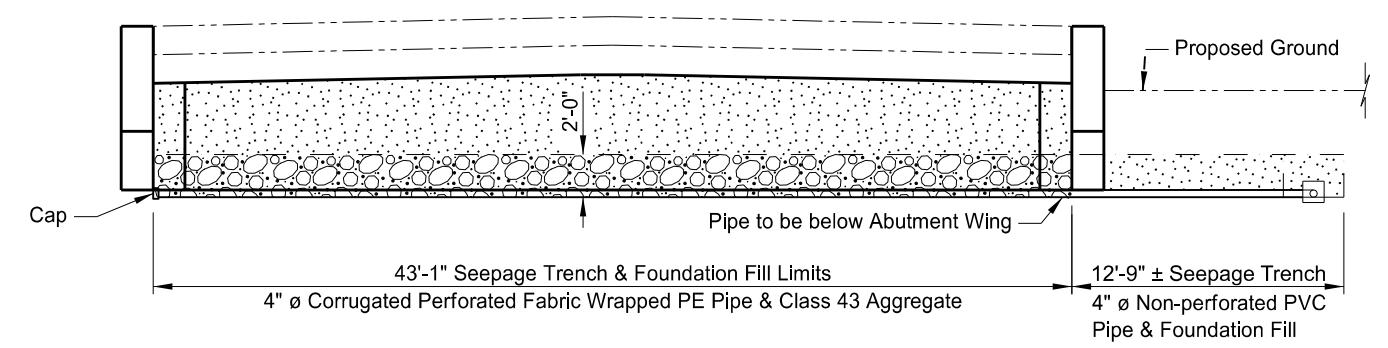
NOTES:

Use corrugated perforated fabric wrapped PE pipe that meets the requirements of Section 830.03 A.4. Provide fabric wrapping for the pipe that meets the requirements of Section 858.01 for D3 or D4 drainage fabric. Use non-perforated PVC pipe that meets the requirements of Section 830.03 A.3. Provide aggregate that meets the requirements of Section 816.03, Class 43. Provide foundation fill that meets the requirements of Section 210. Compact the foundation fill beneath the approach slab according to Section 714.04 A.10

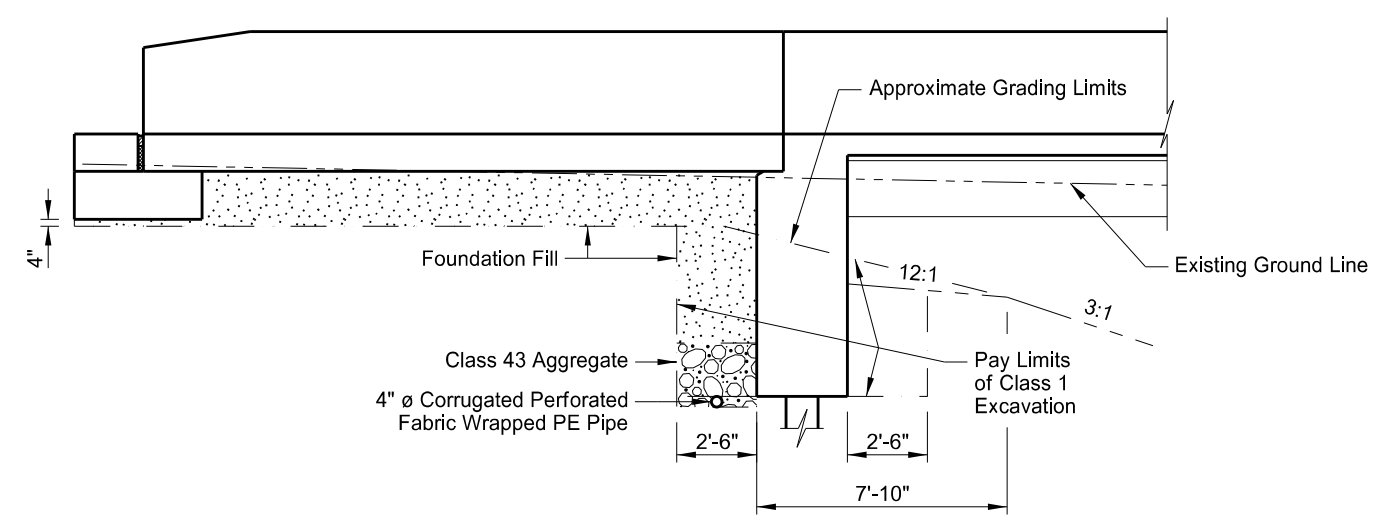
Include the cost to furnish and place the foundation fill, aggregate, corrugated perforated pipe, non-perforated pipe, object marker and headwalls in the pay item "Abutment Underdrain System."



ABUTMENT PLAN



BACK FACE OF ABUTMENT

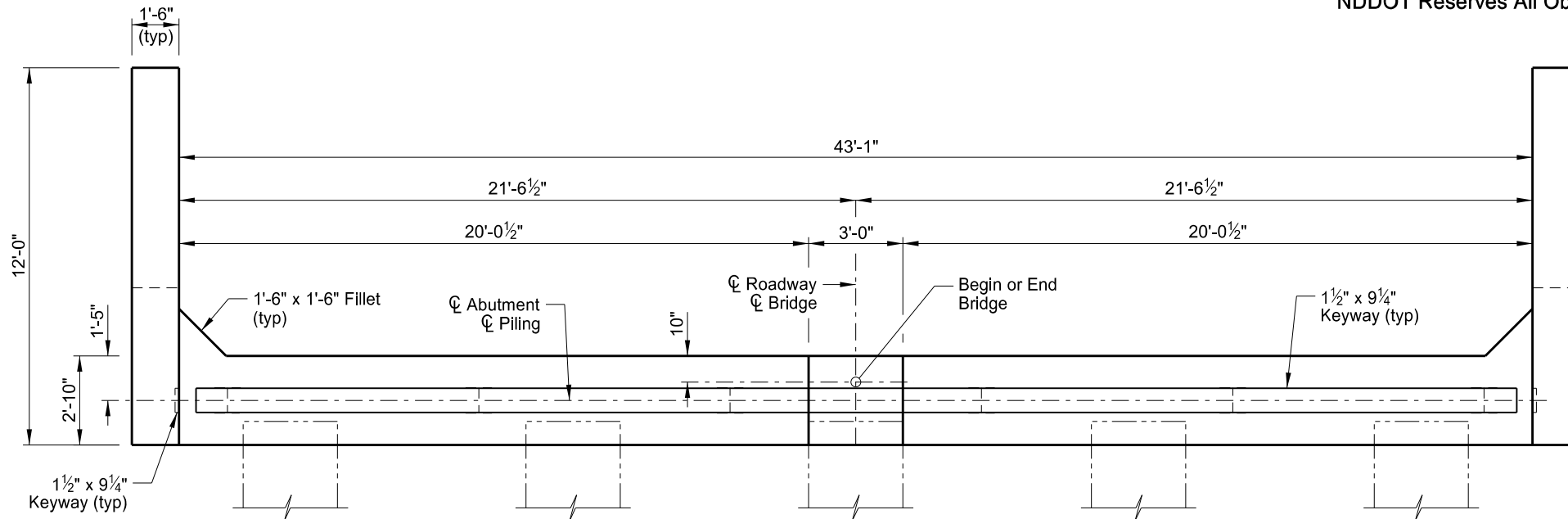


DETAIL AT ABUTMENT

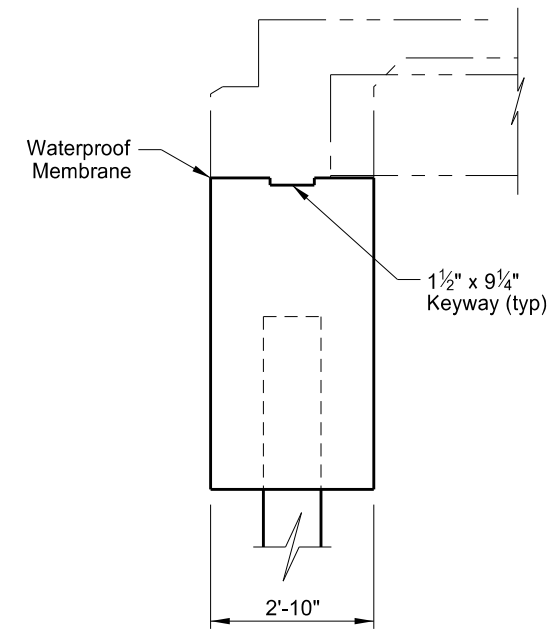
This drawing is preliminary and not for construction or implementation purposes.

SPRING CREEK 4 SOUTH OF JCT US 12	
ABUTMENT UNDERDRAIN & EXCAVATION DETAILS	
DRAWING NO.	85-012.747-7

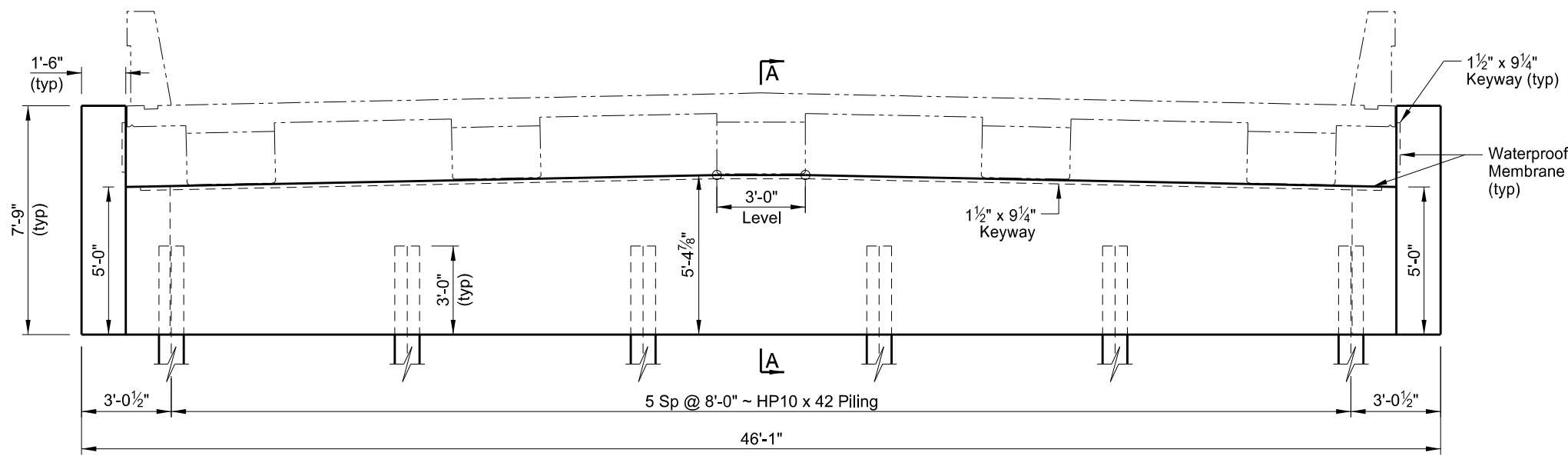
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	8



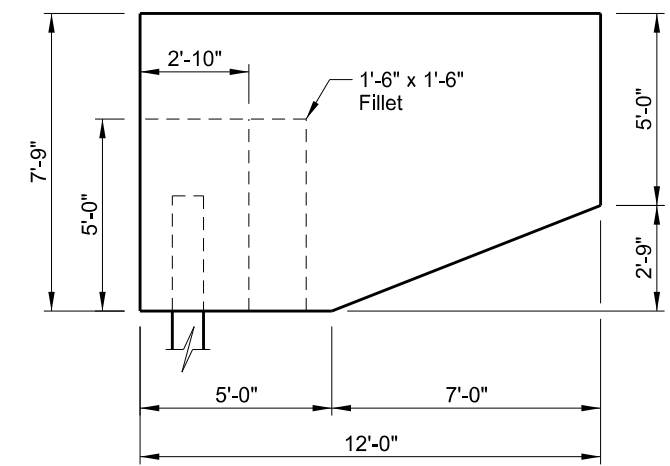
PLAN



A-A



ELEVATION



WING ELEVATION

NOTE:

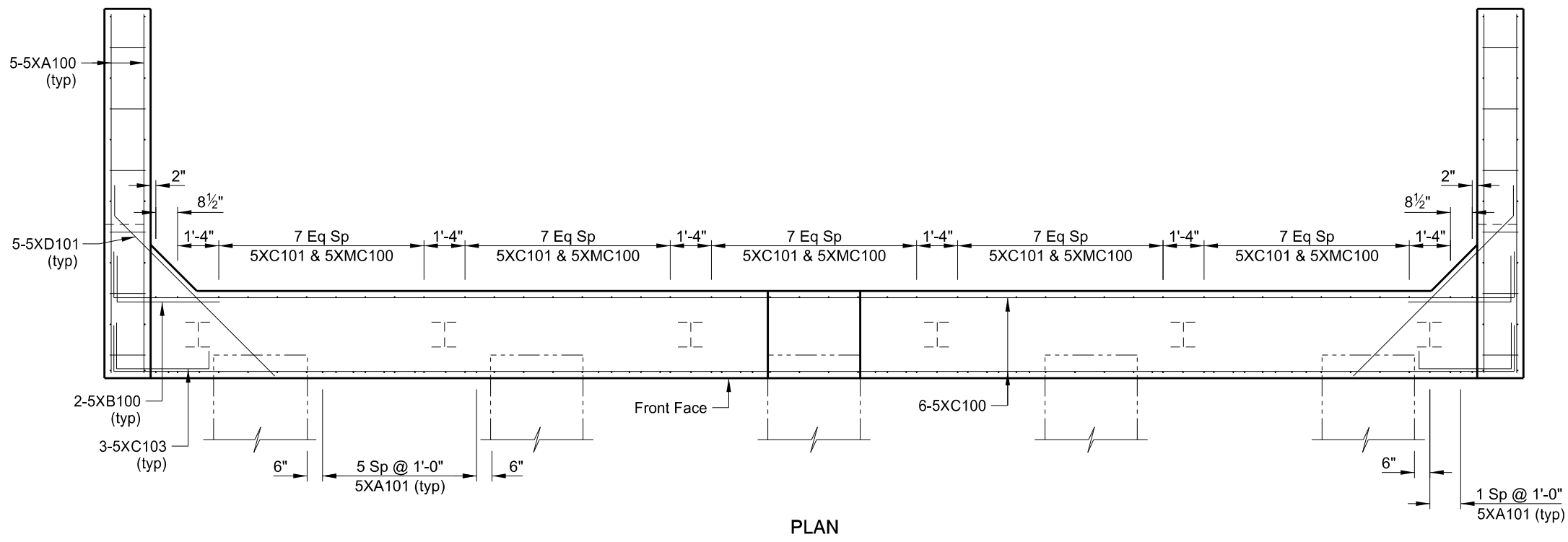
Use waterproof membrane that meets the requirements of Section 602.03 B.
 Center the waterproof membrane (1'-0" minimum width) on the Joint.

This drawing is preliminary and not for construction or implementation purposes.

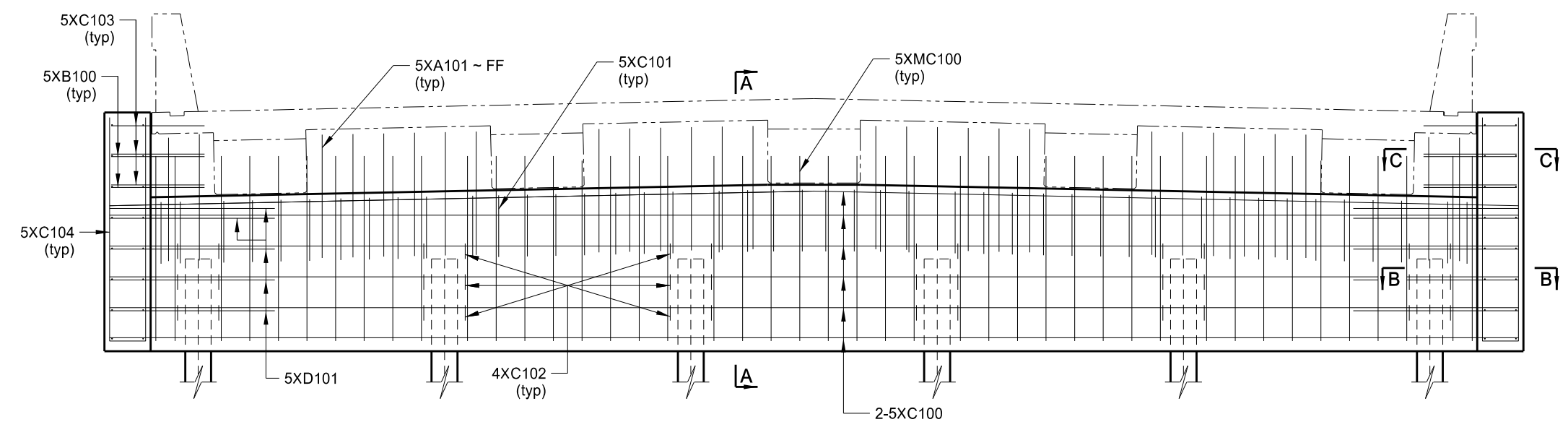
QUANTITIES	
SEE DWG 85-012.747-10	
SPRING CREEK 4 SOUTH OF JCT US 12 (SHOWING DIMENSIONS) ABUTMENT DETAILS	
DRAWING NO.	85-012.747-8

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	9

NOTE:
 See Dwg 85-012.747-10 for Wing Elevation
 and Sections A-A, B-B and C-C.



PLAN



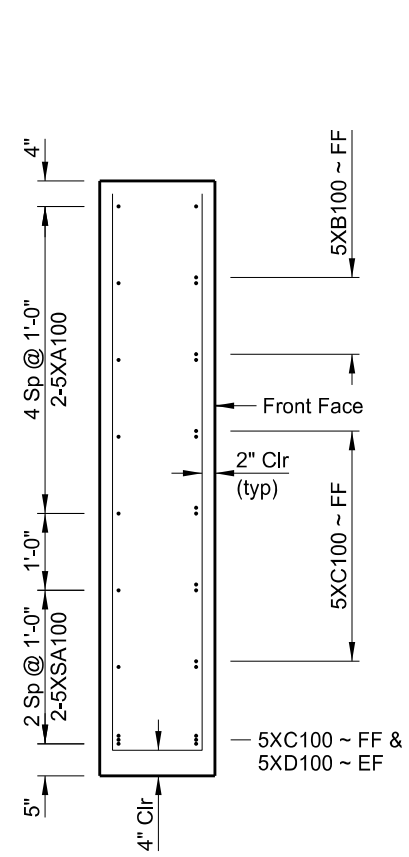
ELEVATION

NOMENCLATURE:
 FF = Front Face
 BF = Back Face
 EF = Each Face

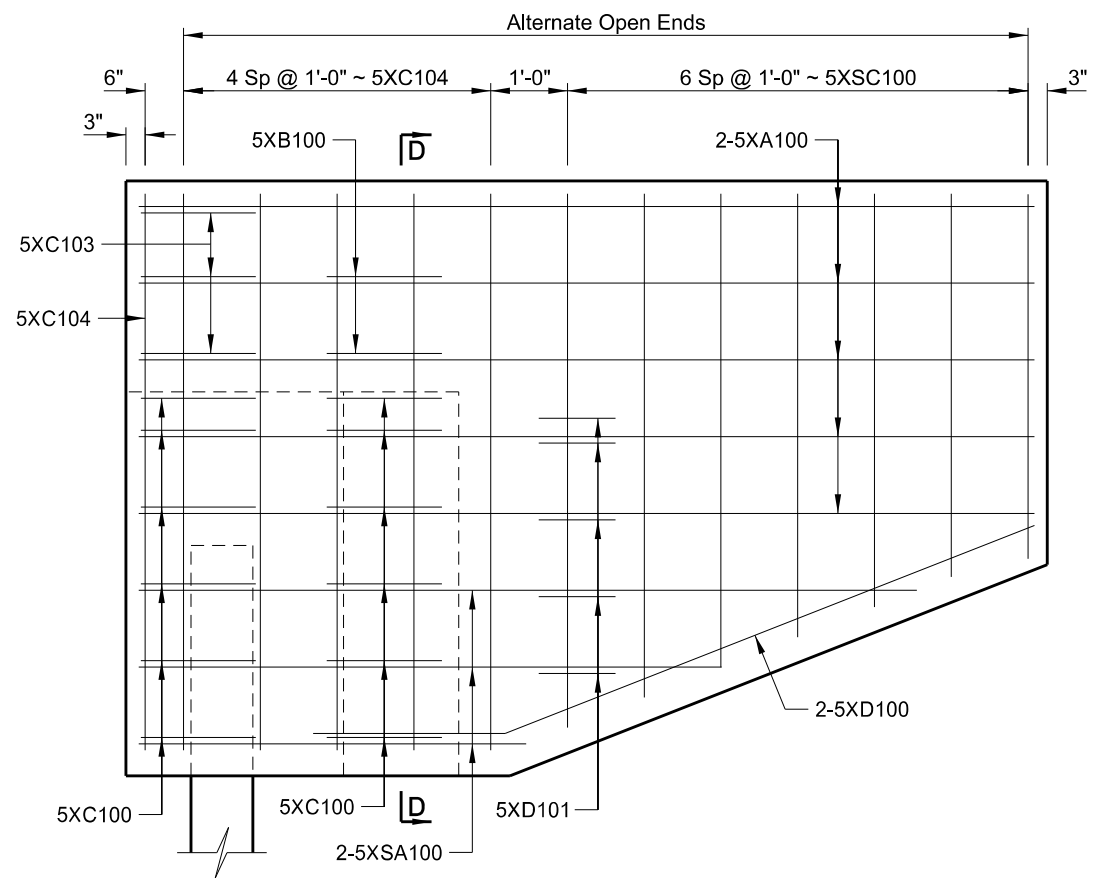
This drawing
 is preliminary
 and not for
 construction or
 implementation
 purposes.

QUANTITIES	
SEE DWG 85-012.747-10	
SPRING CREEK 4 SOUTH OF JCT US 12 (SHOWING REINFORCING) ABUTMENT DETAILS	
DRAWING NO.	85-012.747-9

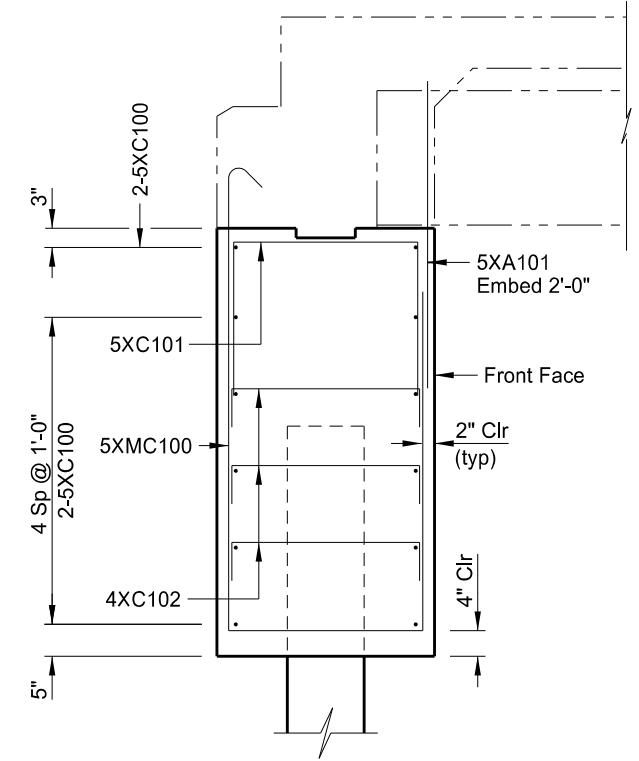
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	10



D-D



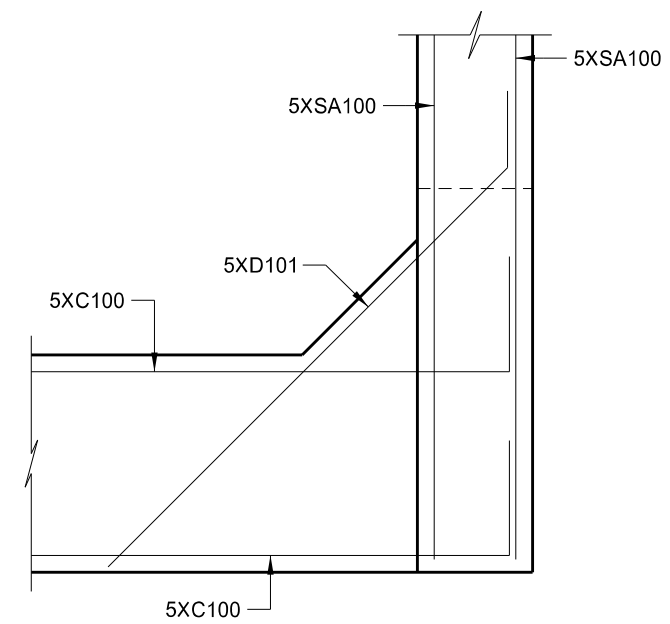
WING ELEVATION



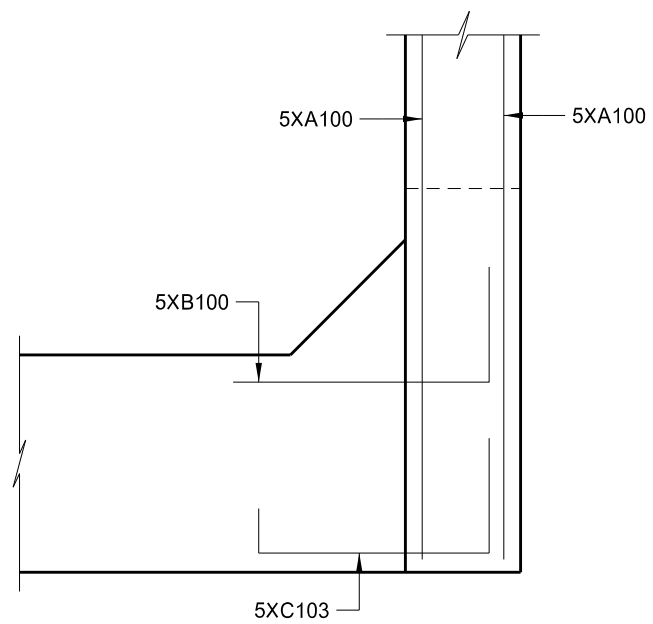
A-A

NOTE:

See Dwg 85-012.746-9 for locations of Section A-A, B-B & C-C.



B-B



C-C

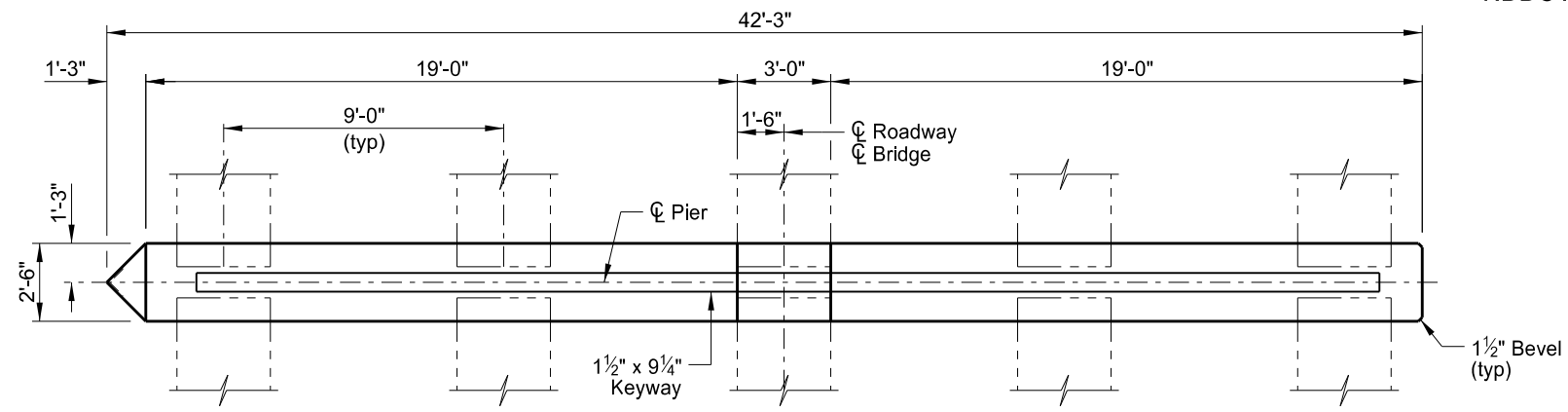
This drawing is preliminary and not for construction or implementation purposes.

QUANTITIES	(ONE ABUTMENT)
BRIDGE SUBSTRUCTURE CONCRETE	33.3 CY
REINFORCING STEEL	2,576 LBS

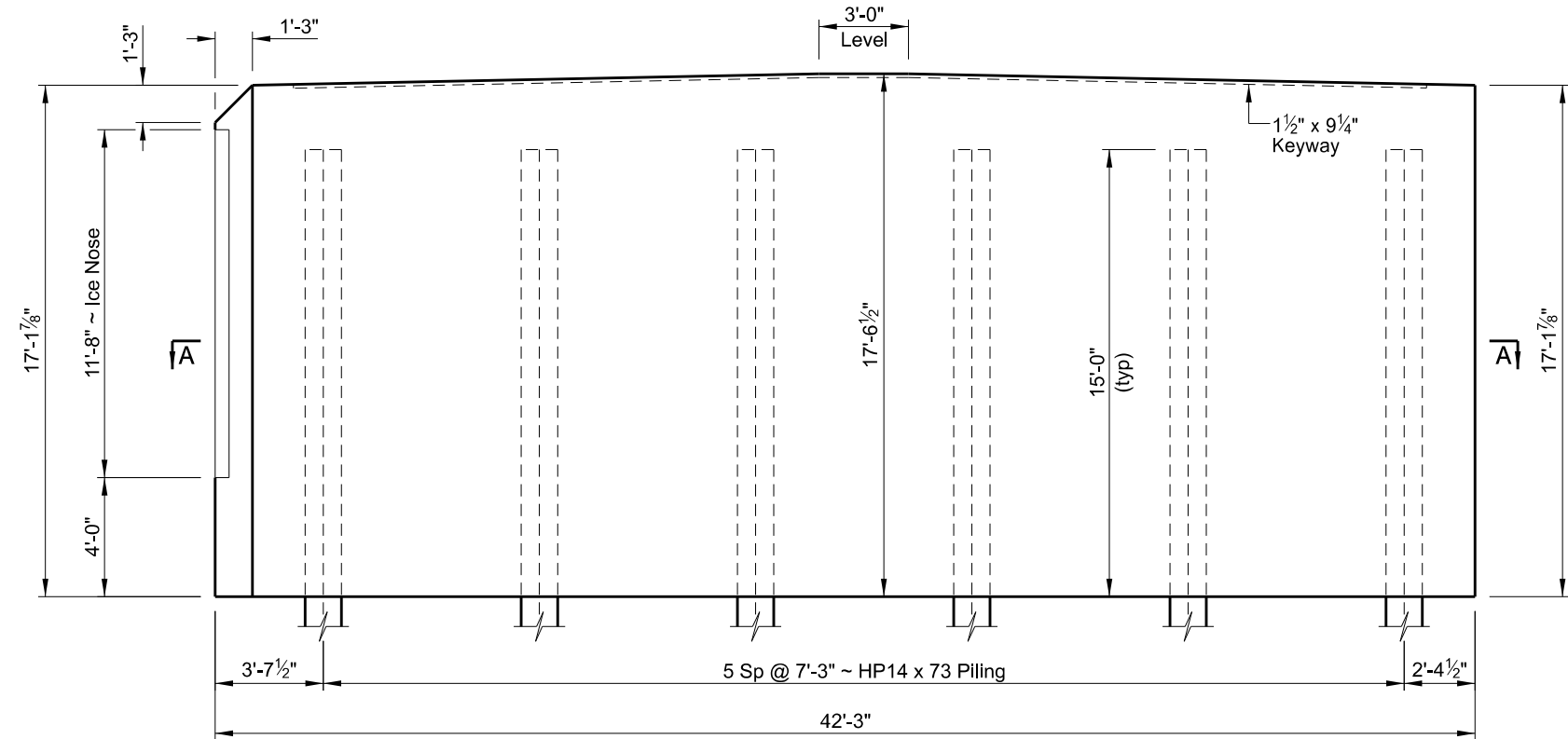
SPRING CREEK
 4 SOUTH OF JCT US 12
 (SHOWING REINFORCING)
 ABUTMENT DETAILS

DRAWING NO.	85-012.747-10
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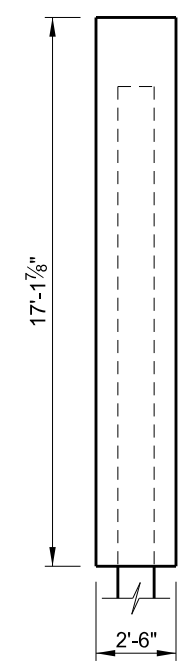
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	11



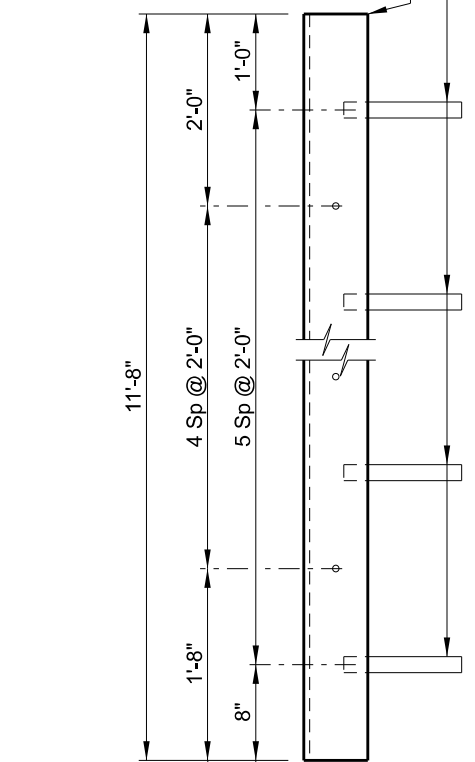
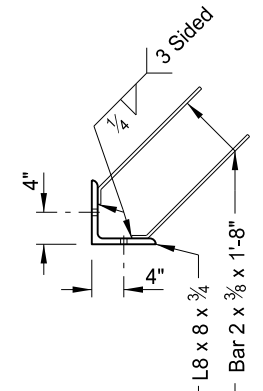
PLAN



ELEVATION

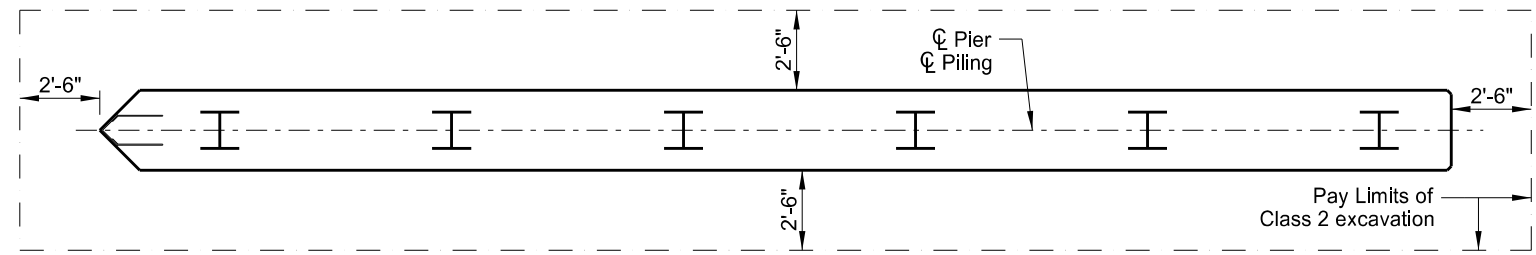


END VIEW



Galvanize in accordance with Section 854 after fabrication.

ICE NOSE DETAIL

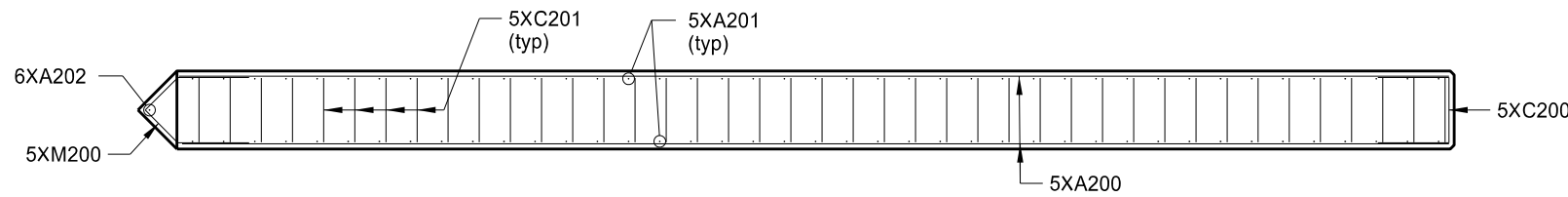


A-A

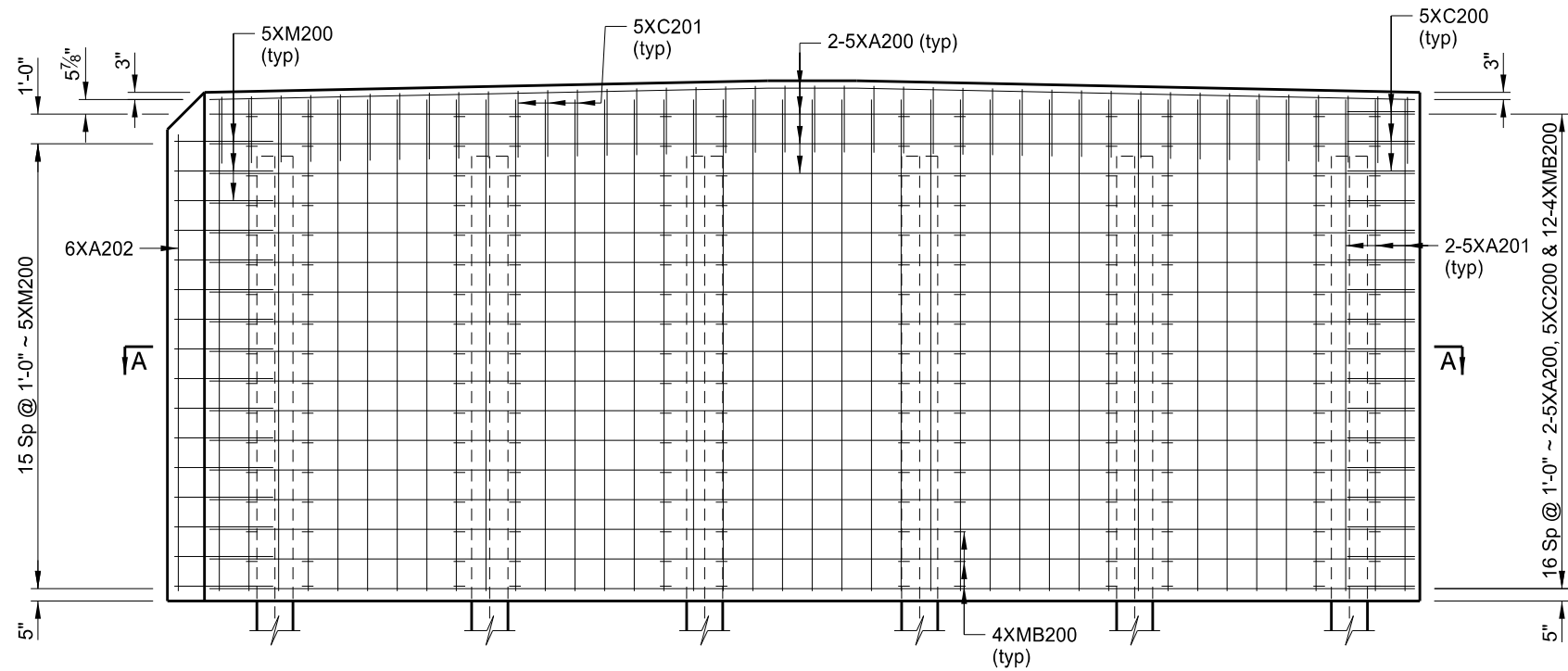
This drawing is preliminary and not for construction or implementation purposes.

QUANTITIES	
SEE DWG 85-012.747-12	
SPRING CREEK 4 SOUTH OF JCT US 12 (SHOWING DIMENSIONS) PIER DETAILS	
DRAWING NO.	85-012.747-11

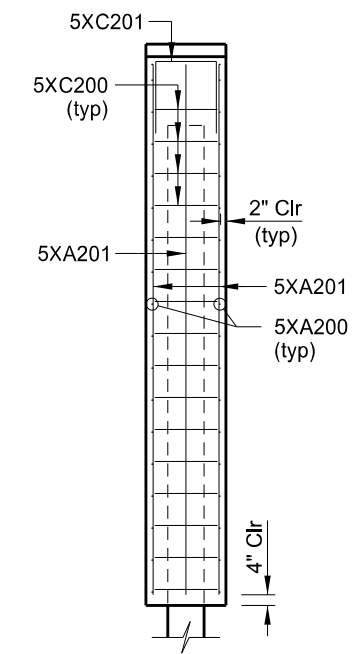
REVISED 2-19-2026	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-5-085(086)012	170	12



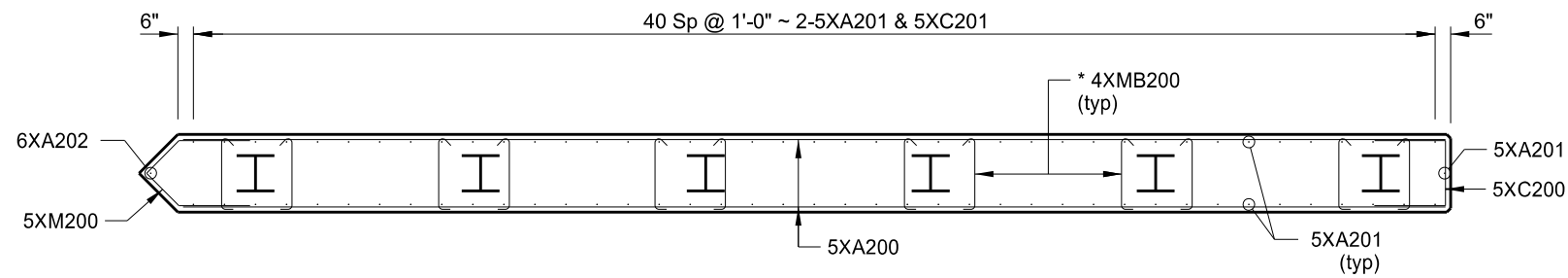
PLAN



ELEVATION



END VIEW



A-A

* Alternate the 90° and 135° hook position at each layer.

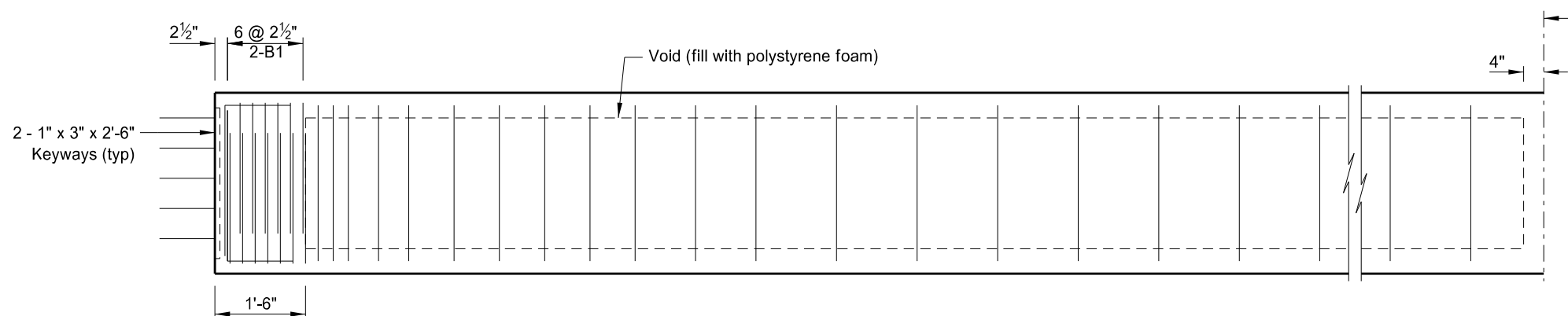
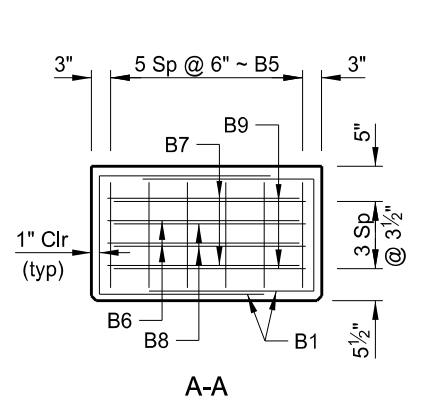
This drawing is preliminary and not for construction or implementation purposes.

QUANTITIES	(ONE PIER)
BRIDGE SUBSTRUCTURE CONCRETE	66.9 CY
REINFORCING STEEL	3,998 LBS
STRUCTURAL STEEL	508 LBS

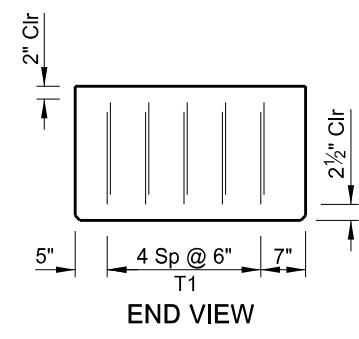
SPRING CREEK
 4 SOUTH OF JCT US 12
 (SHOWING REINFORCING)
 PIER DETAILS

DRAWING NO.	85-012.747-12
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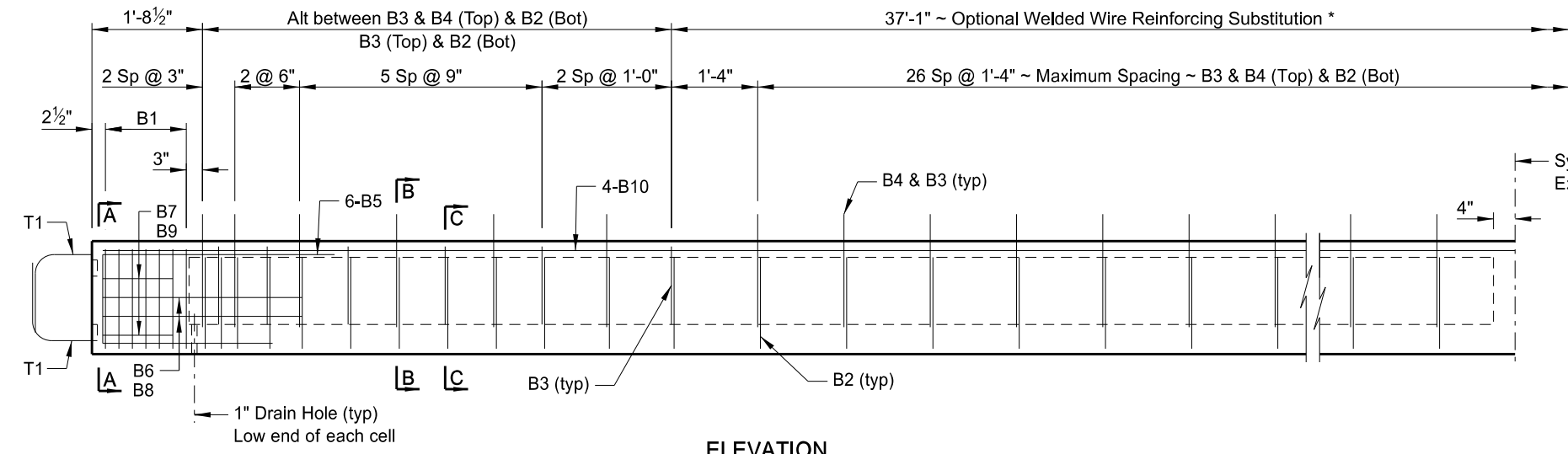
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	13



PLAN



END VIEW



ELEVATION

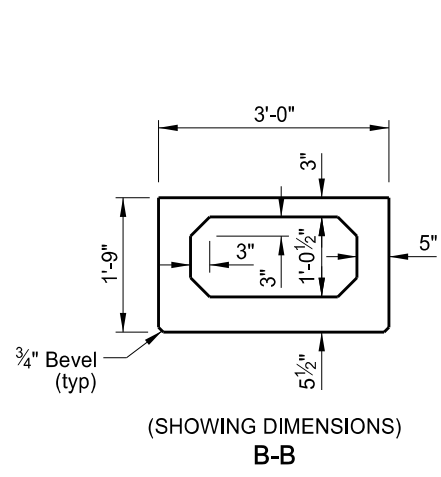
BAR LIST ~ ONE BEAM

MARK	SIZE	NO.	LENGTH	SHAPE
B1	4	28	5'- 11"	BENT
* B2	4	51	5'- 8"	BENT
* B3	4	51	5'- 8"	BENT
*** B4	4	28	7'- 0"	BENT
B5	5	12	7'- 7"	BENT
B6	4	4	5'- 7"	BENT
B7	4	4	3'- 7"	BENT
B8	4	4	5'- 7"	BENT
B9	4	4	3'- 7"	BENT
B10	4	8	28'- 1"	STR
** T1	4	20	3'- 9"	STR

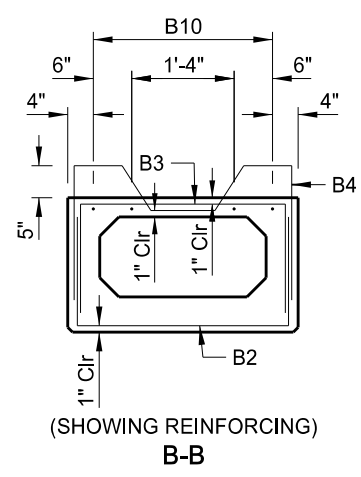
* Welded Wire Reinforcing with minimum circumferential steel area of 0.15 sq in per ft may be substituted for B2 and B3 bars.

** Field bend as shown with a 2.5" minimum bar bend diameter.

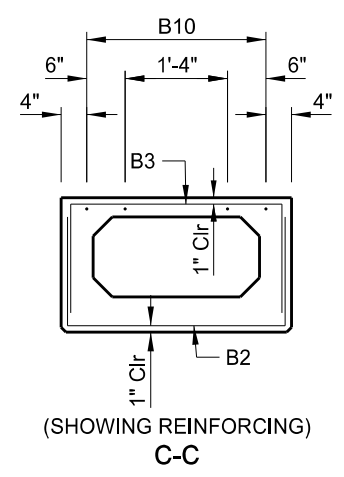
*** Epoxy Coated



(SHOWING DIMENSIONS)
B-B



(SHOWING REINFORCING)
B-B



(SHOWING REINFORCING)
C-C

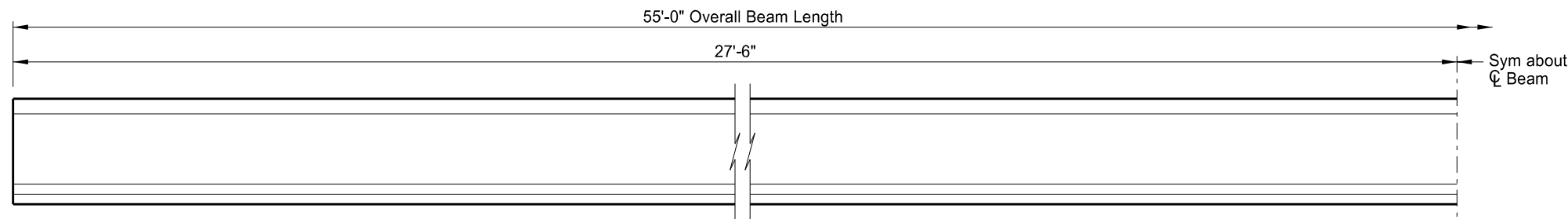
This drawing is preliminary and not for construction or implementation purposes.

SPRING CREEK
 4 SOUTH OF JCT US 12
 55'-0" BEAM LENGTH
 PRE-TENSIONED 21" x 36"
 PRESTRESSED SPREAD BOX BEAM

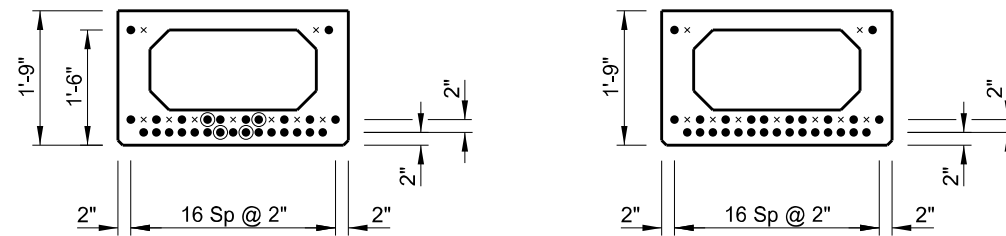
DRAWING NO.	85-012.747-13
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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BEAM SECTION DATA		
Beam Weight = 483.3 lbs/ft + 991 lbs		
Beam Length	55	ft
Total Beam Weight	13.8	tons
Cross Sectional Area at End	756	in ²
Cross Sectional Area at Midspan	449	in ²
C.G. from Bottom of Beam at Midspan	9.65	in
Midspan Moment of Inertia (I)	23,249	in ⁴
Midspan Section Modulus (S _b)	2,409	in ³
MINIMUM CONCRETE COMPRESSIVE STRENGTH		
Detensioning Strength (f' _{ci})	7.0	ksi
Acceptance Strength (f' _c)	7.0	ksi
PRESTRESSING STRAND DATA		
0.6" Diameter Grade 270 Prestressing Strands		
Initial Prestress = 0.75 * f _{pu}		
	Number	Y Distance (inches)
		Midspan
		End
Straight Strands	27	3.93
Draped Strands	0	0.00
Total Strands	27	3.93
PRESTRESS LOSSES		
Elastic Shortening Loss	18.00	ksi
Long Term Losses	26.42	ksi
Total Losses	44.42	ksi
PRESTRESS FORCES		
Initial Prestress Force	1,186.4	kips
Final Prestress Force after Losses	926.2	kips



BEAM ELEVATION



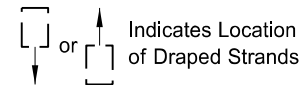
END VIEW

SECTION @ C

PRESTRESSING STRAND LAYOUT

KEY:

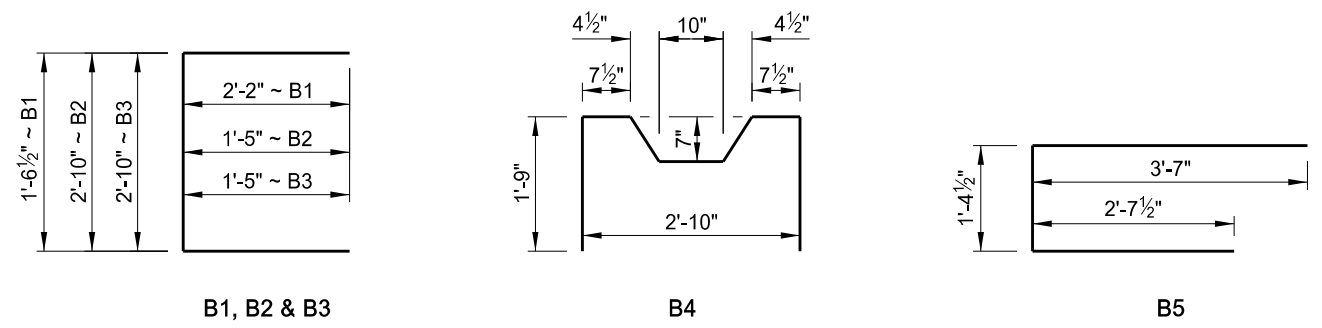
- × Vacant Strand Location
- Filled Strand Location (Bonded)
- ⊙ Filled Strand Location (Debonded 4'-0" Each End)



This drawing is preliminary and not for construction or implementation purposes.

SPRING CREEK 4 SOUTH OF JCT US 12 55'-0" BEAM LENGTH PRE-TENSIONED 21" x 36" PRESTRESSED SPREAD BOX BEAM	
DRAWING NO.	85-012.747-14

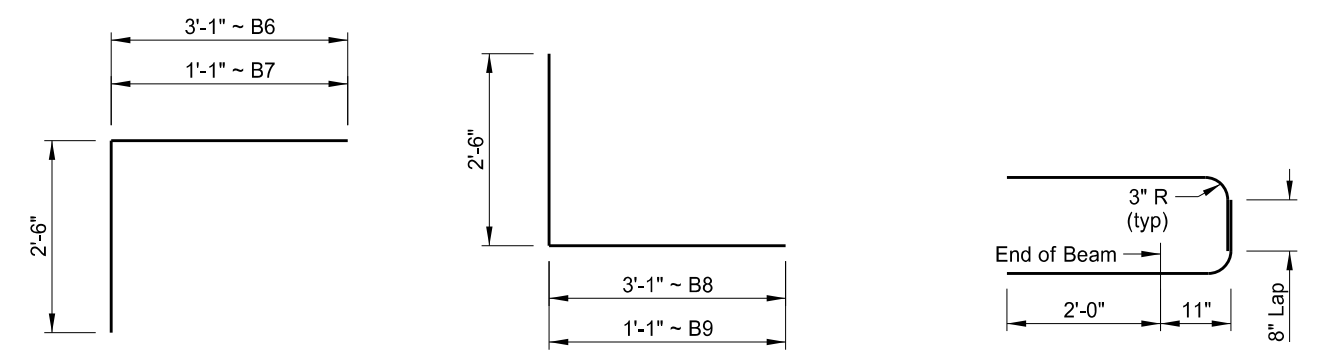
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	15



B1, B2 & B3

B4

B5



B6 & B7

B8 & B9

T1

BENT BAR DETAILS

NOTES:

Provide lifting loops or handling hooks as required by the Contractor. Additional inserts, brackets, and hardware may be incorporated into the finished beam for the convenience of the Contractor. Use galvanized, epoxy-coated, stainless steel, or non-metallic material for all inserts, brackets, and hardware if less than 1 inch of concrete cover will be provided in the finished structure.

The required Detensioning Strength indicates the minimum required concrete strength at the time of prestress transfer. The required Acceptance Strength indicates the minimum required concrete strength prior to transporting and erecting the beams.

Y Distances shown in the table are measured from the bottom of the beam to the center of gravity of the strand group listed.

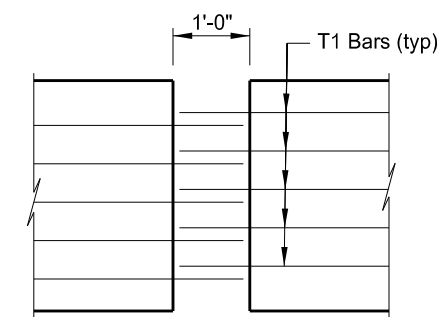
Minor changes to the shape of the beam and to the reinforcing steel may be made to accommodate the forms of various Contractors and their construction methods with the approval of the Engineer.

NOTES:

All bar dimensions are out-to-out.

Unless noted otherwise, bend bars to the bend diameter (D) listed below.

- #3 Bar: D = 1 1/2"
- #4 Bar: D = 2"
- #5 Bar: D = 2 1/2"

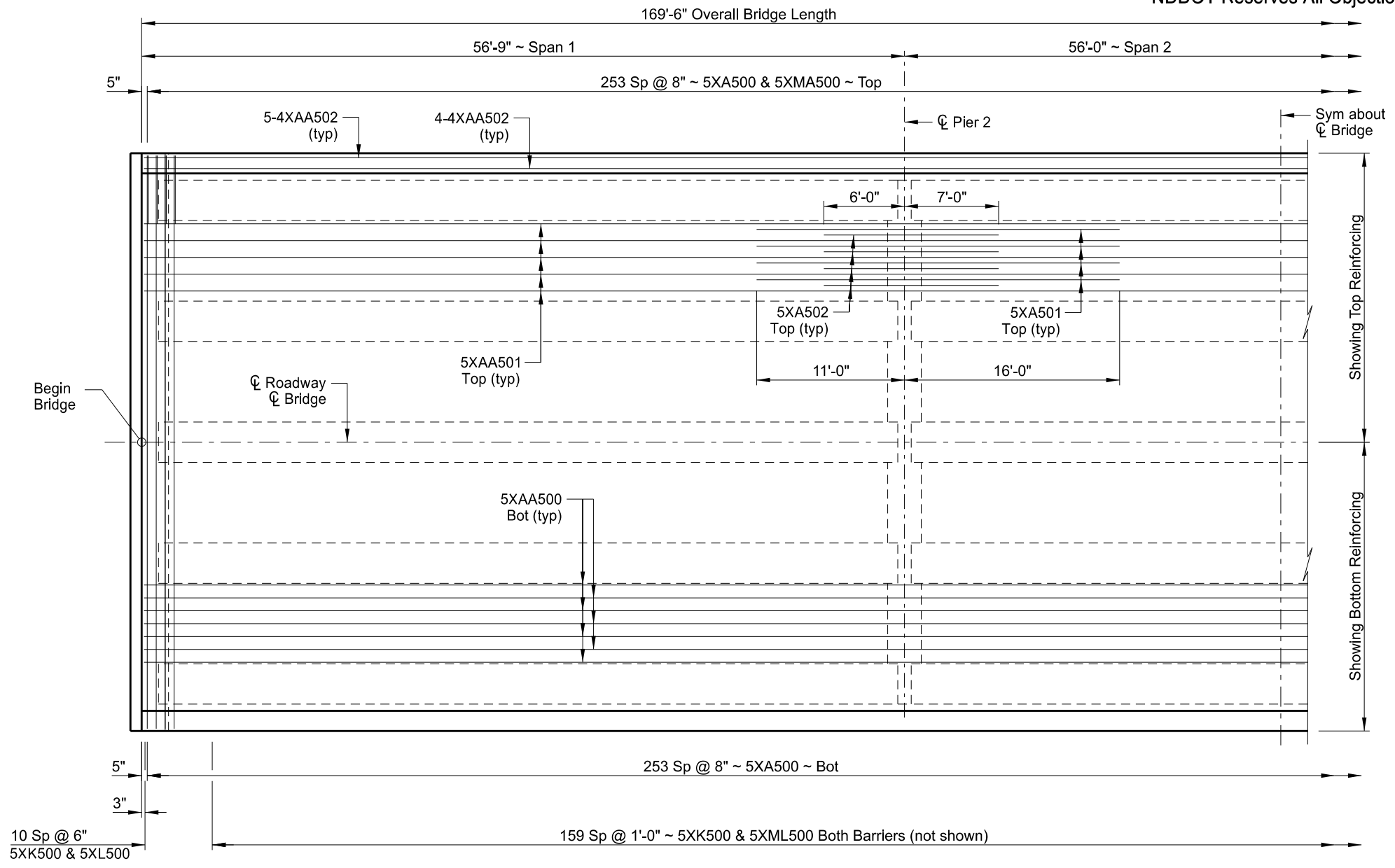


BEAM END PLAN AT PIER

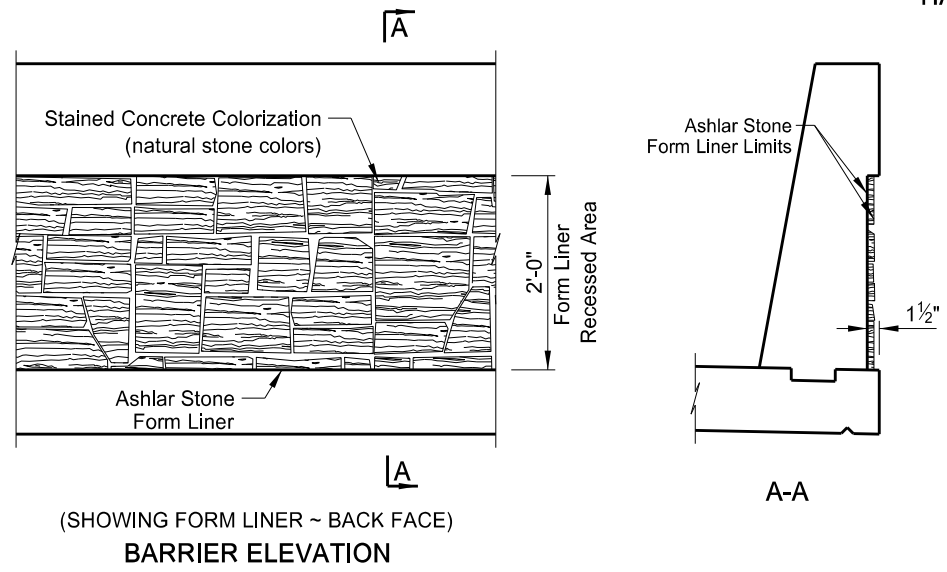
This drawing is preliminary and not for construction or implementation purposes.

SPRING CREEK 4 SOUTH OF JCT US 12	
PRE-TENSIONED 21" x 36" PRESTRESSED SPREAD BOX BEAM	
DRAWING NO.	85-012.747-15

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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HALF PLAN

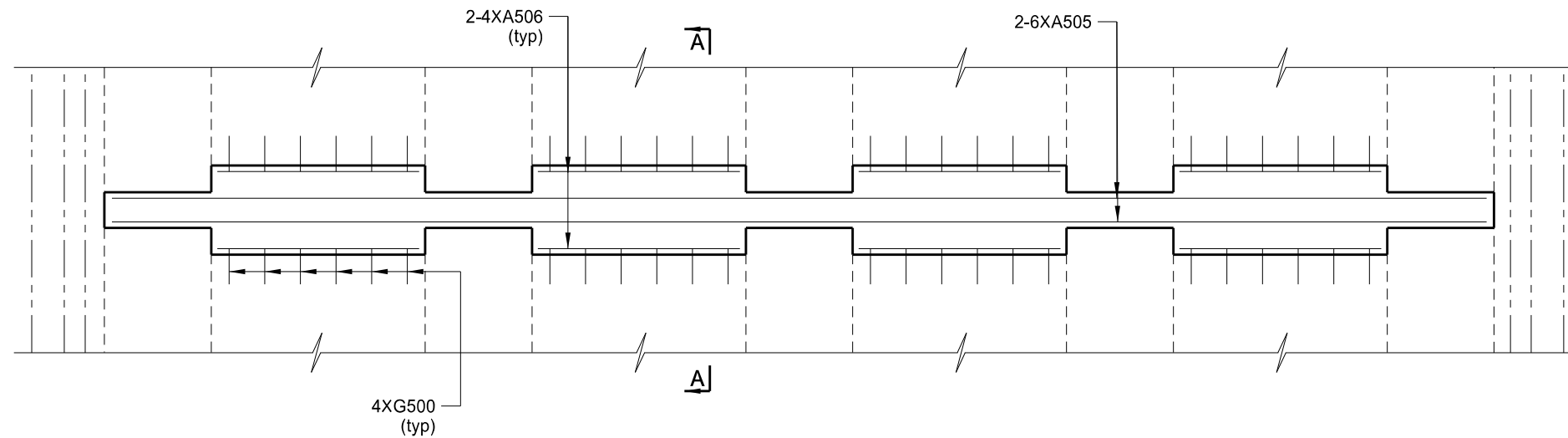


(SHOWING FORM LINER ~ BACK FACE)
BARRIER ELEVATION

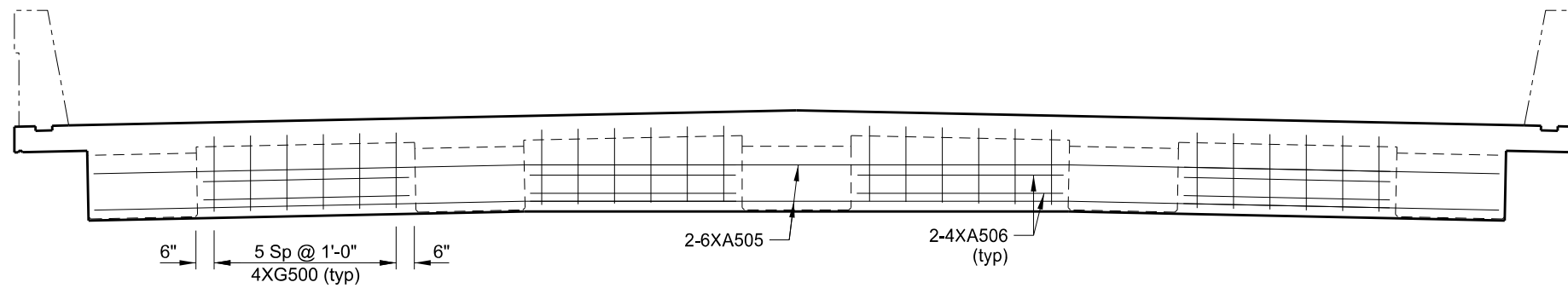
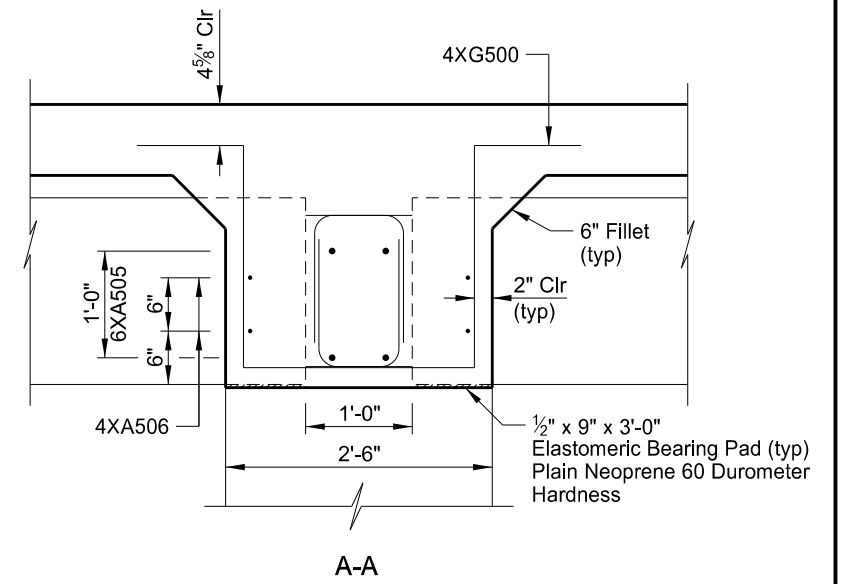
This drawing is preliminary and not for construction or implementation purposes.

QUANTITIES	
SEE DWG 85-012.747-19	
SPRING CREEK 4 SOUTH OF JCT US 12 HALF SLAB LAYOUT	
DRAWING NO.	85-012.747-16

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	17



PLAN



ELEVATION

This drawing is preliminary and not for construction or implementation purposes.

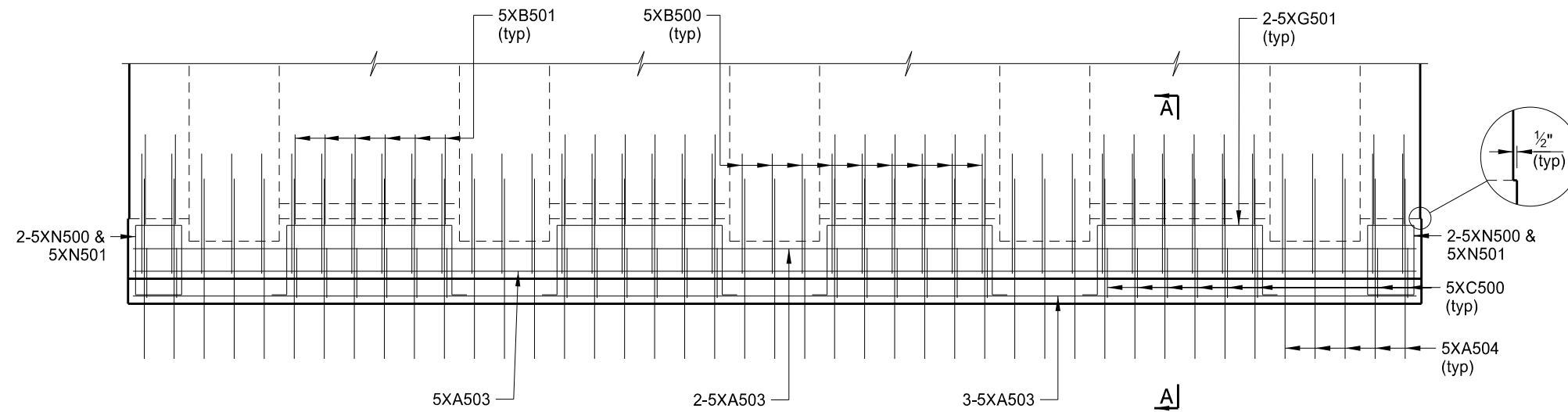
QUANTITIES	
SEE DWG 85-012.747-19	
SPRING CREEK 4 SOUTH OF JCT US 12	
PIER DIAPHRAGM DETAILS	
DRAWING NO.	85-012.747-17

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	18

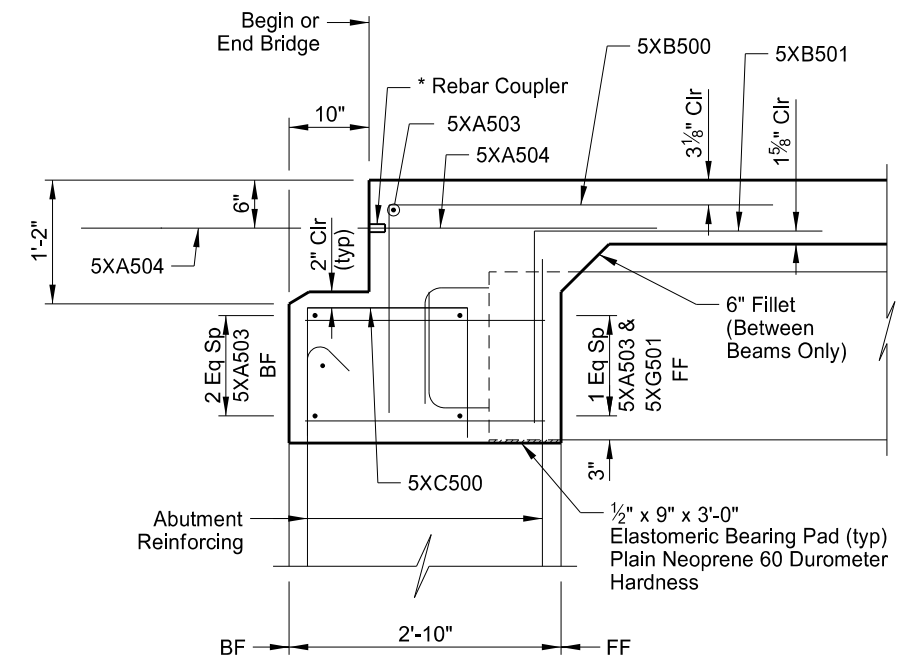
NOTE:

Do not install the 5XA504 bars into the approach slab until all of the foundation fill is in place.

* Use mechanical connectors for the couplers capable of developing 125% of the reinforcing steel specified yield strength. Provide epoxy coated couplers according to Section 836.02 A and repair any damaged epoxy coating according to Section 612.04 E.



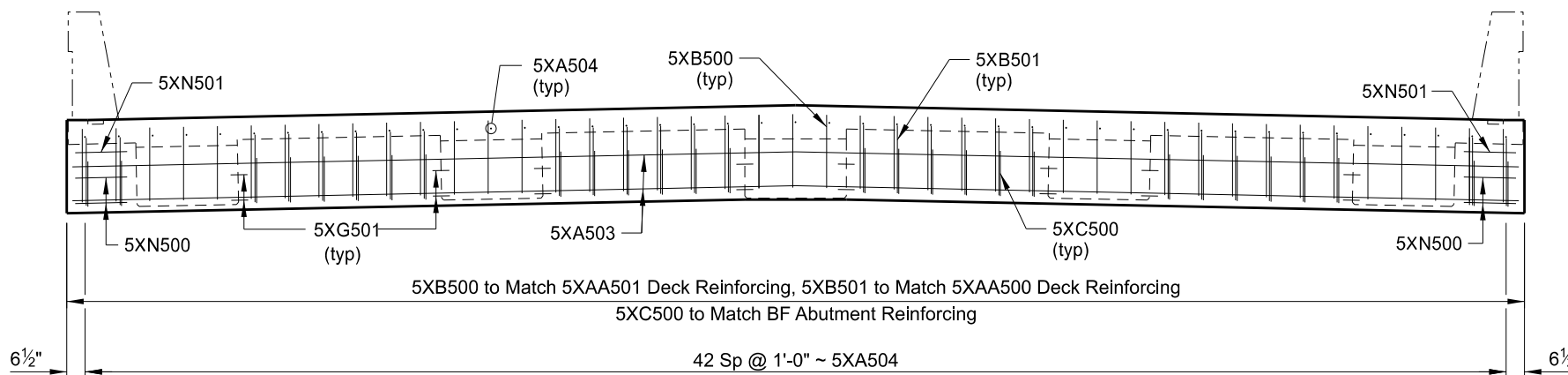
PLAN



A-A

NOMENCLATURE:

FF = Front Face
BF = Back Face



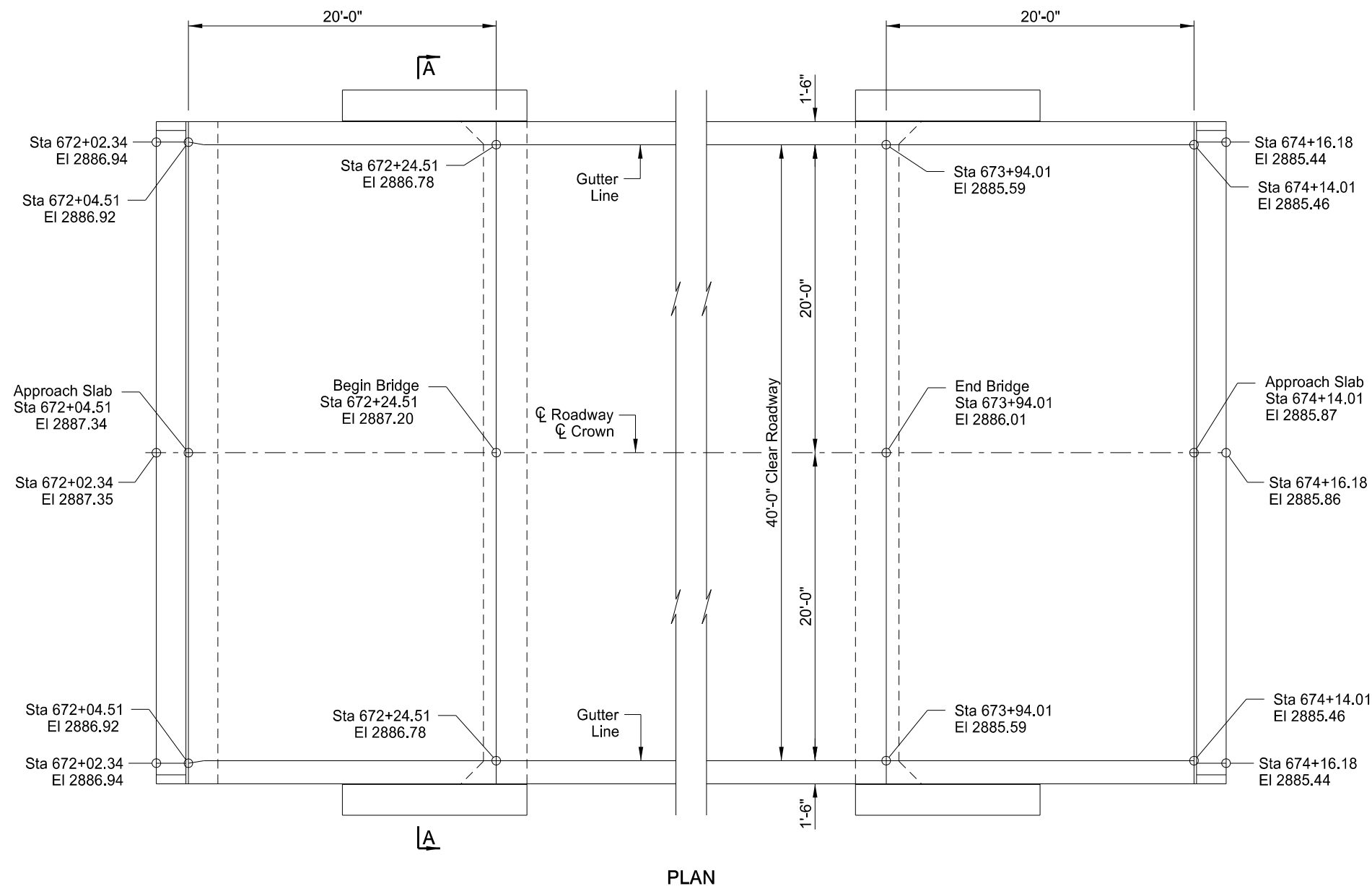
ELEVATION

QUANTITIES	
SEE DWG 85-012.747-19	
SPRING CREEK 4 SOUTH OF JCT US 12 ENDWALL DETAILS	
DRAWING NO.	85-012.747-18

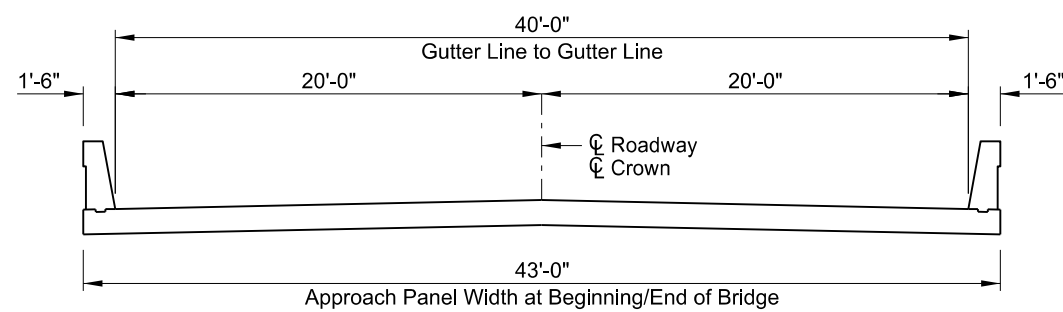
This drawing
is preliminary
and not for
construction or
implementation
purposes.

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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NOTE: Verify elevations shown with roadway plans prior to construction.



PLAN

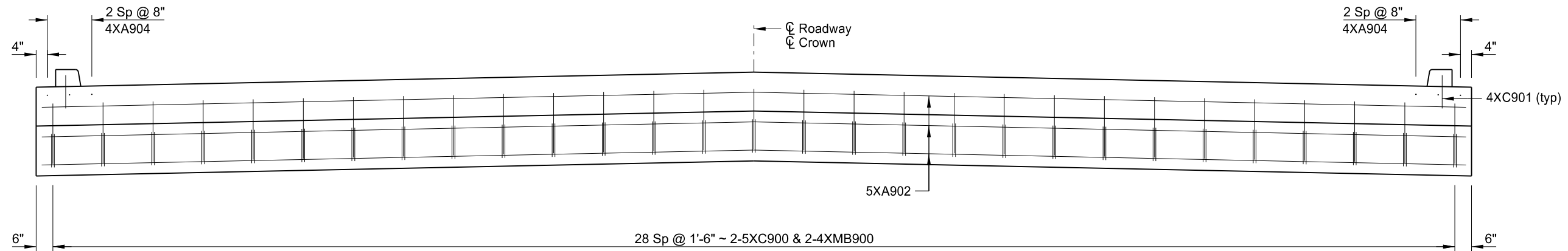


A-A

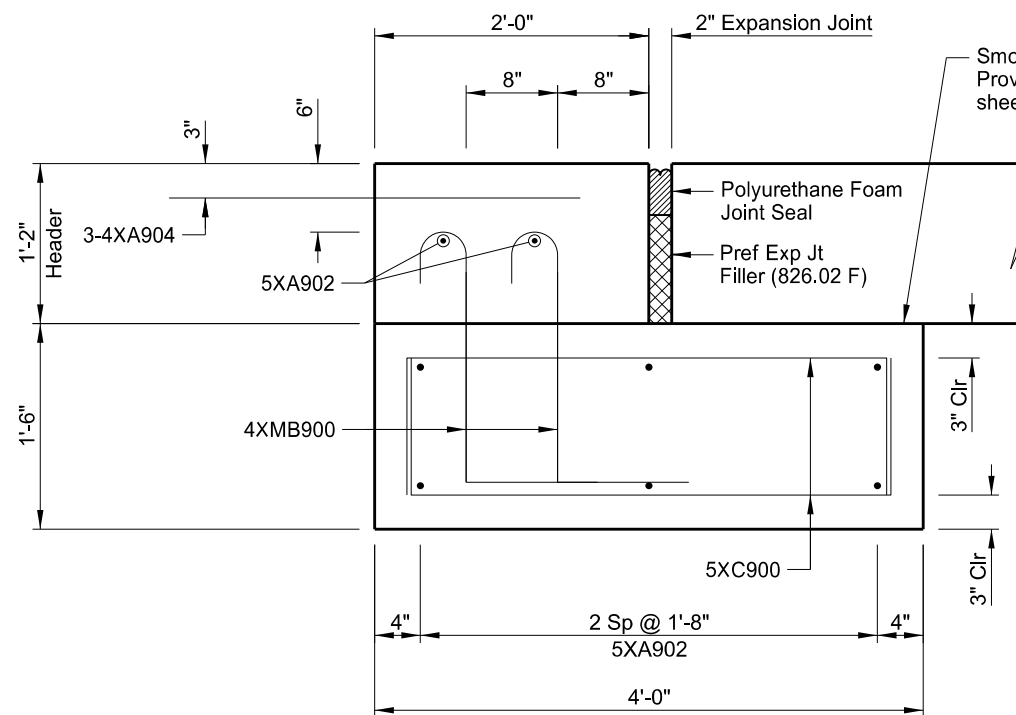
This drawing is preliminary and not for construction or implementation purposes.

SPRING CREEK 4 SOUTH OF JCT US 12	
BRIDGE APPROACH PANEL LAYOUT	
DRAWING NO.	85-012.747-20

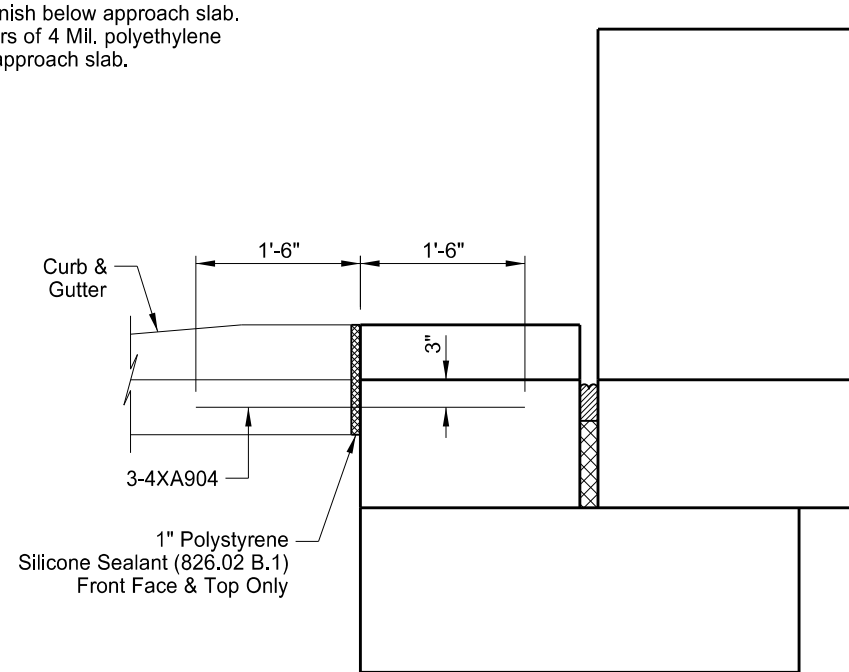
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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ELEVATION



CONCRETE SLEEPER SLAB



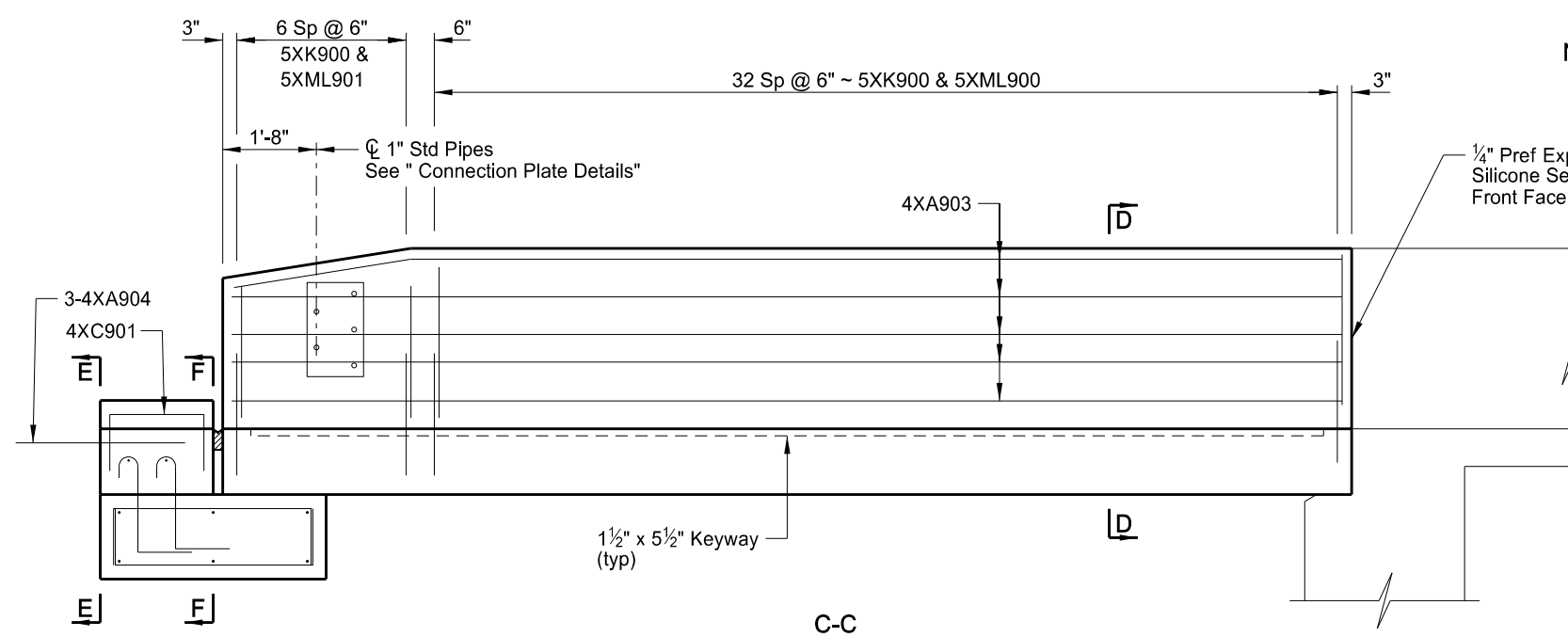
DETAIL "A"

NOTE:
See Dwg 85-012.747-21 for Detail "A" location.

This drawing is preliminary and not for construction or implementation purposes.

SPRING CREEK 4 SOUTH OF JCT US 12 CONCRETE SLEEPER SLAB	
DRAWING NO.	85-012.747-22

REVISED 2-19-2026	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SS-5-085(086)012	170	23

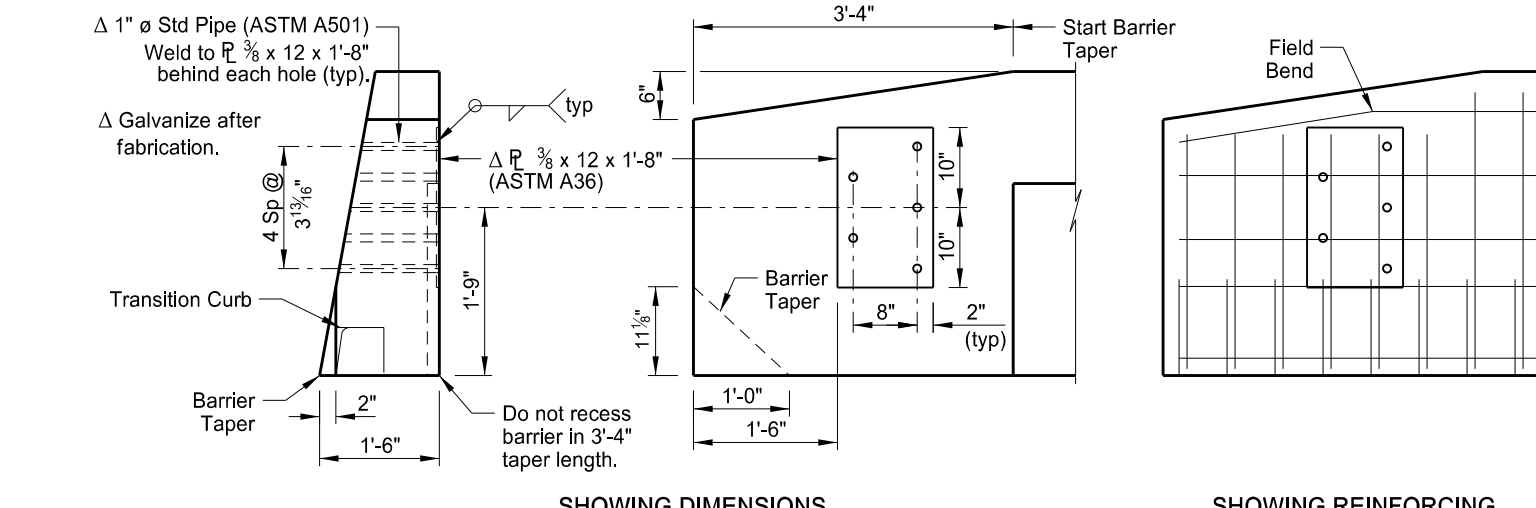


NOTES:

The estimated material quantities shown are for information purposes only. Include the concrete, reinforcing bars, polyethylene film, preformed joint filler, polystyrene, silicone sealant, connection plates and pipes, and labor required to build the approach slabs and barriers in the Approach Slab pay item. Use concrete that meets the requirements of Section 602. Provide reinforcing steel that meets the requirements of Section 612. Use polyethylene film that meets the requirements of ASTM C171.

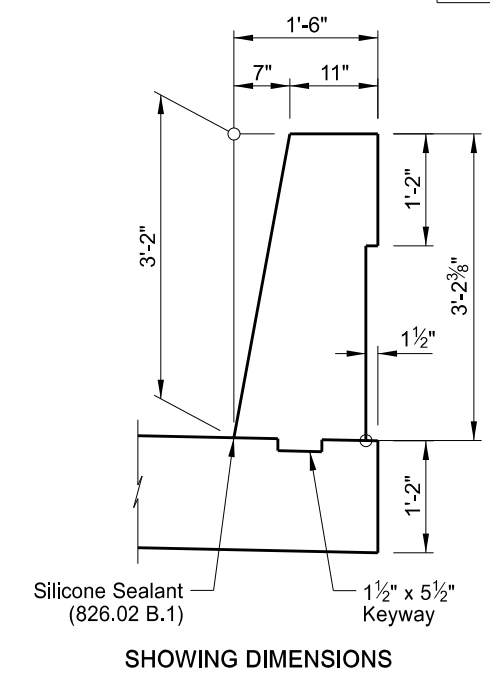
ESTIMATED MATERIAL QUANTITIES (One End)

CONCRETE (approach slab)	42.9 CY
REINFORCING STEEL (approach slab)	7,494 LBS
CONCRETE (sleeper slab & header)	13.3 CY
REINFORCING (sleeper slab & header)	819 LBS

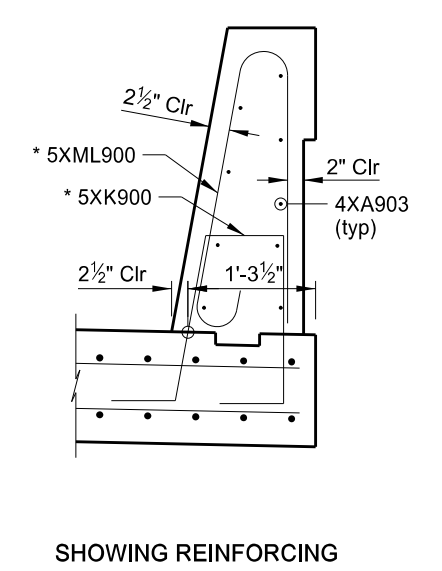


SHOWING DIMENSIONS

SHOWING REINFORCING

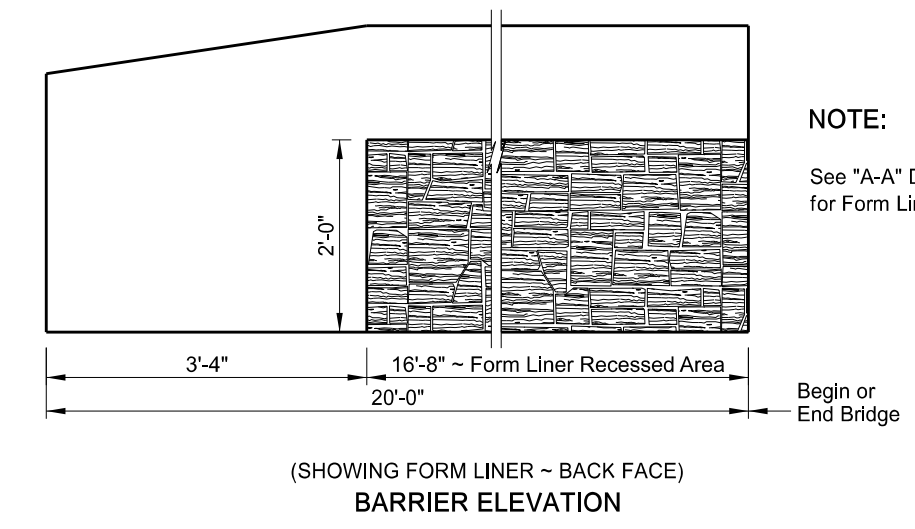


SHOWING DIMENSIONS



SHOWING REINFORCING

(SHOWING BACK FACE)
CONNECTION PLATE DETAILS

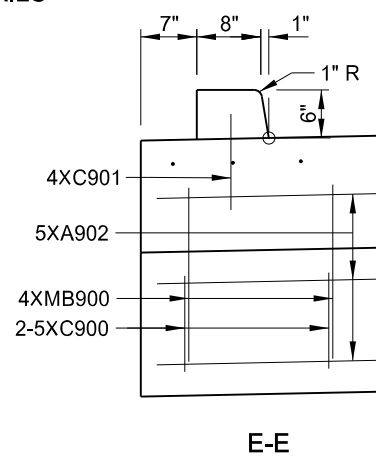


(SHOWING FORM LINER ~ BACK FACE)
BARRIER ELEVATION

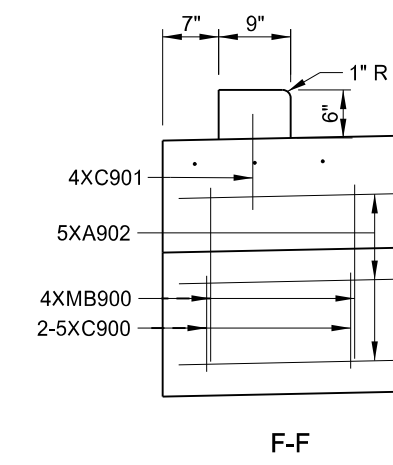
NOTE:

See "A-A" Dwg 85-012.747-16 for Form Liner Limits.

Begin or End Bridge



E-E



F-F

This drawing is preliminary and not for construction or implementation purposes.

D-D

NOTE:

See Dwg 85-012.747-21 for Sections C-C and B-B locations.

QUANTITIES	(ONE END)
APPROACH SLAB	95.6 SY
CONCRETE SLEEPER SLAB	19 SY
POLYURETHANE FOAM JOINT SEAL	41 LF

SPRING CREEK
4 SOUTH OF JCT US 12

APPROACH SLAB DETAILS

DRAWING NO.	85-012.747-23
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BILL OF REINFORCING STEEL, GRADE 60

LETTER PREFIX OF BAR MARK DENOTES SHAPE ~ SEE BAR DETAILS

REVISED 2-19-2026

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	26

LOCATION	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS																				
					a	b	c	d	e	f	g	h	k												
APPROACH SLAB (ONE SLAB)	7	XA900	86	19'- 8"		19'- 8"																			
	5	XA901	43	19'- 8"		19'- 8"																			
	5	XA902	42	42'- 8"		42'- 8"																			
	4	XA903	18	19'- 8"		19'- 8"																			
	5	XK900	80	6'- 2"	1'- 10"	10"			1'- 1"			10"	2.2	12											
	5	XML900	66	6'- 7"		2'- 7"	9"	2'- 8"		2.375"			2.2	12											
	5	XML901	14	5'- 7"		2'- 0"	11"	2'- 1"		3"			2.2	12											

LOCATION	SIZE	MARK	NO. EACH /SET	NOMINAL LENGTH	DETAILING DIMENSIONS																				
					a	b	c	d	e	f	g	h	k												
SLEEPER SLAB (ONE SLAB)	5	XA902	8	42'- 8"		42'- 8"																			
	4	XA904	6	3'- 0"		3'- 0"																			
	5	XC900	58	5'- 6"		1'- 0"	3'- 6"	1'- 0"																	
	4	XC901	2	3'- 6"		1'- 0"	1'- 6"	1'- 0"																	
	4	XMB900	58	2'- 11"		8"	1'- 10"																		

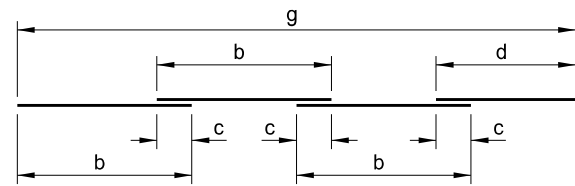
23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

This drawing
is preliminary
and not for
construction or
implementation
purposes.

SPRING CREEK 4 SOUTH OF JCT US 12 REINFORCING BAR LIST	
DRAWING NO.	85-012.747-26

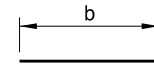
STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SS-5-085(086)012	170	27

23 U.S.C. § 407 Documents
NDDOT Reserves All Objections

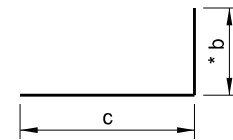


c = Lap Splice (typ)
e = # of "b" Length Pieces in a Set
Total Length per Set = e x b + d

AA

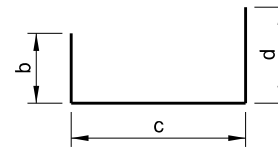


A

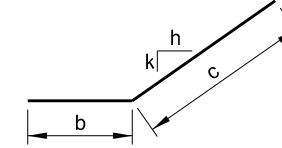


B

* b = Vertical Leg for
XB500 and XB501



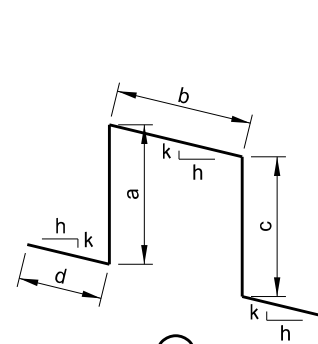
C



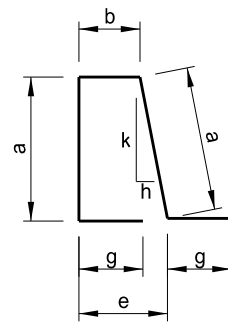
D

NOTES:

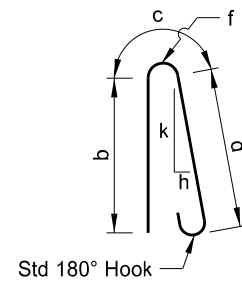
1. Verify the quantity, size, and shape of the bar reinforcement against the structure drawings and immediately notify the Engineer of any discrepancies. Discrepancies in the bar list will not be cause for adjustment of the contract unit price.
2. All dimensions are out to out of bars.
3. Nominal length of each bent bar or cut bar is the sum total of the detailing dimensions for that bar, unless otherwise noted.
4. Turn adjacent "AA" bars end for end so that the splice locations are staggered.
5. The "f" dimension indicates the inside radius unless otherwise noted.
6. An "X" preceding a bar designation indicates an epoxy coated bar.
7. Reinforcing steel bid items do not include bar list quantity of approach slab reinforcing steel. Include the approach slab bar list quantity in the approach slab pay items.



G

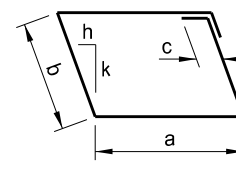


K

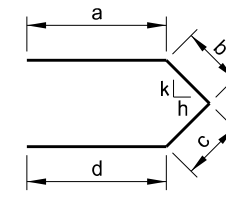


Std 180° Hook

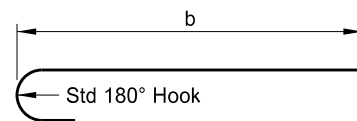
ML



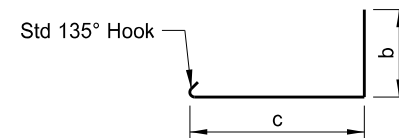
N



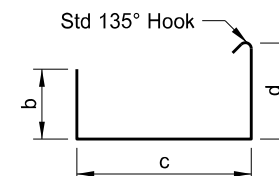
M



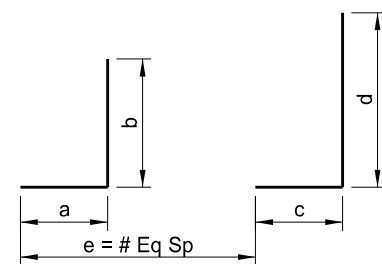
MA



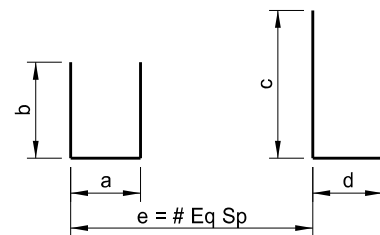
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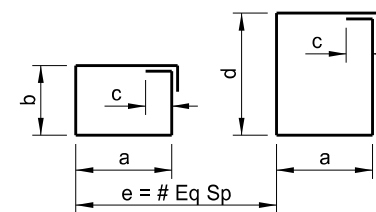
MC



SB



SC



SN

This drawing
is preliminary
and not for
construction or
implementation
purposes.

SPRING CREEK 4 SOUTH OF JCT US 12	
REINFORCING BAR LIST	
DRAWING NO.	85-012.747-27