

8/1/98

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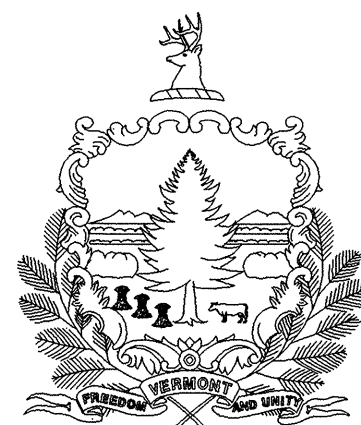
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13. REINFORCING SCHEDULE

LIST OF STANDARDS	
B-5	06-01-94
E-102	08-08-95
E-100	08-08-95
G-1	06-01-94
G-1d	06-01-94
SB-R6-82	01-06-95
SB-R7-90	01-11-95
T-2	06-01-94

STATE OF VERMONT AGENCY OF TRANSPORTATION



PROPOSED IMPROVEMENT BRIDGE PROJECT

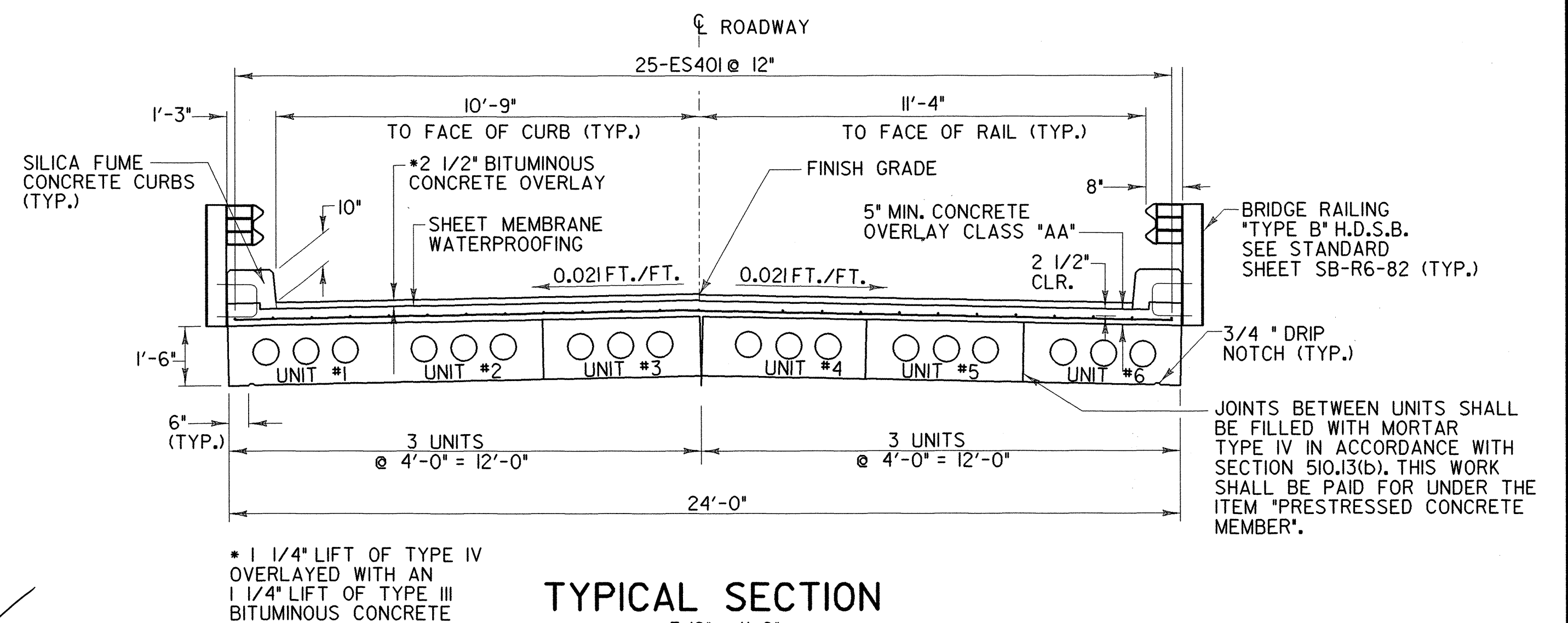
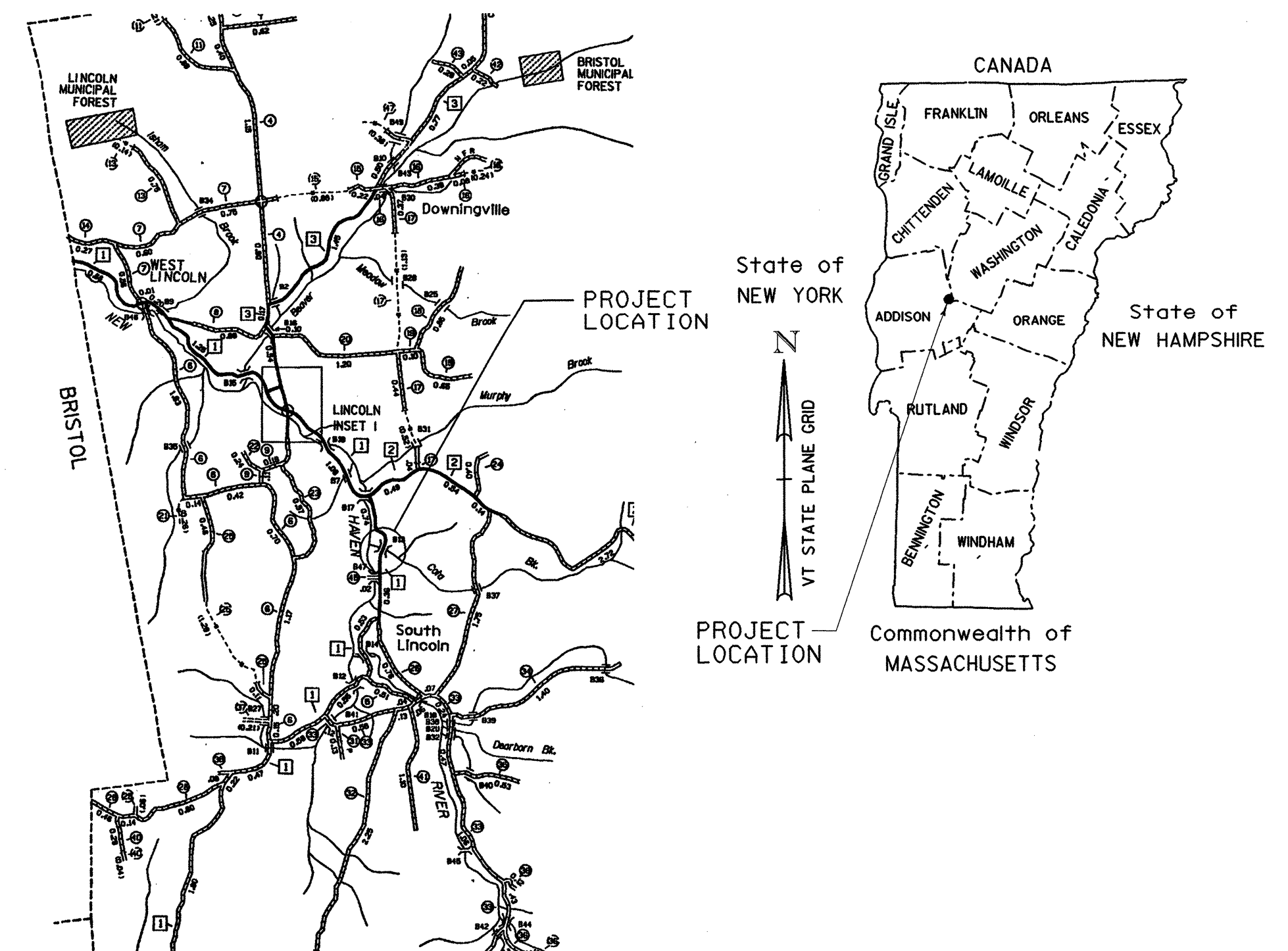
TOWN OF LINCOLN
COUNTY OF ADDISON

ROUTE NO : TH #1 BRIDGE NO : 13

PROJECT LOCATION : LOCATED ON SOUTH LINCOLN ROAD (TH #1) IN THE TOWN OF LINCOLN, APPROXIMATELY 1/2 MILE SOUTH OF THE INTERSECTION OF EAST RIVER ROAD (TH #2).

PROJECT DESCRIPTION : REPLACEMENT OF A DEFICIENT SUPERSTRUCTURE WITH MINOR ROADWAY APPROACH WORK.

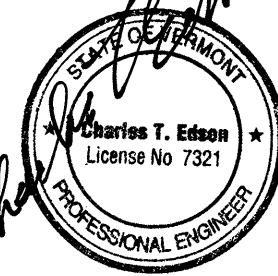
LENGTH OF STRUCTURE	37.84 FEET
LENGTH OF ROADWAY	102.16 FEET
LENGTH OF PROJECT	140.00 FEET



CONVENTIONAL SIGNS

COUNTY LINE	---
TOWN LINE	---
LIMITS OF ACCESS	---X---
POINT OF ACCESS	X
FENCE LINE	---X---
STONE WALL	-----
TRAVELED WAY	-----
GUARD RAIL	-----
RAILROAD	-----
SURVEY LINE	-----
CULVERT	-----
POWER POLE	-----
TELEPHONE POLE	-----
TREES	-----
CONTROL OF ACCESS	---
PROPERTY LINE	---
R.O.W. TAKING LINE	---
SLOPE RIGHTS	---
TOP OF CUT	---
TOE OF SLOPE	---

DATUM	---
VERTICAL	---
HORIZONTAL	---



THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER. CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

RE-ADVERTISED *[Signature]* TH #1 TRAFFIC DATA
1998 ADT = 400
TRUCKS = 3%

PROJECT NO. BHO 1445 (28)

Greenman-Pedersen CONSULTING ENGINEERS	LINCOLN BRIDGE 13 OVER COTA BROOK
GPI	TITLE SHEET
55 Monument Ave. Bennington, VT. 05201	DRAWING NO. T-1
SCALE: AS SHOWN	DATE: DEC., 1999
SHEET NO. 1 OF 13	

1
2
3
4
5
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9
10

RE-ADVERTISED

PROJECT NO. BHO 1445 (28)

Greenman-Pedersen
CONSULTING ENGINEERS

GPI

55 Monument Ave.
Bennington, VT, 05201

LINCOLN BRIDGE I3
OVER COTA BROOK

QUANTITY SHEET

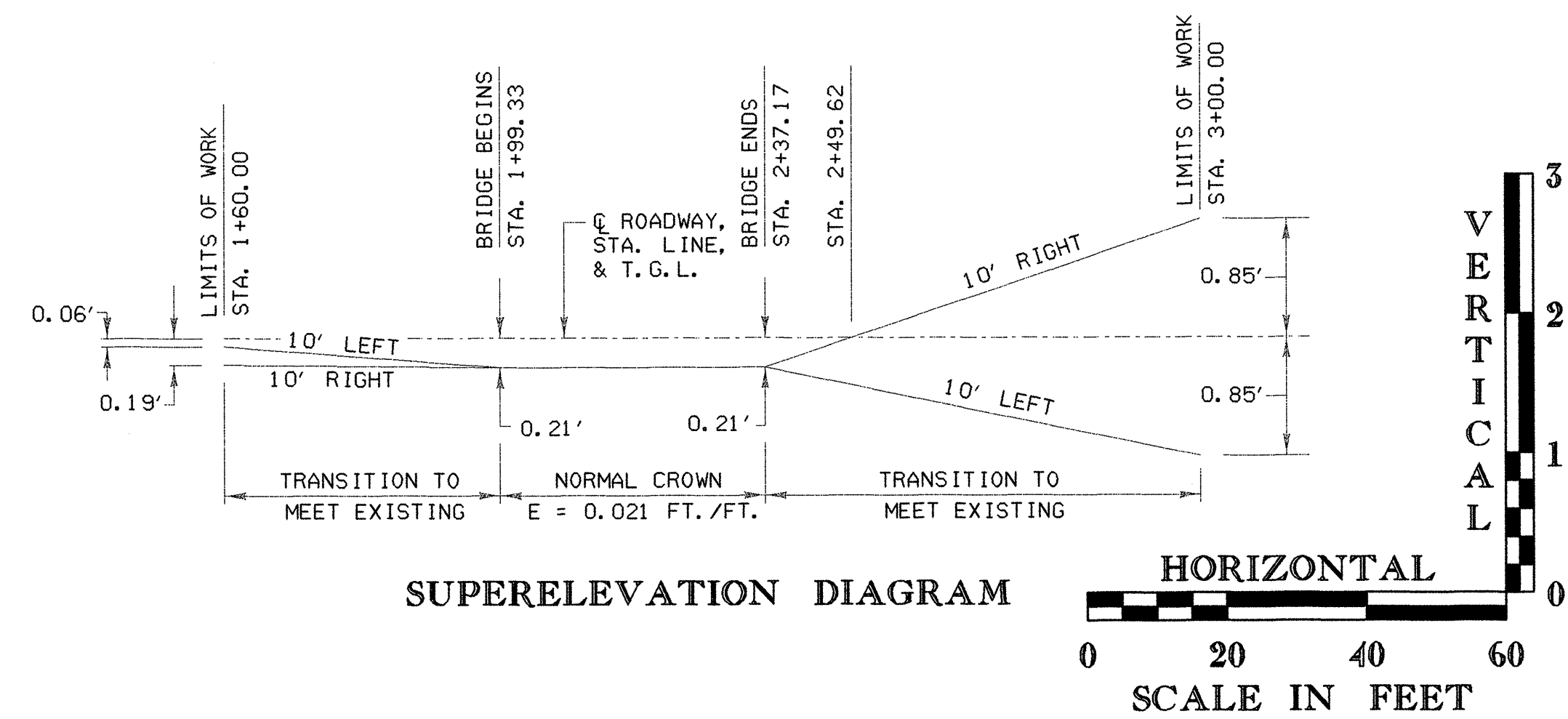
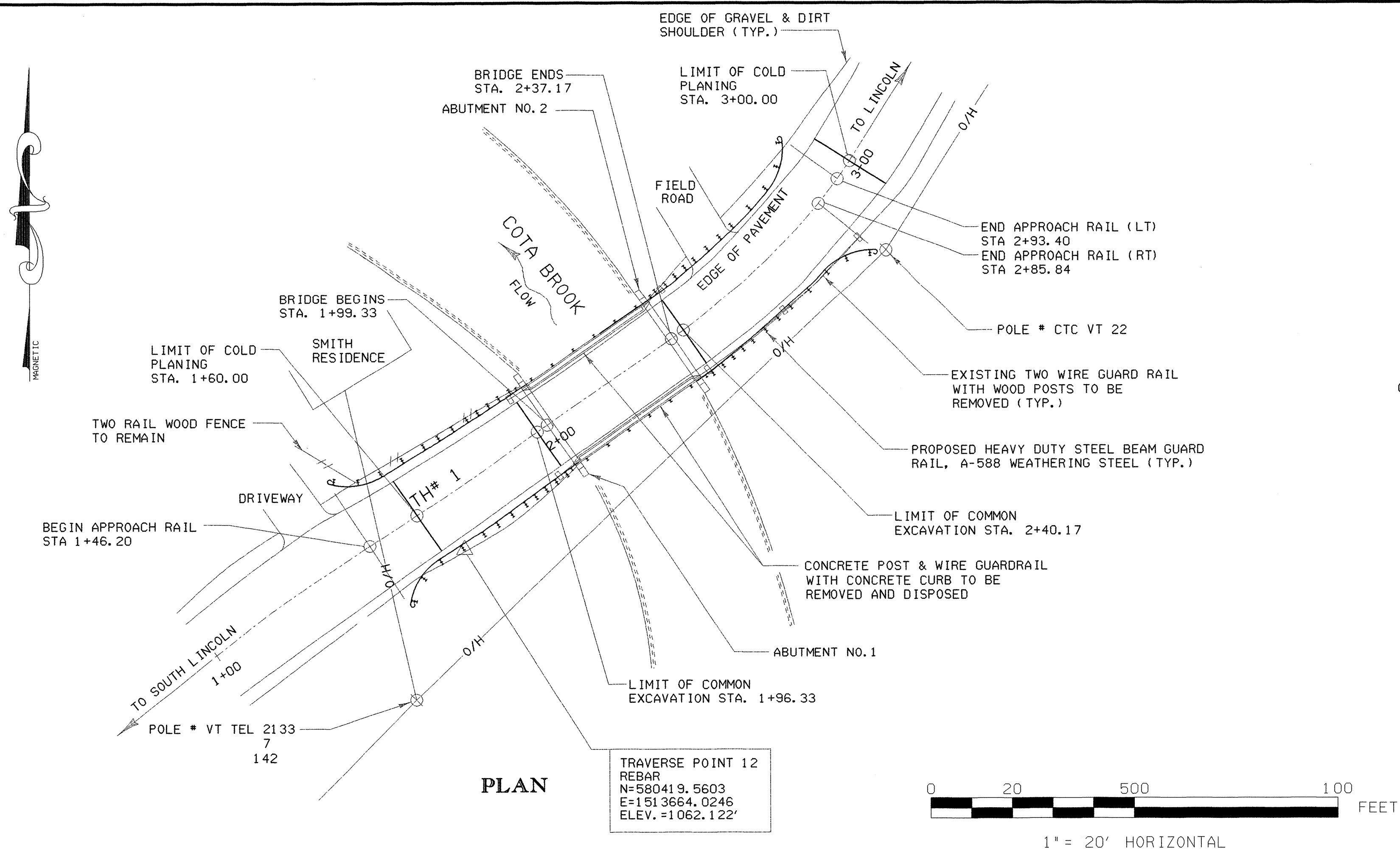
DRAWING NO.
ES-I

SCALE:
AS SHOWN

DATE:
DEC., 1999

SHEET NO.
2 OF 13

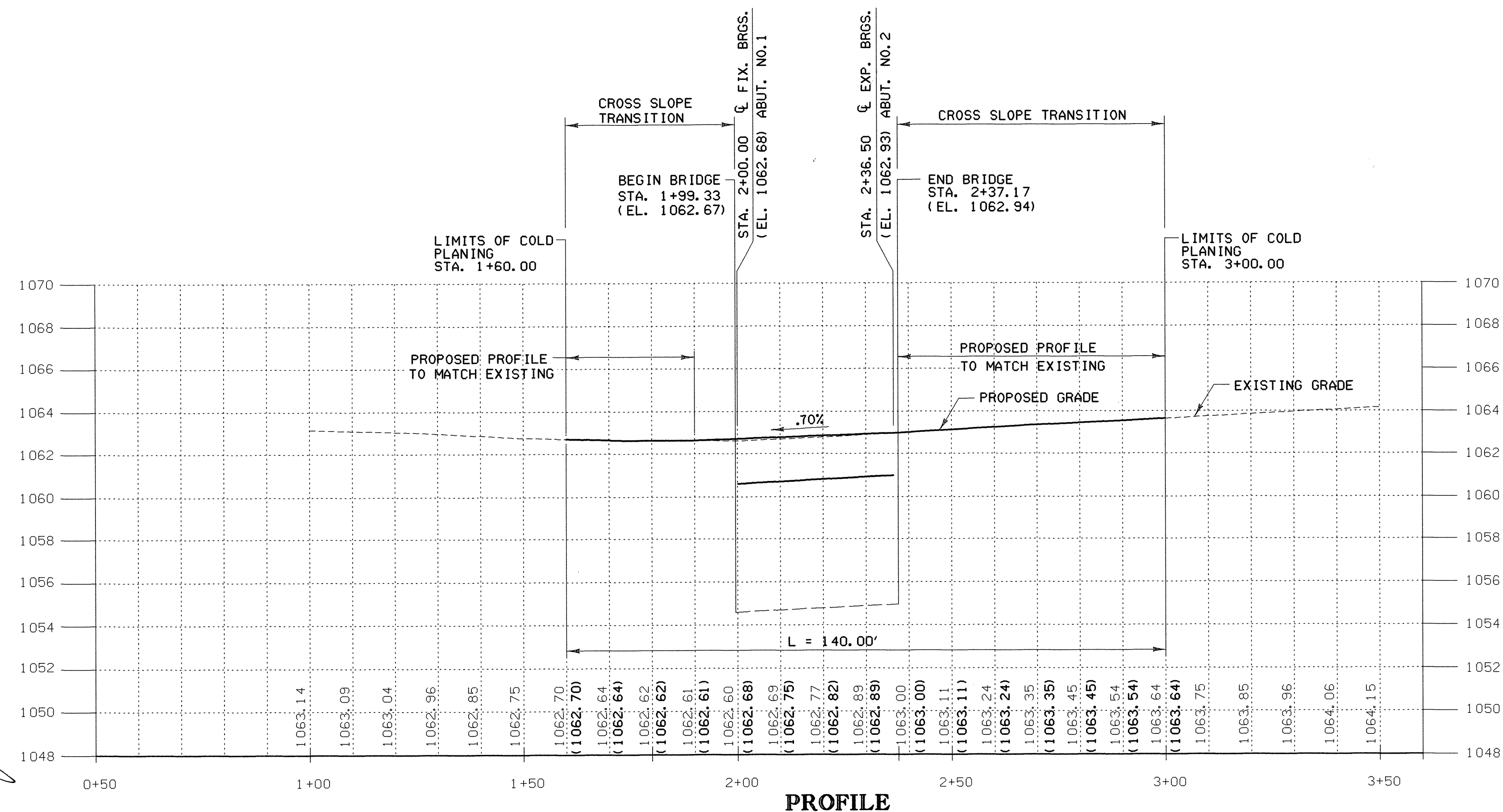
IN CHARGE OF *Amesh Kumar*



NOTES

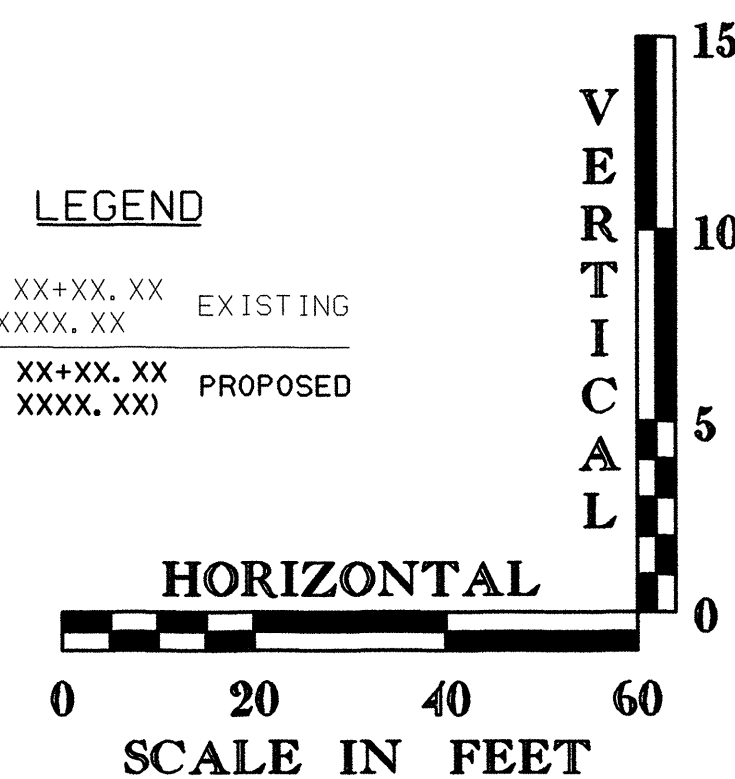
1) ALL ELEVATIONS ARE BASED ON NAVD 88 AND COORDINATES ON NAD 83(1996), AT BM "L34 1942" AND A BEARING OBSERVED BY EIV IN THE FIELD MARCH 1999.

BM "L34 1942": NAD 83(1996) N= 582409.8004 (FT)
E= 1517751.0370 (FT)
NAVD 88 EL = 1306.07 (FT)



LEGEND

STA. XX+XX.XX EL. XXXX.XX	EXISTING
STA. XX+XX.XX (EL. XXXX.XX)	PROPOSED



LEGEND

	EDGE OF PAVEMENT
	CENTERLINE OF ROAD
	EDGE OF GRAVEL ROAD
	EDGE OF SHOULDER
	GUARD RAIL
	OVERHEAD UTILITY LINE
	TWO RAIL WOOD FENCE
	TRAVERSE POINT
	UTILITY POLE

RE-ADVERTISED

PROJECT NO.

BHO 1445 (28)

Greenman-Pedersen
CONSULTING ENGINEERS

LINCOLN BRIDGE 13
OVER COTA BROOK

PLAN AND PROFILE

DRAWING NO. PP-1	SCALE: AS SHOWN	DATE: DEC., 1999	SHEET NO. 3 OF 13
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DESIGNED BY: *John D. Pedersen*
IN CHARGE OF: *James H. Pedersen*
DRAFTED BY: *Michael C. McNeil*
CHECKED BY: *John D. Pedersen*
8 FILES

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 1990 STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 1996, AND ITS LATEST REVISIONS.
2. AS DIRECTED BY THE ENGINEER AND THE STANDARD SPECIFICATIONS, SECTION 105, THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT SILTATION OR POLLUTION, ESPECIALLY RAW CONCRETE, FROM ENTERING COTA BROOK.
3. THE PRESTRESSING UNITS SHALL BE OVERLAYED WITH CONCRETE, CLASS AA. THE CONCRETE IS TO BE POURED IN ONE CONTINUOUS POUR WITH A MAXIMUM DURATION OF EIGHT HOURS. IF CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL PREVENT THIS FROM BEING ACCOMPLISHED, A CONSTRUCTION JOINT SHALL BE USED. A NINETY SIX HOUR DELAY BETWEEN THE COMPLETION OF ONE DAY'S POUR AND THE BEGINNING OF ANY OTHER POUR SHALL BE OBSERVED.
4. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" BY 1" EXCEPT WHERE NOTED.
5. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
6. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE "CONCRETE REINFORCING STEEL INSTITUTE".
7. REINFORCING PLACEMENT TOLERANCES SHALL BE:
SPACING +/- 1"
CLEARANCE +/- 1/4"
8. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE PRESTRESSED UNITS BETWEEN DRIP NOTCHES. NO WATER REPELLENT SHALL BE APPLIED TO THE PRESTRESSED UNITS PRIOR TO THE PLACEMENT OF THE OVERLAY AND CURB.
9. ALL DIMENSIONS ARE EITHER HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES F, EXCEPT AS NOTED.
10. PRESTRESSED, PRECAST MEMBERS SHALL:
A. CONFORM WITH SECTION 510 "PRESTRESSED CONCRETE".
B. BE 18" X 48" X 37'-10" VOIDED SLAB UNITS, WITH THREE VOIDS.
C. HAVE THE ENDS OF THE STRANDS RECESSED AND GROUTED AS PER STANDARD PRACTICE.
D. HAVE THE VOIDS TERMINATE FROM THE ENDS OF THE UNITS AS SHOWN IN THE PLAN DETAIL AND BE CONTINUOUS, EXCEPT AS OTHERWISE DETAILED.
E. HAVE VOID DRAINS REQUIRED AT THE LOW END OF ALL VOIDS, THE VOID DRAIN SHALL BE 3/4" DIA. AND NON-FERROUS, AND SHALL BE CLEANED AFTER ERECTION.
F. USE CONCRETE WITH F'c=6000 psi AND F'ci=4000 psi.
G. USE PRESTRESSING STRANDS WHICH SHALL BE 1/2" DIA., 270 ksi, LOW-RELAXATION STRANDS PULLED TO 75% OF THEIR YIELD.
H. BE DESIGNED FOR AN AASHTO HS-25 LIVE LOAD.
I. HAVE A MINIMUM FINAL RESIDUAL CAMBER OF 1 3/8"

SERVICE LOADS PER UNIT AT MIDSPAN

	4' BEAM
MEMBER MOMENT, FT-K	108.9
DECK MOMENT, FT-K	45.8
SUPERIMPOSED DEAD LOAD MOMENT, FT-K	41.6
LIVE LOAD + IMPACT MOMENT, FT-K	224.8
DEAD LOAD REACTION, K	21.4
LIVE LOAD + IMPACT REACTION, K	30.0
TOTAL REACTION, K	51.4

11. FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE TOWN OF LINCOLN FOR APPROVAL PRIOR TO FABRICATION.
12. THE FABRICATOR MAY ALTER THE DESIGN, AS DETAILED, TO MEET THE PLANT'S PRESTRESSING OPERATION AND MATERIAL REQUIREMENTS, WITH THE APPROVAL OF THE ENGINEER. AN ALTERNATE STRAND CONFIGURATION MAY BE SUBMITTED FOR APPROVAL, PROVIDED THE DESIGN IS SIGNED AND STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF VERMONT AND THE DESIGN MEETS ALL OF THE APPLICABLE DESIGN CRITERIA, LOADINGS AND CODES.
13. THE PRICE PER PRECAST UNIT SHALL INCLUDE ALL MATERIALS CAST INTO THE UNITS AND ALL OF THE COSTS ASSOCIATED WITH THE TRANSVERSE STRANDS WITH MULTIPLE USE CHUCKS.
14. THE JOINTS BETWEEN THE VOIDED SLAB UNITS SHALL BE FILLED WITH MORTAR, TYPE IV IN ACCORDANCE WITH SECTION 510.13(B). THIS WORK WILL BE PAID FOR UNDER THE ITEM 510.20 "PRESTRESSED CONCRETE MEMBER", PER SEQUENCE (SEE DWG. PS-2).
15. THE TRANSVERSE STRANDS OR TIE RODS SHALL BE INSTALLED PRIOR TO THE PLACEMENT OF THE MORTAR AND CASTING OF THE "CONCRETE, CLASS AA", PER SEQUENCE (SEE DWG. PS-2).
16. MATERIALS, LABOR AND EQUIPMENT FOR ALL GROUTING AND FOR THE COLD POURED JOINT FILLER SHALL BE INCLUDED IN THE UNIT PRICE FOR ITEM 510.20 "PRESTRESSED CONCRETE MEMBERS".
17. THE ENTIRE BRIDGE SEAT SURFACE SHALL HAVE CONSTANT SLOPES AS SHOWN IN THE SUBSTRUCTURE DETAILS. THE SURFACE SHALL BE A SMOOTH TROWEL FINISH AND SHALL BE LEVEL FROM FRONT TO BACK.
18. THE 13/8" NEOPRENE BEARING PADS, CONFORMING TO SECTION 731.03 AND AASHTO M251, SHALL BE PAID FOR UNDER ITEM 531.10, "BEARING DEVICE ASSEMBLY", (NEOPRENE).

19. THE FOLLOWING ALLOWABLE STRESSES AND WEIGHTS APPLY TO THESE PLANS FOR DESIGN PURPOSES.
CAST IN PLACE CONCRETE: F'c=3000 psi Fc=1400 psi CLASS B
F'c=4000 psi Fc=1600 psi CLASS AA
F'c=5000 psi Fc=2000 psi SILICA FUME
REINFORCING STEEL: Ft=24,000 psi Fy=60,000 psi GRADE 60
20. THE BRIDGE WILL BE CLOSED FOR THE DURATION OF THE CONSTRUCTION, TRAFFIC WILL UTILIZE EAST RIVER RD., WEST HILL RD., AND GRIMES RD. AS A DETOUR ROUTE. SEE DWG. MT-1, MAINTENANCE OF TRAFFIC SHEET FOR THE PLAN OF DETOUR SIGNING.
21. A BRONZE BRIDGE IDENTIFICATION PLATE IS LOCATED ALONG THE CONCRETE CURB OF THE UPSTREAM FASCIA OF THE BRIDGE. THE CONTRACTOR SHALL REMOVE, CLEAN, STORE AND REINSTALL THIS PLATE AT THE TOP OF THE UPSTREAM CURTAIN WALL AT ABUTMENT NO. 1. CARE SHALL BE TAKEN BY THE CONTRACTOR DURING REMOVAL SO AS TO NOT DAMAGE THE PLATE IN ANY WAY. ALL WORK ASSOCIATED WITH THE PLATE, REMOVING, CLEANING, STORING, AND REINSTALLING, SHALL BE PAID FOR AND INCLUDED UNDER THE VARIOUS ITEMS OF THE PROJECT.
22. ALL HEAVY DUTY BRIDGE RAIL AND POSTS, ITEM 525.41& APPROACH RAIL WITH POSTS, ITEM 621.21 WILL BE ASTM A588, GR 50W STEEL AND WILL NOT BE GALVANIZED/COATED. THIS WILL LEAVE AN OXIDIZED APPEARANCE TO THE RAILS AND POSTS. ALL FASTENERS WILL BE ASTM A325, TYPE III, FOR WEATHERING CONDITIONS.
23. MARKER POSTS: TO BE PLACED AS INDICATED OR AS DIRECTED BY THE ENGINEER.
24. SLOPE ROUNDING: ALL CUT SLOPES TO BE ROUNDED IN ACCORDANCE WITH STANDARD SHEET B-5.
25. TACK COAT: EMULSIFIED ASPHALT IS TO BE APPLIED AT THE RATE OF 0.015 GAL./SY BETWEEN SUCCESSIVE COURSES OF PAVEMENT AS DIRECTED BY THE ENGINEER. COSTS ARE SUBSIDIARY TO ITEM 406.25, BITUMINOUS CONCRETE PAVEMENT.

SEEDING FORMULA
RURAL AREAS

% WT.	LBS./A.	NAME	PUR %	GERM %
37.5	22.5	CREEPING RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIRDSFOOT TREFOIL	98	85
5.0	3.0	ANNUAL RYEGRASS	95	85
100.0	60.0			

SEEDING NOTES

SEED MIXTURE SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS SEED.

SEED: TO BE APPLIED PER SEEDING FORMULAS OR AS DIRECTED BY THE ENGINEER.

FERTILIZER: FORMULA 10-20-10, TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS./ACRE. (HYDRO SEEDERS MAY USE 19-19-19 FORMULA.

AGRICULTURAL LIMESTONE TO BE APPLIED AT THE RATE OF 2 TONS/ACRE, OR AS DIRECTED BY THE ENGINEER.

HAY MULCH: TO BE PLACED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE OR AS DIRECTED BY THE ENGINEER.

TOPSOIL: TO BE USED WITH SEED AS INDICATED OR AS DIRECTED BY THE ENGINEER.

RE-ADVERTISED

PROJECT NO. BHO 1445 (28)

Greenman-Pedersen CONSULTING ENGINEERS GPI 55 Monument Ave. Bennington, VT. 05201	LINCOLN BRIDGE 13 OVER COTA BROOK			
	GENERAL NOTES			
DRAWING NO. GN-1	SCALE: AS SHOWN	DATE: DEC., 1999	SHEET NO. 5 OF 13	

SHEET NO.
6 OF 13

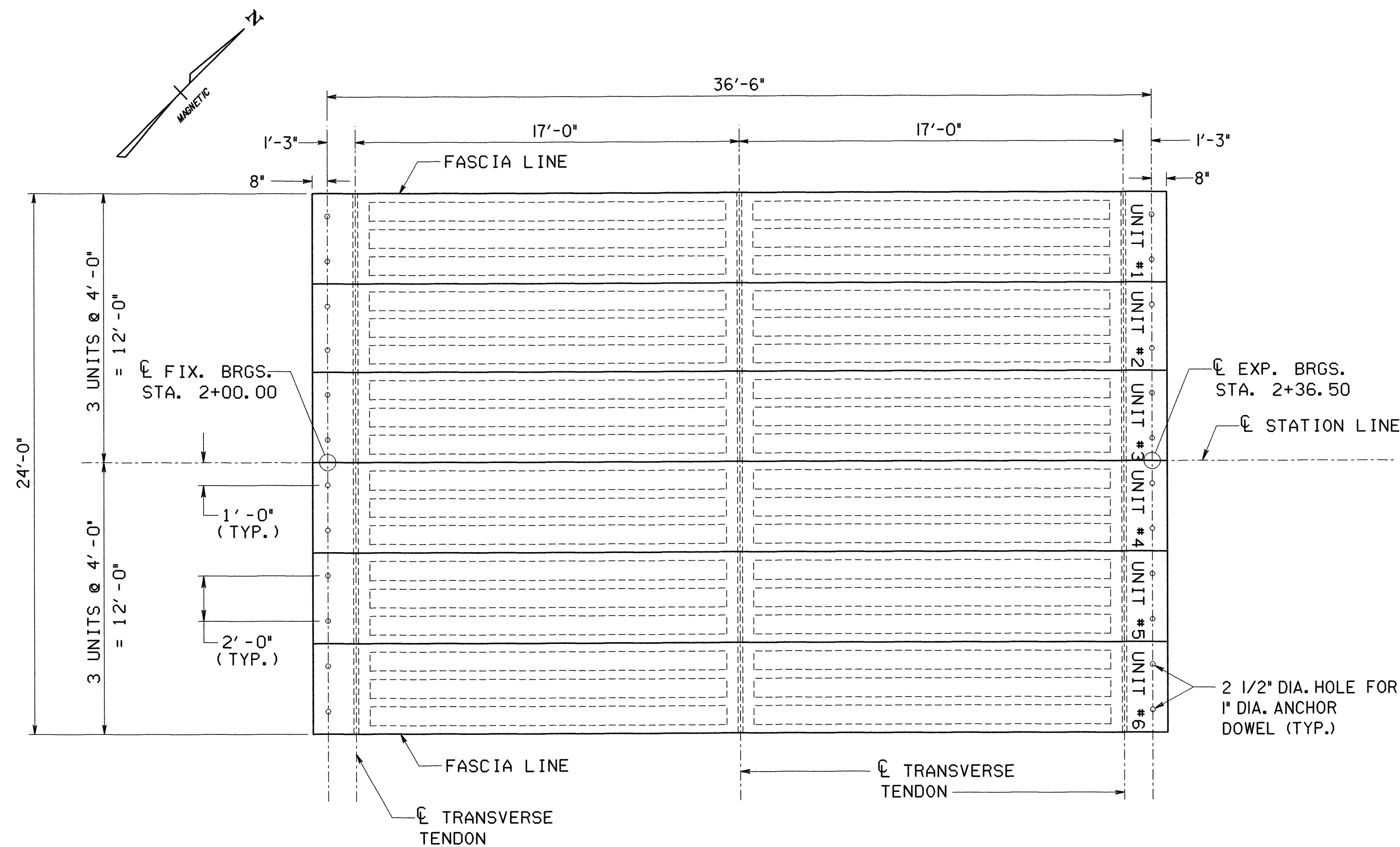
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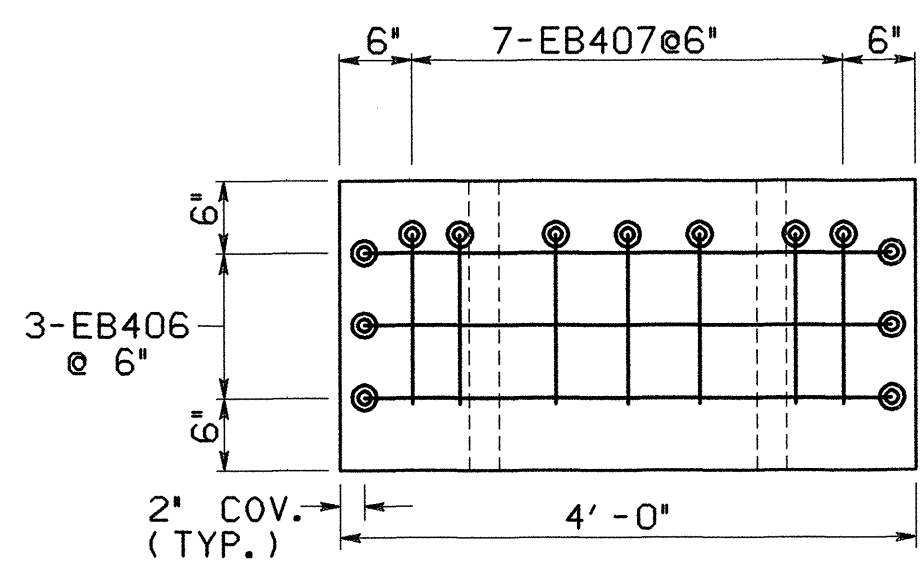
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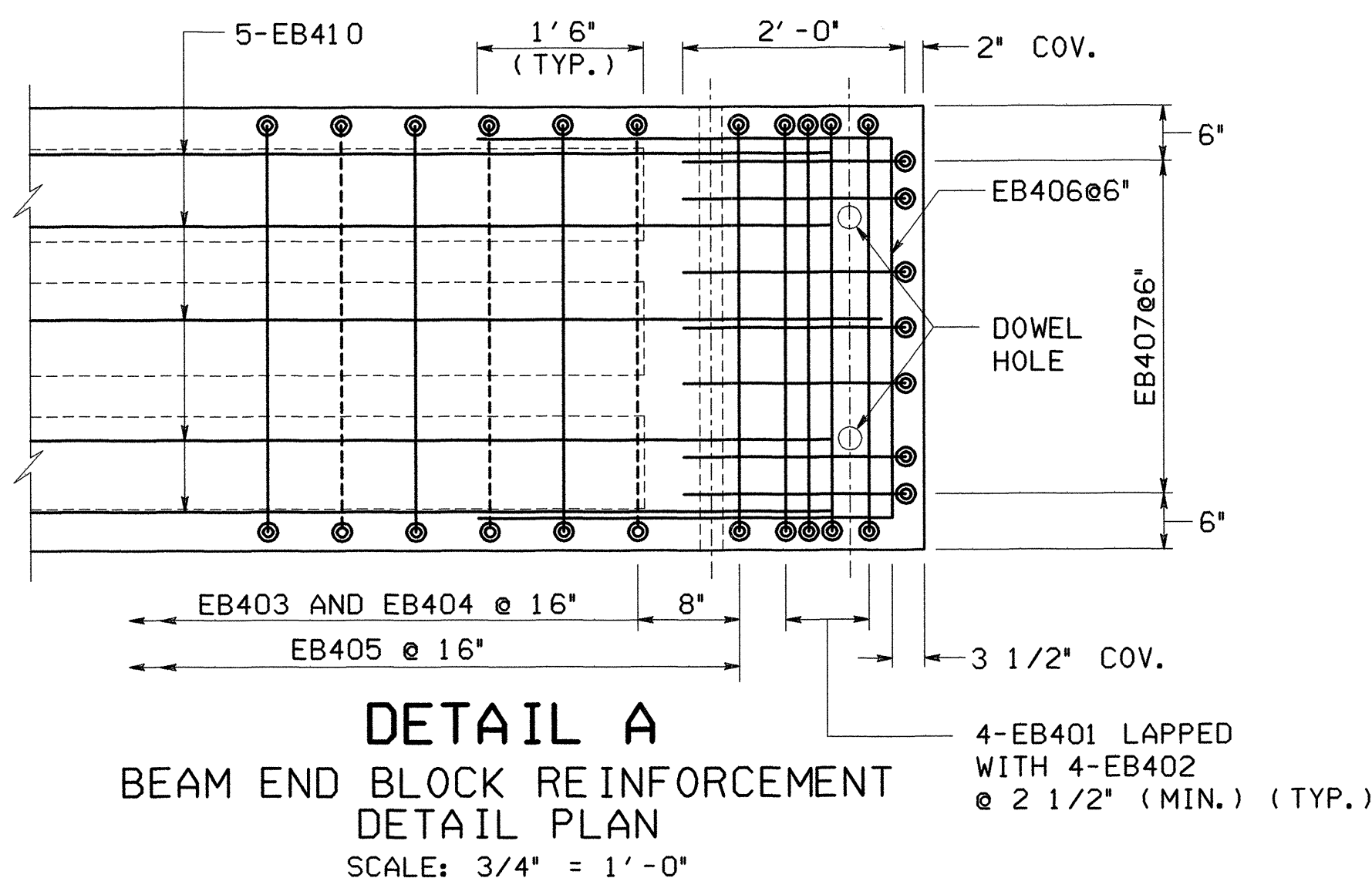
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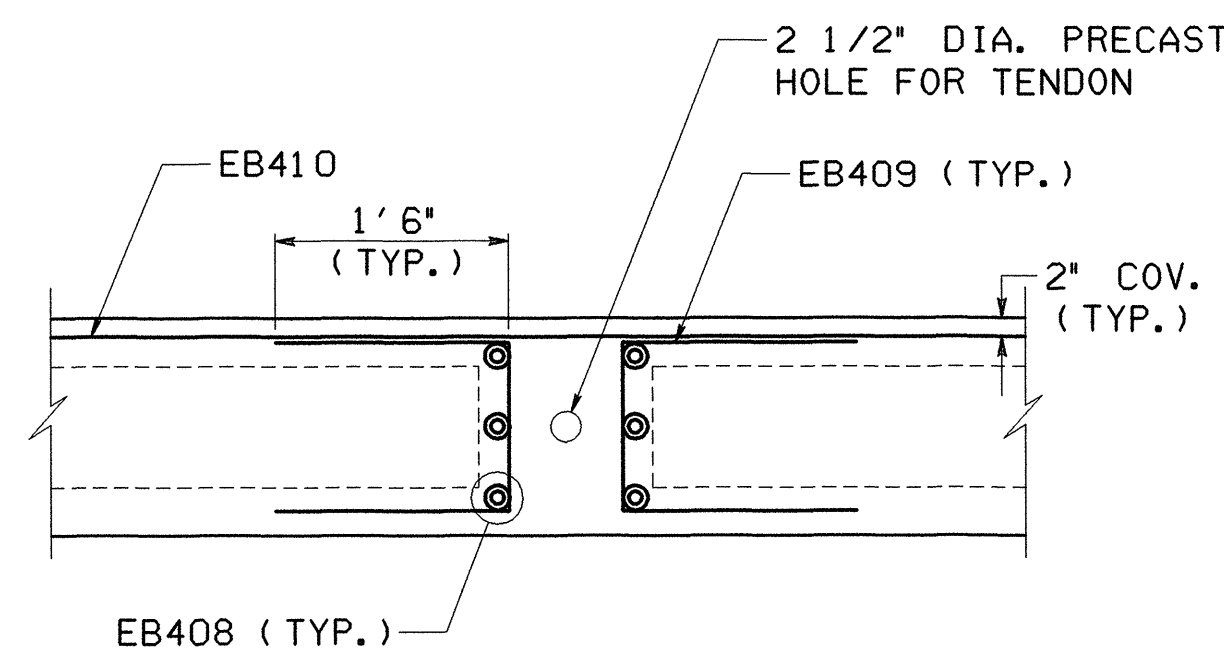
BEAM LAYOUT
SCALE: 1/4" = 1'-0"



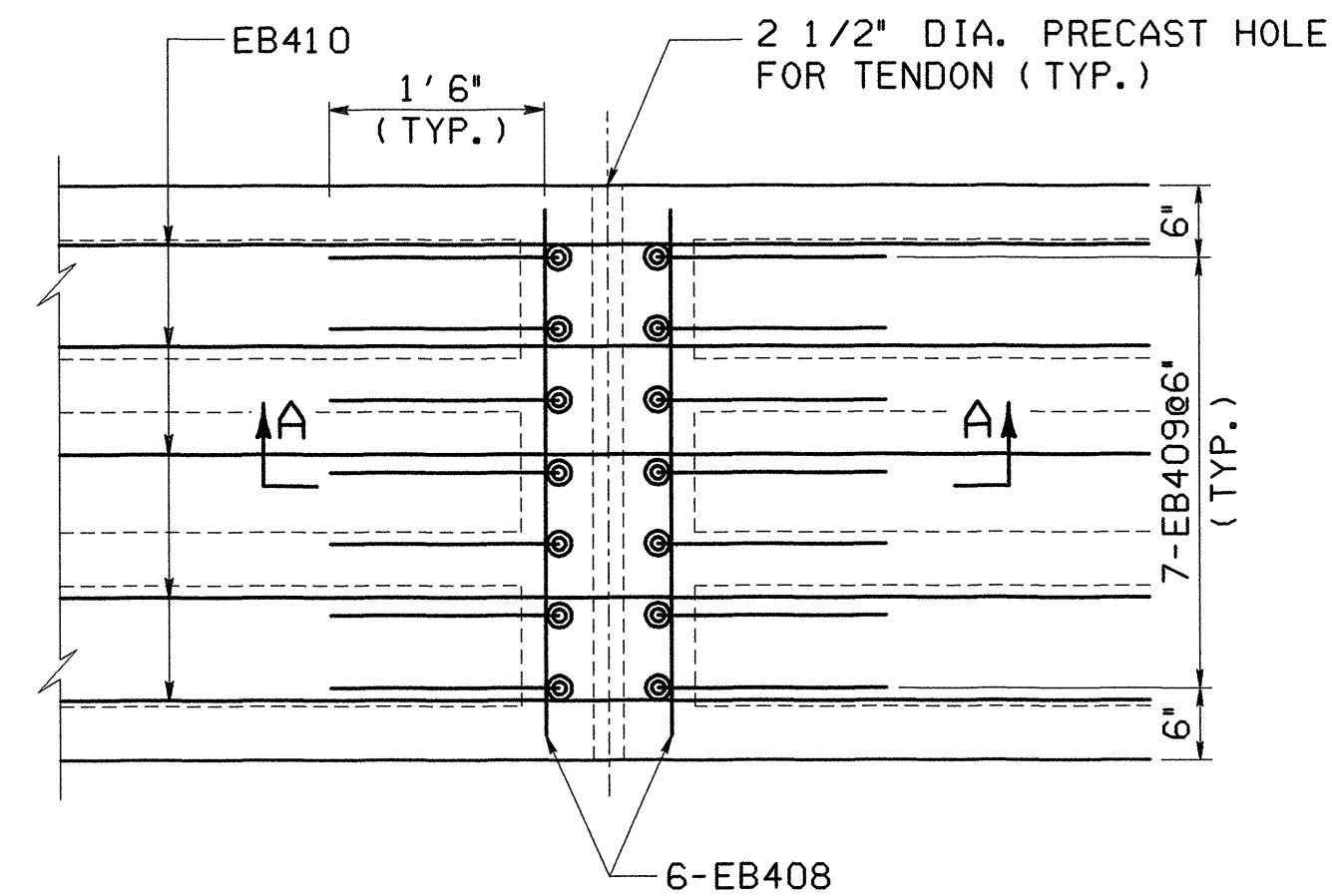
END BLOCK REINFORCEMENT
SCALE: 3/4" = 1'-0"



DETAIL A
BEAM END BLOCK REINFORCEMENT
DETAIL PLAN
SCALE: 3/4" = 1'-0"



SECTION A-A
SCALE: 3/4" = 1'-0"



REINFORCEMENT PLAN
DIAPHRAGM DETAILS
SCALE: 3/4" = 1'-0"

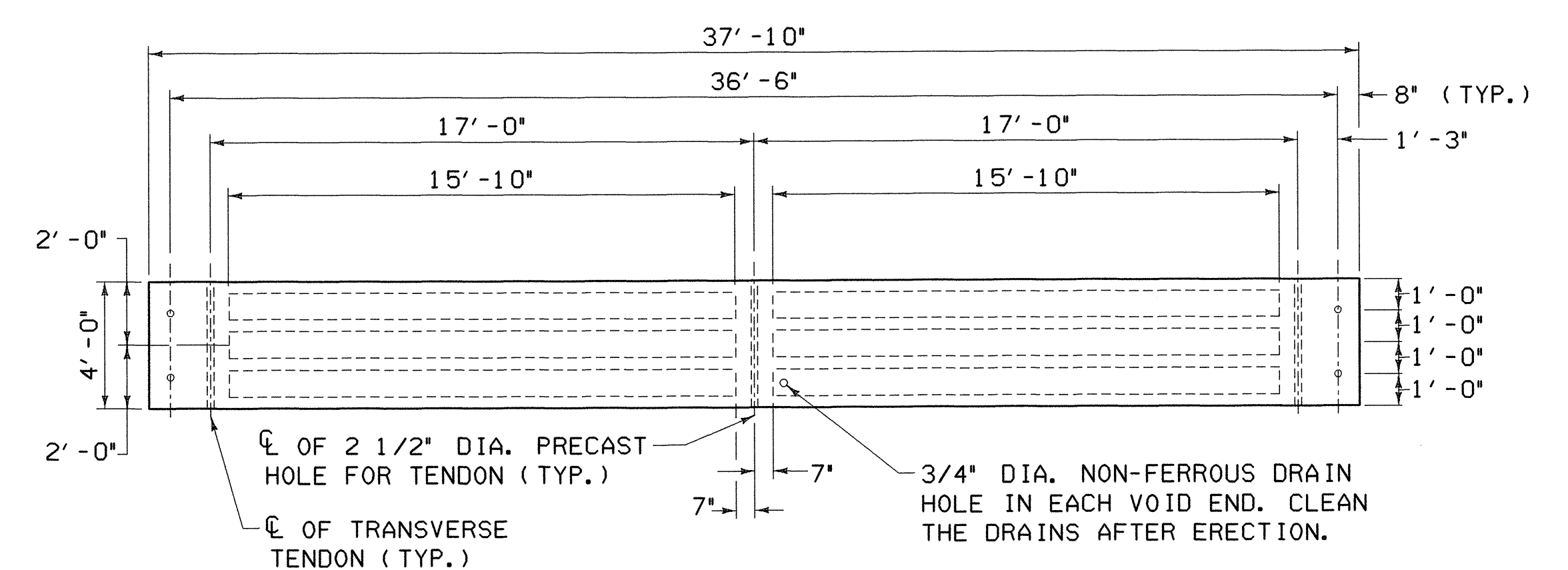
RE-ADVERTISED
PROJECT NO.

BHO 1445 (28)

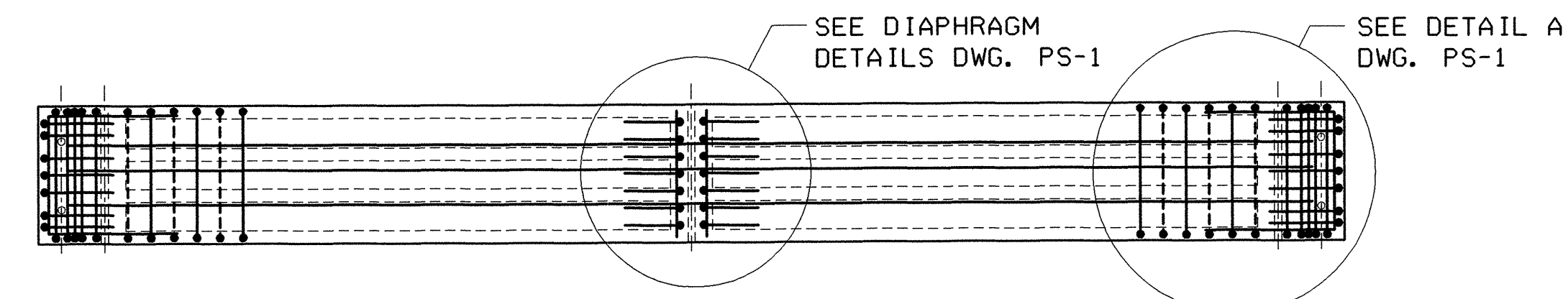
Greenman-Pedersen
CONSULTING ENGINEERS
GPI
55 Monument Ave.
Bennington, VT. 05201

LINCOLN BRIDGE 13 OVER COTA BROOK			
PRESTRESSED VOIDED SLAB DETAILS			
DRAWING NO. PS-I	SCALE: AS SHOWN	DATE: DEC., 1999	SHEET NO. 7 OF 13

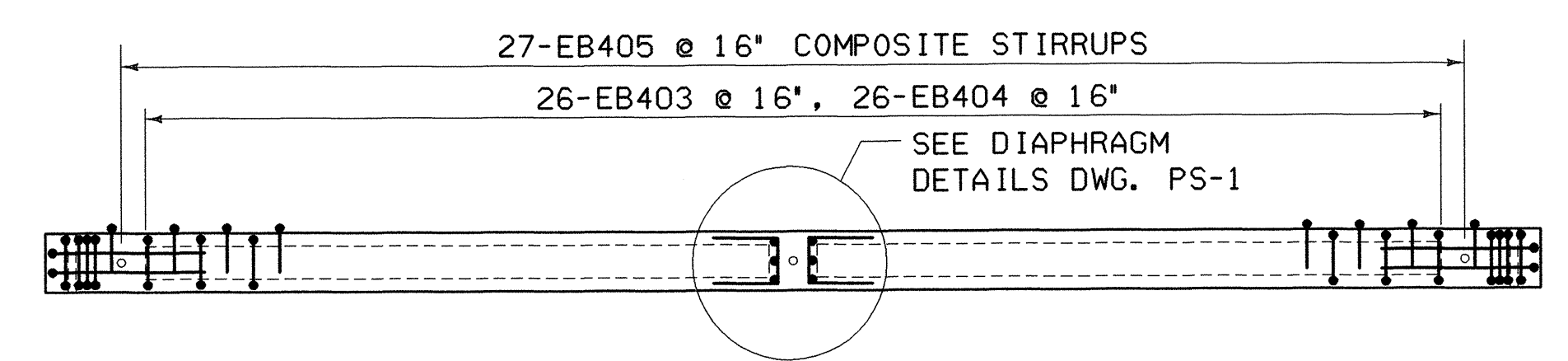
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VOIDED SLAB PLAN



VOIDED SLAB REINFORCEMENT PLAN



VOIDED SLAB REINFORCEMENT ELEVATION

4' BEAM
SCALE: 1/4" = 1'-0"

SEQUENCE OF CONSTRUCTION FOR PRESTRESSED VOIDED SLABS

- (A) LAYOUT WORKING LINES
 - LAYOUT WORKING LINES FOR THE BRIDGE'S ENTIRE WIDTH ON THE BEAM SEAT. MEASURE ALL WORKING LINES FROM A COMMON WORKING POINT.
 - THE WORKING LINES ARE TO BE BASED ON THE NOMINAL BEAM WIDTHS.
- (B) VERIFY BEAM SEAT ELEVATIONS
 - TAKE ELEVATIONS AT BEAM SEATS
 - IF SEATS ARE HIGH, GRIND TO CORRECT ELEVATION
 - IF SEATS ARE LOW, ADD SHIMS
 - INSTALL BEARINGS
- (C) ERECT BEAMS
 - BEAMS SHALL BE PLACED TO FIT WITHIN THE WORKING LINES
 - AS WORK PROGRESSES, INSTALL HARDWOOD WEDGES BETWEEN ADJACENT BEAMS TO MAINTAIN PROPER JOINT OPENING (A MINIMUM OF ONE WEDGE AT EACH LATERAL TIE)
- (D) INSTALL OAKUM OR EQUIVALENT JOINT FILLER (BACKER ROD)
 - FILLER SHALL BE PLACED BELOW THE KEYS BOTTOM AS SHOWN ON THE PLANS
- (E) GROUT DOWEL ENDS AT THE FIXED ENDS AT BRIDGE SEATS AND PLACE COLD POURED JOINT SEALER AT EXPANSION END.
- (F) INSTALL TRANSVERSE TIES
 - A SEAMLESS POLYPROPYLENE SHEATH SHALL COVER TIES (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND).
 - FEED TIES THROUGH DUCTS.
 - VERIFY THAT HARDWOOD WEDGES ARE IN PLACE AS REQUIRED TO PREVENT SLIPPAGE OF BEAMS.
 - USING CALIBRATED JACK, POST-TENSION TIES TO APPROXIMATELY 5,000 LBS. TO REMOVE SAG IN THE TIE AND TO SEAT THE CHUCK.
- (G) GROUT SHEAR KEYS
 - CLEAN JOINT WITH AN OIL FREE AIR-BLAST IMMEDIATELY BEFORE GROUT PLACEMENT. THEN VERIFY THAT THE BACKER ROD IS STILL IN PLACE.
 - ADDITIONAL JOINT PREPARATION AND GROUT PLACEMENT SHALL BE PER MANUFACTURER'S RECOMMENDATION.
 - CAREFULLY ROD JOINTS TO ELIMINATE ANY POSSIBILITY OF VOIDS
- (H) POST-TENSION TRANSVERSE TIES
 - GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1,500 PSI BASED ON THE MANUFACTURER'S RECOMMENDATIONS, PRIOR TO STRESSING.
 - USING A CALIBRATED JACK OPERATED BY QUALIFIED PERSONNEL, POST-TENSION TIES TO 30,000 LBS.
- (I) FINISH WORK
 - REMOVE WEDGES, AND PATCH DECK AND FASCIA BEAMS AT TRANSVERSE TIES.
 - WITHIN 24 HOURS OF THE START OF THE DECK POUR THE TOPS OF THE BEAMS SHALL RECEIVE A HIGH PRESSURE WATER WASH TO REMOVE LAITANCE AND DIRT. THE HIGH PRESSURE WATER WASH SHALL BE SUFFICIENTLY STRONG TO REMOVE DIRT AND LAITANCE BUT NOT SO STRONG THAT IT DAMAGES THE PRESTRESS BEAMS, REINFORCING MESH, OR EPOXY COATING ON THE COMPOSITE REINFORCING. THE PRESSURE WASH EQUIPMENT SHALL BE CAPABLE OF PROVIDING PRESSURE OF 3000 - 5000 psi.
 - THE TOPS OF THE PRESTRESSED BEAMS SHALL BE CONTINUOUSLY WETTED FOR A MINIMUM OF 12 HOURS PRIOR TO THE START OF THE DECK POUR. IMMEDIATELY PRIOR TO THE DECK POUR THE TOPS OF THE BEAMS MUST APPEAR VISIBLY WET BUT WITHOUT ANY STANDING WATER.
 - THE CONTRACTOR SHALL KEEP SURFACE OF THE SLAB CLEAR FROM GREASE, OIL AND OTHER PENETRATING CONTAMINENTS UNTIL DECK OVERLAY HAS BEEN PLACED
 - PLACE OVERLAY

RE-ADVERTISED

PROJECT NO. BHO 1445 (28)

Greenman-Pedersen CONSULTING ENGINEERS GPI 55 Monument Ave. Bennington, VT. 05201	LINCOLN BRIDGE 13 OVER COTA BROOK			
	PRESTRESSED VOIDED SLAB DETAILS			
DRAWING NO. PS-2	SCALE: AS SHOWN	DATE: DEC., 1999	SHEET NO. 8 OF 13	

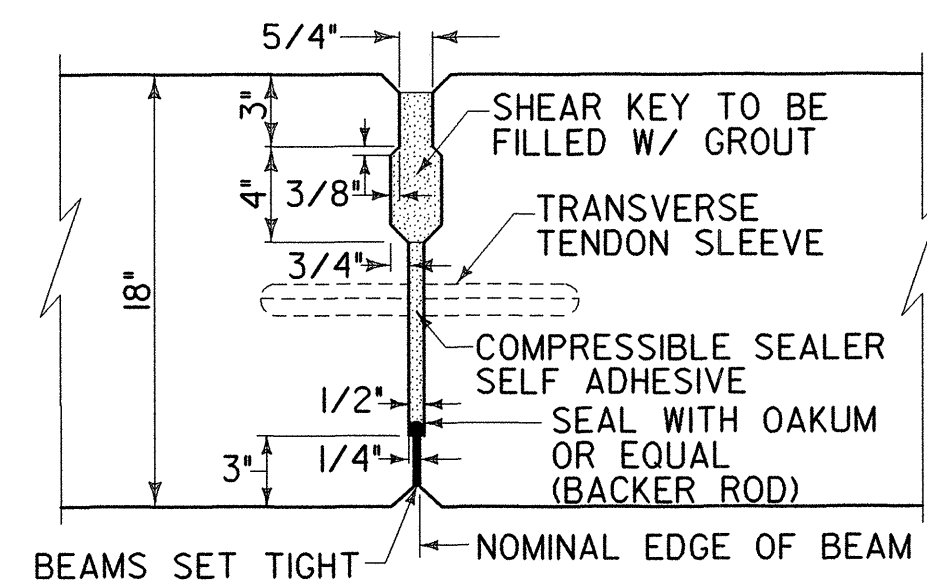
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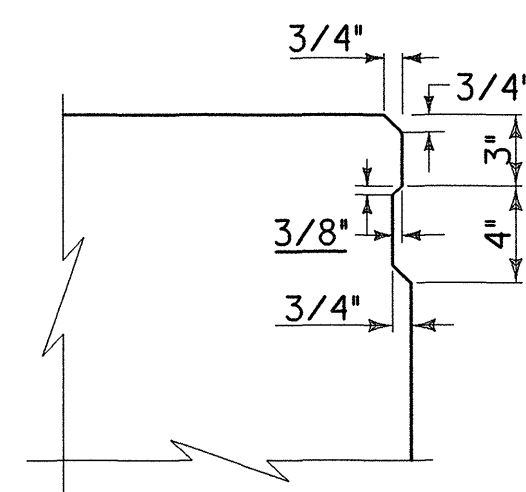
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IN CHARGE OF



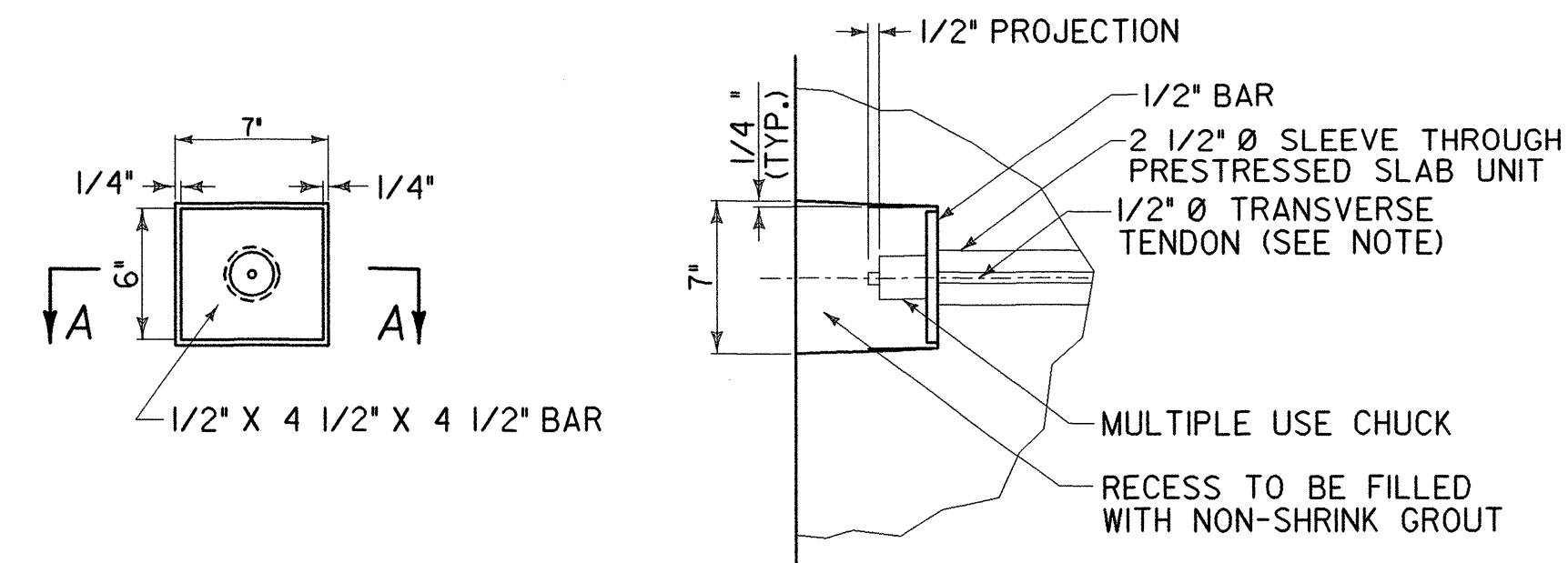
**SHEAR KEY SECTION
FOR VOIDED SLAB**

NTS



**SHEAR KEY DETAIL
FOR VOIDED SLAB**

NTS

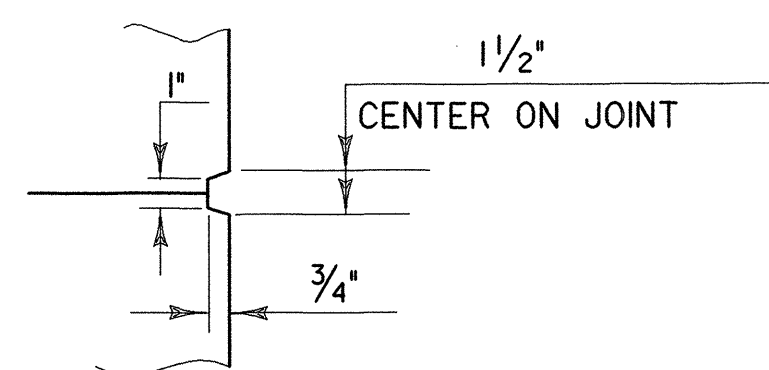


SECTION A-A

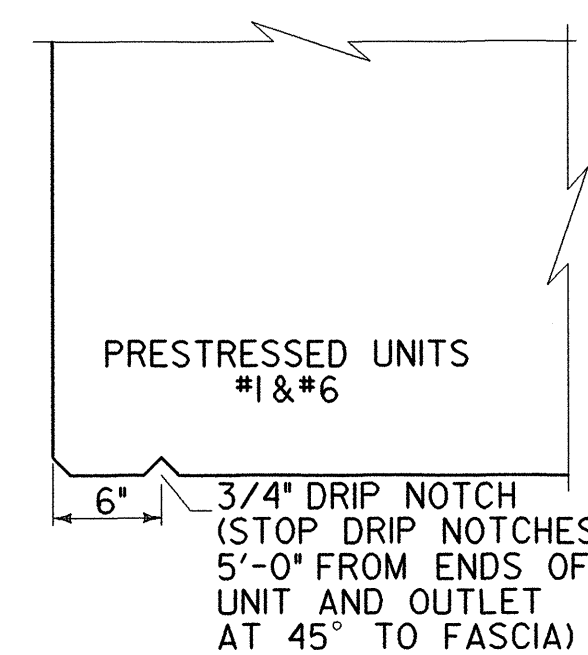
1/2" Ø TRANSVERSE TENDON DETAIL

NTS

TRANSVERSE TIES SHALL BE COVERED BY SEAMLESS POLYPROPYLENE SHEATH (WITH CORROSION INHIBITOR GREASE BETWEEN SHEATH AND STRAND) FOR THE LENGTH OF STRAND, EXCEPT AT ANCHORAGE LOCATIONS. TIES SHALL BE TENSIONED TO 30 KIIPS. THE 1/2" BAR SHALL CONFORM TO AASHTO M270 GRADE 36 GALVANIZED AFTER FABRICATION. ACCORDING TO AASHTO M232. THE CHUCK SHALL ALSO BE GALVANIZED PER AASHTO M232.

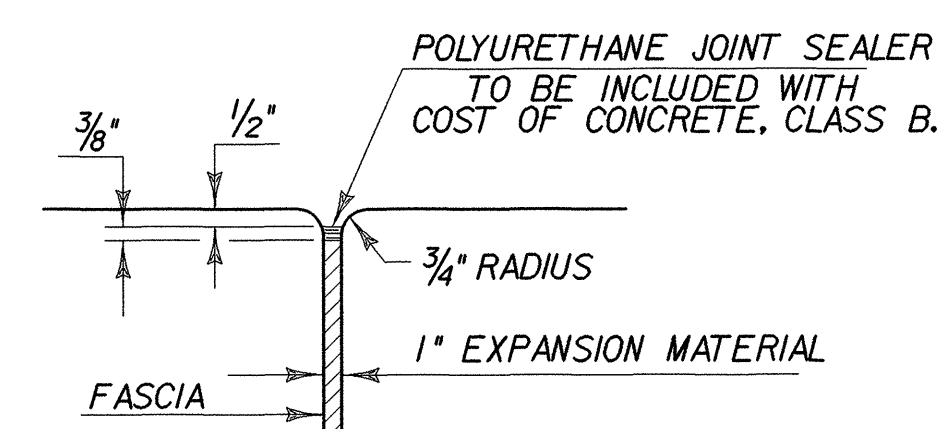


SCORE MARK DETAIL



DRIP NOTCH DETAIL

NTS



**JOINT BETWEEN FASCIA
AND WINGWALL**

NTS

RE-ADVERTISED

PROJECT NO.

BHO 1445 (28)

Greenman-Pedersen
CONSULTING ENGINEERS

GPI

55 Monument Ave.
Bennington, VT. 05201

LINCOLN BRIDGE 13
OVER COTA BROOK

**PRESTRESS & MISC.
DETAILS SHEET**

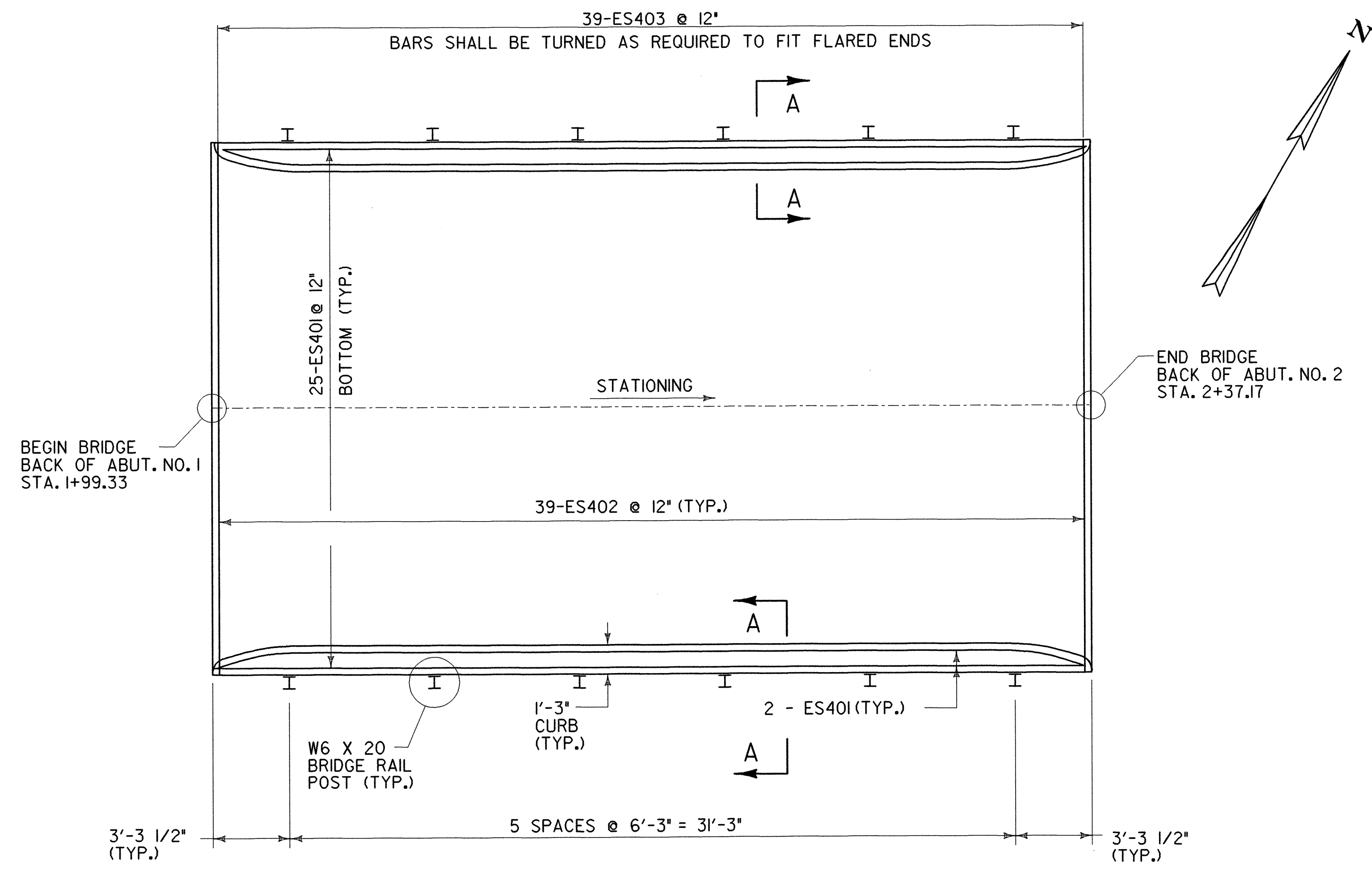
DRAWING NO.
MD-1

SCALE:
AS SHOWN

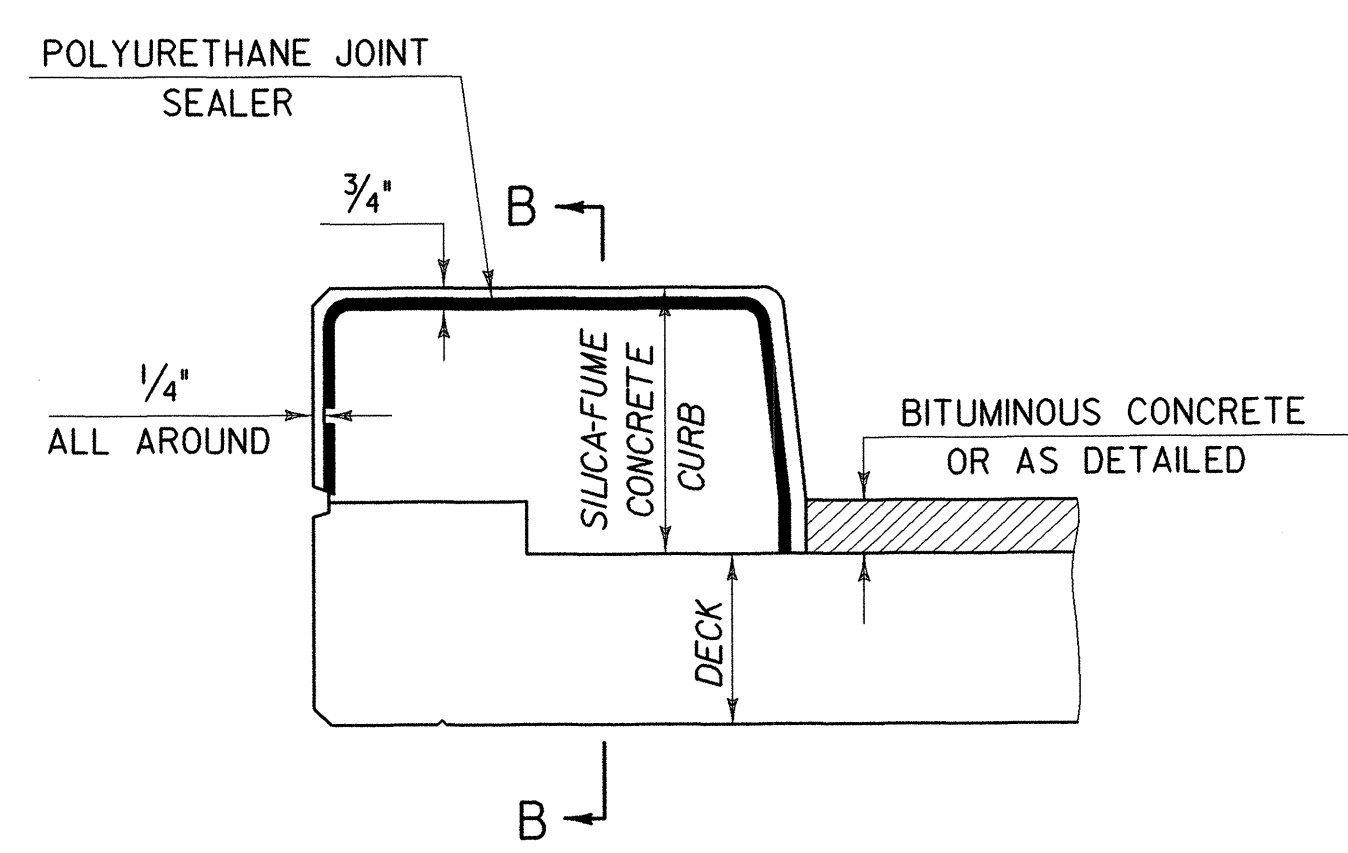
DATE:
DEC., 1999

SHEET NO.
9 OF 13

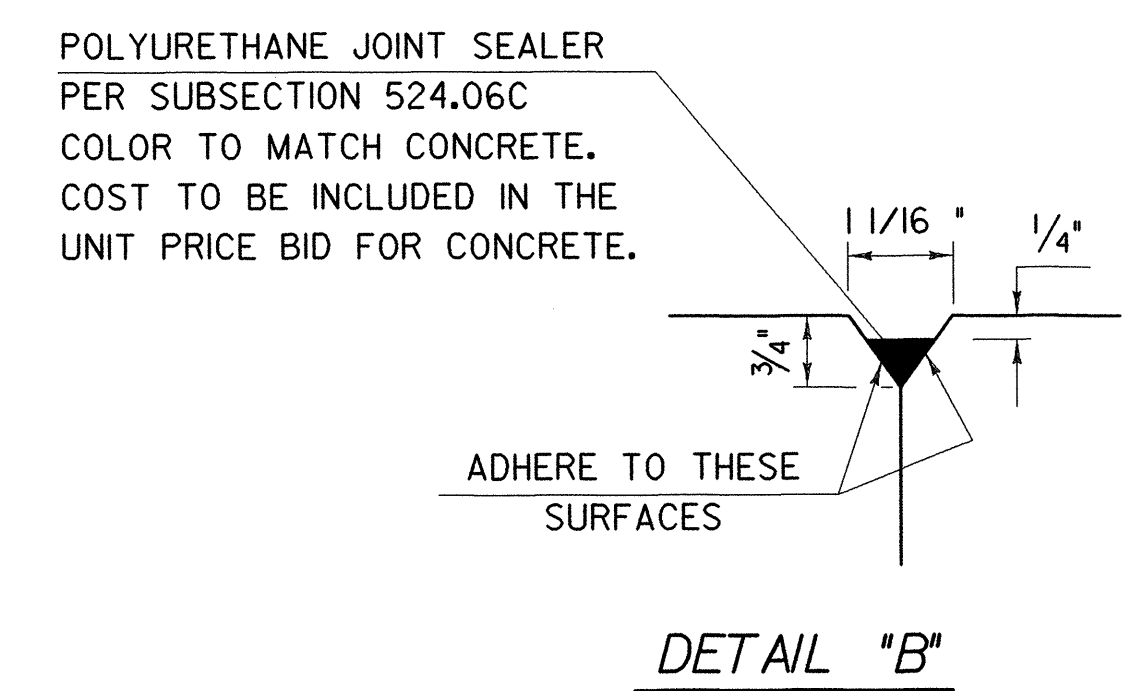
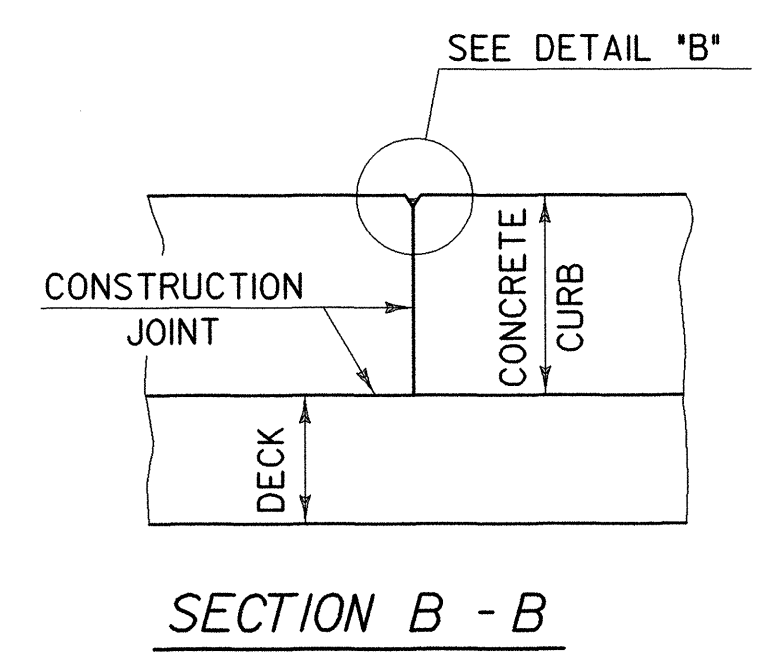
DESIGNED BY: *James W. Stevens*
IN CHARGE OF: *James W. Stevens*
DRAFTED BY: *Michael R. DeVito*
CHECKED BY: *James W. Stevens*
8 FILES



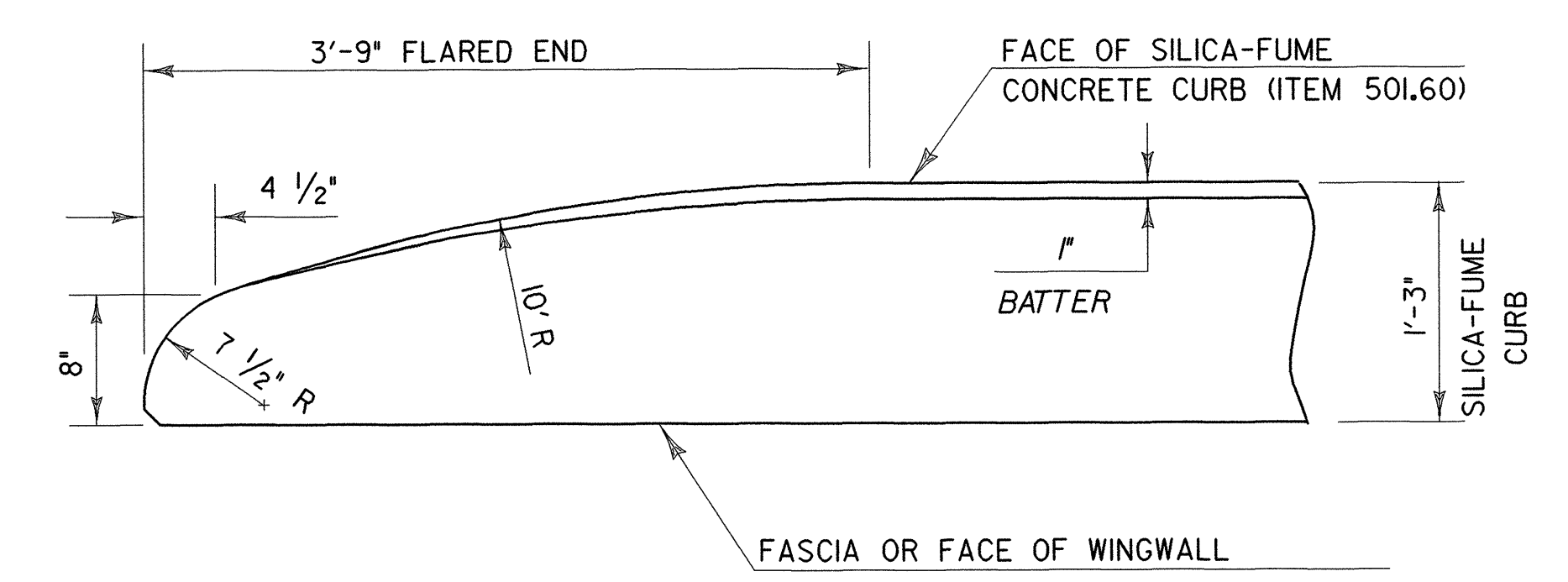
PLAN OVERLAY REINFORCING
1/4" = 1'-0"



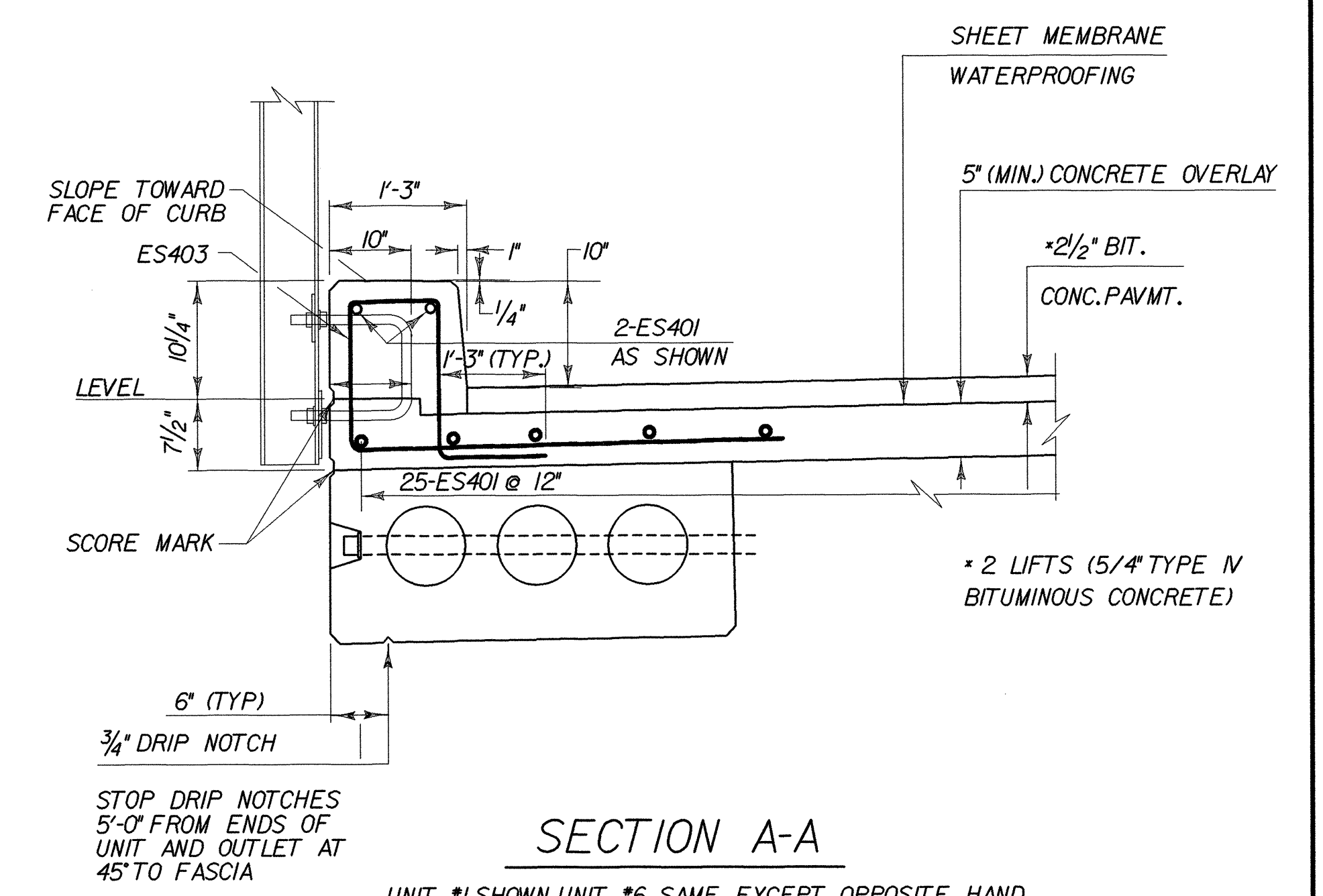
TYPICAL SECTION THROUGH CONCRETE SIDEWALK CONSTRUCTION JOINT



- NOTES:
1. POLYURETHANE MEMBRANE AND BLAST CLEANING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR SHEET MEMBRANE WATERPROOFING.
 2. SHEET MEMBRANE WATERPROOFING SHALL EXTEND TO FACE OF CURB.
 3. "E" DENOTES EPOXY COATED BARS.
 4. CONSTRUCTION JOINTS IN THE CURB SHALL BE PROVIDED AS SHOWN ABOVE. JOINTS SHALL BE SPACED A MAXIMUM OF 15'-0" CENTER TO CENTER AND SHALL BE 1'-6" MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST. CONCRETE SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.
 5. LONGITUDINAL REINFORCING SHALL PASS THROUGH CONCRETE CURB CONSTRUCTION JOINTS.
 6. ALL EPOXY COATED STEEL TO BE CUT IN THE FIELD IS TO BE SAW CUT AND THE EXPOSED END IS TO BE TREATED AS PER SECTION 507.04.



FLARED END DETAIL FOR 1'-3" CURB
CURB REINFORCING STIRRUP BARS SHALL BE TURNED AS REQUIRED TO FIT FLARED ENDS.



UNIT #1 SHOWN. UNIT #6 SAME EXCEPT OPPOSITE HAND STRAND AND REINFORCING STEEL LOCATIONS SAME AS INTERMEDIATE VOIDED SLABS

NTS

RE-ADVERTISED

PROJECT NO. BHO 1445 (28)

Greenman-Pedersen CONSULTING ENGINEERS GPI 55 Monument Ave. Bennington, VT, 05201	LINCOLN BRIDGE 13 OVER COTA BROOK			
	PRESTRESS & MISC. DETAILS SHEET			
DRAWING NO. MD-2	SCALE: AS SHOWN	DATE: DEC., 1999	SHEET NO. 10 OF 13	

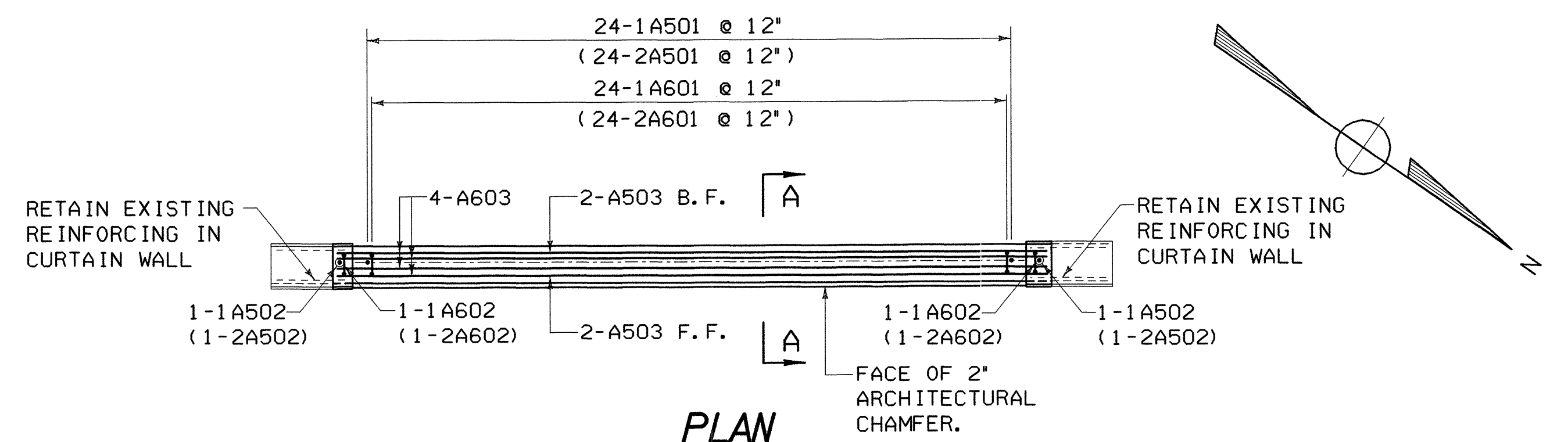
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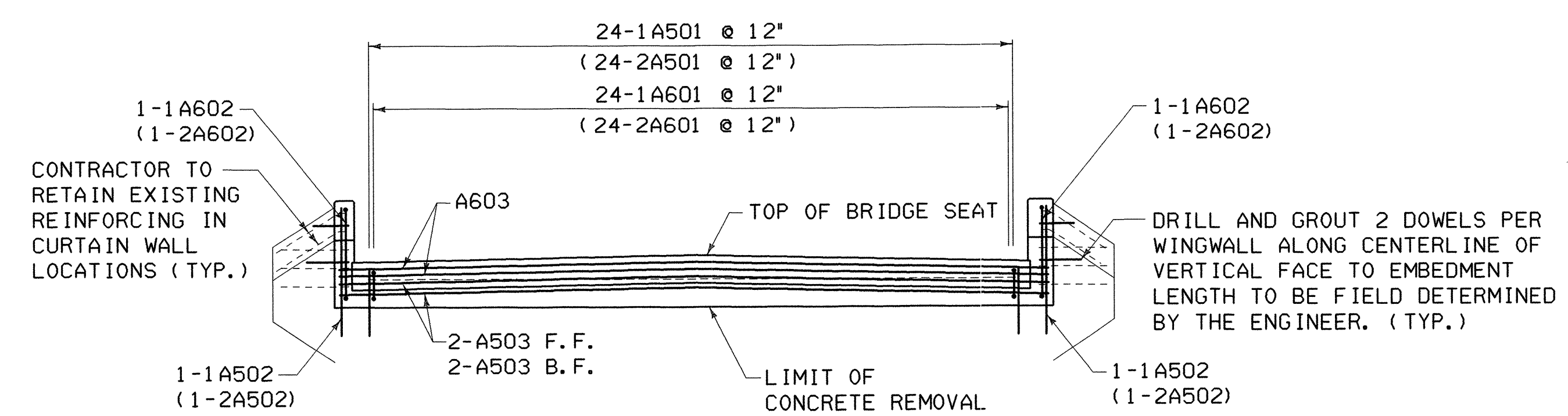
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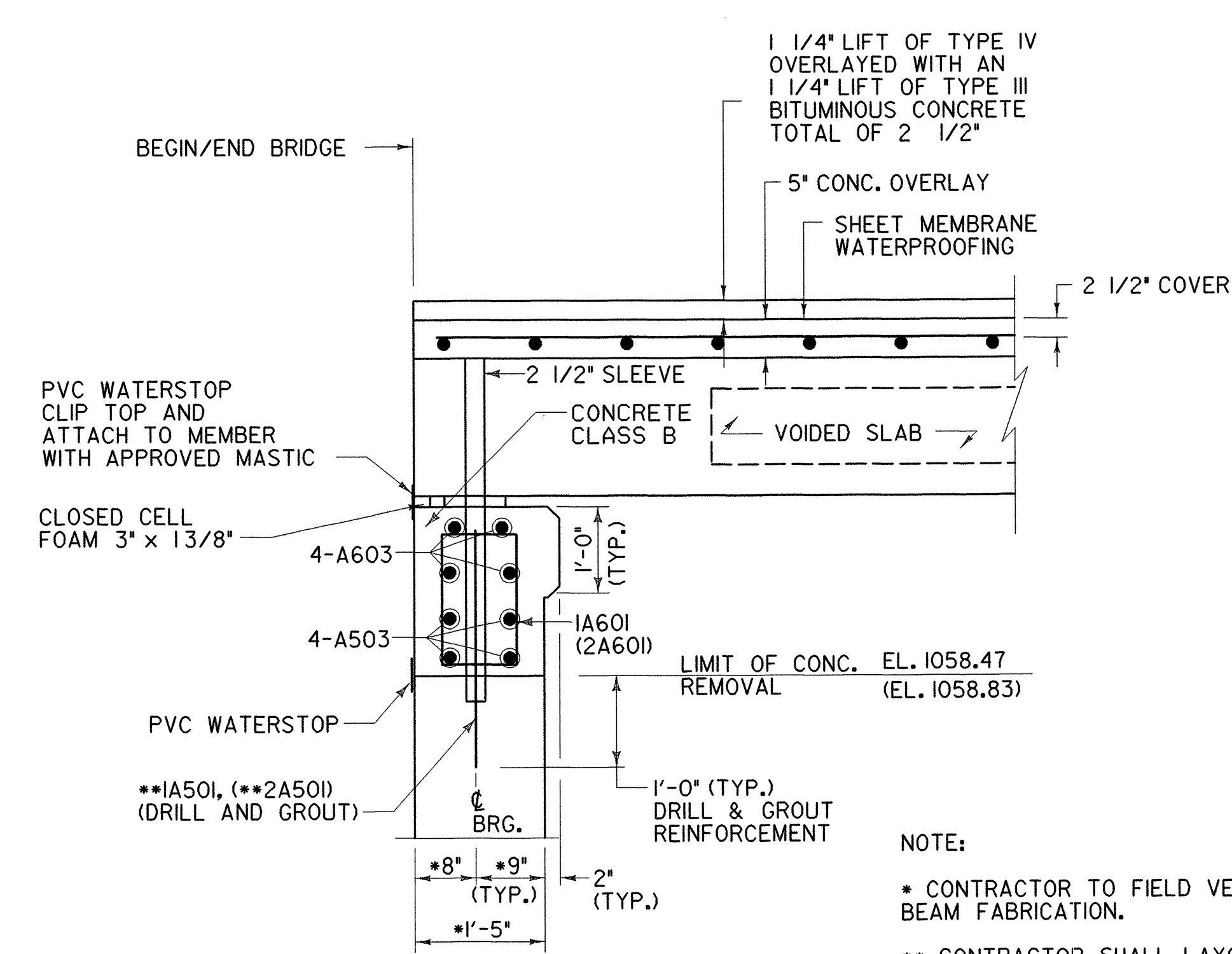
IN CHARGE OF



PLAN
ABUT. NO.1 SHOWN,
(ABUT. NO.2)
SCALE: 1/4" = 1'-0"

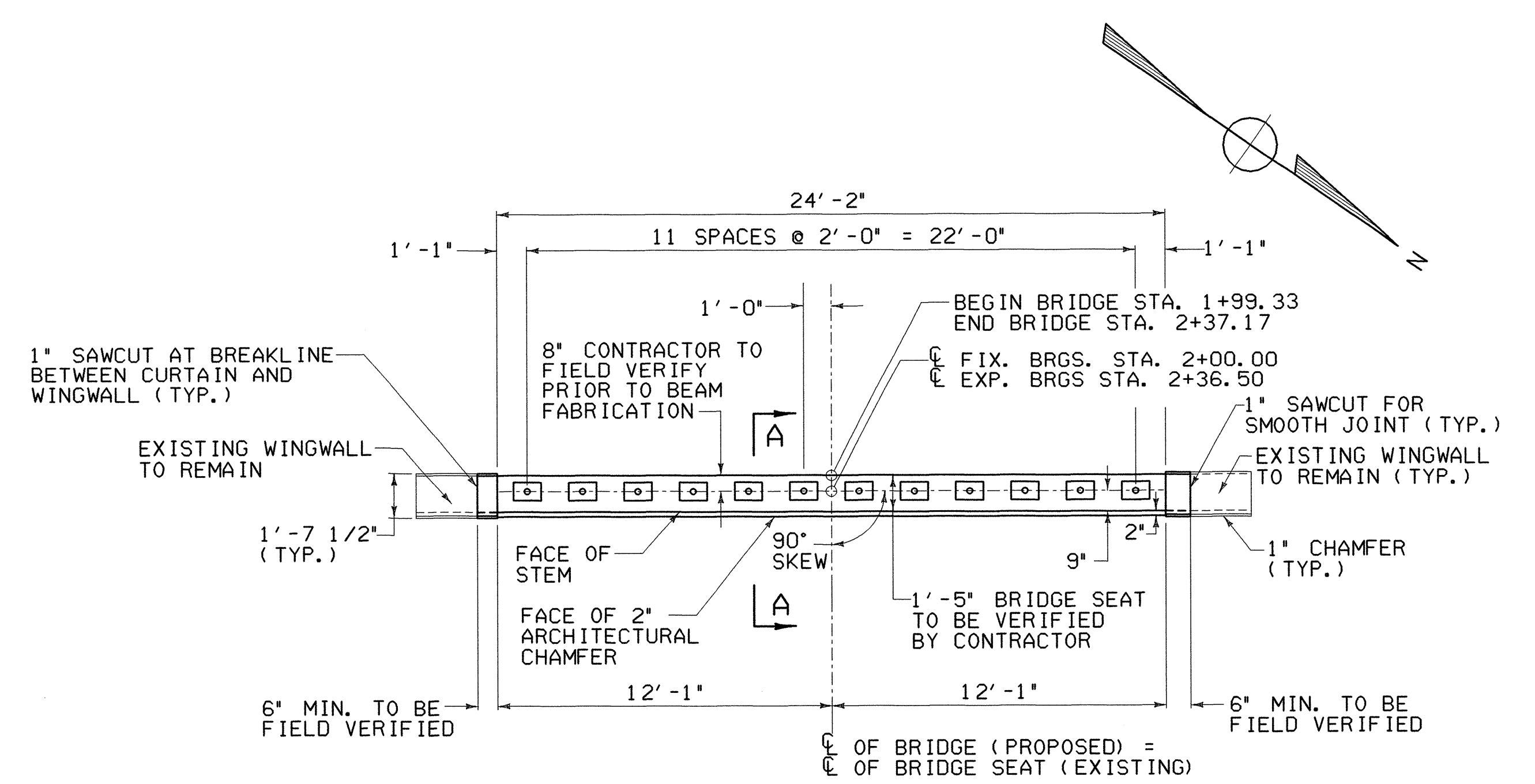


ELEVATION
ABUT. NO.1 SHOWN,
(ABUT. NO.2)
SCALE: 1/4" = 1'-0"

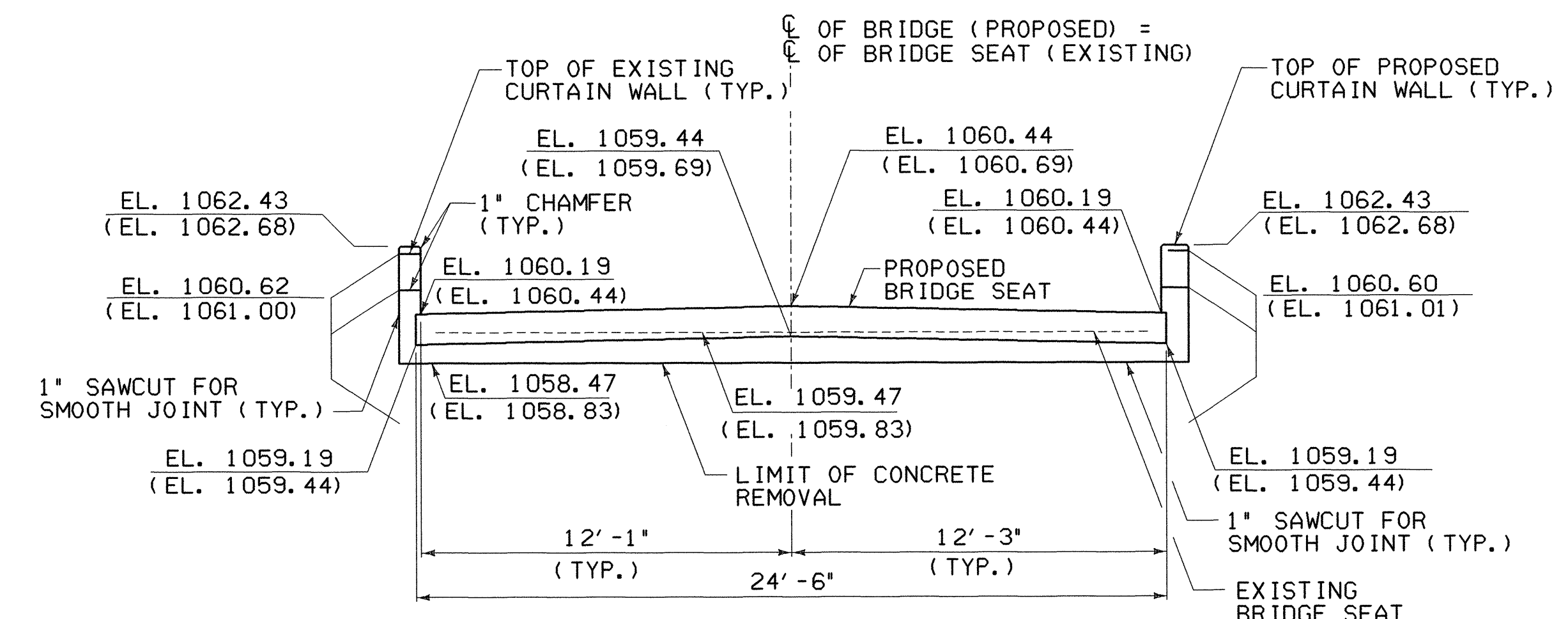


SECTION A-A
SCALE: 3/4" = 1'-0"

NOTE:
* CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO BEAM FABRICATION.
** CONTRACTOR SHALL LAYOUT DOWEL LOCATIONS PRIOR TO DRILLING AND GROUTING BARS 1A501 AND 2A501 TO AVOID OVERLAPPING



PLAN
ABUT. NO.1 SHOWN
(ABUT. NO.2)
SCALE: 1/4" = 1'-0"



ELEVATION
ABUT. NO.1 SHOWN
(ABUT. NO.2)
SCALE: 1/4" = 1'-0"

LEGEND
EL. XXXX.XX ABUT. NO.1
(EL. XXXX.XX) ABUT. NO.2

NOTE:
ALL ELEVATIONS SHOWN ON THIS SHEET
ARE GIVEN ALONG C.F. OF BEARINGS

RE-ADVERTISED
PROJECT NO.

BHO 1445 (28)

Greenman-Pedersen CONSULTING ENGINEERS GPI 55 Monument Ave. Bennington, VT, 05201	LINCOLN BRIDGE 13 OVER COTA BROOK			
	ABUTMENT DETAILS			
DRAWING NO. AB-1	SCALE: AS SHOWN	DATE: DEC., 1999	SHEET NO. 11 OF 13	

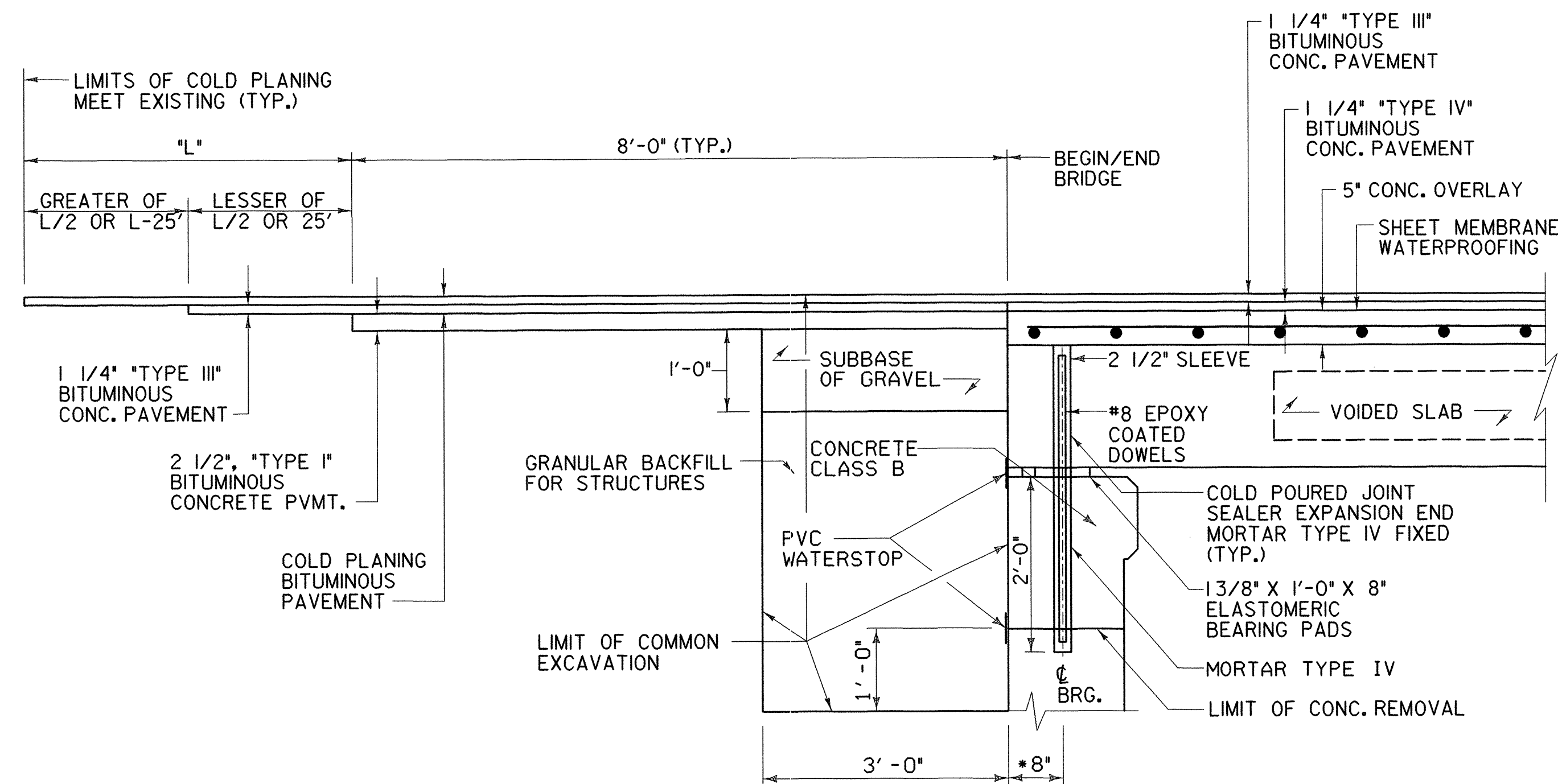
8 FEET

DESIGNED BY

IN CHARGE OF

DESIGNED BY

IN CHARGE OF

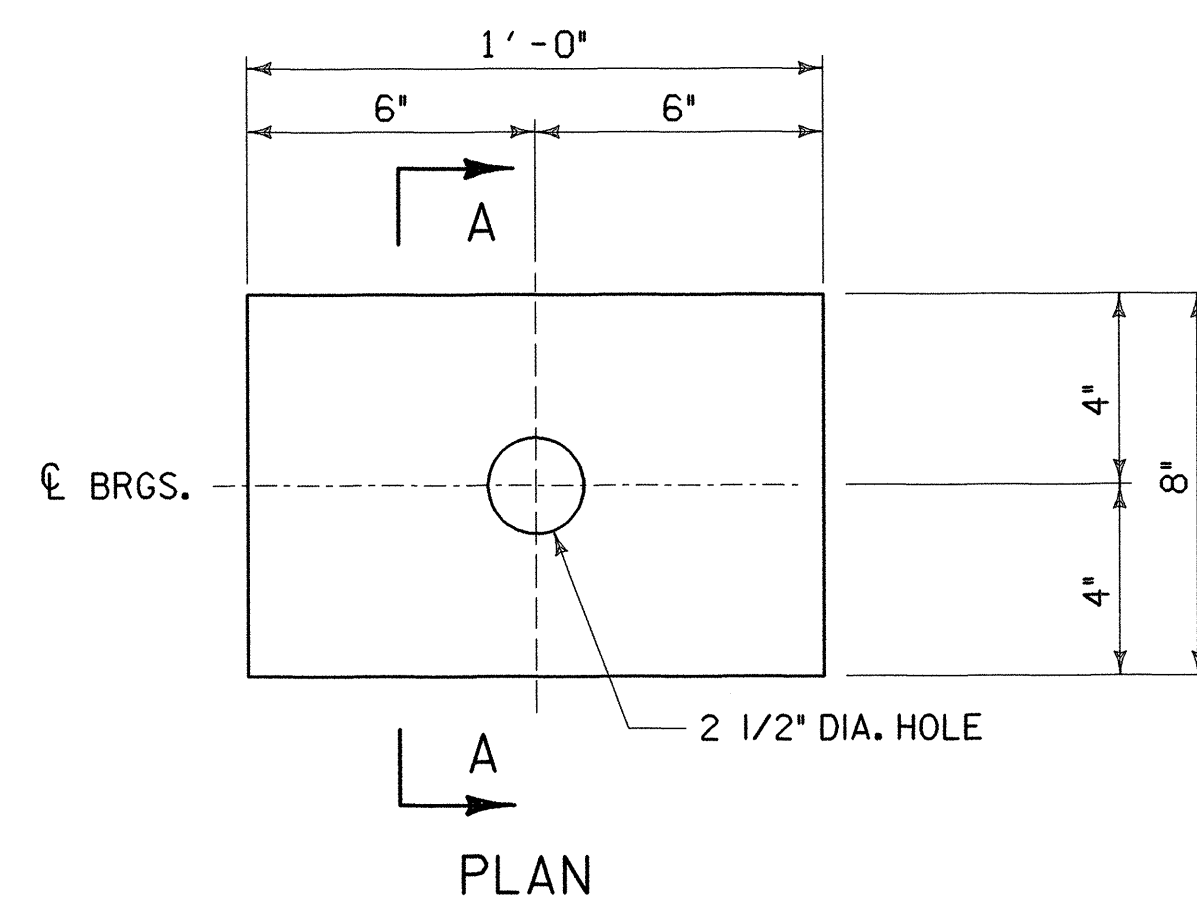


NOTE:

•CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO BEAM FABRICATION.

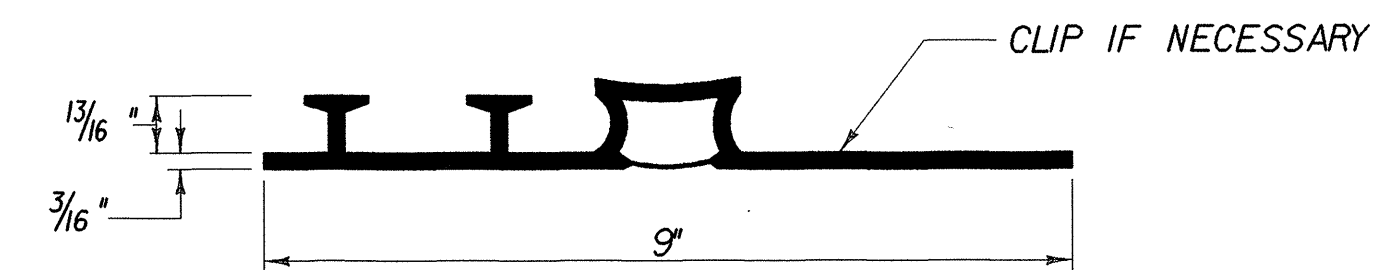
VOIDED SLAB PAVEMENT / NO APPROACH SLAB

SCALE: 3/4" = 1'-0"



(2) 1/8\"

SECTION A-A



P.V.C. WATERSTOP FOR EXPANSION JOINTS

THE COSTS FOR P.V.C. WATERSTOP SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONCRETE. OTHER CONFIGURATIONS MAY BE USED UPON APPROVAL OF THE ENGINEER.

BEARING NOTES

1. THE BEARING SHAPE FACTOR SHALL BE BETWEEN 5.0 AND 12.0
2. ANY NECESSARY REINFORCEMENT BETWEEN LAYERS OF ELASTOMERIC SHALL BE STEEL GRADE A36. FABRIC REINFORCEMENT WILL NOT BE PERMITTED.
3. WHEN USING STEEL REINFORCEMENT, THESE PLANS REFER TO THE TOP AND BOTTOM LAYERS OF ELASTOMERIC AS BEDDING LAYERS. THE MINIMUM THICKNESS OF THESE LAYERS SHALL BE 1/8". THE BEDDING LAYERS ARE INCLUDED IN THE "EFFECTIVE RUBBER THICKNESS" (ERT).
4. BEARING DESIGN INFORMATION:
LOADS: RDL+SDL=10.7K ; RLL=15.0K
DESIGN METHOD: DESIGN METHOD A FOR BEARING DESIGN
TEMPERATURE: 80 DEG. F
MATERIAL: 60 DUROMETER NEOPRENE
MAXIMUM BEARING STRESS: 800 PSI
DESIGN ROTATION: 0.0010 RAD.
5. ALL MATERIALS AND FABRICATION SHALL BE PER AASHTO DIVISION II SECTION 18.2 AND AASHTO MATERIALS SPECIFICATION M251.
6. THE CONTRACTOR MAY SUBMIT ALTERNATIVE BEARING DESIGNS FOR APPROVAL ANY ALTERNATIVE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE LOADS AND CRITERIA SHOWN ON THIS SHEET AND SHALL MAINTAIN THE ANCHORAGE SYSTEM SHOWN. THE BEARINGS SHALL BE DESIGNED ACCORDING TO AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" 1996 ED. AND ITS LATEST INTERIMS, SECTION 14 BY EITHER METHOD A OR B.
7. THE BEARINGS SHALL BE PAID FOR UNDER THE ITEM 531.0 "BEARING DEVICE ASSEMBLY". THERE WILL BE A TOTAL OF 24 BEARING DEVICE ASSEMBLIES PAID ON THIS PROJECT. A BEARING DEVICE ASSEMBLY CONSISTS OF ONE BEARING PAD AS SHOWN ON THIS SHEET. EACH END OF THE 6 PRESTRESSED MEMBERS ARE SUPPORTED BY 2 BEARING ASSEMBLIES.

RE-ADVERTISED

PROJECT NO.

BHO 1445 (28)

Greenman-Pedersen
CONSULTING ENGINEERS

GPI

55 Montpelier Ave.
Bennington, VT. 05201

LINCOLN BRIDGE 13
OVER COTA BROOK

**BRIDGE END
AND BEARING DETAILS**

DRAWING NO. BD-1	SCALE: AS SHOWN	DATE: DEC., 1999	SHEET NO. 12 OF 13
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IN CHARGE OF

ITEM	NO. PIECES	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G
SUPERSTRUCTURE												
2	29	4	37'-4"	ES401	STR							
3												
4	41	4	23'-6"	ES402	STR							
5												
6	78	4	8'-2"	ES403	S5	4'-0"	1'-1"	9"	1'-1"	1'-3"		
7												
8												
9												
10												
11												
12												
ABUTMENT NO. 1												
14	24	5	2'-7"	1A501	STR	VARIES FROM 2'-5" TO 2'-9"						
15												
16	2	5	4'-8"	1A502	STR							
17												
18	6	5	25'-5"	A503	STR							
19												
20	24	6	5'-10"	1A601	TI	7 3/4"	11"	1'-4"	11"	1'-4"	7 3/4"	C & E VARY FROM 1'-2" TO 1'-5"
21												
22	4	6	10'-0"	1A602	TI	7 3/4"	11"	3'-5"	11"	3'-5"	7 3/4"	
23												
24	4	6	25'-5"	A603	STR							
25												
26												
27												
28												
29												
30												
ABUTMENT NO. 2												
32	24	5	2'-6"	2A501	STR	VARIES FROM 2'-4" TO 2'-7"						
33												
34	2	5	4'-7"	2A502	STR							
35												
36	6	5	25'-5"	A503	STR							
37												
38	24	6	5'-8"	2A601	TI	7 3/4"	11"	1'-3"	11"	1'-3"	7 3/4"	C & E VARY FROM 1'-1" TO 1'-4"
39												
40	4	6	9'-10"	2A602	TI	7 3/4"	11"	3'-4"	11"	3'-4"	7 3/4"	
41												
42	4	6	25'-5"	A603	STR							
43												
44												
45												
46												
47												
48												
49												
50												

△ SEE NOTE 10

△ SEE NOTE 10

△ SEE NOTE 10

△ SEE NOTE 10

△ SEE NOTE 10

NOTES

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- * DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- "E" IN PREFIX DENOTES EPOXY COATED REINFORCING STEEL.

ASTM STANDARD REINFORCING BARS				
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	CROSS SECTIONAL AREA SQ. INCHES	PERIMETER INCHES
#3	.376	.375	.11	1.178
#4	.668	.500	.20	1.571
#5	1.043	.625	.31	1.963
#6	1.502	.750	.44	2.356
#7	2.044	.875	.60	2.749
#8	2.670	1.000	.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

RE-ADVERTISED

PROJECT NO.

BHO 1445 (28)

Greenman-Pedersen CONSULTING ENGINEERS GPI 55 Monument Ave. Bennington, VT. 05201	LINCOLN BRIDGE 13 OVER COTA BROOK			
	REINFORCING SCHEDULE			
	DRAWING NO. BL-1	SCALE: AS SHOWN	DATE: DEC., 1999	SHEET NO. 13 OF 13