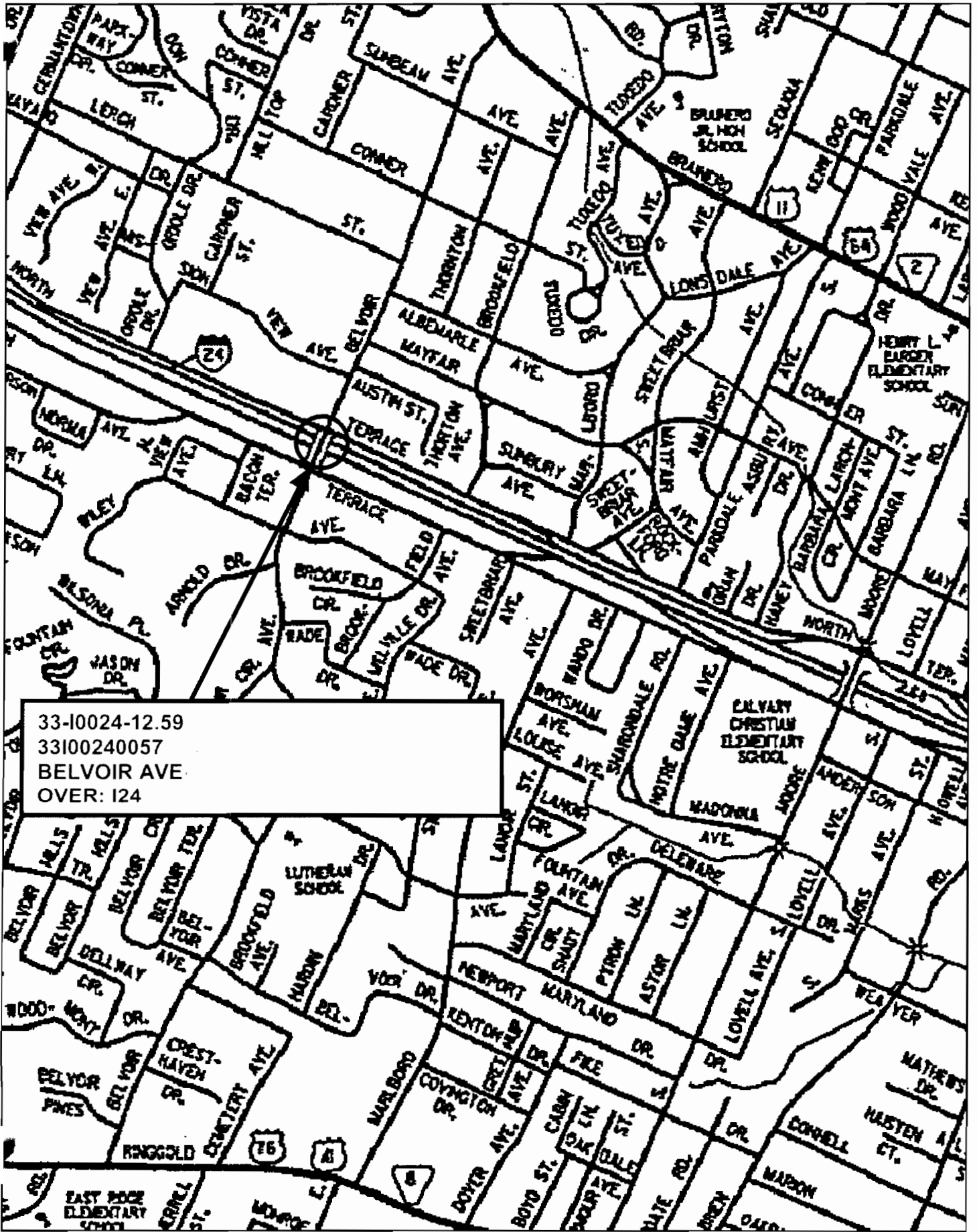


# HAMILTON COUNTY



33-10024-12.59  
33100240057  
BELVOIR AVE.  
OVER: 124

**BRIDGE MAINTENANCE RECOMMENDATIONS**



COUNTY: HAMILTON  
 LOCATION: 33-03611-01.01-  
 CO. SEQ.: 1 SPEC. CASE: 0

CROSSING: BELVOIR AVE / I-24  
 FED. BRIDGE NO.: 33I00240057  
 MAINT. DIST.: 21

REPAIR LIST NO.: N  
 DATE ADDED:  
 REVISED: 07/30/2002

FACILITY CARRIED:	FAU 3611	NUMBER OF MAIN SPANS:	4
HIGHWAY SYSTEM:	18-STP URBAN, NON-STATE SYS.	NUMBER OF APPROACH SPANS:	0
BRIDGE WIDTH (CURB TO CURB):	67 FT 10 IN	BRIDGE LENGTH (FT):	191
BRIDGE WIDTH (OUT TO OUT):	79 FT 4 IN	MAXIMUM SPAN LENGTH (FT):	55
APPROACH ROADWAY (W/SHOULDERS):	67 FT 10 IN	SKEW ANGLE (DEGREES):	90
MAINTAINED BY:	STATE HIGHWAY AGENCY		
MAIN SPAN MATERIAL:	PRESTRESSED CONCRETE		
MAIN SPAN DESIGN TYPE:	BOX BEAM OR GIRDERS - MULTIPLE		
APPROACH SPAN MATERIAL:	OTHER OR NOT APPLICABLE		
APPROACH SPAN DESIGN TYPE:	OTHER OR NOT APPLICABLE		
INSPECTION DATE:	07/30/2002	GENERAL CONDITION:	FAIR
EVALUATION DATE:	05/10/2001	STRUCTURALLY DEFICIENT:	NO
PROPOSED REPLACEMENT:		SUFFICIENCY RATING:	94.6
H TRUCK RATING @ INV.:	20 TONS		

No.	RECOMMENDATIONS	REPAIR DATE	REPAIRED BY
1.	REPAIR DECK IN SPAN NO. 1 & 4 POTHOLES AT JOINTS		
2.	APPROACH GUARDRAILS ARE NON-EXISTENT		
3.	BRIDGERAILS ARE SUBSTANDARD		
4.	APPROACH GUARDRAIL TERMINALS FOR THE UNDERPASS ROUTE ARE SUBSTANDARD		

**COMMENTS:**

**BRIDGE MAINTENANCE RECOMMENDATIONS**



Tennessee Department of Transportation

COUNTY: HAMILTON  
 LOCATION: 33-03611-01.01-  
 CO. SEQ.: 1 SPEC. CASE: 0

CROSSING: BELVOIR AVE / I-24  
 FED. BRIDGE NO.: 33I00240057  
 MAINT. DIST.: 21

REPAIR LIST NO.: N  
 DATE ADDED:  
 REVISED: 07/30/2002

FACILITY CARRIED:	FAU 3611	NUMBER OF MAIN SPANS:	4
HIGHWAY SYSTEM:	18-STP URBAN, NON-STATE SYS.	NUMBER OF APPROACH SPANS:	0
BRIDGE WIDTH (CURB TO CURB):	67 FT 10 IN	BRIDGE LENGTH (FT):	191
BRIDGE WIDTH (OUT TO OUT):	79 FT 4 IN	MAXIMUM SPAN LENGTH (FT):	55
APPROACH ROADWAY (W/SHOULDERS):	67 FT 10 IN	SKEW ANGLE (DEGREES):	90
MAINTAINED BY:	STATE HIGHWAY AGENCY		
MAIN SPAN MATERIAL:	PRESTRESSED CONCRETE		
MAIN SPAN DESIGN TYPE:	BOX BEAM OR GIRDERS - MULTIPLE		
APPROACH SPAN MATERIAL:	OTHER OR NOT APPLICABLE		
APPROACH SPAN DESIGN TYPE:	OTHER OR NOT APPLICABLE		
INSPECTION DATE:	07/30/2002	GENERAL CONDITION:	FAIR
EVALUATION DATE:	05/10/2001	STRUCTURALLY DEFICIENT:	NO
PROPOSED REPLACEMENT:		SUFFICIENCY RATING:	94.6
H TRUCK RATING @ INV.:	20 TONS		

No.	RECOMMENDATIONS	REPAIR DATE	REPAIRED BY
1.	PATCH POTHOLES IN WEARING SURFACE		
2.	APPROACH GUARDRAILS ARE NON-EXISTENT		
3.	BRIDGERAILS ARE SUBSTANDARD		
4.	UNDERPASS SUBSTRUCTURE PROTECTION GUARDRAILS ARE SUBSTANDARD		

**COMMENTS:**

# Bridge Maintenance Recommendations

Page No. \_\_\_\_\_

Page 1 of 1

Bridge Location No.: 33 - 03611 - 1.01  
Co. Route Log Mile

Bridge Number: 33I00240057

Crossing: I 24

County: Hamilton

Bridge Rating: FAIR

Region: 02

Inspection Cycle: 15

District: 21

Inspection Date: 09/18/2000

Maint.Resp.: 01

Spec.Case: 0

Co.Seq: 01

Comments: CLEARANCE OVER 33-I24-12.59 RATED GOOD.

## Maintenance Recommendations:

Maintenance Completed  
By / Date

229	APPROACH GUARDRAILS ARE NON-EXISTENT	
238	BRIDGERAILS ARE SUBSTANDARD	
129	PATCH COLUMNS AT BENTS	
135	REPAIR CONCRETE CAP AT BENT NO. ALL	
235	THE TERMINALS FOR THE UNDERPASS APPR. GUARDRAIL ARE SUBSTANDARD	

**COMPLETION NOTIFICATION: RETURN WITHIN 6 MONTHS OF INSPECTION DATE.**

INITIAL AND DATE RECOMMENDATIONS WHEN COMPLETED.

MAINTENANCE ACTIVITIES ARE COMPLETED (DATE) \_\_\_\_\_ BY \_\_\_\_\_

MAINTENANCE ACTIVITIES ARE PARTIALLY COMPLETED (DATE) \_\_\_\_\_ BY \_\_\_\_\_

MAINTENANCE ACTIVITIES ARE INCOMPLETE, SCHEDULED FOR (DATE) \_\_\_\_\_

EXPLANATIONS AND COMMENTS:

CONTACT:

MR. LEONARD WILLIAMS  
REGIONAL BRIDGE ENGINEER  
D.O.T. BRIDGE INSPECTION  
P.O. BOX 22368  
CHATTANOOGA, TN 37422-2368  
PHONE: 423-510-1151

STEVE HUTCHINGS  
D.O.T. BRIDGE INSPECTION  
P.O. BOX 22368  
CHATTANOOGA, TN 37422-2368  
PHONE: 423-892-3430

BRIDGE MAINTENANCE RECOMMENDATIONS

BRIDGE SEQ. NO. : 33I00240057

BRIDGE NO. : 33 - 03611 - 0101 - N  
OVER : 124

DATE : 09/03/98 BRIDGE RATING : FAIR COUNTY : Hamilton  
CO. SEQ. : 01 INSPECTION CYCLE : 14 MAINT DIST : 21  
SPEC. CASE : 1 INSPECTION DATE : 09/02/98 REGION : 02

007 - FACILITY CARRIED BY STRUCT : FAU 3611  
021 - MAINTENANCE RESPONSIBILITY : 01  
022 - OWNER : 01  
042 - TYPE OF service : 11  
043 - STRUCTURE TYPE, MAIN : 505  
044 - STRUCTURE TYPE, APPROACH : 000  
045 - SPANS, MAIN UNIT : 004  
046 - SPANS, APPROACH : 0000  
049 - STRUCTURE LENGTH : 000191  
032 - APPROACH ROADWAY WIDTH : 068  
034 - SKEW : 90  
051 - BRDG RDWY WID, CRB-TO-CRB : 0680  
052 - DECK WIDTH, OUT-TO-OUT : 0795  
500 - HWY OF THE INVENTORY ROUTE : 14

: MAINTENANCE & REPAIR RECOMMENDATIONS :

: MAINTENANCE COMPLETED :

- 1 APPROACH GUARDRAILS ARE NON-EXISTENT
- 2 BRIDGERAILS ARE SUBSTANDARD
- 3 SEAL CONSTRUCTION JOINT ALONG CENTER LINE OF ALL SPANS -

- 1 BY \_\_\_\_\_ DATE \_\_\_\_\_
- 2 BY \_\_\_\_\_ DATE \_\_\_\_\_
- 3 BY MIR DATE 2-2-99

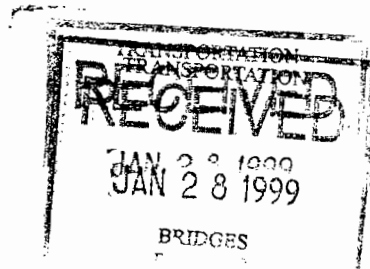
: COMMENTS FOR BRIDGE SEQ. NO. : 33I00240057 :

- REPAIR BENT CAPS AND COLS. WHERE NEEDED CLEARANCE OVER  
33-124-12.59 RATED GOOD.

COMPLETION NOTIFICATION : RETURN WITHIN 6 MONTHS OF INSPECTION DATE

MAINTENANCE ACTIVITIES ARE  
--- COMPLETED (DATE) 2-2-99  
--- PARTIALLY COMPLETE (DATE) -----  
--- INCOMPLETE SCHEDULED FOR (DATE) -----

EXPLANATIONS AND COMMENTS:



BRIDGE MAINTENANCE RECOMMENDATIONS

BRIDGE SEQ. NO.: 33I00240057

BRIDGE NO.: 33 - 03611 - 0101 - N  
OVER : I24

DATE :09/03/98 BRIDGE RATING :FAIR COUNTY :Hamilton  
CO. SEQ. :01 INSPECTION CYCLE:14 MAINT DIST:21  
SPEC. CASE:1 INSPECTION DATE :09/02/98 REGION :02

: MAINTENANCE & REPAIR RECOMMENDATIONS :

: MAINTENANCE COMPLETED :

- 1 APPROACH GUARDRAILS ARE NON-EXISTENT
- 2 BRIDGERAILS ARE SUBSTANDARD
- 3 SEAL CONSTRUCTION JOINT ALONG CENTER LINE OF ALL SPANS

- 1 BY \_\_\_\_\_ DATE \_\_\_\_\_
- 2 BY \_\_\_\_\_ DATE \_\_\_\_\_
- 3 BY \_\_\_\_\_ DATE \_\_\_\_\_

: COMMENTS FOR BRIDGE SEQ. NO. : 33I00240057 :

REPAIR BENT CAPS AND COLS. WHERE NEEDED CLEARANCE OVER  
33-I24-12.59 RATED GOOD.

COMPLETION NOTIFICATION : RETURN WITHIN 6 MONTHS OF INSPECTION DATE

MAINTENANCE ACTIVITIES ARE

- COMPLETED (DATE) -----
- PARTIALLY COMPLETE (DATE) -----
- INCOMPLETE SCHEDULED FOR (DATE) -----

EXPLANATIONS AND COMMENTS :



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

# Bridge Condition Coding Form

Revised 09/12/2001

Bridge Number:   
(Includes Item 5A)

Feature Intersected:

County:

Route:

Special Case:

County Sequence:

Log Mile:

## CODE ONLY THOSE VALUES WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE	CONDITION CODING GUIDELINES (Values for Coding Items 58, 59, 60 and 62)
90	INSPECTION DATE	<u>09/18/2000</u> <u>7130102</u>	N NOT APPLICABLE
10	MINIMUM V.C. OVER DECK (ROADWAY + SHOULDERS)	99 FT. 99 IN. ____ FT. ____ IN.	9 EXCELLENT CONDITION
520	MINIMUM V.C. OVER DECK (EXCLUDES SHOULDERS)	99 FT. 99 IN. ____ FT. ____ IN.	8 VERY GOOD CONDITION - NO PROBLEMS NOTED.
36	TRAFFIC SAFETY FEATURES		7 GOOD CONDITION - SOME MINOR PROBLEMS.
	Br. Rail Trans. Appr. Rail Terminal	SPEED LIMIT	6 SATISFACTORY CONDITION - MINOR DETERIORATION OF STRUCTURAL ELEMENTS.
	0 0 0 0	UNKNOWN	5 FAIR CONDITION - ALL PRIMARY STRUCTURAL ELEMENTS ARE SOUND BUT MAY HAVE MINOR SECTION LOSS, CRACKING, SPALLING OR SCOUR.
		<u>55</u>	
41	STRC OPEN/CLOSED/POSTED A K P	A	4 POOR CONDITION - ADVANCED SECTION LOSS, DETERIORATION, SPALLING OR SCOUR.
58	DECK	7	3 SERIOUS CONDITION - LOSS OF SECTION, DETERIORATION, SPALLING OR SCOUR HAVE SERIOUSLY AFFECTED PRIMARY STRUCTURAL COMPONENTS. LOCAL FAILURES ARE POSSIBLE. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT.
59	SUPERSTRUCTURE	6	2 CRITICAL CONDITION - ADVANCED DETERIORATION OF PRIMARY STRUCTURAL ELEMENTS. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT OR SCOUR MAY HAVE REMOVED SUBSTRUCTURE SUPPORT. UNLESS CLOSELY MONITORED IT MAY BE NECESSARY TO CLOSE THE BRIDGE UNTIL CORRECTIVE ACTION IS TAKEN.
60	SUBSTRUCTURE	6	1 "IMMINENT" FAILURE CONDITION - MAJOR DETERIORATION OR SECTION LOSS PRESENT IN CRITICAL STRUCTURAL COMPONENTS OR OBVIOUS VERTICAL OR HORIZONTAL MOVEMENT AFFECTING STRUCTURAL STABILITY. BRIDGE IS CLOSED TO TRAFFIC BUT CORRECTIVE ACTION MAY PUT BACK IN LIGHT SERVICE.
61	CHANL/CHANL PROTECTION	N	0 FAILED CONDITION - OUT OF SERVICE AND BEYOND CORRECTIVE ACTION.
62	CULVERT AND RETAIN WALL	N	
71	WATERWAY ADEQUACY	N	
72	APPROACH RDWY ALIGNMENT (USE VALUES OF 3, 6, OR 8)	6	
521	OVERALL CONDITION (Circle One)		
	GOOD <u>FAIR</u> POOR CRITICAL		

*Tracy Anderson*  
TEAM LEADER SIGNATURE

7130102  
REVIEW DATE



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

# Underpass Condition Coding Form

Revised 09/21/2001

Bridge Number: 331002400572  
(Includes Item 5A)

Feature Intersected: BELVOIR AVE (FAU 3611)

County: 33

Route: 10024

Special Case: 0

County Sequence: 02

Log Mile: 12.59

**CODE ONLY THOSE VALUES WHICH HAVE CHANGED**

ITEM #	DESCRIPTION	VALUE	UNDERPASS SAFETY FEATURES
90	INSPECTION DATE	<u>09/18/2000</u> <u>7130102</u>	515 (A) TYPE UNDERPASS BARRIER <b>Mixed Metal/Conc. Rail</b>
10	MINIMUM V.C. OVER ROADWAY (ROADWAY + SHOULDERS)	16 FT. 4 IN. ____ FT. ____ IN.	Revised Barrier Type
520	MINIMUM V.C. OVER ROADWAY (EXCLUDES SHOULDERS)	16 FT. <u>7</u> IN. ____ FT. <u>8</u> IN.	(B) ADEQUACY OF BARRIER OR RAIL 1
47	TOTAL HORIZONTAL UNDERCLEARANCE	52 FT. 5 IN. ____ FT. ____ IN.	(C) ADEQUACY OF TRANSITIONS 1
54	MINIMUM VERTICAL UNDERCLEARANCE (EXCLUDES SHOULDERS)	Circle One: H R <u>16</u> FT. <u>4</u> IN.	(D) ADEQUACY OF TERMINALS 0
55	MINIMUM LATERAL UNDERCLEARANCE ON RIGHT SIDE	Circle One: H R <u>10</u> FT. <u>0</u> IN.	554 VERTICAL CLEARANCE LISTED ON HEIGHT POSTING 99 FT. 99 IN.
56	MINIMUM LATERAL UNDERCLEARANCE ON LEFT SIDE	<u>6</u> FT. <u>0</u> IN.	____ FT. ____ IN.
521	OVERALL CONDITION (Circle One)	<u>GOOD</u> FAIR POOR CRITICAL	HEIGHT POSTED AT BOTH APPROACHES? YES [ ] NO [ ] N/A [X]

555 COMMENTS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Tracy Anderson  
TEAM LEADER SIGNATURE

7130102  
REVIEW DATE



**TENNESSEE BRIDGE INSPECTION PROGRAM**

DT-1449

**SUMMARY OF EVALUATION**

REV. 05-22-00

(548) RATING BASED ON: \*\*\*

Bridge No.: 33-3611-1.01

(549) Evaluator: Ken Simpson

(522) Eval. Date: 05/10/2001

(505) METHOD OF ANALYSIS: DES

(29) ADT: 7,180 (2000) Yr (30)

(100) Strahnet Route Yes ( ) No (X)

INVENTORY 503 H 20 Tons 518B HS 36 Tons

(19) Detour 01 km

OPERATING 504 H 27 Tons 519 HS 49 Tons

(53) Vert. Clearance Over Deck  
\_\_\_\_\_ m (XX.XX) (X) NA

CONDITION RATING (Structural)

APPRAISAL RATING (Relation to System)

	Culverts	
58 Deck	N	7
59 Superstructure	N	6
60 Substructure	N	6
61 Chl & Chl Protection		N
62 Culv & Ret Walls		N
113A Scour Condition		N
113B Scour Condition		-

	Culverts	
67 Structural Evaluation		6
68 Deck Geometry		3
69 Under Clearance	N	4
70 Bridge Posting		5
71 Waterway Adequacy		N
72 Approach Rdwy Alignment		8

Overall Condition (521): G F P C

Traffic Safety

Texture Coat (513) N

Features (36): 0 0 0 0

Paint (514 A, B, & C) N

Repair List No. (525): N

Comments and Recommendations:

CONCUR (KLS 02-27-03)

\* \* Article 5.1.2 of Maint. Man. For Conc. Br. with unknown reinf.

\* \* \* Des. Std. or Des. Plans For H15 or HS20 Loading.

**COMMENTARY (Condition)**

- N NOT APPLICABLE
- 9 EXCELLENT CONDITION
- 8 VERY GOOD CONDITION - no problems noted
- 7 GOOD CONDITION - some minor problems
- 6 SATISFACTORY CONDITION - structural elements show some minor deterioration
- 5 FAIR CONDITION - all primary structural elements are sound, but may have minor section loss, deterioration, spalling, or scour.
- 4 POOR CONDITION - advanced section loss, deterioration, spalling, or scour
- 3 SERIOUS CONDITION - loss of section, deterioration, spalling, or scour have affected primary structural components - local failures are possible - fatigue cracks in steel or shear cracks in concrete may be present
- 2 CRITICAL CONDITION - advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored, it may be necessary to close the bridge until corrective action is taken.
- 1 "IMMINENT" FAILURE CONDITION - Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic, but corrective action may put it back in light service.
- 0 FAILED CODITION - Out of service, beyond corrective action.

**COMMENTARY (Appraisal)**

- N - Not Applicable
- 9 - Superior to present desirable criteria
- 8 - Equal to present desirable criteria 7 - Better than present minimum criteria
- 6 - Equal to present minimum criteria
- 5 - Somewhat better than minimum adequacy to tolerate being left in place as is
- 4 - Meets minimum tolerable limits to be left in place as is
- 3 - Basically intolerable, requiring high priority of corrective action
- 2 - Basically intolerable, requiring high priority of replacement.
- 1 - This value of rating code not used.
- 0 - Bridge closed.

GOOD ----- 7, 8, & 9  
 FAIR ----- 5 & 6  
 POOR ----- 3 & 4  
 CRITICAL -- 0, 1, & 2

SUFFICIENCY RATING : 94.7  
 DATE OF SUFF. RATING : 05/10/01



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

# Bridge Condition Coding Form

County:

Route:

Special Case:

County Sequence:

Log Mile:

Bridge Number:   
(Includes Item 5A)

Feature Intersected:

**CODE ONLY THOSE NUMBERS WHICH HAVE CHANGED**

ITEM #	DESCRIPTION	VALUE	COMMENTS
90	INSPECTION DATE	<input type="text" value="9/2/98"/>	RATINGS FOR CODING ITEMS 58, 59, 60 AND 62
		<u>9118 100</u>	N NOT APPLICABLE
10	MINIMUM V.C. OVER DECK (ROADWAY + SHOULDERS)	99 FT. 99 IN.	9 EXCELLENT CONDITION
		____ FT. ____ IN.	8 VERY GOOD CONDITION - NO PROBLEMS NOTED.
520	MINIMUM V.C. OVER DECK (EXCLUDES SHOULDERS)	99 FT. 99 IN.	7 GOOD CONDITION - SOME MINOR PROBLEMS.
		____ FT. ____ IN.	6 SATISFACTORY CONDITION - MINOR DETERIORATION OF STRUCTURAL ELEMENTS
54	MINIMUM VERTICAL UNDERCLEARANCE (EXCLUDES SHOULDERS)	<input type="text" value="H"/> 16 FT. 2 IN.	5 FAIR CONDITION - ALL PRIMARY STRUCTURAL ELEMENTS ARE SOUND BUT MAY HAVE MINOR SECTION LOSS, CRACKING, SPALLING OR SCOUR.
	Circle One: H R N	____ FT. <u>4</u> IN.	4 POOR CONDITION - ADVANCED SECTION LOSS, DETERIORATION, SPALLING OR SCOUR
36	TRAFFIC SAFETY FEATURES		3 SERIOUS CONDITION - LOSS OF SECTION, DETERIORATION, SPALLING OR SCOUR HAVE SERIOUSLY AFFECTED PRIMARY STRUCTURAL COMPONENTS. LOCAL FAILURES ARE POSSIBLE. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT.
	Br. Rail Trans. Appr. Rail Appr. Rail Ends		2 CRITICAL CONDITION - ADVANCED DETERIORATION OF PRIMARY STRUCTURAL ELEMENTS. FATIGUE CRACKS IN STEEL OR SHEAR CRACKS IN CONCRETE MAY BE PRESENT OR SCOUR MAY HAVE REMOVED SUBSTRUCTURE SUPPORT. UNLESS CLOSELY MONITORED IT MAY BE NECESSARY TO CLOSE THE BRIDGE UNTIL CORRECTIVE ACTION IS TAKEN.
	0 0 0 0		1 "IMMINENT" FAILURE CONDITION - MAJOR DETERIORATION OR SECTION LOSS PRESENT IN CRITICAL STRUCTURAL COMPONENTS OR OBVIOUS VERTICAL OR HORIZONTAL MOVEMENT AFFECTING STRUCTURAL STABILITY. BRIDGE IS CLOSED TO TRAFFIC BUT CORRECTIVE ACTION MAY PUT BACK IN LIGHT SERVICE.
	____ ____ ____ ____		0 FAILED CONDITION - OUT OF SERVICE AND BEYOND CORRECTIVE ACTION.
41	STRC OPEN/CLOSED/POSTED	A	
	A K P		
58	DECK	7	
59	SUPERSTRUCTURE	6	
60	SUBSTRUCTURE	6	
61	CHANL/CHANL PROTECTION	N	
62	CULVERT AND RETAIN WALL	N	
72	APPROACH RDWY ALIGNMENT (USE VALUES OF 3, 6, OR 8)	6	
	OVERALL CONDITION (Circle One)		
	GOOD <input checked="" type="radio"/> FAIR <input type="radio"/> POOR <input type="radio"/> CRITICAL <input type="radio"/>		
	<u>Judy Boyd</u>	<u>9118 100</u>	
	SIGNATURE	DATE	



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION

# Underpass Condition Coding Form

County:

Route:

Special Case:

County Sequence:

Log Mile:

Bridge Number:   
(Includes Item 5A)

Feature Intersected:

## CODE ONLY THOSE NUMBERS WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE	UNDERPASS SAFETY FEATURES
90	INSPECTION DATE	<input type="text" value="9/2/98"/>	(A) TYPE UNDERPASS BARRIER <b>Mixed Metal/Conc. Rail</b>
		<u>9</u> <u>118</u> <u>100</u>	
10	MINIMUM V.C. OVER DECK (ROADWAY + SHOULDERS)	16 FT. <del>3</del> IN.	
		___ FT. <u>4</u> IN.	
520	MINIMUM V.C. OVER DECK (EXCLUDES SHOULDERS)	16 FT. <del>7</del> IN.	Revised Barrier Type
		___ FT. <u>8</u> IN.	(B) ADEQUACY OF BARRIER OR RAIL 1
47	TOTAL HORIZONTAL UNDERCLEARANCE	52 FT. <del>5</del> IN.	(C) ADEQUACY OF TRANSITIONS 1
		___ FT. <u>09</u> IN.	(D) ADEQUACY OF TERMINALS <del>1</del>
55	MINIMUM LATERAL UNDERCLEARANCE ON RIGHT SIDE	<input type="checkbox"/> H <del>5</del> FT. <del>10</del> IN.	VERTICAL CLEARANCE LISTED ON HEIGHT POSTING SIGNS
	Circle One: H R N	<u>10</u> FT. <u>00</u> IN.	<u>99</u> FT. <u>99</u> IN.
56	MINIMUM LATERAL UNDERCLEARANCE ON LEFT SIDE	6 FT. <del>8</del> IN.	___ FT. ___ IN.
		___ FT. <u>0</u> IN.	

OVERALL CONDITION (Circle One)

GOOD    FAIR    POOR    CRITICAL    HEIGHT POSTED AT BOTH APPROACHES?    YES [ ] NO [ ] N/A

NOTE: DESCRIBE ANY PROBLEMS ON BRIDGES THAT THE STATE DOES NOT INSPECT (SUCH AS RAILROAD OR PRIVATE BRIDGES) THAT WOULD AFFECT THE ROADWAY SUCH AS LOOSE MEMBERS, SEVERELY SPALLED OR CRACKED CONCRETE, EXCESSIVE SECTION LOSS ON STEEL, EXCESSIVE TIMBER DECAY, ETC. ALSO, DESCRIBE ANY UNSAFE ITEMS.

COMMENTS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SIGNATURE

9/18/00  
DATE

000002

BRIDGE CONDITION CODING SHEET  
DATA ENTRY JOB NO. 5043, P4

CULP5023  
TRIMS KEY

BRIDGE NO. CO: 33 LOCATION NO.  
ROUTE: I00240  
SEQ. NO: 057

CO. NO: 33  
ROUTE: 03611  
SC/CSQ: 0 01  
LOG MILE: 0101  
BR-SEQ: 057

FEATURE INTERSECTED: I24

CODE ONLY THOSE NUMBERS WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE	COMMENTS
90	INSPECTION DATE	10 / 1 / 96 <u>9 / 2 / 98</u>	RATINGS FOR CODING ITEMS 58 THRU 62
10	MINIMUM V. C. OVER DECK (PAVEMENT + SHOULDERS)	99 FT. 99 IN. ___ FT. ___ IN.	N NOT APPLICABLE 9 EXCELLENT CONDITION 8 VERY GOOD CONDITION- NO PROBLEMS NOTED
14	MINIMUM V. C. OVER DECK (EXCLUDES SHOULDERS)	99 FT. 99 IN. ___ FT. ___ IN.	7 GOOD CONDITION- SOME MINOR PROBLEMS
54	MINIMUM VERTICAL H R N UNDERCLEARANCE	16 FT. 04 IN. ___ FT. ___ IN.	6 SATISFACTORY CONDITION- MINOR DETERIORATION OF STRUCTURAL ELEMENTS
36	TRAFFIC SAFETY FEATURE	0 . 0 0 0 ___ _ _ _	5 FAIR CONDITION-PRIMARY STRUCTURAL DEFECTS, SOUND BUT SHOW MINOR SECTION LOSS, SCOUR, CRACKING, SPALLING
41	STRC OPEN/CLOSED/POSTED A K P	A ___	4 POOR CONDITION- ADVANCED SECTION LOSS, DETERIORATION, SCOUR, SPALLING
58	DECK	7 ___	3 SERIOUS CONDITION-LOSS OF SECTION, DETERIORA- TION, SPALLING, SCOUR SERIOUSLY EFFECT
59	SUPERSTRUCTURE	6 ___	PRIMARY MEMBERS, FAILURES POSSIBLE, FATIGUE OR SHEAR CRACKS POSSIBLE
60	SUBSTRUCTURE	6 ___	2 CRITICAL CONDITION- ADVANCED DETERIORATION OF PRIMARY ELEMENTS OR FATIGUE OR SHEAR CRACKS OR SEVERE SCOUR COND- ITION, MAY REQUIRE CLOSURE FOR REPAIRS
61	CHANL/CHANL PROTECTION	N ___	1 IMMINENT FAILURE CONDITION-MAJOR SECTION LOSS OR CRITICAL COND- ITION OF STRUCTURAL COMPONENT OR UNSTABLE OR CLOSED BUT REPAIR- ABLE FOR LIGHT TRAFFIC
62	CULV & RETAIN WALL	N ___	0 FAILED CONDITION-OUT OF SERVICE AND BEYOND CORRECTIVE ACTION
72	APPROACH RDWY ALIGNMENT (CODE 3, 6, OR 8 UNLESS NECESSARY)	6 ___	
<u>OVERALL CONDITION</u>			
GOOD	___	POOR	___
FAIR	<u>X</u>	CRIT	___
<u>Darry Selva</u> SIGNATURE		<u>9, 2, 98</u> DATE	

2A

BRIDGE CONDITION CODING SHEET  
DATA ENTRY JOB NO. 5043, P5

CULP5028

BRIDGE NO.

CO: 33

LOCATION NO.

TRIMS KEY

ROUTE: I00240

CO. NO: 33

SEQ. NO: 057

ROUTE: I0024

SC/CSQ: 0 02

LOG MILE: 1259

BR-SEQ: 057

FEATURE INTERSECTED: BELVOIR AVE (FAU 3611) \*

CODE ONLY THOSE NUMBERS WHICH HAVE CHANGED

ITEM #	DESCRIPTION	VALUE
90	INSPECTION DATE	10 / / 96 <u>9 / 2 / 98</u>
10	MINIMUM V. C. OVER DECK UNDERPASS ROADWAY (PAVEMENT + SHOULDERS)	16 FT. 04 IN. ___ FT. ___ IN.
14	MINIMUM V. C. OVER UNDERPASS ROADWAY (EXCLUDES SHOULDERS)	16 FT. 08 IN. ___ FT. ___ IN.
47	TOTAL HORIZONTAL UNDERCLEARANCE	528 FT. ___ FT.
55	MINIMUM LATERAL UNDER-CLEARANCE ON RIGHT	H R N ___ ___ ___ 100 FT. ___ FT.
56	MINIMUM LATERAL UNDER-CLEARANCE ON LEFT	___ FT. <u>060</u> FT.

NOTE: DESCRIBE ANY PROBLEMS ON BRIDGES THAT THE STATE DOES NOT INSPECT (SUCH AS RAILROAD OR PRIVATE BRIDGES) THAT WOULD AFFECT THE ROADWAY SUCH AS LOOSE MEMBERS, SEVERELY SPALLED OR CRACKED CONCRETE, EXCESSIVE SECTION LOSS ON STEEL, EXCESSIVE TIMBER DECAY, ETC. ALSO, DESCRIBE ANY UNSAFE ITEMS.

OVERALL CONDITION

COMMENTS

GOOD

X

PARAPETS AND GUARDRAILS ADDED

FAIR

\_\_\_\_\_

\_\_\_\_\_

POOR

\_\_\_\_\_

\_\_\_\_\_

CRITICAL

\_\_\_\_\_

\_\_\_\_\_

Larry Selan  
SIGNATURE

9 / 2 / 98  
DATE

# PHOTOGRAPHS

Page No. \_\_\_\_\_

Bridge No.: 33 - 03611 - 0101  
Crossing: 124  
Federal No.: 33100240057

Date: July 30, 2002

PIC1



SIDE VIEW LOOKING AHEAD

PIC2



SIDE VIEW LOOKING BACK

# PHOTOGRAPHS

Page No. \_\_\_\_\_

Bridge No.: 33 - 03611 - 0101  
Crossing: 124  
Federal No.: 33I00240057

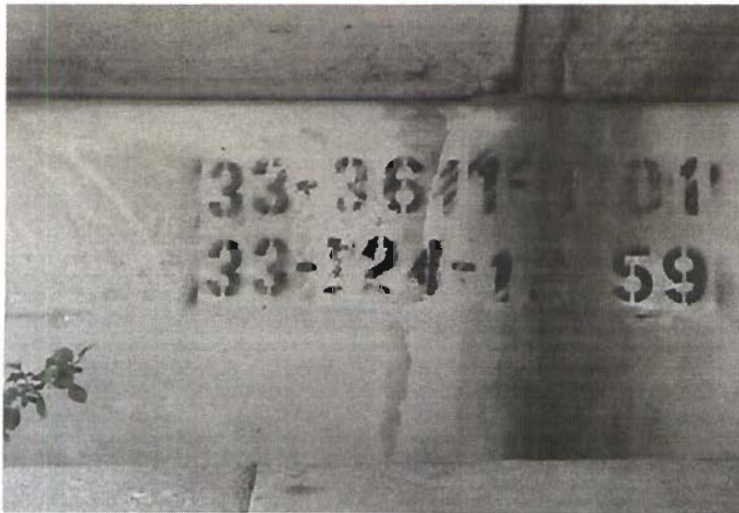
Date: July 30, 2002

PIC3



ACROSS TOP

PIC4



BRIDGE NUMBER

# PHOTOGRAPHS

Page No. \_\_\_\_\_

Bridge No.: 33 - 03611 - 0101  
Crossing: I24  
Federal No.: 33I00240057

Date: July 30, 2002

PIC5



DAMAGE GUARDRAIL

PIC6



EX. JOINT UNEVEN & LG. VOID



# PHOTOGRAPHS

Page No. \_\_\_\_\_

Bridge No.: 33 - 03611 - 0101  
Crossing: 124  
Federal No.: 33100240057

Date: July 30, 2002

PIC7



EX. JOINT UNEVEN

PIC8



EX. JOINT UNEVEN

# PHOTOGRAPHS

Page No. \_\_\_\_\_

Bridge No.: 33 - 03611 - 0101  
Crossing: I24  
Federal No.: 33I00240057

Date: July 30, 2002

PIC9



LOOKING BACK ON UNDERPASS ROUTE

PIC10



LOOKING AHEAD ON UNDERPASS ROUTE

# ROUTINE BRIDGE INSPECTION REPORT

Page No. \_\_\_\_\_

Form BIR 3.0C  
(Rev. 9-22-98)  
DT-1537

Field Report No. 16 Date 7/30/2002  
Previous Report No. 15 Date 9/18/2000  
Plans: DESIGN

Bridge No. 33100240057  
Eleven Digit No.

Bridge Location No. 33 - 03611 - 1.01  
Co. Route Log Mile

BELVOIR AVENUE(3611-1.01) over 124  
Road Name Crossing

Indepth Insp. Req'd: NO  
(If yes itemize limits under comments)

Structure Type PCBB

FRACTURE CRITICAL: NO

**FEATURE CHANGES:**

Wearing Surface NO Type ASPHALT Depth 2.0 (in.)  
Bridge Rail NO Describe changes: NO GUARDRAIL  
Approach Rail NO

**CLEARANCE CHANGES:** NO (If yes make changes below)

Vertical Clearance over deck 99-99 (ft.-in.)  
Vertical Under Clearance 16'-04" (ft.-in.)  
Lateral Under Clearance 52.8 (\*\* ft.)  
Deck Width Curb/Curb 68.0 (\*\* ft.)  
Deck Width Rail/Rail 77.0 (\*\* ft.)  
Sidewalk Width Rt. 4.5 Lt. 4.5

**INSPECTORS**

F.WATKINS  
W.LLOYD  
T. ANDERSON

Condition: FAIR (If change describe in comments)

**Comments**

Approaches	FAIR	SLIGHTLY UNEVEN. DIP AT #1 END. POTHOLED AT JOINTS
Deck Condition (Item 58)	7	
Superstructure (Item 59)	6	
a. Beams	G-F	FEW MINOR CRACKS AND SPALLS
b. Bearings	GOOD	
c. Diaphragms	NA	
Substructure (Item 60)	6	
a. Caps/Bridge Seats	FAIR	DELAMS, PATCHES
b. Columns/Piles	G-F	CRACKS, REBAR POPOUTS, DELAMS, PATCHES
c. Footings	NV	
d. Wing W./Breast W.	GOOD	HR.LINE-SMALL VERTICAL CRACKS.
Scour/Erosion	GOOD	
Channel (Item 61)	N	

**UNDERWATER INSPECTION**

To Be Performed By: NONEREQUIRED

Weight Limit Posted NO

Date Underwater Insp. \_\_\_\_\_

Gross..... Tons

BRIDGE is: OPEN

2 Axle..... Tons

3 or more Axles.. Tons

**COMMENTS:**

COMMENTS: The bents have patches & delams. Beams have few minor spalls and cracks. Bm. 'A' spalls are from collision damage. The longitudinal cracks in the asphalt wearing surface have been sealed. Asphalt over joints is cracked, settled, potholed, humped and uneven. Bridgerail is substandard. No approach rail.

Supervising Bridge Inspector: TRACEY ANDERSON

BRIDGE RATING: FAIR

# INSPECTION REPORT FOR UNDERPASS ROUTE

Form BIR 3.0A  
(Rev. 9-22-98)  
DT-1443

Field Report No. 16 Date 7/30/2002  
Previous Report No. 15 Date 9/18/2000

Bridge No. 33100240057  
Eleven Digit No.

Underpass Location No. 33 - 10024 - 12.59  
Co. Route Log Mile

\_\_\_\_\_ or 33 - 03611 - 0101 over 33 - 10024 - 12.59  
Railroad/Walkway Co. Route Log Mile Co. Route Log Mile

County HAMILTON

Structure Name (If Named) BELVOIR AVENUE

Year Constructed 1964 ACTUAL

Year Widened NA NA Year Rehabilitated NA NA

### GEOMETRIC FEATURES UNDER BRIDGE (\*. \* ft. unless otherwise noted)

Divided Highway LEFT ROADWAY Type of Wearing Surface ASPHALT

Width of Approach Traveled Roadway 36.0 ft. (Does Not Include Shoulders)

Width of Median if Divided Highway 16.0 ft.

Approach Shoulder Width NA ft. Right 10.0 ft. Left

\*Horizontal Clearance Under Bridge 52.7 ft.

\*Distance Between Pier Protection Guardrail and Substructure NA ft. Right NA ft. Left

\*Width of Sidewalk Under Bridge NA ft. Right NA ft. Left

\*Minimum Vertical Clearance: 19 ft. 06 in. (ft.-in.)

\*Show on Sketch

### TRAFFIC SAFETY FEATURES

Pier Protection Railing or Parapet  
Approach Guardrail Terminals  
Approach Guardrail  
Approach Guardrail Terminal

Rating	Standard/ SubStandard Non Exist
GOOD	STANDARD
GOOD	STANDARD
GOOD	STANDARD
GOOD	STANDARD

### INSPECTORS

1. ANDERSON
2. WATKINS
3. LLOYD
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

### SIGNING

Yes/ No/ Needed

Paddleboards	NO
Vertical Clearance (<14'-6")	NO
Narrow Passage	NO
One Lane Passage	NO

Other Underpass Signs Needed

Form BIR 3.0A (Continued)  
(Rev. 9-22-98)  
DT-1443

Date 7/30/2002

Underpass Location No. 33 - 10024 - 12.59  
Co. Route Log Mile

Other Signs or Plaques:

Comments Regarding any  
Problems with Signing:

**BRIDGE FEATURES** (\*.\* ft.)

Bridge Skew <u>90°</u>	Number of Lanes/Tracks on Bridge <u>4</u>
Structure Type (Main Span) <u>PCBB</u>	No. Main Spans <u>4</u>
Structure Type (Appr.Spans) <u>NA</u>	No. Appr. Spans <u>NA</u>
Maximum Span Length <u>55.2</u> (ft.)	Total Length <u>190.5</u> (ft.)
Width of Bridge Out-to-Out <u>79.5</u> (ft.)	Right Angle to Centerline of Bridge)
Width of Bridge Along Skew <u>NA</u> (ft.)	(If Unable to Measure at Right Angle to Centerline of Bridge)

**BRIDGE CONDITION:** FAIR

Does Potential Exist for Elements from Bridge Falling on Roadway Beneath? NO

Does Potential Exist Because of Deteriorated Condition or Failure of Major Members? NO

Comment on any Conditions of Bridge that would Effect Roadway Beneat

Note: If Underpass Route is Divided Highway, Use Two of These Forms, One for Each Roadway.

**MINIMUM PICTURES REQUIRED**

1. Elevation View of Bridge on Both Sides Showing Underpass
2. View Showing Both Approaches to Bridge
3. View Showing Safety Features
4. View Showing Any Problems

**INSPECTION REPORT FOR UNDERPASS ROUTE**

Form BIR 3.0A  
(Rev. 9-22-98)  
DT-1443

Field Report No. 16 Date 7/30/2002  
Previous Report No. 15 Date 9/18/2000

Bridge No. 33100240057  
Eleven Digit No.

Underpass Location No. 33 - 10024 - 12.59  
Co. Route Log Mile

     or 33 - 03611 - 0101 over 33 - 10024 - 12.59  
Railroad/Walkway Co. Route Log Mile Co. Route Log Mile

County HAMILTON

Structure Name (If Named) BELVOIR AVENUE

Year Constructed 1964 ACTUAL

Year Widened NA NA Year Rehabilitated NA NA

**GEOMETRIC FEATURES UNDER BRIDGE** (\*. \* ft. unless otherwise noted)

Divided Highway RIGHT ROADWAY Type of Wearing Surface ASPHALT

Width of Approach Traveled Roadway 36.0 ft. (Does Not Include Shoulders)

Width of Median if Divided Highway 16.0 ft.

Approach Shoulder Width 10.0 ft. Right NA ft. Left

\*Horizontal Clearance Under Bridge 52.9 ft.

\*Distance Between Pier Protection Guardrail and Substructure NA ft. Right NA ft. Left

\*Width of Sidewalk Under Bridge NA ft. Right NA ft. Left

\*Minimum Vertical Clearance: 16 ft. 4 in. (ft.-in.)

\*Show on Sketch

**TRAFFIC SAFETY FEATURES**

Pier Protection Railing or Parapet  
Approach Guardrail Terminals  
Approach Guardrail  
Approach Guardrail Terminal

Rating	Standard/ SubStandard Non Exist
GOOD	STANDARD
GOOD	STANDARD
GOOD	STANDARD
GOOD	STANDARD

**INSPECTORS**

1. ANDERSON
2. WATKINS
3. LLOYD
4.
5.
6.

**SIGNING**

	Yes/ No/ Needed
Paddleboards	NO
Vertical Clearance (<14'-6")	NO
Narrow Passage	NO
One Lane Passage	NO
Other Underpass Signs Needed	

Underpass Location No. 33 - I0024 - 12.59  
Co. Route Log Mile

Other Signs or Plaques:

Comments Regarding any  
Problems with Signing:

**BRIDGE FEATURES** (\*.\* ft.)

Bridge Skew 90 ° Number of Lanes/Tracks on Bridge 4  
Structure Type (Main Span) PCBB No. Main Spans 4  
Structure Type (Appr.Spans) NA No. Appr. Spans NA  
Maximum Span Length 55.2 (ft.) Total Length 190.5 (ft.)  
Width of Bridge Out-to-Out 79.5 (ft.) Right Angle to Centerline of Bridge)  
Width of Bridge Along Skew NA (ft.) (If Unable to Measure at Right  
Angle to Centerline of Bridge)

**BRIDGE CONDITION:** FAIR

Does Potential Exist for Elements from Bridge Falling on Roadway Beneath? NO  
Does Potential Exist Because of Deteriorated Condition or Failure of Major Members? NO

Comment on any Conditions of Bridge that would Effect Roadway Beneat

Note: If Underpass Route is Divided Highway, Use Two of These Forms, One for Each Roadway.

**MINIMUM PICTURES REQUIRED**

1. Elevation View of Bridge on Both Sides Showing Underpass
2. View Showing Both Approaches to Bridge
3. View Showing Safety Features
4. View Showing Any Problems

Inspection Team's Summary  
Bridge Location No. 33 - 03611 - 1.01  
Inspection Date 7/30/2002  
Bridge Rating FAIR

Page No. \_\_\_\_

TYPE SERVICE: BELVIOR AVE. (FAU 3611)  
OVER: I 24-12.59

On July 30, 2002, a Region Two Bridge Inspection Team inspected this structure and found it to be in generally FAIR condition.

The abutment breastwalls have several hairline to small vertical cracks and heavy dirt and water stains. The bent caps have delaminated areas, patches and heavy dirt and water stains. Columns have patches, area exposed rebar mat and delaminated areas. Some columns have been patched. All bent columns now have standard parapet and guardrail protection.

Beam "A", span number two and three, has a spall from collision damage. A few other beams have minor longitudinal cracks or popouts. All the beams have heavy dirt and water stains.

The asphalt wearing surface has longitudinal cracks between the beams. These cracks have been sealed. The asphalt over the joints is cracked, settled, humped, potholed and uneven. There are no approach guard rails. The bridge rail is substandard. The approach pavement is slightly uneven in areas. The 1.5 inch open paving joint down the center line of the bridge has been sealed.



Bridge No :  
Crossing: I24  
Federal No 33100240057

33 —03611 — 0101

Date:

June 20, 2000

PIC2



SIDE VIEW

PIC3

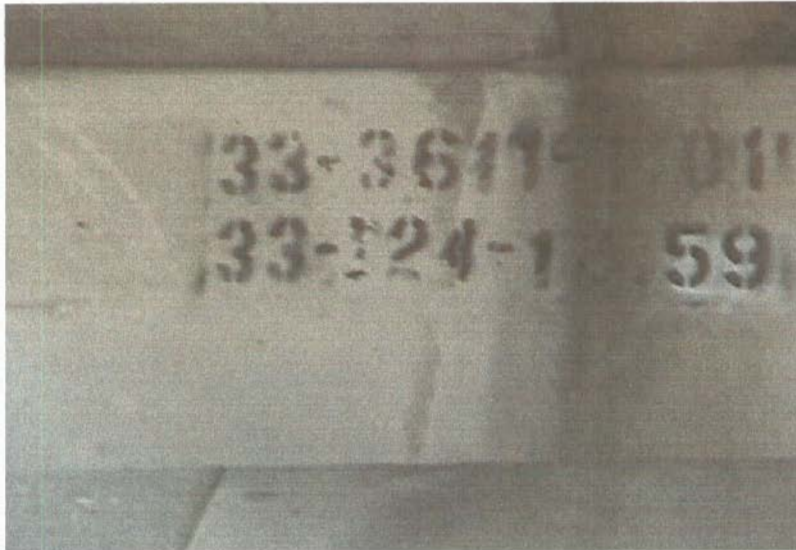


ACROSS TOP

Bridge No.: 33 — 03611 — 0101  
Crossing: I24  
Federal No.: 33I00240057

Date: June 20, 2000

PIC4



BRIDGE NUMBER

PIC5

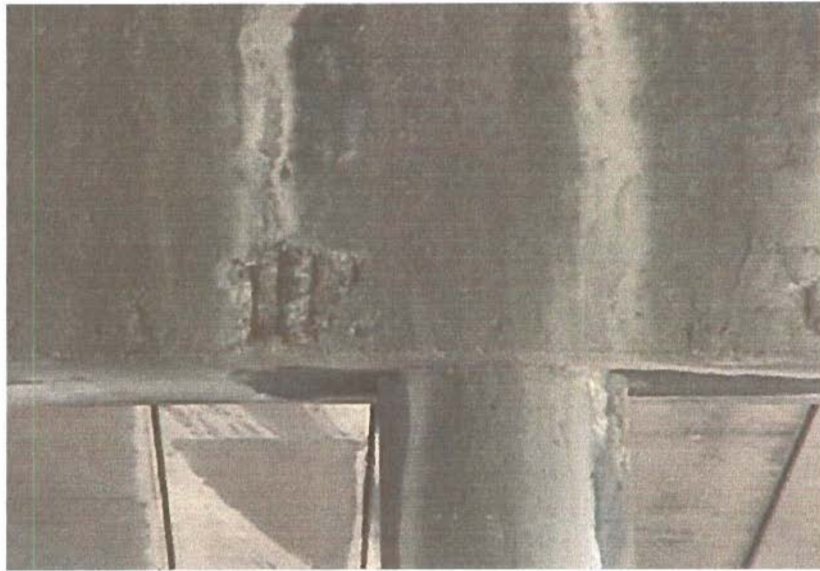


EXPANSION JOINT, TYPICAL

Bridge No.: 33 — 03611 — 0101  
Crossing: 124  
Federal No.: 33I00240057

Date: June 20, 2000

PIC6



BENT 2, CAP, REBAR SPALL

PIC7



SPAN 3, BEAM A, SPALL

Bridge No.: 33 —03611 — 0101  
Crossing:: I24  
Federal No.: 33I00240057

Date: June 20, 2000

PIC8



BENT 3, COLUMN A, REBAR SPALL, REINFORCING EXPOSED

PIC9



BENT 3, COLUMN A, REBAR SPALL, REINFORCING EXPOSED

Bridge No.: 33 — 03611 — 0101  
Crossing: 124  
Federal No.: 33100240057

Date: June 20, 2000

PIC10



BENT 1, LARGE SPALL WITH REBAR EXPOSED

PIC11



BENT 1, LARGE SPALL WITH HONEYCOMB AREAS

Bridge No.: 33 — 03611 — 0101  
Crossing:: I24  
Federal No.: 33100240057

Date: June 20, 2000

PIC12



BEAM A, SPAN 2, LARGE SPALL

PIC13

# ROUTINE BRIDGE INSPECTION REPORT

Page No. \_\_\_\_\_

Form BIR 3.0C  
(Rev. 9-22-98)  
DT-1537

Field Report No. 15 Date 09/18/2000  
Previous Report No. 14 Date 09/02/1998  
Plans: DESIGN

Bridge No. 33100240057  
Eleven Digit No.

Bridge Location No. 33 - 03611 - 1.01  
Co. Route Log Mile

BELVOIR AVENUE(3611-1.01) over 124  
Road Name Crossing

Indepth Insp. Req'd: NO  
(If yes itemize limits under comment)

Structure Type PCBB

FRACTURE CRITICAL: NO

**FEATURE CHANGES:**

Wearing Surface NO Type ASPHALT Depth 2.0 (in.)  
Bridge Rail NO Describe changes: NO GUARDRAIL  
Approach Rail NO

**CLEARANCE CHANGES:** NO (If yes make changes below)

Vertical Clearance over deck 99-99 (ft.-in.)  
Vertical Under Clearance 16'-04" (ft.-in.)  
Lateral Under Clearance 52.8 (\*. \* ft.)  
Deck Width Curb/Curb 68.0 (\*. \* ft.)  
Deck Width Rail/Rail 77.0 (\*. \* ft.)  
Sidewalk Width Rt. 4.5 Lt. 4.5

**INSPECTORS**

F.WATKINS  
W.LLOYD

Condition: FAIR (If change describe in comments)

**Comments**

Approaches	G-F	SLIGHTLY UNEVEN. DIP AT #1 END.
Deck Condition (Item 58)	7	
Superstructure (Item 59)	6	
a. Beams	G-F	FEW MINOR CRACKS AND SPALLS
b. Bearings	GOOD	
c. Diaphragms	NA	
Substructure (Item 60)	6	
a. Caps/Bridge Seats	FAIR	DELAMS, SPALLS, EXPOSED REBARS
b. Columns/Piles	G-F	SPALLS, CRACKS, REBAR POPOUTS, DELAMS
c. Footings	NV	
d. Wing W./Breast W.	GOOD	HR.LINE-SMALL VERTICAL CRACKS.
Scour/Erosion	GOOD	
Channel (Item 61)	N	

**UNDERWATER INSPECTION**

To Be Performed By: DOT FIELD TEAM

Weight Limit Posted NO

Date Underwater Insp. \_\_\_\_\_

Gross..... Tons

BRIDGE is: OPEN

2 Axle..... Tons

3 or more Axles.. Tons

**COMMENTS:**

COMMENTS: The bent caps and columns have numerous delams. & rebar spalls. Beams have few minor spalls and cracks. Bm. 'A' spalls are from collision damage. The longitudinal cracks in the asphalt wearing surface have been sealed. Asphalt over joints is cracked, settled, humped and uneven. Bridgerail is substandard.No approach rail.

Supervising Bridge Inspector: W.LLOYD

BRIDGE RATING: FAIR

Inspection Team's Summary  
Bridge Location No. 33 - 03611 - 1.01  
Inspection Date 09/18/2000  
Bridge Rating FAIR

Page No. \_\_\_\_

TYPE SERVICE: BELVIOR AVE. (FAU 3611)  
OVER: I 24-12.59

On September 18, 2000, a Region Two Bridge Inspection Team inspected this structure and found it to be in generally FAIR condition.

The abutment breastwalls have several hairline to small vertical cracks and heavy dirt and water stains. The bent caps have delaminated areas, rebar spalls, rebar popouts and heavy dirt and water stains. Columns "A", "E", and "F", bent number three have large spalls w/ exposed rebar mat and delaminated areas. All bent columns now have standard parapet and guardrail protection.

Beam "A", span number two and three, has a spall from collision damage. A few other beams have minor longitudinal cracks or popouts. All the beams have heavy dirt and water stains.

The asphalt wearing surface has longitudinal cracks between the beams. These cracks have been sealed. The asphalt over the joints is cracked, settled, humped and uneven. There are no approach guard rails. The bridge rail is substandard. The approach pavement is slightly uneven in areas. The 1.5 inch open paving joint down the center line of the bridge has been sealed.



# INSPECTION REPORT FOR UNDERPASS ROUTE

Form BIR 3.0A  
(Rev. 9-22-98)  
DT-1443

Field Report No. 15 Date 09/18/2000  
Previous Report No. 14 Date 09/02/1998

Bridge No. 33I00240057  
Eleven Digit No.

Underpass Location No. 33 - 03611 - 1.01  
Co. Route Log Mile

\_\_\_\_\_ or 33 - I0024 - 1259 over 33 - 03611 - 1.01  
Railroad/Walkway Co. Route Log Mile Co. Route Log Mile

County Hamilton

Structure Name (If Named) BELVOIR AVENUE

Year Constructed 1964 ACTUAL

Year Widened NA Year Rehabilitated NA

## GEOMETRIC FEATURES UNDER BRIDGE (\*. \* ft. unless otherwise noted)

Divided Highway LEFT ROADWAY Type of Wearing Surface ASPHALT

Width of Approach Traveled Roadway 35.9 ft. (Does Not Include Shoulders)

Width of Median if Divided Highway 16.0 ft.

Approach Shoulder Width NA ft. Right 10.0 ft. Left

\*Horizontal Clearance Under Bridge 52.6 ft.

\*Distance Between Pier Protection  
Guardrail and Substructure NA ft. Right NA ft. Left

\*Width of Sidewalk Under Bridge NA ft. Right NA ft. Left

\*Minimum Vertical Clearance: 19 ft. 06 in. (ft.-in.)

\*Show on Sketch

## TRAFFIC SAFETY FEATURES

Pier Protection Railing or Parapet  
Approach Guardrail Terminals  
Approach Guardrail  
Approach Guardrail Terminal

Rating	Standard/ SubStandard Non Exist
GOOD	STANDARD
GOOD	STANDARD
GOOD	STANDARD
GOOD	STANDARD

INSPECTORS

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_

## SIGNING

	Yes/ No/ Needed
Paddleboards	NO
Vertical Clearance (<14'-6")	NO
Narrow Passage	NO
One Lane Passage	NO
Other Underpass Signs Needed	

Form BIR 3.0A (Continued)  
(Rev. 9-22-98)  
DT-1443

Date 09/18/2000

Underpass Location No. 33 - 03611 - 1.01  
Co.            Route            Log Mile

Other Signs or Plaques:

Comments Regarding any  
Problems with Signing:

**BRIDGE FEATURES** (\*.\* ft.)

Bridge Skew	<u>90°</u>	Number of Lanes/Tracks on Bridge	<u>4</u>
Structure Type (Main Span)	<u>PCBB</u>	No. Main Spans	<u>4</u>
Structure Type (Appr.Spans)	<u>NA</u>	No. Appr. Spans	<u>NA</u>
Maximum Span Length	<u>55.2</u> (ft.)	Total Length	<u>190.5</u> (ft.)
Width of Bridge Out-to-Out	<u>79.5</u> (ft.)	Right Angle to Centerline of Bridge)	
Width of Bridge Along Skew	<u>NA</u> (ft.)	(If Unable to Measure at Right Angle to Centerline of Bridge)	

**BRIDGE CONDITION: FAIR**

Does Potential Exist for Elements from Bridge Falling on Roadway Beneath? NO

Does Potential Exist Because of Deteriorated Condition or Failure of Major Members? NO

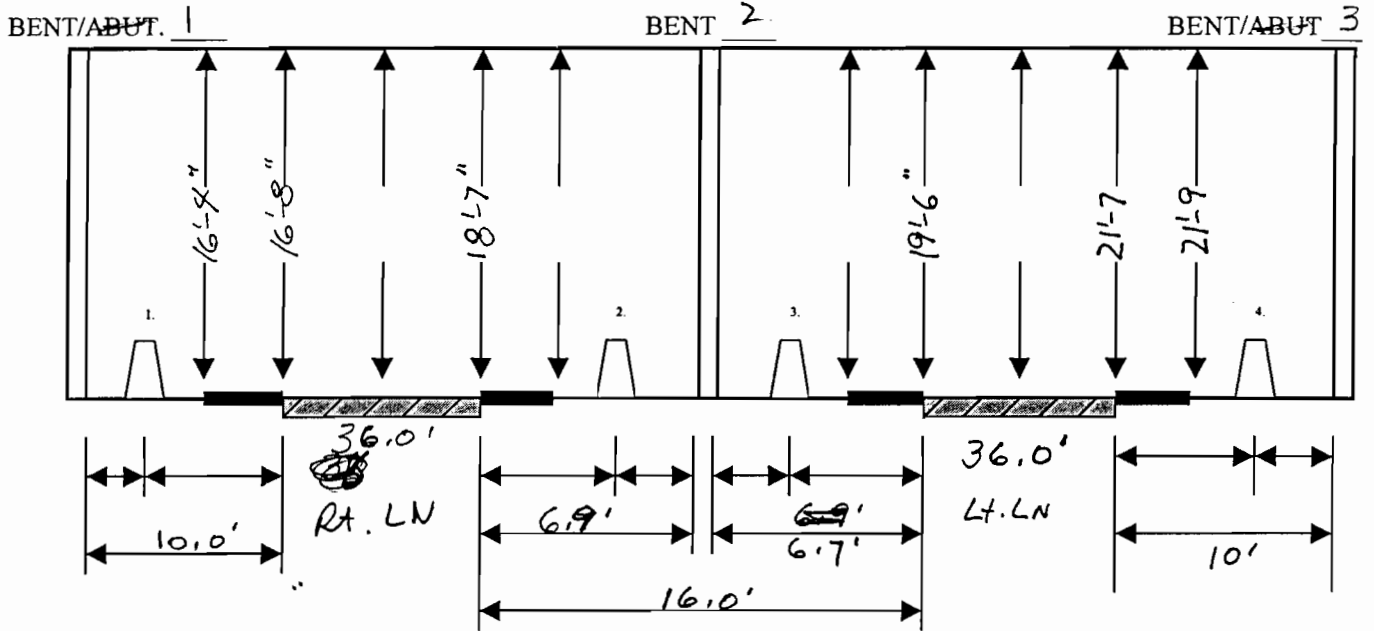
Comment on any Conditions of Bridge that would Effect Roadway Beneath

Note: If Underpass Route is Divided Highway, Use Two of These Forms, One for Each Roadway.

**MINIMUM PICTURES REQUIRED**

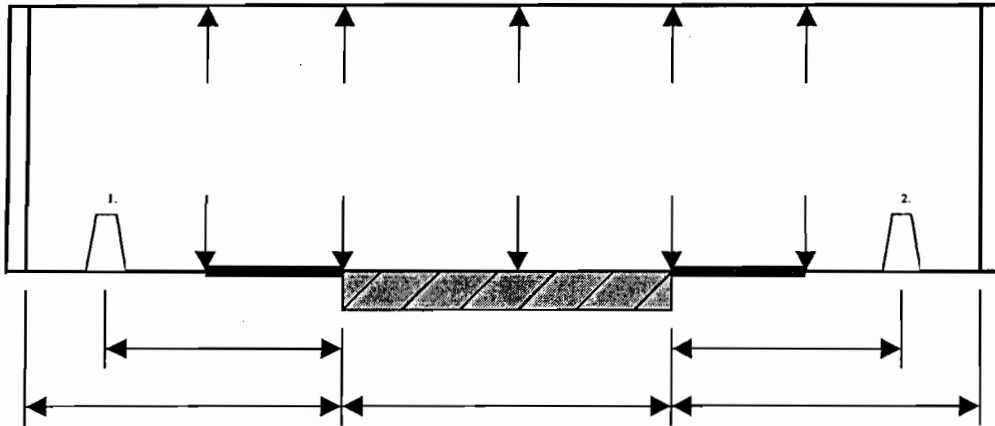
1. Elevation View of Bridge on Both Sides Showing Underpass
2. View Showing Both Approaches to Bridge
3. View Showing Safety Features
4. View Showing Any Problems

**LATERAL AND VERTICAL CLEARANCES**

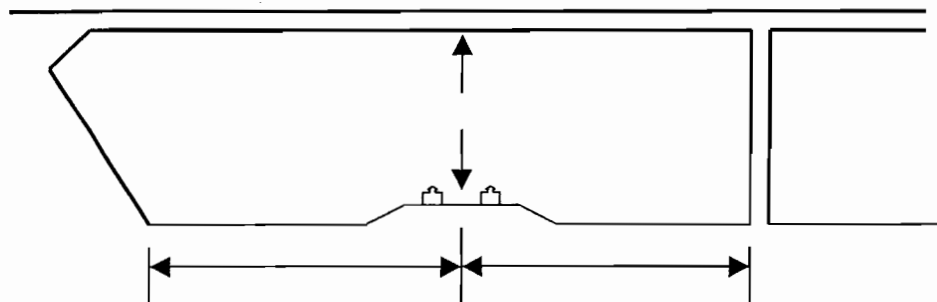


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3.	RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE <input checked="" type="checkbox"/>
4.	RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE <input checked="" type="checkbox"/>

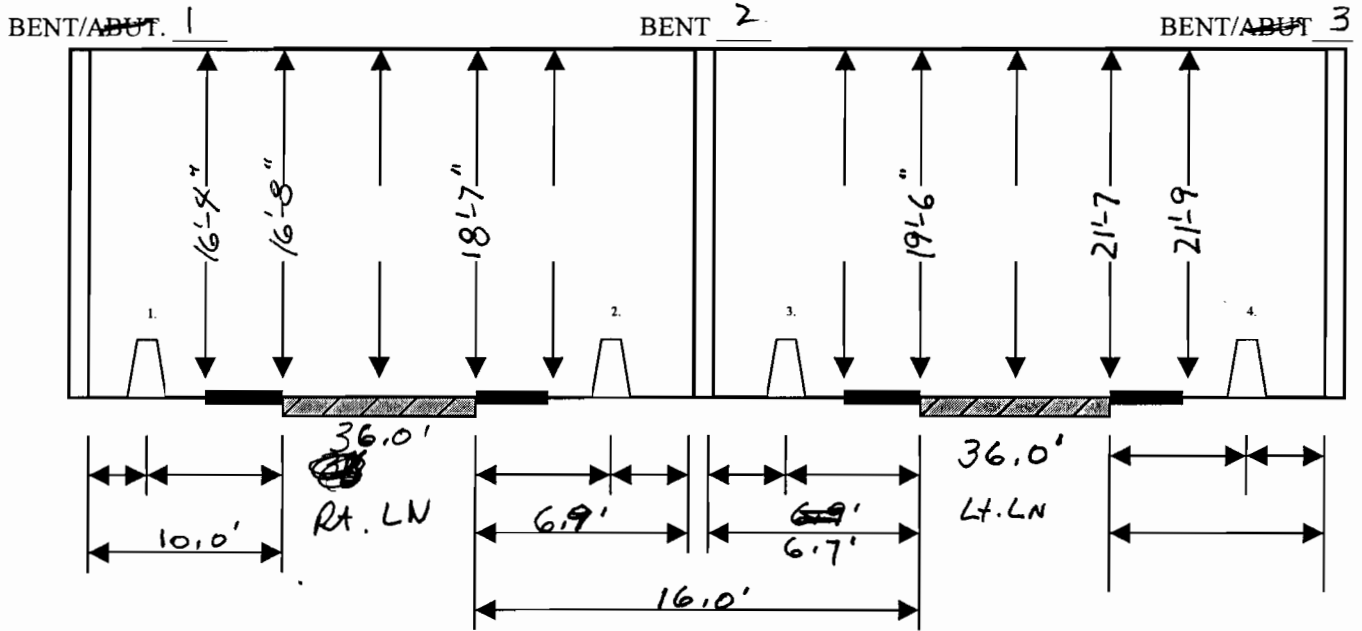
BENT/ABUT. \_\_\_\_\_ BENT/ABUT. \_\_\_\_\_



BENT/ABUT. \_\_\_\_\_



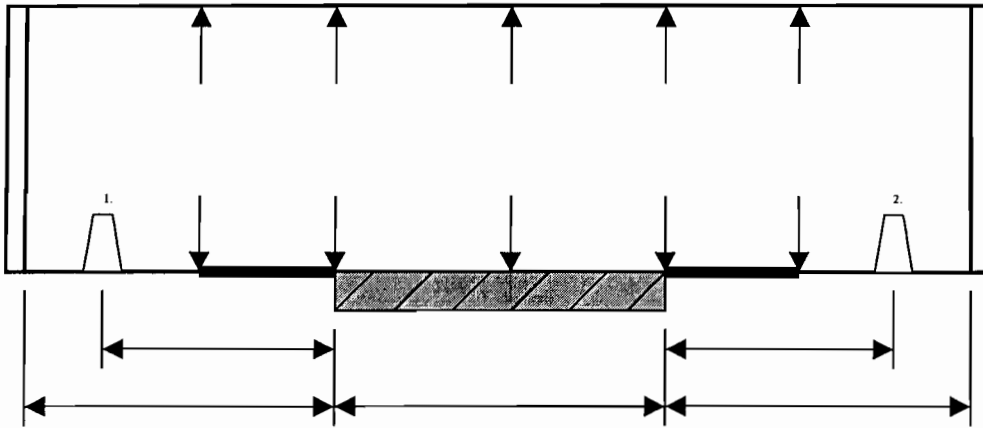
**LATERAL AND VERTICAL CLEARANCES**



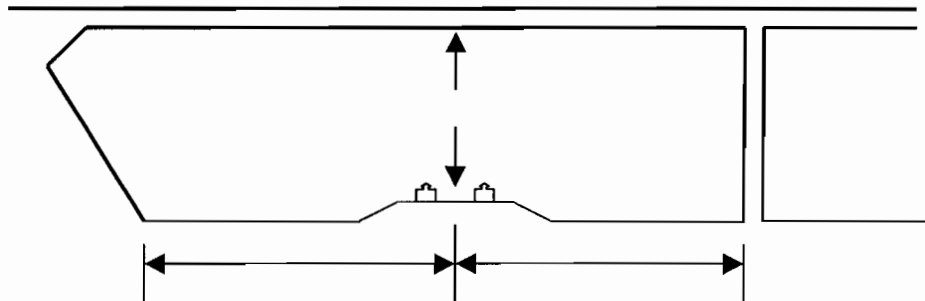
1.	RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE <input checked="" type="checkbox"/>
2.	RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE <input checked="" type="checkbox"/>
3.	RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE <input checked="" type="checkbox"/>
4.	RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE <input checked="" type="checkbox"/>

BENT/ABUT. \_\_\_\_\_

BENT/ABUT. \_\_\_\_\_



BENT/ABUT. \_\_\_\_\_



ELEVATIONS OF DECK

BRIDGE LOCATION NO. 33    3611    1.01    ( 1.62)  
 COUNTY    ROUTE    LOG MILE    (LOG km)    DATE: 09-02-98

STATION/ LOCATION	TOP OF LT. CURB/RAIL	GUTTER/ EDGE DECK	CENTERLINE	GUTTER/ EDGE DECK	TOP OF RT. CURB/RAIL
ABUT # 1	742.00	741.35	741.74	741.30	741.99
BENT # 1	744.35	743.55	744.07	743.61	744.36
BENT # 2	747.74	747.05	747.55	747.01	747.71
BENT # 3	750.38	749.67	750.16	749.66	750.36
ABUT # 2	751.97	751.29	751.71	751.25	752.03

BENCH MARK LOCATION    BRIDGE SEAT, ABUT. # 2, LT. SIDE.

---

BENCH MARK ELEVATION    748.59

NOTE: ELEVATIONS TAKEN FROM PREVIOUS REPORT DATED 10-15-96

BIR 3.10  
 Rev. 6-9-92  
 DT-1510

BRIDGE LOC. NO. 33 - 3611 - 1.01  
 CO. RTE. L.M.

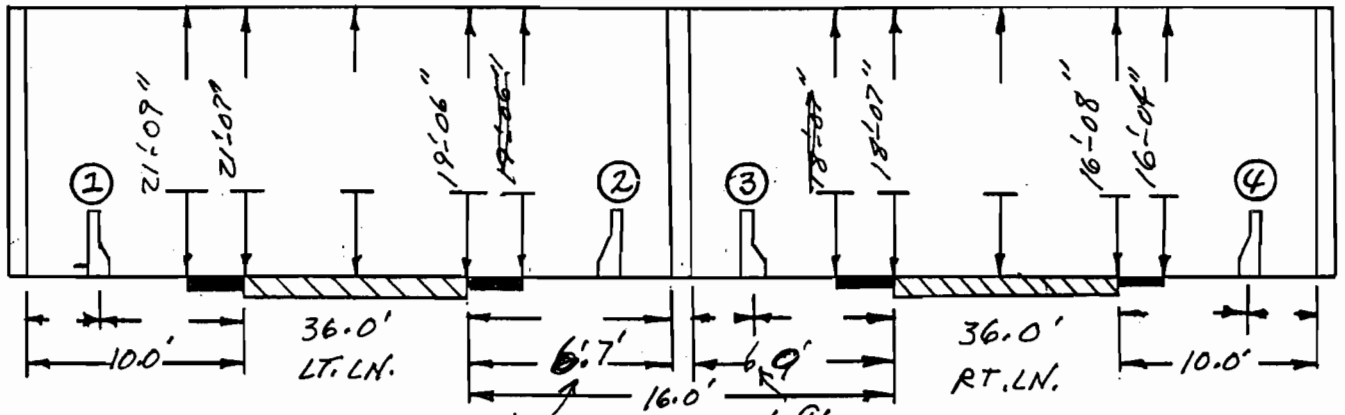
DATE 10-7-92

**LATERAL AND VERTICAL CLEARANCES**

BENT/ABUT. #3

BENT #2

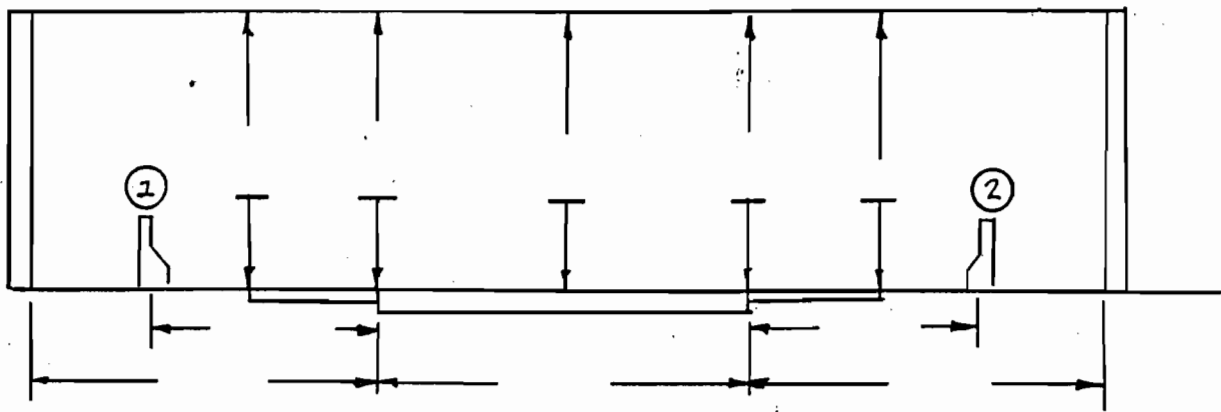
BENT/ABUT. #1



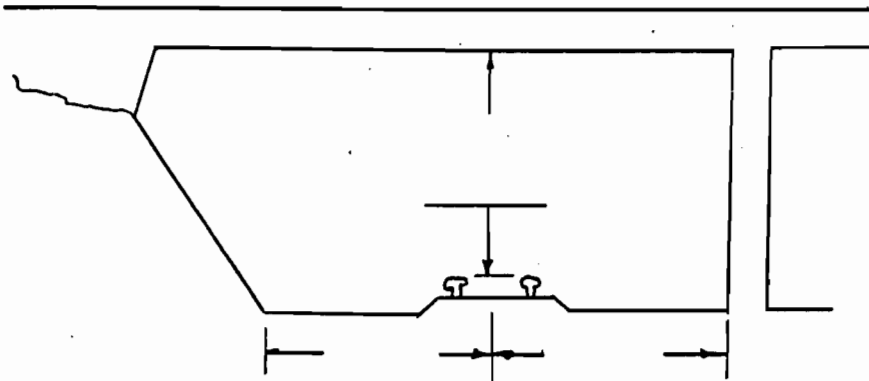
1. RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE [ ]
2. RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE [ ]
3. RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE [ ]
4. RAIL/BARRIER TYPE:	W-SHAPE [ ]	CONC. BARRIER [ ]	NONE [ ]

BENT/ABUT. \_\_\_\_\_

BENT/ABUT. \_\_\_\_\_



BENT/ABUT. \_\_\_\_\_



ELEVATIONS OF DECK

BRIDGE LOCATION NO. 33 3611 1.01  
COUNTY ROUTE LOG MILE

DATE 10-7-92

STATION/ LOCATION	TOP OF LT. CURB/RAIL	GUTTER/ EDGE DECK	CENTERLINE	GUTTER/ EDGE DECK	TOP OF RT. CURB/RAIL
ABUT.#1	742.00	741.35	741.74	741.30	741.99
BENT#1	744.35	743.55	744.07	743.61	744.36
BENT#2	747.74	747.05	747.55	747.01	747.71
BENT#3	750.38	749.67	750.16	749.66	750.36
ABUT.#2	751.97	751.29	751.71	751.25	752.03

BENCH MARK LOCATION Bridge Sect, Abut.#2, LT. side

BENCH MARK ELEVATION 748.59

NOTE: Elevations taken from previous report dated 11-15-90

BIR 3.10  
 Rev. 4/20/90  
 DT-1510

000012

BRIDGE NO. 33 - 3611 - 101

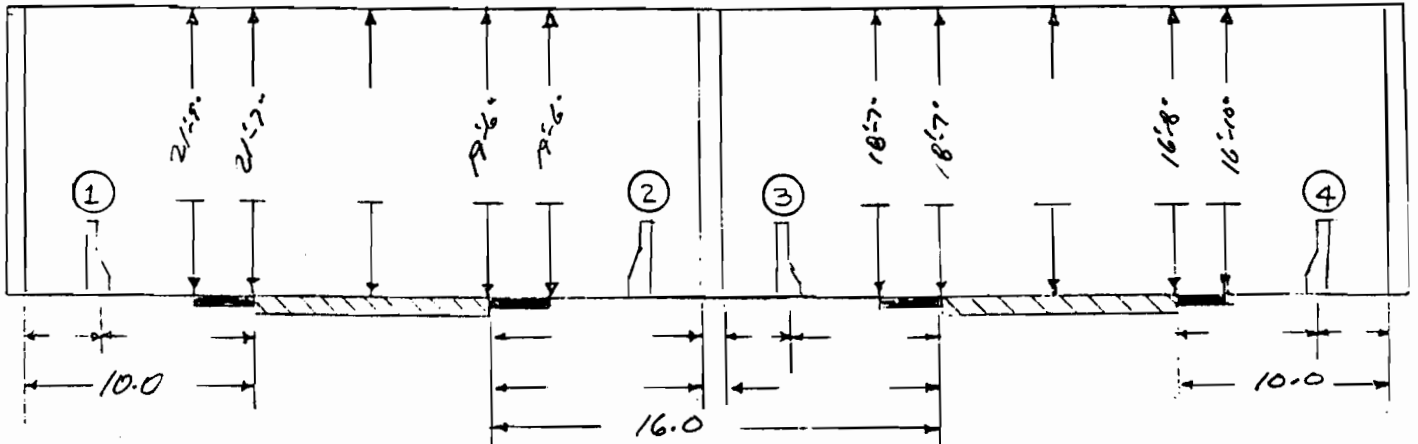
DATE: 11/15/90

LATERAL AND VERTICAL CLEARANCES

BENT/ABUT. 3

BENT 2

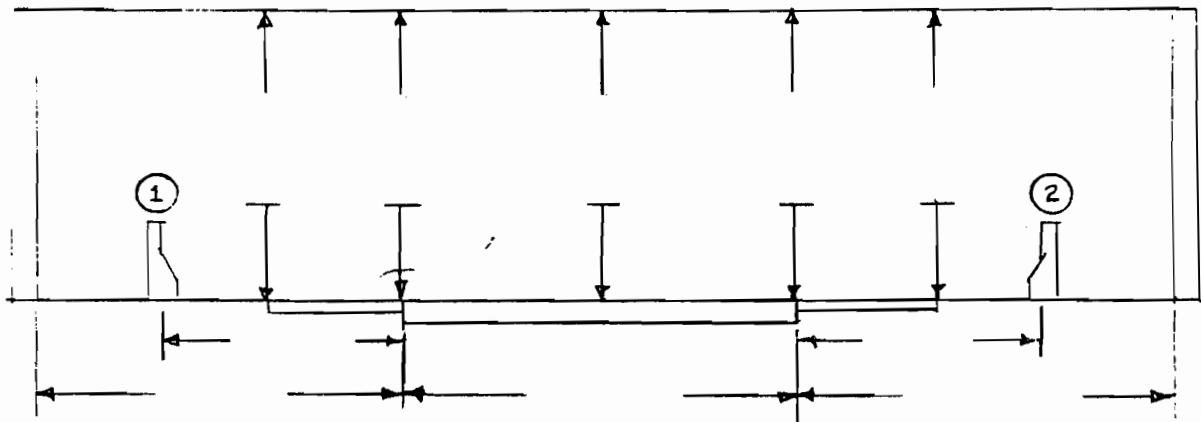
BENT/ABUT. 1



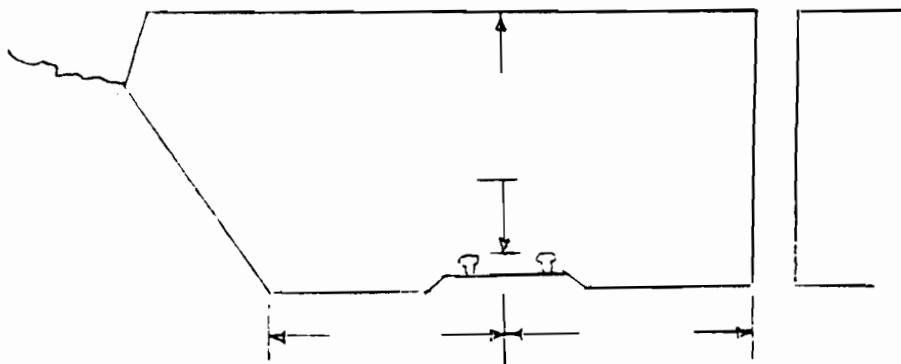
①	RAIL/BARRIER TYPE:	W-Shape	<input type="checkbox"/>	Conc. barrier	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>
②	RAIL/BARRIER TYPE:	W-Shape	<input type="checkbox"/>	Conc. barrier	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>
③	RAIL/BARRIER TYPE:	W-Shape	<input type="checkbox"/>	Conc. barrier	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>
④	RAIL/BARRIER TYPE:	W-Shape	<input type="checkbox"/>	Conc. barrier	<input type="checkbox"/>	None	<input checked="" type="checkbox"/>

BENT/ABUT. \_\_\_\_\_

BENT/ABUT. \_\_\_\_\_



BENT/ABUT. \_\_\_\_\_





ELEVATIONS OF DECK

PAGE NO 000014

DT0905

33  
COUNTY

3611  
ROUTE

1.01  
LOG MILE

11-15-90  
DATE

STATION	TOP OF CURB	GUTTER	CENTER LINE	GUTTER	TOP OF CURB
ABUT #1	742.00	741.35	741.74	741.30	741.99
BENT #1	744.35	743.55	744.07	743.61	744.36
BENT #2	747.74	747.05	747.55	747.01	747.71
BENT #3	750.38	749.67	750.16	749.66	750.36
ABUT #2	751.97	751.29	751.71	751.25	752.03

ELEVATIONS TAKEN FROM PREVIOUS REPORT

BENCH MARK BRIDGE SEAT, ABUT #2, LT. SIDE  
LOCATION

748.59

ELEVATIONS OF DECK

000014  
PAGE NO

DT0905

33  
COUNTY

FAU 3611  
ROUTE

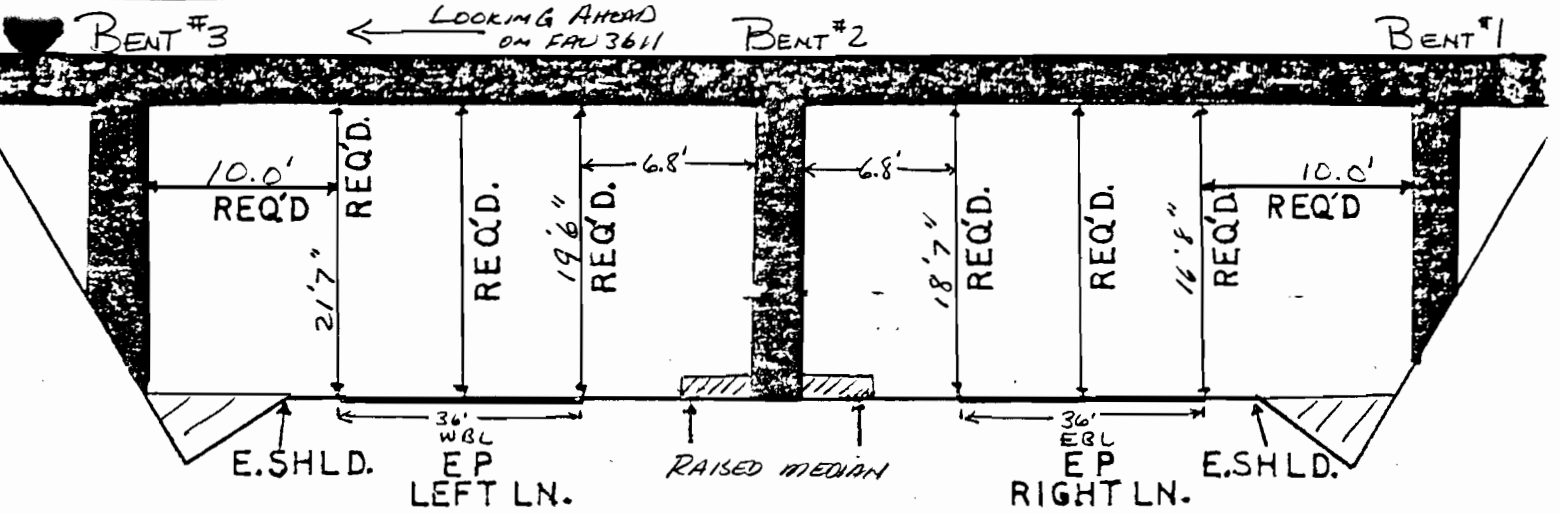
1.01  
LOG MILE

12-6-88  
DATE

STATION	TOP OF CURB	GUTTER	CENTER LINE	GUTTER	TOP OF CURB
ABUT. #1	742.00	741.35	741.74	741.30	741.99
BENT #1	744.35	743.55	744.07	743.61	744.36
BENT #2	747.74	747.05	747.55	747.01	747.71
BENT #3	750.38	749.67	750.16	749.66	750.36
ABUT. #2	751.97	751.29	751.71	751.25	752.03

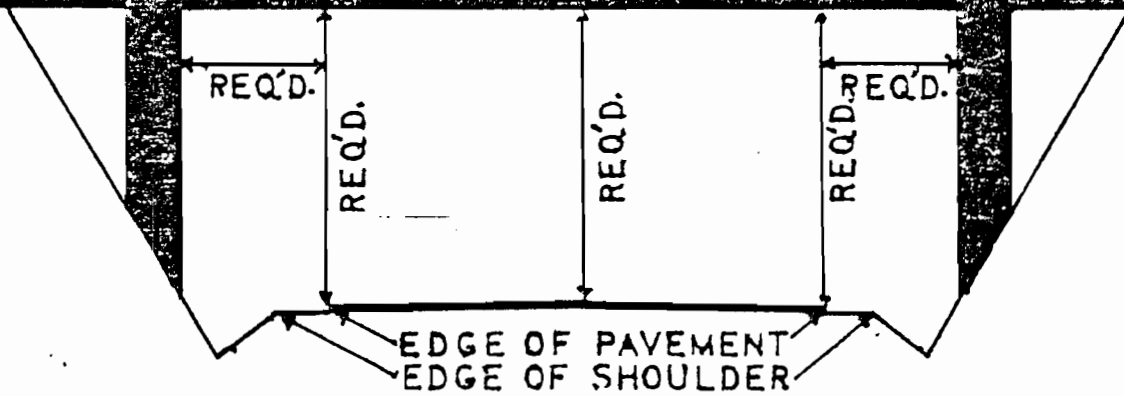
NOTE: ELEVATIONS TAKEN FROM PREVIOUS REPORT DATED 10-20-86.

BENCH MARK: TOP OF BRIDGE SEAT, ABUT. #2, LT. SIDE  
 LOCATION  
748.59  
 ELEVATION



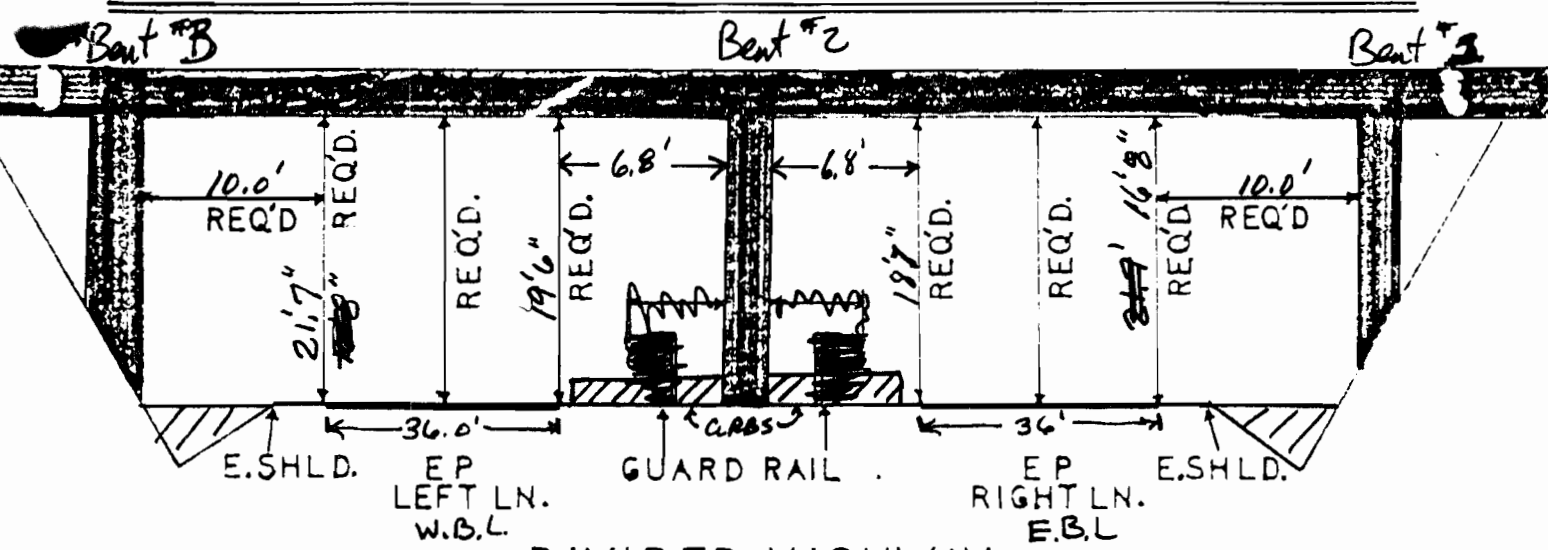
DIVIDED HIGHWAY

↑ LOOKING AHEAD ON I24



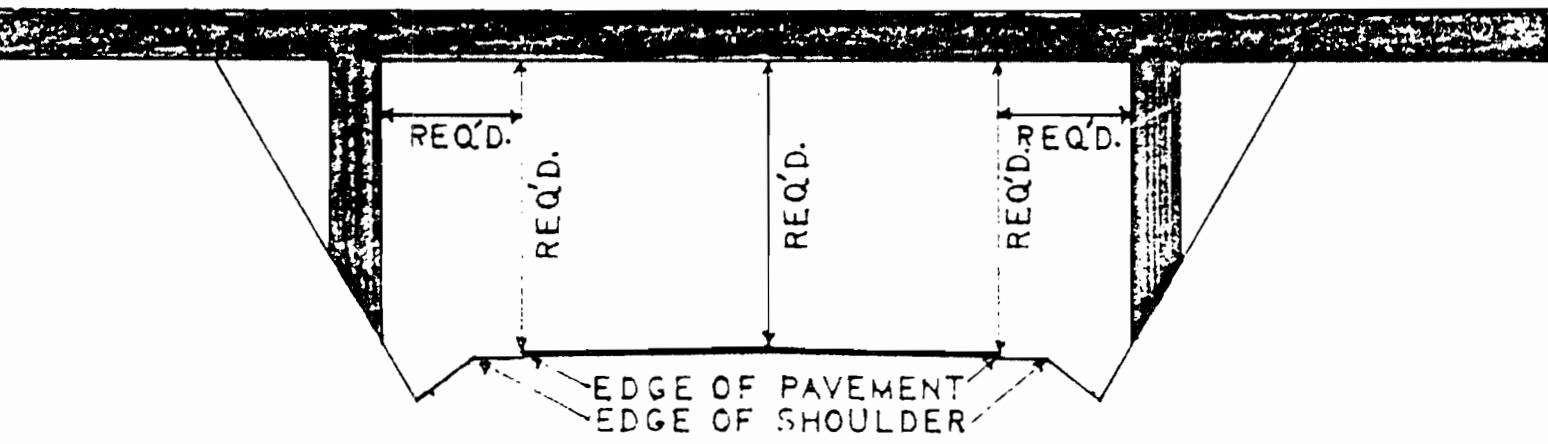
TWO LANE HIGHWAY

NOTE: ALL CLEARANCES ARE MINIMUM



DIVIDED HIGHWAY

Looking ~~WEST~~ I-24 EAST



TWO LANE HIGHWAY

NOTE: ALL CLEARANCES ARE MINIMUM

33 I 24 12.59 9/1/98 K051

COUNTY ROUTE LOG MILE DATE LOG #

ACROSS TOP



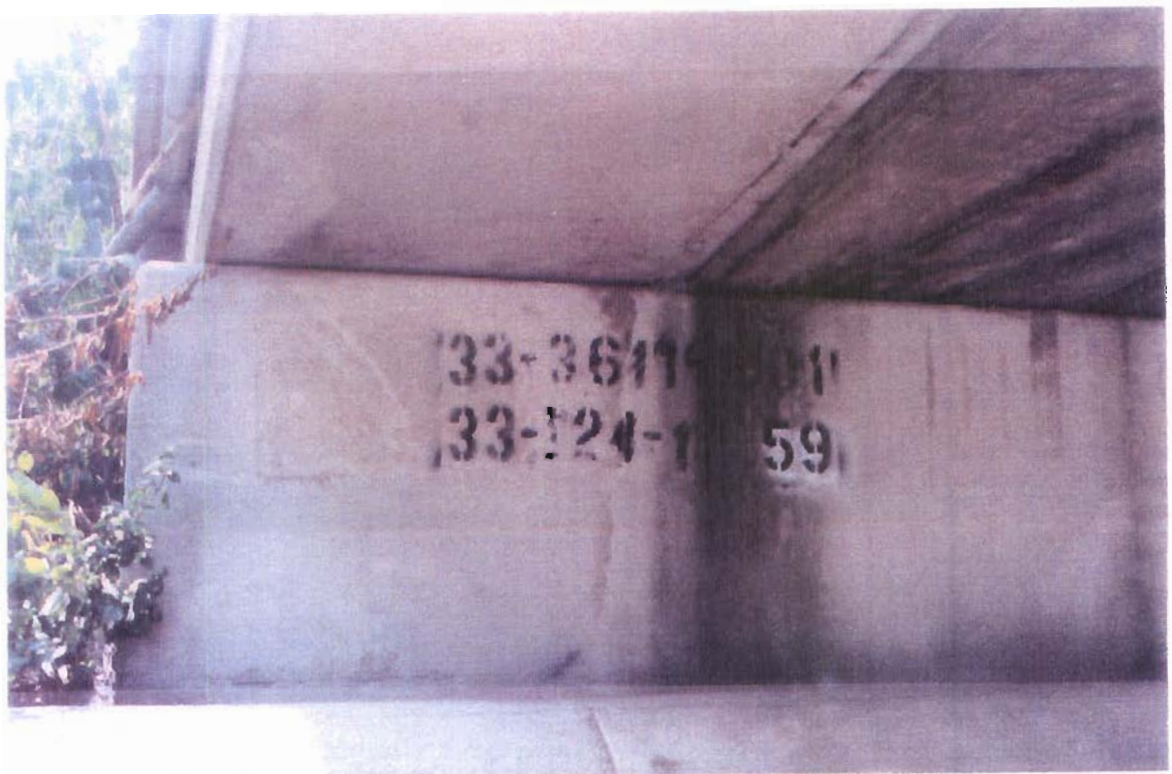
LARGE CRACK ALONG CENTER LINE



NAME ROUTE TIME M DATE LOG #  
SIDE VIEW



BRIDGE NUMBER



# BRIDGE INSPECTION REPORT

010004

FORM BIR 3.0  
Rev. 3-1-97  
BT-0069

FIELD REPORT NO. 14 DATE 09-02-98  
PREVIOUS REPORT NO. 13 DATE 10-15-96  
PLANS ---- YES  NO  DESIGN

BRIDGE NO. 33I00240057 BRIDGE LOC. NO. 33 - 3611- 1.01 (1.63)  
ELEVEN DIGIT NO. CO. ROUTE LOG MILE (LOG km)

33-3611- 1.01 (1.62) OVER 33- I24 -12.59 BELVOIR AVENUE  
ROAD NAME FEATURE INTERSECTED STRUCTURE NAME (IF NAMED)

YEAR CONSTRUCTED 1964 COUNTY HAMILTON MAINTENANCE DISTRICT NO. 21  
(ESTIMATED OR ACTUAL)  
 [ ]  [X]

YEAR WIDENED NA YEAR REHABILITATED NA  
ESTIMATED OR ACTUAL ESTIMATED OR ACTUAL  
 [ ]  [ ]  [ ]  [ ]

### FEATURES

WEARING SURFACE-- CONCRETE  TIMBER  ASPHALT  (DEPTH= 50.80mm)  
FLARED WIDTH ----- YES  NO   
NAVIGATIONAL CONTROL-- YES  NO   
MEDIAN WIDTH ----- OPEN  NONE  CLOSED

BRIDGE SKEW 90° LT  RT

STRUCTURE TYPE PCBB NO. SPANS 4  
Main Span Main Span

STRUCTURE TYPE N/A NO. SPANS N/A  
Approach Spans Approach Spans

MAXIMUM SPAN LENGTH 16.84 m TOTAL LENGTH 58.06 m

WIDTHS (*.**m)		CLEARANCES (*.**m)	
DECK OUT-TO-OUT	<u>22.59</u>	MIN. VERTICAL OVER DECK	<u>NA</u>
ROADWAY CURB/CURB	<u>20.73</u>	MIN. VERTICAL UNDER CL.	<u>4.98</u>
SIDEWALK	<u>1.37RT 1.37LT</u>	MIN. LATERAL UNDER CLEARANCE:	
*APPROACH ROADWAY	<u>20.73</u>		<u>3.05 RT</u>
APPROACH SHLD.	<u>NA m RT</u>		<u>0.00 LT</u>
	<u>NA m LT</u>		

INSPECTORS	
1.	<u>B.DERAMUS</u>
2.	<u>F.WATKINS</u>
3.	<u>G.SWAFFORD</u>
4.	<u>G.SELCER</u>
5.	_____
6.	_____
7.	_____
8.	_____
9.	_____

\*DOES NOT INCLUDE SHOULDER

### UNDERWATER INSPECTION

INSPECTION PERFORMED BY:  
DOT FIELD TEAM  DATE \_\_\_\_\_  
CONTRACT DIVERS  DATE \_\_\_\_\_  
NONE REQUIRED

(< 7.62 m)  
NBIS BRIDGE  
LENGTH \_\_\_\_\_  
(\*.\*\*m)

CHANGE IN STRUCTURAL CONDITION YES  NO   
MAJOR REPAIRS MADE YES  NO

FRACTURE CRITICAL  
DETAILS: YES  NO   
IF YES, INCLUDE BIR 3.9

COMMENTS: The bent caps and columns have numerous Delams. and spalls. Beam "A" span #2nad #3 has a spall from collision damage. A few other beams have minor longitudinal cracks or popouts. The asphalt overlay has longitudinal cracks between the beam joints (1-1/2" wide along center line). Joints have been repaired and are good. Brdgrail substandard. App.rail non-exist. Underpass (I-24) has been upgraded with parapets.

GARY SELCER

BRIDGE RATING  [ ]  [XX]  [ ]  [ ]

SUPERVISING BRIDGE INSPECTOR

GOOD FAIR POOR CRITICAL

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2) DECIMAL PLACES IN METERS.

FORM BIR 3.1

Rev. 3-1-97 BRIDGE LOC. NO. 33 - 3611- 1.01 ( 1.62 ) DATE: 09-02-98  
DT-0080 CO. ROUTE L.M. (LOG km)

PERFORMANCE EVALUATION

Time of day inspected P.M. Weather conditions SUNNY - HOT  
Vehicles observed ALL TYPES

<u>LIVE LOAD BEHAVIOR</u>	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
Substructure			
Horiz. & Vert. Defl. - -	[ ]	[X]	
Vibration - - - - -	[ ]	[X]	
Superstructure			
Horiz. & Vert. Defl. - -	[ ]	[X]	
Vibration - - - - -	[ ]	[X]	

APPROACH

Alignment	(G) F P C
Slab	G F P C NA
Joints	(G) F P C NA
Pavement	(G) (F) P C SLIGHT UNEVEN
Embankment	(G) F P C
Drains	(G) F P C

TRAFFIC SAFETY FEATURES

				STANDARD	SUB-STANDARD	
Bridgerailing	G	F	P	C	[ ]	[X] DWG. # H-5-110
Transitions	G	F	P	C	[ ]	[ ] NONE
Guardrail	G	P	C	C	[ ]	[ ] NONE
Guardrail Terminal	G	F	P	C	[ ]	[ ] NONE

SIGNING

	YES	NO	NEEDED	
Paddleboard - - - - -	[ ]	[X]	[ ]	WEIGHT LIMIT POSTED YES [ ] NO [X]
Vertical Clearance (< 4.4 m) - - -	[ ]	[X]	[ ]	
Narrow [ ] One Lane Bridge [ ] - [ ]	[ ]	[X]	[ ]	GROSS-- _____ TONS 2 AXLE - _____ TONS 3 OR MORE AXLES--- _____ TONS

Other Signs or Plaques \_\_\_\_\_  
Comments Regarding Any Problems With Signing \_\_\_\_\_

RECOMMENDATIONS

Bridgerail Is Substandard [ ]	Install Post Load Limit Signs [ ]
Approach Rail Is Substandard [ ]	Level Approach [ ]
Install Paddleboard Signs [ ]	
Other Recommendations _____	

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2) DECIMAL PLACES IN METERS.



000006

DECK

COMMENTS

WEARING SURFACE	G (F)	P	C	CRACKS ALONG BEAM JOINTS AND CENTERLINE
DECK - STRUCTURAL CONDITION	G	F	P	NA (PCBB'S)
CURBS	(G)	F	P	C
MEDIAN	(G)	F	P	C
SIDEWALKS	(G)	F	P	C
PARAPET	G	F	P	C NA
RAILING	(G)	F	P	C
PAINT	G	F	P	C NA
DRAINS	G	F	P	C NA
LIGHTING STD'S	(G)	F	P	C
UTILITIES	G	F	P	C NA
JOINT LEAKAGE	(G)	F	P	C
EXPANSION JOINTS	(G)	F	P	C

SUPERSTRUCTURE

COMMENTS

BEARING DEVICES	(G)	F	P	C
GIRDERS OR BEAMS	(G) (F)	P	C	SEVERAL ARE CRACKED. TWO SPALLED.
FLOOR BEAMS	G	F	P	C NA
STRINGERS	G	F	P	C NA
DIAPHRAGMS	G	F	P	C NA
BRACING	G	F	P	C NA
TRUSSES - GENERAL	F	P	C	NA
- PORTALS	G	F	P	C NA
- BRACING	G	F	P	C NA
PAINT	G	F	P	C NA
ALIGNMENT OF MEMBERS	(G)	F	P	C

TEXTURE COAT

CONDITION RATING	G	F	P	C	FADING	G	F	P	C
OVERALL APPEARANCE	G	F	P	C	NEEDS SPOT PAINTING?	YES	[ ]	NO	[ ]
STAINING	G	F	P	C	NEEDS REPAINTING?	YES	[ ]	NO	[ ]

COMMENTS: SLIGHT SCALE ALONG CRACKS IN PARAPETS. SCALING G F P C

RECOMMENDATIONS \_\_\_\_\_ CLEAN & SEAL JOINTS [ ]

\_\_\_\_\_ CLEAN DRAINS [ ]

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2) DECIMAL PLACES IN METERS.

SUBSTRUCTURE

ABUTMENTS

COMMENTS

CAPS	(G)	(F)	P	C	HL-SMALL VERTICAL CRACKS.
BREASTWALL	G	F	P	C	NA
WINGS	(G)	F	P	C	
BACKWALL	G	F	P	C	NA
PLUMB	(G)	F	P	C	
FOOTING	G	F	P	C	NONE
PILES	G	F	P	C	NOT VISIBLE
EMBANKMENT	(G)	F	P	C	
BEARING SURFACE	(G)	F	P	C	
SLOPE PAVING	(G)	F	P	C	
RIP RAP	G	F	P	C	NA

PIERS

CAPS	G	F	P	C	
COLUMNS	G	F	P	C	
PLUMB	G	F	P	C	N/A
FOOTINGS	G	F	P	C	
PILES	G	F	P	C	
BEARING SURFACE	G	F	P	C	

BENTS

CAPS	G	(F)	P	C	DELAMS, SPALLS, EXPOSED REBARS.
COLUMNS	(G)	(F)	P	C	SPALLS, CRACKS, REBAR POPOUTS, DELAMS.
PLUMB	(G)	F	P	C	
FOOTINGS	G	F	P	C	NOT VISIBLE
PILES	G	F	P	C	NOT VISIBLE
BEARING SURFACE	(G)	F	P	C	

PILES NEED REPLACEMENT	NO	[X]	YES	[ ]	<u>PILES TO BE REPLACED</u>			
					PILE(S)	BENT	PILE(S)	BENT
CUT VEGETATION	NO	[X]	YES	[ ]				
CLEAR DRIFT	NO	[X]	YES	[ ]				

RECOMMENDATIONS: \_\_\_\_\_  
 \_\_\_\_\_

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2) DECIMAL PLACES IN METERS.

FRACTURE CRITICAL MEMBERS AND DETAILS

NOTE: Questions I and II both must be answered.

- I. Is this a non-redundant bridge? YES [ ] NO [X]  
(If YES then answer question III)
- II. Does it have Fracture Critical Details? YES [ ] NO [ ]  
(If YES then answer question IV)

NOTE: Only check items that apply for questions III and IV.

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>III. Type of non-redundant bridge:</li> <li>1. Simply supported two girder system . . . . . [ ]</li> <li>2. Continuous two girder system . . . . . [ ]</li> <li>3. Simply supported truss. . . . . [ ]</li> <li>4. Continuous truss. . . . . [ ]</li> <li>5. Simply supported longitudinal box beam . . . . . [ ]</li> <li>6. Continuous longitudinal box beam. . . . . [ ]</li> <li>7. Suspension bridge . . . . . [ ]</li> <li>8. Tied arch bridge. . . . . [ ]</li> <li>9. Steel pier/bent cap . . . . . [ ]</li> <li>10. Single bearing devices. . . . . [ ]</li> </ul> | <ul style="list-style-type: none"> <li>IV. Fracture critical details:</li> <li>1. Changes in cross section at: <ul style="list-style-type: none"> <li>A. Cover plates . . . . . [ ]</li> <li>B. Insert plates. . . . . [ ]</li> <li>C. Coped sections . . . . . [ ]</li> </ul> </li> <li>2. Framing system member connected at tension areas of: <ul style="list-style-type: none"> <li>A. Floor beams. . . . . [ ]</li> <li>B. Bracing members. . . . . [ ]</li> <li>C. Diaphragms or cross frames . . . . . [ ]</li> </ul> </li> <li>3. Web stiffeners . . . . . [ ]</li> <li>4. Eyebars. . . . . [ ]</li> <li>5. Pin and hanger connections. . . . . [ ]</li> <li>6. Single bearing devices. . . . . [ ]</li> </ul> |
|--|--|

V. Structural condition of FC members and details: (note location)

- A. 1. Cracking of FC members? YES [ ] NO [ ]
- 2. Cracking of FC details? YES [ ] NO [ ]
- B. 1. Corrosion of FC members? G F P C
- 2. Corrosion of FC details? G F P C

VI. Comments:

\_\_\_\_\_

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2) DECIMAL PLACES IN METERS.

INSPECTION REPORT FOR UNDERPASS ROUTE

BRIDGE NO. 33I00240057 UNDERPASS LOC. NO. 33 I24 12.59L ( 20.26 )  
ELEVEN DIGIT NO. - CO. ROUTE L.M. (LOG km)  
33- 3611- 1.01 ( 1.62 ) OVER 33- I24 12.59L( 20.26 ) BELVOIR AVENUE  
CO. RTE. L.M. (LOG km) CO. RTE. L.M. (LOG km) STRUCTURE NAME  
COUNTY HAMILTON  
YEAR CONSTRUCTED 1964 YEAR WIDENED NA YEAR REHABILITATED NA  
ESTIMATED [ ] ACTUAL [X]

GEOMETRIC FEATURES UNDER BRIDGE

DIVIDED HIGHWAY - - - LEFT RDWY [X] RIGHT RDWY [ ] N.A. [ ]  
TYPE OF WEARING SURFACE - - - CONCRETE [ ] ASPHALT [X] GRAVEL [ ]  
WIDTH OF APPROACH TRAVELED ROADWAY 10.97 m (DOES NOT INCLUDE SHOULDERS)  
WIDTH OF MEDIAN IF DIVIDED HIGHWAY 4.88 m  
APPROACH SHOULDER WIDTH NA m (RT.) 3.05m (LT.)  
\*HORIZONTAL CLEARANCE UNDER BRIDGE 16.05 m  
\*DISTANCE BETWEEN PIER PROTECTION GUARDRAIL AND  
SUBSTRUCTURE NA m (RT.) NA m (LT.)  
\*WIDTH OF SIDEWALK UNDER BRIDGE NA m (RT.) NA m (LT.)  
\*MINIMUM VERTICAL CLEARANCE 5.94 m (\*\*m)  
\*SHOW ON SKETCH

TRAFFIC SAFETY FEATURES FOR UNDERPASS ROUTE STANDARD SUB-STANDARD

PIER PROTECTION RAILING  
OR PARAPET (G) F P C [X] [ ] NON EXIST [ ]  
APPROACH GUARDRAIL  
TRANSITIONS (G) F P C [X] [ ] NON EXIST [ ]  
APPROACH GUARDRAIL (G) F P C [X] [ ] NON EXIST [ ]  
APPROACH GUARDRAIL  
TERMINAL (G) F P C [X] [ ] NON EXIST [ ]

SIGNING FOR UNDERPASS ROUTE

PADDLEBOARD YES [ ] NO [X] NEEDED [ ]  
VERTICAL CLEARANCE YES [ ] NO [X] NEEDED [ ]  
( < 4.4 m )  
NARROW PASSAGE YES [ ] NO [X] NEEDED [ ]  
ONE LANE PASSAGE YES [ ] NO [X] NEEDED [ ]  
INSPECTORS  
1. B.DERAMUS  
2. F.WATKINS  
3. G.SWAFFORD  
4. G.SELCER  
5. \_\_\_\_\_  
6. \_\_\_\_\_

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2) DECIMAL PLACES IN METERS.

FORM BIR 3.0A (CONTINUED)  
Rev. 3-1-97  
T-1443

UNDERPASS LOC. NO. 33 - I24 - 12.59L ( 20.26 )  
CO. ROUTE L.M. (LOG km)

OTHER SIGNS OR PLAQUES \_\_\_\_\_

COMMENTS REGARDING ANY PROBLEM WITH SIGNING \_\_\_\_\_

BRIDGE FEATURES

BRIDGE SKEW 90°  
STRUCTURE TYPE PCBB NO. SPANS 4  
MAIN SPAN MAIN TYPE  
STRUCTURE TYPE NA NO. SPANS NA  
APPROACH SPAN APPROACH TYPE  
MAXIMUM SPAN LENGTH 16.84 m TOTAL LENGTH 58.06 m  
WIDTH OF BRIDGE OUT-TO-OUT 24.23 m (RIGHT ANGLE TO CENTERLINE OF BRIDGE)  
WIDTH OF BRIDGE ALONG SKEW NA m (IF UNABLE TO MEASURE AT RIGHT ANGLE  
TO CENTERLINE OF BRIDGE)  
NUMBER OF LANES/TRACKS ON BRIDGE 2

BRIDGE CONDITION G (F) P C

DOES POTENTIAL EXIST FOR ELEMENTS FROM BRIDGE FALLING ON ROADWAY  
BENEATH? YES [ ] NO [X]  
DOES POTENTIAL EXIST BECAUSE OF DETERIORATED CONDITION OR FAILURE  
OF MAJOR MEMBERS? YES [ ] NO [X]

COMMENT ON ANY CONDITIONS OF BRIDGE THAT WOULD EFFECT ROADWAY BENEATH \_\_\_\_\_

NOTE: IF UNDERPASS ROUTE IS DIVIDED HIGHWAY, USE TWO (2) OF  
THESE FORMS, ONE FOR EACH ROADWAY.

MINIMUM PICTURES REQUIRED

- 1. ELEVATION VIEW OF BRIDGE ON BOTH SIDES SHOWING UNDERPASS
- 2. VIEW SHOWING BOTH APPROACHES TO BRIDGE
- 3. VIEW SHOWING SAFETY FEATURES
- 4. VIEW SHOWING ANY PROBLEMS

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2)  
DECIMAL PLACES IN METERS.

INSPECTION REPORT FOR UNDERPASS ROUTE

BRIDGE NO. 33I00240057 UNDERPASS LOC. NO. 33 I24 12.59R ( 20.26 )  
ELEVEN DIGIT NO. - CO. ROUTE L.M. (LOG km)  
33- 3611- 1.01 ( 1.62 ) OVER 33- I24-12.59R ( 20.26 ) BELVOIR AVENUE  
CO. RTE. L.M. (LOG km) CO. RTE. L.M. (LOG km) STRUCTURE NAME  
COUNTY HAMILTON  
YEAR CONSTRUCTED 1964 YEAR WIDENED NA YEAR REHABILITATED NA  
ESTIMATED [ ] ACTUAL [X]

GEOMETRIC FEATURES UNDER BRIDGE

DIVIDED HIGHWAY - - - - LEFT RDWY [ ] RIGHT RDWY [X] N.A. [ ]  
TYPE OF WEARING SURFACE - - - - CONCRETE [ ] ASPHALT [X] GRAVEL [ ]  
WIDTH OF APPROACH TRAVELED ROADWAY 10.97 m (DOES NOT INCLUDE SHOULDERS)  
WIDTH OF MEDIAN IF DIVIDED HIGHWAY 4.88 m  
APPROACH SHOULDER WIDTH 3.05m (RT.) NA m (LT.)  
\*HORIZONTAL CLEARANCE UNDER BRIDGE 16.10 m  
\*DISTANCE BETWEEN PIER PROTECTION GUARDRAIL AND  
SUBSTRUCTURE NA m (RT.) NA m (LT.)  
\*WIDTH OF SIDEWALK UNDER BRIDGE NA m (RT.) NA m (LT.)  
\*MINIMUM VERTICAL CLEARANCE 4.98 m (\*.\*\*m)  
\*SHOW ON SKETCH

TRAFFIC SAFETY FEATURES FOR UNDERPASS ROUTE STANDARD SUB-STANDARD

PIER PROTECTION RAILING  
OR PARAPET (G) F P C [X] [ ] NON EXIST [ ]  
APPROACH GUARDRAIL  
TRANSITIONS (G) F P C [X] [ ] NON EXIST [ ]  
APPROACH GUARDRAIL (G) F P C [X] [ ] NON EXIST [ ]  
APPROACH GUARDRAIL  
TERMINAL (G) F P C [X] [ ] NON EXIST [ ]

SIGNING FOR UNDERPASS ROUTE

PADDLEBOARD YES [ ] NO [X] NEEDED [ ]  
VERTICAL CLEARANCE  
( < 4.4 m ) YES [ ] NO [X] NEEDED [ ]  
NARROW PASSAGE YES [ ] NO [X] NEEDED [ ]  
ONE LANE PASSAGE YES [ ] NO [X] NEEDED [ ]

INSPECTORS  
1. B.DERAMUS  
2. F.WATKINS  
3. G.SWAFFORD  
4. G.SELCER  
5. \_\_\_\_\_  
6. \_\_\_\_\_

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2) DECIMAL PLACES IN METERS.

FORM BIR 3.0A (CONTINUED)

Rev. 3-1-97

T-1443

UNDERPASS LOC. NO. 33 - I24 -12.59R ( 20.26 )  
CO. ROUTE L.M. (LOG km)

OTHER SIGNS OR PLAQUES \_\_\_\_\_

COMMENTS REGARDING ANY PROBLEM WITH SIGNING \_\_\_\_\_

**BRIDGE FEATURES**

BRIDGE SKEW 90°

STRUCTURE TYPE PCBB

NO. SPANS 4

MAIN SPAN

MAIN TYPE

STRUCTURE TYPE NA

NO. SPANS NA

APPROACH SPAN

APPROACH TYPE

MAXIMUM SPAN LENGTH 16.84 m TOTAL LENGTH 58.06 m

WIDTH OF BRIDGE OUT-TO-OUT 24.23 m (RIGHT ANGLE TO CENTERLINE OF BRIDGE)

WIDTH OF BRIDGE ALONG SKEW NA m (IF UNABLE TO MEASURE AT RIGHT ANGLE TO CENTERLINE OF BRIDGE)

NUMBER OF LANES/TRACKS ON BRIDGE 2

**BRIDGE CONDITION**

G (F) P C

DOES POTENTIAL EXIST FOR ELEMENTS FROM BRIDGE FALLING ON ROADWAY BENEATH? YES [ ] NO [X]

DOES POTENTIAL EXIST BECAUSE OF DETERIORATED CONDITION OR FAILURE OF MAJOR MEMBERS? YES [ ] NO [X]

COMMENT ON ANY CONDITIONS OF BRIDGE THAT WOULD EFFECT ROADWAY BENEATH \_\_\_\_\_

NOTE: IF UNDERPASS ROUTE IS DIVIDED HIGHWAY, USE TWO (2) OF THESE FORMS, ONE FOR EACH ROADWAY.

**MINIMUM PICTURES REQUIRED**

1. ELEVATION VIEW OF BRIDGE ON BOTH SIDES SHOWING UNDERPASS
2. VIEW SHOWING BOTH APPROACHES TO BRIDGE
3. VIEW SHOWING SAFETY FEATURES
4. VIEW SHOWING ANY PROBLEMS

NOTE: UNLESS OTHERWISE NOTED, MEASUREMENTS ARE TO BE TAKEN TO TWO (2) DECIMAL PLACES IN METERS.

BRIDGE INSPECTION SUMMARY

BRIDGE NO. 33 3611 1.01 ( 1.62 ) 09/02/98  
COUNTY ROUTE LOG MILE ( LOG km ) DATE

TYPE SERVICE: BELVIOR AVE. (FAU 3611)  
OVER: I 24-12.59

On September 2, 1998, A Region Two Bridge Inspection Team inspected this structure and found it to be in generally FAIR condition.

The substructure is good to fair. The abutment breastwalls have several hairline to small vertical cracks with heavy dirt and water stains. The bent caps have delaminated areas, spalls, rebar popouts, and heavy dirt and water stains. Columns "A", "E", and "F", bent number three have large spalls and delaminated areas. All bent columns now have standard parapet and guardrail protection.

The beams are good to fair. Beam "A" span number two and three has a spall from collision damage. A few other beams have minor longitudinal cracks or popouts. All the beams have heavy dirt and water stains.

The asphalt overlay has longitudinal cracks between the beams. All the joints have been resealed and are rated good. There are no approach guard rails and the bridge rail is substandard. The approach pavement is good. There is a 1.5 inch open paving joint down the center line of the bridge.



Top Span No. 1

PAGE 5 2-14-95

BRIDGE No. 33  
COUNTY

FAU3611/124  
ROUTE

1.01/12.59  
LOG MILE

10-7-92  
DATE 10/15/96

ELEMENT	RATING	COMMENTS	9/2/98
RAILS	G	SUB-STANDARD	
CURB	G		
SIDEWALK	G		
DRAINS	N/A		
APPROACH PAVEMENT	G	HEAVILY WORN & UNEVEN	
JOINT	G	REPAIRED	
WEARING SURFACE	F	SEVERAL LG. CRACKS 1 1/2" OPENING IN CENTER HEAVILY WORN & UNEVEN	

Top Span NO. #1

Page No. 000016

33  
COUNTY

FAU 3611 / I-24  
ROUTE

1.01 / 12.59  
LOG MILE

2-14-75  
10-7-92 10/15/96

DATE  
9/2/98

JOINT REPAIRED (G)

RAILS

(G)

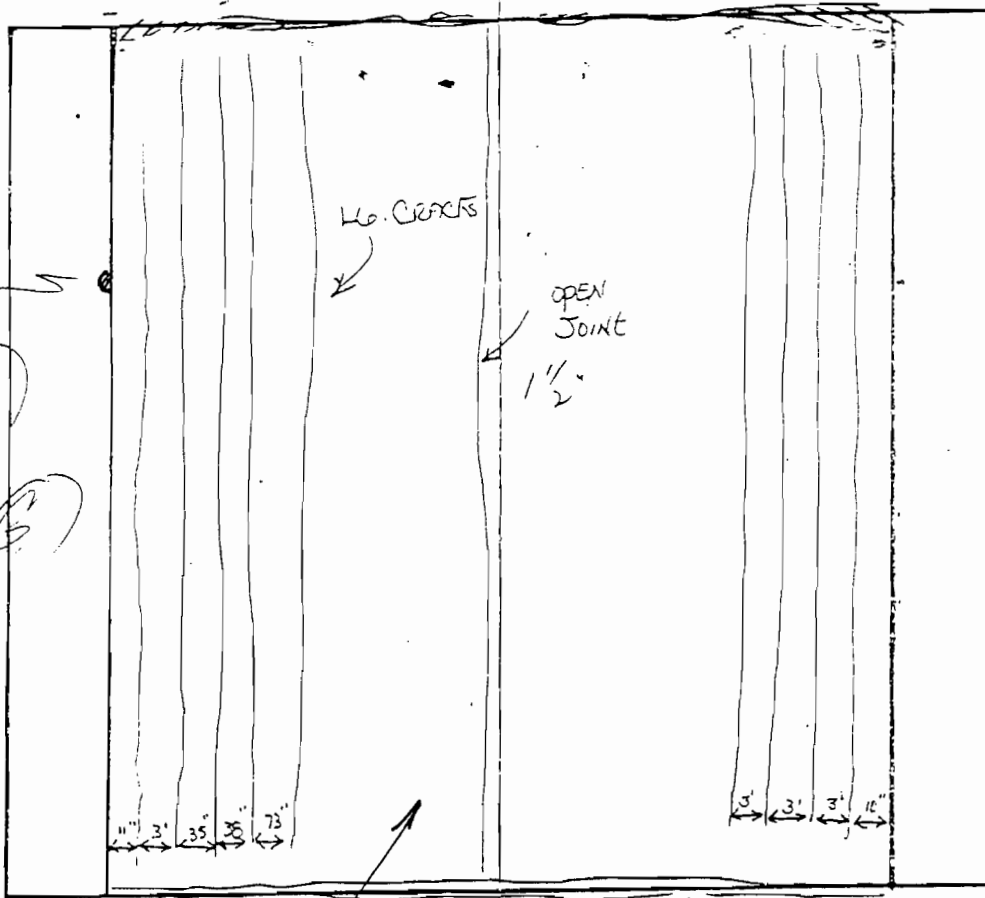
SMALL SPALL  
IN RAIL

(G)

(G)

WEARING  
SURFACE

(F)



SMALL CRACKS

JOINT REPAIRED

(G)

(G)

HEAVILY WORN & UNEVEN



33

FAU361/E24

1.01/12.59

2/14/95<sup>U-0528</sup>  
10-7-92 9/2/98

COUNTY

ROUTE

LOG MILE

DATE 10/15/96

A.
B.
C.
D.
E.
F.
G.
H.
I.
J.
K.
L.
M.
N.
O.
P.
Q.
R.
S.
T.
U.
V.
W.
X.
Y.
Z.

~~HAZARD LEAKAGE - STAIN~~

Beams (D)  
H.L. Wood on 'Z'  
see detail drawings

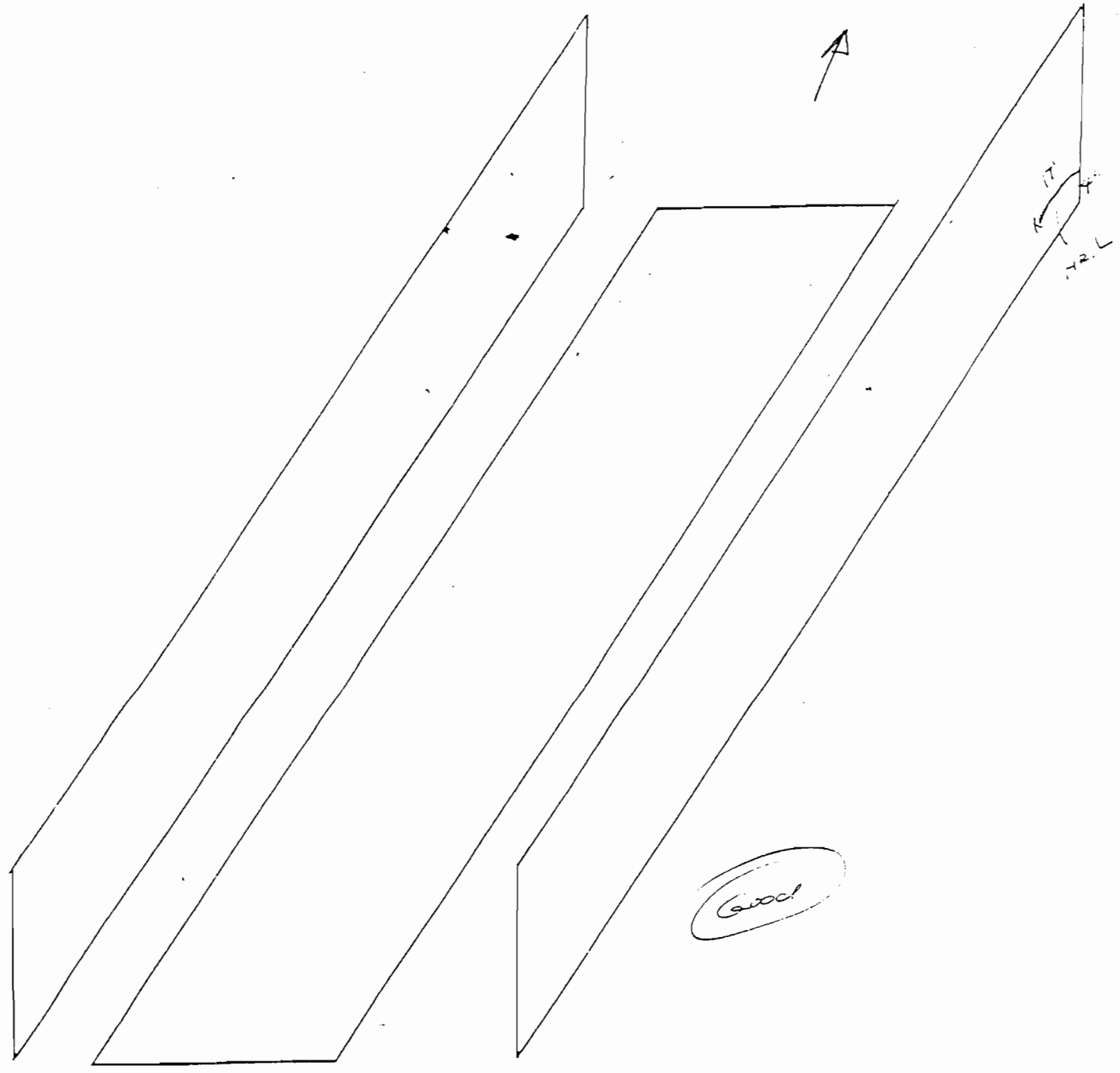
Moderate dirt and  
water stains.

33  
COUNTY

3611 / I24  
ROUTE

1.01 / 12.59 10-7-92 10/14/95 9/2/98  
LOG MILE - DATE 10/15/96

7m Z' SPAN 21



Good

I. BOTTOM

RT. RT.



Top Span NO. # 2

PAGE NO.

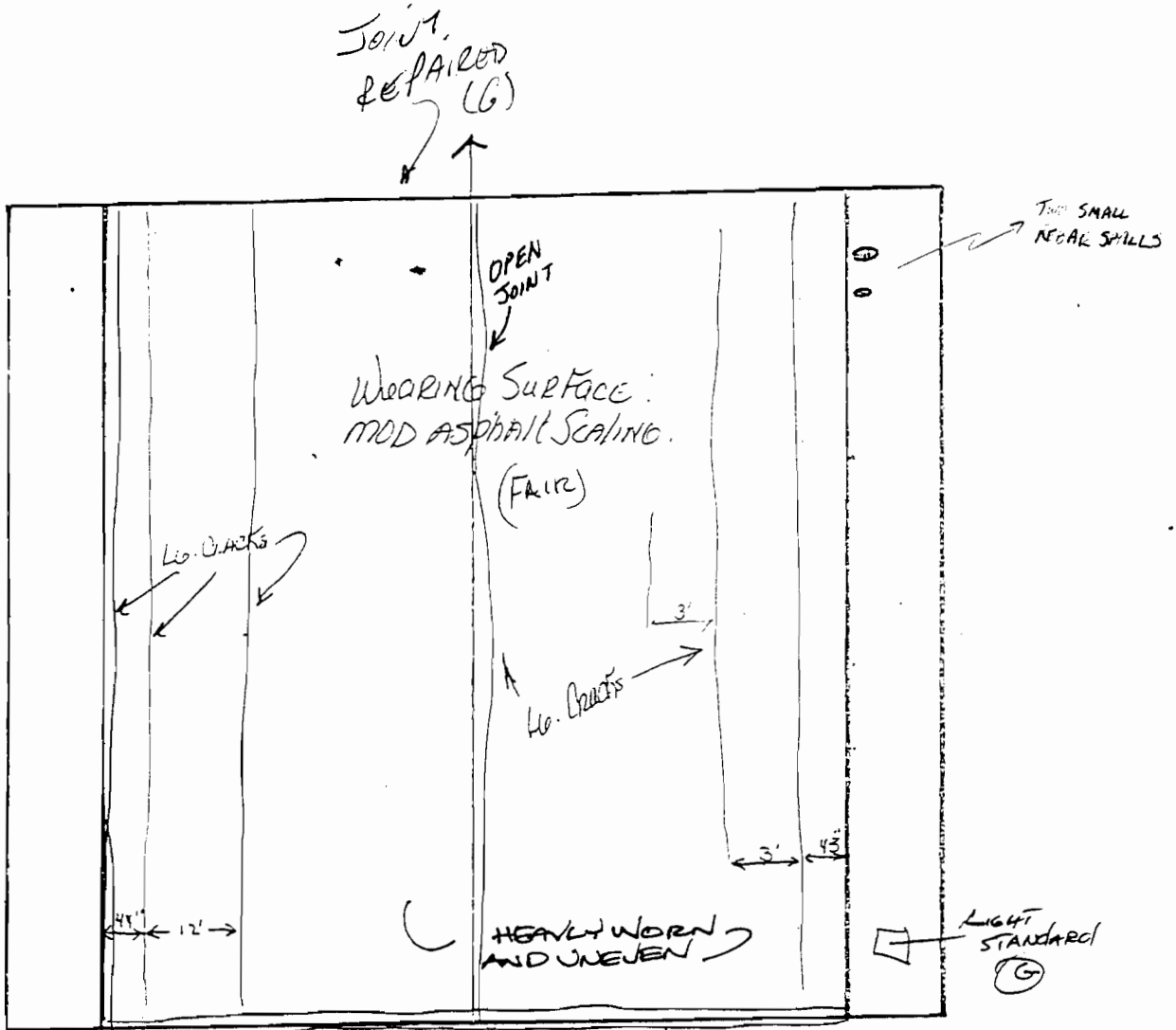
33  
COUNTY

FAU 3611 / E-24  
ROUTE

1.01 / 12.59  
LOG MILE

2-14-95  
10-7-92 10/15/96  
DATE  
9/2/98

RAILS  
(6)



Bottom Span No. 2

PAGE       

BRIDGE No. 33

FA03611/I-24

1.01 / 12.59

2/26/95  
9/8/92 9/2/98

COUNTY

ROUTE

LOG MILE

DATE 10/15/96

ELEMENT	RATING	COMMENTS
Beams	Good	Bm. 'A' has a spall area due to collision damage. Also a small spall @ lower left corner. Bm '2' has some agg. popouts & eff. stain. Also a hairline Horiz. crack
Overhang	Good	Hor. line to small cracks @ juncture of beam & overhang. Some eff.



Ham Span No. 2

20000 Page No.

33

FAU361/1-24

1.01/12.59

2/26/95 16/15/96  
9/8/97, 9/12/98

COUNTY

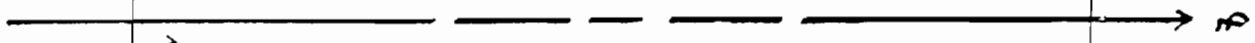
ROUTE

LOG MILE

DATE

A.
B.
C.
D.
E.
F.
G.
H.
I.
J.
K.
L.
M.
N.
O.
P.
Q.
R.
S.
T.
U.
V.
W.
X.
Y.
Z.

PCBMS  
(Good)



BEAM A SPAN NO. 2

PAGE NO.

33

FAU 3011 / I 24

1.01 / 2.59

10/15/96  
2/26/95 > 9/2/98

COUNTY

ROUTE

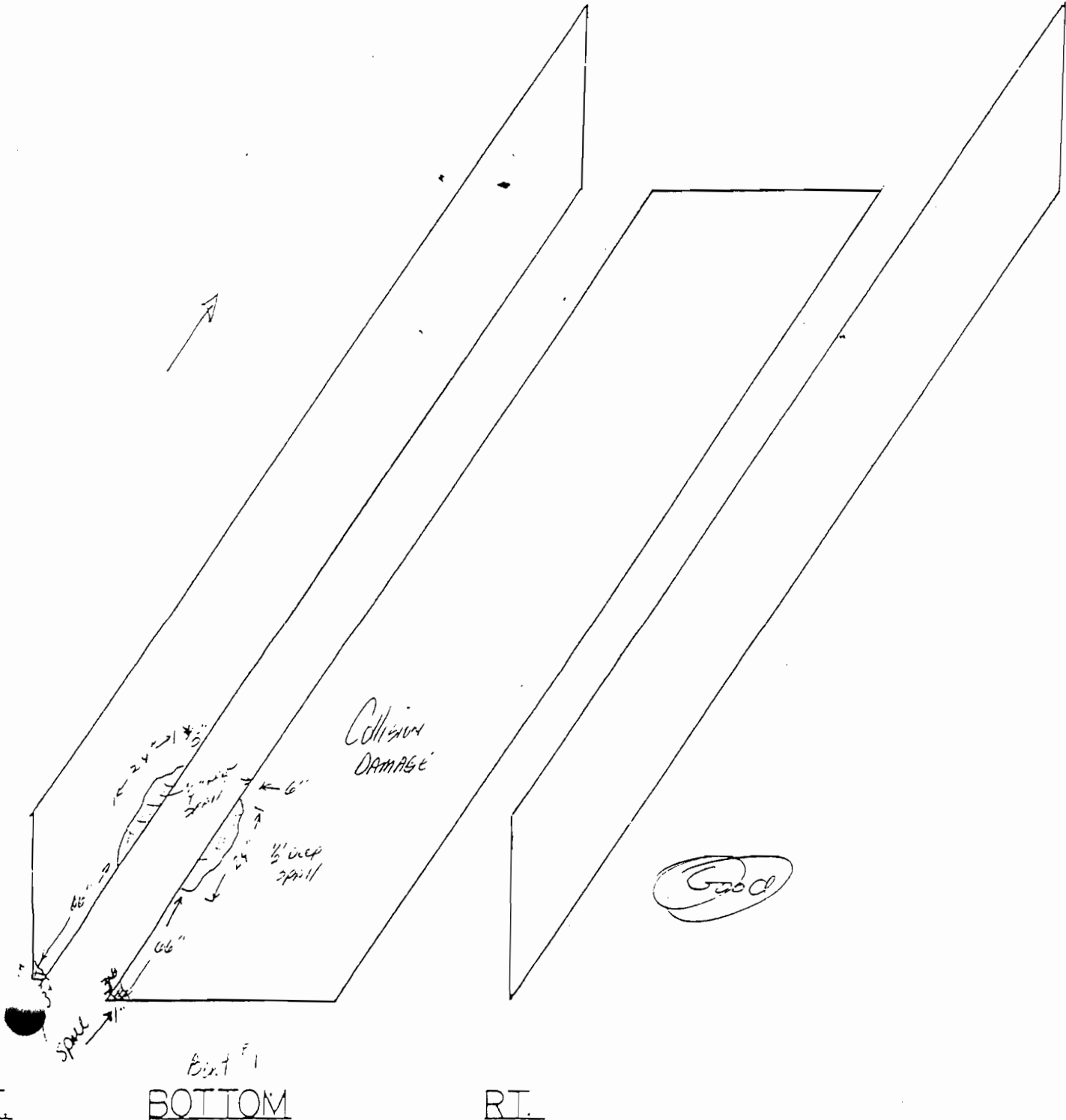
LOG MILE

DATE

Area A

Span #2

Blut<sup>52</sup>



BEAM 2 SPANNING

10/15/96

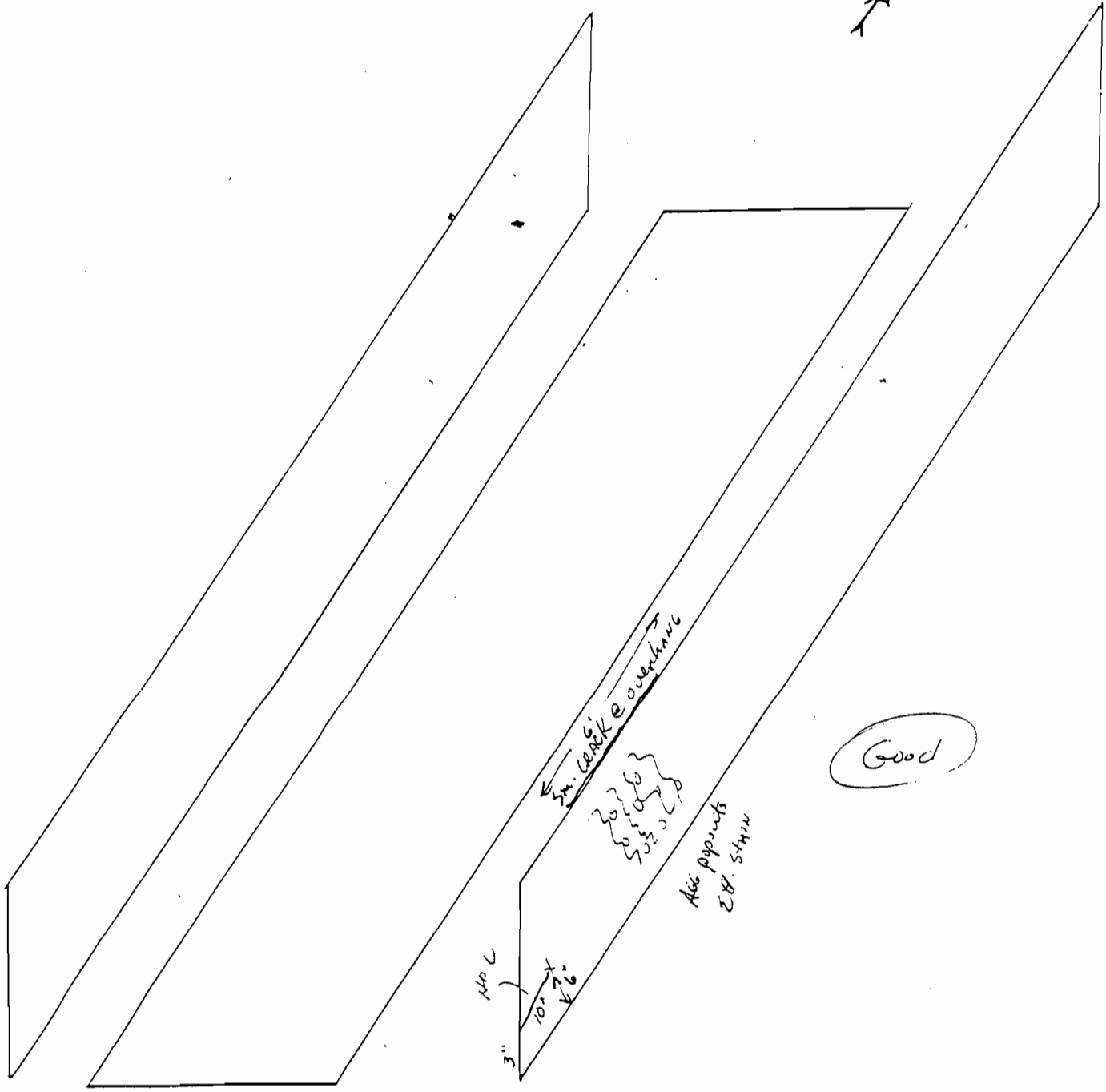
33  
COUNTY

3611/I24  
ROUTE

1.01/12.59  
LOG MILE

2/26/95 4/2/98  
DATE

Beam 2 Span #2



Good

All points  
OK. S.M.

3"  
10°  
46°

BOTTOM

RT.

Top Span No. 3

PAGE No. \_\_\_\_\_

BRIDGE No. 33  
COUNTY \_\_\_\_\_

HA03611/I24  
ROUTE \_\_\_\_\_

1.01/12.59  
LOG MILE \_\_\_\_\_

2-14-95  
10-7-92  
DATE 10/15/96

ELEMENT	RATING	COMMENTS
RAIL	G	SUBSTANDARD, SEVERAL AREAS OF REBAR SPALLS
CURB	G	
SIDEWALK	G	
JOINT	G	REPAIRED
WEARING SURFACE	F	SEVERAL LG. CRACKS HEAVILY WORN & UNEVEN 1" OPENNING IN CENTER
LIGHT STAND.	G	

9/2/98

Top SPAN NO. #3

Page No.

33

COUNTY

FAU 3611 / I-24

ROUTE

1.01 / 12.59

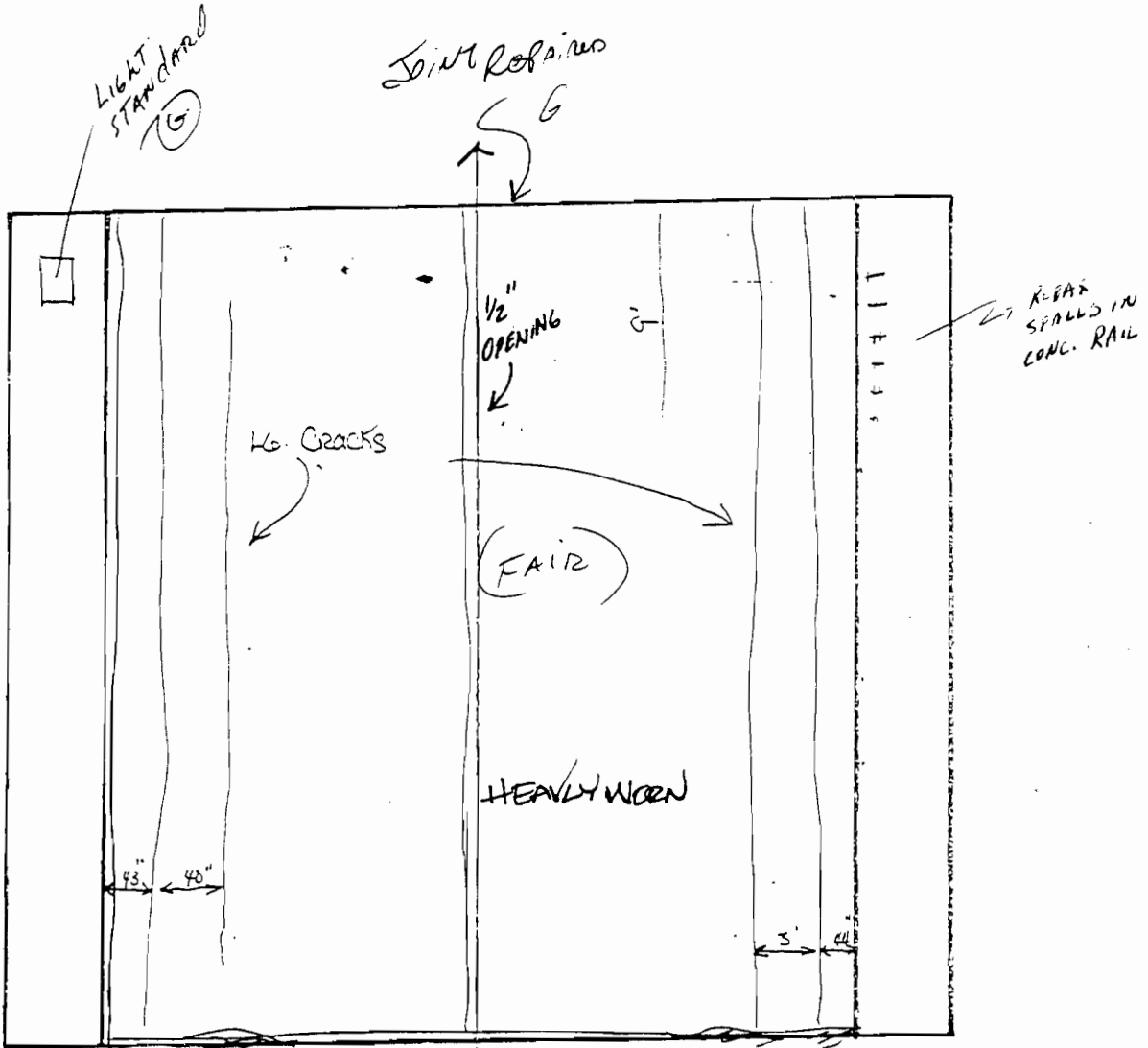
LOG MILE

2-14-95

10-7-92 10/15/96

DATE

9/2/98



REPAIR SPALLS IN CONC. RAIL

HEAVILY WORN

43" 40"

3'

Bottom Span No. 3

PAGE 2/26/95

BRIDGE NO. 33

FAU3611/I-24

1.01 / 12.59

9/18/92 9/2/98

COUNTY

ROUTE

LOG MILE

DATE 10/15/96

ELEMENT	RATING	COMMENTS
Beam	Good	Stains from leakage between beams. Beam #A have one large spall area w/strand exposed 20"x7"x2". Also have a few scrape marks on other beams.
Overhang	Good	

Bottom Span No. 3

Page No. 00008

33

FAU3611/I-24

1.01 / 12.59

2/26/95 - 9/2/98

COUNTY

ROUTE

LOG MILE

DATE 10/15/96

20' 7 1/2" Spill Area  
w/strand exposed

9'
A.
B.
C.
D.
E.
F.
G.
H.
I.
J.
K.
L.
M.
N.
O.
P.
Q.
R.
S.
T.
U.
V.
W.
X.
Y.
Z.

Good



Top Span No. 4

PAGE No.     

BRIDGE No. 33  
COUNTY

FAU3611/124  
ROUTE

1.01 / 12.59  
LOG MILE

2-14-95  
10-7-92  
DATE 10/15/96

9/2/98

ELEMENT	RATING	COMMENTS
DRAINS	G	
JOINT	G	REPAIRED
APPROACH PAVEMENT	G	
RAILS	G	SUBSTANDARD
CURB	G/F	L/SIDE LAST SEC IS OUT OF PLACE 3" LOWER
SIDEWALK	G	
WEARING SURFACE	F	SEVERAL LG CRACKS AND A LG OPEN JOINT IN CENTER (1 1/2") HEAVILY WORN



Top Span NO. #4

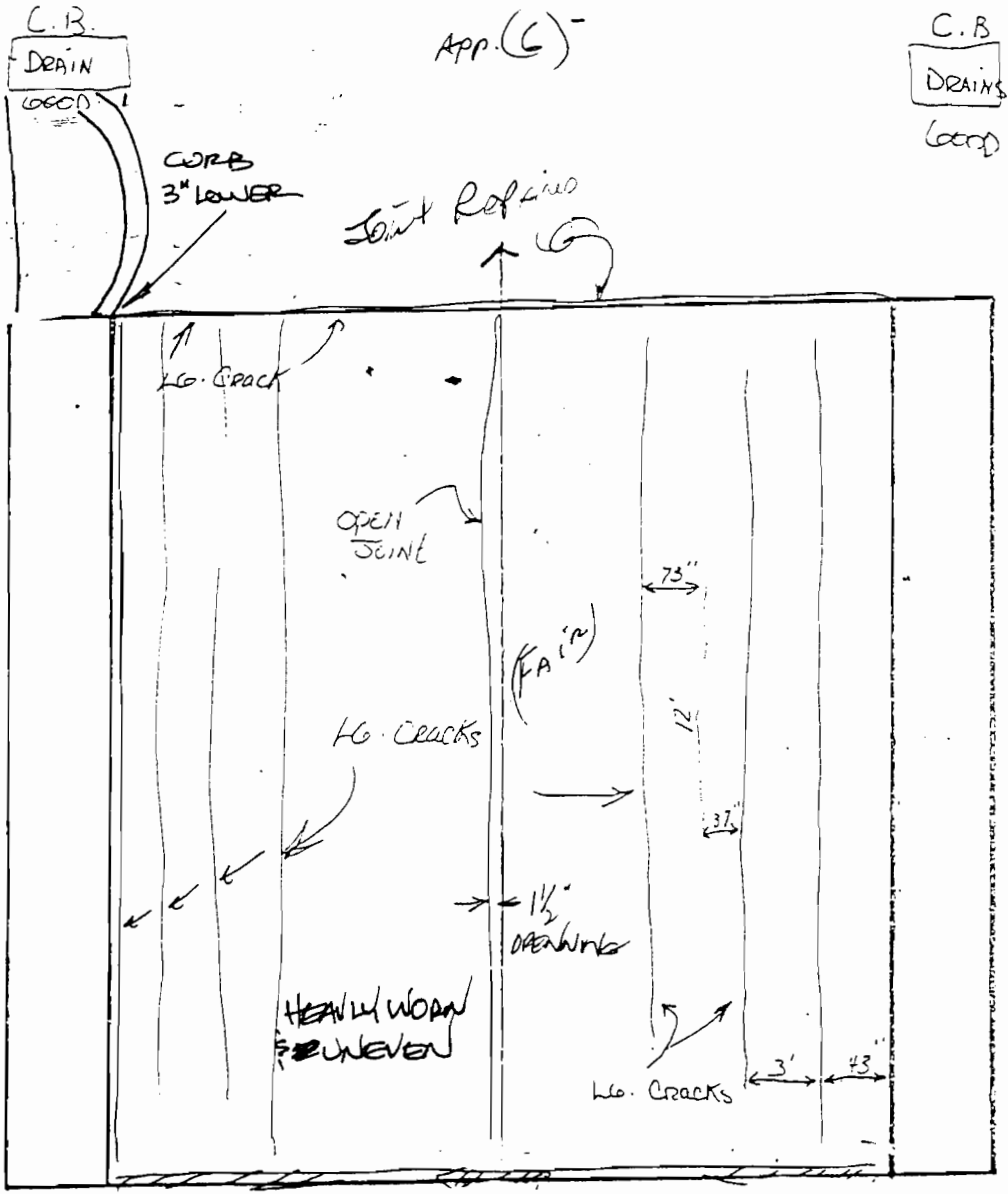
Page No. 100002

33  
COUNTY

FAU 3611 / I-24  
ROUTE

1.01 / 12.59  
LOG MILE

2-14-95  
10-7-92 10/15/96  
DATE  
9/2/98





33

FAU361/I-24

1.01/12.59

2/14/95 9/2/98

10-7-92 10/15/96

COUNTY

ROUTE

LOG MILE

DATE

A.
B.
C.
D.
E.
F.
G.
H.
I.
J.
K.
L.
M.
N.
O.
P.
Q.
R.
S.
T.
U.
V.
W.
X.
Y.
Z.

~~HEAVY LEAKAGE STAINS~~

Beams (B)  
Moderate  
dirt or water  
stains.

→

BEAM A SPAN NO. 4

PAGE NO. 9/2/98

10/15/96

2/14/95

10-7-92

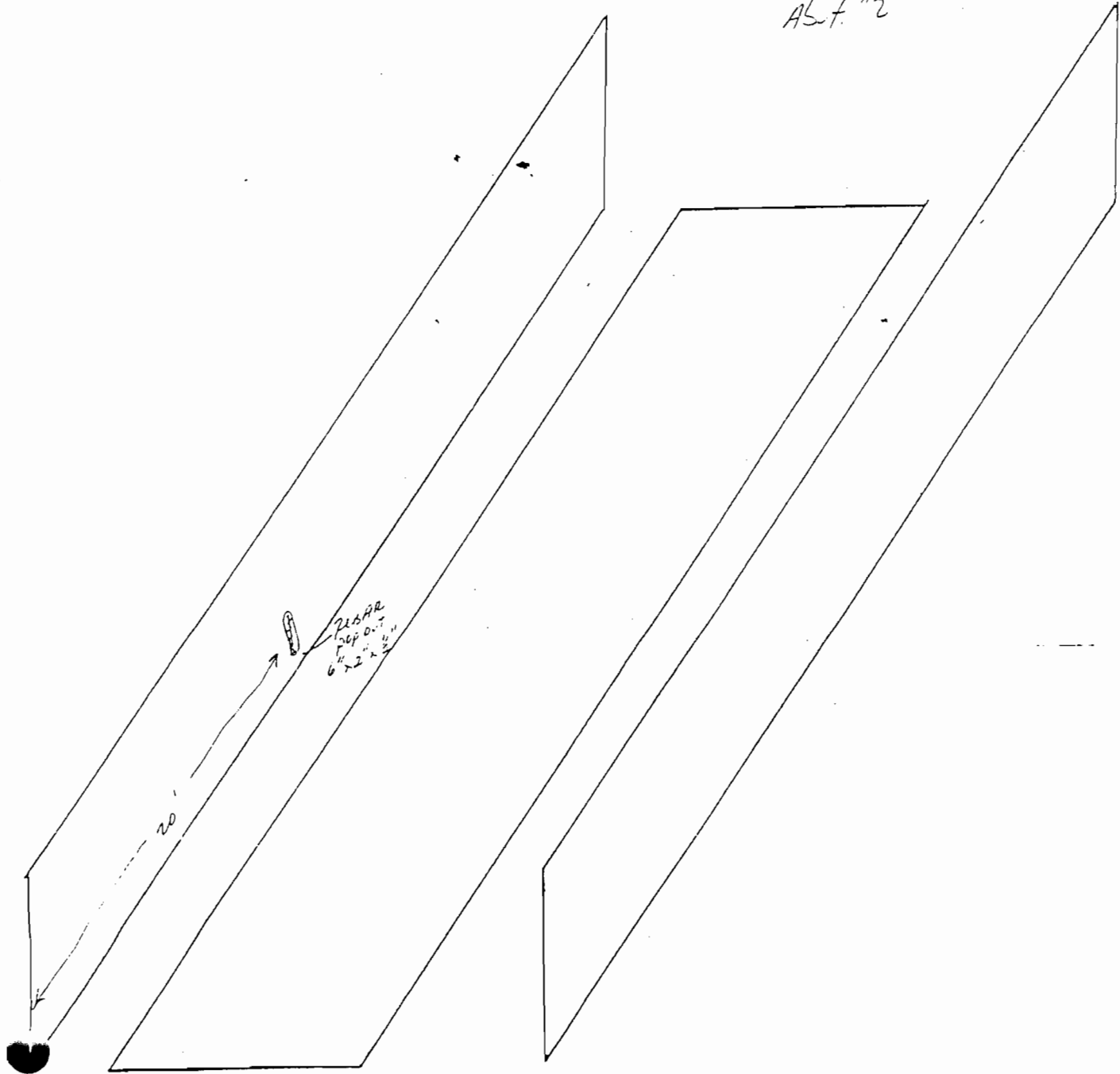
33  
COUNTY

FAD 3611 / E34  
ROUTE

101 / 12.59  
LOG MILE

DATE

AS-t #2



Bed #3

I.

BOTTOM

RT.

ABUTMENT No. 1

PAGE NO

BRIDGE No. 33

COUNTY

FAU3611/E-24

ROUTE

1.01/12.59

LOG MILE

2/14/95

10-7-92

DATE 10/15/96

ELEMENT	RATING	COMMENTS	9-2-98
Bearings	Good	Pad.	
Re: Abutment	-	Cannot see.	
Breastwall	G-F	Numerous vertical h.l. and h.l.-small cracks.	
		Heavy dirt and water stains.	
Wings	Good		
Footing	-	Cannot see.	
P.ings	-	Cannot see.	
Slope	Good	Concrete.	

Abutment No. 1

PAGE NO. 0088

33

COUNTY

FA03611 / I-24

Route

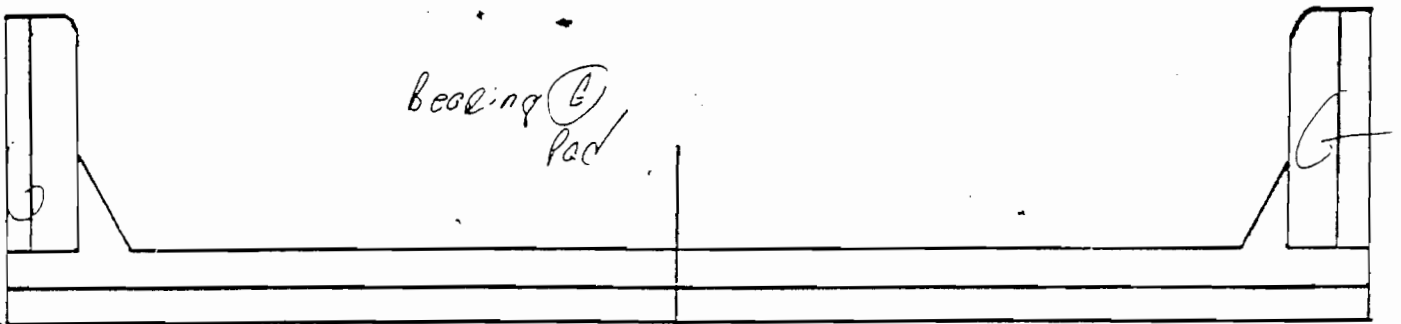
1.01 / 12.59

Log Mile

DATE 2/14/95

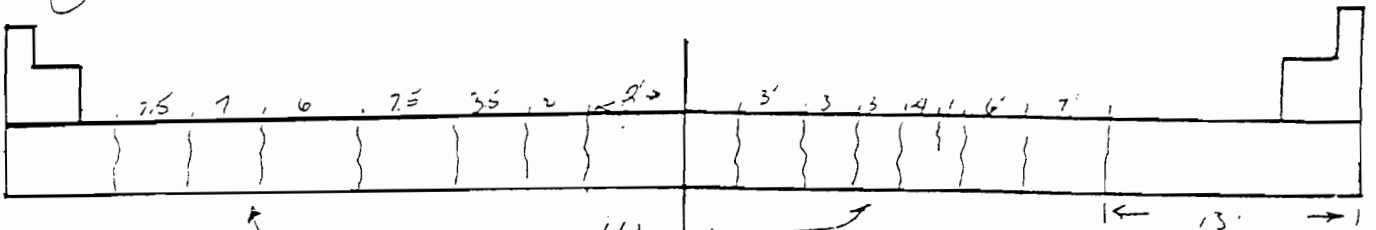
10/15/96 10-7-92

9-2-98



bridge seat (N.Y.)

Wings



bleast wall

bleast wall (G-F) heavy dirt and water stains.

slope

piles (N.Y.)

footing (N.Y.)

BENT No. 1

PAGE

2/26/95

BRIDGE No. 33

AAU3611/E-24

1.01/12.59

9/8/92

COUNTY

ROUTE

LOG MILE

DATE 10/15/96

ELEMENT	RATING	COMMENTS
CAP	D/F	SEVERAL LG DELAM/SPALL W/REBAR EXP. ON BACK AND FRONT/BOTTOM, SLIGHT HONEYCOMB W/ several hr. line to Sm. vertical cracks 1/5 SIDE OF 'E'
COLUMN	G	LIGHT SCALING AND LG. DELAM ON OUTSIDE Col. 'F' w/ Two Rebar Spalls
BEARING	G	
FOOTING	N/A	

9-298

BENT NO. 1

PAGE 2/26/95

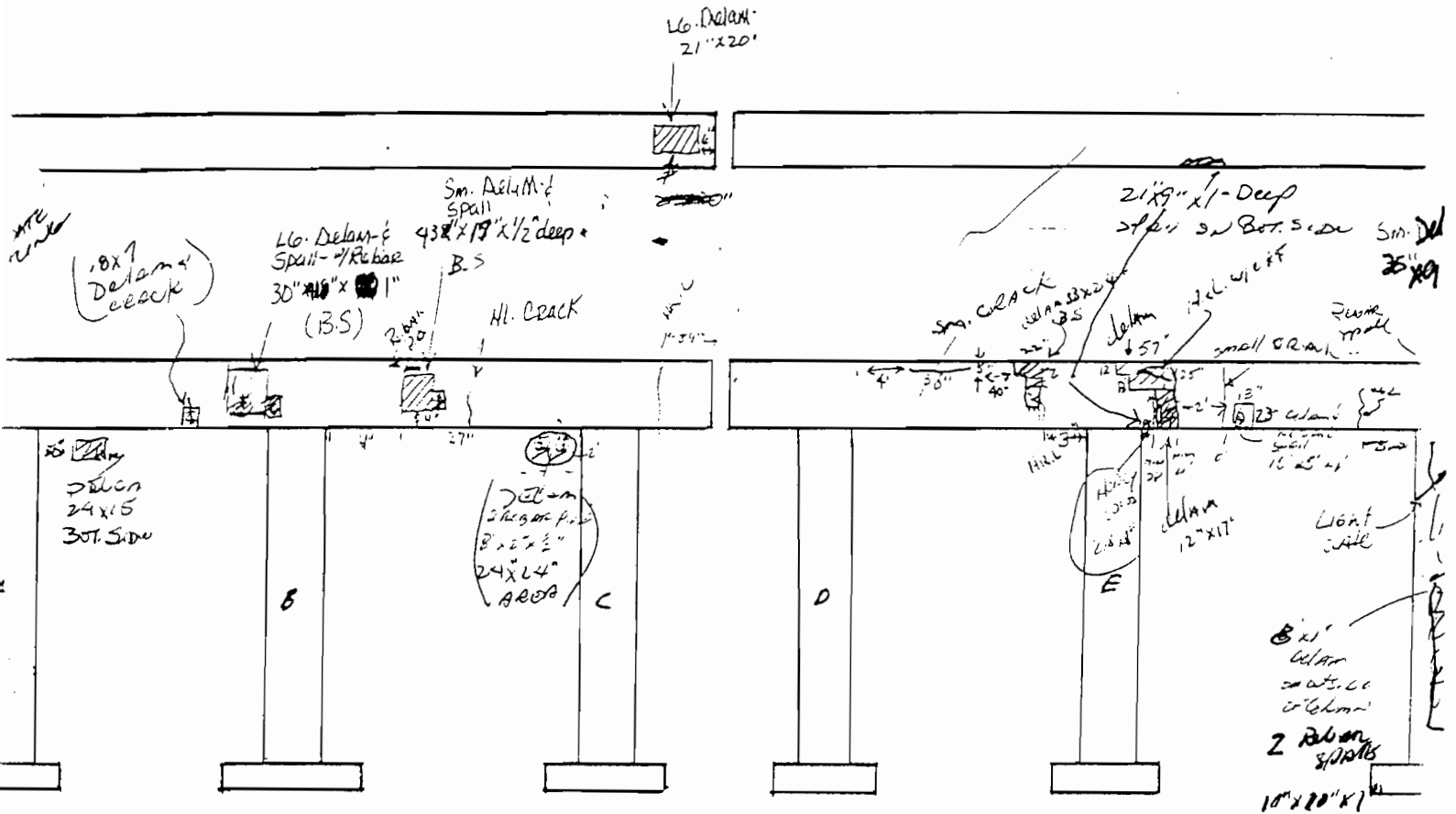
DATE 9-8-82 10/15/96

33  
COUNTY

FAU 3611/I-24  
ROUTE

1.01 / 12.59  
LOG MILE

9-2-98



CAPS - (G-F)  
 Column (G)  
 BEARING - (G)





BENT NO. 2

PAGE 2/26/95

DATE 9-8-92

10/15/96

33

COUNTY

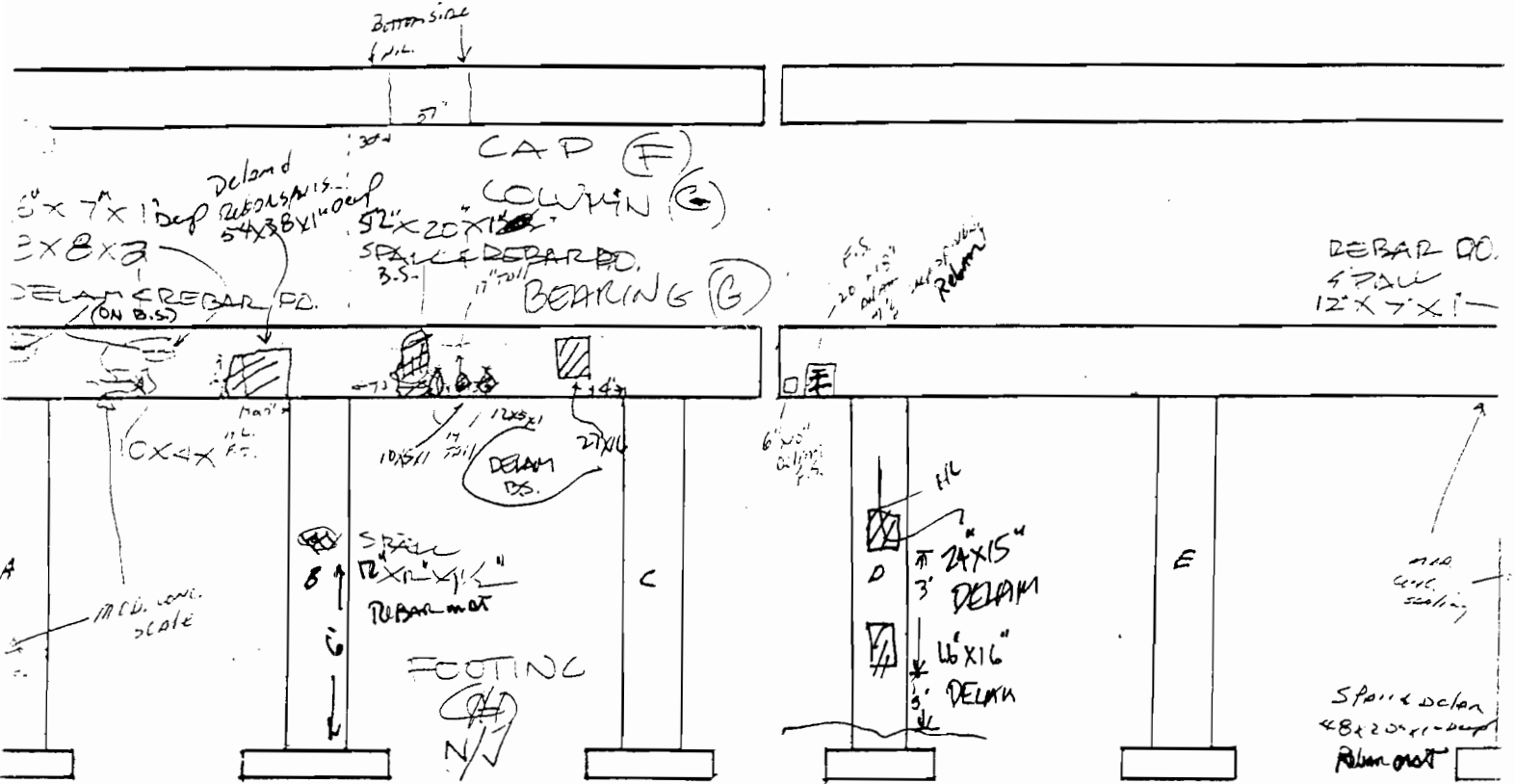
FAU 3611/J-24

ROUTE

1.01/12.59

LOG MILE

9-2-98





BENT NO. 3

PAGE 2/26/95

DATE 9-8-92

10/15/96

33  
COUNTY

FAU 3611/J-24  
ROUTE

1.01 / 12.59  
LOG MILE

9-2-98

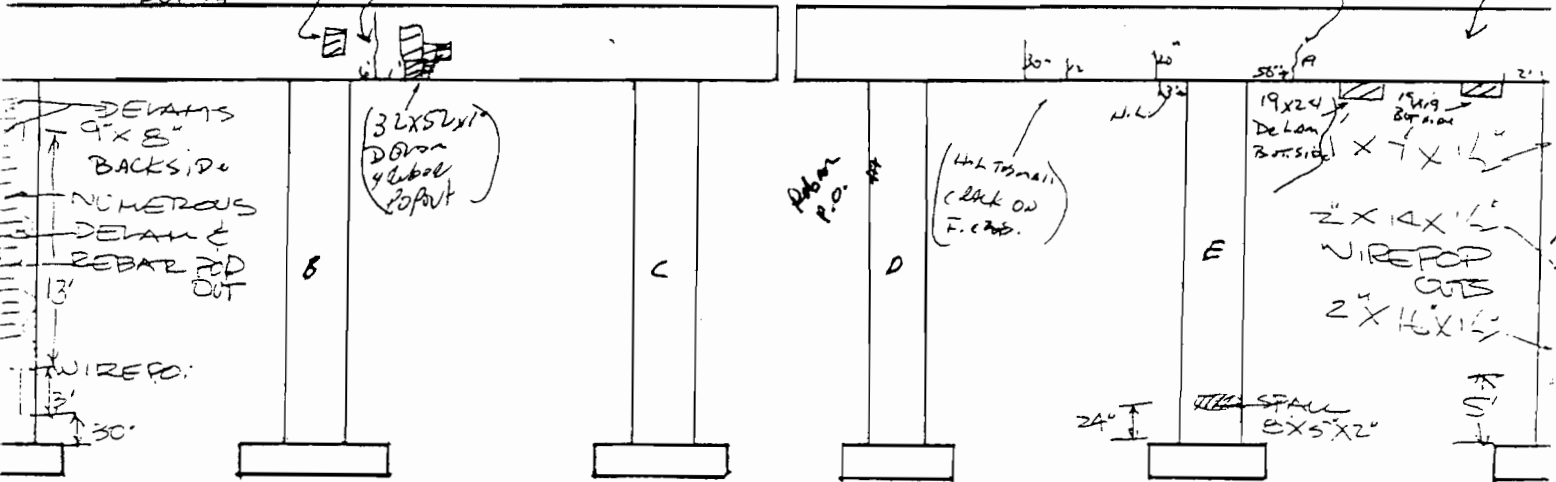
CAP (G)  
COLUMN (F/P)

BEARING (G)

22' FEETING  
DE/ON

MOD. SCALE

N.L.



ABUTMENT No. 2

PAGE

BRIDGE No. 33

COUNTY

FAU3611/E-24

ROUTE

1.01/12.59

LOG MILE

2/14/95  
10-7-92

DATE 10/15/96

9-2-98

ELEMENT	RATING	COMMENTS
Beeling	Good	Pad.
Bridge seat	A	Cannot see.
Breastwall	Good	Several vertical l.l. cracks. Heavy dirt and water stains.
Wings	Good	
Footings	-	Cannot see.
Pillings	-	Cannot see.
Slope	Good	Concrete.

Abutment No. 2

PAGE NO. 114

33

FA03611 / I-24

1.01 / 12.59

DATE 2/14/95

COUNTY

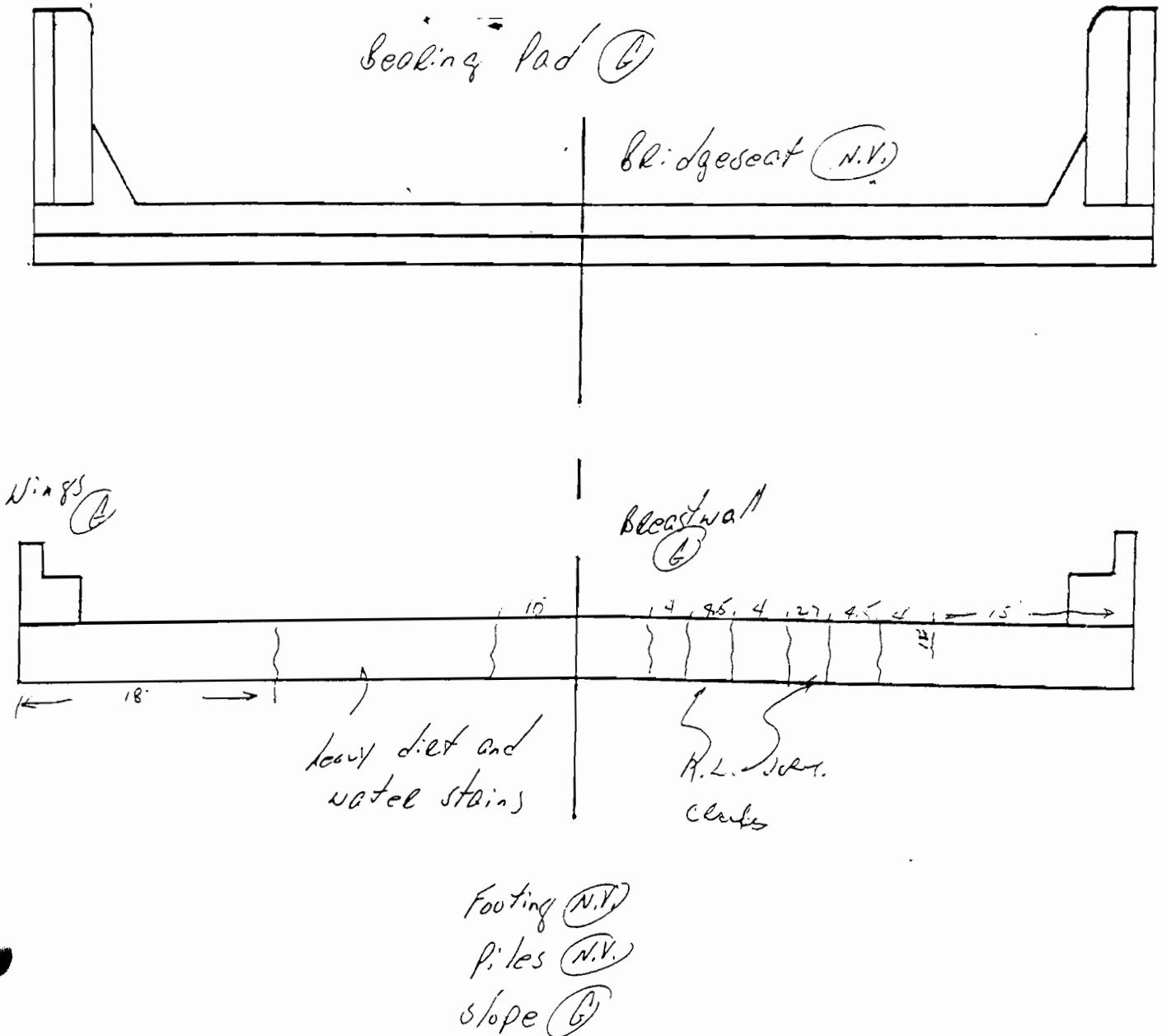
Route

Log Mile

10/15/96

10-7-92

9-2-98



Index Of Sheets

(SEE SHEET 1A)

# STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION BUREAU OF PLANNING AND DEVELOPMENT

TENN.	YEAR	SHEET NO.
	1996	1
FED. AID PROJ. NO.		
STATE PROJ. NO.	33003-4154-04	

## HAMILTON COUNTY

I-24

FROM EAST OF S.R. 8 TO I-75 (INCL. MEDIAN BARRIER)

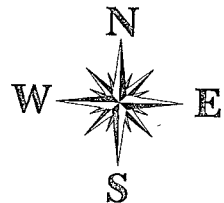
PARTIAL PAVING, MEDIAN MODIFICATION,  
GUARDRAIL

INTERSTATE HIGHWAY NO. 1-24

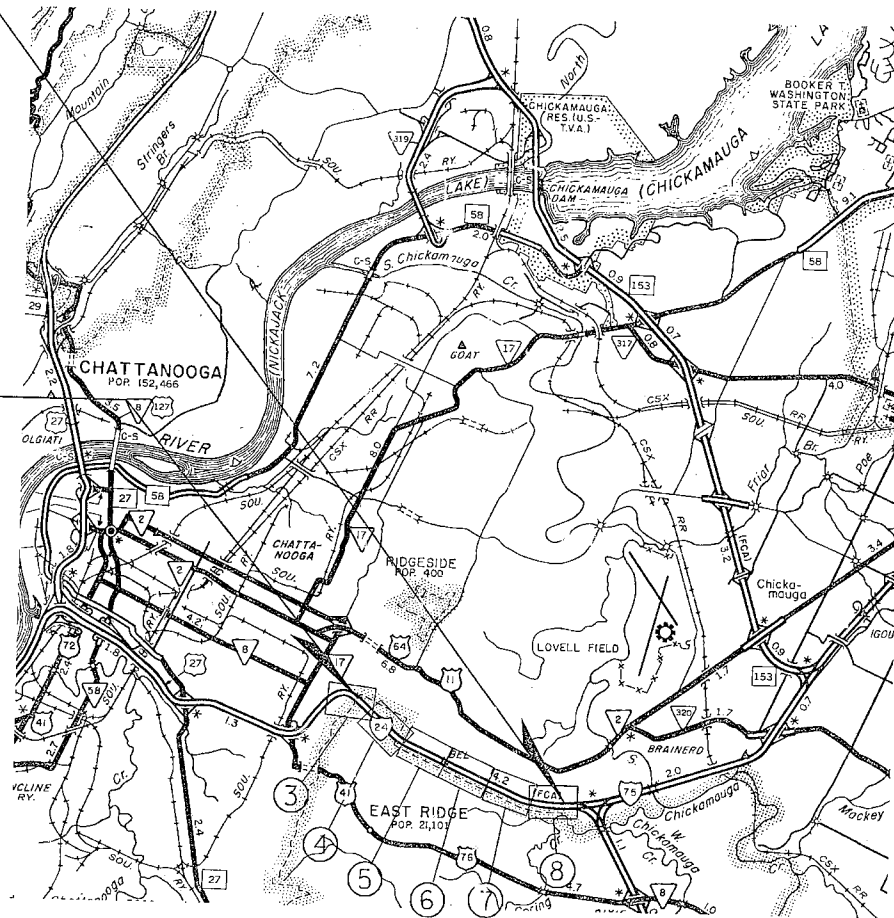


HAMILTON COUNTY  
33003-4154-04

END PROJ. NO. 33003-4154-04 CONST.  
STA. 334+00.00 E.B.L.



BEG. PROJ. NO. 33003-4154-04 CONST.  
STA. 191+44.33 E.B.L.



SCALE: 1" = 5,000'

NO EXCLUSIONS

### TABLE OF EQUATIONS

EQUATIONS WEST BOUND LANE

STATIONS (BK.) = STATIONS (AHD.)	+	-
204+02.94 + 203+13.80	89.14'	

EQUATIONS EAST BOUND LANE

203+48.66 + 203+13.80	34.86'	
-----------------------	--------	--

EFFECT ON ENUMERATION

34.86'

NOTE : PROJECT LENGTH BASED ON E.B.L. LENGTH

### SPECIAL NOTES

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED MARCH 1, 1995 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT

TDOT ROAD C.E. MGR. 1 MICHAEL AGNEW

DESIGNER JIMMY C. LEDBETTER CHECKED BY LARRY RAY

P.E. NO. 33003-1152-44

ROADWAY LENGTH	2.675 MILES
BRIDGE LENGTH	0.031 MILES
BOX BRIDGE LENGTH	0.000 MILES
PROJECT LENGTH	2.706 MILES



6-25-96

APPROVED: *Paul R. Morrison*  
DESIGN DIVISION

DATE:

APPROVED: *Jim Setts Sr.*  
COMMISSIONER

TRAFFIC DATA	
ADT (1996)	91,450
ADT (2016)	118,900
DHV (2016)	11,890
D	60 - 40
T (ADT)	15 %
T (DHV)	10 %
V	55 MPH

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION

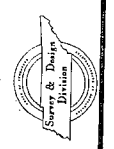
APPROVED:

DIVISION ADMINISTRATOR DATE

SCANNED

AUG OCT - 1994  
4359

c:\user\jlm\h11e-24.dgn  
20-JUN-1996 08:13



SCANNED

FILE NO.  
DESIGN DIVISION  
TENNESSEE D.O.T.

17-JUL-1996 14:05  
dlv24kx.dgn

INDEX OF SHEETS

Table with columns: SHT. NO., DESCRIPTION. Lists sheets 1 through 27-85 including Title Sheet, Index & Standard Roadway Drawings, Estimated Roadway Quantities, Typical Section with Proposed Paving Schedule, General Notes, Special Notes, Tabulated Quantities, Details, Lighting Details, Notes, & Estimated Quantities, Bridge Tabulations, Bridge Repair Details, Median Barrier Details, Joint Spacing Detail, Concrete Repair Details, Proposed Layout Sheets, Typical Sections of Traffic Control, Pavement Edge Drop-off Notes, Traffic Control Details, Traffic Control Layout Phases, Typical Signing Phases, Typical Signing One Lane Closure Phases, Phase 2 Lane Shift, Phase 3 Lane Shift, and Roadway Cross-sections.

(TO BE PRINTED WITH PLANS)

Table with columns: DWG. NO., CURRENT REVISION, DESCRIPTION. Lists drawings ESC-STR-1 through SBR-2-126 including Temporary Dewatering Structure, Temporary Silt Fence, Straw or Hay Bale or Fabric Temporary Silt Checks, Catchbasin Protection, W-beam & Thrie Beam Barrier Rail, Barrier Rail Mounting, W-beam Barrier Post Details, W-beam Barrier Terminal Element Details, Guardrail Terminal Anchor, Details for Breakaway Post Anchor Plate, Terminal Anchors, Median Divider Guardrail, Length of Need and Terminal Requirements in Fills, Guardrail Attachment to Structures, Minimum Installation Length for Protective Guardrail, Guardrail Terminal Anchor Post Layout, Guardrail Terminal Anchor Post Layout and Erection Details, Guardrail Terminal Anchor Post Layout and Erection Details, Melting Guardrail Element Assembly Details, Melting Guardrail Post and Assembly Details, Concrete Median Barrier, Concrete Glare Screen Median Barrier, Concrete Glare Screen Median Barrier Bridge Pier Protection, Interconnected Portable Barrier Rail, Details Showing Replacement of Existing Bridgerail System, and Details Showing Replacement of Existing Bridgerail System with New Jersey Shape Concrete Parapet and New 10'-2" Endpost.

(TO BE PRINTED WITH PLANS- CONT.)

Table with columns: DWG. NO., CURRENT REVISION, DESCRIPTION. Lists drawings SBR-2-127 through RP-J-9 including Details Showing Pier Protection with New Concrete Barrier Wall, Details Showing Pier Protection with New Concrete Barrier Wall, Details Showing Pier Protection with New Vertical Concrete Barrier, Details Showing Pier Protection with New Vertical Concrete Barrier, Details Showing Guardrail Attachment at Bridge Ends, Details Showing Guardrail Attachment at Bridge Ends, Standard Legend for Erosion and Sediment Control, Roadside Ditch Details, Precast Circular No. 31 Catch Basin, Details of Concrete Driveways, and Contraction and Construction Joints for Concrete Pavement.

(INCLUDE IN PLANS - TO BE REFILED WITH STRUCTURES)

Table with columns: DWG. NO., CURRENT REVISION, DESCRIPTION. Lists drawings G-9-91 through K-19-5 including South Moore Road Overpass, McBrien Road Overpass, Belvoir Avenue Overpass, and Missionary Ridge, So. Seminole Dr. Overpass.

STANDARD ROADWAY DRAWINGS

Table with columns: DWG. NO., CURRENT REVISION, DESCRIPTION. Lists drawings RD-A-1 through RD-UD-7 including Standard Abbreviations, Standard Legend, Standard Legend for Utility Installations, Standard Legend for Signalization and Lighting, Design and Construction Details for Roadside Slope Development, Median Sections & Median Barrier Warrant Criteria, Design Standards Freeways with Median Barrier, Underdrain Details, Underdrain Details, Lateral Underdrain Endwall Detail, and Lateral Underdrain Endwall Detail.

DRAINAGE - CULVERTS AND ENDWALLS

Table with columns: DWG. NO., CURRENT REVISION, DESCRIPTION. Lists drawings D-PB-1, D-PE-4B (1), D-PE-4B (2), and D-PG-3 including Class "B" Bedding and Culvert Excavation, Concrete Endwall Type "U" with Steel Pipe Grate, and Ferrous and Aluminum Corrugated Metal Pipe.

DRAINAGE-CATCH BASINS AND MANHOLES

Table with columns: DWG. NO., CURRENT REVISION, DESCRIPTION. Lists drawings D-CB-3, D-CB-31S, and D-CBB-31 including No. 36 and No. 37 Catch Basins and Grate, 7' x 7' Square Concrete No. 31 Catch Basin, and Type "B" Cast Iron Frame, Grate & Inlet Details.

ROADWAY AND PAVEMENT APPURTENANCES

Table with columns: DWG. NO., CURRENT REVISION, DESCRIPTION. Lists drawings RP-J-1 through RP-J-19 including Portland Cement Concrete Pavement Joint Types and Spacing, Portland Cement Concrete Pavement Joint Types and Spacing, 3/4" and 1-3/4" Expansion and Edge Pavement Joints, 3/4" and 1-3/4" Elastomeric Compression Joint Seals, Metal Longitudinal Joints, Dowel Assembly Devices, and Dowel Assembly Devices.

SAFETY APPURTENANCES AND FENCE

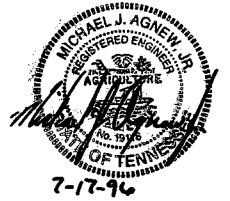
Table with columns: DWG. NO., CURRENT REVISION, DESCRIPTION. Lists drawings S-EA-1, S-F-10, S-F-10B, and S-GR-17A including Construction Zone Guardrail Energy Absorbing Terminal, Right-of-Way Stock Fence, Right-of-Way Chain Link Fence, and Tables of Offsets for Staking Out Guardrail Flare.

TRAFFIC CONTROL APPURTENANCES

Table with columns: DWG. NO., CURRENT REVISION, DESCRIPTION. Lists drawings T-FAB-1 through T-M-7 including Flashing Yellow Arrow Board, Lighting Details-Supports, Marking Details for Expressways and Freeways, Marking Detail for Expressway and Freeway, Gore Marking Details for Expressway and Freeway Interchanges, Marking Details for Expressways and Freeways, Detail for Vertical Panels, and Gore Marking Details for Expressway and Freeway Interchanges.

Table with columns: TYPE, YEAR, PROJECT NO., SHEET NO. Values: CONST., 1996, 33003-4154-04, 1A.

REV. 7/17/96: ADDED SHEET NO'S. 2M, 2N & 2P TO PLANS. DELETED STD. DWG. RP-J-23 & 24. REV. 7-25-96: ADDED SHEET NO. 2F(1) TO PLANS. ADDED STD. DWG. NO. S-EA-1 TO PLANS.



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PLANNING & DEVELOPMENT

INDEX  
AND  
STANDARD  
ROADWAY  
DRAWINGS



TENNESSEE D. O. T. DESIGN DIVISION FILE NO. 23

WHEN BRIDGE DECK DRAINS ARE ENCOUNTERED, THE CONTRACTOR SHALL MAKE PROVISIONS FOR EXTENDING DRAINS TO TOP OF WEARING SURFACE. METHOD OF EXTENSION TO MEET WITH THE APPROVAL OF THE ENGINEER. COST TO BE INCLUDED IN BRIDGE DECK SEALANT ITEM NO. 617-01.

FOR EXPANSION JOINT REPAIR DETAILS. SEE STANDARD DRAWING NOS. BR-2-115 THRU BR-2-121. THE CONTRACTOR SHALL FIELD VERIFY ALL THE LENGTHS REQUIRED FOR INSTALLATION PRIOR TO JOINT FABRICATION. ALSO THE FOLLOWING SPECIAL PROVISIONS SHALL APPLY:  
105A REGARDING APPROVAL OF SHOP DRAWINGS  
604S REGARDING STRIP SEAL EXPANSION JOINTS

FOR DETAIL AND NOTES ON REINFORCED CONCRETE MEDIAN BARRIER (ITEM NO. 711-02.03), REFER TO SHEET NO.

CONST. NO. 33003-4154-04

PROJECT NO.	YEAR	SHEET NO.	
	1996	2H	
REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION

FOR DETAIL AND NOTES ON CONCRETE PARAPET (BRIDGERAIL REPLACEMENT) (ITEM NO. 620-10.01), REFER TO STD.DWG. NO. BR-2-124, BR-2-125 & BR-2-126.

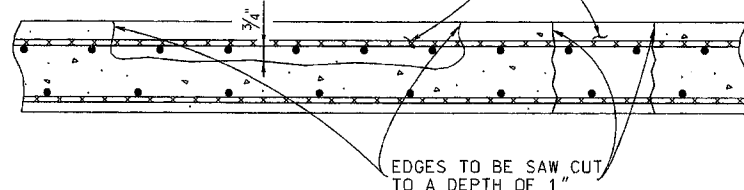
MASTIC AS RECOMMENDED BY MANUFACTURER OF MEMBRANE. SEE STD. SPEC. ART. 906.04.

1/2" Ø HOLE TO BE DRILLED BY THE CONTRACTOR NEAR FACE OF NEW PARAPETS OR EXISTING CURBS AT LOW POINTS.

### TABULATION OF BRIDGE RELATED WORK AND ESTIMATED QUANTITIES

LOCATION OF BRIDGE AND BRIDGE NUMBER	REFERENCE DRAWINGS TO BE PRINTED WITH CONTRACT DRAWINGS	TYPE OF WORK	604-10.30 BRIDGE DECK REPAIR (FULL DEPTH OF SLAB) S.Y.	604-10.50 BRIDGE DECK REPAIR (PARTIAL DEPTH OF SLAB) S.Y.	617-01 BRIDGE DECK SEALANT S.Y.	407-02 REMOVAL & DISPOSAL OF EXISTING SURFACE (BITUMINOUS) C.Y.	705-10.29 CONCRETE BARRIER WALL FOR BRIDGE PIERS L.F.	711-02.03 REINFORCED CONCRETE MEDIAN BARRIER (BRIDGES) L.F.	604-03.09 CLASS "D" CONCRETE (BRIDGE DECK) C.Y.	604-02.03 EPOXY COATED REINFORCING STEEL LB.	604-04.01 APPLIED TEXTURE FINISH (NEW STRUCTURES) S.Y.
33-4148-3.27/124-11.45 33I00240053	K-19-1.K-19-4.K-19-5	PIER PROTECTION					88				
33-124-12.08(EBL)/3577 33I00240055		BRIDGE DECK REPAIR BRIDGE DECK SEALANT	10	200	737			166	41	12,719	175
33-124-12.08(WBL)/3577 33I00240055		BRIDGE DECK REPAIR BRIDGE DECK SEALANT	10	200	737						
33-3611-1.01/124-12.54 33I00240057	H-2-15.H-2-18.H-2-19	PIER PROTECTION					180				
33-3578-0.08/124-13.34 33I00240059	G-9-91.G-9-94.G-9-95	PIER PROTECTION					180				
33-3610-1.58/124-13.62 33I00240061	G-9-99.G-9-101.G-9-102	PIER PROTECTION					193				
<b>TOTAL</b>			<b>20</b>	<b>400</b>	<b>1474</b>		<b>641</b>	<b>166</b>	<b>41</b>	<b>12,719</b>	<b>175</b>

CONCRETE FOR DECK REPAIR SHALL BE QUICK SETTING PATCHING MATERIAL MEETING ASTM C-928 AND APPROVED BY THE MATERIALS AND TEST DIVISION OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION.



SKETCH SHOWING DECK REPAIR

NOTE: REMOVE CONCRETE IN ALL DELAMINATED AREAS TO A DEPTH OF 3/4" BELOW THE TOP BAR OF THE TOP MAT OF REINFORCING STEEL. ALL REINFORCING STEEL IN AREAS OF DECK REPAIR SHALL BE BLAST CLEANED. BLASTING AND CLEANING SHALL BE DONE PRIOR TO PLACING NEW CONCRETE OR INSTALLING PATCHING MATERIAL. AREAS OF CONCRETE REMOVAL SHALL BE DESIGNATED BY PERSONNEL FROM THE HEADQUARTERS, BRIDGE INSPECTION AND REPAIR OFFICE.

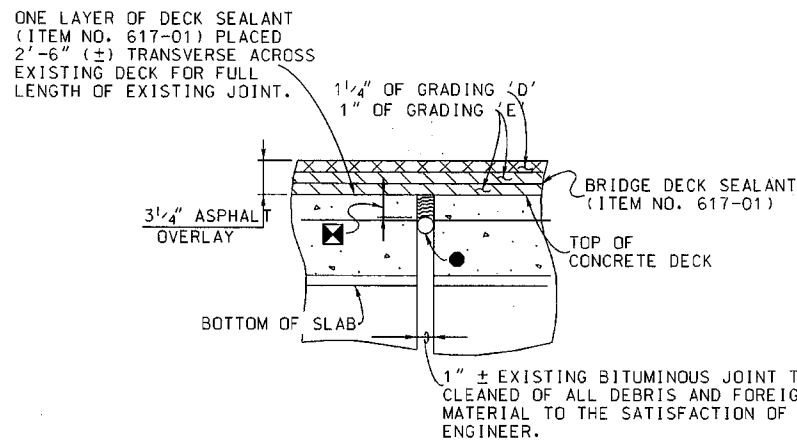
NOTE: ITEM NO. 604-10.50, BRIDGE DECK REPAIR (PARTIAL DEPTH OF SLAB), AND ITEM NO. 604-10.30, BRIDGE DECK REPAIR (FULL DEPTH OF SLAB), SHALL BE BID WITH THE CONTINGENCY THAT THIS MAY BE INCREASED, DECREASED OR ELIMINATED AS DIRECTED BY THE ENGINEER.

#### POWER DRIVEN HAND TOOLS:

POWER DRIVEN HAND TOOLS USED FOR THE REMOVAL OF UNSOUND CONCRETE IN MAKING PARTIAL AND FULL DEPTH REPAIRS ARE SUBJECT TO THE FOLLOWING RESTRICTIONS: (1) PARTIAL DEPTH REPAIRS: PNEUMATIC HAMMERS HEAVIER THAN NOMINAL 60 LBS CLASS SHALL NOT BE USED. ALSO TRAFFIC CONTROL SHALL BE SET UP DURING PARTIAL DEPTH REPAIRS OVER TRAFFIC. (2) FULL DEPTH REPAIRS: PNEUMATIC HAMMERS HEAVIER THAN NOMINAL 90 LBS CLASS SHALL NOT BE USED. ALSO ALL DECK REPAIR OVER BEAMS WILL BE RESTRICTED TO 60 LBS PNEUMATIC HAMMERS. (3) CHIPPING HAMMERS OF THE 15 LB CLASS SHALL BE USED TO REMOVE CONCRETE FROM BENEATH ANY REINFORCING STEEL.

#### OPTIONAL BRIDGE DECK REPAIR MATERIAL

IF LANE CLOSURES ARE PROVIDED FOR THIS PROJECT AND THE LANE CLOSURES ARE SUCH THAT TRAFFIC WILL BE KEPT OFF OF THE BRIDGE DECK WHERE DECK REPAIRS WILL BE MADE, THEN HIGH EARLY STRENGTH CONCRETE, f'c = 24 MPa @ 28 DAY STRENGTH MAY BE SUBSTITUTED FOR THE QUICK SET PATCHING MATERIALS SPECIFIED IN THE SKETCH TO THE RIGHT. ALSO SEE TENNESSEE STANDARD SPECIFICATIONS. IF EARLY STRENGTH CONCRETE IS USED, THEN TRAFFIC WILL NOT BE PERMITTED ON THE REPAIRED AREAS UNTIL A MINIMUM OF TEN (10) DAYS HAVE ELAPSED FROM THE DATE OF POUR AND REPRESENTATIVE TEST SPECIMENS HAVE ATTAINED A COMPRESSIVE STRENGTH OF NOT LESS THAN 3000 PSI. ALSO AN APPROVED EPOXY BONDING AGENT SHALL BE USED BETWEEN THE OLD AND THE NEW CONCRETE POURS.

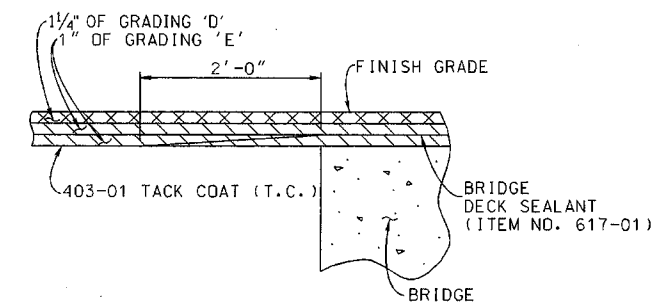
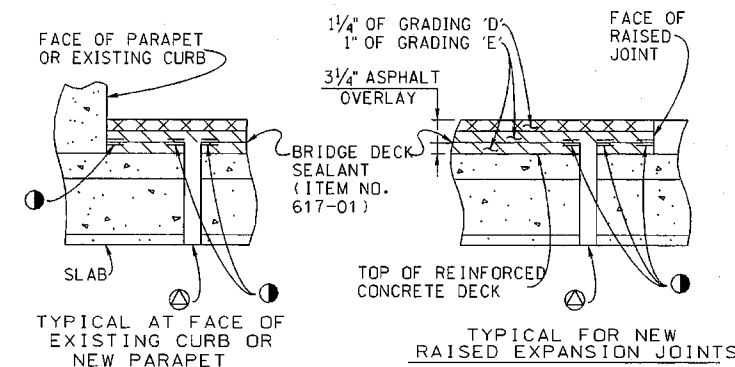


#### SECTION THRU EXISTING BRIDGE SLAB JOINT

(TYPICAL AT ALL EXISTING BITUMINOUS JOINTS WHEN NO JOINT REPAIR DETAIL IS SPECIFIED IN THE TABLE ABOVE)

NOTE: THE EXISTING JOINT OPENING SHALL BE CAULKED WITH A BACKER ROD OF SUITABLE DIAMETER. THE ROD SHALL BE PLACED AT A DEPTH TO ENSURE THE CORRECT WIDTH/DEPTH RATIO OF THE NEW JOINT SEALANT MATERIAL. BACKER ROD SHALL BE AS PER JOINT MANUFACTURERS RECOMMENDATION.

NOTES: TOP 2" OF ALL EXISTING BITUMINOUS JOINTS IN THE BRIDGE SLAB TO BE CLEANED AND RESEALED WITH NEW JOINT SEALER. CONTRACTOR HAS THE OPTION OF USING EITHER: (1) A TYPE K HOT-POURED ELASTIC TYPE CONCRETE JOINT SEALER. SEE STANDARD SPECIFICATIONS SECTION 905.05, JOINT SEALER. (2) A COLD POUR SINGLE COMPONENT JOINT SEALER AS APPROVED BY THE DIVISION OF MATERIALS AND TEST. COST OF JOINT CLEANING AND SEALING TO BE INCLUDED UNDER ITEM NO. 617-01 (BRIDGE DECK SEALANT). THE SEALER SHALL EXTEND UP AND ACROSS THE CURB OR SIDEWALK AREA TO THE OUTER EDGE OF THE BRIDGE SLAB.



#### BRIDGE DECK SEALANT DETAILS

NOTE: ON BRIDGE DECK WHERE THERE IS A BITUMINOUS JOINT OR WITH NO EXPANSION JOINT, MEMBRANE SHALL EXTEND 2'-0" OVER THE END OF THE BRIDGE DECK. IF THE DECK HAS A STEEL EXPANSION JOINT, THE MEMBRANE SHALL STOP AT THE STEEL EXPANSION JOINT.

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAYS

BRIDGE TABULATIONS AND  
ESTIMATED QUANTITIES  
INTERSTATE 24  
FROM (L.M. 10.50) TO (L.M. 14.70)  
HAMILTON COUNTY

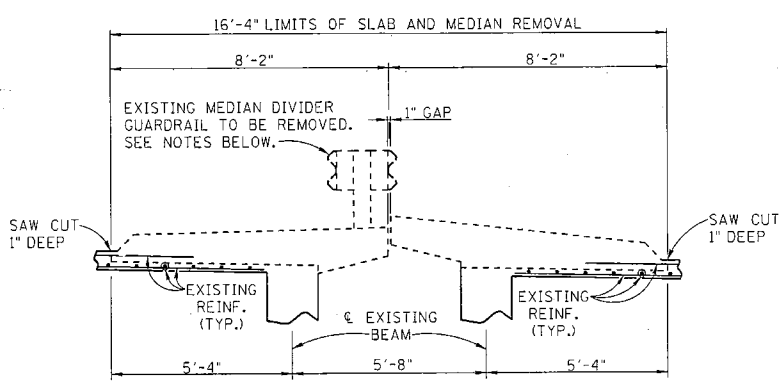
1996

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CONST. NO. 33003-4154-04

PROJECT NO.	YEAR	SHEET NO.
X	1996	21

REVISIONS			
NO.	DATE	BY	BRIEF DESCRIPTION



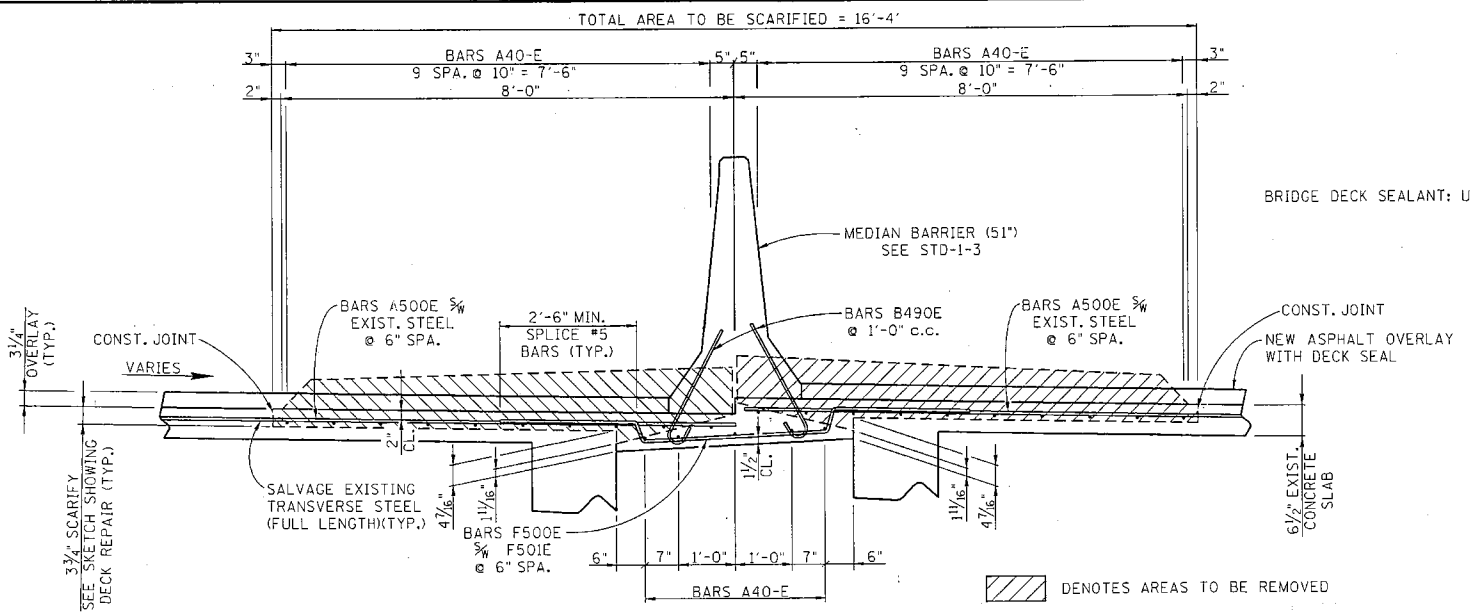
**SECTION SHOWING LIMITS OF SLAB AND MEDIAN REMOVAL**

NOTE: COST OF REMOVING EXISTING MEDIAN DIVIDER GUARDRAIL ON THE BRIDGE, REMOVING EXISTING CONCRETE MEDIAN BARRIER TRANSITION ON THE WEST END OF THE BRIDGE AND POURING THE NEW MEDIAN BARRIER TRANSITION ON THE EAST END OF THE BRIDGE, LABOR, FORMING AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE REPAIRS TO BE INCLUDED UNDER ITEM NO. 711-02.03, REINFORCED CONCRETE MEDIAN BARRIER (BRIDGES), L.F.

NOTE: EXISTING MEDIAN DIVIDER GUARDRAIL AND RUB RAILS TO BE ATTACHED TO THE NEW MEDIAN BARRIER TRANSITION, COST OF ATTACHING EXISTING RAILS AND/OR ANY NEW ADDITIONAL GUARDRAIL, RUB RAILS, AND ANY MISCELLANEOUS MATERIALS NECESSARY TO COMPLETE THE REPAIRS AS SHOWN, COMPLETE AND IN PLACE, TO BE INCLUDED UNDER ITEM NO. 711-02.03, REINFORCED CONCRETE MEDIAN BARRIER (BRIDGES), L.F.

NOTE: ALL EXISTING MEDIAN DIVIDER GUARDRAIL TO BE REMOVED FOR THE LIMITS AS SHOWN IN DETAILS THIS SHEET AND TO BE STOCK PILED ON THE JOB SITE AS DIRECTED BY THE ENGINEER. RAILINGS TO BE PICKED UP BY STATE MAINTENANCE FORCES.

NOTE: COST OF REMOVING EXISTING MEDIAN FOR LIMITS AS SHOWN, NEW CLASS "A" F'c = 4,500 p.s.i. CONCRETE, FORMING, LABOR, BLAST CLEANING, AND ANY MISCELLANEOUS MATERIALS NEEDED TO COMPLETE THE REPAIRS TO BE INCLUDED UNDER ITEM NO. 604-03.09, CLASS "D" CONCRETE (BRIDGE DECK)

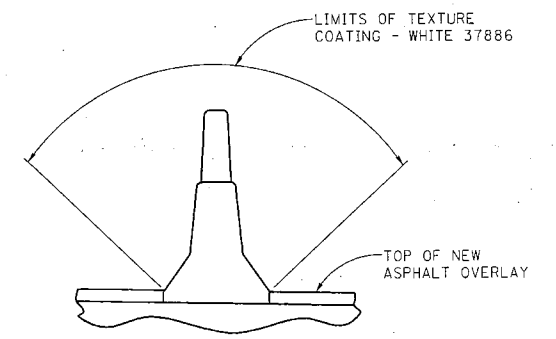
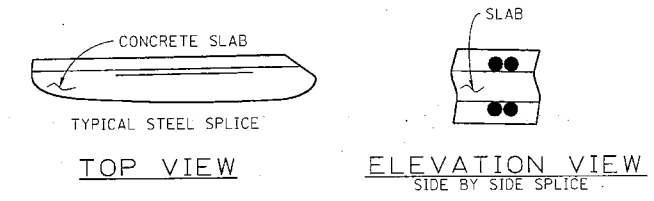


**SECTION SHOWING REINFORCING STEEL IN NEW SLAB (LOOKING BACK ON SURVEY)**

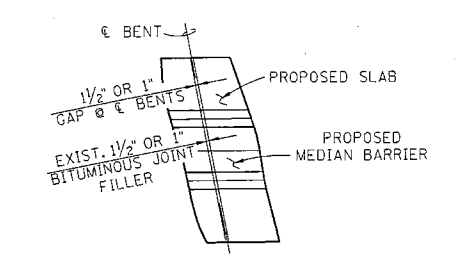
NOTE: EXISTING REINFORCING STEEL TO REMAIN IN PLACE. CONTRACTOR TO TAKE EXTREME CARE WHEN REMOVING EXISTING SLAB AND MEDIAN FOR LIMITS SHOWN SO AS NOT TO DAMAGE EXISTING REINFORCING STEEL. ALL EXPOSED EXISTING REINFORCING STEEL TO BE BLAST CLEANED AND INCORPORATED IN WITH NEW EPOXY COATED REINFORCING STEEL.

NOTE: WHEN POURING NEW MEDIAN SLAB, PROVISIONS SHALL BE MADE FOR SETTING BARS B490E FOR THE NEW CONCRETE MEDIAN BARRIER.

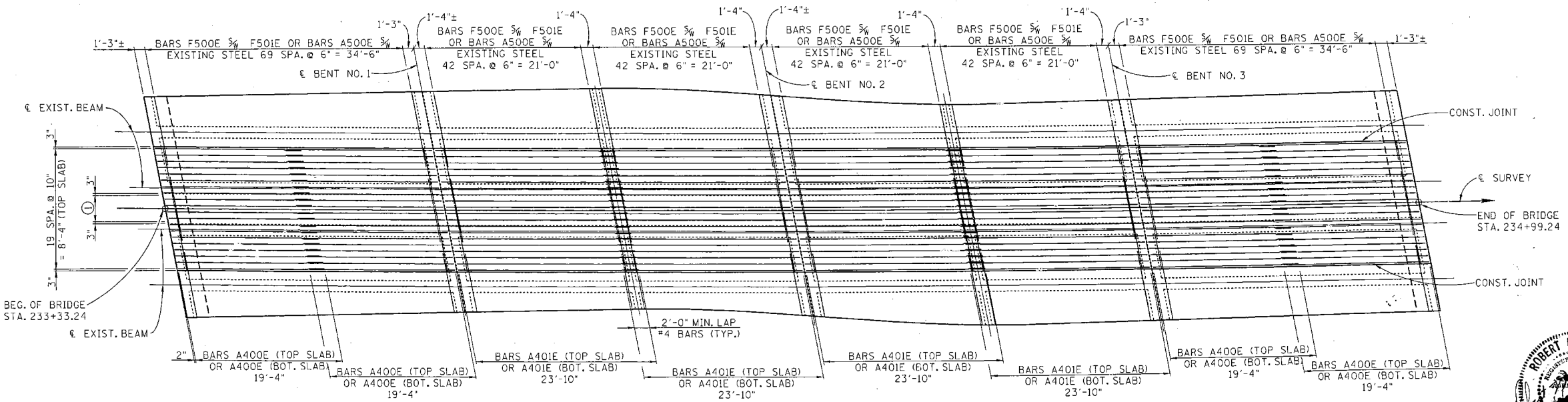
NOTE: COST OF ALL CLASS "A" F'c = 3,000 p.s.i. CONCRETE, EPOXY COATED REINFORCING STEEL, FORMING, TEXTURE COATING, LABOR AND ANY MISCELLANEOUS MATERIALS NECESSARY TO CONSTRUCT THE CONCRETE MEDIAN BARRIER AS SHOWN IN DETAILS TO BE INCLUDED UNDER ITEM NO. 711-02.03, REINFORCED CONCRETE MEDIAN BARRIER (BRIDGES), L.F. SEE OPTIONAL CONCRETE NOTE ON DWG. NO.



**TEXTURE COATING DETAIL**  
COST OF TEXTURE COATING TO BE INCLUDED UNDER ITEM NO. 604-04.01 S.Y.)



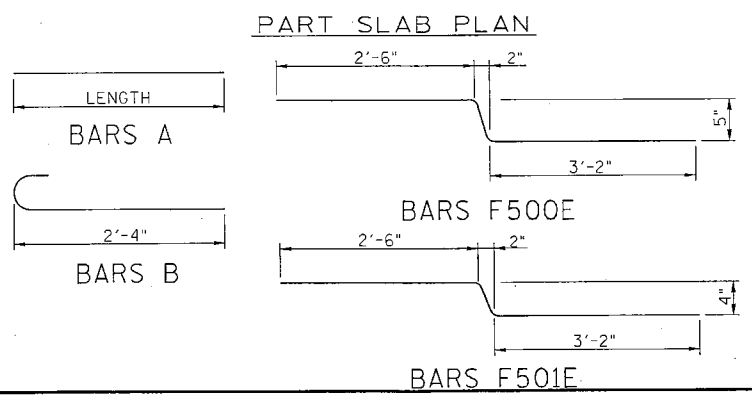
**EXISTING EXPANSION JOINT LOCATIONS (TYPICAL AT ALL BENTS)**



① DENOTES: SEE SECTION SHOWING REINFORCING STEEL IN NEW SLAB ON THIS SHEET FOR SPACING OF BARS A400E IN BOTTOM OF SLAB

**BILL OF STEEL**

BAR	SIZE	NO. REQ'D	LENGTH
A400E	4	100	19'-4"
A401E	4	100	23'-10"
A500E	5	624	8'-0"
B490E	4	334	3'-0"
F500E	5	312	6'-2"
F501E	5	312	6'-0"



**ESTIMATED QUANTITIES**

CLASS "D" CONCRETE (BRIDGE DECK) C.Y.	EPOXY-COATED REINFORCING STEEL (BRIDGES) LB.	APPLIED TEXTURE FINISH S.Y.
41	12,719	175



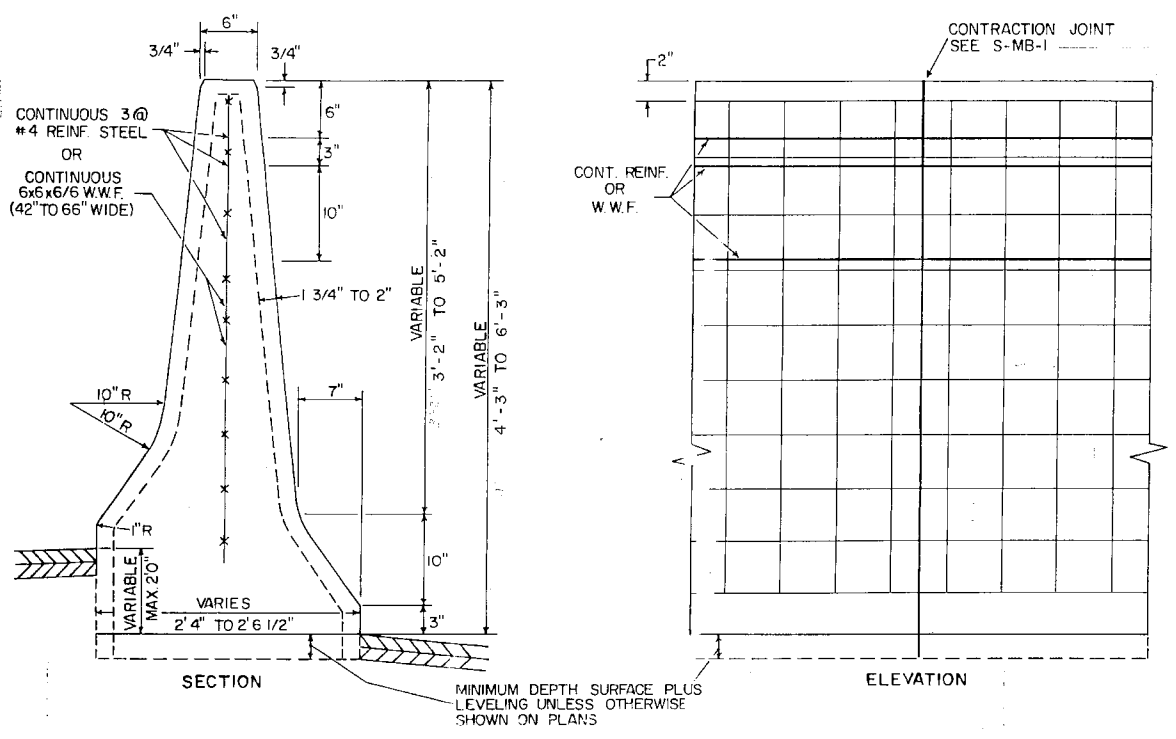
STATE OF TENNESSEE  
 DEPARTMENT OF TRANSPORTATION  
 BRIDGE REPAIR DETAILS  
 INTERSTATE 24 OVER  
 GERMANTOWN ROAD  
 HAMILTON COUNTY  
 1996

CORRECT *Edward P. Wasserman*  
 ENGINEER OF STRUCTURES

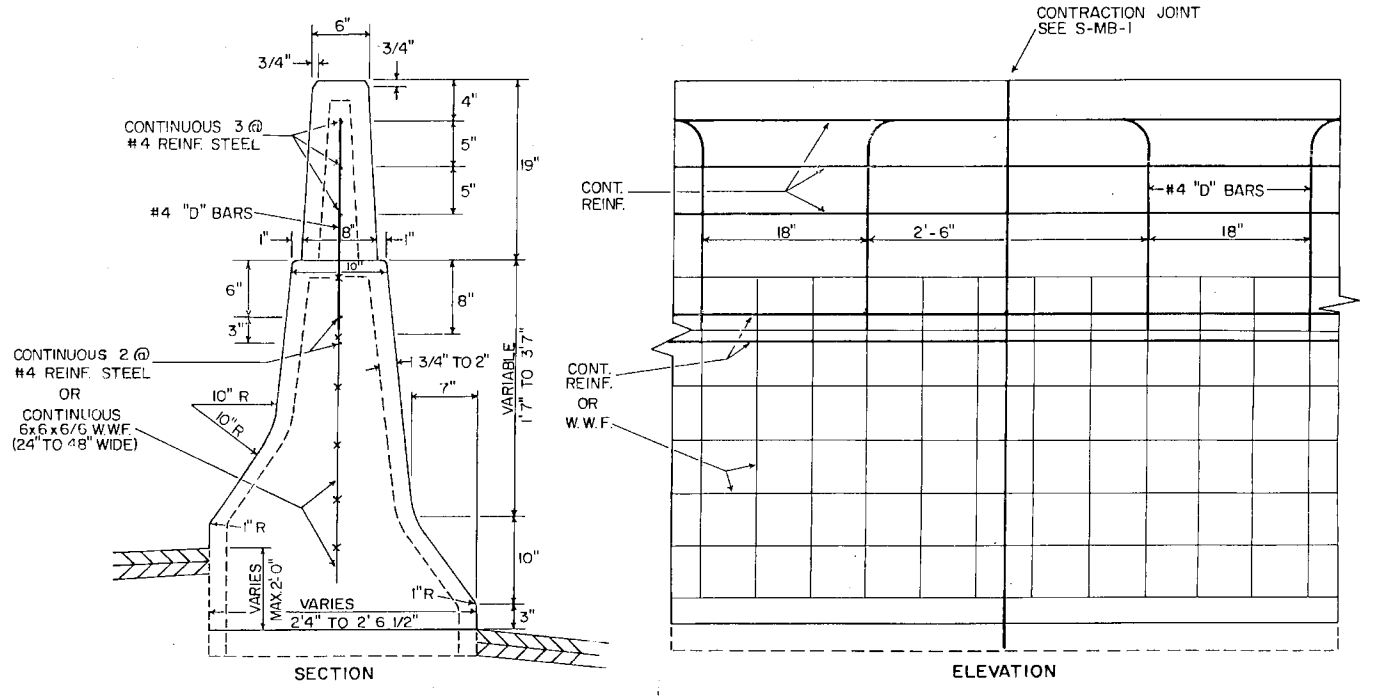
TENNESSEE D.O.T.  
DESIGN DIVISION  
FILE NO. 233

SCANNED

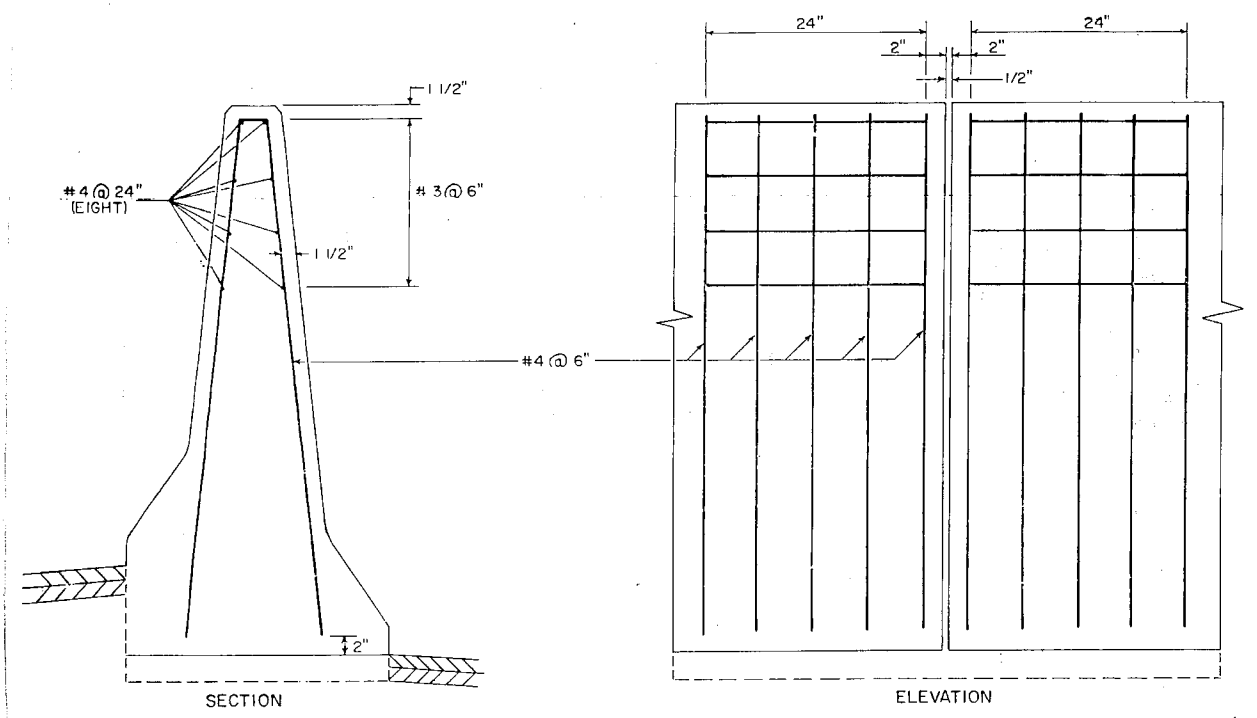
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	1996	33003-4154-04	2J



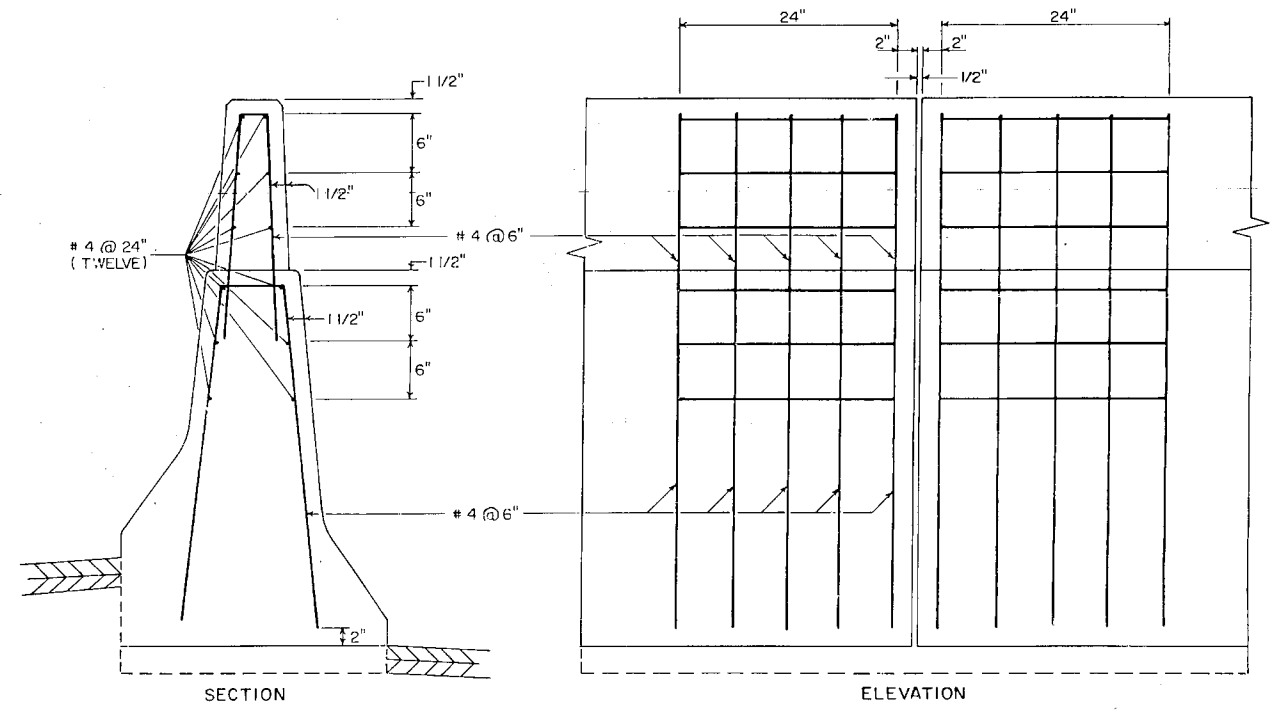
DETAILS OF REINFORCING AND CONTRACTION JOINT



DETAILS OF REINFORCING AND CONTRACTION JOINT

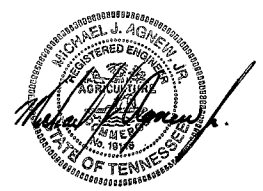


DETAILS OF REINFORCING AT EXPANSION JOINT  
MONOLITHIC BARRIER



DETAILS OF REINFORCING AT EXPANSION JOINT  
ALTERNATE BARRIER

- NOTES**
- SEE STANDARD DRAWING S-MB-1 FOR NOTES AND ADDITIONAL DETAILS.
  - PAYMENT WILL BE MADE UNDER ITEM NO 711-04, CONCRETE GLARE SCREEN MEDIAN BARRIER \_\_\_\_\_ LIN. FT.
  - THE COST OF FURNISHING AND INSTALLING MEDIAN BARRIER DELINEATORS, INCLUDING ALL MATERIALS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE INSTALLATION, SHALL BE INCLUDED IN BID PRICE FOR CONCRETE GLARE SCREEN MEDIAN BARRIER.
  - VERTICAL BARS MAY BE "D" BARS AT 18" MAXIMUM SPACING OR STRAIGHT DOWELS AT 24" MAXIMUM SPACING.



6-25-96

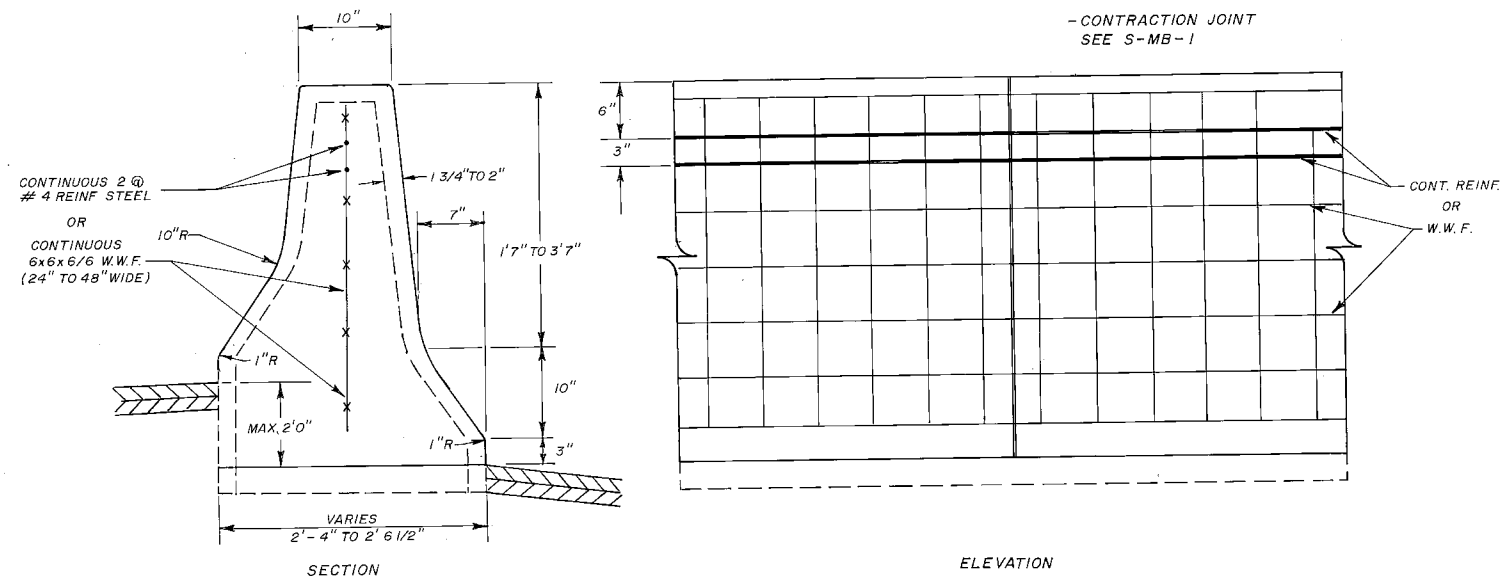
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PLANNING & DEVELOPMENT

MEDIAN  
BARRIER  
DETAILS

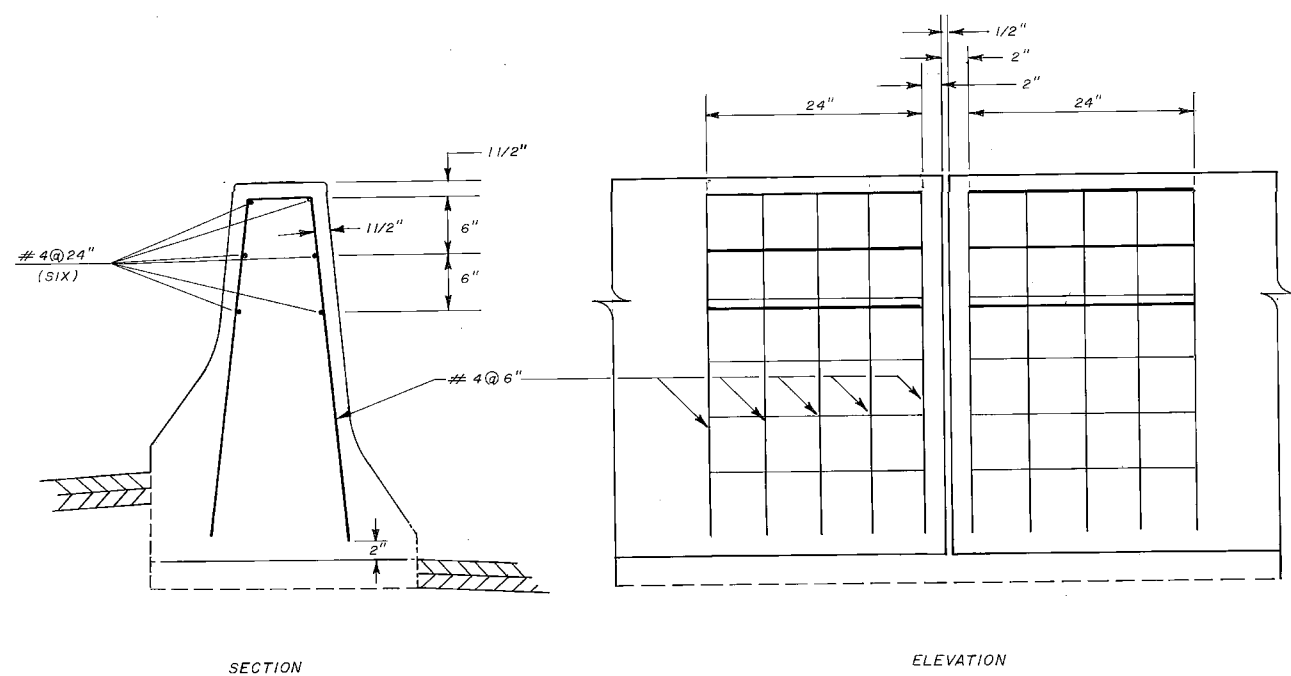
TYPE	YEAR	PROJECT NO.	SHEET NO.
CONST.	1996	33003-4154-04	2K

TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PLANNING & DEVELOPMENT  
FILE NO. 7  
23

SCANNED



DETAILS OF REINFORCING AND CONTRACTION JOINT



DETAILS OF REINFORCING AT EXPANSION JOINT



6-25-96

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PLANNING & DEVELOPMENT

MEDIAN  
BARRIER  
DETAILS

N.T.S.

Counties: Bledsoe	Bradley
Clay	Coffee
Cumberland	Fentress
Franklin	Hamilton
McMinn	Marion
Overton	Putnam
Rhea	Sequatchie
Van Buren	Warren

### ESTIMATED QUANTITIES

<u>Item No.</u>	<u>Description</u>	<u>Quantity</u>	<u>Unit</u>
1,2) 604-10.44	Expansion Joint Repairs	6684	L.F.
3) 712-01	Traffic Control	1	L.S.
717-01	Mobilization	1	L.S.

### FOOTNOTES

- 1) For quantity per bridge, see enclosed tables (EXPANSION JOINT REPAIR QUANTITIES). For details and notes see expansion joint repair detail sheet (Sheet 36 of 36).
- 2) The cost of removing existing asphalt and bituminous joint, cleaning and preparing existing joint opening, installing new backer rod and joint sealer, and any miscellaneous materials necessary to install and complete expansion joint repair to be included under Item No. 604-10.44, EXPANSION JOINT REPAIRS, L.F.
- 3) Traffic Control will be for fifty-two (52) bridge locations and located in sixteen (16) different counties. (See location sketches for Bridge No. and County) This item includes construction signs and flashing arrow boards as required for construction phasing and as shown on enclosed traffic control layouts.

### STANDARD DRAWING

<u>No.</u>	<u>REV. DATE</u>	<u>DRAWING</u>
T-FAB-1	5-30-91	Flashing Yellow Arrow Board

GENERAL NOTES

- 1) Design Specifications: AASHTO 1992 Edition with Addenda.
- 2) Specifications: Standard Specifications for Road and Bridge Construction of the Tennessee Department of Transportation (March 1, 1981 Edition).
- 3) Any damage during repairs to any portion of the Bridge or approaches shall be repaired at the Contractor's own expense to the approval of the Engineer.
- 4) Utilities: The Contractor is responsible for verifying locations of all existing utilities whether shown on Plans or as found on the site and shall not disturb any existing utility.
- 5) Traffic Control shall consist of furnishing Flagmen and erecting and maintaining all Warning Signs and other traffic control devices installed in accordance with the Manual on Uniform Traffic Control Devices, Part 6, and all cost shall be included in the unit price bid for Item No. 712-01.

## GENERAL NOTES

### CONSTRUCTION WORK ZONE AND TRAFFIC CONTROL NOTES

ADVANCED WARNING SIGNS SHALL NOT BE DISPLAYED MORE THAN FORTY-EIGHT (48) HOURS BEFORE PHYSICAL CONSTRUCTION BEGINS. SIGNS MAY BE ERECTED UP TO ONE WEEK BEFORE NEEDED, IF THE SIGN FACE IS FULLY COVERED.

IF THE CONTRACTOR MOVES OFF THE PROJECT, HE SHALL COVER OR REMOVE ALL UNNEEDED SIGNS AS DIRECTED BY THE ENGINEER. COSTS OF REMOVAL, COVERING, AND REINSTALLING SIGNS SHALL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT ALL COSTS SHALL BE INCLUDED IN THE ORIGINAL UNIT PRICE BID FOR ITEM NO. 712-06, SIGNS (CONSTRUCTION) PER SQUARE FOOT.

A LONG TERM BUT SPORADIC USE WARNING SIGN, SUCH AS FLAGGER SIGNS MAY REMAIN IN PLACE WHEN NOT REQUIRED PROVIDED THE SIGN FACE IS FULLY COVERED.

TRAFFIC CONTROL DEVICES SHALL NOT BE DISPLAYED OR ERECTED UNLESS RELATED CONDITIONS ARE PRESENT NECESSITATING WARNING.

USE OF BARRICADES, PORTABLE BARRIER RAILS, VERTICAL PANELS, AND DRUMS SHALL BE LIMITED TO THE IMMEDIATE AREAS OF CONSTRUCTION WHERE A HAZARD IS PRESENT. THESE DEVICES SHALL NOT BE STORED ALONG THE ROADWAY WITHIN THIRTY (30) FEET OF THE EDGE OF THE TRAVELED WAY BEFORE OR AFTER USE UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. THESE DEVICES SHALL BE REMOVED FROM THE CONSTRUCTION WORK ZONE WHEN THE ENGINEER DETERMINES THEY ARE NO LONGER NEEDED. WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY TO PROVIDE FOR THIS THIRTY (30) FEET SETBACK, THE CONTRACTOR SHALL DETERMINE THE ALTERNATE LOCATIONS AND REQUEST THE ENGINEER'S APPROVAL TO USE THEM.

THE CONTRACTOR SHALL NOT BE PERMITTED TO PARK ANY VEHICLES OR CONSTRUCTION EQUIPMENT DURING PERIODS OF INACTIVITY, WITHIN THIRTY (30) FEET OF THE EDGE OF PAVEMENT WHEN THE LANE IS OPEN TO TRAFFIC, UNLESS PROTECTED BY GUARDRAIL, BRIDGE RAIL, AND/OR BARRIERS INSTALLED FOR OTHER PURPOSES. PRIVATELY OWNED VEHICLES SHALL NOT BE ALLOWED TO BE PARKED WITHIN THIRTY (30) FEET OF AN OPEN TRAFFIC LANE AT ANY TIME UNLESS PROTECTED AS DESCRIBED ABOVE. WHERE THERE IS INSUFFICIENT RIGHT-OF-WAY TO PROVIDE FOR THIS THIRTY (30) FEET SETBACK, THE CONTRACTOR SHALL DETERMINE THE ALTERNATE LOCATIONS AND REQUEST THE ENGINEER'S APPROVAL TO USE THEM.

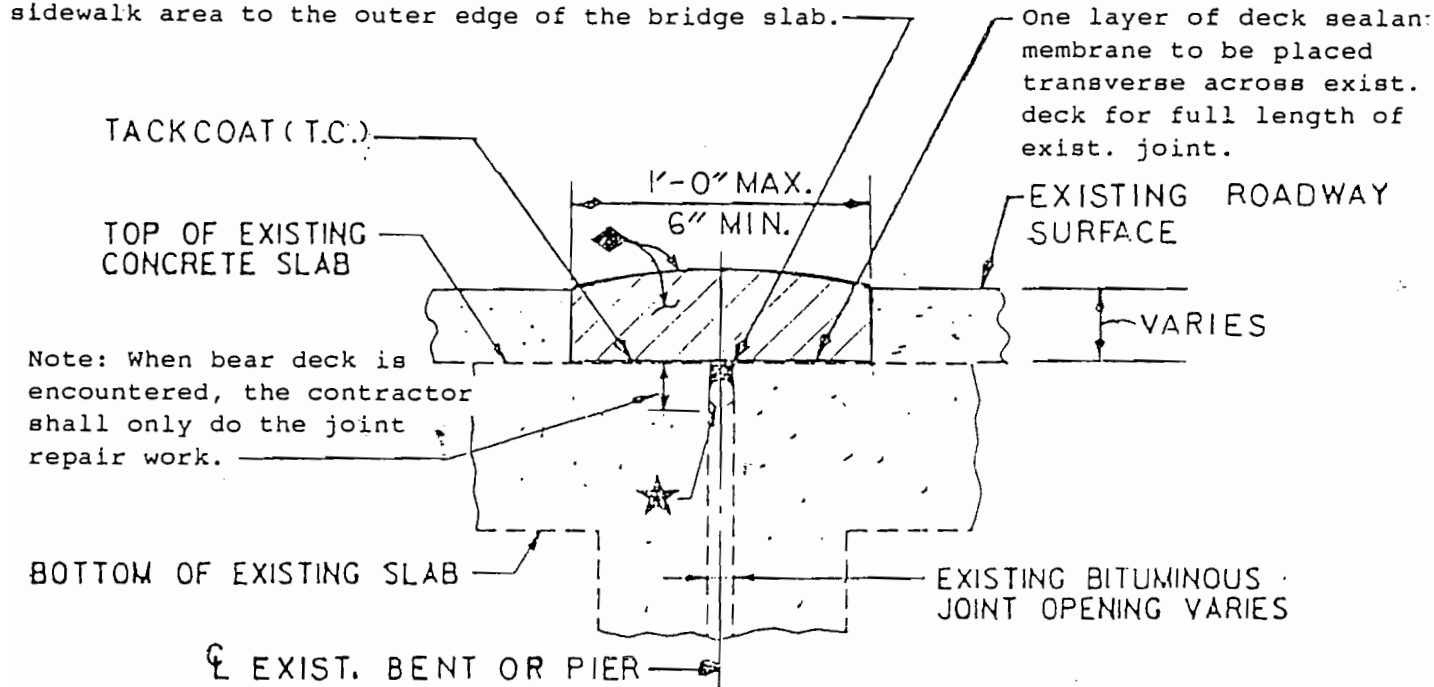
ALL DETOUR AND CONSTRUCTION SIGNING SHALL BE IN STRICT ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

## SPECIAL NOTES

THE DETAILS FOR TRAFFIC CONTROL SHOWN IN THESE PLANS APPLY TO DAYTIME ONLY LANE CLOSURES. ALL LANES ARE TO BE REOPENED TO TRAFFIC AT THE END OF THE DAY'S WORK.

Top two inches (2") of all existing bituminous joints in the bridge slab to be cleaned and resealed with new joint sealer. New joint sealer shall be a self-leveling, cold-applied, rapid-cure, two-part, ultra-low-modulus, 100 per cent (100%) silicone rubber sealant, Dow Corning 902 RCS joint sealant, or approved equal.

Cost of joint cleaning and sealing to be included under Item No. 604-10.44, EXPANSION JOINT REPAIRS, L.F. The sealer shall extend up and across the curb and/or sidewalk area to the outer edge of the bridge slab.



EXISTING BITUMINOUS JOINT REPAIR DETAIL

◆ NOTE: Grading "A" or "D" asphalt material shall be used to repair roadway surface. When existing asphalt surface is two inches (2") deep or less, use Grading "D" asphalt. When existing asphalt is greater than two inches (2") in depth use Grading "A" asphalt. The contractor shall tamp and compact new asphalt while pouring back to original grade. The new asphalt shall be left mounded across the new joint for settlement.

★ NOTE: The movement gap shall be caulked with a backer rod of suitable diameter. The rod shall be placed at a depth to ensure the correct width/depth ratio of the new bridge joint sealer. Backer rod and caulk shall be as per the sealer manufacturer's recommendations.

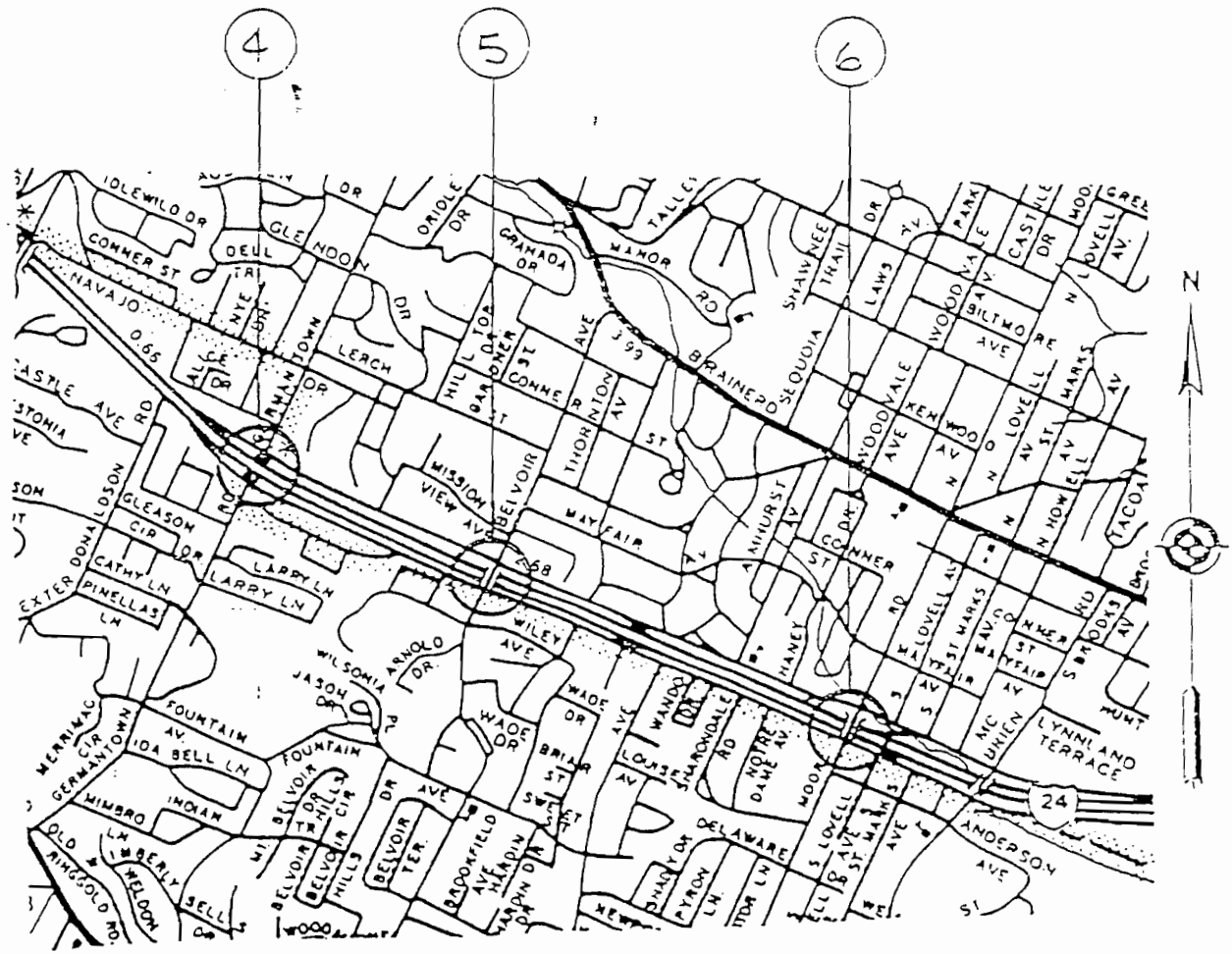
NOTE: Following removal of the existing bituminous fiberboard to an appropriate depth, the joint shall be completely cleaned in accordance with the sealer manufacturer's instructions.

NOTE: Cost of cleaning, preparing, and sealing existing joint opening and any miscellaneous materials necessary to complete repairs as shown to be included in Item No. 604-10.44, EXPANSION JOINT REPAIRS, L.F. This item number shall be bid with the contingency that this item may be increased, decreased, or eliminated as directed by the Engineer.

EXPANSION JOINT REPAIR DETAIL



- 4 33-I124-12.08(RL & LL)/ GERMANTOWN ROAD
- 5 33-3611-1.01/ INTERSTATE 24
- 6 33-3578-0.80/ INTERSTATE 24



LOCATION SKETCH of BRIDGE  
HAMILTON COUNTY

JOINT REPAIR QUANTITIES CONTINUED

HAMILTON COUNTY

BRIDGE NO.	NO. JOINTS	LENGTH	TOTAL LENGTH	BRIDGE LOCATION SHEET
33-I124-0.71(RL)	3	50'-8"	152'-0"	Sheet 24 of 36
33-I124-0.71(LL)	3	50'-8"	152'-0"	Sheet 24 of 36
33-I124-0.73 RAMP	2	29'-0"	58'-0"	Sheet 24 of 36
33-I24-12.08(RL)	3	51'-1"	154'-0"	Sheet 25 of 36
33-I24-12.08(LL)	3	51'-1"	154'-0"	Sheet 25 of 36
33-SR2-16.10	4	52'-6"	210'-0"	Sheet 26 of 36
33-SR27-5.60(RL)	4	37'-6"	150'-0"	Sheet 24 of 36
33-SR27-5.60(LL)	4	50'-3"	201'-0"	Sheet 24 of 36
33-SR29-11.04(RL)	2	74'-0"	148'-0"	Sheet 27 of 36
33-SR29-11.04(LL)	2	60'-0"	120'-0"	Sheet 27 of 36
33-SR320-0.86	1	38'-0"	38'-0"	Sheet 26 of 36
33-3578-0.80	5	79'-6"	398'-0"	Sheet 25 of 36
33-3611-1.01	5	79'-6"	398'-0"	Sheet 25 of 36

## GENERAL NOTES

### CONSTRUCTION SPECIFICATIONS

Tennessee Department of Highways and Public Works Standard Specifications for Road and Bridge Construction.

### DESIGN SPECIFICATIONS

AASHO, 1957 Edition with H20-S16-44 Live Load. Also, Alternate Loading as per Sect. 4c of PPM 20-4 for Germantown Road Underpass only.  
\* AS SHOWN

### MATERIALS

#### Concrete

All concrete except precast concrete piling and prestressed concrete beams shall be Class "A". Concrete for precast concrete piling shall be Class "S" with Class "A" aggregates. For concrete in prestressed beams see Special Provisions. For materials, forms, and finish, see Construction Specifications.

#### Reinforcing Steel

See Construction Specifications and Reinforcing Steel Schedules.

#### Prestressing Steel Cables

See Special Provisions.

#### Structural Steel

Except as noted below or shown elsewhere, all materials shall be carbon structural steel, ASTM-A7-56T. Bolts, nuts, and washers shall be ASTM-A7-56T or A307-55T. Nuts shall be self-locking "Stover", or approved equal.  
Painting: Shop paint - one coat of red lead. Field paint - one coat of red lead paint-tinted and two coats of aluminum paint with first coat tinted. See Construction Specifications.

#### Bronze Alloy

See Special Provisions and H-2-11.

#### Piling

See Construction Specifications and H-5-111

#### Prefabricated Masonry Pad

See Special Provisions and F-10-84.

#### Sheet Packing

Two layers of Johns-Mansville Service Sheet Packing No. 60, 1/16" thick, or approved equal. Graphite surfaces to be in contact with each other.

#### Premolded Joint Filler

See Construction Specifications.

### WELDING

All welding shall conform to the current "Standard Specifications for Welded Highway and Railway Bridges" of the American Welding Society.

### HANDRAILING

SEE H-5-110 G-9-97, G-9-104  
H-2-12 AND H-2-21.

### ELECTRICAL LIGHTING

See G-9-97, G-9-104, H-2-12, H-2-21 and G-7-5.

### BITUMINOUS SURFACING

See Construction Specifications.

### CAMBER

Concrete T-Beams shall be cambered for the dead load deflection as follows:

Camber for DL Deflection of Center of Span

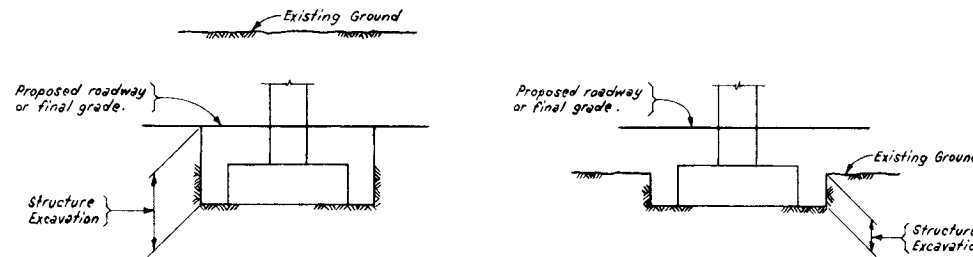
Spans  
37'-----3/8"  
46'-----5/8"

Sufficient camber shall be provided in the falsework and forms for each span to allow the closing up of joints in the forms and supporting falsework.

## ESTIMATED QUANTITIES

ITEM NO.	17-2	17-4	104-1	104-2	104-3	105-1	105-2	105-3	132-1	135-4	135-12	137-3	139-1	139-3	154-1	154-1A	154-1B	154-1C	154-1D	154-1E	154-1F	704	702	501	
	ITEM	Dry Excav. *	Rock Excav.	A.C.S.C.			S.A. or S.A.S.C. **			Struct. Steel ***	Class "A" Concrete †	Reinf. Steel ††	10BP42 Steel H-Piling †††	Precast Concrete Piling †††			Precast - Prestressed Concrete Beams ⊕						CONCRETE Handrail ⊕⊕	2-Rail Steel Handrail ⊕⊕	Lighting ⊕⊕⊕
STRUCTURE	C.Y.	C.Y.	Tons	Tons	Tons	Tons	Tons	Tons	Lbs.	C.Y.	Lbs.	L.F.	L.F.	L.F.	Each	Each	Each	Each	Each	Each	Each	L.F.	L.F.	Lump Sum	
GERMANTOWN ROAD UNDERPASS	439								6,860	1,300.9	292,307		400	4,900								332	332	Lump Sum	
BELVOIR AVENUE OVERPASS	681	4	134.6	9.3	0.7	134.6	9.3	0.7		526.2	86,952		320	5,155		52	26					26	381	Lump Sum	
SOUTH MOORE ROAD OVERPASS	597	9	122.8	8.6	0.6	122.8	8.6	0.6		486.1	83,842	1,891				52							52	349	Lump Sum
McBRIEN ROAD OVERPASS	294	2	135.2	9.4	0.6	135.2	9.4	0.6		562.7	89,816	2,302			52			26	26					384	Lump Sum
<b>TOTALS</b>	<b>2,011</b>	<b>15</b>	<b>392.6</b>	<b>27.3</b>	<b>1.9</b>	<b>392.6</b>	<b>27.3</b>	<b>1.9</b>	<b>6,860</b>	<b>2,875.9</b>	<b>552,917</b>	<b>4,193</b>	<b>720</b>	<b>10,055</b>	<b>52</b>	<b>104</b>	<b>26</b>	<b>26</b>	<b>26</b>	<b>52</b>	<b>26</b>	<b>1,446</b>	<b>332</b>	<b>Lump Sum</b>	

- \* All earth excavation shall be measured and paid for as dry excavation only.
- \*\* S.A. or S.A.S.C. may be used as alternates for A.C.S.C. bituminous surface materials.
- \*\*\* Includes bronze alloy plates in bearings and anchor bolts for bearings.
- † Cost of all embedded material such as joint fillers, drains, sheet piling, etc. shall be included in the unit price of Class "A" concrete. \*Unless otherwise provided for in the Special Provisions.
- †† No alternates may be used for the steel H-piling in the S. Moore Road and McBrien Rd. Overpasses.
- ††† No alternates may be used for the precast concrete piling in the Germantown Rd. Underpass, but may be used in the bents only on the Belvoir Ave. Overpass. If it becomes necessary to use Size 2 piles, the Contractor will be allowed an increase of 25% in his Size 1 bid price.
- ⊕ Prestressed concrete members complete in place with tie-rods, dowels (and drilling for dowels), bearing pads, etc.; but not including concrete sidewalks. Quantities for the sidewalks on the prestressed beam bridges are included in Item Nos. 135-4 and 135-12.
- ⊕⊕⊕ Lump sum for lighting complete shall include furnishing and placing all conduits, junction boxes, anchor bolts for light standards, and all other accessories necessary to complete this item.



EXCAVATION DETAILS  
NO SCALE

## LIST OF DRAWINGS

DRAWING NO.	TITLE
G-9-90	General Notes and Specifications
G-7-5	Standard Electrical Lighting Details
H-5-110	Handrailing Details, TELEPHONE CONDUITS IN SIDEWALKS
H-2-247	Standard Pile Details
H-5-111	Standard Prestressed Concrete Bridge-Pretensioned
F-10-84	Standard Prestressed Concrete Bridge-Pretensioned
F-10-85 & E-10-B5A	Standard Prestressed Concrete Bridge-Pretensioned
G-9-91 to G-9-98	South Moore Road Overpass
G-9-99 to G-9-105	McBrien Road Overpass
H-2-1 to H-2-14	Germantown Road Underpass
H-2-15 to H-2-22	Belvoir Avenue Overpass

STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS  
CHATTANOOGA FREEWAY  
HAMILTON COUNTY-F.A. PROJ. NO. F-24-3 ( )

### GENERAL NOTES AND SPECIFICATIONS

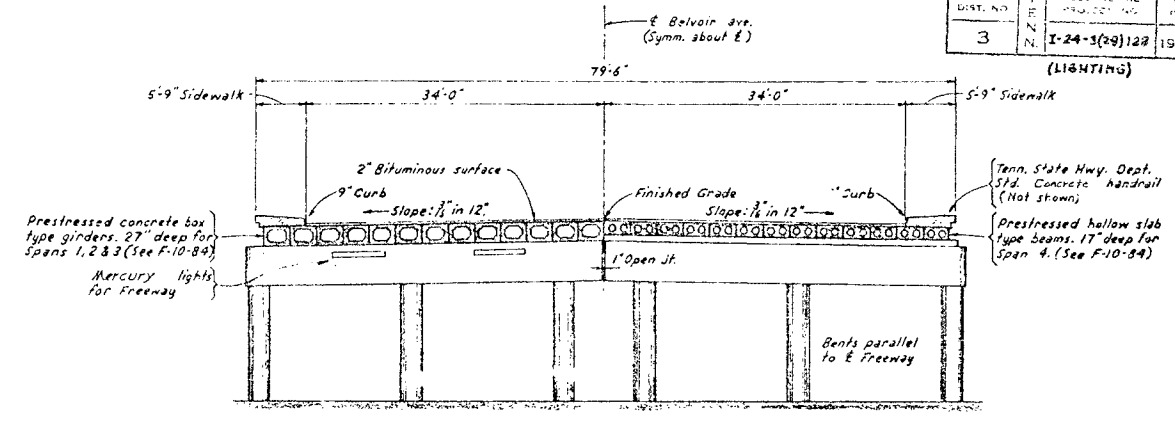
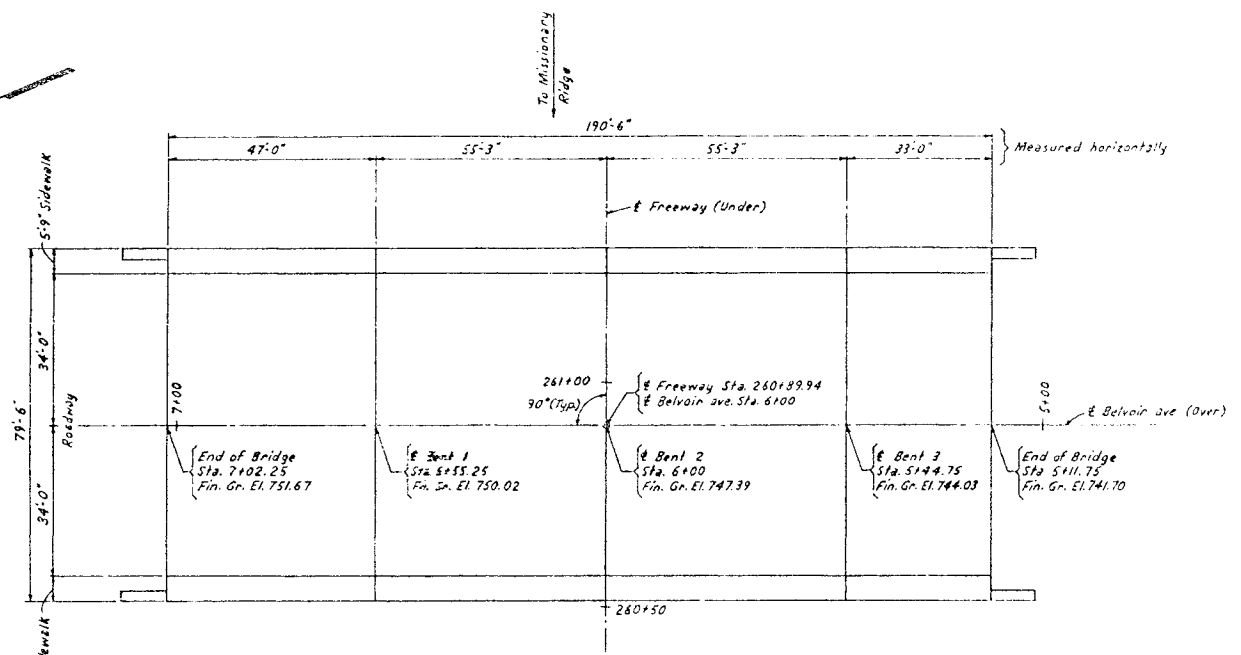
SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.

AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: DRWN: AB:JP SCALE: NONE DATE: 4-2-59  
CHKD: CHKD: AC SUPY: TMS FILE NO. 57.77 SHEET NO. G-9-90

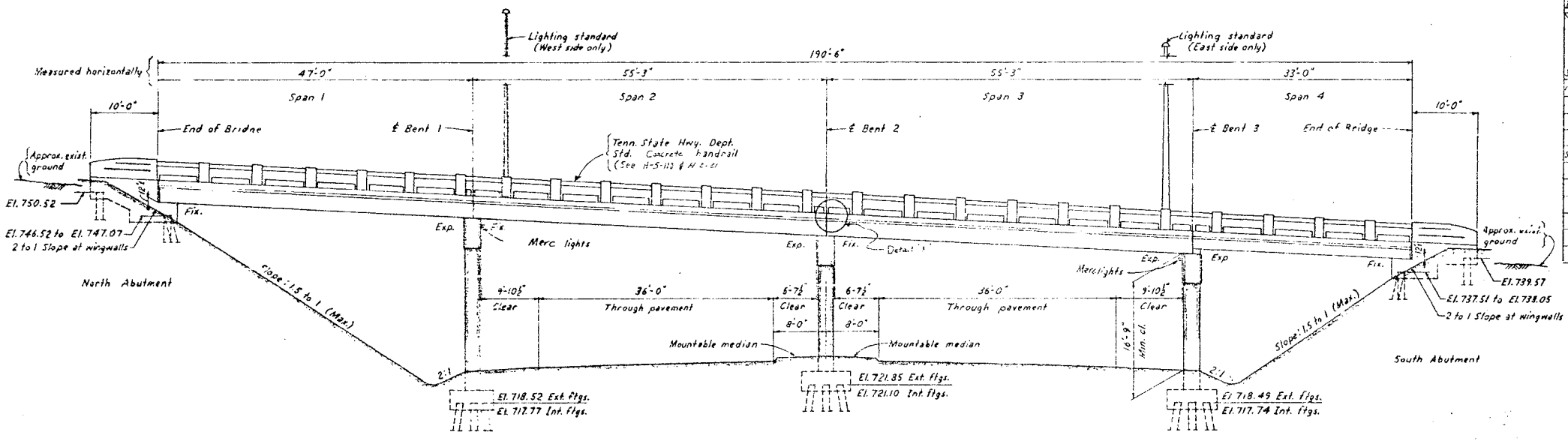
REV. 4/28/61 - DWG NO. FOR TEL. CONDUITS ADDED  
 Revised 11-9-60 D.B.M.  
 Revised Oct. 1960 - Changed handrailing to Concrete Handrailing.  
 Revised April 1960 - Reduced number of lighting standards.  
 Increased vertical clearance to 16'-6" minimum.

PROJ. ROAD DIST. NO.	STATE	PROJ. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(29)128	15.5E	12	18	18



TYPICAL CROSS SECTION  
LOOKING NORTH  
Scale: 1/10'

**HANDRAIL NOTE**  
Build handrail according to std. dwg. H-5-112 except use end post as shown in H-2-17. Dimension L=6'-2 1/8" (1). See also details on H-2-21.



ELEVATION  
Scale: 1/10'  
(Elevations shown are to pile cut-offs)

ITEM NO.	ESTIMATED QUANTITIES																
	17-2	17-4	104-1	104-2	104-3	105-1	105-2	105-3	135-4	135-12	139-1	139-3	154-1A	154-1B	154-1F	501	704
ITEM	Dry Excav.	Rock Excav.	A.C.S.C.			S.A. or S.A.S.C.		Class A Conc.		Reinf. Steel	Precast Conc. Piling	Prestressed Beams			Lighting	Concrete Handrail	
	C.Y.	C.Y.	Mineral Agg. Ton	Asphalt Coat Ton	Tack Coat Ton	Mineral Agg. Ton	Asphalt Cement Ton	Tack Coat Ton	C.Y.	LBS.	Test Size	Each	Each	Each	Lump Sum	L.F.	
North Abut.	26.0								37.4	3,963							
Bent 1	192.0	4.0							120.7	26,242							
Bent 2	194.0								124.4	23,379							
Bent 3	223.0								127.5	24,681							
South Abut.	36.0								36.2	3,978							
Span 1			33.1	2.3	0.2	33.1	2.3	0.2	23.2	1,215			26				
Span 2			39.1	2.7	0.2	39.1	2.7	0.2	23.2	1,215			26				
Span 3			39.1	2.7	0.2	39.1	2.7	0.2	23.2	1,215			26				
Span 4			23.3	1.6	0.1	23.3	1.6	0.1	13.9	695				26			
TOTAL	681.0	4.0	134.6	9.3	0.7	134.6	9.3	0.7	526.2	86,952	320	5155	52	26	26	Lump Sum	381

\* 10BP42 steel H-piling may be used as an alternate in the bents.  
No alternates may be used for the precast concrete piling in the abutments.  
\* That part of concrete replaced by the embedded parts of the precast concrete pile is not included in the estimated quantities shown.

LIST OF DRAWINGS

Drawing No.	Title
H-2-15	General Drawing
H-2-16	Sounding Data
H-2-17	Abutments
H-2-18	Bents-Column and Footing Details
H-2-19	Bents
H-2-20	Typical Cross Section and Sidewalk
H-2-21	Lighting, Handwriting and Drains
H-2-22	Reinforcing Steel
H-5-110*	Handrail
H-5-111	Piles

\* See into this sheet.

NOTES:  
For General Notes and Specifications, see G-9-90.  
For lighting details, see H-7-21 and G-7-5.

STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS  
CHATTANOOGA FREEWAY  
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3 ( )

**BELVOIR AVENUE OVERPASS  
GENERAL DRAWING**

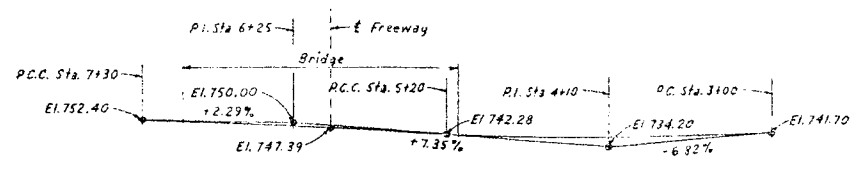
SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.  
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: FAM  
CHKD: TS-JM

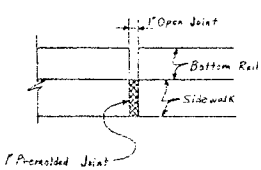
DRWN: WRA  
CHKD: AC

SCALE: AS NOTED  
FILE NO. 57.77

DATE: 4-7-60  
SHEET NO. H-2-18



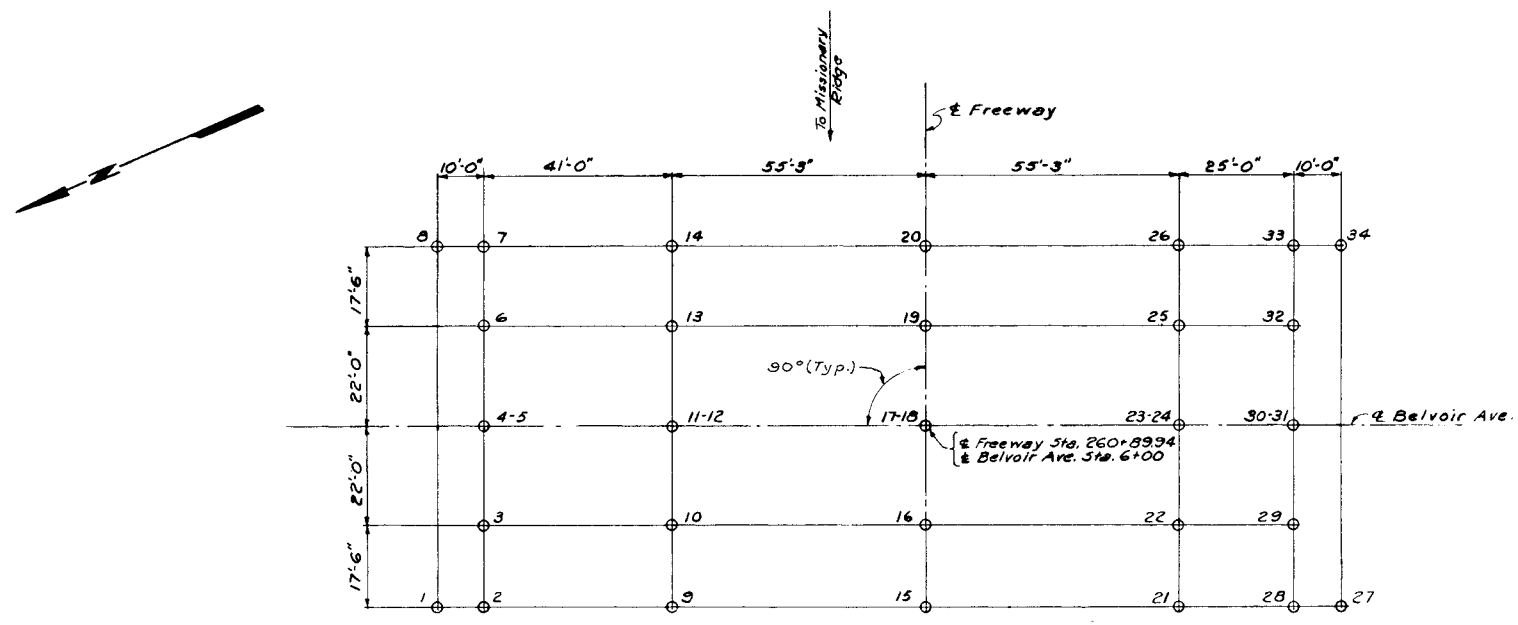
FINISHED GRADE PROFILE OF BELVOIR AVE.  
No scale



DETAIL "X"  
TYPICAL

Note:  
Where underground pipe lines may be encountered during construction, it shall be the Contractor's responsibility to protect these lines from any damage. Where relocation or readjustment of a utility may be required, it shall be done by the owner of same.

Revised July, 1960. Increased number of mercury lights.  
 Revised July, 1960. Changed Handwriting. See notes A, Merc.  
 Revised July, 1960. Changed Handwriting. See notes A, Merc.  
 Revised April, 1960. Reduced number of lighting standards.  
 Increased vertical clearance to 16'-6" min.



SOUNDING PLAN

SOUNDING DATA

Hole No.	Ground Elev.	Rock Elev.
1	749.8	688.8
2	749.4	711.4
3	748.6	726.6
4-5	748.5	679.5
6	748.5	*
7	748.8	719.8
8	749.7	674.7
9	750.1	*
10	746.6	720.6
11-12	745.9	698.9
13	746.1	710.1
14	746.2	*
15	748.0	*
16	742.8	*
17-18	742.1	690.1
19	742.0	690.0
20	741.3	**
21	739.5	699.5
22	738.7	*
23-24	738.5	694.5
25	739.1	687.1
26	739.3	*
27	737.7	697.7
28	738.2	700.2
29	737.3	661.3
30-31	737.2	688.2
32	737.9	703.9
33	738.1	*
34	737.2	665.2

\* Rock not reached at 43' foot depth.  
\*\* Not drilled.

DRILLERS LOG

Hole No. 1 Ground Elev. 749.8 - Rock Elev. 688.8 (61' depth)  
0' to 18' - Stiff dark red clay and chert.  
18' to 42' - Brown clay and chert.  
42' to 61' - Moist brown clay and chert.

Hole No. 2 Ground Elev. 749.4 - Rock Elev. 711.4 (38' depth)  
0' to 17' - Stiff dark red clay and chert.  
17' to 38' - Brown clay and chert.

Hole No. 3 Ground Elev. 748.6 - Rock Elev. 726.6 (22' depth)  
0' to 15' - Stiff dark red clay and chert.  
15' to 22' - Brown clay and chert.

Hole No. 4-5 Ground Elev. 748.5 - Rock Elev. 679.5 (69' depth)  
0' to 18' - Stiff dark red clay and chert.  
18' to 42' - Brown clay and chert.  
42' to 69' - Moist brown clay and chert.

Hole No. 6 Ground Elev. 748.5 - Rock Not Reached (43' depth)  
0' to 8' - Muddy brown soil.  
8' to 32' - Stiff heavy red clay and chert.  
32' to 43' - Moist red clay and chert.

Hole No. 7 Ground Elev. 748.8 - Rock Elev. 719.8 (29' depth)  
0' to 10' - Muddy brown soil.  
10' to 29' - Stiff heavy red clay and chert.

Hole No. 8 Ground Elev. 749.7 - Rock Elev. 674.7 (75' depth)  
0' to 10' - Muddy brown soil.  
10' to 30' - Stiff heavy red clay and chert.  
30' to 50' - Moist red clay and chert.  
50' to 75' - Wet muddy red clay and chert.

Hole No. 9 Ground Elev. 750.1 - Rock Not Reached (43' depth)  
0' to 8' - Stiff red clay and chert.  
8' to 30' - Light red clay and chert.  
30' to 43' - Wet muddy brown clay.

Hole No. 10 Ground Elev. 746.6 - Rock Elev. 720.6 (26' depth)  
0' to 8' - Stiff red clay and chert.  
8' to 26' - Light red clay and chert.

Hole No. 11-12 Ground Elev. 745.9 - Rock Elev. 698.9 (47' depth)  
0' to 18' - Stiff red clay and chert.  
18' to 35' - Brown clay and chert.  
35' to 47' - Muddy brown clay.

DRILLERS LOG

Hole No. 13 Ground Elev. 746.1 - Rock Elev. 710.1 (36' depth)  
0' to 8' - Muddy brown soil.  
8' to 36' - Stiff heavy red clay and chert.

Hole No. 14 Ground Elev. 746.2 - Rock Not Reached (43' depth)  
0' to 10' - Muddy brown soil.  
10' to 30' - Stiff heavy red clay and chert.  
30' to 43' - Moist red clay and chert.

Hole No. 15 Ground Elev. 748.0 - Rock Not Reached (43' depth)  
0' to 8' - Moist brown clay.  
8' to 30' - Stiff red clay and chert.  
30' to 43' - Moist brown clay.

Hole No. 16 Ground Elev. 742.8 - Rock Not Reached (43' depth)  
0' to 8' - Stiff red clay and chert.  
8' to 30' - Light red clay and chert.  
30' to 43' - Wet muddy brown clay.

Hole No. 17-18 Ground Elev. 742.1 - Rock Elev. 690.1 (52' depth)  
0' to 10' - Stiff red clay and chert.  
10' to 22' - Light red clay and chert.  
22' to 30' - Moist brown clay and chert.  
30' to 52' - Muddy brown clay.

Hole No. 19 Ground Elev. 742.0 - Rock Elev. 690.0 (52' depth)  
0' to 12' - Brown clay and chert.  
12' to 30' - Red clay and chert.  
30' to 52' - Muddy brown clay.

Hole No. 20 Ground Elev. 741.3 - Not drilled.

Hole No. 21 Ground Elev. 739.5 - Rock Elev. 699.5 (40' depth)  
0' to 8' - Moist brown clay.  
8' to 23' - Stiff red clay and chert.  
23' to 40' - Moist brown clay.

Hole No. 22 Ground Elev. 738.7 - Rock Not Reached (43' depth)  
0' to 8' - Moist brown clay.  
8' to 30' - Stiff red clay and chert.  
30' to 43' - Moist brown clay.

Hole No. 23-24 Ground Elev. 738.5 - Rock Elev. 694.5 (44' depth)  
0' to 12' - Brown clay and chert.  
12' to 30' - Red clay and chert.  
30' to 44' - Muddy brown clay.

DRILLERS LOG

Hole No. 25 Ground Elev. 739.1 - Rock Elev. 687.1 (52' depth)  
0' to 12' - Brown clay and chert.  
12' to 30' - Red clay and chert.  
30' to 52' - Muddy brown clay.

Hole No. 26 Ground Elev. 739.3 - Rock Not Reached (43' depth)  
0' to 8' - Muddy brown clay.  
8' to 32' - Stiff red clay and chert.  
32' to 43' - Light red clay and chert.

Hole No. 27 Ground Elev. 737.7 - Rock Elev. 697.7 (40' depth)  
0' to 8' - Moist brown clay.  
8' to 30' - Stiff red clay and chert.  
30' to 40' - Moist brown clay.

Hole No. 28 Ground Elev. 738.2 - Rock Elev. 700.2 (38' depth)  
0' to 8' - Moist brown clay.  
8' to 23' - Stiff red clay and chert.  
23' to 38' - Moist brown clay.

Hole No. 29 Ground Elev. 737.3 - Rock Elev. 661.3 (76' depth)  
0' to 8' - Moist brown clay.  
8' to 23' - Stiff red clay and chert.  
23' to 51' - Moist gray clay.  
51' to 76' - Light red clay and chert.

Hole No. 30-31 Ground Elev. 737.2 - Rock Elev. 688.2 (49' depth)  
0' to 12' - Brown clay and chert.  
12' to 30' - Red clay and chert.  
30' to 49' - Muddy brown clay.

Hole No. 32 Ground Elev. 737.9 - Rock Elev. 703.9 (34' depth)  
0' to 12' - Stiff red clay and chert.  
12' to 34' - Brown clay and chert.

Hole No. 33 Ground Elev. 738.1 - Rock Not Reached (43' depth)  
0' to 8' - Muddy brown clay.  
8' to 32' - Stiff red clay and chert.  
32' to 43' - Light red clay and chert.

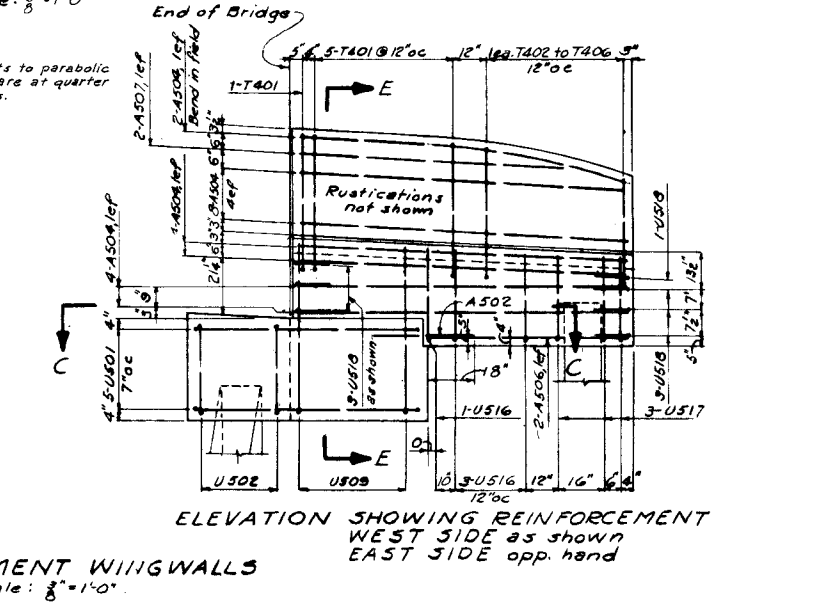
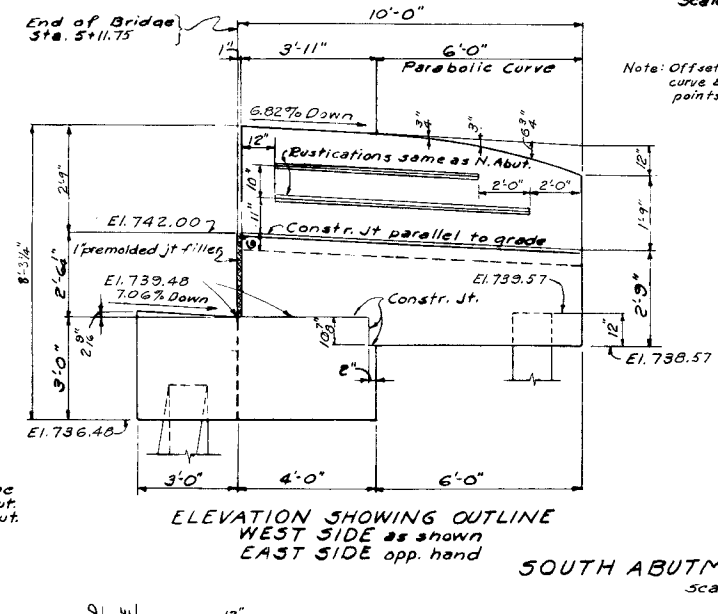
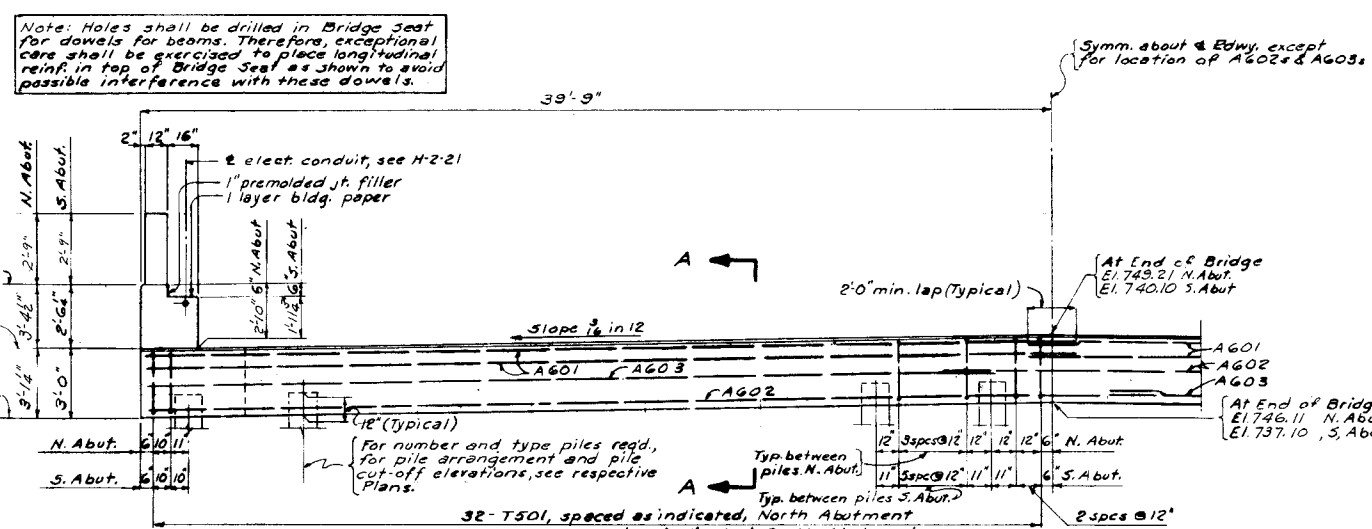
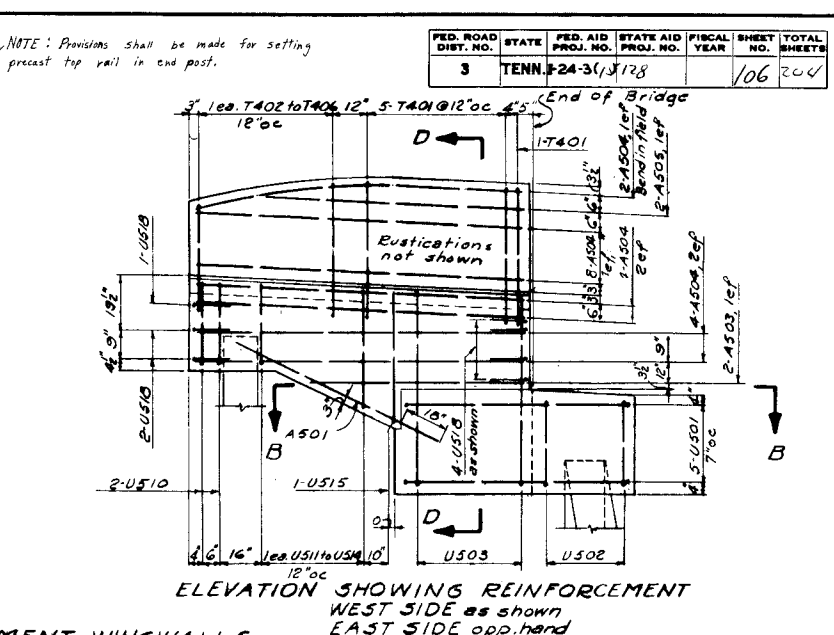
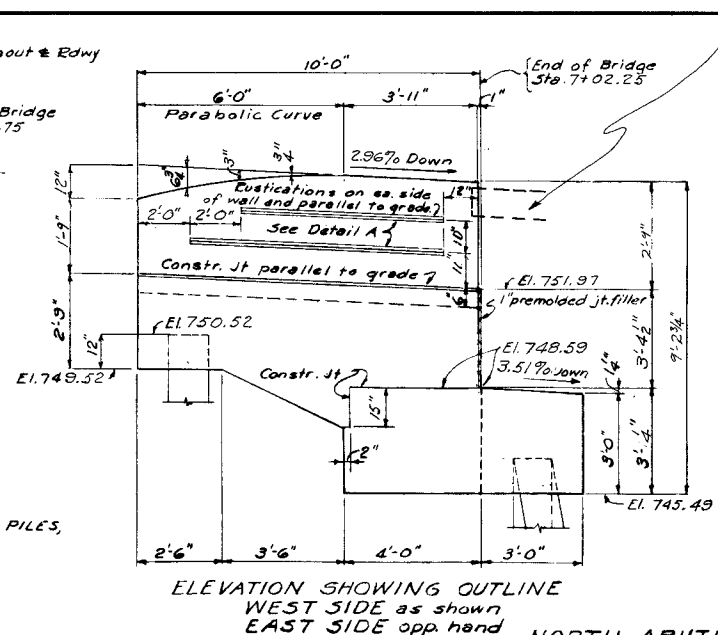
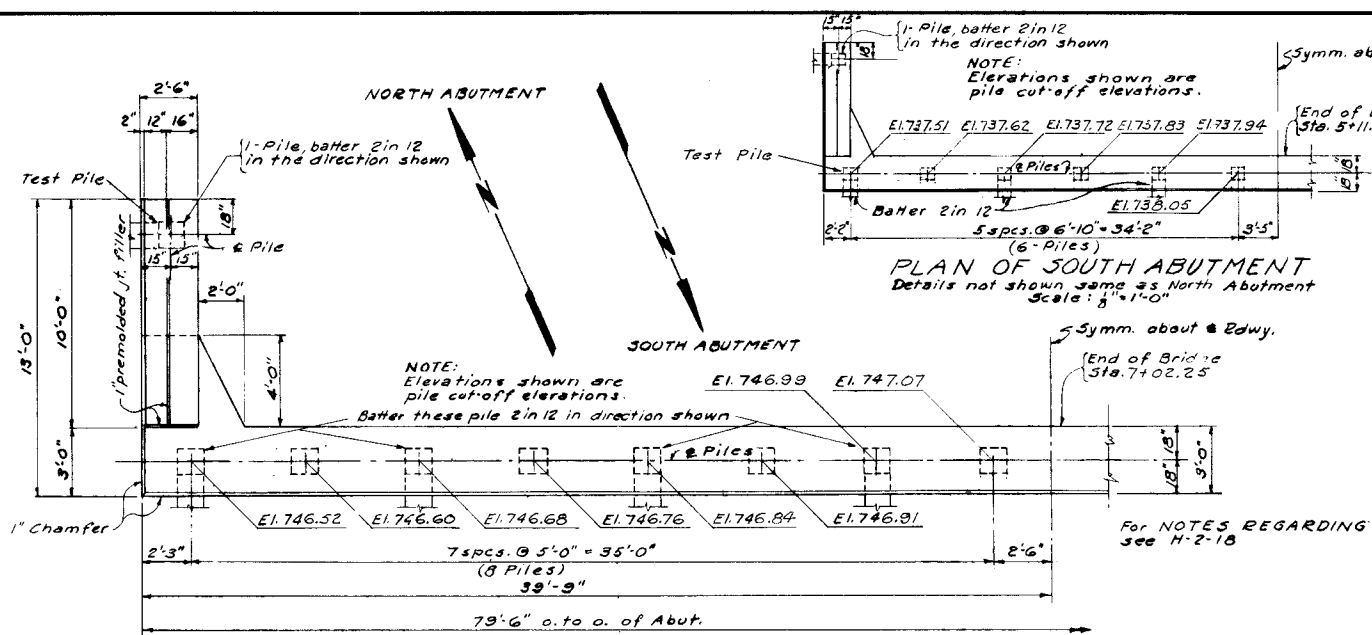
Hole No. 34 Ground Elev. 737.2 - Rock Elev. 665.2 (72' depth)  
0' to 12' - Brown clay and chert.  
12' to 32' - Red clay and chert.  
32' to 72' - Muddy brown clay.

STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS  
CHATTANOOGA FREEWAY  
HAMILTON COUNTY - F.A. PROJ. NO. I-24-3 ( )

**BELVOIR AVENUE OVERPASS  
SOUNDING DATA**

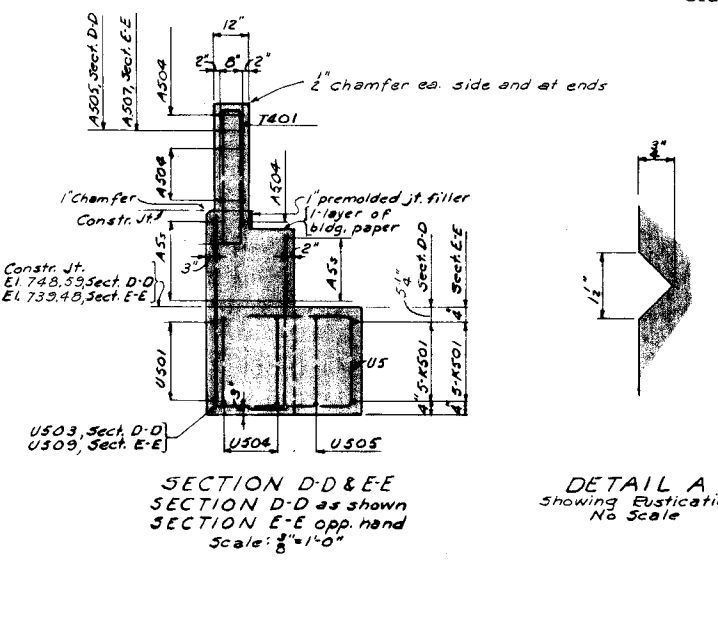
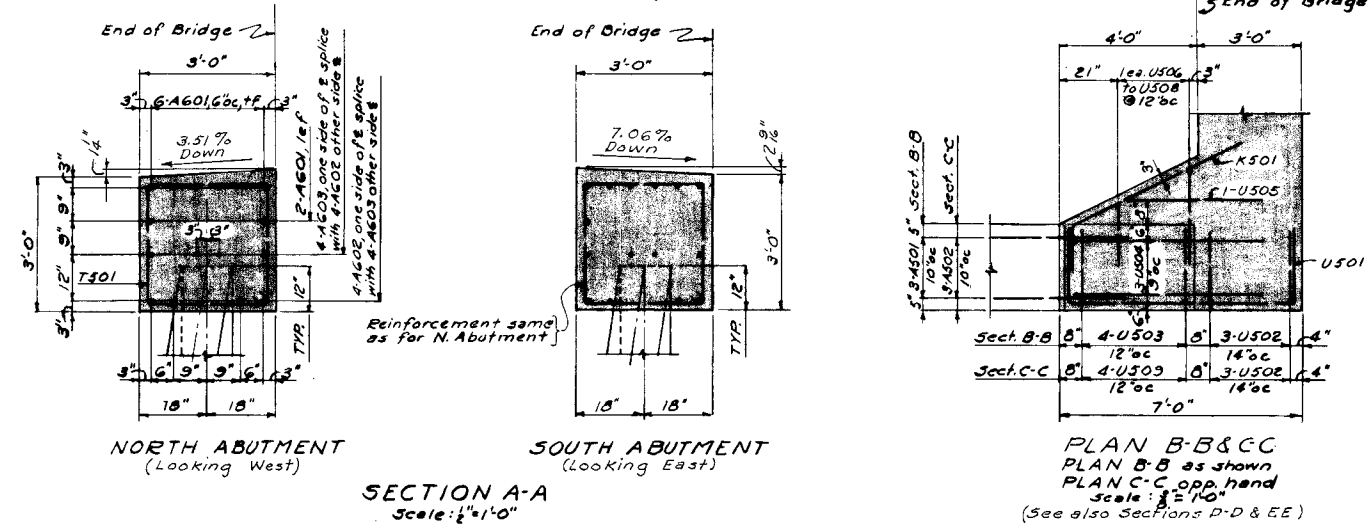
SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.  
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN:	DRWN: AB-FM	SCALE: NONE	DATE: 4-17-59
CHKD:	AC	FILE NO. 57.77	SHEET NO. H-2-16
SUPV:	FAM		



**ABBREVIATIONS:**  
of each face

**NOTES:**  
For General Notes and Specifications, see G-9-90.  
For location of abutments, see H-2-15.  
For reinforcing steel and bending diagrams, see H-2-22.  
All dimensions relative to spacing of reinforcing bars are to centers of bars, except as noted.  
Chamfer all exposed edges 1/2", except as noted.  
Marks to all reinforcing steel in abutments shall have the suffix "A" (Thus: A601-A, U501-A).  
Notes for beam dowels shall be drilled after placing precast beams, see F-10-84.  
For details of piles, see H-5-111.



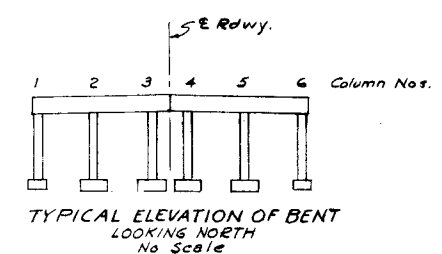
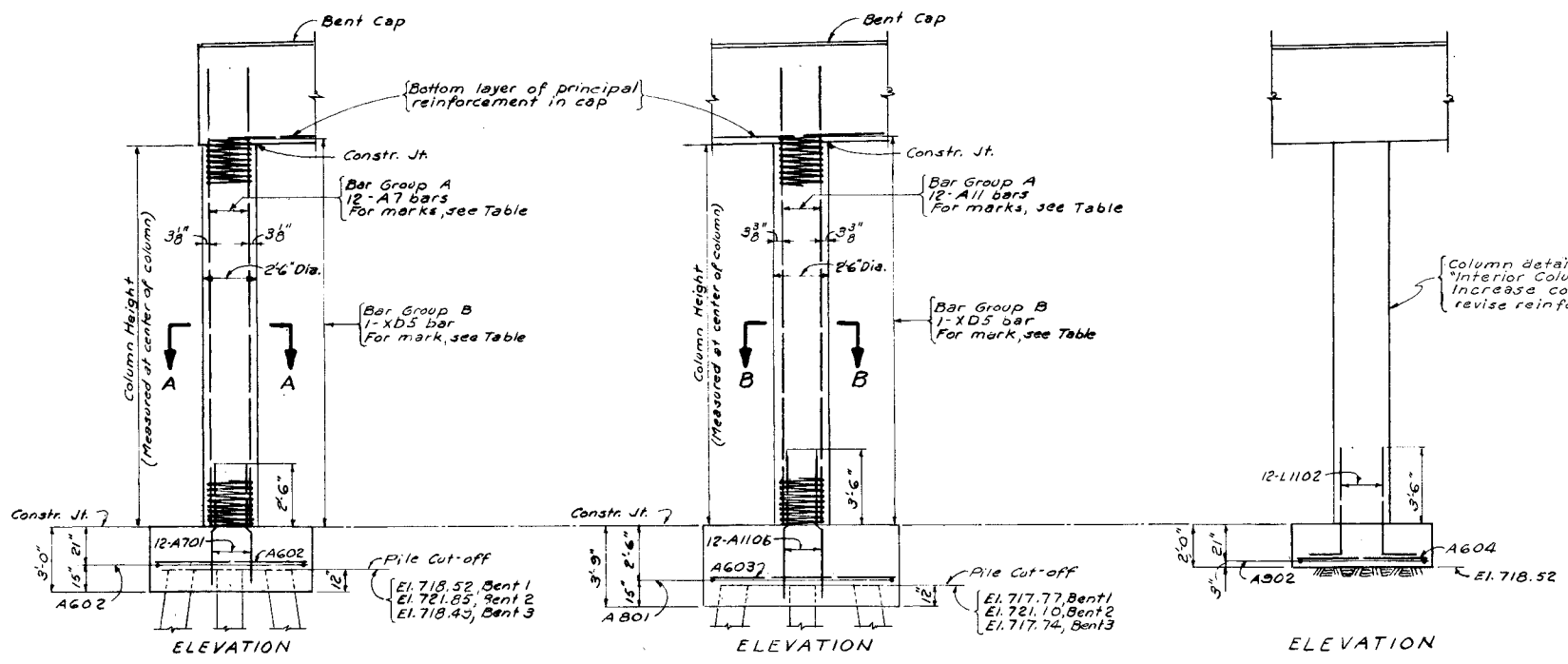
STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS  
CHATTANOOGA FREEWAY  
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3( )

**BELVOIR AVENUE OVERPASS ABUTMENTS**

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.  
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: FAM    DRWN: FAM    SCALE: AS NOTED    DATE: 4-17-59  
CHKD: TMS    SUPV: FAM    FILE NO. 5777    SHEET NO.    H-2-17

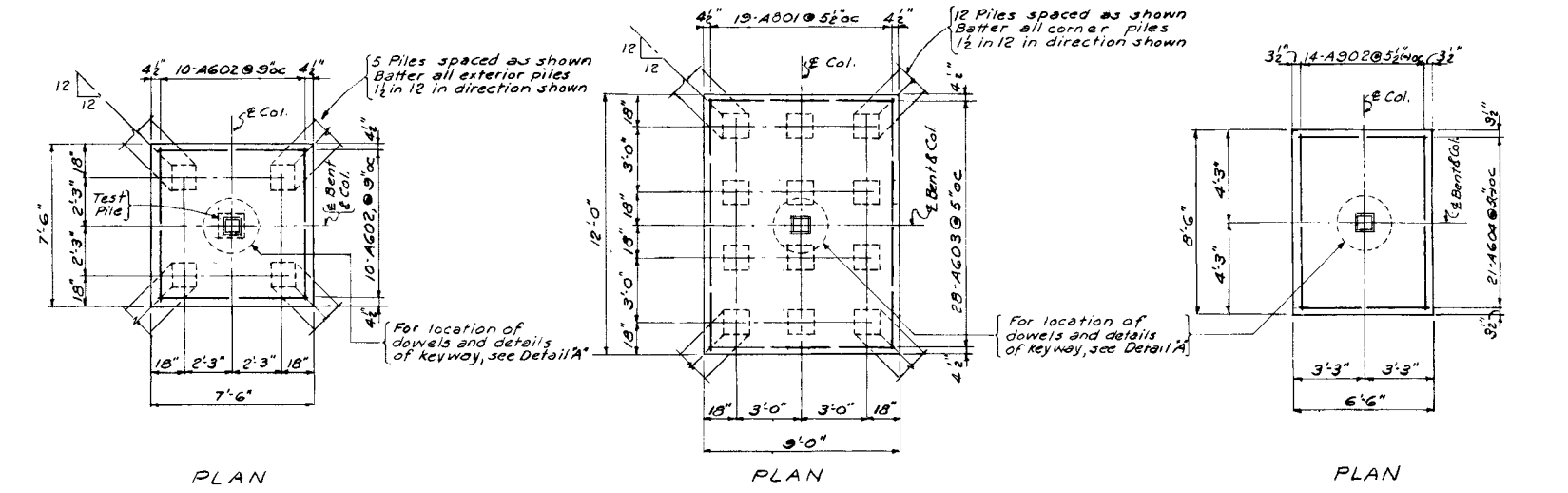
Rev. 4/18/60 - Rustication spacing  
 Revised, Oct. 1, 1960 - Changed Handrailing to Concrete Handrailing  
 Revised April 1960 - Increased vertical clearance to 16' 6" minimum.



COLUMN AND FOOTING DATA

Bent & Column	Column Height	Elev. Top Ftg.	Type* Footing	Reinf. Steel Group A	Reinf. Steel Group B
<b>BENT 1</b>					
Col. 1	21'-11"	720.52	Pile	A702	XD501
Col. 2	22'-2 3/8"	720.52	Rock	A1107	XD502
Col. 3	22'-5 3/8"	720.52	Pile	A1108	XD503
Col. 4	22'-5 3/8"	720.52	"	A1108	XD503
Col. 5	22'-2 3/8"	720.52	"	A1107	XD502
Col. 6	21'-11"	720.52	"	A702	XD501
<b>BENT 2</b>					
Col. 1	15'-11 1/2"	723.85	Pile	A703	XD504
Col. 2	16'-2 3/8"	723.85	"	A1109	XD505
Col. 3	16'-6 3/8"	723.85	"	A1110	XD506
Col. 4	16'-6 3/8"	723.85	"	A1110	XD506
Col. 5	16'-2 3/8"	723.85	"	A1109	XD505
Col. 6	15'-11 1/2"	723.85	"	A703	XD504
<b>BENT 3</b>					
Col. 1	15'-11 1/2"	720.49	Pile	A703	XD504
Col. 2	16'-2 3/8"	720.49	"	A1109	XD505
Col. 3	16'-6 3/8"	720.49	"	A1110	XD506
Col. 4	16'-6 3/8"	720.49	"	A1110	XD506
Col. 5	16'-2 3/8"	720.49	"	A1109	XD505
Col. 6	15'-11 1/2"	720.49	"	A703	XD504

\*Assumed type based upon sounding data. Revise type where deemed better by Engineer after having excavated to pile cut-off. See Notes Regarding Footing on Rock.



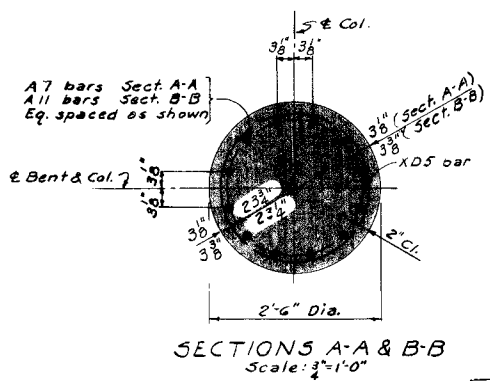
EXTERIOR COLUMNS & FOOTINGS  
BENTS 1, 2 & 3 (Cols. & Figs. 1 & 6)

INTERIOR COLUMNS & FOOTINGS  
BENT 1 (Cols. & Figs. 3, 4 & 5)  
BENT 2 & 3 (Cols. & Figs. 2, 3, 4 & 5)

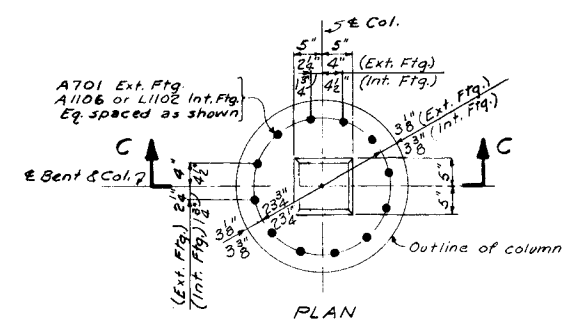
INTERIOR COLUMN & FOOTING  
BENT 1 (Col. & Fig. 2)

DETAILS FOR FOOTINGS ON PILES  
Scale: 1/4" = 1'-0"

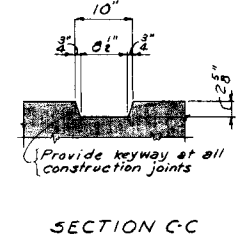
DETAIL FOR FOOTING ON ROCK  
Scale: 1/4" = 1'-0"



SECTIONS A-A & B-B  
Scale: 3/4" = 1'-0"



DETAIL A  
SHOWING DOWELS & KEYWAY  
Scale: 3/4" = 1'-0"



SECTION C-C

**NOTES REGARDING PILES**  
All piles shall be precast concrete or 10BP42 steel H-piling. For details of piles, see H-5-III and Construction Specifications. Piles shall be driven to obtain a minimum bearing capacity of 28 tons per pile or to refusal on rock. Before any concrete piles are ordered a test pile 40' long shall be driven at the locations noted. The pile shall remain in place as part of the final structure. From the results obtained, all piles shall be ordered of such lengths as to obtain the minimum bearing capacity required. Maximum design load for basic unit stress is 28 tons per pile.

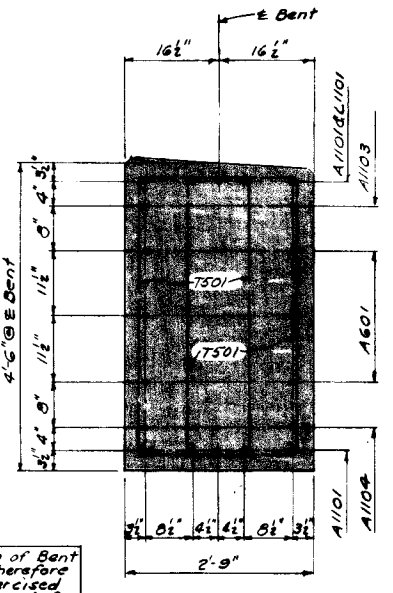
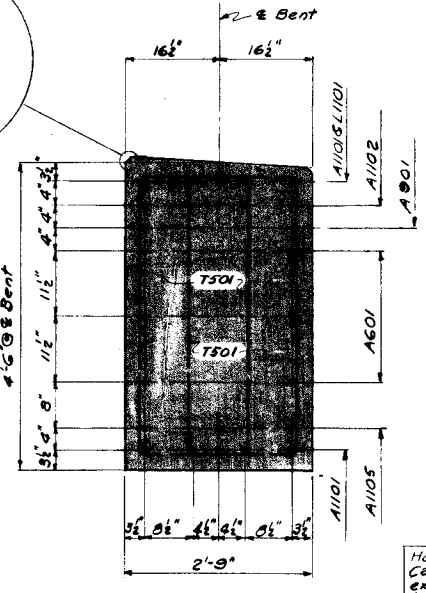
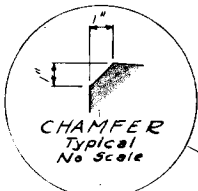
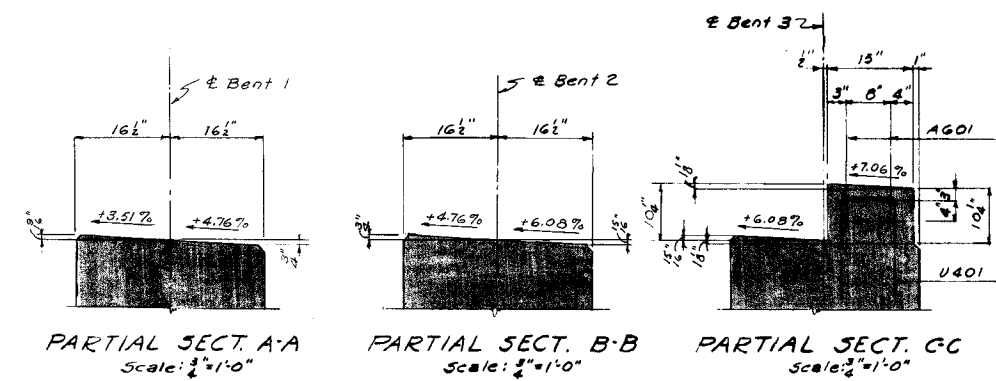
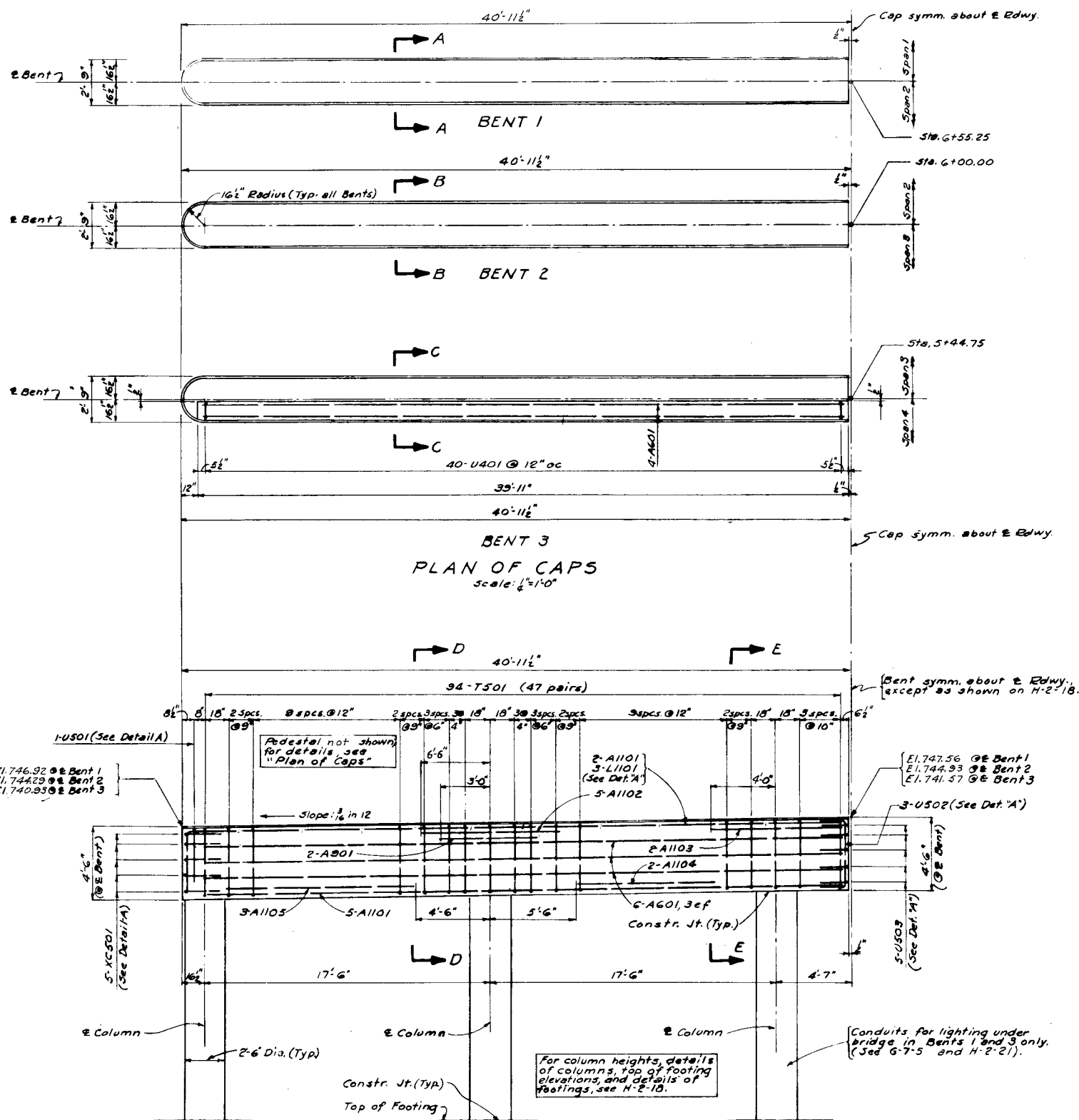
**NOTES REGARDING FOOTING ON ROCK**  
Maximum design bearing pressure for basic unit stress is 12,000 lbs. per sq. ft. Footing shall be extended into rock a minimum of 6 inches. Excavation for footing on rock shall first be carried down to the elevation shown for bottom of footing. If rock is uncovered, holes shall be drilled to a depth of 6" at each corner of the footing to determine if the rock is suitable for the bearing pressure for which the footing on rock is designed. The decision shall be made by the Engineer. If rock is not uncovered, soundings shall be made at each corner of the footing to determine accurately the rock elevation. From the results obtained, the Engineer shall decide whether to use pile footing or a footing on rock. All cost of drilling and sounding noted above, shall be included in the costs of the items bid.

STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS  
CHATTANOOGA FREEWAY  
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3(1)

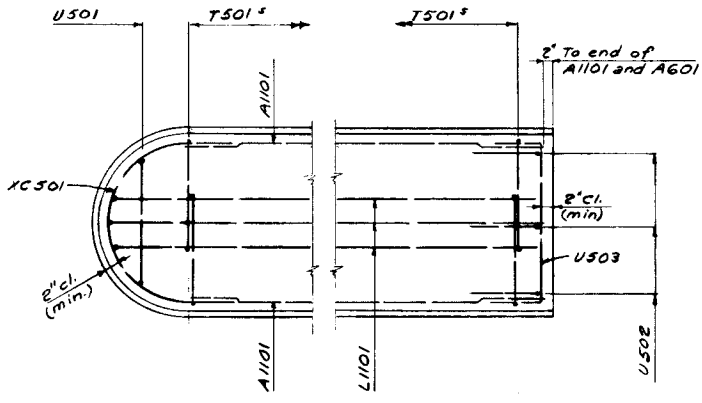
**BELVOIR AVENUE OVERPASS  
BENTS-COLUMN AND FOOTING DETAILS**

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.  
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.  
DSGN: FAM | DRWN: FAM | SCALE: AS NOTED | DATE: 4-17-59  
CHKD: TMS | SUPV: FAM | FILE NO. 57.77 | SHEET NO. | H-2-18

Revised April 1960. Increased vertical clearance to 16'-6" minimum.



Holes shall be drilled in top of Bent Cap for dowels for beams, therefore exceptional care shall be exercised in placing longitudinal cap reinf. as shown, to avoid possible interference with these dowels.



**ABBREVIATIONS:**  
ef each face

**NOTES:**  
For General Notes and Specifications, see G-9-30.  
For lighting details, see H-2-21 and G-7-5.  
For details of piles, see H-5-11.  
For reinforcing steel and bending diagrams, see H-2-22.  
All dimensions relative to spacing of reinforcing steel are to centers of bars, except as noted.  
Chamfer all exposed edges (including pedestals) unless noted.  
Mark to all reinforcing steel in bents shall have the suffix 'B' (thus: A1101-B, T501-B, etc.).  
Holes for beam dowels shall be drilled after placing precast beams, see F-10-84.

STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS  
CHATTANOOGA FREEWAY  
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3 ( )

**BELVOIR AVENUE OVERPASS BENTS**

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.  
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

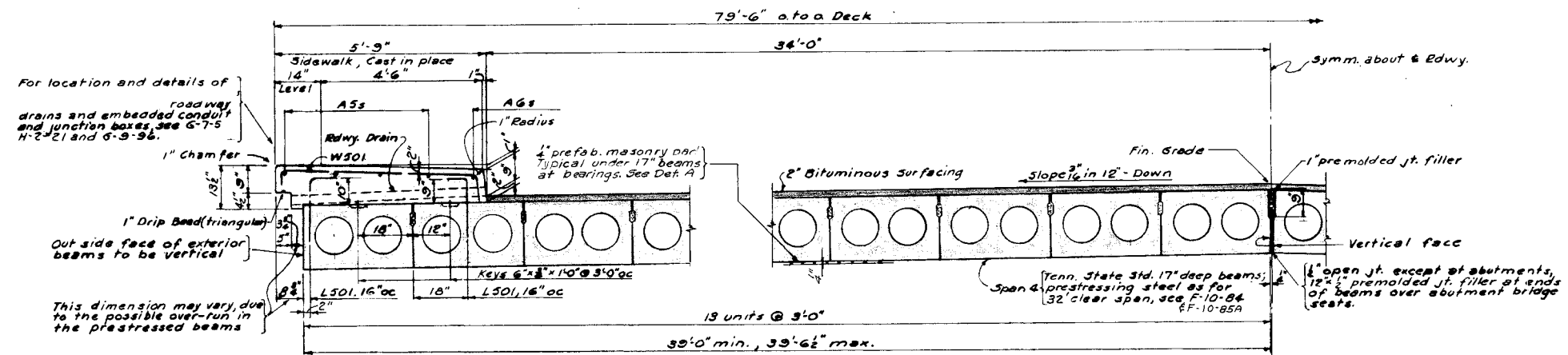
DSGN: JRP	DRWN: FAM	SCALE: AS NOTED	DATE: 4-17-59
CHKD: TMS	CHKD: JRP	FILE NO. 57.77	SHEET NO. H-2-19
	SUPV: FAM		

Revised April 1960 Increased vertical clearance to 16'-6" minimum.



PRESTRESSED BEAM QUANTITIES			
Location	Concrete Cu. Yds.	Reinforcing Steel Lbs. #	Prestressing Steel Lbs.
Span 1	172.8	15,223	7,701
Span 2	201.0	18,282	12,555
Span 3	201.0	18,282	12,555
Span 4	100.3	5,636	3,977
<b>Total</b>	<b>675.1</b>	<b>51,473</b>	<b>38,768</b>

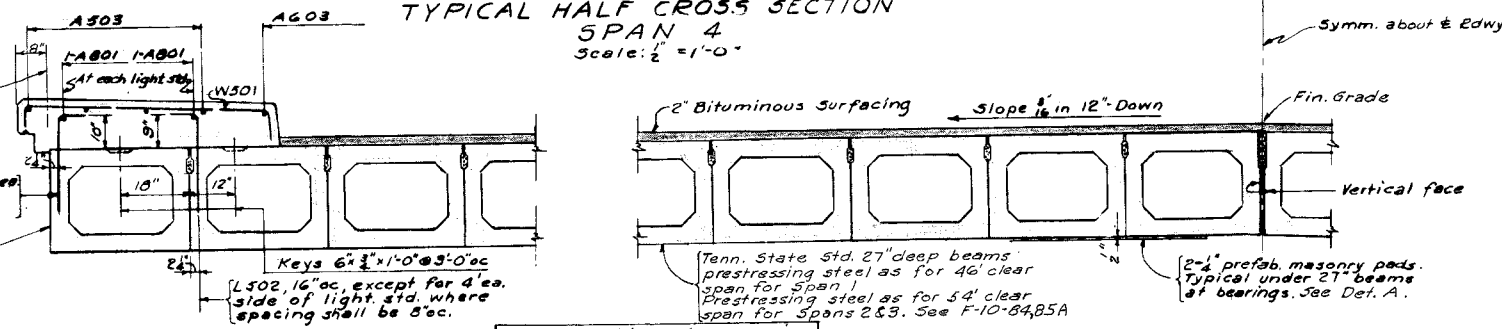
\*Includes only reinforcing steel embedded in the prestressed beams.



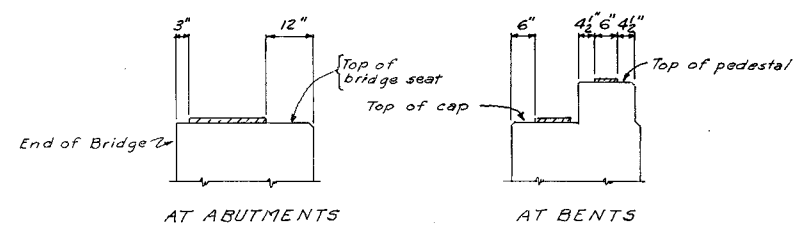
Note: Provisions shall be made for setting steel for handrail. See Dwg. H-5-110.

L502, 16" oc, except for 4' ea. side of light std. where spacing shall be 8" oc. Outside face of exterior beams to be vertical.

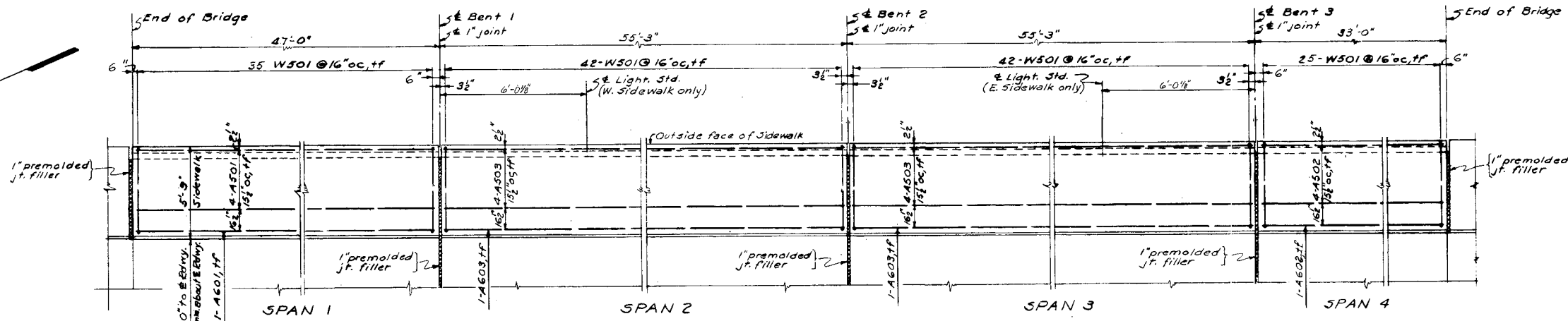
TYPICAL HALF CROSS SECTION SPAN 4 Scale: 1/2" = 1'-0"



TYPICAL HALF CROSS SECTION SPANS 1, 2 AND 3 Scale: 1/2" = 1'-0"



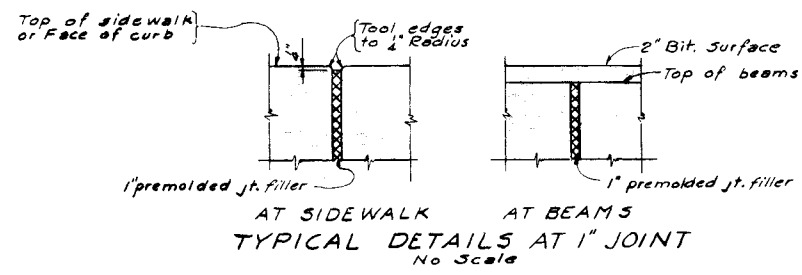
DETAIL A Showing location of prefabricated masonry pads Scale: 1/2" = 1'-0"



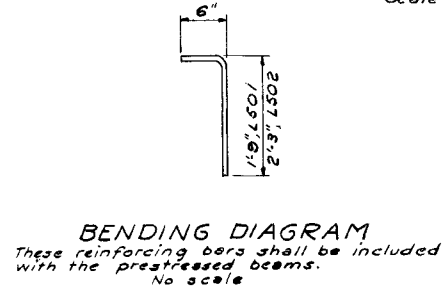
PLAN OF SIDEWALK EAST SIDEWALK as shown. WEST SIDEWALK opp. hand Scale: 1/4" = 1'-0"

ABBREVIATIONS: tf --- top face

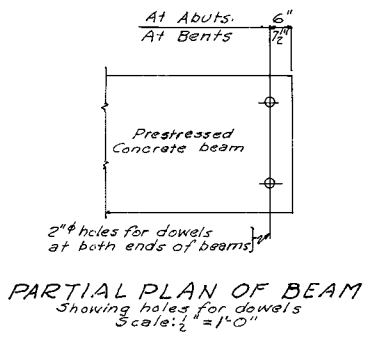
NOTES:  
 For General Notes and Specifications, see G-9-90.  
 For Span Arrangement and Profile of Finished Grade, see H-2-15.  
 Chamfer all exposed edges on sidewalks (except as noted). All beams shall be in accordance with the Tenn. State Highway Depts. standard drawings F-10-84 and 85, 85A and the Special Provisions by that Dept., except as shown and noted on this drawing.  
 All beams shall be standard precast prestressed concrete girders, box type or hollow slab type as indicated and noted. All beams shall be 3'-0" wide (3'-0" max.).  
 For reinforcing steel and bending diagrams of bars for sidewalk, see H-2-22.  
 All dimensions relative to spacing of reinforcing bars shall be to the centers of bars.  
 All reinforcing steel embedded in prestressed concrete beams shall be furnished with these beams and the cost of this reinforcing steel shall be included in the contract unit price per beam.  
 The outside faces of exterior beams in all spans shall line up.  
 Marks to all reinforcing steel in the Deck shall have the suffix 'D', (thus A501-D, W501-D, etc.).



TYPICAL DETAILS AT 1" JOINT No Scale



BENDING DIAGRAM These reinforcing bars shall be included with the prestressed beams. No Scale



PARTIAL PLAN OF BEAM Showing holes for dowels Scale: 1/2" = 1'-0"

Revised Oct. 1960. Changed Abbreviating to Concrete Abutmenting  
 Revised April 1960. Changed handrail to steel handrail  
 Revised number of lighting standards  
 Increased vertical clearance to 16'-6" minimum.

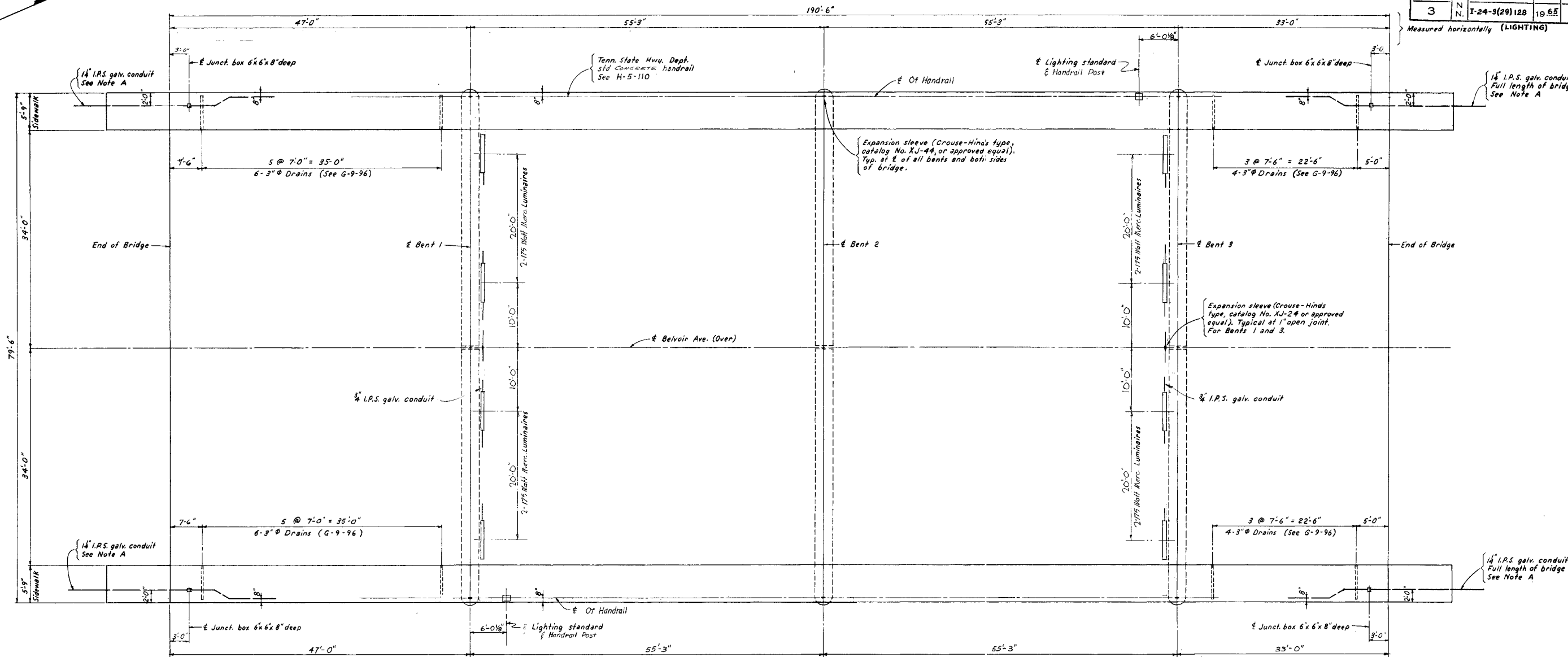
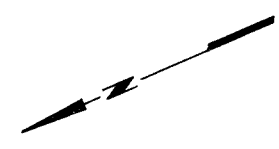
STATE OF TENNESSEE  
 DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS  
 CHATTANOOGA FREEWAY  
 HAMILTON COUNTY-F.A. PROJ. NO. 1-24-3(1)

**BELVOIR AVENUE OVERPASS**  
**TYPICAL CROSS SECTION AND SIDEWALK**

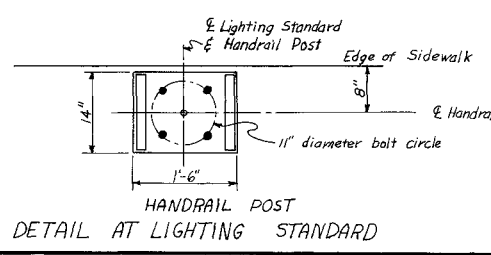
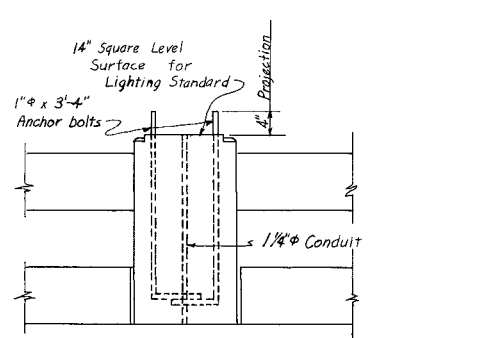
SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.  
 AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: FAM	DRWN: FAM	SCALE: AS NOTED	DATE: 4-17-59
CHKD: JAM	CHKD: JAM	FILE NO. 57.77	SHEET NO. H-2-20

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.	I-24-3(1)	128	1965	110	264
FED. ROAD DIST. NO.	TENN.	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS	
3	TENN.	I-24-3(29)128	1965	13	18	



PLAN  
Scale: 1/4" = 1'-0"



NOTE A:  
Extend all 1 1/4" conduit about 5' beyond end of wingwall.  
Cap until connections are made by others.  
The 1 1/4" conduit shall be dropped in elevation from 8" below top of sidewalk at end of bridge to about 2'-3" below top of sidewalk at end of wingwall.

NOTES:  
For General Notes and Specifications, see G-9-90.  
For Standard Electrical Lighting Details, see G-7-5  
For handrailing details, see H-5-110.  
Location of fluorescent lights, junction boxes and drains may be shifted slightly so as to avoid interference with reinforcing steel.  
For Telephone Conduits in Sidewalks, See C-2-247

STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS  
CHATTANOOGA FREEWAY  
HAMILTON COUNTY-FA. PROJ. NO. I-24-3( )

**BELVOIR AVENUE OVERPASS  
LIGHTING, HANDRAILING AND DRAINS**

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.  
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: AC	DRWN: WRA	SCALE: AS NOTED	DATE: 4-11-60
CHKD: FAM	CHKD: AC	FILE NO. 57.77	SHEET NO. H-2-21

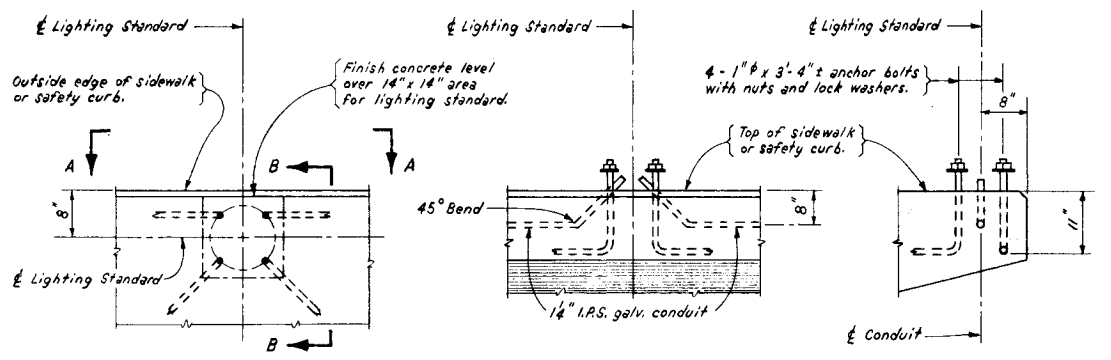
Revised July, 1965 Reduced number of mercury lights.  
 Revised July, 1965 Changed Fluorescent Luminaires to I.B.C.  
 Revised July, 1965 - 200 spacing in 300W.  
 Revised Oct. 1965 changed HOEBEL'S MANUFACTURING TO CONCRETE MANUFACTURING  
 Revised: 5-1-61. Telephone added.  
 Redrawn April 1960  
 Changed handrailing to steel handrailing.  
 Reduced number of lighting standards.  
 Increased vertical clearance to 16'-6" min.



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	STATE AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
3	TENN.			1960	81A	82

U-027-2(9)

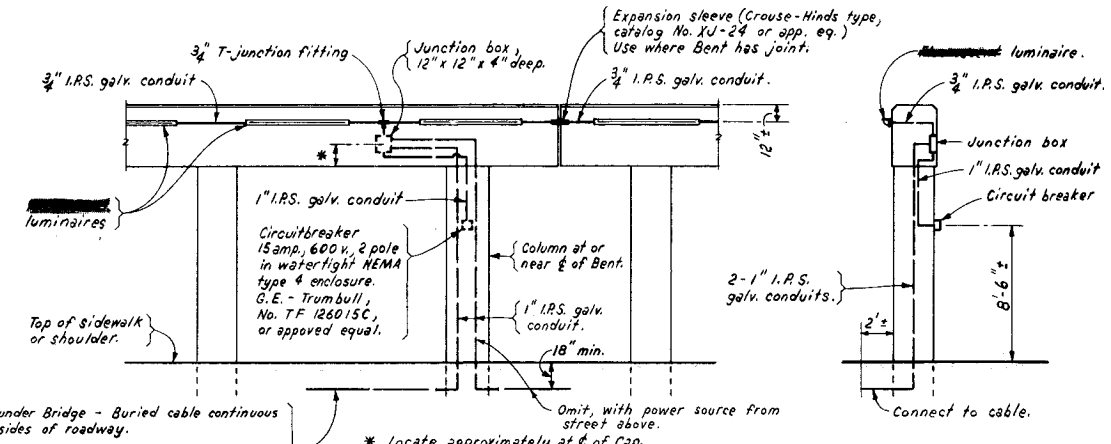
Note:  
All lighting standards shall be vertical.



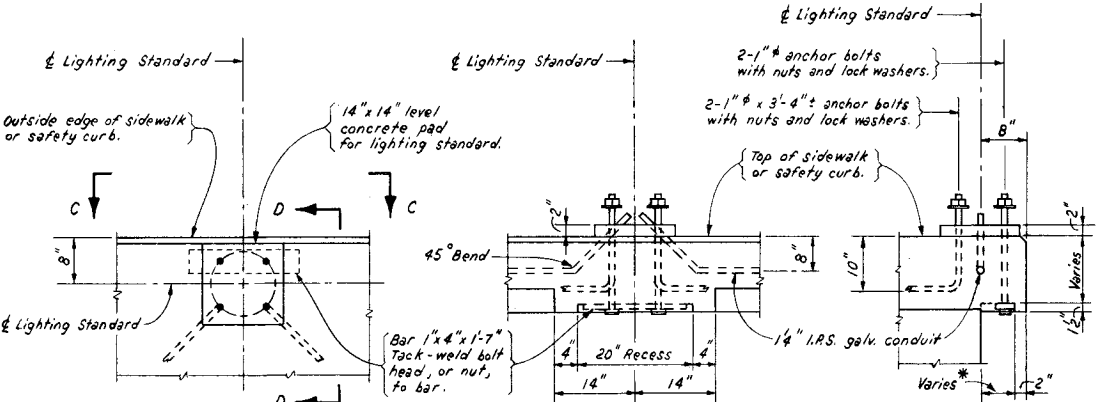
CONCRETE T-BEAM AND STEEL BEAM BRIDGES

Note:  
For location of ~~illuminares~~ luminaires, see drawing "Lighting, Handrailing and Drains."

illuminares and circuitbreakers shall be fastened with cinch anchors, or as approved by the Engineer.

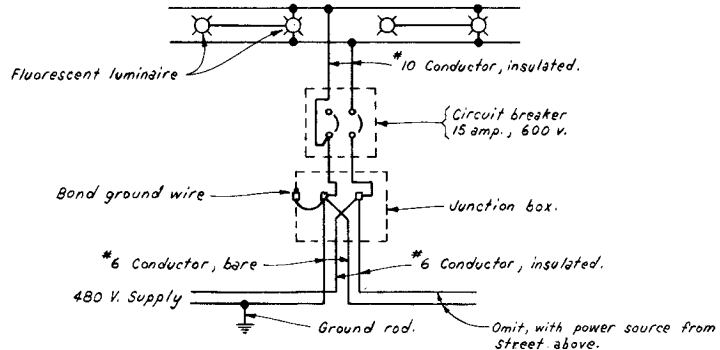


LIGHTING DETAILS  
Scale: 3/8"=1'-0"



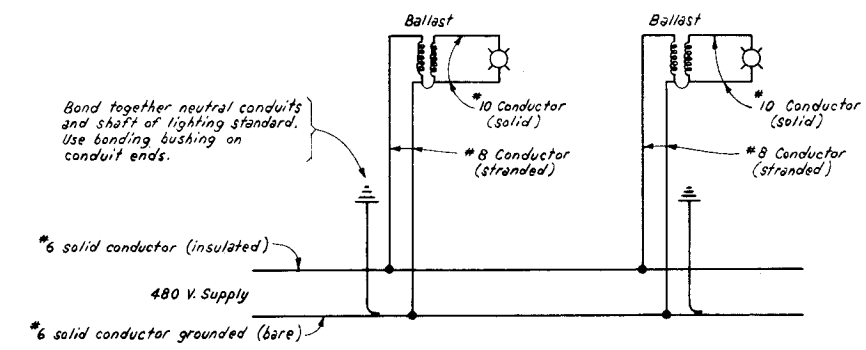
PRESTRESSED CONCRETE BEAM BRIDGES  
DETAILS AT LIGHTING STANDARD  
Scale: 3/4"=1'-0"

Freeway under Bridge - Buried cable continuous on both sides of roadway.  
Freeway on Bridge - Power source from street below bridge - buried cable continuous on one or both sides of roadway. Power source from street above - buried cable extends from end of bridge on top, under embankment slope to this point. See drawing "Lighting, Handrailing, and Drains."

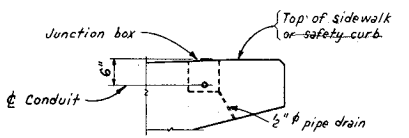


CIRCUIT DIAGRAM  
No Scale

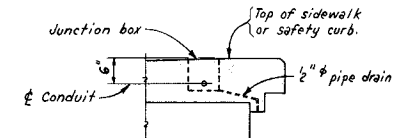
Note:  
Contacting surfaces between aluminum lighting standard and concrete shall be thoroughly coated with an aluminum impregnated caulking compound.



CIRCUIT DIAGRAM  
No Scale

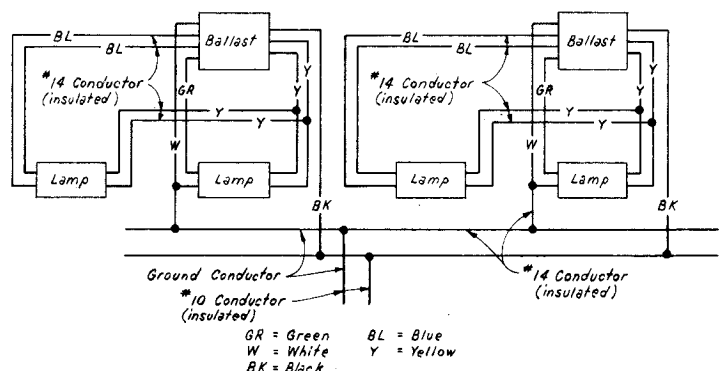


CONCRETE T-BEAM AND STEEL BEAM BRIDGES



PRESTRESSED CONCRETE BEAM BRIDGES

DETAILS AT JUNCTION BOXES  
Scale: 1/2"=1'-0"



LUMINAIRE WIRING DIAGRAM  
No Scale

ELECTRICAL LIGHTING SPECIFICATIONS

LIGHTING ON BRIDGE:

Lighting Standards: See Special Provisions.  
All lighting standards shall have hand hole (approx. 4" x 6 1/2") with cover near base of pole, located 90° off bracket center line. Where required, drill in field suitable openings in base of lighting standards for conduits.  
Luminaires to be Westinghouse type OV-20, catalog No. 1568, 517, having 1 1/4" adjustable slipfitter and IES type III distribution for E-HI mercury vapor lamp; or approved equal.  
Lamp bulbs to be 400 watt, 20,000 lumen, E-HI mercury vapor.  
Ballast to be 480 volt primary for 400 watt, 20,000 lumen, E-HI mercury vapor lamp, ballast to be similar to G.E. Co. type 1LH, catalog No. 95A20H5AB, except omit aerial mounting bracket and substitute pole top adapter similar to G.E. Co. No. 108A3006G3. Finish assembly with aluminum paint.

LIGHTING UNDER BRIDGE: See Sheet 7, Proj. I-24-3(29)12B

Luminaires to be fluorescent Form 100U, G.E. catalog No. 2F106UB1 (without ballast) and G.E. catalog No. 2F106UB5AB (with 480-volt internal 2-lamp ballast) connected in pairs; or approved equal.  
Lamps to be G.E. Co. type FT2T12/CW/HO; or approved equal.

GENERAL:

Conduits to be rigid hot dip galvanized steel, sizes as shown on drawings. Provide standard watertight expansion sleeve, suitably grounded, at all expansion joints in bridge deck and as otherwise called for on plans. Expansion sleeves to be Crouse-Hinds type, catalog No. XJ-44 for 1 1/4" conduit, catalog No. XJ-34 for 1" conduit, catalog No. XJ-24 for 3/4" conduit, or approved equal.  
Junction boxes - Sizes shall be as shown on drawings. Boxes shall be drilled to provide the connections shown and shall be of cast iron watertight construction, with removable cover (checkered on top) fastened with brass screws. Provide galvanized bushings and lock nuts at connections of conduits to junction boxes.  
Conductors - All wiring inside the conduits and light poles shall be 600 volt, rubber insulated, General Electric Co. Versatol-Geoprene; or approved equal.  
National Electric Code - Where not covered by these specifications, all other material and workmanship to be incorporated in this project shall be in strict conformance with requirements of the National Electric Code, current edition.

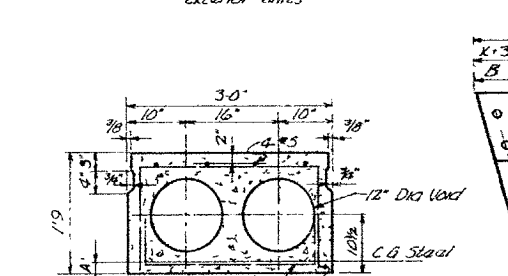
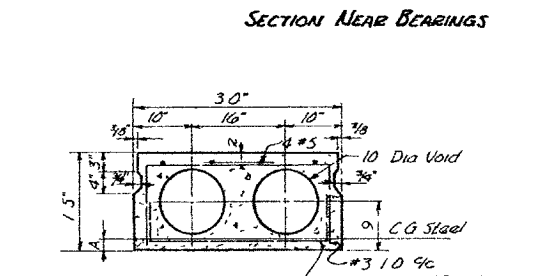
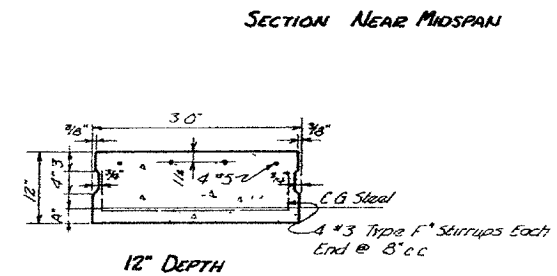
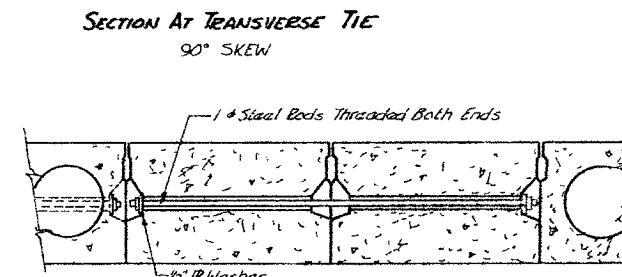
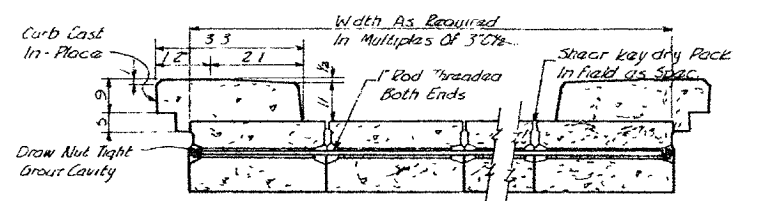
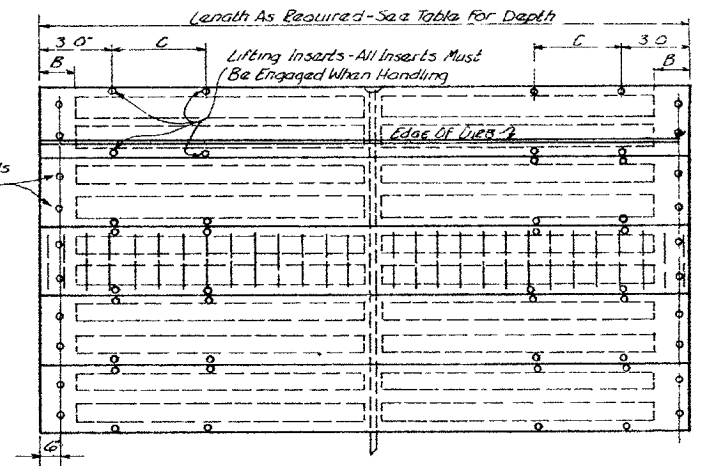
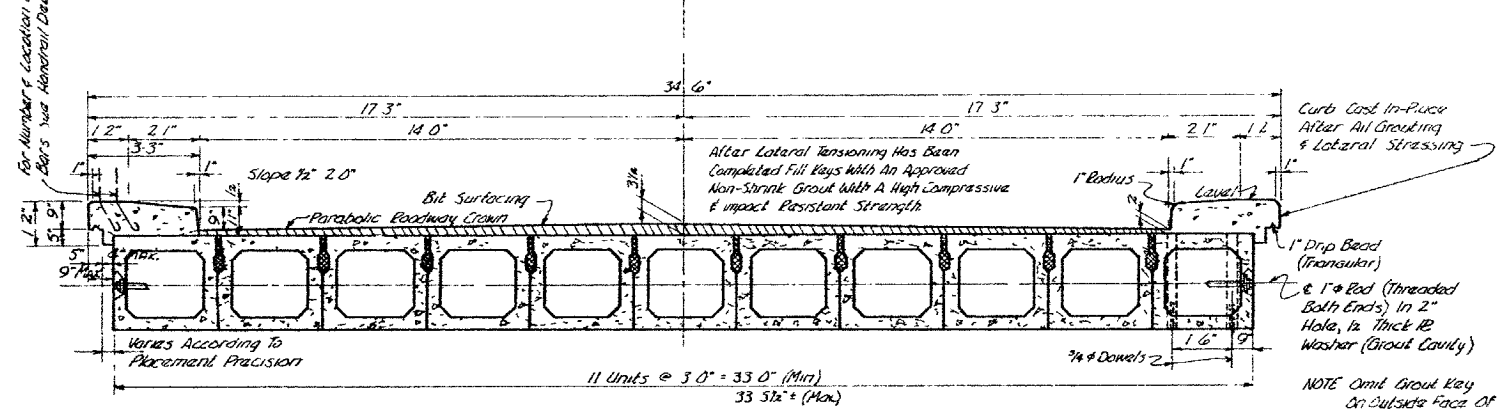
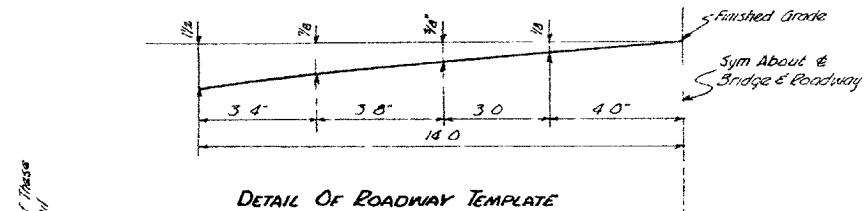
STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS AND PUBLIC WORKS  
CHATTANOOGA FREEWAY  
HAMILTON COUNTY-F.A. PROJ. NO. I-24-3( )

STANDARD ELECTRICAL LIGHTING DETAILS

SULLIVAN & HOEBEL - CONSULTING ENGINEERS - KNOXVILLE, TENN.  
AAKE F. HEDMAN - CONSULTING ENGINEERS - CHATTANOOGA, TENN.

DSGN: CHKD:	DRWN: JRP AC SUPV: AC	SCALE: AS NOTED	DATE: 2-24-59
FILE NO. 57.77		SHEET NO.	G-7-5

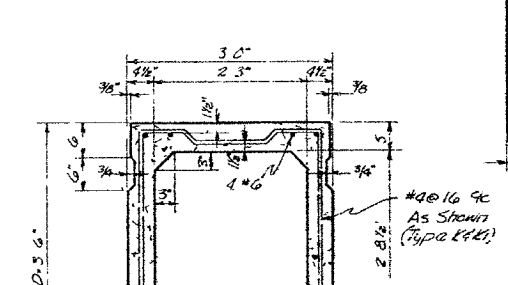
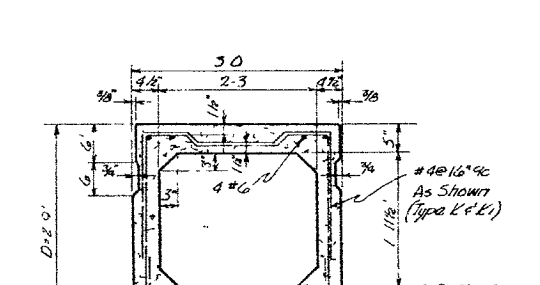
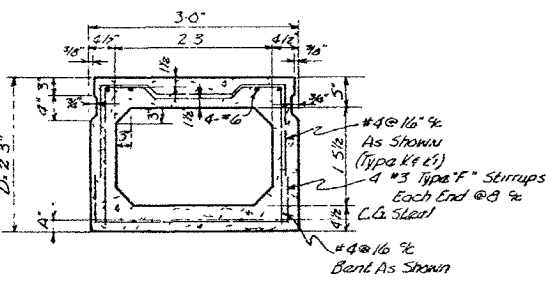
Revised Dec. 1960 Elimination of Light Standards, Luminaires for Under-Bridge Lighting and Wiring  
 Revised April 1960 Changed note on lighting standards and added "See Special Provisions".  
 Revised Feb. 1960 Changed handrailing to steel handrailing (affecting location of conduit).  
 Revised June - Sept 1959 Due to change of Interchange layout



Clear Span Feet	A Inches	B Inches	Prestressed Steel Area	No. 3/8" Strands	Weight Basic Member	Suggested Bearings
14	225	OMIT	0.96	12	7,750	12"
16	216		1.20	15	9,500	
18	204		1.52	19	11,500	
20	264		1.76	22	13,200	
22	234		2.08	26	16,600	

Clear Span Feet	A Inches	B Inches	Prestressed Steel Area	No. 3/8" Strands	Weight Basic Member	Suggested Bearings
24	222		1.5	20	12,500	12"
26	220		1.96	17	14,500	
28	225	18	1.60	20	14,400	
30	230		1.76	22	15,350	
32	262		2.20	25	16,300	
34	275		2.16	27	17,250	

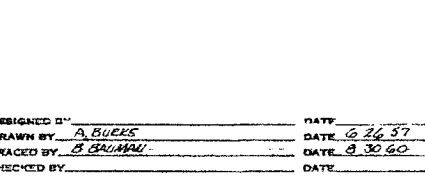
Clear Span Feet	A Inches	B Inches	Prestressed Steel Area	No. 3/8" Strands	Weight Basic Member	Suggested Bearings
36	230		1.76	22	16,100	12"
38	231	18	1.92	25	17,200	
40	264		2.16	27	18,350	
42	320		2.48	31	22,500	



Clear Span Feet	A Inches	B Inches	Prestressed Steel Area	No. 3/8" Strands	Weight Basic Member	Suggested Bearings
44	230		1.76	22	17,100	12"
46	226		1.84	23	18,200	
48	227		2.00	25	19,300	
50	235	18	2.24	28	20,500	
52	263		2.40	30	21,600	
54	292		2.56	32	22,800	
56	323		2.80	35	25,000	

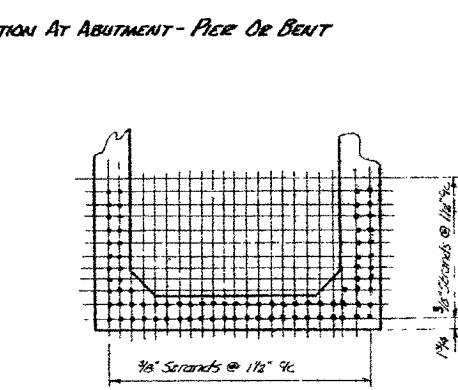
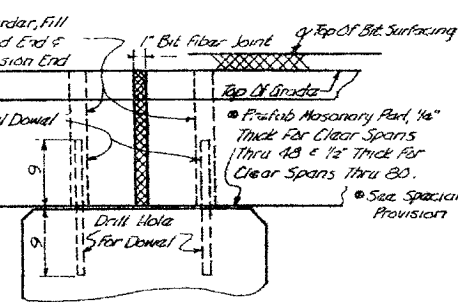
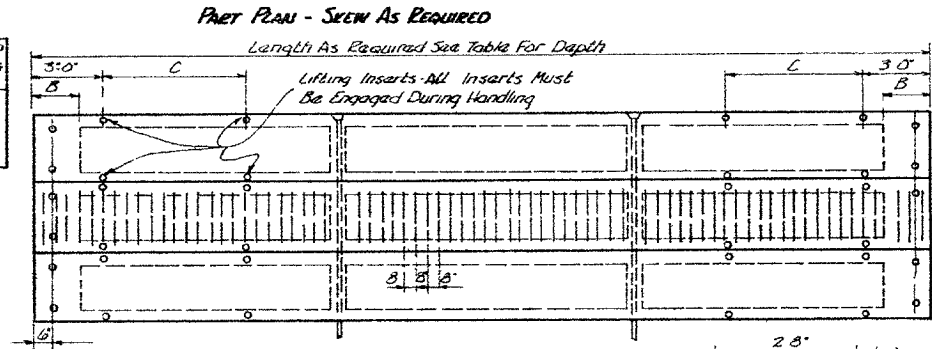
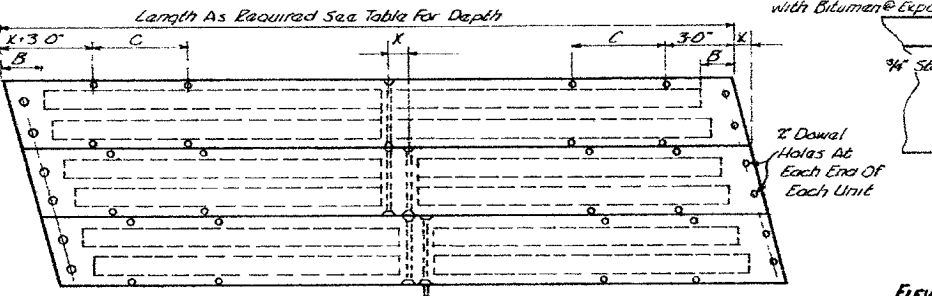
Clear Span Feet	A Inches	B Inches	Prestressed Steel Area	No. 3/8" Strands	Weight Basic Member	Suggested Bearings
58	247		2.32	29	22,900	12"
60	263		2.48	31	24,100	
62	303	18	2.64	33	25,600	
64	335		2.80	36	27,000	
66	363		3.04	39	28,500	
68	390		3.28	41	30,500	

Clear Span Feet	A Inches	B Inches	Prestressed Steel Area	No. 3/8" Strands	Weight Basic Member	Suggested Bearings
70	312		2.72	34	31,500	18"
72	323		2.88	36	32,900	
74	369	12	3.04	38	34,620	
76	407		3.20	40	36,280	12" Min
78	434		3.36	42	37,940	
80	472		3.52	44	39,600	



DESIGNED BY: A. BUESS  
 DRAWN BY: A. BUESS  
 CHECKED BY: B. BRUNING

DATE: 6/26/57  
 DATE: 8/30/60



**GENERAL NOTES.**

SPECIFICATIONS Standard Road & Bridge Specifications of the Tennessee Department of Highways

LOADING HD-516-44

CONCRETE (Cast in Place) To Be Class "A"

PRECAST, PRETENSIONED CONCRETE See Specifications

REINFORCING STEEL See Specifications.

FORMS & FINISH See Specifications.

HANDLING PRE-TENSIONED DECK-UNIT See Specifications.

LATERAL TENSIONING Prior to Grouting Longitudinal, Lays Of In-Place Deck Units, The Nuts Of The Transverse Rods Shall Be Given Two Full Turns From Hand Tight Position, To Develop A Stress Of 30,000 PSI, In Rods

PRETENSIONING STEEL: An Initial Force Of 14,000 Lbs. Shall Be Applied To Each Strand In All Beams

The Design Is Based On Federal Bureau Criteria & Special Provision.

STATE OF TENNESSEE  
 DEPARTMENT OF HIGHWAYS  
 AND PUBLIC WORKS  
 NASHVILLE

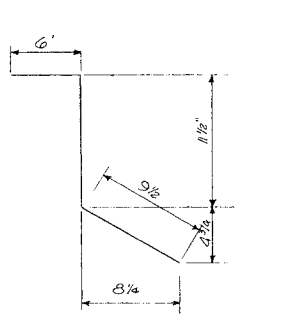
STANDARD  
**PRESTRESSED CONCRETE BRIDGE**  
 PRETENSIONED  
 CLEAR SPANS 14'-0" TO 80'-0"  
 28'-0" ROADWAY WITH SAFETY CURBS  
 1957

APPROVED: Fred Grimes  
 APPROVED: [Signature]

**QUANTITIES FOR CAST CURBS**  
**BOTH SIDES**

Clear Span	Concrete Curb Lbs	Reinf Steel Lbs	No Of Bars D1	No Of Bars C2	No Of Bars C1
14	3.6	206	24	22	12
16	4.0	235	28	26	12
18	4.5	265	30	28	12
20	4.9	294	34	32	12
22	5.4	324	36	34	12
24	5.8	353	40	38	12
26	6.3	382	42	40	12
28	6.7	412	46	44	12
30	7.1	441	48	46	12
32	7.6	470	52	50	12
34	8.0	500	54	52	12
36	8.5	529	58	56	12
38	8.9	558	60	58	12
40	9.4	588	62	60	12
42	9.8	617	66	64	12
44	10.3	647	68	66	12
46	10.7	676	72	70	12
48	11.2	706	74	72	12
50	11.6	735	78	76	12
52	12.1	764	80	78	12
54	12.5	794	84	82	12
56	13.0	823	86	84	12
58	13.4	853	90	88	24
60	13.8	882	92	90	24
62	14.3	911	96	94	24
64	14.7	941	98	96	24
66	15.2	970	102	100	24
68	15.6	1000	106	104	24
70	16.1	1029	110	108	24
72	16.7	1058	112	110	24
74	17.2	1088	116	114	24
76	17.6	1117	118	116	24
78	18.1	1147	122	120	24
80	18.5	1176	124	122	24

NOTE Above Quantities Apply To All Slabs  
 \* For Skewed Bridge Less Than 90° Curb Bars To Be Placed At Each End Of Span  
 NOTE Bars D1 To Be Included In Unit Price Bid For Girders

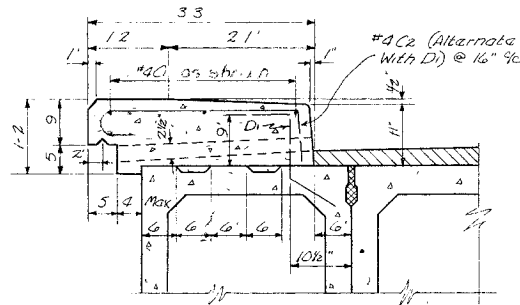


**BAR D1** (To Be 1/2" φ)  
Total Length = 23



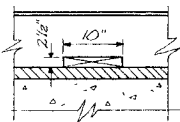
**BAR C2**  
Total Length = 4

NOTE Length Of Longitudinal Bars C1 To Be Total Span Length Minus 6' Also Cap Bars C1 10' When Splice Is Required



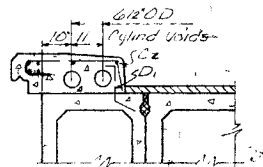
**TYPICAL SECTION FOR CURB AND EXTERIOR BOX**

NOTE Curb To Be Cast In Place Provisions May Be Made In The Fascia Of Ext. Limits For Approved Inserts To Facilitate Forming Of Curbs



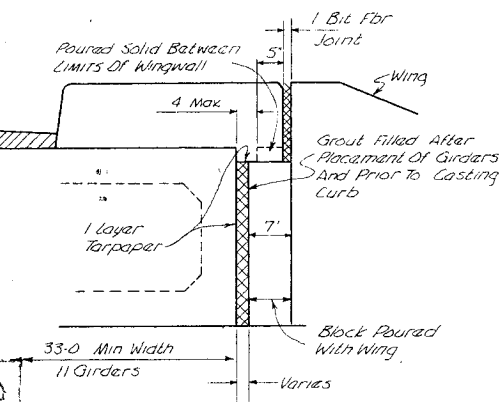
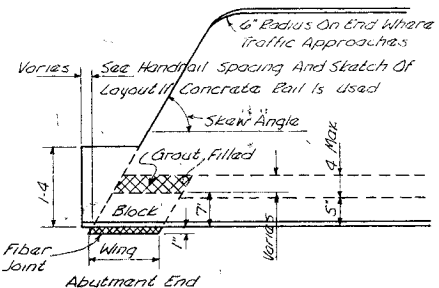
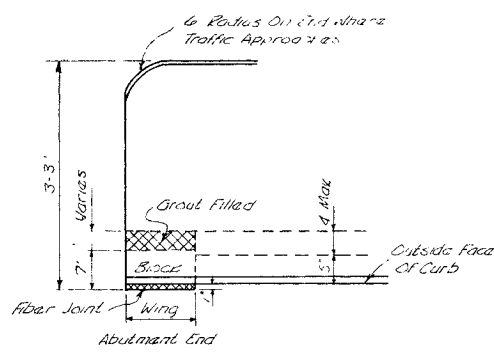
Locate Drain Slots @ Center Of Every Other Paving Panel

**DRAINAGE SLOT DETAIL**



NOTE Cylind Voids To Be Continuous Except They Are Staggered @ 3' On Either Side Of Drainage Slots

**ALTERNATE CURB**



**SKETCH SHOWING CURB DETAIL AT ABUTMENT END**

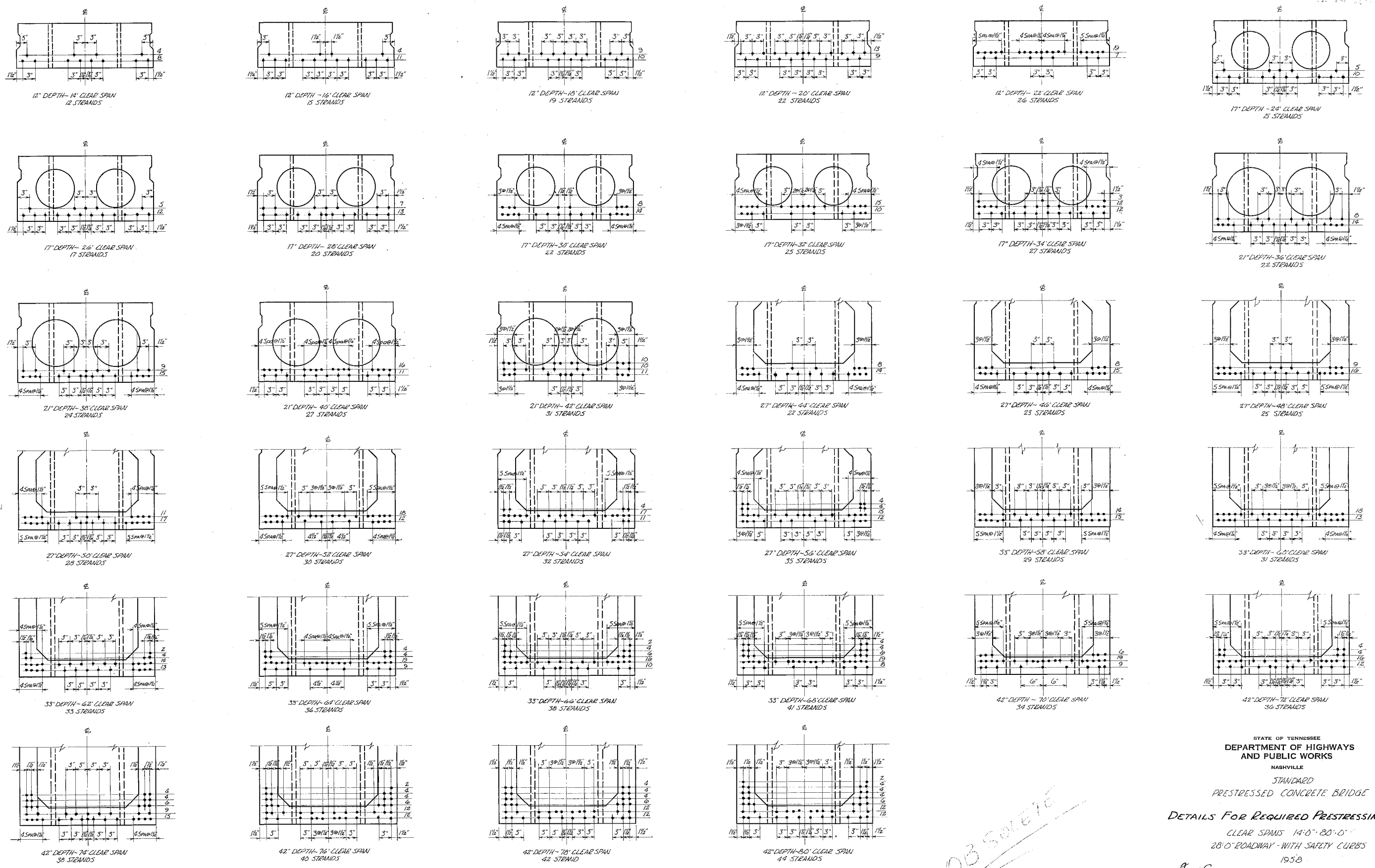
DESIGNED BY: A. BUECK  
 DRAWN BY: A. BUECK  
 CHECKED BY: B. BAUMANN & G. PRAEGER  
 DATE: 7-28-57  
 DATE: 8-30-60

STATE OF TENNESSEE  
 DEPARTMENT OF HIGHWAYS  
 AND PUBLIC WORKS  
 NASHVILLE  
 STANDARD  
**PRESTRESSED CONCRETE BRIDGE**  
 PRETENSIONED  
 CLEAR SPANS 14'-0" - 80'-0"  
 28'-0" ROADWAY WITH SAFETY CURBS  
 1957

CORRECT: [Signature]  
 APPROVED: [Signature]  
 F-10-35

Revised 6-15-60 - 1/2" and 1/4" holes - correct  
 Revised 4-17-58 - Bar D1 Deducted From Rein Steel Quantities  
 Revised 1-15-57 - Bar D1 Deducted From Rein Steel Quantities  
 Revised 1-15-57 - Bar D1 Deducted From Rein Steel Quantities

I. A. 2001



STATE OF TENNESSEE  
 DEPARTMENT OF HIGHWAYS  
 AND PUBLIC WORKS  
 NASHVILLE  
 STANDARD  
 PRESTRESSED CONCRETE BRIDGE  
 DETAILS FOR REQUIRED PRESTRESSING PATTERNS  
 CLEAR SPANS 14'-0" - 80'-0"  
 28'-0" ROADWAY - WITH SAFETY CURBS  
 1958

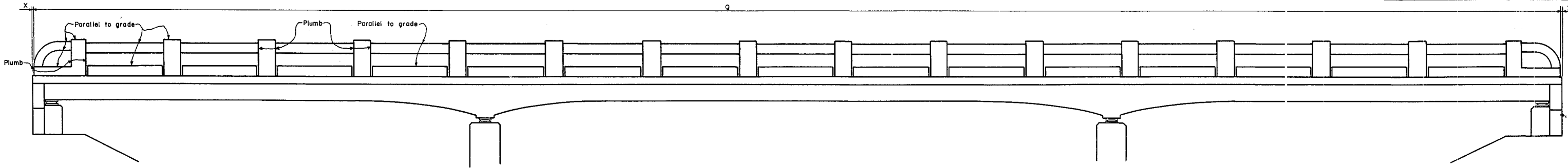
DESIGNED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DRAWN BY A. BURKE DATE 3-13-58  
 RE-TRACED BY B. BRUMM DATE 9-23-60  
 CHECKED BY \_\_\_\_\_ DATE \_\_\_\_\_

OB 50157E

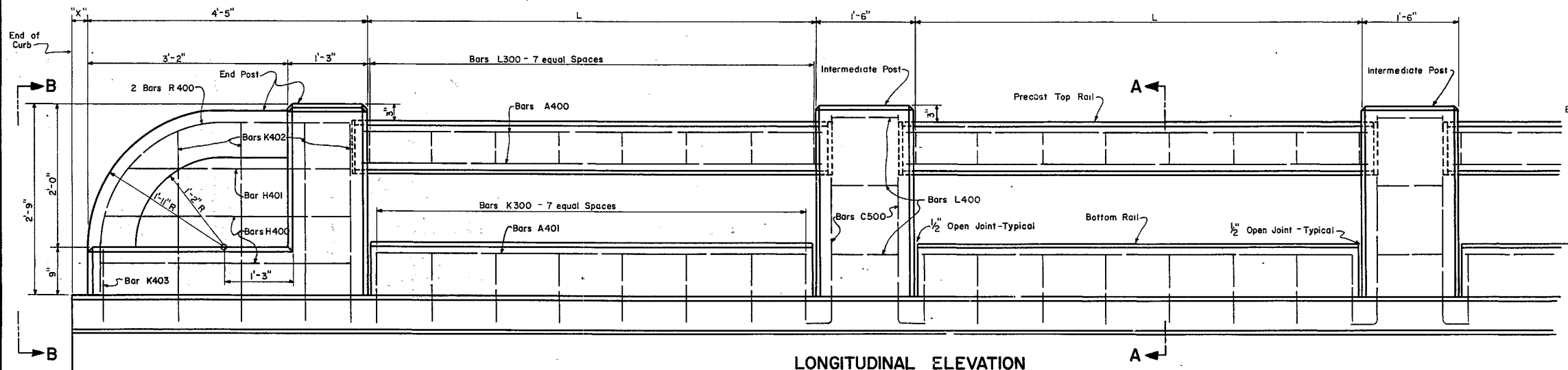
CORRECT Red Jones BRIDGE ENGINEER  
 APPROVED Edo Lang STATE HIGHWAY ENGINEER

F-10-85A

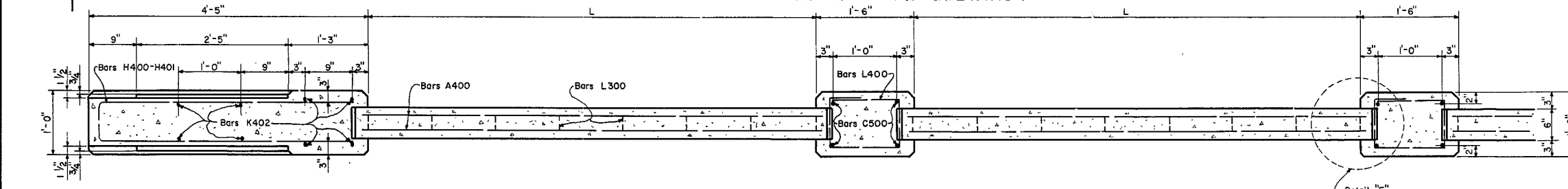
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 2 COPIES



TYPICAL ELEVATION



LONGITUDINAL ELEVATION

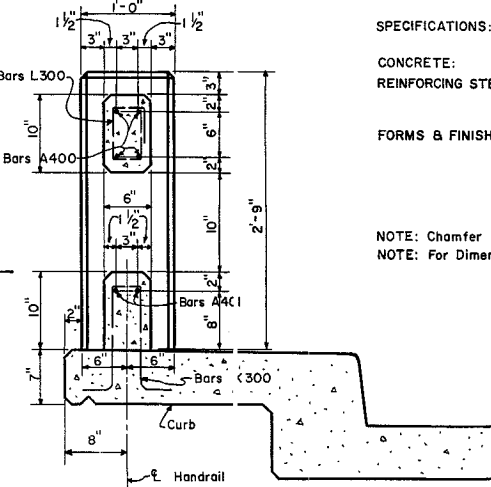


LONGITUDINAL SECTION

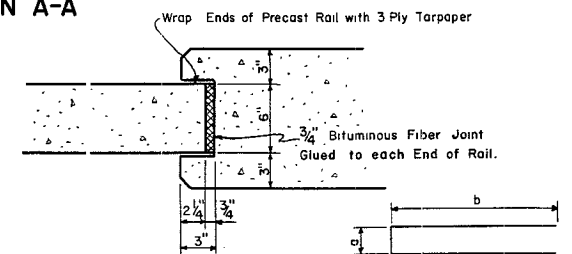
**GENERAL NOTES**

SPECIFICATIONS: Standard Road & Bridge Specifications of the Tennessee Department of Highways.  
 CONCRETE: To be Class "A".  
 REINFORCING STEEL: See Specifications. To be intermediate or hard grade with Standard Hook Details as recommended by C.R.S.I.  
 FORMS & FINISH: See Specifications.

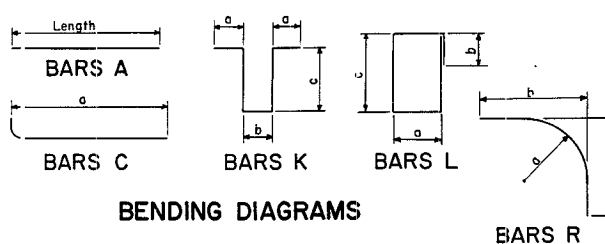
NOTE: Chamfer all edges on Handrail Posts and Rails 1/2".  
 NOTE: For Dimensions X,Q,B,L See Bridge Layout Sheet.



SECTION A-A



DETAIL E



BENDING DIAGRAMS

STATE OF TENNESSEE  
 DEPARTMENT OF HIGHWAYS  
 NASHVILLE

STANDARD  
 CONCRETE HANDRAIL  
 1960

END POST-LIST OF MATERIALS-EACH

Bar	Size	No Req'd	Bending Dimensions				Length	Quantities	
			a	b	c	d		Steel Lbs	Conc CuYd
H400	4	2	0'-6"	4'-0"		8'-6"			
H401	4	1	0'-6"	3'-7"		7'-8"			
K402	4	4	0'-3"	0'-7"	2'-11"	6'-11"	45.0	0.37	
K403	4	1	0'-3"	0'-7"	1'-2"	3'-5"			
R400	4	2	1'-9"	4'-0"	2'-6"	5'-9"			

INTERMEDIATE POST  
 LIST OF MATERIALS- EACH

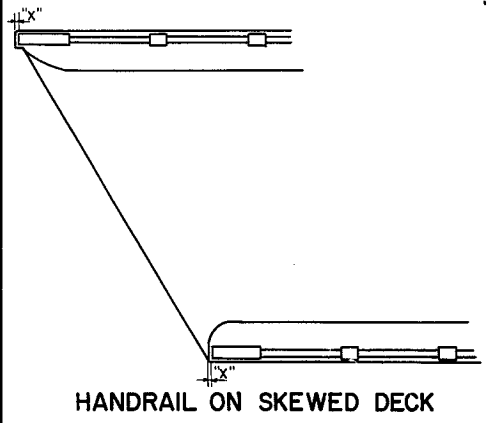
Bar	Size	No Req'd	Bending Dimensions				Length	Quantities	
			a	b	c	d		Steel Lbs	Conc CuYd
C500	5	4	3'-0"			3'-4"	22.6	0.15	
L400	4	3	0'-9"	0'-6"	1'-2"	4'-4"			

TOP RAIL-LIST OF MATERIALS-EACH

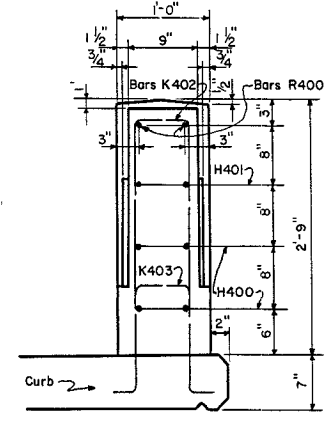
L	Bar	Size	No Req'd	Bending Dimensions				Length	Quantities	
				a	b	c	d		Steel Lbs	Conc CuYd
6'-0"	A400	4	4				6'-2"	23.6	0.10	
6'-10"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-10"	A400	4	4				6'-3"	23.8	0.10	
6'-2"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-2"	A400	4	4				6'-4"	24.1	0.10	
6'-3"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-4"	A400	4	4				6'-5"	24.3	0.10	
6'-4"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-4"	A400	4	4				6'-6"	24.5	0.10	
6'-5"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-5"	A400	4	4				6'-7"	24.7	0.11	
6'-6"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-6"	A400	4	4				6'-8"	25.0	0.11	
6'-7"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-7"	A400	4	4				6'-9"	25.2	0.11	
6'-8"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-8"	A400	4	4				6'-10"	25.4	0.11	
6'-9"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-9"	A400	4	4				6'-11"	25.6	0.11	
6'-10"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-10"	A400	4	4				7'-0"	25.9	0.11	
6'-11"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			
6'-11"	A400	4	4				7'-1"	26.1	0.11	
7'-0"	L300	3	8	0'-4"	0'-6"	0'-7"	2'-4"			

BOTTOM RAIL-LIST OF MATERIALS-EACH

L	Bar	Size	No Req'd	Bending Dimensions				Length	Quantities	
				a	b	c	d		Steel Lbs	Conc CuYd
6'-0"	A401	4	2				5'-8"	17.7	0.09	
6'-10"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-10"	A401	4	2				5'-10"	17.8	0.09	
6'-10"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-2"	A401	4	2				5'-10"	17.9	0.09	
6'-3"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-3"	A401	4	2				5'-11"	18.1	0.10	
6'-4"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-4"	A401	4	2				6'-0"	18.2	0.10	
6'-5"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-5"	A401	4	2				6'-1"	18.3	0.10	
6'-6"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-6"	A401	4	2				6'-2"	18.4	0.10	
6'-7"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-7"	A401	4	2				6'-3"	18.5	0.10	
6'-8"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-8"	A401	4	2				6'-4"	18.6	0.10	
6'-9"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-9"	A401	4	2				6'-5"	18.7	0.10	
6'-10"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-10"	A401	4	2				6'-6"	18.8	0.10	
6'-11"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			
6'-11"	A401	4	2				6'-7"	19.0	0.11	
7'-0"	K300	3	8	0'-4"	0'-4"	1'-2"	3'-4"			



HANDRAIL ON SKEWED DECK



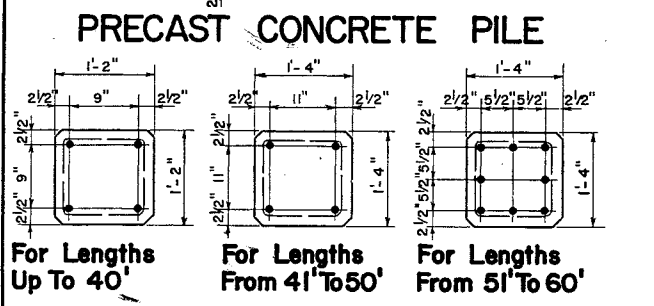
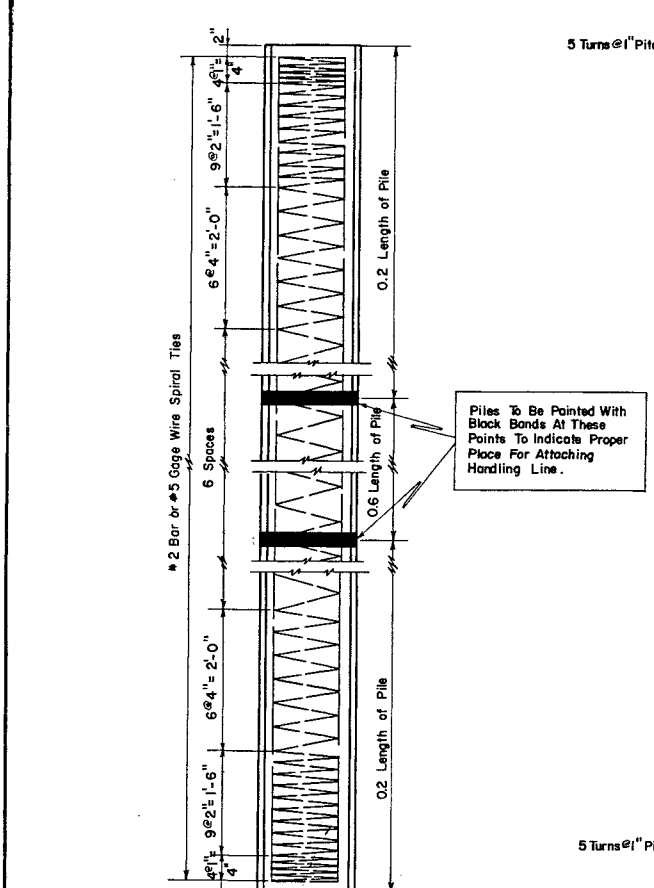
ELEV. B-B

DESIGNED BY: J.L. Parkes  
 DRAWN BY: R. Reagan  
 RECHECKED BY: R. Reagan  
 CHECKED BY: \_\_\_\_\_

DATE: 4-4-63

CORR. BY: *Karl Green*  
 BRIDGE ENGINEER  
 APPROVED: *Carl Lang*  
 STATE HIGHWAY ENGINEER

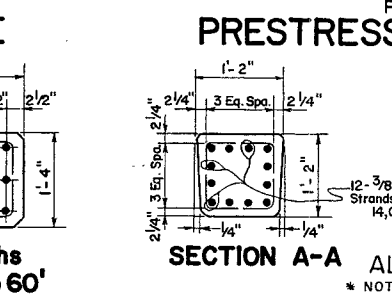
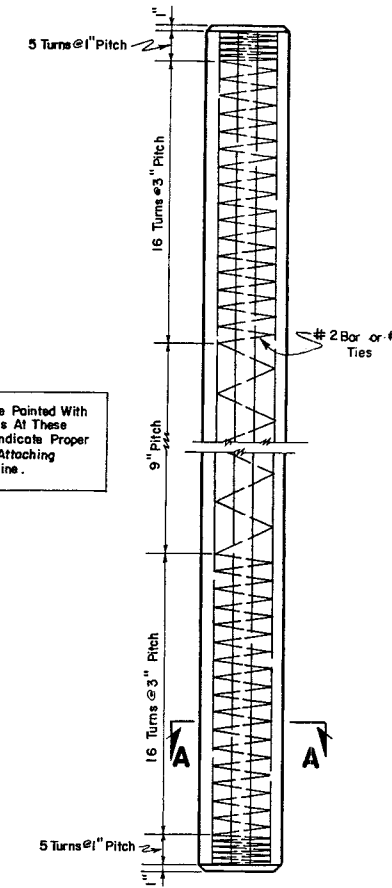
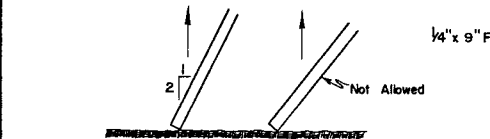




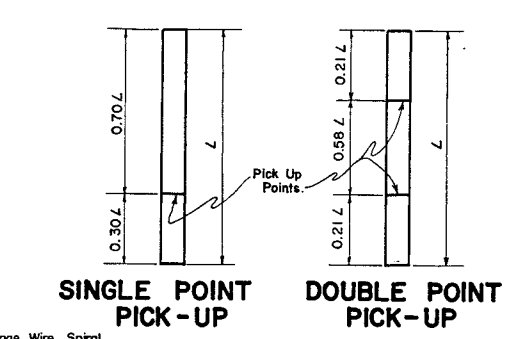
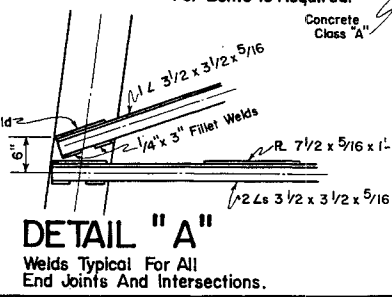
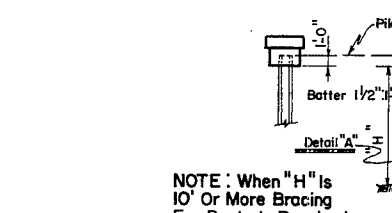
NOTE: If It Becomes Necessary To Use Size 2 Piles The Contractor Will Be Allowed An Increase In The Size 1 Bid Of 25%.

Length Of Pile	Longitudinal Reinforcing	Weight Of Steel Per Ft.	Weight Of Pile Per Ft.
Up To 35'	4 #7 Bars	9.6 #	205.3 #
36' To 40'	4 #8 Bars	12.2 #	205.3 #
41' To 45'	4 #9 Bars	15.1 #	265.3 #
46' To 50'	4 #10 Bars	18.8 #	265.3 #
51' To 55'	8 #9 Bars	28.9 #	265.3 #
56' To 60'	8 #10 Bars	36.2 #	265.3 #

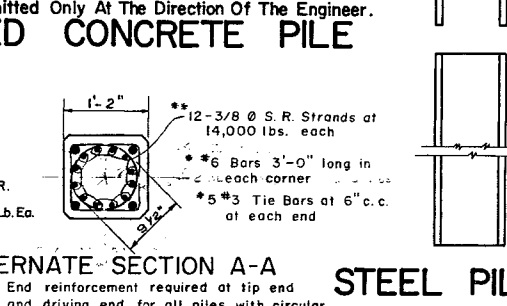
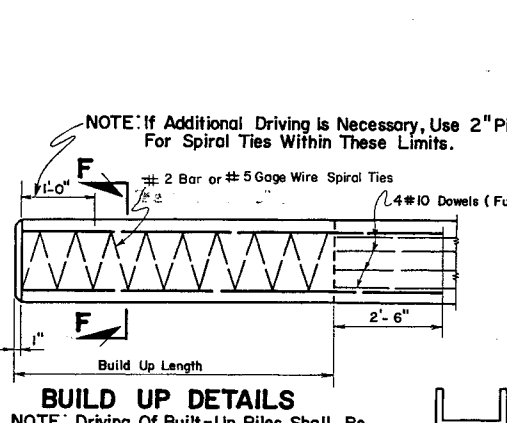
NOTE: In Handling The Piles, They Shall Be Supported At The Points Indicated. Piles To Be Picked Up By Pulling On Both Lines Uniformly. End Of Pile Not To Touch Ground Unless Piles Inclined 1:2 Or Steeper.



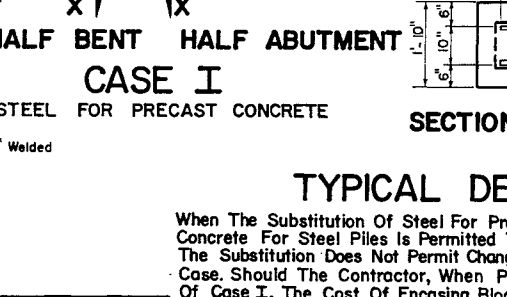
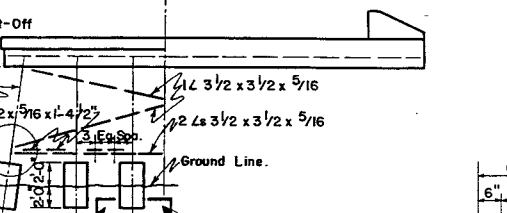
NOTE: Driving Of Built-Up Piles Shall Be Permitted Only At The Direction Of The Engineer.



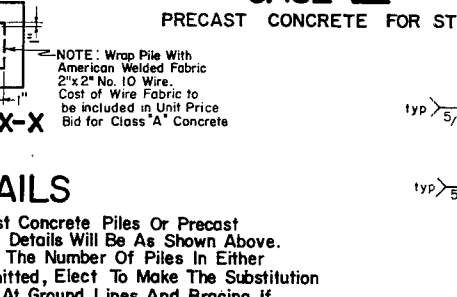
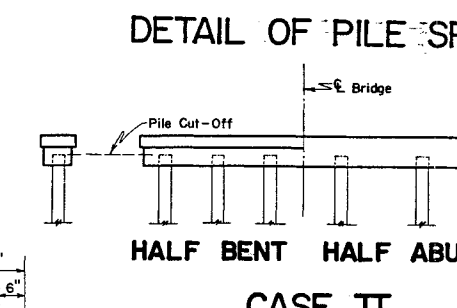
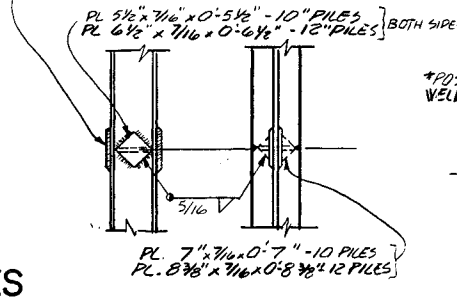
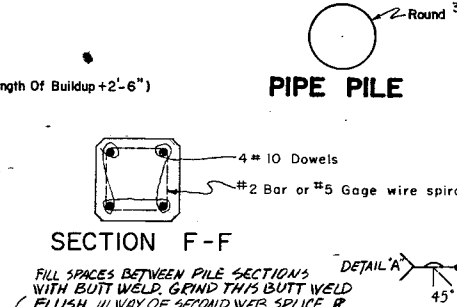
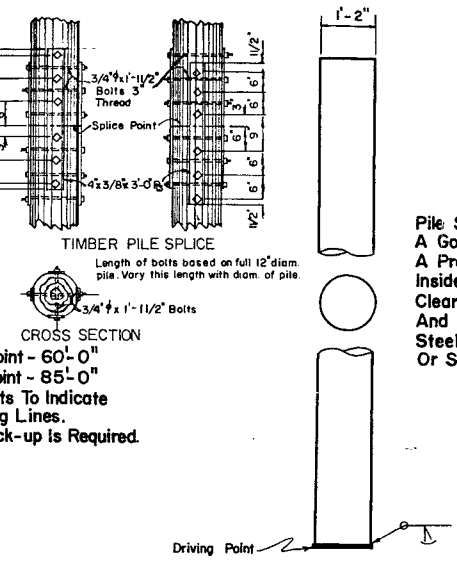
NOTES: (1) Maximum Length Single Pick Up Point - 60'-0"  
(2) Maximum Length Double Pick Up Point - 85'-0"  
(3) Piles To Be Marked At These Points To Indicate Proper Place For Attaching Handling Lines.  
(4) For Greater Lengths Three Point Pick-up is Required.



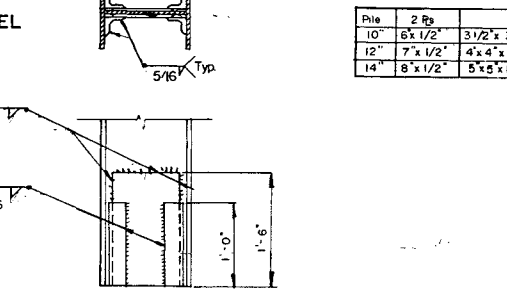
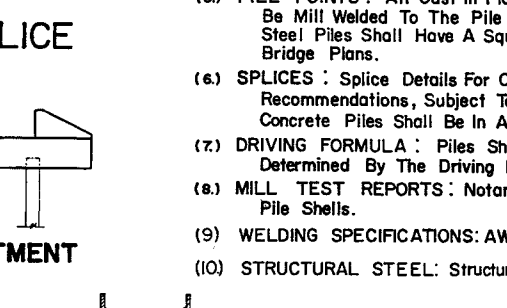
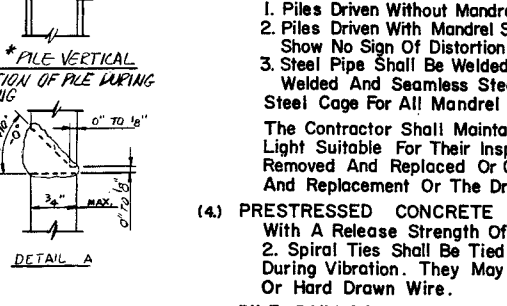
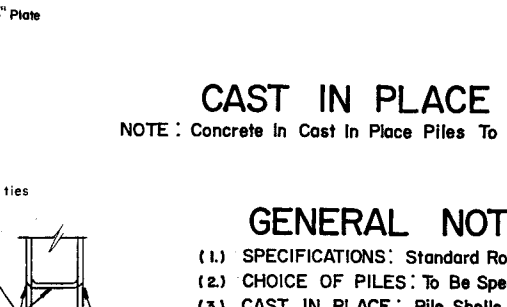
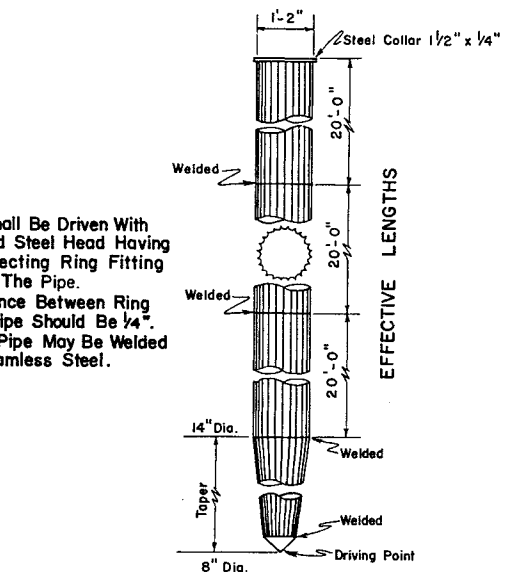
NOTE: End reinforcement required at tip end and driving end for all piles with circular strand patterns.



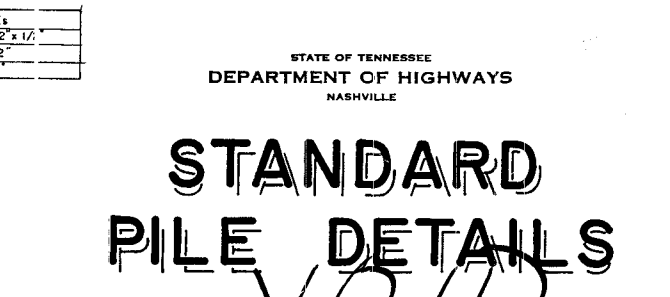
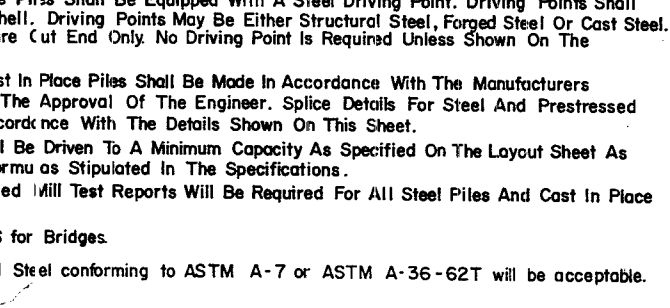
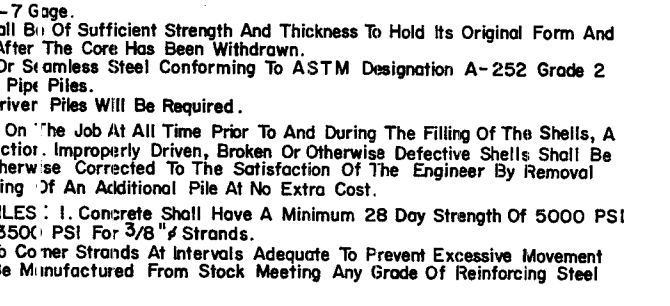
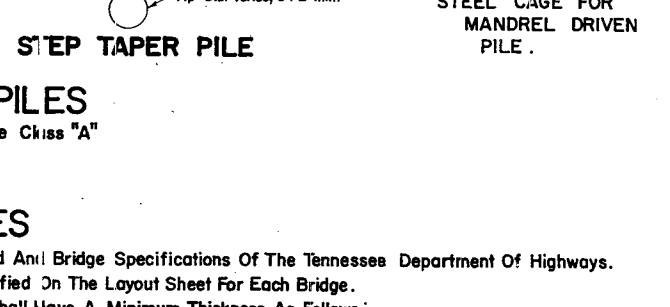
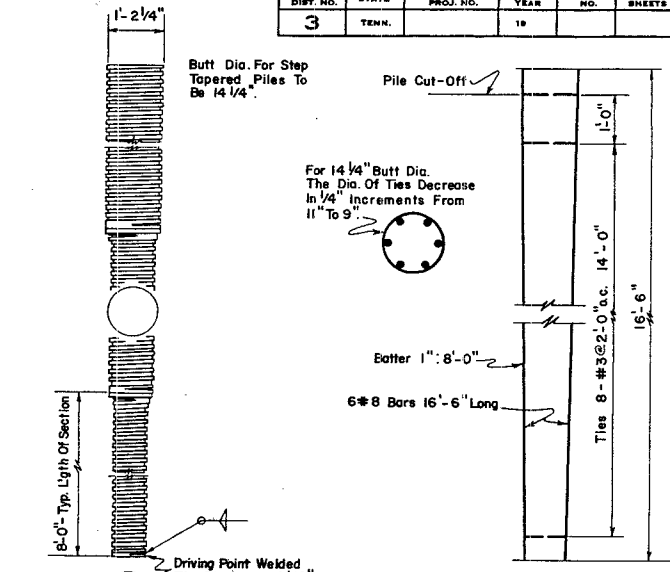
NOTE: When "H" is 10' Or More Bracing For Bents Is Required.



NOTE: Wrap Pile With American Welded Fabric 2"x2" No. 10 Wire. Cost of Wire Fabric to be included in Unit Price Bid for Class "A" Concrete.



NOTE: Cost of driving point to be included in the unit price bid for steel piles.



NOTE: Cost of driving point to be included in the unit price bid for steel piles.

**GENERAL NOTES**

- SPECIFICATIONS: Standard Road And Bridge Specifications Of The Tennessee Department Of Highways.
- CHOICE OF PILES: To Be Specified On The Layout Sheet For Each Bridge.
- CAST IN PLACE: Pile Shells Shall Have A Minimum Thickness As Follows:
  - Piles Driven Without Mandrel - 7 Gage.
  - Piles Driven With Mandrel Shall Be Of Sufficient Strength And Thickness To Hold Its Original Form And Show No Sign Of Distortion After The Core Has Been Withdrawn.
  - Steel Pipe Shall Be Welded Or Seamless Steel Conforming To ASTM Designation A-252 Grade 2 Welded And Seamless Steel Pipe Piles. Steel Cage For All Mandrel Driver Piles Will Be Required. The Contractor Shall Maintain On The Job At All Time Prior To And During The Filling Of The Shells, A Light Suitable For Their Inspection. Improperly Driven, Broken Or Otherwise Defective Shells Shall Be Removed And Replaced Or Otherwise Corrected To The Satisfaction Of The Engineer By Removal And Replacement Or The Driving Of An Additional Pile At No Extra Cost.
- PRESTRESSED CONCRETE PILES: 1. Concrete Shall Have A Minimum 28 Day Strength Of 5000 PSI With A Release Strength Of 3500 PSI For 3/8" Strands. 2. Spiral Ties Shall Be Tied To Corner Strands At Intervals Adequate To Prevent Excessive Movement During Vibration. They May Be Manufactured From Stock Meeting Any Grade Of Reinforcing Steel Or Hard Drawn Wire.
- PILE POINTS: All Cast In Place Piles Shall Be Equipped With A Steel Driving Point. Driving Points Shall Be Mill Welded To The Pile Shell. Driving Points May Be Either Structural Steel, Forged Steel Or Cast Steel. Steel Piles Shall Have A Square Cut End Only. No Driving Point Is Required Unless Shown On The Bridge Plans.
- SPLICES: Splice Details For Cast In Place Piles Shall Be Made In Accordance With The Manufacturers Recommendations, Subject To The Approval Of The Engineer. Splice Details For Steel And Prestressed Concrete Piles Shall Be In Accordance With The Details Shown On This Sheet.
- DRIVING FORMULA: Piles Shall Be Driven To A Minimum Capacity As Specified On The Layout Sheet As Determined By The Driving Formulas As Stipulated In The Specifications.
- MILL TEST REPORTS: Notarized Mill Test Reports Will Be Required For All Steel Piles And Cast In Place Pile Shells.
- WELDING SPECIFICATIONS: AWS for Bridges.
- STRUCTURAL STEEL: Structural Steel conforming to ASTM A-7 or ASTM A-36-62T will be acceptable.

Pile	2 Rb	4 Ls
10"	8x1/2"	3 1/2" x 3/2" x 1/2"
12"	7x1/2"	4x4x1/2"
14"	8x1/2"	5x3x1/2"

STATE OF TENNESSEE  
DEPARTMENT OF HIGHWAYS  
NASHVILLE

**STANDARD PILE DETAILS**

DESIGNED BY: J.W. SOUTHERLAND  
DRAWN BY: J.W. SOUTHERLAND  
CHECKED BY: J.W. SOUTHERLAND

DATE: 5-27-60  
DATE: 2-6-62  
DATE:

REV. - FEB. 6, 1962  
REV. - MAR. 1, 1961 BATTER ON PRESTRESSED PILE  
REV. - DEC. 8, 1960  
REV. - OCT. 27, 1960  
REV. - SEPT. 27, 1960 DELETE PILE SUBSTITUTIONS

REV. - JULY 25, 1960  
REV. - DEC. 14, 1964 SPIRAL TIES  
REV. - JAN. 22, 1964 COST OF WIRE FABRIC  
REV. - FEB. 24, 1966 TIMBER PILE SPLICE, DETAIL OF PILE DRIVING POINT  
REV. - NOV. 27, 1973 ADDED ALT. SECTION A-A

REV. - NOV. 12, 1982 DETAIL OF PILE SPLICE

APPROVED: Fred Green  
BRIDGE ENGINEER

CORRECT: Fred Green  
BRIDGE ENGINEER

APPROVED: Fred Green  
BRIDGE ENGINEER

H-5-III

SEE Std-5-1 & 5-2