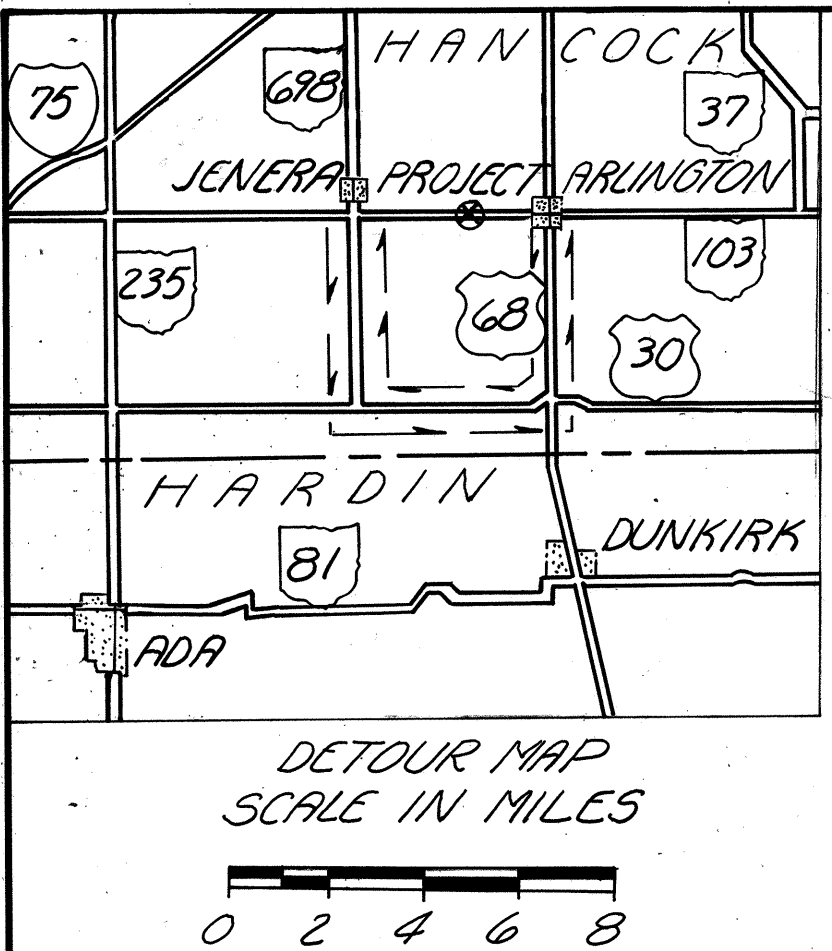




MICROFILMED
AUG 23 1984

AUG 17 1990

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

BRS-623(11)

HANCOCK COUNTY HAN-103-10.44 BRS-623(11)	OHIO FHWA REGION 5 FEDERAL PROJECT
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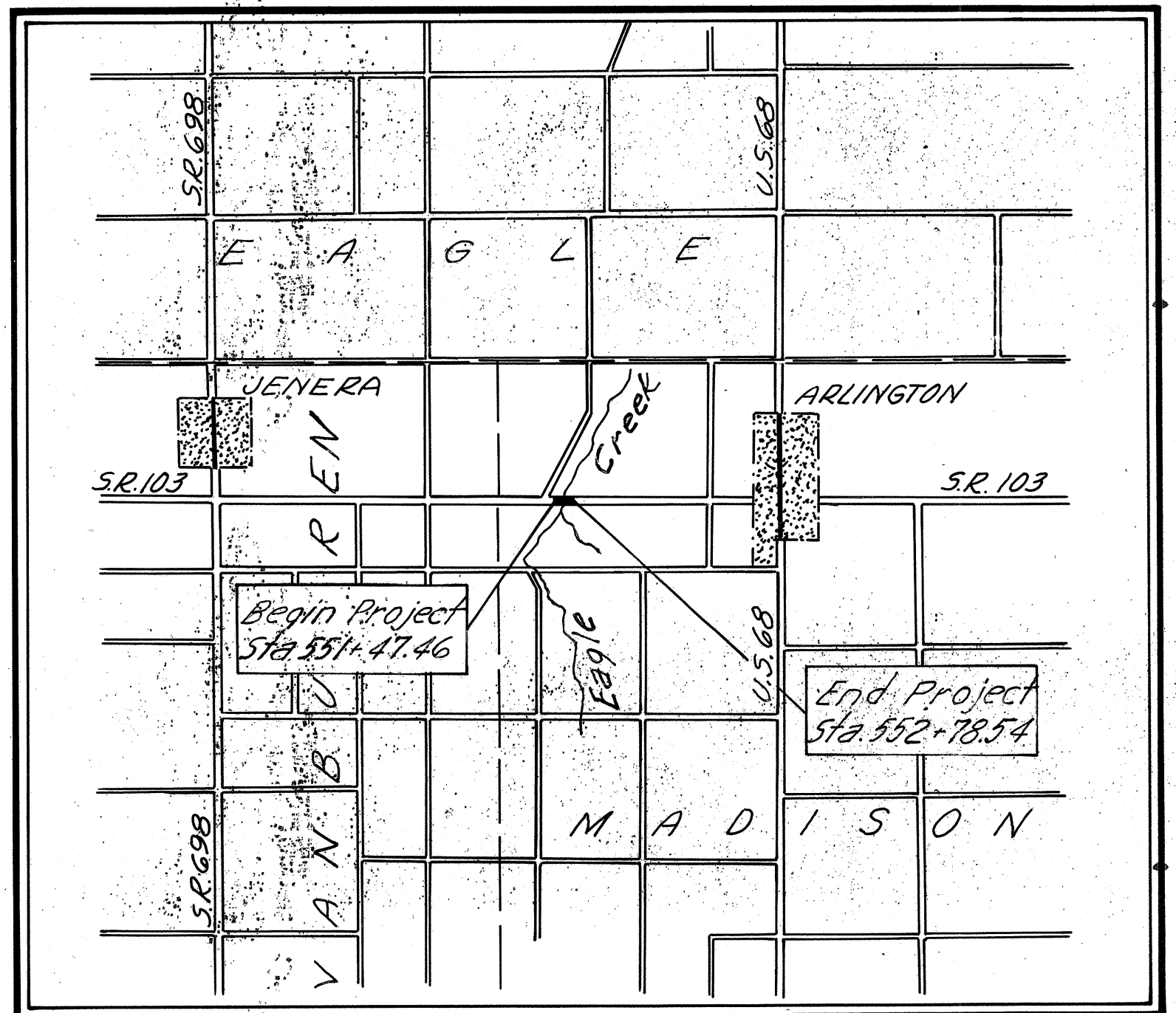
HAN-103-10.44
MADISON TOWNSHIP
HANCOCK COUNTY

CONVENTIONAL SIGNS

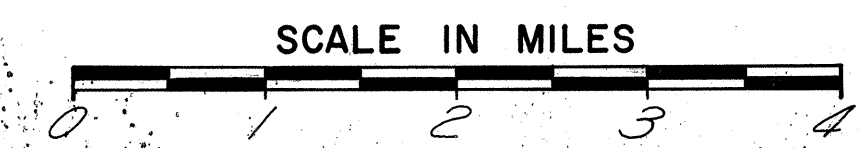
County Line	-----	Limited Access (only)	-----	LA
Township Line	-----	Right of Way (only)	-----	RW
Section Line	-----	Limited Access & Right of Way	-----	LA & RW
Corporation Line	----- or -----	Existing Right of Way	-----	
Fence Line (existing)	-x-x-	Property Line	----- (in existing fence) -x-x-	
Center Line	----- 352 ----- 353 -----	Railroad	----- or -----	
Trees, Stumps, (to be removed)	---X---	Guardrail (existing)	----- (proposed) -----	
Utility Poles: Telephone, Power, Light	---o---			

INDEX OF SHEETS

Title sheet	1
Schematic	2
Typical Sections	3
General Notes	4
Calculations & General Summary	5
Miscellaneous Details	6
Plan and Profile	7-8
Cross Sections	9-11
Structures over 20'	12-18
Temporary Pavement Markings	19



LOCATION MAP



Portion to be improved
State & Federal Routes
Other Roads

SCALES

Plan
Profile: Horizontal, Vertical
Cross Section: Horizontal, Vertical

SUPPLEMENTAL SPECIFICATIONS	
1001	1-3-77

UNDERGROUND UTILITIES
48 HOURS
BEFORE YOU DIG
Call 800-362-2764 (Toll free)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS				
BP-5	7-16-81			
GR-1	2-5-82			
GR-2B	2-5-82			
GR-3	2-5-82			
GR-4	2-5-82			
MC-3	6-1-73			
MC-4	7-26-76			
AS-1-81	11-27-81			
DBR-2-73	4-10-73			
P58D-1-81	9-18-81			

1981 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will require the closing to traffic of the highway and that detours will be provided as indicated on the plans.

Approved Max D. Monahan
Date 11-8-82 District Deputy Director of Transportation

FFE Approved Robert B. Pfeiffer
Date 12-14-82 Engineer, Bureau of Bridges and Structural Design

WHD Approved Wayne Kauble
Date 1-26-83 Chief Engineer, Planning and Design (Acting)

Approved Warren Smith
Date 1-26-83 Director, Department of Transportation

DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED:	
DIVISION ADMINISTRATOR	DATE

LINE DATA

Begin Project	Sta. 551+47.46
End Project	Sta. 552+78.54
Net Length of Project	131.08 Lin. Ft. or 0.025 Mile
Begin Work	Sta. 550+00
End Work	Sta. 555+45
Net Length of Work	545.00 Lin. Ft. or 0.103 Mile

Plan Prepared By:
DISTRICT NO. 1
OHIO DEPARTMENT OF
TRANSPORTATION

Project: HAN-103-10.44
Date of Letting: 19, Contract No.
LD0300 Rev. 1-1-81

SEAL

TITLE SHEET

MICROFILMED
AUG 23 1984

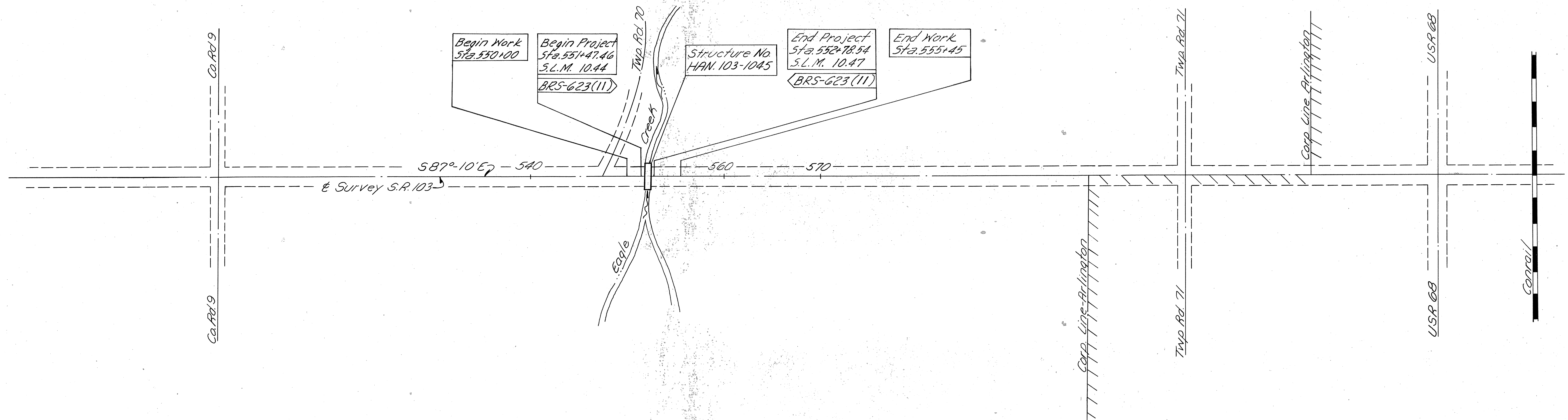
SCHEMATIC PLAN & DESIGN DESIGNATION

0 500' 1000'

FHWA REGION	STATE	PROJECT
5	OHIO	

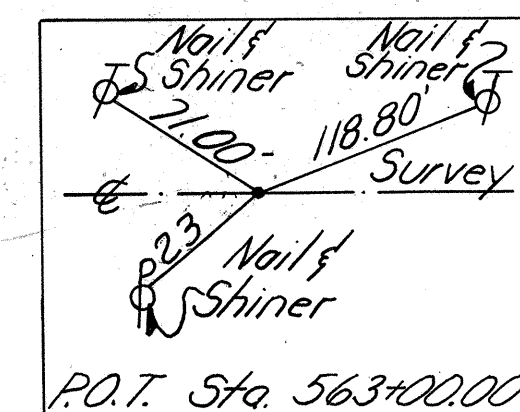
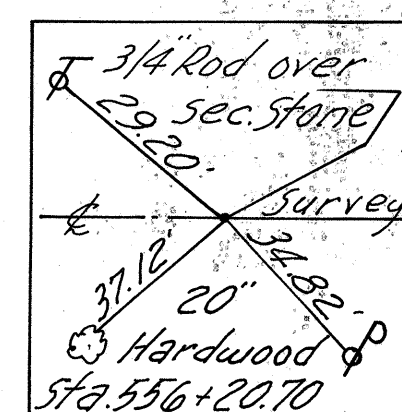
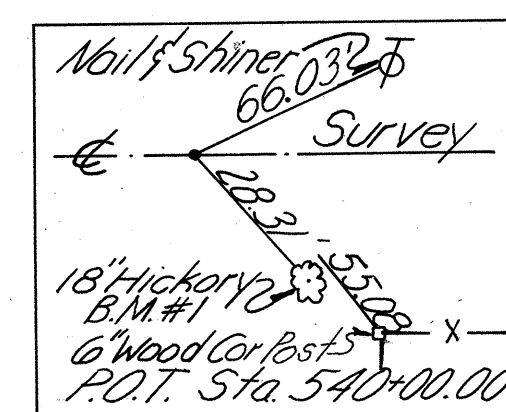
HANCOCK COUNTY
HAN-103-10.44

2
19



DESIGN DESIGNATION

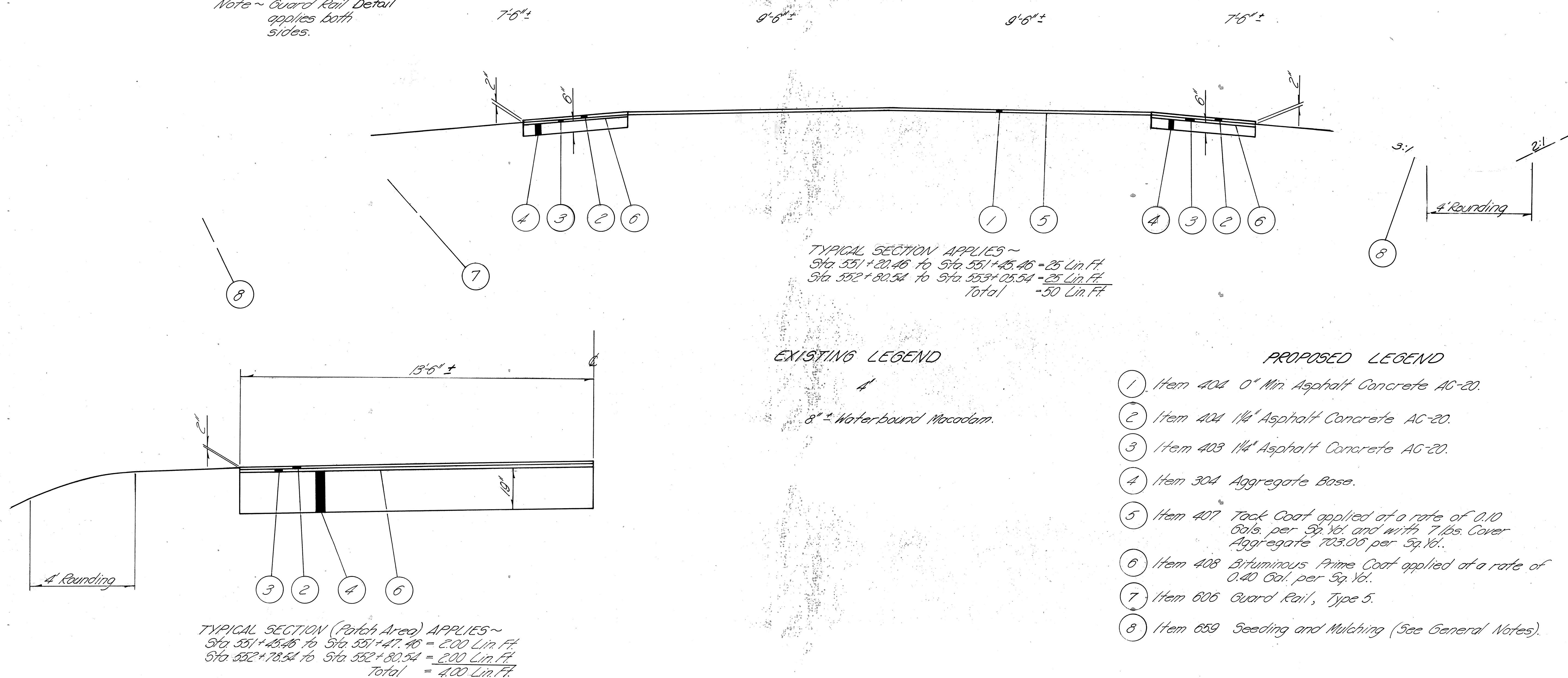
Current A.D.T. (1982) = 1176
Design Year A.D.T. (2002) = 2006
D.H.V. = 224
D = 60%
T = 9%
V = 60 mph



TYPICAL SECTION

TYPE 404

Note ~ Guard Rail Detail
applies both
sides.



GENERAL NOTES

DETOUR LIMITATION ~ Two-way traffic shall be maintained at all times, except that for a period not to exceed 120 consecutive calendar days, through traffic may be detoured as shown on sheet No. 1.

MOBILIZATION AS PER PLAN ~ The contractor shall provide a suitable field office having a minimum of 300 sq ft. of floor space which shall be in accordance with 619.01 and 619.02. Payment for the above shall be included in the lump sum price bid for Item 624 mobilization as per plan.

ROUNDING OF CORNERS SHOWN ON CROSS SECTIONS ~ The rounded corners shown on the typical sections, apply to all cross sections even though otherwise shown on these plans.

EROSION CONTROL PADS AND ANIMAL GUARDS ~ Erosion control pads and animal guards shall be provided at the outlet end of all pipe underdrains and farm drains, as per Standard Construction Drawing MC-4, except when they outlet into a drainage structure.
Payment for the erosion control pads and the animal guards shall be included in the price bid for item 603, Conduit, Type F.

CONTINGENCY QUANTITIES ~ The contractor shall not order materials, or perform work for plan items set up to be used "As directed by the engineer" unless authorized by the engineer. The actual work locations and quantities used at the Engineers discretion shall be made a matter of record by incorporation into the final change order governing the completion of the project.

LOCATIONS OF GUARD RAIL ~ The locations of guard rail runs as shown in these plans are subject to adjustment prior to final acceptance. The Engineer shall be satisfied that all installations will afford maximum protection for traffic.

SEEDING ~ Quantities for seeding are calculated for the soil areas between ten (10) feet outside the work limits, as shown on the cross sections, or to the right-of-way line if such line is less than ten (10) feet from the work limits.

ELEVATION DATUM ~ All elevations are based on U.S.G.S. Datum.

407 TACK COAT ~ The tack coat and cover aggregate operation shall be determined as per spec. 407.05. Plan quantities indicate average application rates of 0.10 gallons per square yard on tack coat and 7 pounds per square yard of cover aggregate for estimating purposes only.

404 FEATHER ~ An estimated quantity for 404 Feathering at approach slabs has been included in the pavement computations. Feathering will be done to the extent deemed necessary by the Engineer to insure a smooth transition from existing pavement onto the Bridge Approach Slabs.

REMOVAL OF TREES OR STUMPS ~ All trees and stumps specifically marked for removal within the construction limits of this project shall be removed under the lump sum price bid for Item 201, Clearing and Grubbing, except that those trees for which protection and preservation work is indicated elsewhere in these plans shall not be removed.

The following is an approximate estimate of the number of trees and stumps to be removed:

SIZES	No. TREES	No. STUMPS	TOTAL
18"	3	0	3

The above estimate is approximate and the State of Ohio reserves the right to order the removal of additional trees or stumps outside of the limits of construction but within the right-of-way and/or easement lines. Payment for the removal of these additional trees or stumps shall be included in the lump sum price bid for Item 201, Clearing and Grubbing.

UTILITY OWNERSHIP ~ The following Utilities and Owners are located within the work limits of this project.

TELEPHONE: General Telephone Company of Ohio 222 South Prospect Street Marion, Ohio 43302 (614) 389-4436

ELECTRIC: Hancock-Wood Electric Co-Operation, Inc. P.O. Box 188 2451 Grant Road North Baltimore, Ohio 43812 (419) 237-3241

~~CONDUIT REPLACEMENT~~ ~ ~~Where encountered during construction, existing conduits shall be replaced with new conduits of the same size and type as the existing conduits. Existing conduits which are located below the roadway ditch elevations, and which cross the roadway, shall be replaced within the right-of-way limits by Item 603 Conduit, Type B, one commercial size larger than the existing conduit.~~

~~Existing collectors and related farm drains, which are encountered above the elevation of the roadway ditches, shall be outletted into the roadway ditch by 603 Type F Conduit. The optimum outlet elevation shall be, if possible, one foot above the flowline elevation of the ditch. Lateral tile fields which cross the roadway shall be intercepted by 603, Type E Conduit, and carried in a longitudinal direction to an adequate outlet or roadway crossing.~~

~~The location, type, size and grade of required replacements shall be determined by the Engineer during construction, and payment shall be made on final measurements.~~

~~The following estimated quantities have been included in the General Summary for the work on this project:~~

~~Item 603 Conduit, Type B 350 Lin. Ft.
Item 603 Conduit, Type E 30 Lin. Ft.
Item 603 Conduit, Type F 30 Lin. Ft.
Item 603 Conduit, Type G 30 Lin. Ft.
Item 603 Conduit, Type H 30 Lin. Ft.~~

~~Necessary bands or branches shall be included for payment in the pertinent conduit item.~~

~~None of the above materials shall be ordered by the Contractor until authorized by the Engineer.~~

CONNECTION TO EXISTING PIPE ~ Where the plans provide for proposed conduit to be connected to, or to cross either over or under an existing sewer, it shall be the responsibility of the Contractor to locate the existing pipe both as to line and grade before he starts to lay the proposed conduit.

Payment for all operations described above shall be included in the unit price bid for the pertinent 603 conduit items.

UNDERGROUND UTILITIES - The location of underground utilities shown on the plans are as obtained from the owners of the utility as required by section 153.64 ORC.

At least 48 hours before digging, the Contractor should call the Ohio Utilities Protection Service, toll free, 800-362-2764. Non-member utility companies must be called directly.

UTILITIES NOTIFICATION - At least two working days prior to commencing construction operations in an area which may involved underground utility facilities, the contractor shall notify the Project Engineer, the registered Utility protection service and the owners of each underground utility facility shown in the plans.

The owner of the underground utility facility shall, within forty-eight, excluding Saturdays, Sundays and legal Holidays, after notice is recieved, stake, mark or otherwise designate the location of the underground utility facilities in the construction area in such a manner as to indicate their course together with the approximate depth at which they were installed. The marking or locating shall be coordinated to stay approximately two days ahead of the planned construction.

PERMANENT PAVEMENT MARKING - -

The work on the permanent pavement markings shall be carried out by State Forces.

PAVEMENT QUANTITIES

Station	Length	203		304		403		404		407		408		611
		Subgrade Compaction		Aggregate Base		Asphalt Concrete		Asphalt Concrete		Tack Coat	Cover Aggregate	Bituminous Prime Coat		Reinforced Concrete Approach Slabs (T=13")
From	To	Lin. Ft.	Sq. Yd.	Cu. Yd.		Cu. Yd.	Cu. Yd.	Gal.	Tons	Gal.				Sq. Yd.
551+20.46	551+47.46	27	6.0	6.18		0.84	1.57	5.28	0.18	9.02				
551+47.46	551+67.46	20	12.09	12.02		2.62	2.62	7.56	0.26					75.56
551+67.46	552+58.54	Bridge Limits												
552+58.54	552+78.54	20	12.09	12.02		2.62	2.62	7.56	0.26					75.56
552+78.54	553+05.54	27	6.0	6.18		0.84	1.57	5.28	0.18	9.02				
Totals			156	36.40		0.92	8.38	25.68	0.88	19.24				151.12

PAVEMENT COMPUTATIONS

Feather & Patch Area- From Sta 551+20.46 to Sta 551+47.46
Pavement: Length = 27.00'

404: $(1/2 \times 19 \times 1/12 \times 1) \times 25 = 19.79 \text{ Cu. Ft.}$
407 Tack Coat: $(19 \times 25) \times 1/19 \times 0.1 = 5.28 \text{ Gals.}$
407 Cover Aggregate: $(19 \times 25) \times 1/19 \times 7 \times 1/2000 = 0.18 \text{ Tons}$

2' Patching:
203 Subgrade Compaction: $2 \times 27 \times 1/9 = 6.00 \text{ Sq. Yd.}$
304: $2 \times 27 \times 19 \times 1/12 = 85.50 \text{ Cu. Ft.}$
403: $2 \times 27 \times 1/4 \times 1/12 = 5.63 \text{ Cu. Ft.}$
404: $2 \times 27 \times 1/4 \times 1/12 = 5.63 \text{ Cu. Ft.}$
408: $2 \times 27 \times 1/9 \times 0.4 = 2.40 \text{ Gals.}$

25' Shoulder Tapers:

304: $((2.5 + 4)/2) \times 25 \times 6 \times 1/12 \times 2 = 81.25 \text{ Cu. Ft.}$
403: $((2.5 + 4)/2) \times 25 \times 1/4 \times 1/12 \times 2 = 16.93 \text{ Cu. Ft.}$
404: $((2.5 + 4)/2) \times 25 \times 1/4 \times 1/12 \times 2 = 16.93 \text{ Cu. Ft.}$
408: $((2.5 + 4)/2) \times 25 \times 1/9 \times 0.4 \times 2 = 7.22 \text{ Gals.}$

Totals for Sta 551+20.46 to Sta 551+47.46

Total 203 Subgrade Compaction: $6.0 + 6.0 = 12.0 \text{ Sq. Yd.}$
Total 304: $(85.5 + 81.3)/127 = 6.18 \text{ Cu. Yd.}$
Total 403: $(5.63 + 16.93)/127 = 0.84 \text{ Cu. Yd.}$
Total 404: $(16.93 + 5.63 + 16.93)/127 = 1.57 \text{ Cu. Yd.}$
Total 407 Tack Coat = 5.28 Gals.
Total 407 Cover Aggregate = 0.18 Tons
Total 408: $2.40 + 7.22 = 9.62 \text{ Gals.}$

From Sta 551+47.46 to Sta 551+67.46 (20' Approach Slab)
Pavement:

203 Subgrade Compaction: $(20 \times 1/12) \times 34 \times 1/9 = 72.09 \text{ Sq. Yd.}$
304: $(20 \times 1/12) \times 34 \times 6 \times 1/12 \times 1/27 = 12.02 \text{ Cu. Yd.}$
403: $20 \times 34 \times 1/4 \times 1/12 \times 1/27 = 2.62 \text{ Cu. Yd.}$
404: $20 \times 34 \times 1/4 \times 1/12 \times 1/27 = 2.62 \text{ Cu. Yd.}$
407 Tack Coat: $20 \times 34 \times 1/19 \times 0.1 = 7.56 \text{ Gals.}$
407 Cover Aggregate: $20 \times 34 \times 1/19 \times 7 \times 1/2000 = 0.26 \text{ Tons}$
611: $20 \times 34 \times 1/19 = 75.56 \text{ Sq. Yd.}$

From Sta 551+67.46 to Sta 552+58.54 Length=91.08'
BRIDGE LIMITS = HAN-103-1045

From Sta 552+58.54 to Sta 552+78.54 (20' Approach Slab)
Pavement:

203 Subgrade Compaction: $(20 \times 1/12) \times 34 \times 1/9 = 72.09 \text{ Sq. Yd.}$
304: $(20 \times 1/12) \times 34 \times 6 \times 1/12 \times 1/27 = 12.02 \text{ Cu. Yd.}$
403: $20 \times 34 \times 1/4 \times 1/12 \times 1/27 = 2.62 \text{ Cu. Yd.}$
404: $20 \times 34 \times 1/4 \times 1/12 \times 1/27 = 2.62 \text{ Cu. Yd.}$
407 Tack Coat: $20 \times 34 \times 1/19 \times 0.1 = 7.56 \text{ Gals.}$
407 Cover Aggregate: $20 \times 34 \times 1/19 \times 7 \times 1/2000 = 0.26 \text{ Tons}$
611: $20 \times 34 \times 1/19 = 75.56 \text{ Sq. Yd.}$

Feather & Patch Area- From Sta 552+78.54 to Sta 553+05.54
Pavement:

404: $(1/2 \times 19 \times 1/12 \times 1) \times 25 = 19.79 \text{ Cu. Ft.}$
407 Tack Coat: $(19 \times 25) \times 1/19 \times 0.1 = 5.28 \text{ Gals.}$
407 Cover Aggregate: $(19 \times 25) \times 1/19 \times 7 \times 1/2000 = 0.18 \text{ Tons}$

SEEDING

Sheet	659
Seeding & Mulching	
Sq. Yd.	
9	239
10	386
11	642
Total	1267

EARTHWORK

Sheet	203	
	Excavation	Embankment
Sq. Yd.	Cu. Yd.	Cu. Yd.
7	195	247
8	0	71
Total	195	318

Feather & Patch Area- From Sta 552+78.54 to Sta 553+05.54 (Cont.)
2' Patching:

203 Subgrade Compaction: $2 \times 27 \times 1/9 = 6.00 \text{ Sq. Yd.}$
304: $2 \times 27 \times 19 \times 1/12 = 85.50 \text{ Cu. Ft.}$
403: $2 \times 27 \times 1/4 \times 1/12 = 5.63 \text{ Cu. Ft.}$
404: $2 \times 27 \times 1/4 \times 1/12 = 5.63 \text{ Cu. Ft.}$
408: $2 \times 27 \times 1/9 \times 0.4 = 2.40 \text{ Gals.}$

25' Shoulder Tapers:

304: $((2.5 + 4)/2) \times 25 \times 6 \times 1/12 \times 2 = 81.25 \text{ Cu. Ft.}$
403: $((2.5 + 4)/2) \times 25 \times 1/4 \times 1/12 \times 2 = 16.93 \text{ Cu. Ft.}$
404: $((2.5 + 4)/2) \times 25 \times 1/4 \times 1/12 \times 2 = 16.93 \text{ Cu. Ft.}$
408: $((2.5 + 4)/2) \times 25 \times 1/9 \times 0.4 \times 2 = 7.22 \text{ Gals.}$

Totals for Sta 552+78.54 to Sta 553+05.54

Total 203 Subgrade Compaction: $6.0 + 6.0 = 12.0 \text{ Sq. Yd.}$
Total 304: $(85.5 + 81.3)/127 = 6.18 \text{ Cu. Yd.}$
Total 403: $(5.63 + 16.93)/127 = 0.84 \text{ Cu. Yd.}$
Total 404: $(16.93 + 5.63 + 16.93)/127 = 1.57 \text{ Cu. Yd.}$
Total 407 Tack Coat = 5.28 Gals.
Total 407 Cover Aggregate = 0.18 Tons
Total 408: $2.40 + 7.22 = 9.62 \text{ Gals.}$

Miscellaneous Computations

659 Commercial Fertilizer @ 20# per 1000 Sq. Ft.
Net Seeding and Mulching = 1267 Sq. Yd.
Quantity $1267 \times 9 \times \frac{1}{1000} \times 20 \times \frac{1}{2000} = 0.11 \text{ Tons}$

659 Seeding & Mulching

From Seeding Table = 1,267 Sq. Yd.
Deduct Rock Channel Protection = 0 Sq. Yd.
Net = 1,267 Sq. Yd.

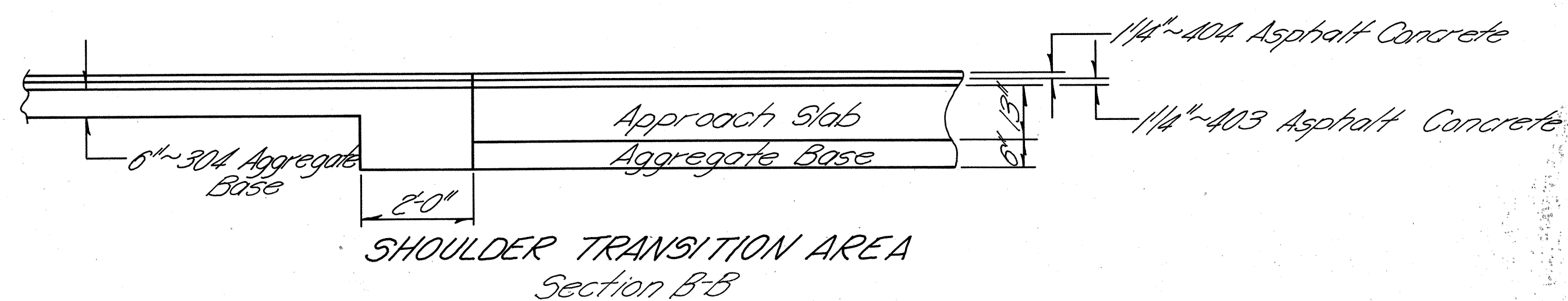
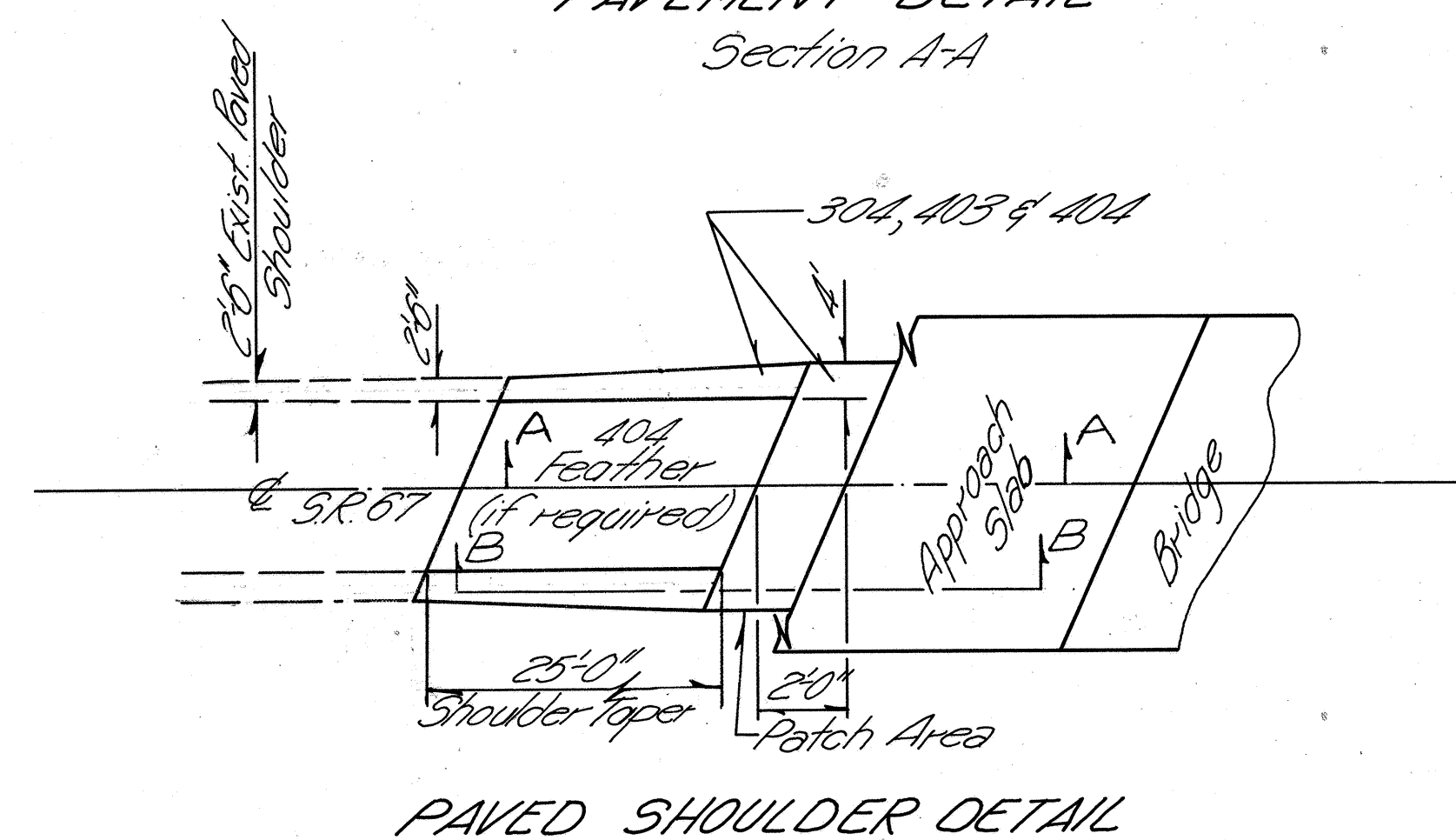
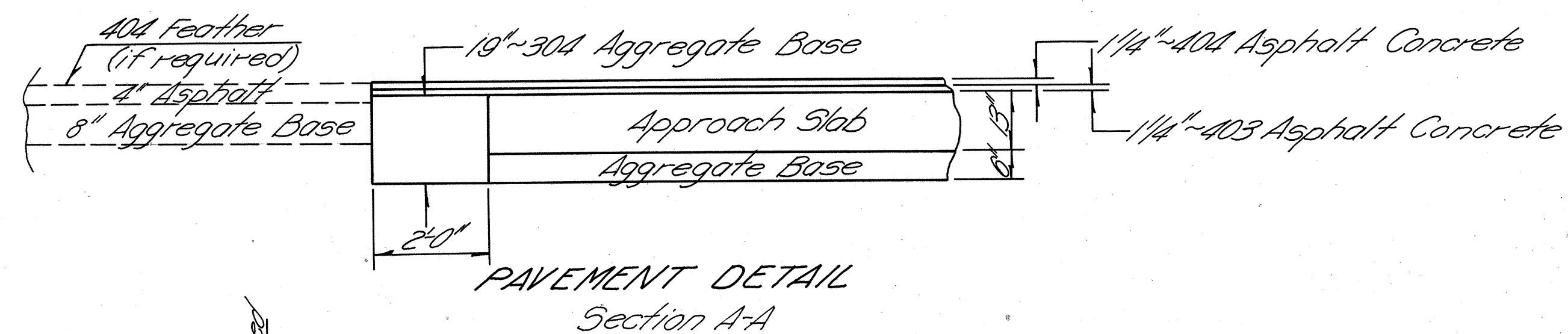
Computations By
Initials C.G.S. Date 11/9/82
Computations Checked By
Initials J.L.B. Date 11-9-82
Final Revisions By
Initials Date

FHWA REGION 5 STATE OHIO PROJECT
HANCOCK COUNTY
HAN-103-10.44

5
19

ITEM	SHEET NO.						ITEM	TOTAL	UNIT	DESCRIPTION
	4	5	7	8		19				
										ROADWAY
201 Lump							201 Lump	Lump		Clearing and Grubbing
202			45				202 45	Lin. Ft.		Pipe Removed 24" & Under
203		195					203 195	Cu. Yd.		Excavation not including Embankment Construction
203		318					203 318	Cu. Yd.		Embankment
203		156					203 156	Sq. Yd.		Subgrade Compaction
606			369.52	85.82			606 455.34	Lin. Ft.		Guard Rail, Type 5
606			3	1			606 4	Each		Anchor Assembly, Standard Type "A"
606			4				606 4	Each		Bridge Terminal Assembly, Standard Type "B"
614						0.04	614 0.04	Miles		Temporary Center Lines Class II
										EROSION CONTROL
601			141				601 141	Cu. Yd.		Rock Channel Protection, Type "B," without Bedding
659		1267					659 1267	Sq. Yd.		Seeding and Mulching
659		0.11					659 0.11	Ton		Commercial Fertilizer
										DRAINAGE
603			14				603 14	Lin. Ft.		10" Conduit Type "C"
603			22				603 22	Lin. Ft.		12" Conduit Type "C"
603			10				603 10	Lin. Ft.		10" Conduit Type "F"
603			10				603 10	Lin. Ft.		12" Conduit Type "F"
										PAVEMENT
304		36					304 36	Cu. Yd.		Aggregate Base
403		7					403 7	Cu. Yd.		Asphalt Concrete, AC-20
404		8					404 8	Cu. Yd.		Asphalt Concrete, AC-20
407		26					407 26	Gal.		Tack Coat
407		1					407 1	Ton		Cover Aggregate
408		19					408 19	Gal.		Bituminous Prime Coat
611		151					611 151	Sq. Yd.		Reinforced Concrete Approach Slab (T=13")
										STRUCTURES (OVER 20' SPAN)
										For Quantities of Bridge No. HAN-103-1045, See Sheet 13.
614 Lump							614 Lump	Lump		Maintaining Traffic
623							623 Lump	Lump		Construction Layout Stakes
624 Lump							624 Lump	Lump		Mobilization, as per plan

GENERAL SUMMARY



For & References, See Sheet 2

PROPOSED STRUCTURE
TYPE: Prestressed Conc. Box Beams on Reinf.
Conc. Abutts. and Piers on Drilled Shafts.
SPAN: 2 @ 44'-0" % Bearings
ROADWAY: 34' P/F Guard Rail
LOADING: HS 20-44 & Alternate Military Loading
SKEW: 30° C.F.
SURFACE COURSE: 2 1/2" Asphalt Concrete
APPROACH SLABS: AS-1-81 (20' Long)
ALIGNMENT: Tangent

Computations By Initials <i>CGS</i>	Date <i>11/9/82</i>
Computations Checked By Initials <i>JEB</i>	Date <i>11-9-82</i>
Final Revisions By Initials	Date

ROADWAY DRAINAGE "D"

Ref. No	Station		Side	202	601	603				Bends & Branches
				Pipe Removed 24" & Under	Rock Channel Protection Type B 24" Throat w/out Bending	Conduit Lin. Ft.		Type		
	From	To		Lin. Ft.	Cu. Yd.	10"	12"	10"	12"	
1-D	551+56.55	551+97	UR		69.2					
2-D	552+30.00	552+69.19	UR		72.1					
3-D	552+54.75	552+78	LT	22		14		10		1
4-D	552+31	552+63	RT	23			22		10	
	Totals			45	141.3	14	22	10	10	

201~ Tree Removal/ 3-18" Trees

GUARD RAIL "G"

Ref. No.	Station		Side	606		
				Guard Rail Std. Type 5	Anchor Assembly Std. Type 4	Bridge Terminal Assembly
	From	To		Lin. Ft.	Each	Each
1-G	550+73.32	551+77.27	LT	78.95	1	1
2-G	550+52.69	551+57.65	RT	79.96	1	1
3-G	552+68.35	554+00	LT	131.65		1
4-G	552+48.73	553+52.69	RT	78.96	1	1
	Totals			369.52	3	4

EXISTING STRUCTURE
Type: Steel truss with wood floor
Span: 73'-0"
Width: 23'-10" f/f curbs
Alignment: Tangent
Condition: Poor
Built: 1919 moved to present
Site in 1941

BM#2, Sta 547+13
"□" N. H.W. of C.B.
26' Lt. Elev. 854.38

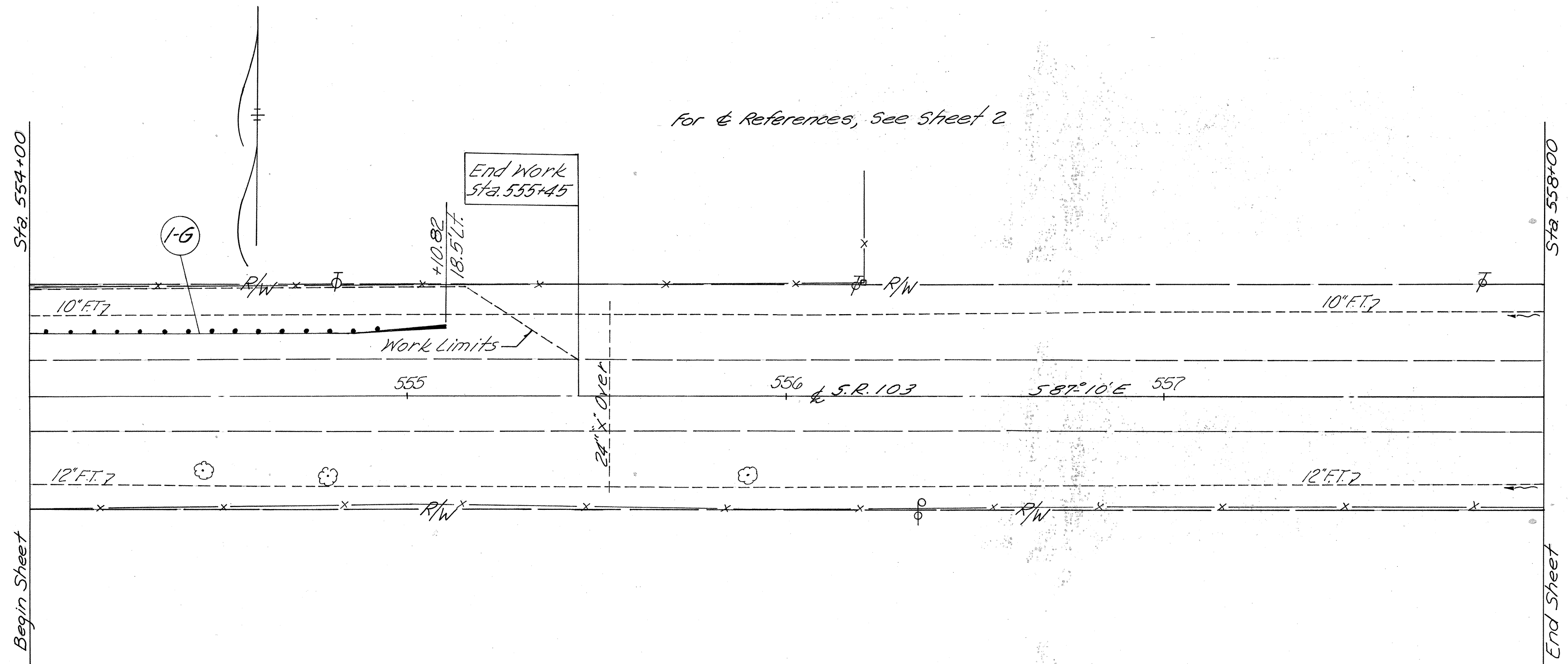
BM #3 Sta. 1052+50.5
 * Top North East Wing Bridge
 15.5' Lt Elev. 856.82

20" Walnut (201)

20" Walnut (201)

Excavation 195 Cu. Yd.
Embankment 247 Cu. Yd.

Sta. 550+00 to Sta. 554+00



20' Hardwood

20' Walnut

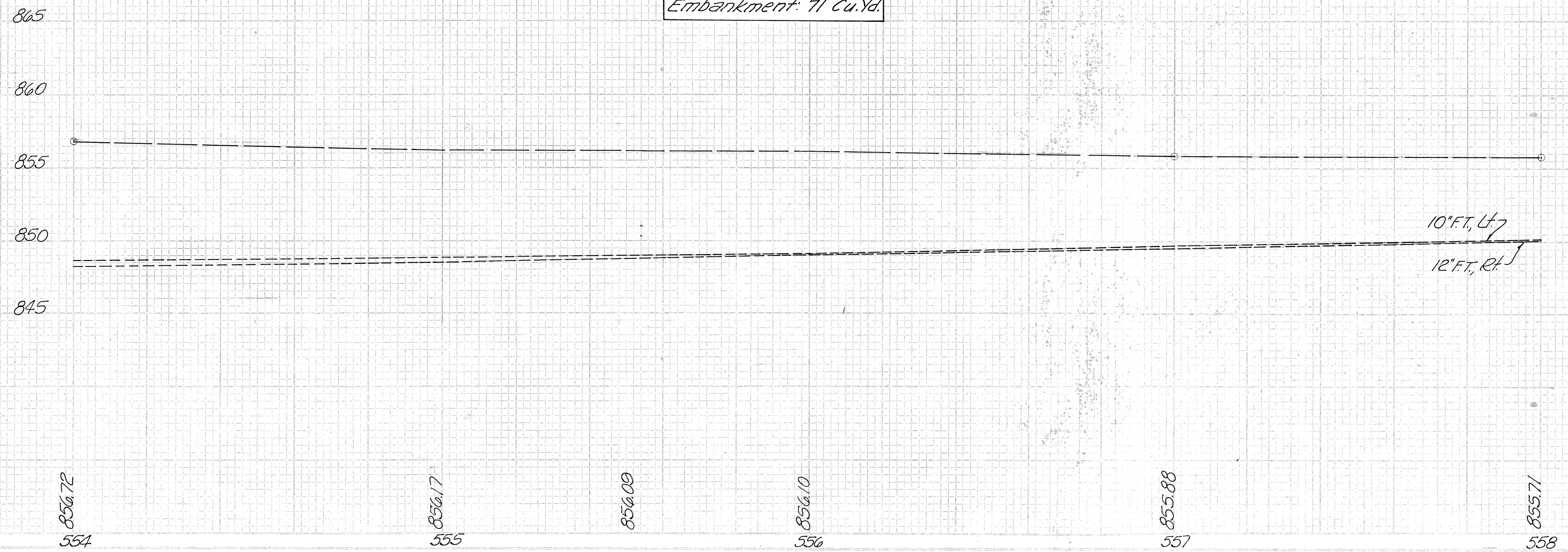
B.M. #4 Sta 555+90
Spike in 20' Hardwood
21.5' Rt. Elev. 855.46

20' Hardwood

B.M. #5 Sta 560+37
x top south H.W. of C.B.
23.8' Rt. Elev. 854.13

B.M. #6 Sta 565+94
Spike in
31.0' Rt. Elev. 860.84

Excavation: 0 Cu.Yd.
Embankment: 71 Cu.Yd.



Computations By
Initials C.G.S. Date 11/9/82

Computations Checked By
Initials J.B. Date 11/9/82

Final Revisions By
Initials Date

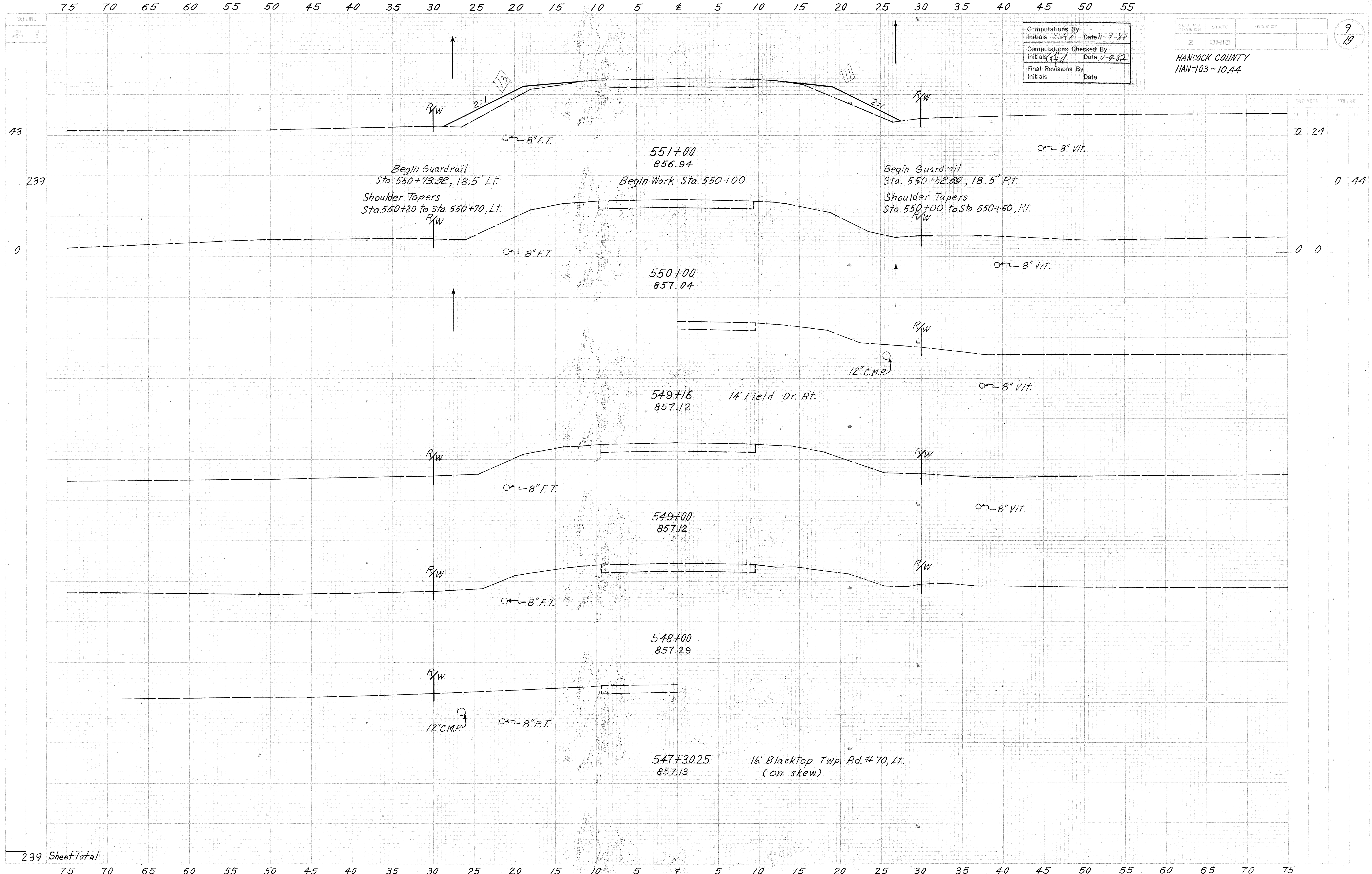
FED. RD. DIVISION 2 STATE OHIO PROJECT

HANCOCK COUNTY
HAN-103-1044

8
19

GUARD RAIL "G"

Ref No.	Station		Side	606	
	From	To		Guard Rail Standard Type 5	Anchor Assy. Standard Type A
1-G	554+00	555+10.82	Lt.	85.82	1
Totals				85.82	1



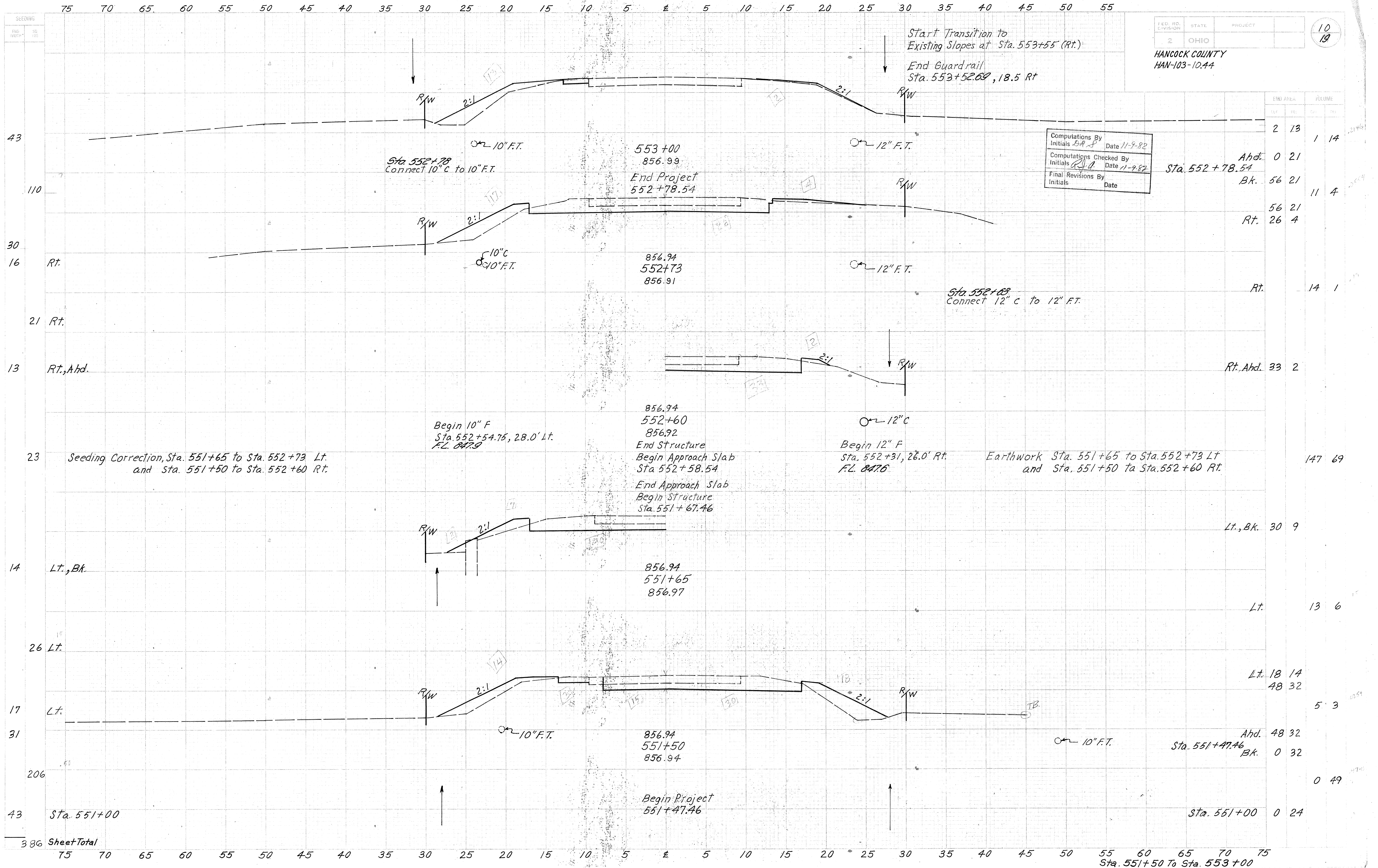
Computations By
Initials *BRS* Date *11-9-82*
Computations Checked By
Initials *AD* Date *11-9-82*
Final Revisions By
Initials _____ Date _____

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	

HANCOCK COUNTY
HAN-103-10.44

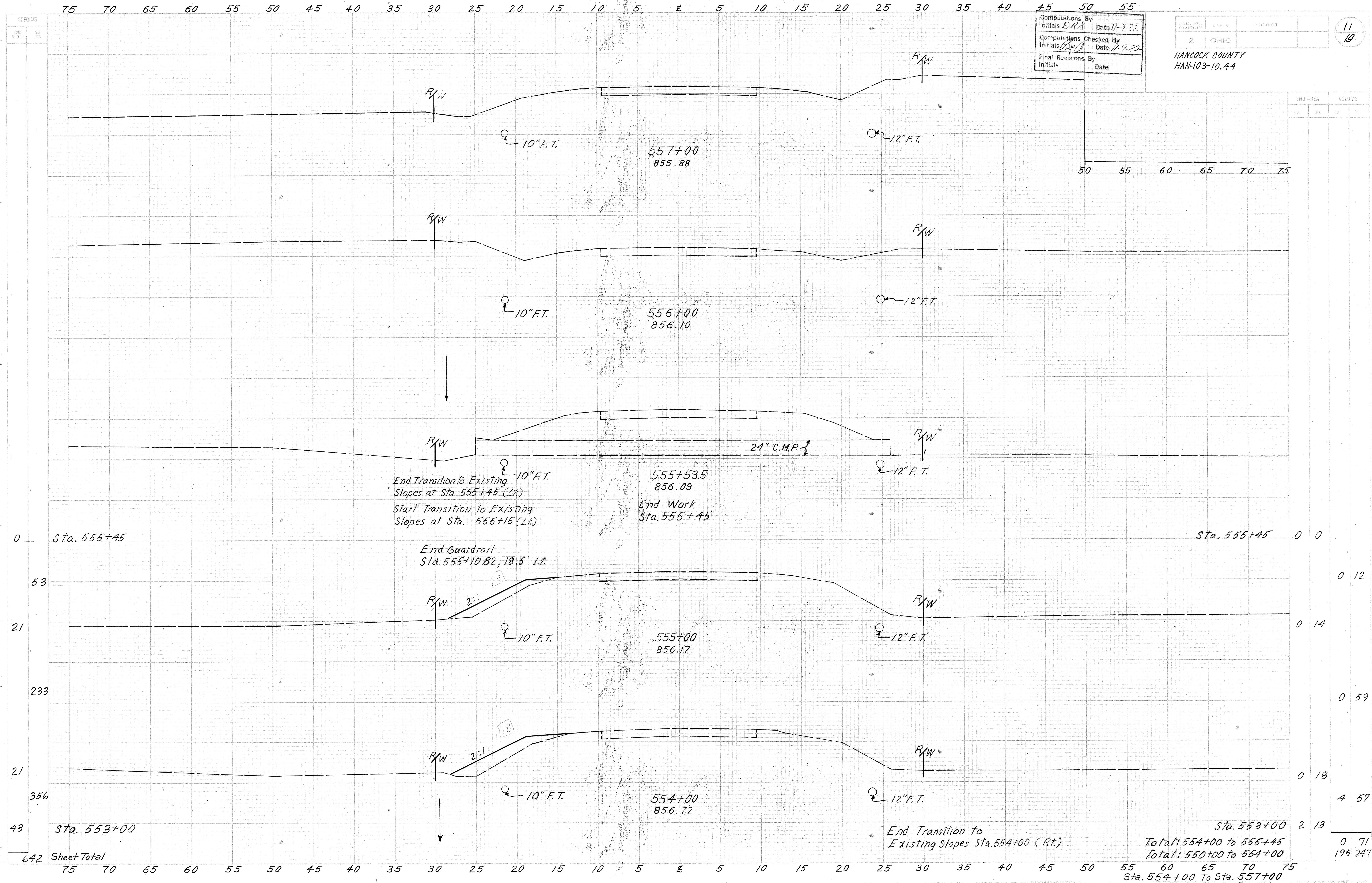
9
19

END AREA		VOLUME	
CU	YS	CU	YS
0	24		
		0	44
0	0		



Computations By
Initials *BAJ* Date 11-9-82
Computations Checked By
Initials *BAJ* Date 11-9-82
Final Revisions By
Initials Date

STATION	AREA	VOLUME	REMARKS
Sta. 552+78.54	13	14	
Ahd.	0	21	
Bk.	56	21	
Rt.	56	21	
	26	4	
Rt.		14	
Rt., Ahd.	33	2	
Earthwork Sta. 551+65 to Sta. 552+73 Lt. and Sta. 551+50 to Sta. 552+60 Rt.	147	69	
Lt., Bk.	30	9	
Lt.		13	
Lt.	18	14	
	48	32	
Ahd.	48	32	
Bk.	0	32	
		0	
Sta. 551+00	0	24	



Computations By
Initials *D.R.* Date *11-9-82*
Computations Checked By
Initials *B.A.P.* Date *11-9-82*
Final Revisions By
Initials _____ Date _____

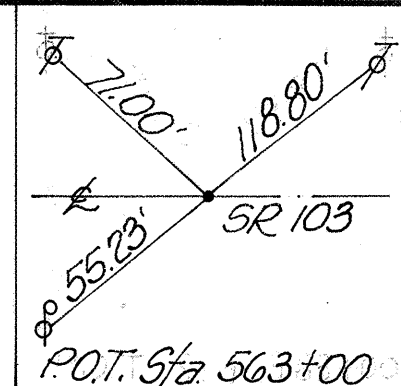
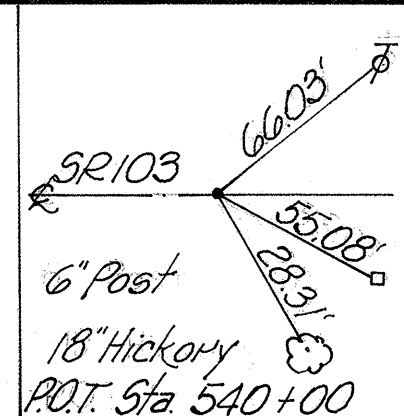
FED. RD. DIVISION
2 OHIO
PROJECT
HANCOCK COUNTY
HAN-103-10.44

11
19

END AREA		VOLUME	
EST	PR	EST	PR

0	Sta. 555+45		Sta. 555+45	0	0
53				0	12
21				0	14
233				0	59
21				0	18
356				4	57
43	Sta. 553+00		Sta. 553+00	2	13
642	Sheet Total		Total: 554+00 to 555+45	0	71
			Total: 550+00 to 554+00	195	247
			Sta. 554+00 To Sta. 557+00		

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AUG 23 1984

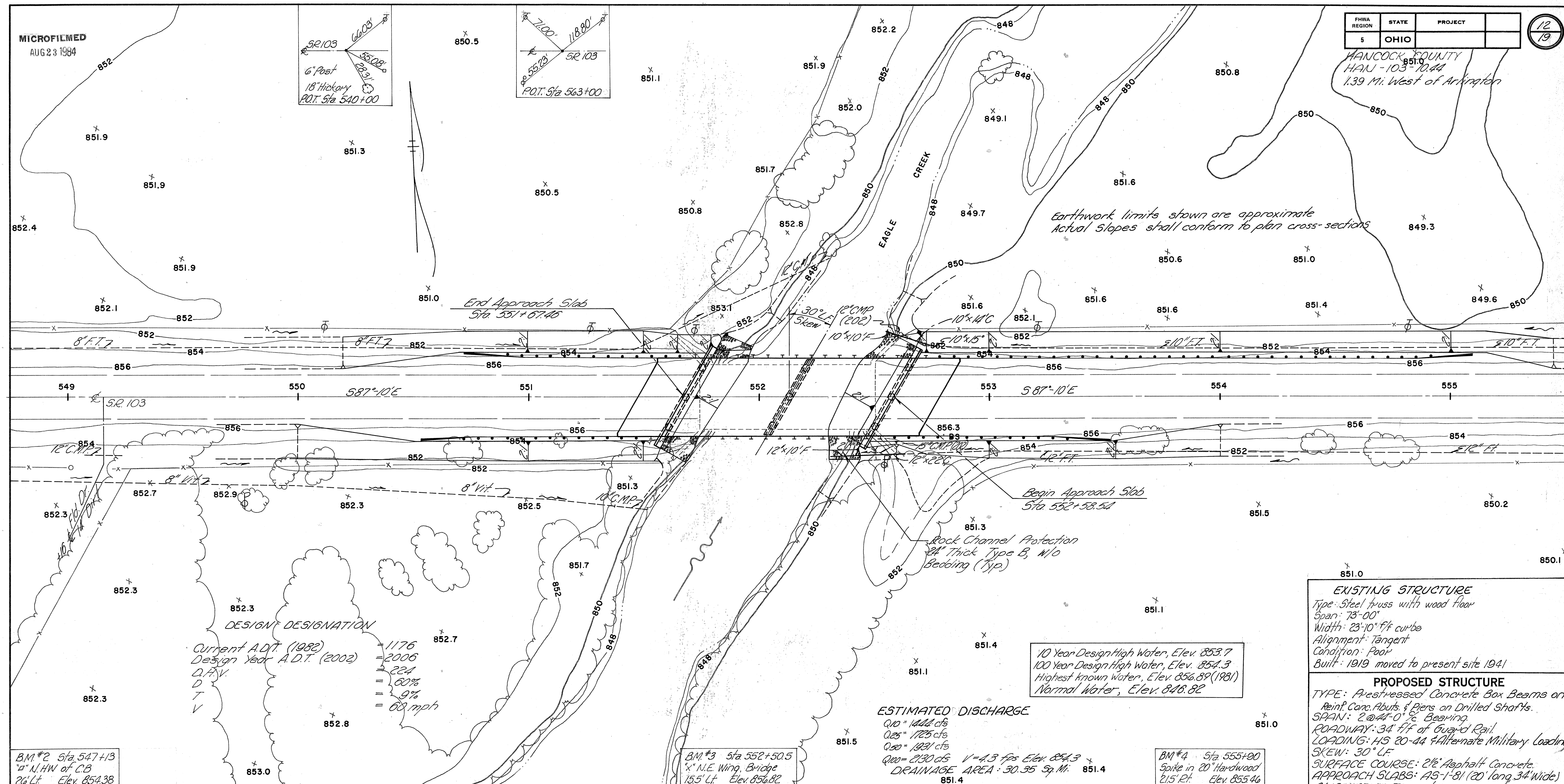


FHWA REGION	STATE	PROJECT
5	OHIO	

12
19

HANCOCK COUNTY
HAN-103-10.44
1.39 Mi. West of Arrington

Earthwork limits shown are approximate
Actual slopes shall conform to plan cross-sections



DESIGN DESIGNATION

Current A.D.T. (1982) = 1176
Design Year A.D.T. (2002) = 2006
D.F.V. = 224
D = 60%
T = 9%
V = 60 mph

B.M. #2 Sta 547+13
"N" N.W. of C.B.
26' Lt. Elev 854.38

B.M. #3 Sta 552+50.5
"X" N.E. Wing, Bridge
15.5' Lt. Elev 856.82

ESTIMATED DISCHARGE

Q10 = 1444 cfs
Q25 = 1725 cfs
Q50 = 1931 cfs
Q100 = 2130 cfs
V = 4.3 fps Elev 854.3
DRAINAGE AREA = 30.35 Sq. Mi.
851.4

10 Year Design High Water, Elev. 853.7
100 Year Design High Water, Elev. 854.3
Highest known Water, Elev. 856.89 (1981)
Normal Water, Elev. 846.82

B.M. #4 Sta 555+90
Spike in 20' Hardwood
215' Rt. Elev 855.46

EXISTING STRUCTURE

Type: Steel truss with wood floor
Span: 73'-00"
Width: 23'-10" f/f curbe
Alignment: Tangent
Condition: Poor
Built: 1919 moved to present site 1941

PROPOSED STRUCTURE

TYPE: Prestressed Concrete Box Beams on
Reinf. Conc. Abutts. & Piers on Drilled Shafts.
SPAN: 2 @ 41'-0" & Bearing
ROADWAY: 34' f/f of Guapd Rail
LOADING: HS 20-44 & Alternate Military Loading
SKEW: 30° LF
SURFACE COURSE: 2 1/2" Asphalt Concrete
APPROACH SLABS: AS-1-81 (20' long 34' wide)
ALIGNMENT: Tangent

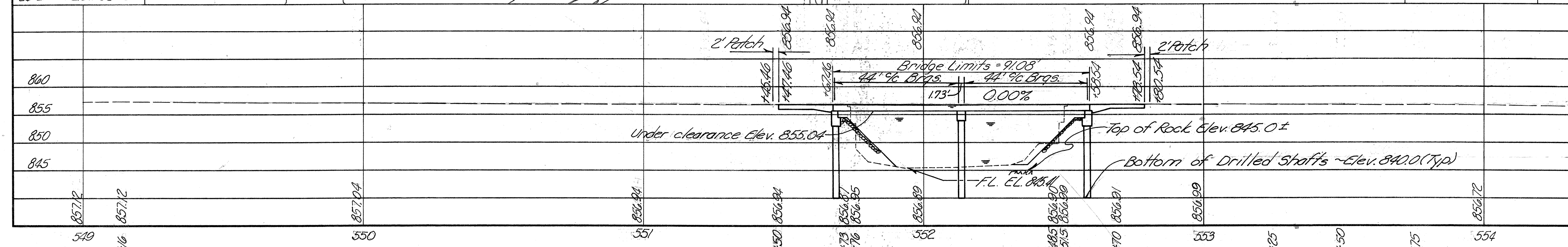
STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. HAN 103 OVER
EAGLE CREEK

SEC. HAN 103-10.44 STA. 551+67.46 to
552+58.54

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
RLW	ODOT	APD	APD	BSH	



HANCOCK COUNTY HAN-103-10.44

GENERAL NOTES

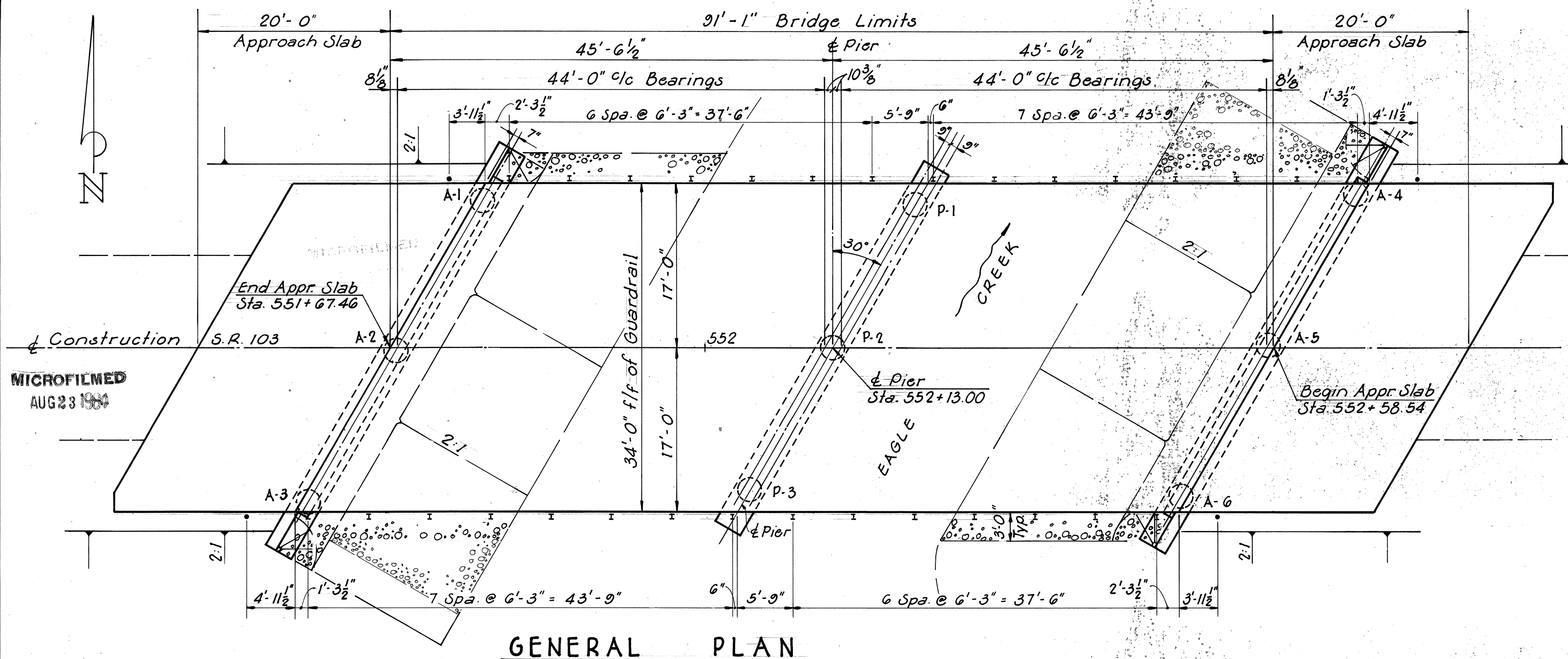
REFERENCE shall be made to Standard Drawings
DBR-2-73 dated 4-10-73
PSBD-1-81 sheets 1, 2, 3 and 4 of 4 dated 9-18-81.
AS-1-81 sheets 1, 2 and 3 dated 11-27-81

DESIGN SPECIFICATIONS: This structure conforms to 'Standard Specifications for Highway Bridges' adopted by the American Association of State Highway and Transportation Officials, 1977, including 1978, 1979, 1980, 1981 and 1982 Interim Specifications and the Ohio Supplement to these specifications.

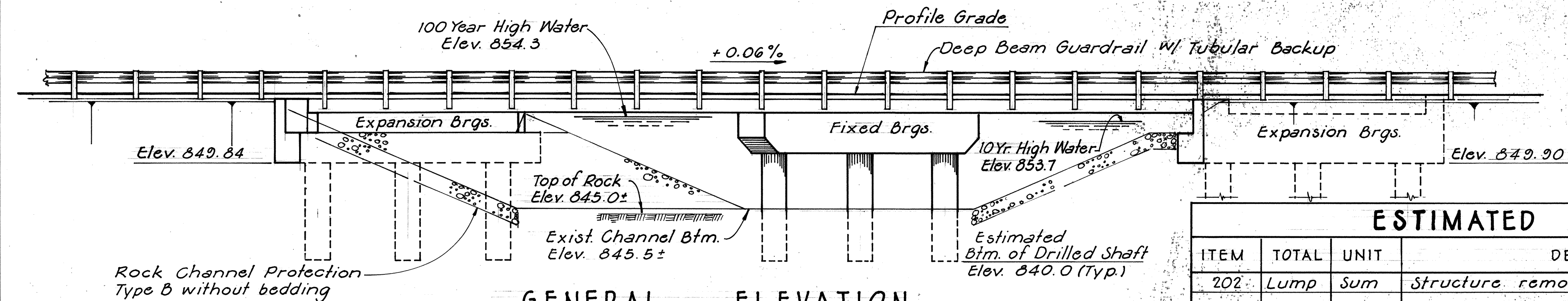
DESIGN DATA: Design Loading - HS20-44 and the alternate Military Loading.
Concrete - Class C - $f'_c = 4000$ p.s.i. for substructure, unit stress 1333 p.s.i.
Reinforcing Steel - ASTM A615, A616 or A617 - unit stress 20,000 p.s.i.
Concrete for prestressed concrete beams - unit stress 2200 p.s.i. compression unit stress 444 p.s.i. tension
Prestressing Strands - ASTM A416 - $f'_s = 270,000$ p.s.i., initial stress = 0.70 f'_s
Deck Protection Method: Membrane waterproofing and asphalt conc. overlay.

REMOVAL OF EXISTING STRUCTURE: When no longer needed to maintain traffic the existing structure shall be removed.

UTILITY LINES: All expenses involved in relocating the affected utility lines shall be borne by the owners. The Contractor and Owners are requested to cooperate by arranging their work in such a manner that inconvenience to either will be held to a minimum.



GENERAL PLAN



GENERAL ELEVATION

REINFORCING STEEL LIST (Bridge HAN-103-1045)

ABUTMENTS						NUMBER		BENDING DIAGRAMS						PIER					
MARK	Nº	LENGTH	WEIGHT	SHAPE	R	F								MARK	Nº	LENGTH	WEIGHT	SHAPE	
A501	16	24'-8"	412	Str.	8	8								P501	8	22'-2"	185	Str.	
A502	148	6'-7"	1016	Bent	74	74								P502	28	13'-3"	387	Bent	
A503	8	20'-7"	172	Str.	4	4								P503	2	11'-7"	24	Bent	
A504	14	11'-4"	165	Bent	7	7								P504	2	12'-5"	26	Bent	
A505	34	8'-2"	460	Bent	27	27								P801	12	20'-11"	670	Str.	
A506	16	6'-0"	100	Str.	8	8								P901	4	29'-8"	403	Bent	
A507	2	4'-6"	9	Str.	1	1								P902	4	21'-6"	292	Bent	
A508	2	4'-1"	9	Str.	1	1								P903	4	19'-6"	265	Str.	
A509	2	3'-4"	7	Str.	1	1								P904	4	27'-8"	376	Str.	
A510	2	3'-10"	8	Str.	1	1													
A802	16	25'-6"	1089	Str.	8	8													
A803	46	6'-5"	788	Bent	23	23													
A1001	8	19'-0"	654	Str.	4	4													
A1002	8	25'-9"	886	Str.	4	4													
REINFORCING STEEL SAMPLES: Refer to CMS Sections 106.03, 100, 109.01 through 109.05 and 109.08. Sufficient additional reinforcing steel shall be provided for sampling. Random samples shall be replaced in the structures by the additional steel, spliced in accordance with 509.08.																			
DRILLED SHAFTS						NUMBER		SPIRAL REINFORCEMENT						ABUTMENTS					
MARK	Nº	LENGTH	WEIGHT	SHAPE	R	F		MARK	Nº	LENGTH	WEIGHT	SHAPE		MARK	Nº	LENGTH	WEIGHT	SHAPE	
A801	60	12'-6"	2003	Str.	30	30		SP401	3	10'-5"	24	4 1/2"	31	3	434				
P802	30	13'-7"	1088	Str.				SP402	6	9'-5"	24	4 1/2"	28	3	774				
Note: A801 and P802 are included with Drilled Shafts for payment. Lengths are estimated.																			
Note: Spiral reinforcement shall be included in unit price bid for Item Special - Drilled Shafts																			
* Including the finishing turns (3 coils - 1 1/2 turns @ each end)																			

ESTIMATED QUANTITIES (Bridge HAN-103-1045)

ITEM	TOTAL	UNIT	DESCRIPTION	ABUTMENTS		PIER	Super-structure	GENERAL
				Rear	Forward			
202	Lump	Sum	Structure removed					Lump
403	21	Cu.Yd.	Asphalt concrete (AC-20)				21	
404	12	Cu.Yd.	Asphalt concrete (AC-20)				12	
503	Lump	Sum	Cofferdams, cribs and sheeting					Lump
503	106	Cu.Yd.	Unclassified excavation	53	53			
509	8654	Lbs.	Reinforcing steel	2888	2887	2628	251	
511	3	Cu.Yd.	Class 5 concrete, superstructure				3	
511	50	Cu.Yd.	Class C concrete, abutments above shafts	25	25			
511	21.5	Cu.Yd.	Class C concrete, pier caps and columns			21.5		
512	359	Sq.Yd.	Type D Waterproofing				359	
515	633.5	Lin.Ft.	Prestressed concrete bridge members, B17-48				633.5	
515	181	Lin.Ft.	Prestressed concrete bridge members, B17-36				181	
516	64	Sq.Ft.	1/2" Preformed expansion joint filler	11	11	42		
516	113	Sq.Ft.	1" Preformed expansion joint filler	56.5	56.5			
516	72	Each	1/2"x5"x1'-0" Elastomeric bearing pads (50 Durometer)	18	18	36		
516	36	Each	1/8"x5"x1'-0" Preformed bearing pads, 711-21	9	9	18		
516	78	Lin.Ft.	Joint Sealer, 705-01 or 705-02	39	39			
517	182.16	Lin.Ft.	Railing (deep beam rail with tubular backup and steel posts and bolts)					182.16
518	14	Cu.Yd.	Porous backfill	7	7			
Special	140	Sq.Ft.	Steel drip strip				140	
Special	59.5	Lin.Ft.	30" Ø Drilled shafts	29.5	30.0			
Special	21	Lin.Ft.	36" Ø Drilled shafts			21		

Quantities calculated by: APO

Date: 9-22-82 Checked by: BJH

Date: 11-2-82

DESIGN DESIGNATION

Current A.D.T. (1982) = 1176
Design year A.D.T. (2002) = 1006
D.H.V. = 224
D = 60 %
T = 9 %
V = 60 M.P.H.

DESIGN DISCHARGE

$Q_{10} = 1444$ cfs
 $Q_{25} = 1725$ cfs
 $Q_{50} = 1931$ cfs
 $Q_{100} = 2130$ cfs $V = 4.3$ fps Elev. = 854.3
DRAINAGE AREA = 30.35 Sq. Mile

PROPOSED STRUCTURE

TYPE: Prestressed Concrete Box Beams on Reinforced Concrete Abutments and Piers on Drilled Shafts.

SPAN: 2 at 44'-0" c/c Bearings

ROADWAY: 34' face to face of Guardrail.

LOADING: HS20-44 and Alternate Military Loading

SKEW: 30° L.F.

SURFACE COURSE: 2 1/2" Min. Asphalt Concrete

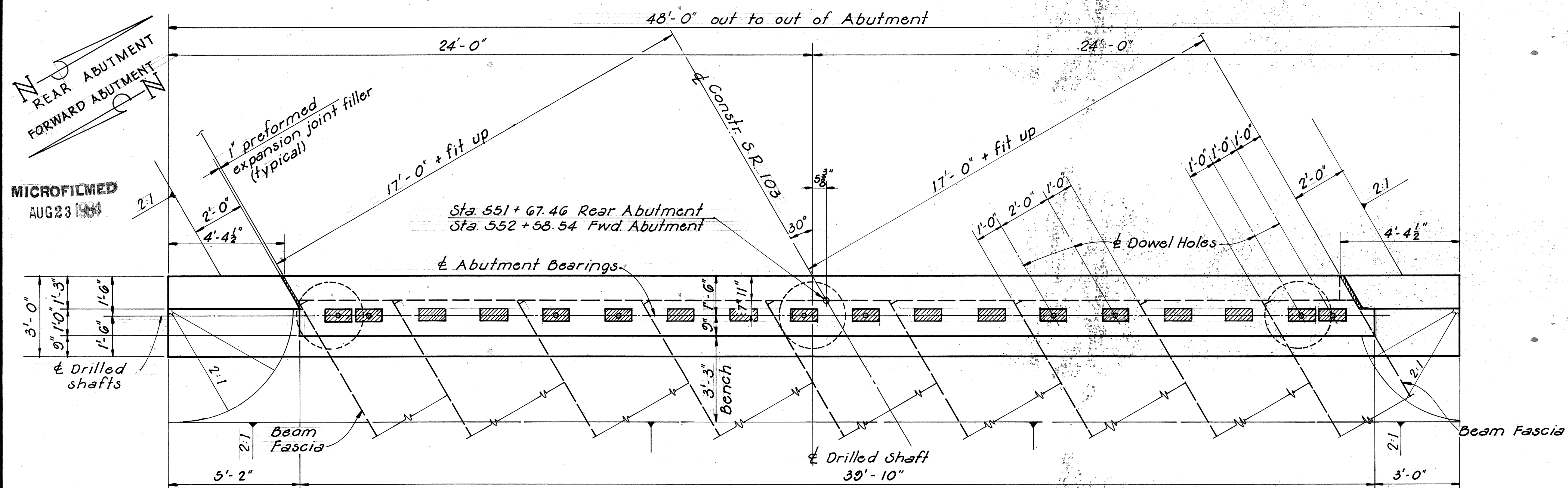
APPROACH SLABS: AS-1-81 (20' long x 34' wide)

ALIGNMENT: Tangent

SAMBORN, STEKETEE, OTIS and EVANS, INC.
ENGINEERS - ARCHITECTS - PLANNERS
1001 MADISON AVE. TOLEDO, OHIO

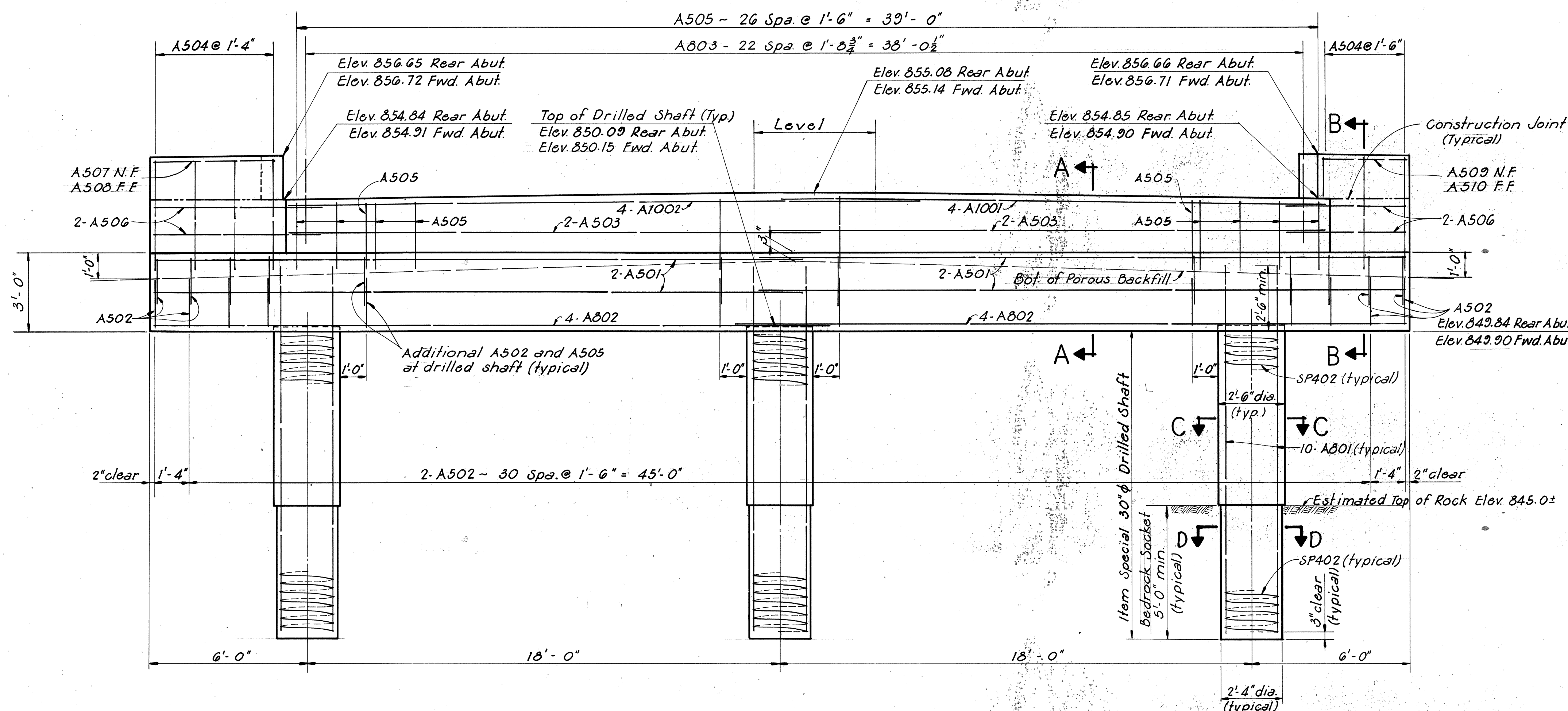
GENERAL PLAN & ELEV., GENERAL NOTES,
ESTIMATED QUANT., REINF STEEL LIST
Bridge HAN-103-1045
State Route 103 over Eagle Creek
Hancock County Sta. 551+67.46 to
Sta. 552+58.54

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
APD	APD		BJH	CHB	11-2-82	

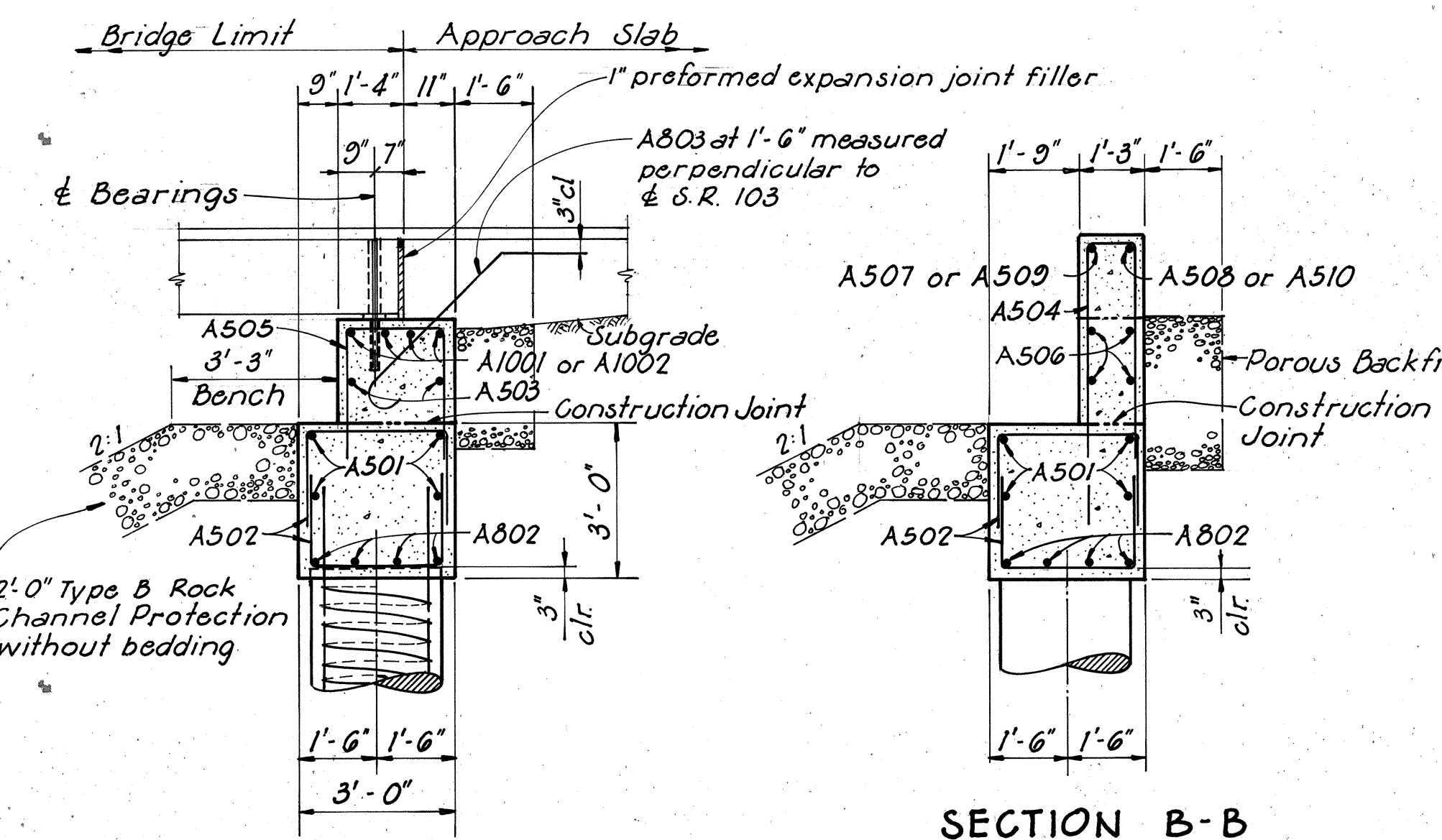


PLAN - REAR and FORWARD ABUTMENT

- NOTES:
- POROUS BACKFILL shall extend upward to the plane of the subgrade and laterally to the surface of the embankment slopes.
- BRIDGE SEAT REINFORCING: Special care shall be taken in placing reinforcing steel in the vicinity of the bridge seats of the abutments so as to avoid interference with the drilling of anchor bar holes.
- Do not place concrete above bridge seat until after beams are completely erected.
- See sheet 3/4 for additional details.
- N.F. denotes Near Face
F.F. denotes Far Face

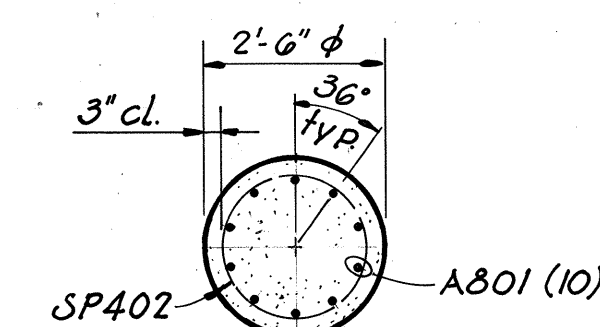


ELEVATION - REAR and FORWARD ABUTMENT



SECTION A-A

SECTION B-B



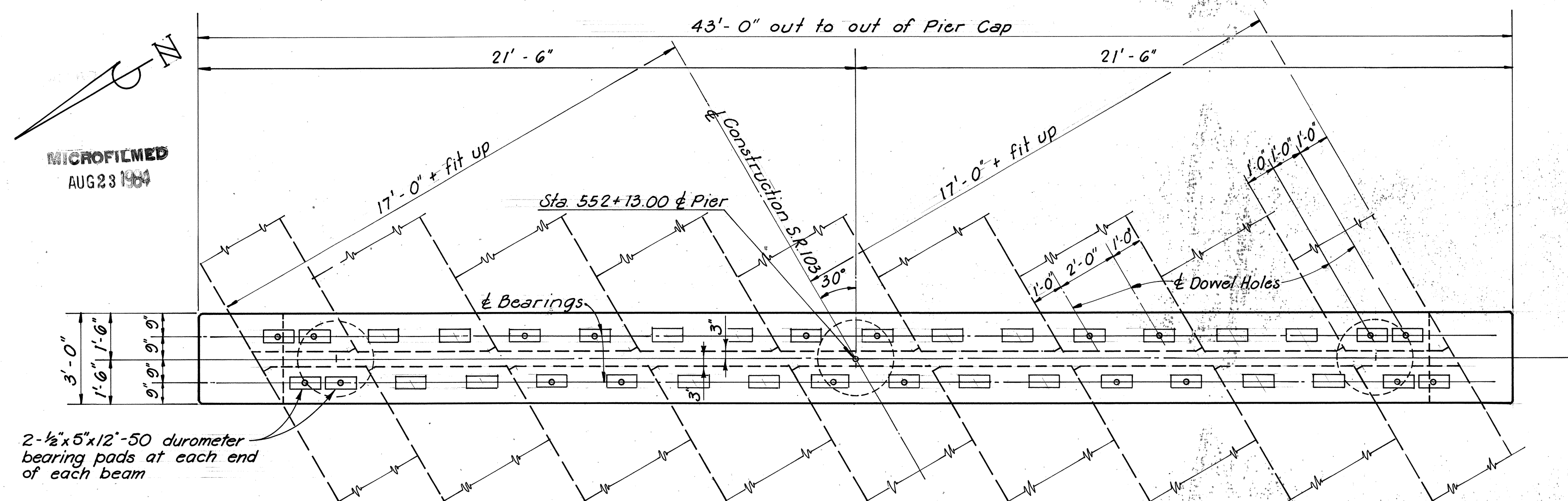
SECTION C-C

SECTION D-D

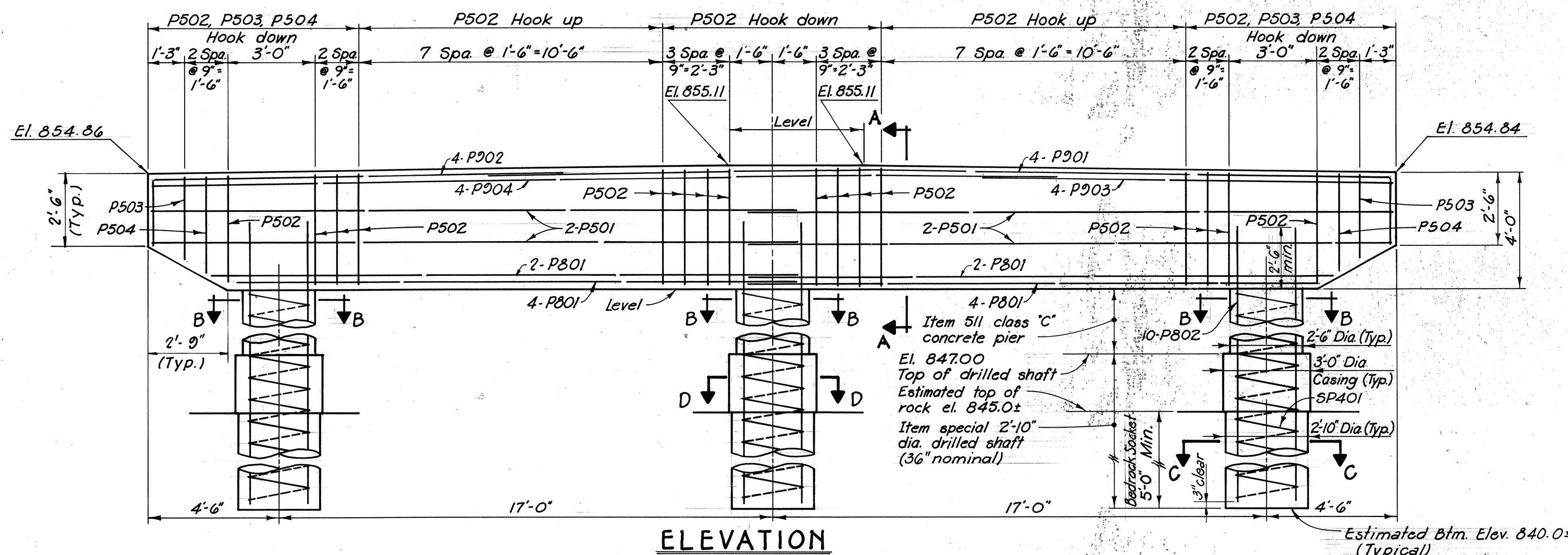
SAMBORN, STEKETEE, OTIS and EVANS, INC.
ENGINEERS ARCHITECTS PLANNERS
1001 MADISON AVE. TOLEDO, OHIO

ABUTMENT DETAILS
Bridge HAN-103-1045
State Route 103 over Eagle Creek
Hancock County Sta. 551+67.46 to
Sta. 552+58.54

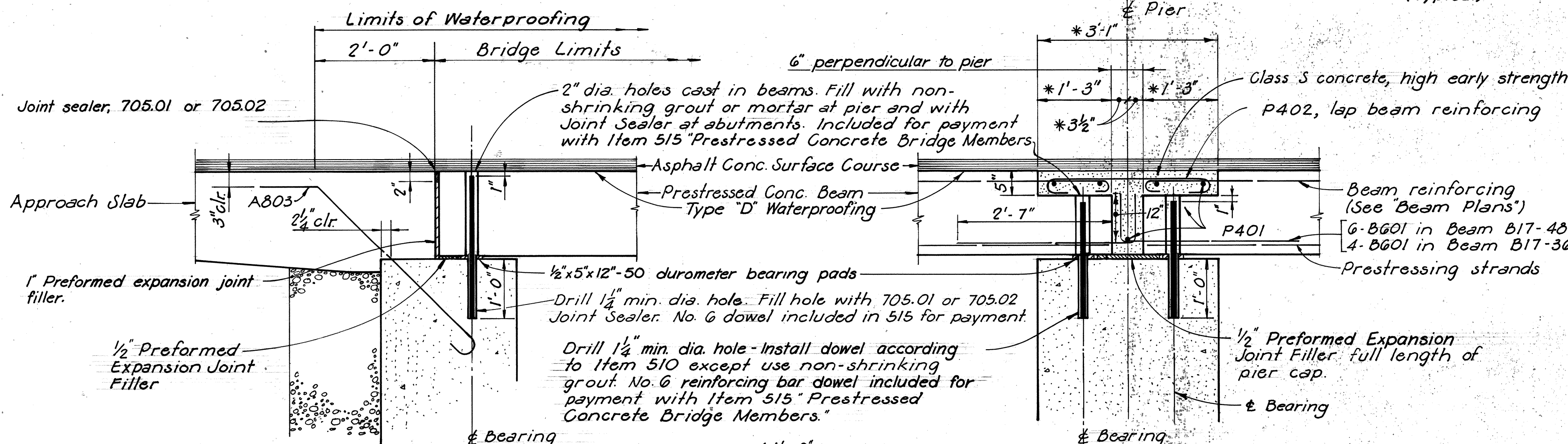
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
APD	APD		BJH	CHB	11-2-82	



PLAN



ELEVATION

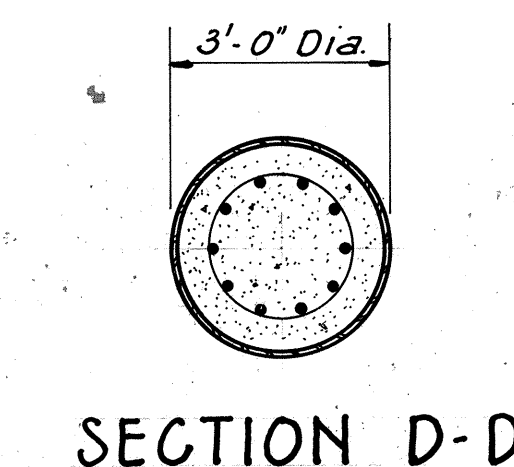


ABUTMENT

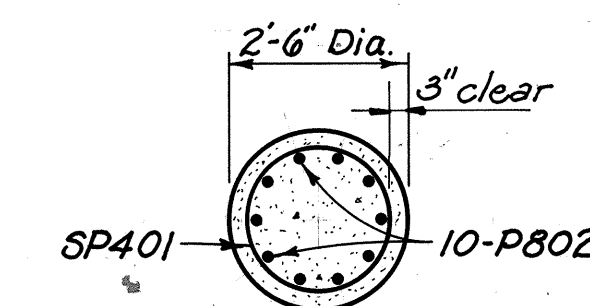
PIER

ABUTMENT and PIER BEARING DETAILS

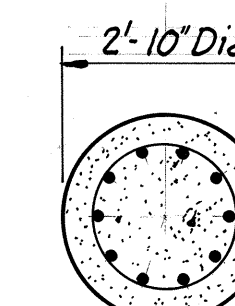
* Measured parallel to
construction S.R. 103



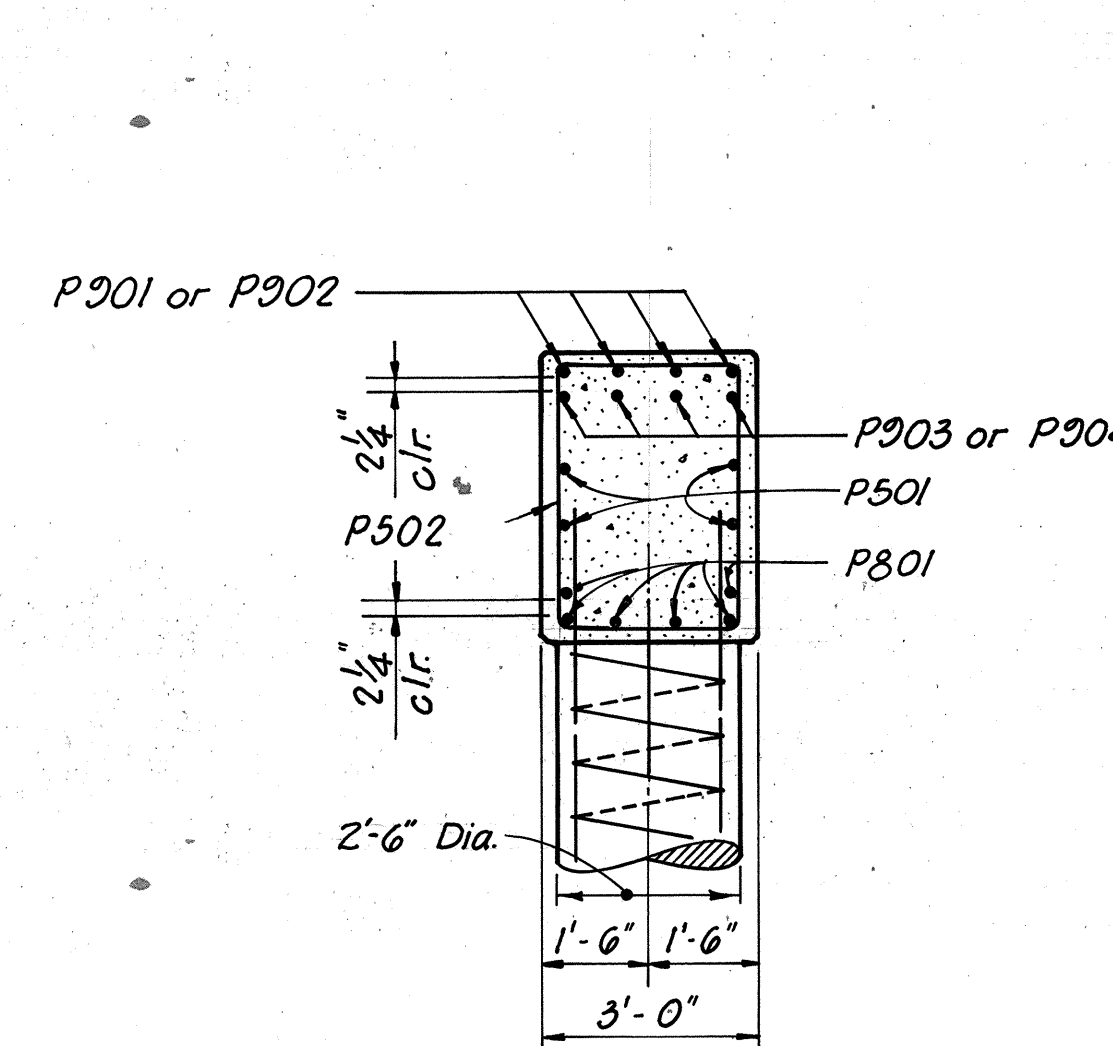
SECTION D-D



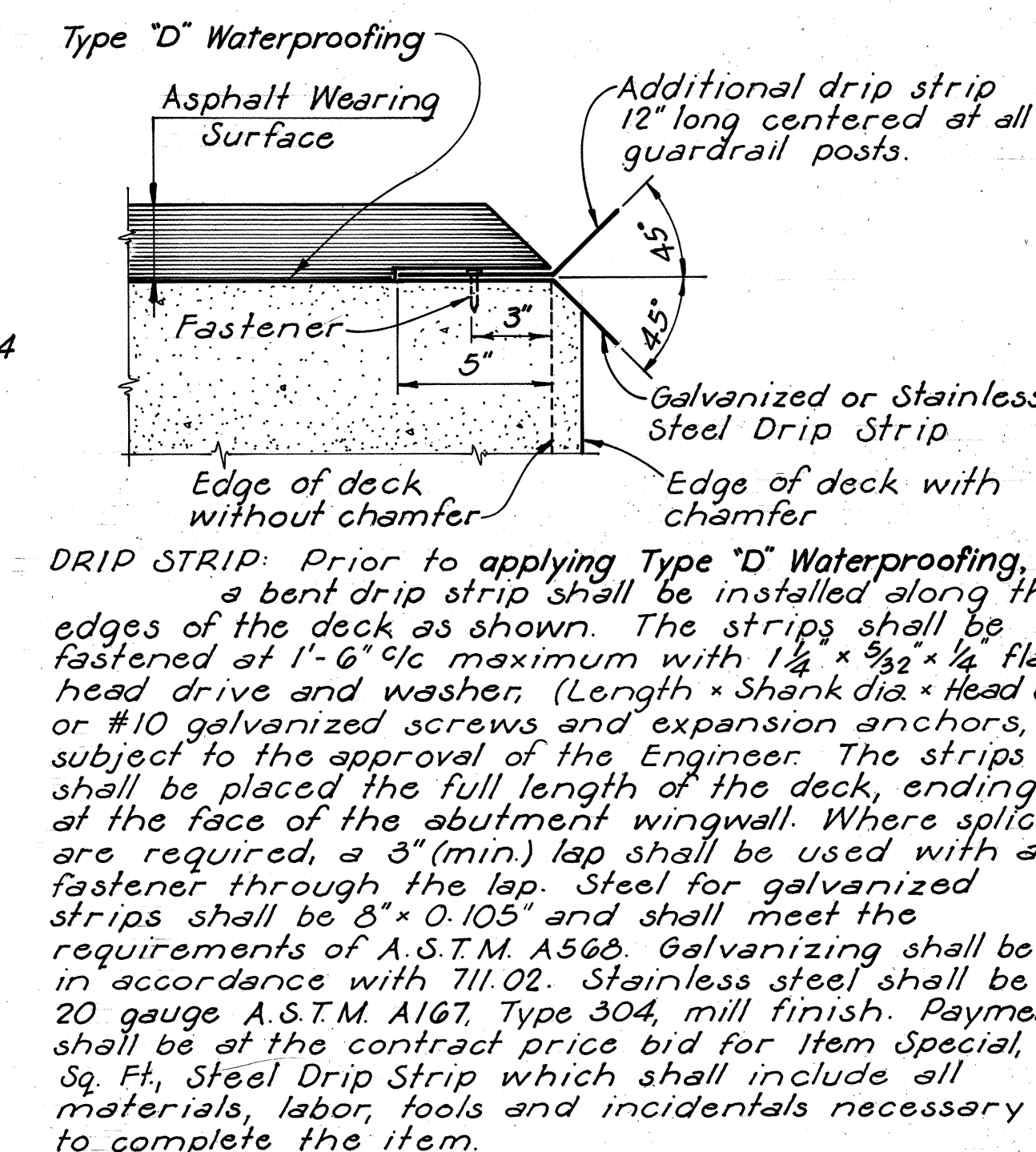
SECTION B-B



SECTION C-C



SECTION A-A



DRIP STRIP DETAIL

NOTES:

REINFORCING STEEL in the vicinity of the beam anchor bars shall be accurately placed to avoid interference with the drilling of anchor dowel holes.

PIER DETAILS

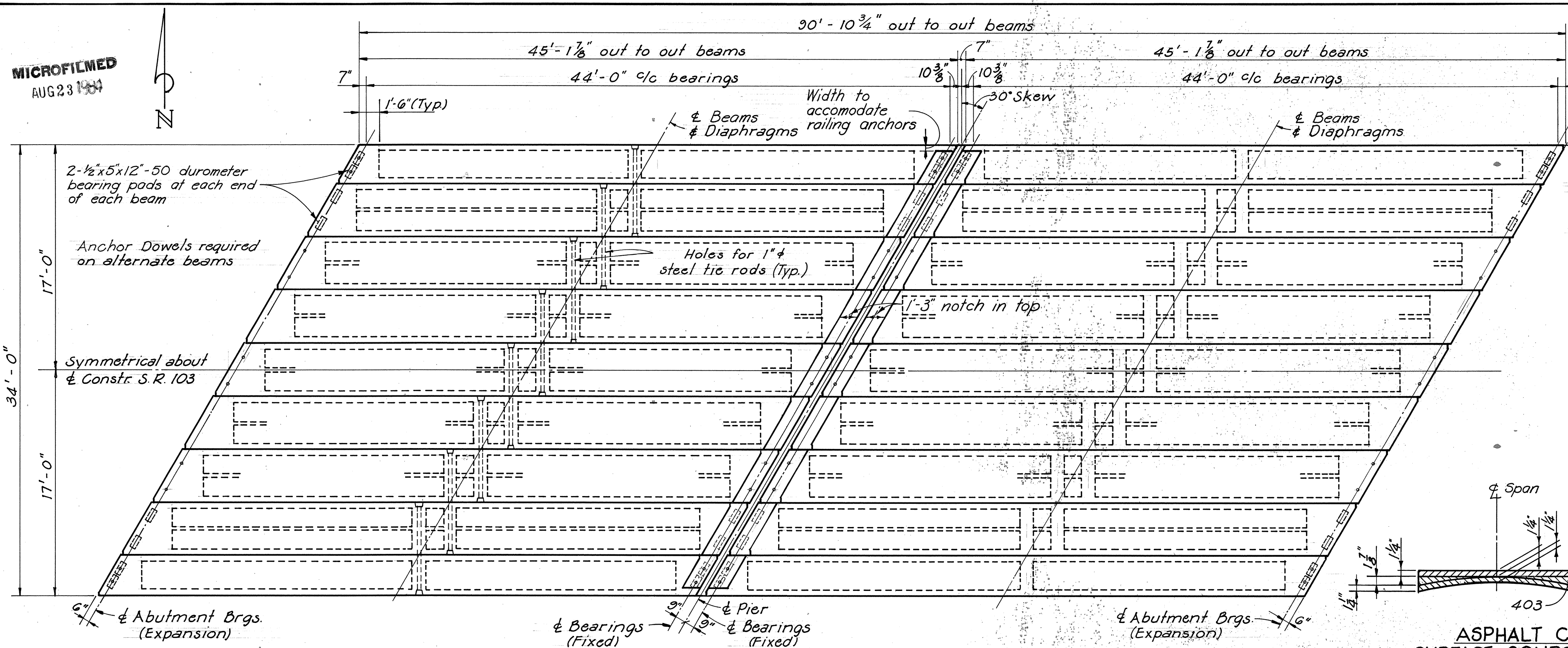
Bridge HAN-103-10.45
State Route 103 over Eagle Creek
Hancock County Sta. 551+67.46 to
Sta. 552+58.54

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
APD	APD		BH	CHB	11-2-82	

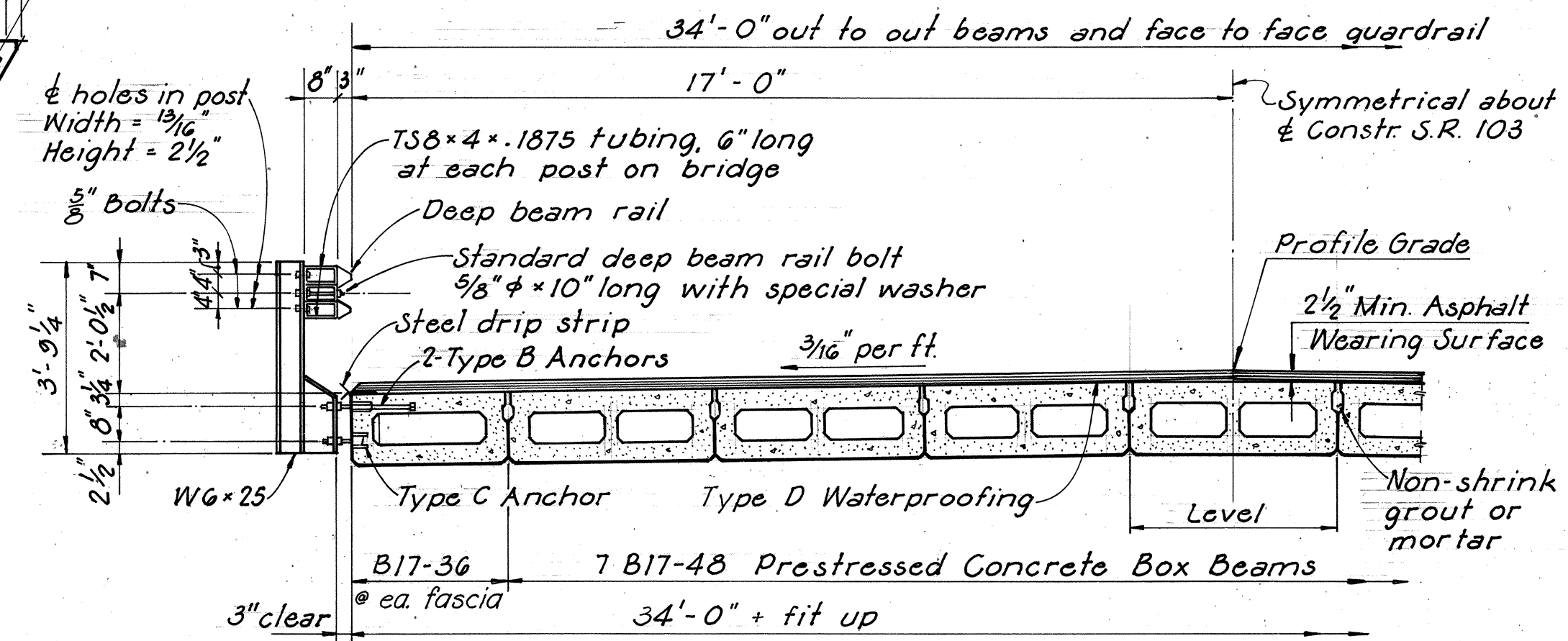
MICROFILMED
AUG 23 1984

EHWA REGION	STATE	PROJECT	TYPE FUNDS
5	OHIO		

HANCOCK COUNTY
HAN-103-10.44



DECK PLAN



PARTIAL TRANSVERSE SECTION OF DECK

Note: For railing details see "Deep Beam Bridge Guardrail With Tubular Backup" Standard Drawing DBR-2-73 dated 4-10-73. Type 2 Post shall be used.

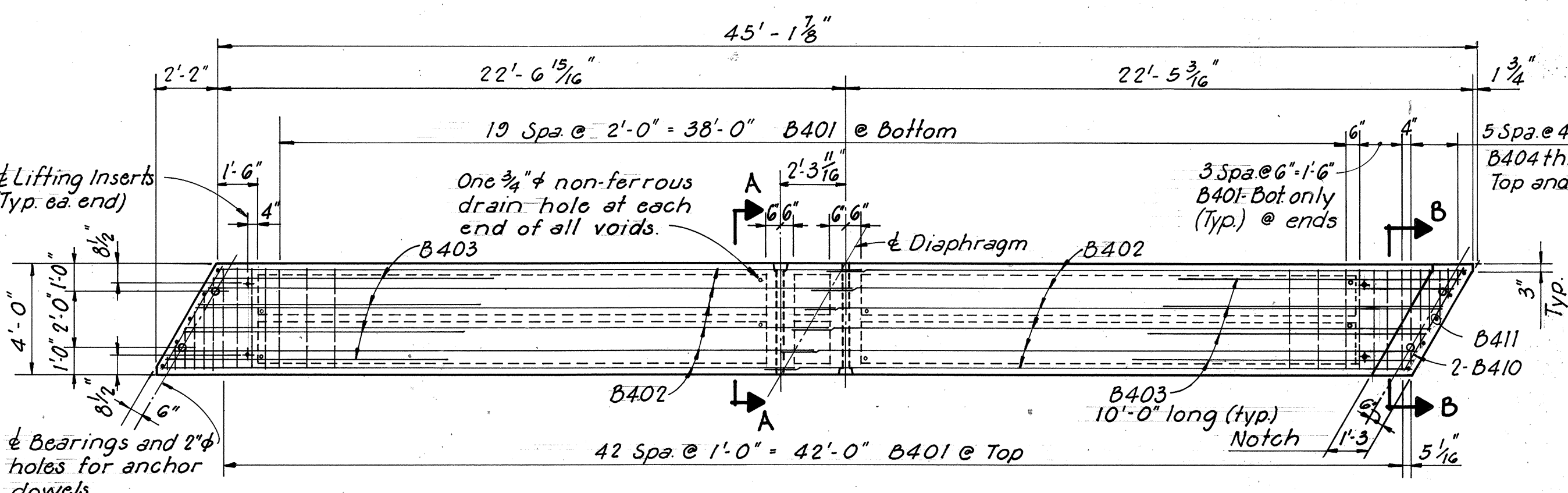
NOTES:
ASPHALT CONCRETE SURFACE COURSE shall consist of a variable thickness of 403 and 1 1/4" thickness of 404. The 403 shall be placed in two operations. The first course shall be of 1 1/4" uniform thickness. The second course shall be feathered to place the surface parallel to and 1 1/4" below final pavement surface elevation.

ADDITIONAL DETAILS and NOTES:
See Standard Drawing PSBD-1-81 sheets 1, 2, 3 and 4 for beam lifting inserts, end details of transverse tie rod anchorage, normal crown treatment at roadway, beam dimensional tolerances and notes on transverse tie rods, galvanizing, anchor dowels, non-shrinking mortar and grout mortaring of shear keys and reinforcing steel.

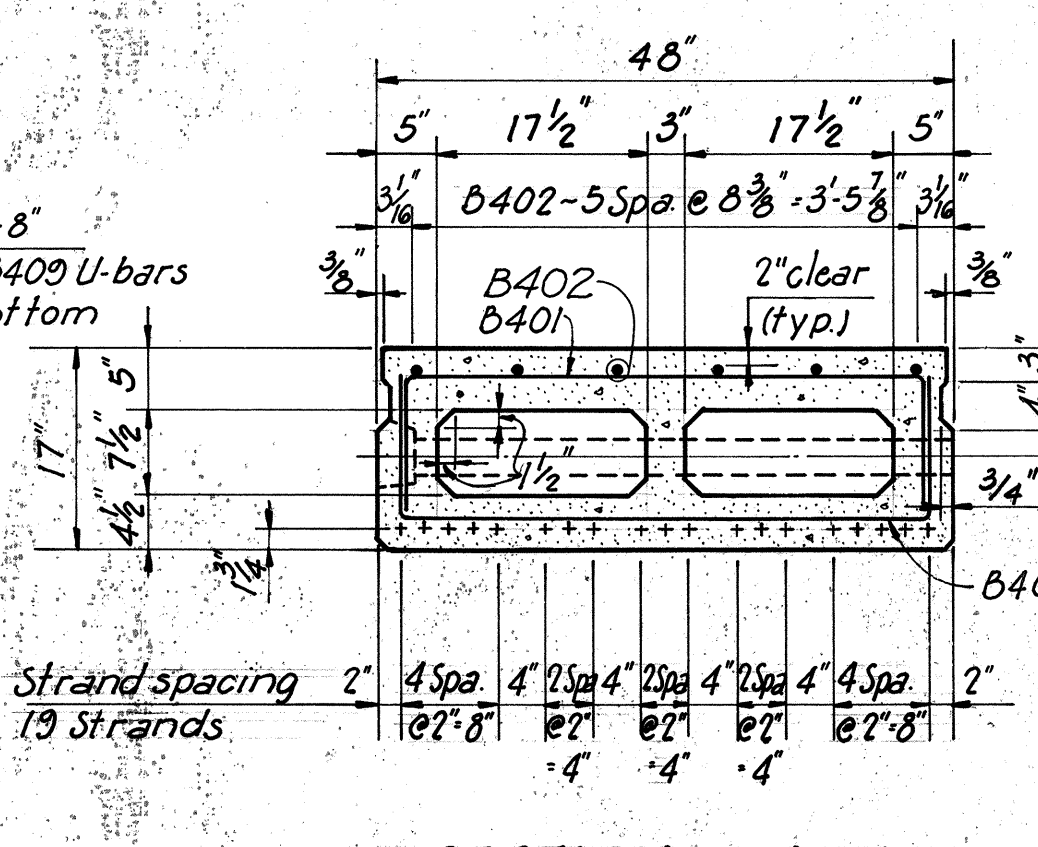
BEARING PAD SHIMS: 2-1/2" preformed bearing pads per beam shall be provided for use as shims where needed for proper seating of prestressed beams. Any unused pads shall become the property of the State.

CONCRETE STRESSES:
Minimum concrete strength at 28 days
f'c = 5500 p.s.i. minimum.
Concrete strength at time of initial prestress
f'ci = 4000 p.s.i.

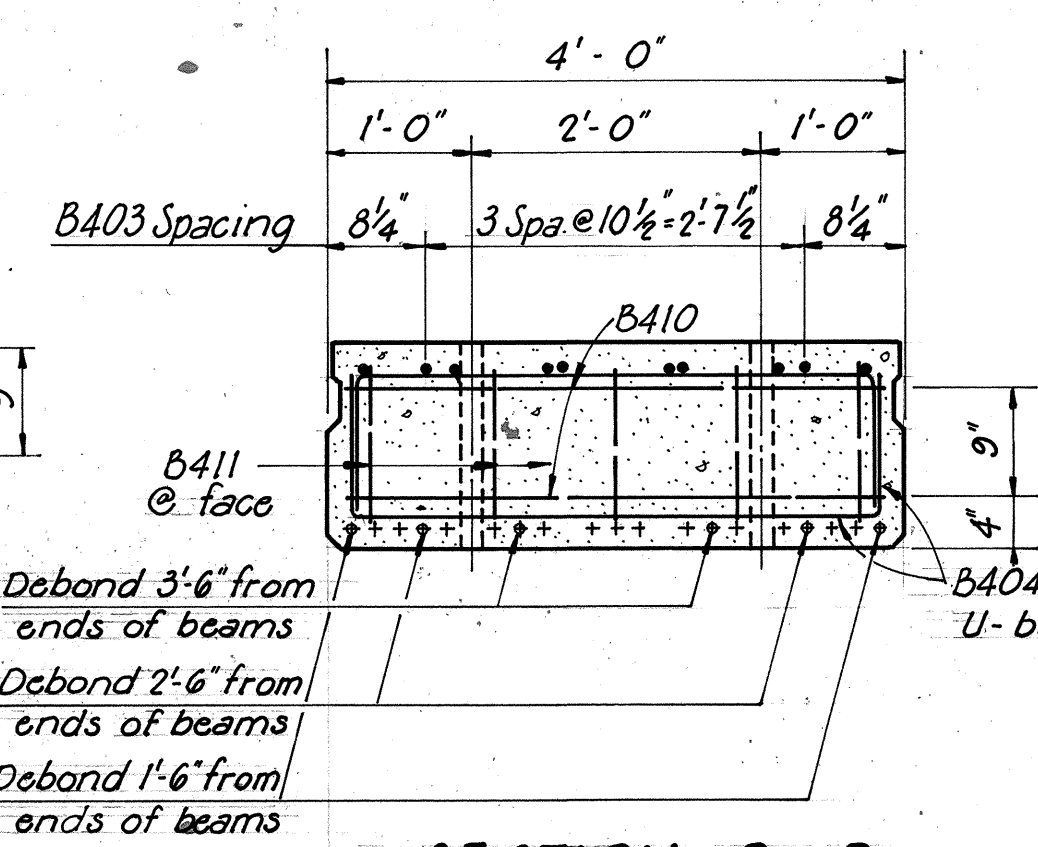
PRESTRESSING STRANDS: 1/2" dia., 270 k, seven wire uncoated, stress relieved strand.
As = 0.153 sq. inch



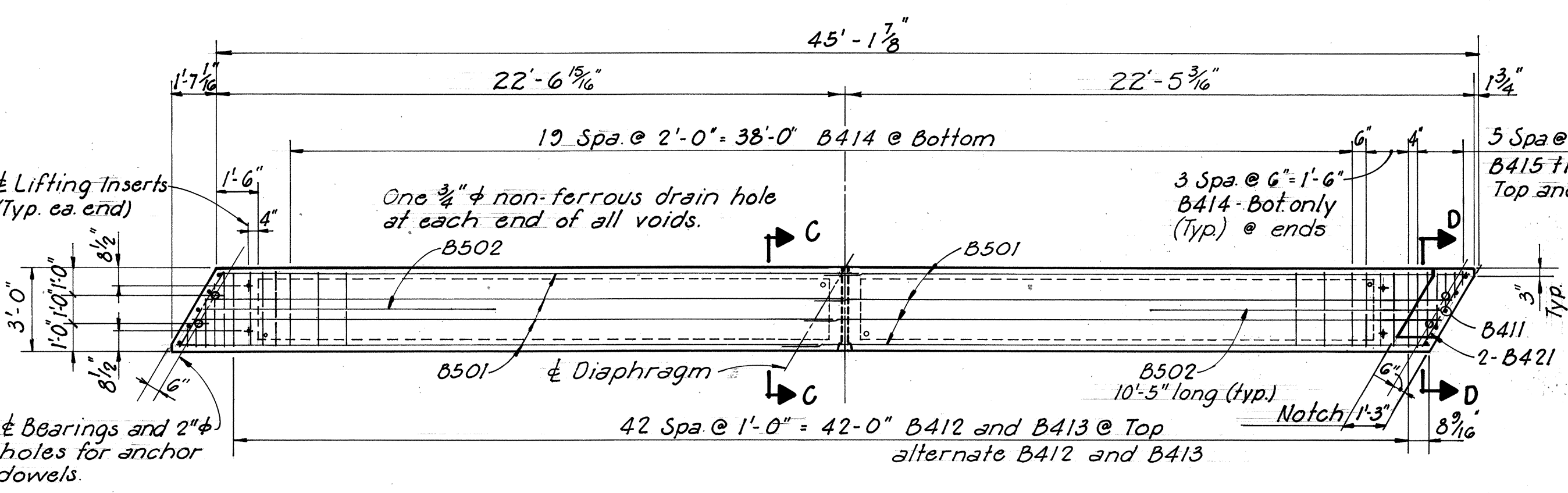
BEAM PLAN - B17-48



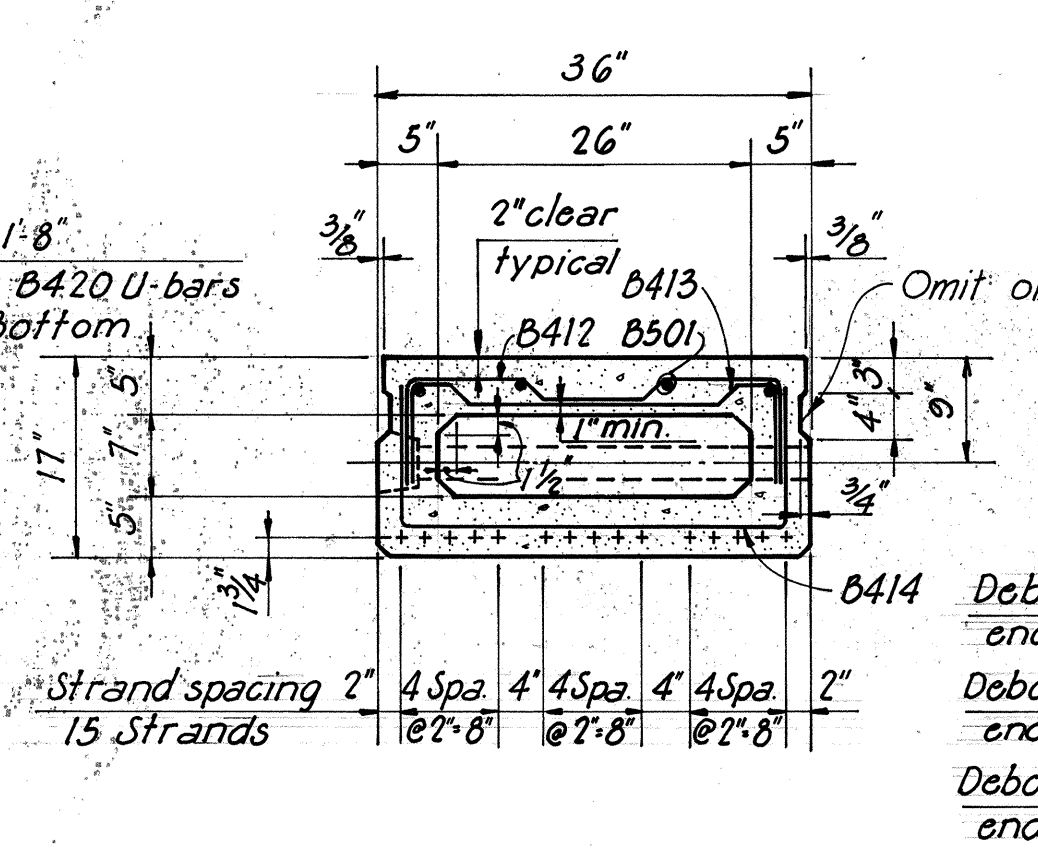
SECTION A-A



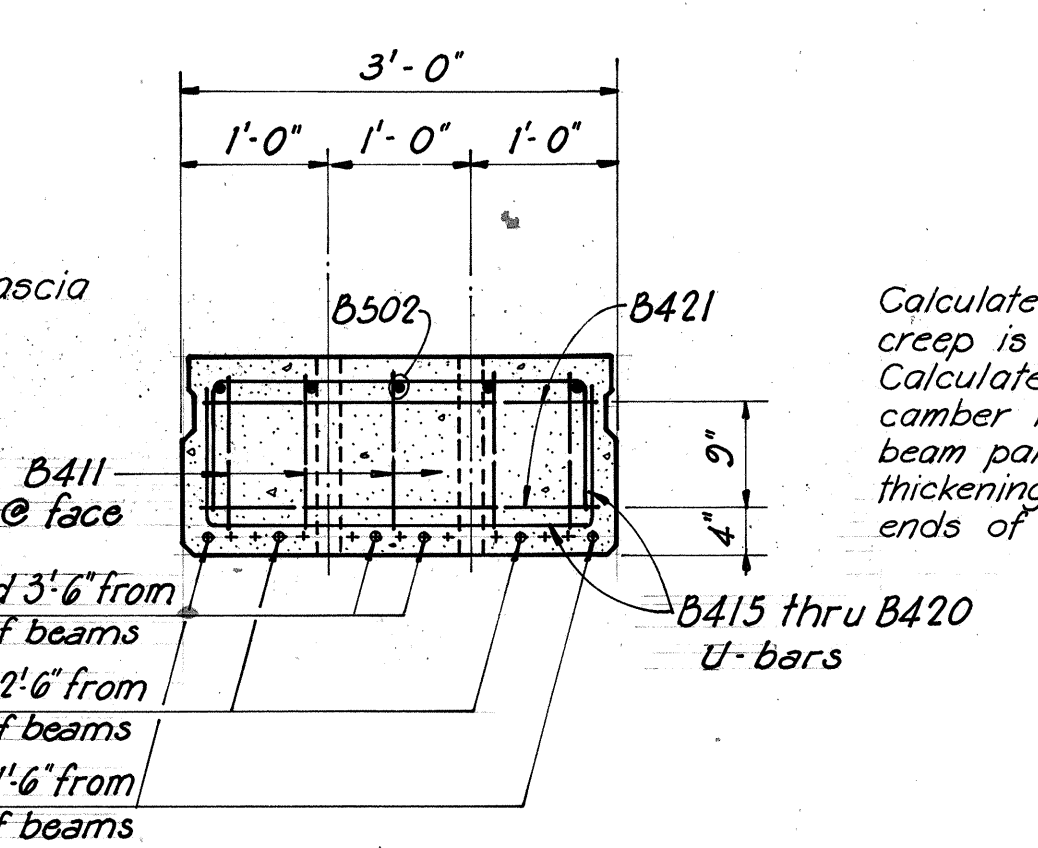
SECTION B-B



BEAM PLAN - B17-36



SECTION C-C



SECTION D-D

SEE SHEET 3/6 FOR DRIP STRIP DETAIL

Calculated camber at time of paving, including allowance for camber growth due to creep is 2".
Calculated deflection due to weight of surface course and railing is 1/8". Net final camber is 1 1/8". This is 1 1/8" in excess of the amount required to place the top of the beam parallel to profile grade. This excess amount shall be compensated for by thickening the 403 leveling course from 1 1/4" at the center of the spans to 3/4" at ends of spans. See asphalt concrete surface course diagram.

SAMBORN, STEKETEE, OTIS and EVANS, INC.
ENGINEERS ARCHITECTS PLANNERS
1001 MADISON AVE. TOLEDO, OHIO

SUPERSTRUCTURE DETAILS
Bridge HAN-103-10.44
State Route 103 over Eagle Creek
Hancock County Sta 551+67.46 to
Sta 552+58.54

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
APO	APO		BJH	CHB	11-2-82	

MICROFILMED
AUG 23 1984

SPECIFICATIONS FOR DRILLED SHAFTS

F.H.W.A. REGION	STATE	PROJECT	TYPE FUNDS
5	OHIO		



HANCOCK COUNTY
HAN-103-10.44

DESCRIPTION

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING DRILLED SHAFTS OF THE TYPE AND SIZE CALLED FOR BY THE PLANS. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND APPURTENANCES REQUIRED TO COMPLETE THE WORK AS SPECIFIED. THE CONTRACTOR'S RESPONSIBILITY WILL NOT BE AFFECTED IF THE ESTIMATED PAY LENGTH SHOWN ON THE PLANS IS DIFFERENT FROM THE LENGTH DETERMINED TO BE NECESSARY AT THE TIME OF CONSTRUCTING THE DRILLED SHAFTS.

THE LIMITS OF EACH DRILLED SHAFT SHALL BE DEFINED AT THE TOP BY THE PLAN ELEVATION AND AT THE BOTTOM BY THE BOTTOM OF THE SOCKET INTO BEDROCK.

A CASING WILL BE NECESSARY FOR EACH DRILLED SHAFT AND THE CASING FOR THE ABUTMENT DRILLED SHAFTS MAY BE REMOVED PROVIDED ALL PLAN REQUIREMENTS ARE COMPLIED WITH.

CONTRACTOR QUALIFICATION

THE CONTRACTOR SHALL SUBMIT INFORMATION TO DOCUMENT THAT HIS PERSONNEL ARE EXPERIENCED IN THE CONSTRUCTION OF DRILLED SHAFTS OF THE TYPE AND SIZE DESCRIBED BY THE PLANS. THIS INFORMATION SHALL BE SUBMITTED AT THE PRECONSTRUCTION CONFERENCE.

DEVIATION FROM PLAN

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COSTS INVOLVED WHEN MAKING CORRECTIONS TO DEVIATIONS FROM THE PLANS. THE DIRECTOR SHALL DECIDE WHEN CORRECTIONS ARE NECESSARY.

CASING

THE CASINGS SHALL BE MADE OF STEEL AND SHALL BE WATERTIGHT AND SHALL BE OF AMPLE STRENGTH TO WITHSTAND HANDLING STRESSES AND EXTERNAL SUBSURFACE PRESSURES. THE CASINGS SHALL BE SEATED INTO THE BEDROCK THUS ATTEMPTING TO SEAL OFF INCOMING WATER, AND THE CASING LENGTH SHALL BE AS NECESSARY TO CONSTRUCT EACH DRILLED SHAFT.

EXCAVATION

EXCAVATION FOR THE DRILLED SHAFTS SHALL BE PERFORMED BY ROTARY DRILLING METHODS USING ANY PRACTICAL METHODS AND MACHINERY ACCEPTABLE TO THE ENGINEER. WHEN OBJECTS SUCH AS LARGE BOULDERS ARE ENCOUNTERED, THEY SHALL BE REMOVED. BLASTING SHALL NOT BE PERMITTED. THE DRILLED SHAFTS SHALL BE SOCKETED INTO DOLOMITIC LIMESTONE BEDROCK TO THE DEPTH SPECIFIED. THE BEDROCK SOCKET SHALL BE MEASURED FROM THE BOTTOM OF THE CASING TO THE BOTTOM OF THE DRILLED BEDROCK EXCAVATION UNLESS THE ENGINEER IS ASSURED THAT A PORTION OF THE METAL CASING IS EMBEDDED INTO BEDROCK, THEN THE EMBEDDED DISTANCE SHOULD BE INCLUDED AS PART OF THE BEDROCK SOCKET.

DEWATERING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING ANY INCOMING WATER SUCH THAT THE SHAFT EXCAVATION IS MAINTAINED DRY ENOUGH FOR PERFORMANCE OF THE REQUIRED INSPECTION OPERATION. PLACING OF THE CONCRETE UNDER WATER WILL ONLY BE ALLOWED AFTER ALL DEWATERING ATTEMPTS HAVE BEEN UNSUCCESSFUL.

BOTTOM CLEANOUT

THE BOTTOM OF THE DRILLED SHAFT EXCAVATION SHALL BE AS CLEAN AS PRACTICABLE (NO MORE THAN ONE-QUARTER INCH OF LOOSE MATERIAL ON THE BOTTOM) PRIOR TO CONCRETE PLACEMENT. THE SIDES OF THE BEDROCK SOCKETS OF THE DRILLED SHAFTS SHALL BE BRUSHED CLEAN.

APPROVAL BEFORE CONCRETE PLACEMENT

NO CONCRETE SHALL BE PLACED IN ANY DRILLED SHAFT EXCAVATION WITHOUT PRIOR APPROVAL FROM THE ENGINEER. THE DRILLED SHAFT EXCAVATION SHALL BE INSPECTED IMMEDIATELY BEFORE THE CONCRETE IS PLACED. A POWERFUL LIGHT ADEQUATE FOR THOROUGHLY INSPECTING THE SIDES, BOTTOM, AND REINFORCING STEEL CAGE OF THE DRILLED SHAFT SHALL BE USED. NO CONCRETE SHALL BE PLACED DURING INCLEMENT WEATHER CONDITIONS WHICH PROHIBIT A THOROUGH INSPECTION.

CONCRETE PLACEMENT

THE CONCRETE FOR THE DRILLED SHAFTS SHALL BE PLACED AS PER ITEM 511 EXCEPT AS MODIFIED BY THE PLANS. THE CONCRETE PLACEMENT OPERATION SHOULD BE CONTINUOUS FROM START TO FINISH. THE CONCRETE SHALL BE PLACED AGAINST THE EXISTING BEDROCK AND SHALL BE PLACED PROMPTLY AFTER THE FINAL INSPECTION OF THE SHAFT. IF PRACTICABLE, THE CONCRETE SHALL BE PLACED IN A CLEAN, DRY EXCAVATION. CARE SHALL BE TAKEN TO ASSURE THAT CONCRETE IS NOT BEING PLACED IN MOVING WATER. THE CONCRETE CAN BE PLACED IN A DRY DRILLED SHAFT EXCAVATION BY THE FREE FALL METHOD PROVIDED IT FALLS TO ITS FINAL POSITION THROUGH AIR WITHOUT STRIKING THE SIDES OF THE HOLE, THE REBAR CAGE, OR ANY OTHER OBSTRUCTION. THE FREE FALL METHOD ALLOWS THE CONCRETE TO BE DROPPED FROM THE TOP THROUGH A CENTERING CHUTE TO THE CONCRETE'S FINAL POSITION.

AT THE CONTRACTOR'S OPTION THE STEEL CASINGS FOR THE ABUTMENT DRILLED SHAFTS MAY BE PULLED OR LEFT IN PLACE. IF THE CASING IS WITHDRAWN, THE ENGINEER SHALL INSPECT AND APPROVE THE REMOVAL OF THE CASING AND PLACING OF CONCRETE. CASINGS MAY BE WITHDRAWN ONLY AFTER THE SHAFT IS FILLED WITH CONCRETE. ADEQUATE HEAD MUST BE MAINTAINED WITH THE CONCRETE AT ALL TIMES TO BALANCE THE OUTSIDE SOIL AND WATER PRESSURE ABOVE THE BOTTOM OF THE CASING DURING WITHDRAWAL. THE CONTRACTOR SHALL SUBMIT HIS PROPOSED PROCEDURE FOR CASING REMOVAL TO THE ENGINEER FOR APPROVAL PRIOR TO PLACING CONCRETE IN THE SHAFTS.

IF THE ENGINEER DETERMINES THAT DEWATERING IS NOT PRACTICABLE, THE CONTRACTOR WILL BE GIVEN PERMISSION TO PLACE THE CONCRETE UNDER WATER. TO PLACE CONCRETE UNDER WATER, THE DRILLED SHAFT EXCAVATION SHALL BE FILLED WITH WATER SUCH THAT ALL WATER MOTION HAS CEASED. THE CONCRETE SHALL THEN BE PLACED BY MEANS OF A PUMP. THE PUMP EQUIPMENT SHALL BE SO ARRANGED THAT NO VIBRATIONS RESULT WHICH MIGHT DAMAGE FRESHLY PLACED CONCRETE. PIPES CARRYING CONCRETE FROM THE PUMP TO THE SHAFT SHOULD BE LAID OUT WITH A MINIMUM OF BENDS AND WITH NO UNAUTHORIZED CHANGE IN SIZE.

THE PUMPING EQUIPMENT SHALL BE SUITABLE IN KIND AND ADEQUATE IN CAPACITY FOR THE WORK REQUIRED. THE USE OF ALUMINUM PIPE AS A CONVEYANCE FOR THE CONCRETE WILL NOT BE PERMITTED. AN ADEQUATE QUANTITY OF GROUT MORTAR OR REGULAR CONCRETE WITH COARSE AGGREGATE OMITTED SHALL BE PUMPED THROUGH THE EQUIPMENT AHEAD OF THE REGULAR CONCRETE TO PROVIDE LUBRICATION TO THE PUMPING SYSTEM. THE CONCRETE USED FOR LUBRICATION SHALL NOT BE PLACED IN THE SHAFT. THE LUBRICATION PROCESS WILL NOT BE REPEATED AS LONG AS THE PUMPING OPERATIONS ARE CONTINUOUS. THE OPERATION OF THE PUMP SHALL BE SUCH THAT A CONTINUOUS STREAM OF CONCRETE WITHOUT AIR POCKETS IS PRODUCED. IN ORDER TO PREVENT THE CONTAMINATION OF THE CONCRETE PLACED INITIALLY AT THE BOTTOM OF THE SHAFT, THE OUTLET END OF THE PUMPING PIPE SHALL BE SEALED WITH A DIAPHRAGM OR PLUG THAT IS FLUSHED OUT WHEN THE HYDROSTATIC PRESSURE FROM THE COLUMN OF CONCRETE EXCEEDS THAT OF THE WATER IN THE SHAFT. THE INITIAL RATE OF CONCRETE PLACEMENT MUST BE CAREFULLY CONTROLLED SO AS NOT TO LIFT THE REINFORCING CAGE. THE CONVEYING SYSTEM SHALL BE WATERTIGHT AND THE OUTLET END SHALL ALWAYS REMAIN WELL BELOW THE TOP OF THE FRESHLY PLACED CONCRETE. WHEN THE CONCRETE REACHES THE TOP ELEVATION, ALL CONVEYANCE EQUIPMENT AND APPURTENANCES SHALL BE REMOVED.

ALTERNATE CONSTRUCTION METHODS

THE CONTRACTOR MAY PROPOSE ALTERNATE CONSTRUCTION METHODS WHICH WILL BE APPROVED OR REJECTED BY THE DIRECTOR.

TOLERANCES

THE CONTRACTOR SHALL LOCATE AND CONSTRUCT THE TOP CENTER OF ALL DRILLED SHAFTS WITHIN A TWO-INCH RADIUS OF THE POSITION INDICATED BY THE PLANS. ALL DRILLED SHAFTS ARE TO BE INSTALLED VERTICALLY AND MUST BE WITHIN 1.0 PERCENT OF PLUMB FOR THE TOTAL LENGTH OF THE DRILLED SHAFT.

CONCRETE

CONCRETE FOR ALL DRILLED SHAFTS SHALL BE CLASS S CONCRETE AND SHALL BE IN ACCORDANCE WITH ITEM 511, EXCEPT AS MODIFIED AND SUPPLEMENTED HEREIN. THE REQUIRED SLUMP IS SIX (6) INCHES, PLUS OR MINUS ONE-HALF INCH. THE MAXIMUM ALLOWABLE WATER TO CEMENT RATIO SHALL BE 0.50. IF CONCRETE IS PLACED UNDER WATER, THE REQUIREMENT OF ADDING 10 PERCENT MORE CEMENT TO THE CONCRETE MIX SHALL BE WAIVED. THE DRILLED SHAFT CONCRETE IS REQUIRED TO BE VIBRATED, WITH SPECIAL CARE BEING TAKEN NOT TO OVERVIBRATE THE CONCRETE.

IF THE CASINGS FOR THE ABUTMENT DRILLED SHAFTS ARE TO BE WITHDRAWN, THE CONCRETE SHALL NOT BE VIBRATED UNTIL THE CASING IS COMPLETELY REMOVED, AND THE SHAFT TOP IS FORMED TO THE PLAN CROSS-SECTION USING A REMOVABLE FORM. THE CONTRACTOR SHALL HAVE ON HAND A PRECONSTRUCTED TOP FORM FOR USE IN ACCURATELY CONFINING THE CONCRETE AT THE TOP OF THE SHAFT WHEN THE CASING IS REMOVED.

REINFORCING STEEL

REINFORCING SHALL MEET THE REQUIREMENTS OF ITEM 509. THE REINFORCING STEEL SHALL BE GRADE 60. THE SPIRAL REINFORCING STEEL MAY BE PLAIN BARS ASTM A82 OR A615. THE REINFORCING STEEL SHALL BE COMPLETELY ASSEMBLED PRIOR TO PLACEMENT AND THE LENGTH SHALL BE AS NECESSARY TO CONSTRUCT EACH DRILLED SHAFT. SEE PLAN SHEET 2/6 AND 3/6 FOR ADDITIONAL NOTES AND DETAILS OF REINFORCEMENT.

INSPECTION

THE CONTRACTOR SHALL PROVIDE AND MAINTAIN SUITABLE MEANS FOR ACCESS AND SAFE DESCENT INTO ALL DRILLED SHAFT EXCAVATIONS, SUCH AS A POSITIVE FORWARD AND REVERSE HYDRAULIC WINCH OR A POWER-UP AND POWER-DOWN HOIST ON A CRANE. THE METHOD CHOSEN FOR ENTERING AND LEAVING THE SHAFT SHALL BE CONVENIENT, SAFE, AND NOT UNCOMFORTABLE FOR THE USER. THE CONTRACTOR SHALL ALSO PROVIDE PROTECTIVE CLOTHING FOR USE BY THOSE MAKING AN INSPECTION OF THE SHAFT.

THE DRILLED SHAFTS AT THE ABUTMENTS AND PIER SHALL BE INSPECTED THOROUGHLY.

A SAMPLE CHART HAS BEEN INCLUDED WITH THE PLANS AND SHALL BE COMPLETED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY EQUIPMENT NEEDED TO OBTAIN MEASUREMENTS FOR COMPLETING THE CHART AND THE CONTRACTOR SHALL ASSIST THE ENGINEER IN OBTAINING THESE MEASUREMENTS. MEASUREMENTS SHALL BE OBTAINED PRIOR TO PLACING THE CONCRETE.

THE ENGINEER SHOULD OBTAIN PHOTOGRAPHS OF THE CONTRACTOR'S CONSTRUCTION PROCEDURES.

SAFETY PROVISIONS

THE CONTRACTOR SHALL HAVE AT THE JOB SITE ALL EQUIPMENT AND MATERIALS NEEDED TO PROVIDE SAFE CONSTRUCTION AND INSPECTION OF THE DRILLED SHAFTS AS REQUIRED BY CITY, STATE AND FEDERAL SAFETY REQUIREMENTS.

SAFETY PROVISIONS SHALL INCLUDE, BUT NOT BE LIMITED TO, THE REQUIREMENTS SPECIFIED BY THE PLANS, SPECIAL PROVISIONS, AND PROPOSALS.

THE CONTRACTOR SHALL PROVIDE CONTINUOUS SURVEILLANCE OF ALL PERSONS IN THE DRILLED SHAFT EXCAVATION. AT ANY TIME WHEN A PERSON IS IN THE DRILLED SHAFT EXCAVATION, PROVISION SHALL BE MADE FOR PUMPING FRESH AIR TO SAID PERSON. ALL LIGHTING SHALL BE BY ELECTRIC LIGHTS. MECHANICAL EQUIPMENT USED INSIDE THE SHAFT SHALL BE OPERATED BY AIR OR ELECTRICITY. THE USE OF GASOLINE ENGINES OR OTHER TYPES OF EQUIPMENT PRODUCING FUMES WILL NOT BE PERMITTED. THE CONTRACTOR SHALL PROVIDE GAS DETECTION AND OXYGEN ANALYZERS, AND SHALL TEST THE DRILLED IN SHAFT COLUMN EXCAVATION ATMOSPHERE QUANTITATIVELY THROUGHOUT THE COLUMNS' ENTIRE LENGTH AND ASSURE THAT THE QUANTITIES OF GASES AND OXYGEN PRESENT ARE IN SAFE AMOUNT AND SAFE PROPORTIONS PRIOR TO PERMITTING ANY PERSON TO ENTER THE SHAFT.

DESIGN PARAMETERS

THE DESIGN LOAD PER DRILLED SHAFT AT THE ABUTMENT IS 105 TONS AND AT THE PIER IS 149 TONS, WHICH IS ASSUMED TO BE RESISTED BY SHAFT ADHESION WITHIN THE BEDROCK SOCKET AND ALSO BY SHAFT END BEARING PRESSURE. THE MAXIMUM ALLOWABLE BEDROCK SOCKET SHAFT ADHESION IS 2.0 TONS PER SQUARE FOOT, WHICH WAS ASSUMED TO ACT ALONG A 2 FEET LENGTH OF THE BEDROCK SOCKET. THE CALCULATED ADHESION RESISTANCES ARE 29 TONS AT THE ABUTMENTS AND 31 TONS AT THE PIER. THE MAXIMUM ALLOWABLE DESIGN END BEARING PRESSURE ARE 75 TONS PER SQUARE FOOT. THE CALCULATED END BEARING PRESSURES ARE 76 TONS AT THE ABUTMENTS AND 118 TONS AT THE PIER, WHICH ARE EQUAL TO A DESIGN BEARING PRESSURE OF 18 TONS PER SQUARE FOOT AT THE ABUTMENTS AND 24 TONS PER SQUARE FOOT AT THE PIER.

METHOD OF MEASUREMENT

THE LENGTH OF EACH DRILLED SHAFT TO BE PAID FOR SHALL BE THE COMPLETED AND ACCEPTED LENGTH, MEASURED ALONG THE AXIS OF THE DRILLED SHAFT FROM THE BOTTOM OF THE BEDROCK SOCKET TO THE PROPOSED TOP ELEVATION AS PER PLAN. REINFORCING STEEL THAT PROJECTS FROM THE DRILLED SHAFT AS SPECIFIED BY THE PLANS SHALL BE INCLUDED WITH THE DRILLED SHAFTS FOR PAYMENT BUT SHALL NOT BE INCLUDED IN THE MEASURED LENGTH.

BASIS OF PAYMENT

PAYMENT FOR FURNISHING AND INSTALLING DRILLED SHAFTS WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAL FOOT OF ACCEPTED DRILLED SHAFT AS PER ITEM SPECIAL - DRILLED SHAFTS WHICH SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR AS NECESSARY TO EXCAVATE AND CONSTRUCT THE ITEM AS SPECIFIED.

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SAMBORN, STEKETEE, OTIS and EVANS, INC.
ENGINEERS - ARCHITECTS - PLANNERS
1001 MADISON AVE. TOLEDO, OHIO

SPECIFICATIONS FOR
DRILLED SHAFTS
Bridge HAN-103-1045
State Route 103 over Eagle Creek
Hancock County Sta. 551+67.46 to
Sta. 552+58.54

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
APD	APD		BJH	CHB	11-2-82	

INSPECTION RECORD FOR DRILLED SHAFTS

18
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BRIDGE NO. _____
LOCATION _____
PROJECT NO. _____

GENERAL CONTRACTOR _____

DRILLING CONTRACTOR _____

PROJECT ENGINEER _____

TYPE & MODEL OF DRILLING MACHINERY _____

MAX. CONTINUOUS TORQUE _____ FT.-LB.

CROWD (MAX. CONTINUOUS DOWNWARD FORCE) _____ LBS.

TYPE OF CONCRETE PUMP _____
HOSE DIAMETER _____ INCHES
CAPACITY _____ CU. FT./MIN.

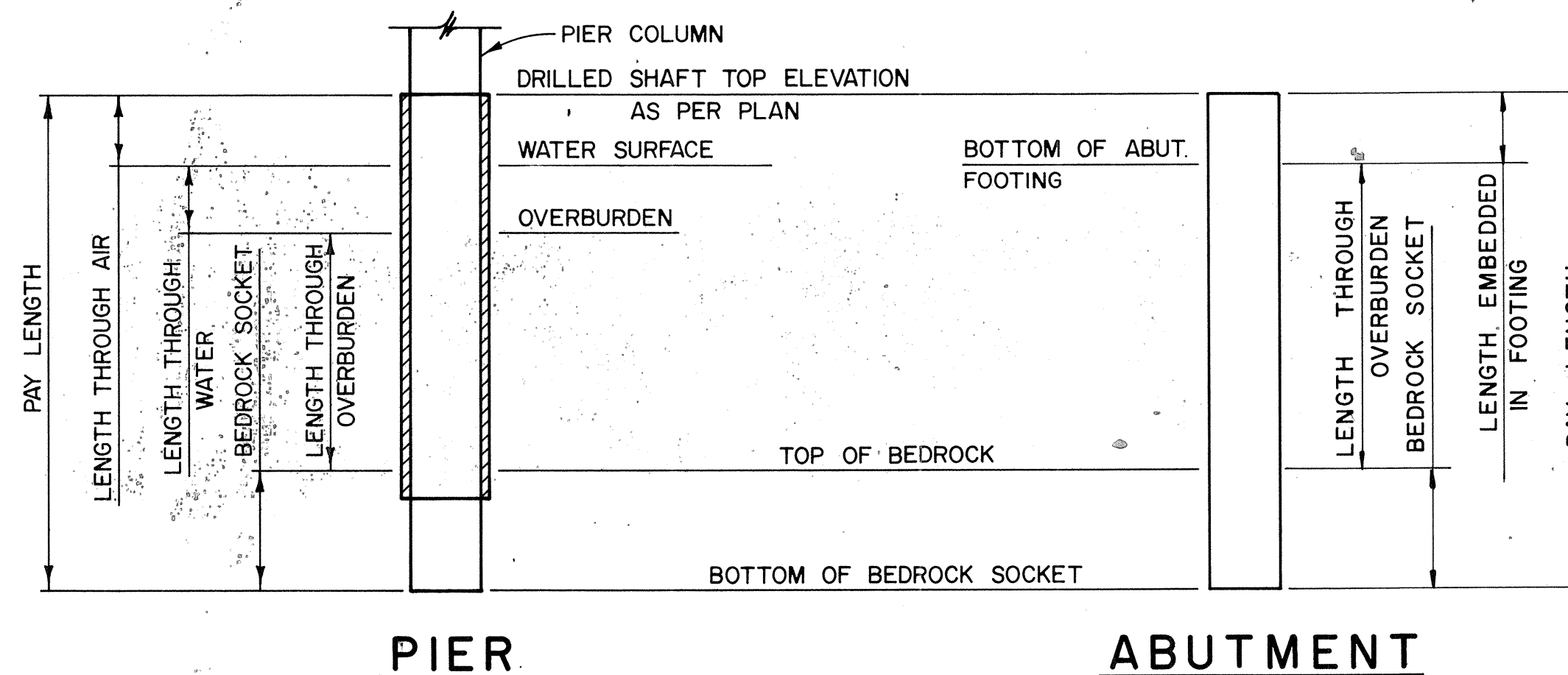
COST PER LINEAL FOOT

PIER DRILLED SHAFTS _____

ABUT. DRILLED SHAFTS _____

[illegible]

METHOD OF CONSTRUCTION



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DRILLED SHAFTS
Bridge HAN-103-1045
State Route 103 over Eagle Creek
Hancock County Sta. 551 + 67.46 to
Sta. 552 + 58.54

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVIEWED
RWH	RWH		APQ	BJH	11-2-82	

TEMPORARY PAVEMENT MARKINGS

NOTE B

FHWA	STATE	PROJECT	
5	OHIO		

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GENERAL

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN, AND WHEN NECESSARY, REMOVE TEMPORARY RETROREFLECTIVE PAVEMENT MARKINGS ON EXISTING, RECONSTRUCTED, RESURFACED OR TEMPORARY ROADS WITHIN THE WORK LIMITS, IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

THE MARKINGS SHALL BE MAINTAINED IN GOOD CONDITION DURING THE REQUIRED SERVICE PERIOD TO PROVIDE DAY AND NIGHT VISIBILITY. THE MARKINGS SHALL BE REPAIRED OR REPLACED AS DIRECTED BY THE ENGINEER TO MAINTAIN REQUIRED VISIBILITY AND/OR REFLECTIVITY AT NO ADDITIONAL COST TO THE STATE.

MATERIALS

UNLESS OTHERWISE INDICATED ON THE PLANS, TEMPORARY PAVEMENT MARKINGS MAY BE OF PAINT, PAVEMENT MARKING TAPE OR REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE).

A. PAINT

PAINT SHALL COMPLY WITH 708.14 AND SHALL BE APPLIED IN ACCORDANCE WITH 621 EXCEPT AS MODIFIED HEREIN.

B. PAVEMENT MARKING TAPE

FLEXIBLE RETROREFLECTIVE PREFORMED PRESSURE SENSITIVE TAPE SHALL HAVE STRAIGHT EDGES AND BE FREE OF CRACKS. THE TAPE SHALL CONSIST OF PIGMENT AND FILLERS WITH SUFFICIENT BINDER AND PLASTICIZER TO RETAIN GLASS BEADS HAVING A REFRACTIVE INDEX MEETING THE MINIMUM REFLECTIVE INTENSITY STANDARD STATED IN THE MANUFACTURERS INFORMATION. THE TAPE SHALL BE FLEXOLITE "WET REFLECTIVE", 3M "SCOTCHLANE", OR AN APPROVED EQUAL.

THE GLASS BEADS SHALL BE DISTRIBUTED UNIFORMLY THROUGHOUT THE TAPE WITH SUFFICIENT SURFACE BEADS TO PROVIDE OPTIMUM REFLECTORIZATION AT ALL TIMES.

PAVEMENT MARKING TAPE SHALL COMPLY WITH THE COLOR REQUIREMENTS OF 708.14.

THE TAPE SHALL HAVE A PRECOATED ADHESIVE LAYER FOR PAVEMENT APPLICATION WITHOUT THE USE OF HEAT, SOLVENTS OR ADDITIONAL ADHESIVES. THE ADHESIVE SHALL BE SUFFICIENT TO RETAIN COMPLETE MARKINGS ON THE PAVEMENT SURFACE THROUGHOUT THE USEFUL LIFE OF THE MARKINGS.

IN ADDITION TO THE FOREGOING, ALL TEMPERATURE APPLICATION REQUIREMENTS AND OTHER APPLICABLE MANUFACTURERS MATERIAL AND APPLICATION INSTRUCTIONS SHALL BE FOLLOWED.

WHEN APPROVED BY THE ENGINEER THE CONTRACTOR MAY USE REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE), IN LIEU OF THAT DESCRIBED ABOVE, TO FACILITATE REMOVAL OF MARKINGS.

C. REMOVABLE PAVEMENT MARKING TAPE (TYPE R TAPE)

THE MARKING MATERIAL SHALL BE A MIXTURE OF POLYMERIC MATERIALS, PIGMENTS, REINFORCING MEDIUM TO FACILITATE REMOVAL, GLASS BEADS THROUGHOUT THE PIGMENTED PORTION, AND A RETROREFLECTIVE LAYER OF GLASS BEADS BONDED TO THE TOP SURFACE.

THE TAPE SHALL BE PRECOATED WITH A PRESSURE SENSITIVE ADHESIVE CAPABLE OF TEMPORARILY BONDING TO ASPHALT CONCRETE OR PORTLAND CEMENT CONCRETE PAVEMENT AT AN AMBIENT TEMPERATURE OF NOT LESS THAN 50° F AND RISING, AT A PAVEMENT TEMPERATURE OF NOT LESS THAN 50° F NOR MORE THAN 150° F, WITHOUT THE USE OF HEAT, SOLVENTS, AND ADDITIONAL ADHESIVES OR ACTIVATORS.

MATERIALS SHALL CONFORM TO THE COLOR REQUIREMENTS OF 708.14.

THE TAPE SHALL BE REMOVABLE FROM ASPHALT AND PORTLAND CEMENT CONCRETE INTACT OR IN LARGE PIECES AT TEMPERATURES ABOVE 40° F WITHOUT USE OF HEAT, SOLVENTS, GRINDING, OR SANDBLASTING. REMOVAL SHALL NOT RESULT IN DAMAGE TO OR OBJECTIONABLE STAINING OF THE PAVEMENT.

GLASS BEADS SHALL BE PROVIDED IN A PROPER SIZE, QUANTITY AND DISTRIBUTION TO ASSURE OPTIMUM RETROREFLECTIVITY AS THE FILM WEARS. THE FOLLOWING INITIAL AVERAGE REFLECTANCE VALUES AT 85.0 ENTRANCE ANGLE AS MEASURED IN ACCORDANCE WITH THE TESTING PROCEDURES OF FEDERAL TEST METHOD 370 SHALL BE CERTIFIED:

	WHITE		YELLOW	
OBSERVATION ANGLE	0.2	0.5	0.2	0.5
SPECIFIC LUMINANCE (MCD/FT ²)/FC	1770	1270	1310	810

THE TAPE SHALL BE 3-M COMPANY'S "STAMARK, DETOUR GRADE (SERIES 57L0, 5711, 6270, 6211)" OR AN APPROVED EQUAL.

THE CONTRACTOR SHALL FURNISH TO THE ENGINEER CERTIFICATION THAT THE MATERIAL SUPPLIED MEETS THE PROPERTIES SPECIFIED HEREIN.

LAYOUT

THE TEMPORARY MARKINGS SHALL BE ACCURATELY LAID OUT IN CONFORMANCE WITH 621.051 AND SHALL BE LOCATED IN A TRUE LINE ON THE CENTER LINE, LANE LINE, EDGE LINE, OR CHANNELIZING LINE WHERE PERMANENT MARKINGS WOULD LIE UNLESS OTHERWISE SPECIFIED IN THE PLANS.

PLACEMENT

TEMPORARY MARKINGS SHALL BE PLACED IN ACCORDANCE WITH LAYOUTS ON SHEETS AND THE FOLLOWING REQUIREMENTS, UNLESS OTHERWISE SPECIFIED IN THE PLANS.

TEMPORARY MARKINGS SHALL BE COMPLETE AND IN PLACE ON ALL PAVEMENT PRIOR TO EXPOSING IT TO TRAFFIC. WHEN TEMPORARY MARKINGS ARE NO LONGER NEEDED, THEY SHALL BE REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH 621.134 AND NECESSARY PAVEMENT MARKINGS INSTALLED BEFORE THE FLOW OF TRAFFIC IS CHANGED TO THE NEXT PHASE OR RETURNED TO ITS NORMAL CHANNEL.

WHERE PERMANENT PAVEMENT MARKINGS ARE CALLED FOR IN THE PLANS, THE CONTRACTOR SHALL FURNISH AND PLACE THE PERMANENT MARKINGS WITHIN 30 CALENDAR DAYS FOLLOWING COMPLETION OF ALL SURFACE COURSES IN A SINGLE ROADWAY OR PRIOR TO THE END OF THE CONSTRUCTION SEASON, WHICHEVER COMES FIRST. PERMANENT MARKINGS SHALL NOT BE PLACED OVER ANY TAPE MARKINGS.

A. CLASS I MARKINGS

CLASS I MARKINGS SHALL BE AS DEFINED IN 621, EXCEPT AS FOLLOWS:

- 1) LANE LINES SHALL BE 4-INCHES IN WIDTH.
- 2) TRANSVERSE LINES SHALL BE 8-INCHES IN WIDTH.
- 3) STOP LINES SHALL BE 12-INCHES IN WIDTH.
- 4) CROSS WALK LINES SHALL BE 8-INCHES IN WIDTH.

GORE MARKINGS SHALL CONSIST OF TWO CHANNELIZING LINES PLACED AT THE THEORETICAL OR TEMPORARY GORE OF RAMPS AND DIVERGING OR CONVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 16 GALLONS PER MILE FOR SOLID 4-INCH LINES, 24 GALLONS PER MILE FOR SOLID 6-INCH LINES, 48 GALLONS PER MILE FOR SOLID 12-INCH LINES, AND 4 GALLONS PER MILE FOR 4-INCH DASHED LINES.

B. CLASS II MARKINGS

CENTER LINES SHALL CONSIST OF SINGLE, YELLOW 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

LANE LINES SHALL CONSIST OF WHITE 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 40-FOOT INTERVALS.

CHANNELIZING LINES SHALL CONSIST OF WHITE 12-INCH BY 4-INCH DASHES SPACED AT A MAXIMUM OF 20-FOOT INTERVALS.

GORE MARKINGS SHALL BE TWO CONTINUOUS, WHITE 50-FOOT BY 4-INCH LINES PLACED AT THE THEORETICAL GORE OF AN EXIT RAMP OR DIVERGING ROADWAYS.

THE PAINT APPLICATION RATE SHALL BE NOT LESS THAN 16 GALLONS PER MILE FOR GORE MARKINGS, 0.8 GALLONS PER MILE FOR CHANNELIZING LINE, AND 0.4 GALLONS PER MILE FOR LANE LINE AND CENTER LINE.

CONFLICTING MARKINGS

THE CONTRACTOR SHALL, PRIOR TO PLACING TEMPORARY MARKINGS, REMOVE ALL EXISTING CONFLICTING MARKINGS VISIBLE TO THE TRAVELING PUBLIC DURING DAYLIGHT OR NIGHTTIME HOURS IN ACCORDANCE WITH 621.134. THE COST FOR REMOVAL OF CONFLICTING MARKINGS SHALL BE INCIDENTAL TO THE VARIOUS PAY ITEMS.

METHOD OF MEASUREMENT

TEMPORARY PAVEMENT MARKINGS WILL BE MEASURED COMPLETE IN PLACE, BY CLASS AND MATERIAL, IN THE UNITS DESIGNATED. DASHED LINE QUANTITIES WILL BE THE LENGTH OF THE COMPLETED STRIPE, INCLUDING GAPS, INTERSECTIONS, AND OTHER SECTIONS OF PAVEMENT NOT NORMALLY MARKED, IN ACCORDANCE WITH 621.15.

TEMPORARY PAVEMENT MARKINGS WILL INCLUDE THE LAYOUT, APPLICATION AND REMOVAL OF THE MARKINGS, WHEN REQUIRED.

BASIS OF PAYMENT

PAYMENT FOR ACCEPTED QUANTITIES COMPLETE IN PLACE WILL BE MADE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL BE FULL

COMPENSATION FOR ALL MATERIALS, LABOR, INCIDENTALS AND EQUIPMENT FOR PLACEMENT, MAINTENANCE AND NECESSARY REMOVAL OF THE MARKINGS.

ITEM	UNIT	DESCRIPTION
614	MILES	TEMPORARY LANE LINES, CLASS _____, (PAINT, TAPE OR TYPE R TAPE)
614	0.04 MILES	TEMPORARY CENTER LINES, CLASS II _____, (PAINT, TAPE OR TYPE R TAPE)
614	MILES/LIN. FT.	TEMPORARY CHANNELIZING LINES, CLASS _____, (PAINT, TAPE OR TYPE R TAPE)
614	MILES	TEMPORARY EDGE LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY GORE MARKING, CLASS II, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY STOP LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	LIN. FT.	TEMPORARY CROSSWALK LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	EACH	TEMPORARY LANE ARROWS, CLASS I, (PAINT, TAPE OR TYPE R TAPE)
614	EACH	TEMPORARY WORD "ONLY" ON PAVEMENT, 72-INCH, CLASS I, (PAINT OR TAPE)
614	LIN. FT.	TEMPORARY TRANSVERSE LINES, CLASS I, (PAINT, TAPE OR TYPE R TAPE)

GEOLOGY OF THE SITE

THE STRUCTURE SITE IS LOCATED IN THE RELATIVELY FLAT GLACIATED PORTION OF THE MISSISSIPPI VALLEY PLAIN REGION, ON THE NARROW FLOODPLAIN OF AND OVER EAGLE CREEK, IN AN AREA WHERE THIN GLACIAL-DERIVED MATERIAL AND ALLUVIAL DEPOSITS OVERLIE DOLOMITIC LIMESTONE, OF THE MONROE FORMATION.

EXPLORATION

THE EXPLORATION CONSISTED OF TWO DRIVE SAMPLE-CORE BORINGS MADE BY MEANS OF A MECHANICALLY-POWERED HOLLOW STEM AUGER MOUNTED ON A MOBILE PLATFORM, PERFORMED BETWEEN JANUARY 3 AND 10, 1979.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

THE BORINGS DISCLOSED THAT INTERVALS OF LOOSE TO EXTREMELY DENSE STRATIFIED SAND, SILTS AND CLAYS MODIFIED WITH STONE FRAGMENTS IN THE LOWER PORTIONS AND INCREASING IN DENSITY RAPIDLY WITH INCREASE IN DEPTH OVERLIE RELATIVELY FLAT-LYING BEDROCK SURFACE, ENCOUNTERED AT 12-FOOT DEPTH, ELEVATION 845 FEET IN THE GENERAL VICINITY OF THE REAR AND FORWARD ABUTMENTS. THE BORINGS WERE TERMINATED AT 16 TO 17-FOOT DEPTH, ELEVATION 841 TO 840 FEET, AFTER PENETRATING 4 TO 5 FEET BELOW BEDROCK SURFACE.

FREE WATER WAS OBSERVED AND MEASURED IN BOTH BORINGS AT 12-FOOT DEPTH, ELEVATION 845 FEET WHICH IS IMMEDIATELY AT BEDROCK SURFACE.

LEGEND

- Auger Boring Location - Plan View.
- Press and / or Drive Sample and / or Core Boring Location - Plan View.
- Drive Rod Penetration Resistance Sounding Location - Plan View.
- Capped Pile
- Footing
- Footing on Pile
- TR Top of Rock

- Horizontal Bar on Boring Log Indicates the Depth the Sample Was Taken.
- Figures Beside the Boring Log in Profile Indicate the Number of Blows for Standard Penetration Test.
- X = Number of Blows for First 6 inches.
Y = Number of Blows for Second 6 inches.
Z = Number of Blows for Third 6 inches.
- Drive Rod Penetration Resistance Sounding Log - Profile
- Casing
- Resistance "R" < 10,000 lbs.
- Resistance "R" > 10,000 lbs.
- Z Indicates Final Measurement of Penetration, in Inches.
- W Indicates Free Water Elevation.
- Indicates Static Water Elevation.

SYMBOLS OF ROCK TYPES

- Coal
- Weathered Mudstone or Claystone
- Mudstone or Claystone
- Weathered Shale
- Shale
- Weathered Siltstone
- Siltstone
- Weathered Sandstone
- Sandstone
- Leached Dolomite
- Dolomite
- Leached Limestone
- Limestone
- Boulders or Cobbles

GENERAL INFORMATION

Drive Rod Penetration Sounding Tests

Drive rod penetration resistance tests constitute driving a 1.315-inch diameter steel rod, with a 45° cone point, into the ground, using a 122-pound drop-hammer with a free fall of five feet. At one or two-foot depth intervals, a measurement is taken to determine the amount of penetration achieved in three hammer drops. This reading is converted to an empirical value for capacity "R", in thousands of pounds (which is a measure of both the point resistance and frictional resistance on the rod), by using charts prepared by the Ohio Department of Highways, Bureau of Bridges, on the basis of correlation study of rod penetration with past performance of pile driving. For interpretation, a graph is prepared by plotting the value "R" against the depth at which the reading was taken, and connecting the plotted points. The curve so obtained reflects the density of subsurface materials in a manner that can be readily compared with data from similar tests at other locations on the structure site. From this comparison, the overall uniformity of subsurface condition may be evaluated.

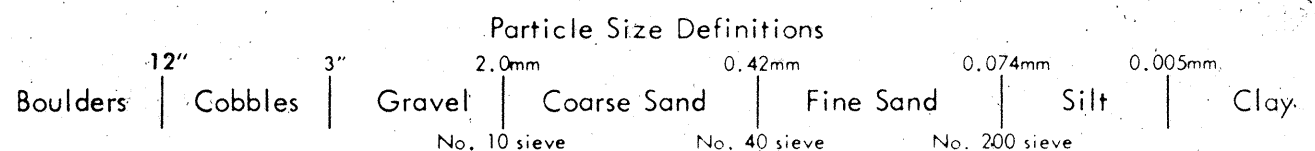
Drive Sample Borings - Drive-Press Sample Borings

Drive sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. sampler, at 2-1/2 and / or 5-foot depth intervals, driven by means of a 140-pound drop-hammer with a free fall of 30 inches. The number of blows required to drive the sampler 18 inches is considered the standard penetration test.

Drive-press sample borings are made by means of a rotary-type drill rig, employing a 2" O.D., 1-3/8" I.D. drive sampler, and 3" O.D. thin-wall press sampler. The press sampler is advanced by continuous uniform pressure, applied by the drill rig.

The boring log sheets show a graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the standard penetration tests in three 6-inch increments, depth of press samples, field sample number, sample description - based on laboratory tests and the Casagrande AC classification system - and gradation, plasticity, and moisture content determinations. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sampler can not be driven, a wash sample is procured for visual classification, in order to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.



NOTE - ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN ON THE STRUCTURE FOUNDATION INVESTIGATION SHEETS HAS BEEN SO REPORTED. ADDITIONAL SUBSURFACE INVESTIGATIONS MAY HAVE BEEN MADE TO STUDY SOME SPECIAL ASPECT OF THE PROJECT. COPIES OF THIS DATA, IF ANY, MAY BE INSPECTED IN THE DISTRICT DEPUTY DIRECTOR'S OFFICE, THE BUREAU OF TESTS AT 1600 WEST BROAD STREET, THE PAVEMENT AND SOILS SECTION OF THE BUREAU OF LOCATION AND DESIGN OR IN THE BRIDGE BUREAU AT 25 SOUTH FRONT STREET.

Revised 10/8/81

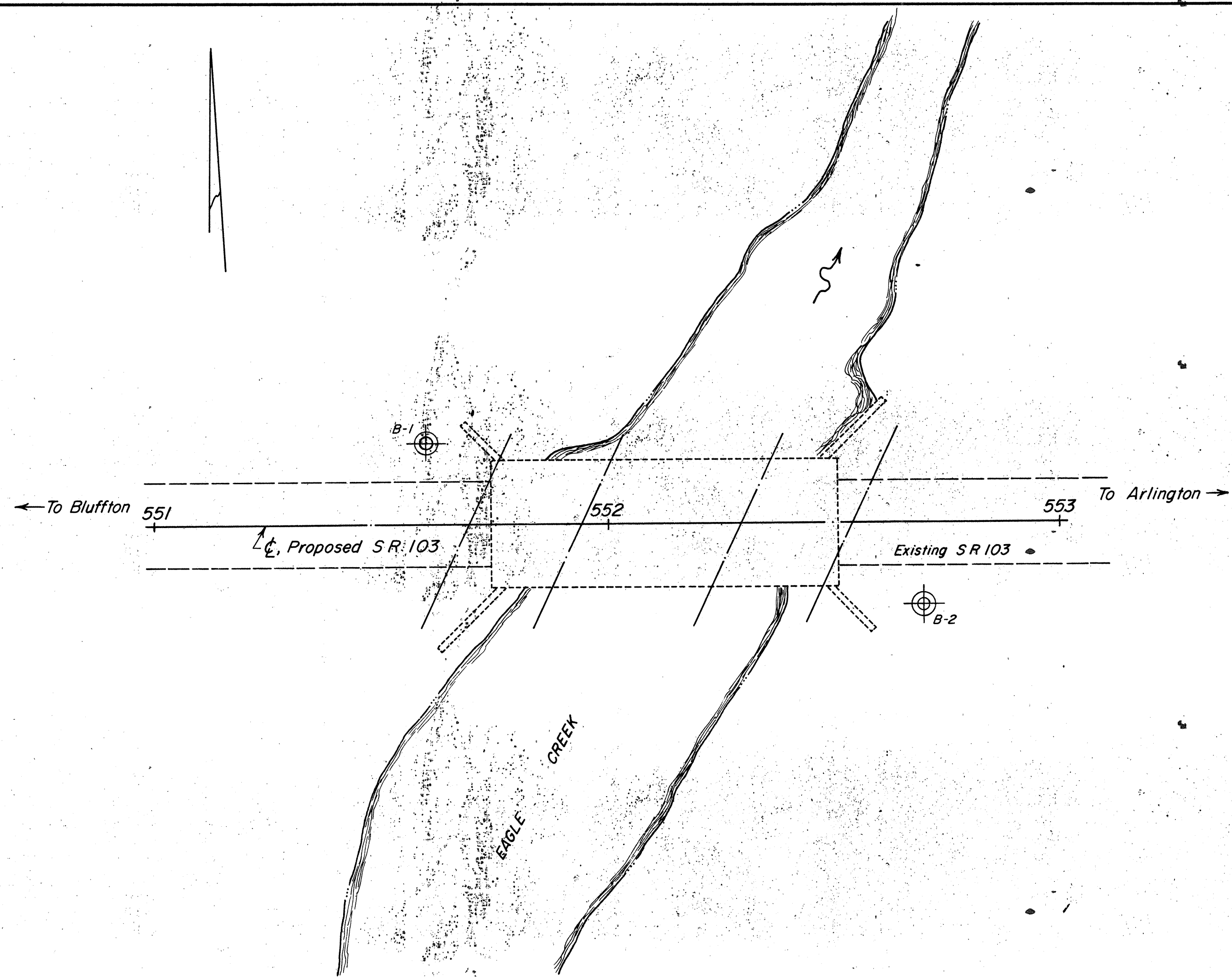
NOTE: Information shown by this subsurface investigation was obtained solely for the use in establishing design controls for the project. The State of Ohio does not guarantee the accuracy of this data and it is not to be construed as a part of the plans governing construction of the project.

OHIO DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS — TESTING LABORATORY
1600 WEST BROAD STREET, COLUMBUS, OHIO 43223

STRUCTURE FOUNDATION INVESTIGATION
BRIDGE NO. HAN-103-1045
OVER EAGLE CREEK

SEC. HAN-103-10.44

CHECKED BY L. N. L. REVIEWED BY R. D. R. DATE 3/20/79

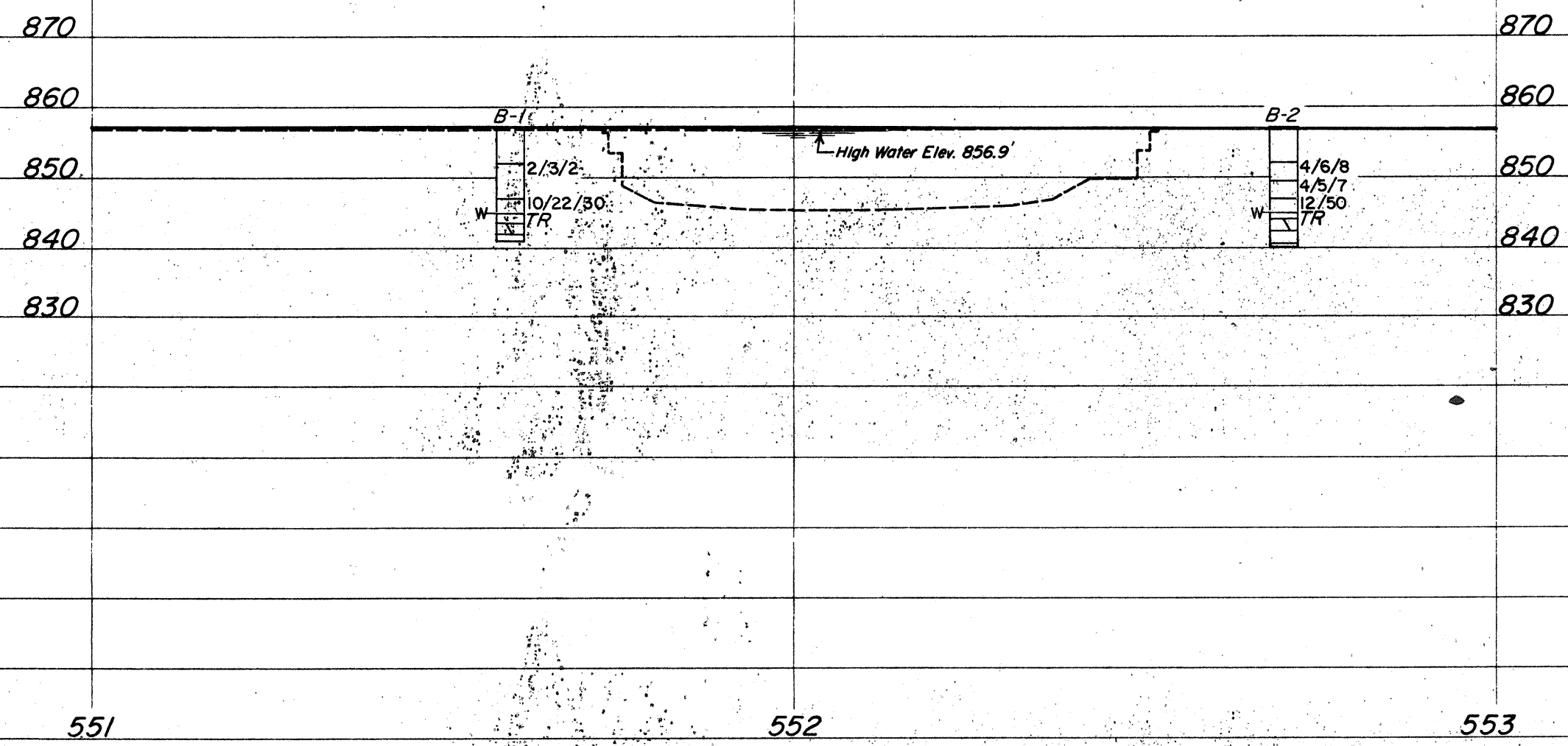


HOLLOW STEM LOG OF BORING															
Date Started <u>1/3/79</u>				Sampler Type <u>Auger</u> Dia. _____				Water Elev. <u>845.0'</u>							
Date Completed <u>1/10/79</u>				Casing Length _____ Dia. _____								Surface Elev. <u>855.0'</u>			
Boring No. <u>B-1</u>				Station & Offset <u>551+60, 18' LT (REAR ABUTMENT)</u>											
Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	SHTL Class.
857.0	0														
	2														
852.0	4														
	6	2/3/2			BROWN SILT AND CLAY	1	0	3	13	36	48	35	12	24	A-6m
	8														
847.0	10														
845.0	12	10/22/30			BROWN AND GRAY SILTY SAND AND STONE FRAGMENTS	2	64	7	7	11	11	22	5	12	A-14b
	14														
841.0	16		4.0	0.0	TOP OF ROCK DOLOMITIC, LIMESTONE, LIGHT-GRAY, HARD, DENSE, SLIGHTLY VUGGY, BADLY BROKEN. NO CORE LOSS										

BOTTOM OF BORING

HOLLOW STEM LOG OF BORING															
Date Started <u>1/3/79</u>				Sampler Type <u>AUGER</u> Dia. _____				Water Elev. <u>855.0'</u>							
Date Completed <u>1/4/79</u>				Casing Length _____ Dia. _____				Surface Elev. <u>857.0'</u>							
Boring No. <u>B-2</u>				Station & Offset <u>552+70, 18' RT (FORWARD ABUTMENT)</u>											
Elev.	Depth	Std. Pen. (N)	Rec. ft.	Loss ft.	Description	Sample No.	Physical Characteristics								SHTL Class.
							% Agg.	% C.S.	% F.S.	% Silt	% Clay	L.L.	P.I.	W.C.	
857.0	0														
	2														
	4														
852.0	6	4/6/8			BROWN SILTY SAND, LOAMY	1	4	12	49	15	20	NP	NP	15	A-3a
849.5	8	4/5/7			BROWN SANDY SILT	2	3	14	22	46	15	NP	NP	13	A-4b
847.0	10	12/50			BROWN SILTY SAND AND STONE FRAGMENTS	3	51	7	21	6	15	21	4	15	A-14b
845.0	12	REFUSAL													
	14				TOP OF ROCK										
840.0	16		5.0	0.0	DOLOMITIC LIMESTONE, LIGHT-GRAY, HARD, DENSE, SLIGHTLY VUGGY, BADLY BROKEN. NO CORE LOSS										

BOTTOM OF BORING



SCALE: 1" = 20'

Revised 10/8/81

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PLAN AND PROFILE
DRAWN BY L. N. L. CHECKED BY L. N. L. REVIEWED BY R. D. R. DATE 3/20/79