02-28-14 LETTING ITEM 136

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	1
FEDERAL AID PROJECT	ILLINOIS	CONTRACT NO. 97548		

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

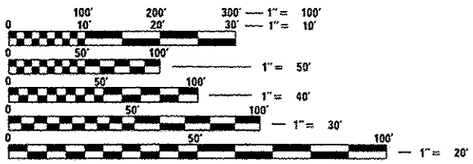
PROPOSED HIGHWAY PLANS

F.A.U. ROUTE 9016 (C.H. 22 – MORO ROAD)
BRIDGE REPLACEMENT
SECTION 11–00110–02–BR
STRUCTURE NO. 060–3359
MADISON COUNTY
SURFACE TRANSPORTATION PROGRAM – BRIDGE
PROJECT NO. BRS–0119(074)
JOB NO. C–98–325–12

INDEX OF SHEETS

HIGHWAY STANDARDS

000001-06	STANDARD SYMBOLS, ABBREVIATIONS AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
001006	DECIMAL OF AN INCH AND OF A FOOT
280001-07	TEMPORARY EROSION CONTROL SYSTEMS
420401-10	BRIDGE APPROACH PAVEMENT CONNECTOR
482006-03	HMA SHOULDER ADJACENT TO RIGID PAVEMENT
515001-03	NAME PLATE FOR BRIDGES
601101-01	CONCRETE HEADWALL FOR PIPE DRAIN
630301-06	SHOULDER WIDENING FOR TYPE 1 (SPECIAL) GUARDRAIL TERMINALS
631032-08	TRAFFIC BARRIER TERMINAL, TYPE 6A
635006-03	REFLECTOR AND TERMINAL MARKER PLACEMENT
635011-02	REFLECTOR MARKER AND MOUNTING DETAILS
666001-01	RIGHT OF WAY MARKERS
701321-13	LANE CLOSURE, 2L, 2W, BRIDGE REPAIR WITH BARRIER
701901-03	TRAFFIC CONTROL DEVICES
704001-07	TEMPORARY CONCRETE BARRIER
780001-04	TYPICAL PAVEMENT MARKINGS

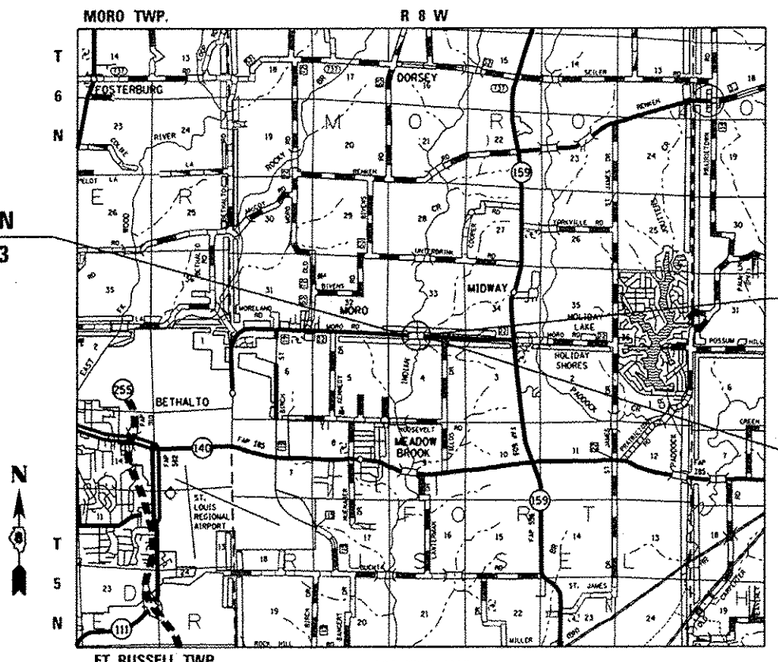


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1–800–892–0123
OR 811

ROADWAY CLASSIFICATION: MINOR ARTERIAL (URBAN)
DESIGN SPEED / POSTED SPEED = 55 MPH
CONST YEAR ADT (2014) = 4,250
DESIGN YEAR ADT (2034) = 4,505

DESIGN DESIGNATION
MINOR ARTERIAL (URBAN)



LOCATION MAP
SCALE: 1" = 1 MILE

BEGIN SECTION
STA. 171 + 33.33

END SECTION
STA. 174 + 10.67

SECTION 11–00110–02–BR INCLUDES SINGLE SPAN STRUCTURE CARRYING C.H. 22 OVER INDIAN CREEK
STATION 172 + 72.00
S. N. 060–3359

GROSS LENGTH = 277.34 FT. = 0.0525 MILE
NET LENGTH = 277.34 FT. = 0.0525 MILE

LOCATION OF SECTION INDICATED THUS: –■–

AGENCY RESPONSIBLE FOR LETTING

APPROVED 12-12-2013 DATE
Mark A. Shults
MADISON COUNTY ENGINEER

PASSED 12/20/13 DATE
DISTRICT #8 PROJECT ~~DEVELOPMENT~~ ENGINEER
Implementation

RELEASING FOR BID BASED ON LIMITED REVIEW 12/20/13 DATE
DEPUTY DIRECTOR OF HIGHWAYS, REGION # ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

ALAN J. GOEPFERT
062-052899
LICENSED PROFESSIONAL ENGINEER
OF
ILLINOIS

Alan J. Goepfert 12/12/13
Alan J. Goepfert, P.E. Date
License Expires 11/30/2015

OATES ASSOCIATES
Engineering + Architecture

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Eastport Business Center 1
100 Lanter Court, Suite 1
Collinsville, IL 62234
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fax 618.345.7233

MISSOURI
Laclede Gas Building
720 Olive, Suite 1600
St. Louis, MO 63101
tel 314.588.8381
fax 314.588.9605

www.oatesassociates.com

12022

GENERAL NOTES

1. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEIR LOCATIONS MUST BE CONSIDERED TO BE APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. ILLINOIS LAW REQUIRES A MINIMUM 48-HOUR NOTICE TO ALL UTILITY COMPANIES BEFORE DIGGING. FIELD LOCATIONS OF UNDERGROUND FACILITIES MAY BE OBTAINED BY CALLING THE J.U.L.I.E. SYSTEM AT 800-892-0123 AND PROVIDING 48 HOURS ADVANCE NOTICE. NON-J.U.L.I.E MEMBERS MUST BE NOTIFIED INDIVIDUALLY. AGENCIES KNOWN TO HAVE FACILITIES WITHIN THE PROJECT LIMITS ARE LISTED BELOW.

2. ANY FACILITIES OR APPURTENANCES WHICH ARE THE PROPERTY OF ANY PUBLIC UTILITY LOCATED WITHIN THE LIMITS OF CONSTRUCTION SHALL BE RELOCATED OR ADJUSTED BY THEIR RESPECTIVE OWNERS. THE CONTRACTOR SHALL NOTIFY AND COOPERATE WITH THE OWNERS OF ANY SUCH FACILITY IN THEIR REMOVAL AND REARRANGEMENT OPERATIONS IN ORDER THAT THESE OPERATIONS AND THE CONSTRUCTION OF THIS PROJECT MAY PROGRESS IN A REASONABLE MANNER.

3. THE FOLLOWING UTILITY COMPANIES MAY HAVE FACILITIES LOCATED WITHIN THE LIMITS OF CONSTRUCTION WHICH MAY REQUIRE ADJUSTMENT, RELOCATION OR REMOVAL. ALL ARE MEMBERS OF J.U.L.I.E., UNLESS NOTED OTHERWISE.

   SOUTHWESTERN ELECTRIC COOPERATIVE (ELECTRIC)
   525 US ROUTE 40
   GREENVILLE, IL 62246
   (800) 637-8667

   AT&T (TELEPHONE/COMMUNICATION)
   203 GOETHE STREET
   COLLINSVILLE, IL 62234
   (618) 346-6422

   FOSTERBURG WATER DISTRICT (WATER)
   3216 MAIN STREET
   ALTON, IL 62002
   (618) 259-0935

   MORO PUBLIC WATER DISTRICT (WATER)
   212 NORTH MAIN STREET
   MORO, IL 62067
   (618) 377-0105

4. THE ABOVE INFORMATION REPRESENTS THE BEST INFORMATION AVAILABLE TO THE LOCAL AGENCY AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. IT IS UNDERSTOOD AND AGREED THAT THE CONTRACTOR HAS TAKEN THE FOREGOING INTO CONSIDERATION IN PREPARING HIS/HER BID, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR ANY DELAYS OR INCONVENIENCE CAUSED BY SAME.

5. COPIES OF AVAILABLE SOIL BORINGS ARE INCLUDED IN THE PLANS FOR THE CONVENIENCE AND INFORMATION OF THE BIDDER. NO WARRANTY, EXPRESSED OR IMPLIED, IS MADE AS TO THE SUFFICIENCY OR ACCURACY OF THIS INFORMATION.

6. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO ORDERING MATERIALS AND COMMENCING CONSTRUCTION.

7. THE CONTRACTOR SHALL CONFINE ALL OPERATIONS TO THE CONSTRUCTION LIMITS LINE SHOWN ON THE PLANS. ANY AREA DISTURBED BEYOND THESE LIMITS SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

8. THE CONTRACTOR SHALL FERTILIZE, SEED AND MULCH ALL EARTH SURFACES DISTURBED BY CONSTRUCTION. FERTILIZER, SEEDING AND MULCH WITHIN THE CONSTRUCTION LIMITS WILL BE PAID FOR AS PROVIDED IN THE CONTRACT. FERTILIZER, SEEDING AND MULCH OUTSIDE THESE LIMITS WILL NOT BE MEASURED FOR PAYMENT. SEE THE SEEDING SCHEDULE FOR ESTIMATED PLAN QUANTITIES.

9. CHANNEL EXCAVATION WILL BE MEASURED AND PAID FOR AS EARTH EXCAVATION. THE QUANTITY OF CHANNEL EXCAVATION IS INCLUDED IN THE EARTH EXCAVATION QUANTITY SHOWN IN THE PLANS.

10. ALL TIE BARS AND REINFORCEMENT BARS USED ON THIS PROJECT SHALL BE EPOXY COATED.

11. THE FOLLOWING ITEMS AND APPROXIMATE QUANTITIES ARE INCLUDED IN THE SUMMARY OF QUANTITIES IN ORDER TO ESTABLISH A UNIT COST FOR WORK WHICH MAY BE REQUIRED TO CONSTRUCT THIS SECTION. THE ACTUAL QUANTITY OF EACH ITEM SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

    ENGINEER'S FIELD OFFICE, TYPE B 6 CAL MO

12. THE FOLLOWING SYMBOLS, ABBREVIATIONS AND PATTERNS SUPPLEMENT OR SUPERCEDE HIGHWAY STANDARD 000001:

CP	CONTROL POINT
N/F	NOW OR FORMERLY
TCE	TEMPORARY CONSTRUCTION EASEMENT
W	WIDTH

STAGE CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL COORDINATE WITH THE PROPERTY OWNERS OF THE EXISTING FIELD ENTRANCES AND SHALL PROVIDE ACCESS TO THEM AS REQUIRED.

2. THE ASSUMED WORK AREA AS SHOWN IN HIGHWAY STANDARD 701321 IS FROM STA. 171+93.33 TO STA. 173+50.67.

3. THE SHOULDER RECONSTRUCTION SHALL BE PERFORMED AT THE TIME THE LANE ADJACENT TO THE SHOULDER IS CLOSED TO TRAFFFIC FOR STAGE CONSTRUCTION.

4. BEFORE STAGE CONSTRUCTION IS RELOCATED OR REMOVED, THE AFFECTED LANE THAT HAS BEEN CLOSED SHALL BE BROUGHT TO FINAL HMA SURFACE COURSE ELEVATION.

COMMITMENTS

(NONE)

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL NOTES, UTILITIES, & COMMITMENTS

SCALE: | SHEET 1 OF 1 SHEETS | STA. | TO STA.

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	2
		CONTRACT NO. 97548		
		ILLINOIS	FED. AID PROJECT	

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
20200100	EARTH EXCAVATION	CU YD	1,180
20400800	FURNISHED EXCAVATION	CU YD	650
25000200	SEEDING, CLASS 2	ACRE	0.6
25000400	NITROGEN FERTILIZER NUTRIENT	POUND	54
25000500	PHOSPHORUS FERTILIZER NUTRIENT	POUND	54
25000600	POTASSIUM FERTILIZER NUTRIENT	POUND	54
25100115	MULCH, METHOD 2	ACRE	0.6
25100630	EROSION CONTROL BLANKET	SQ YD	510
28000250	TEMPORARY EROSION CONTROL SEEDING	POUND	120
28000305	TEMPORARY DITCH CHECKS	FOOT	72
28100107	STONE RIPRAP, CLASS A4	SQ YD	1,578
28200200	FILTER FABRIC	SQ YD	1,578
40600100	BITUMINOUS MATERIALS (PRIME COAT)	GALLON	24
40600985	PORTLAND CEMENT CONCRETE SURFACE REMOVAL - BUTT JOINT	SQ YD	160

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
40603335	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50	TON	29
42001420	BRIDGE APPROACH PAVEMENT CONNECTOR (PCC)	SQ YD	54
44000100	PAVEMENT REMOVAL	SQ YD	170
44004250	PAVED SHOULDER REMOVAL	SQ YD	455
48203037	HOT-MIX ASPHALT SHOULDERS, 10"	SQ YD	480
50100100	REMOVAL OF EXISTING STRUCTURES	EACH	1
50105220	PIPE CULVERT REMOVAL	FOOT	48
50200100	STRUCTURE EXCAVATION	CU YD	216
50300225	CONCRETE STRUCTURES	CU YD	71.3
50300255	CONCRETE SUPERSTRUCTURE	CU YD	252.8
50300260	BRIDGE DECK GROOVING	SQ YD	614
50300300	PROTECTIVE COAT	SQ YD	673
50500105	FURNISHING AND ERECTING STRUCTURAL STEEL	L SUM	1
50500505	STUD SHEAR CONNECTORS	EACH	1,152

• - SPECIALTY ITEM SP - SEE JOB SPECIFIC SPECIAL PROVISION

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: | SHEET 1 OF 3 SHEETS | STA. | TO STA.

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	3
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	67,350
50800515	BAR SPLICERS	EACH	538
* 50901050	STEEL RAILING, TYPE SM	FOOT	174
51201600	FURNISHING STEEL PILES HP12X53	FOOT	705
51202305	DRIVING PILES	FOOT	705
51203600	TEST PILE STEEL HP12X53	EACH	2
51204650	PILE SHOES	EACH	12
51500100	NAME PLATES	EACH	1
52100520	ANCHOR BOLTS, 1"	EACH	24
59100100	GEOCOMPOSITE WALL DRAIN	SQ YD	91
• 63100087	TRAFFIC BARRIER TERMINAL, TYPE 6A	EACH	4
• 63100167	TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT	EACH	4
63200310	GUARDRAIL REMOVAL	FOOT	202
66600105	FURNISHING AND ERECTING RIGHT OF WAY MARKERS	EACH	2

CODE NO.	ITEM	UNIT	TOTAL QUANTITY
67000500	ENGINEER'S FIELD OFFICE, TYPE B	CAL MO	6
67100100	MOBILIZATION	L SUM	1
70100405	TRAFFIC CONTROL AND PROTECTION, STANDARD 701321	EACH	1
* 70106500	TEMPORARY BRIDGE TRAFFIC SIGNALS	EACH	1
70106700	TEMPORARY RUMBLE STRIPS	EACH	12
70300100	SHORT TERM PAVEMENT MARKING	FOOT	135
70300220	TEMPORARY PAVEMENT MARKING - LINE 4"	FOOT	2,336
70300280	TEMPORARY PAVEMENT MARKING - LINE 24"	FOOT	24
70301000	WORK ZONE PAVEMENT MARKING REMOVAL	SQ FT	828
70400100	TEMPORARY CONCRETE BARRIER	FOOT	364
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	364
70600250	IMPACT ATTENUATORS, TEMPORARY (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2
70600350	IMPACT ATTENUATORS, RELOCATE (NON- REDIRECTIVE), TEST LEVEL 3	EACH	2
• 78001110	PAINT PAVEMENT MARKING - LINE 4"	FOOT	1,538

• - SPECIALTY ITEM SP - SEE JOB SPECIFIC SPECIAL PROVISION

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

SCALE: | SHEET 2 OF 3 SHEETS | STA. | TO STA.

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	4
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			

	CODE NO.	ITEM	UNIT	TOTAL QUANTITY
* SP	78200410	GUARDRAIL MARKERS, TYPE A	EACH	8
* SP	78200530	BARRIER WALL MARKERS, TYPE C	EACH	4
* SP	78201000	TERMINAL MARKER - DIRECT APPLIED	EACH	4
	78300100	PAVEMENT MARKING REMOVAL	SQ FT	396
SP	Z0026407	TEMPORARY SHEET PILING	SQ FT	280
SP	Z0046304	PIPE UNDERDRAINS FOR STRUCTURES 4"	FOOT	168
SP	X5860110	GRANULAR BACKFILL FOR STRUCTURES	CU YD	171

CODE NO.	ITEM	UNIT	TOTAL QUANTITY

* - SPECIALTY ITEM SP - SEE JOB SPECIFIC SPECIAL PROVISION

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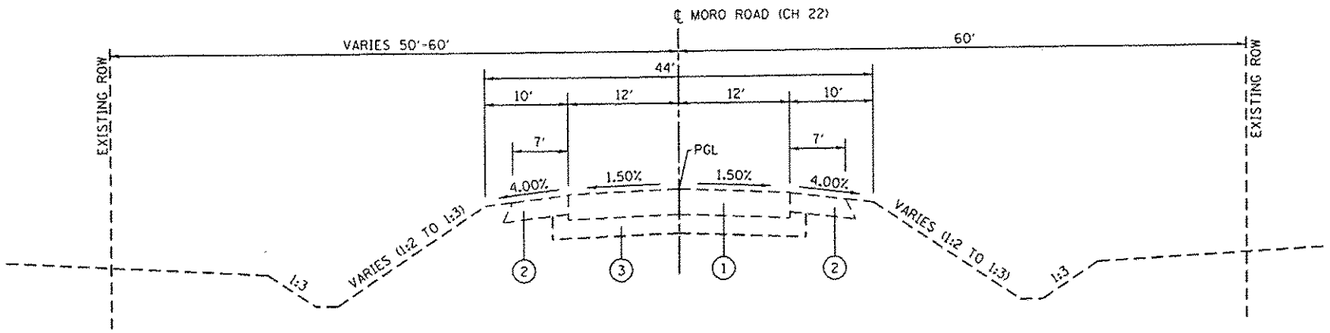
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

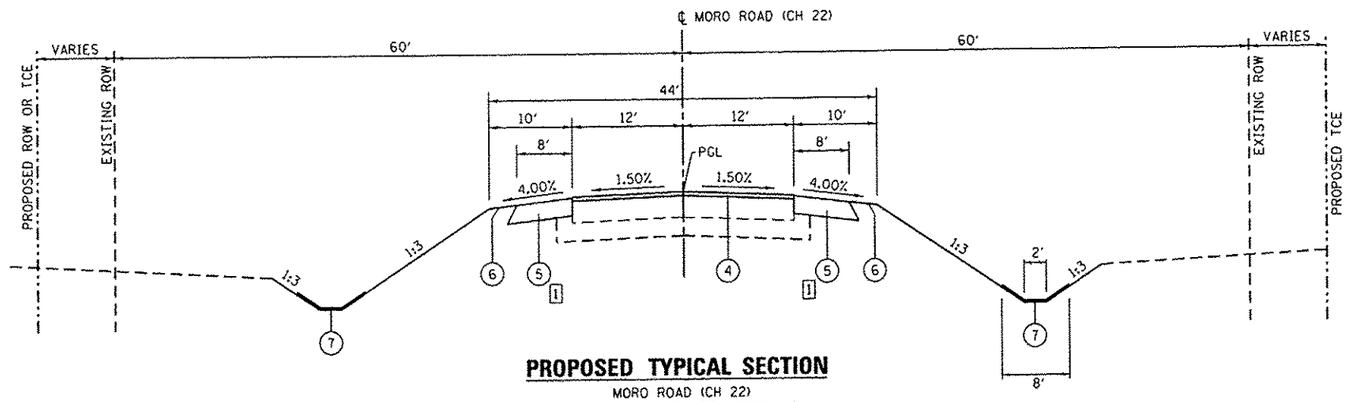
SCALE: SHEET 3 OF 3 SHEETS STA. TO STA.

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	5
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		



EXISTING TYPICAL SECTION

MORO ROAD (CH 22)
STA 170+00.00 TO STA 176+00.00



PROPOSED TYPICAL SECTION

MORO ROAD (CH 22)
STA 171+33.33 TO STA 174+10.67

[1] STA 170+22.33 TO STA 171+33.33 LT
STA 174+10.67 TO STA 175+21.67 LT
STA 170+94.33 TO STA 171+33.33 RT
STA 174+10.67 TO STA 174+49.67 RT

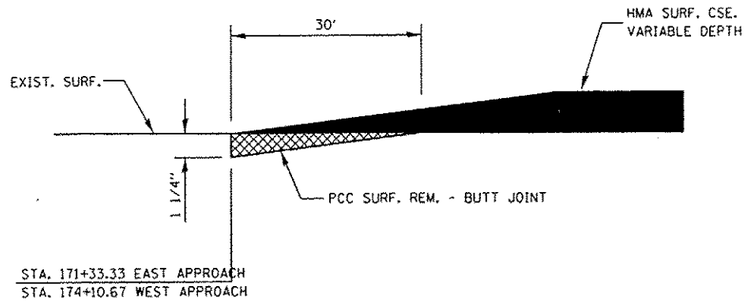
OMISSIONS

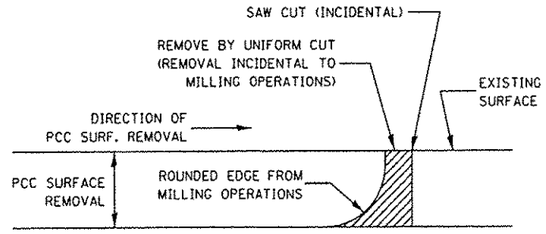
CONNECTOR PAVEMENT	STA 171+93.33 TO STA 171+99.33 STA 173+44.67 TO STA 173+50.67
BRIDGE APPROACH PAVEMENT	STA 171+99.33 TO STA 172+29.33 STA 173+14.67 TO STA 173+44.67
STRUCTURE	STA 172+29.33 TO STA 173+14.67

SHOULDER WIDENING FOR TYPE 1 (SPECIAL)
GUARDRAIL TERMINALS SHALL BE ACCORDING
TO STANDARD 630301.

LEGEND

1. EXISTING PORTLAND CEMENT CONCRETE PAVEMENT 8"
2. EXISTING STABILIZED SHOULDER 6" (BAM)
3. EXISTING SUB-BASE GRANULAR MATERIAL, TYPE A, 6"
4. PROPOSED HOT-MIX ASPHALT PAVEMENT (VARIABLE DEPTH)
5. PROPOSED HOT-MIX ASPHALT SHOULDER, 10"
6. PROPOSED EARTH SHOULDER
7. EROSION CONTROL BLANKET





NOTE:
WHEN MILLING OPERATIONS PRODUCE A ROUNDED EDGE, THEN A SAW CUT SHALL BE USED TO MANUFACTURE A PERPENDICULAR EDGE AS SHOWN IN THE DETAIL. THE ENGINEER SHALL BE THE SOLE JUDGE CONCERNING THE USE OF THIS DETAIL

HMA DETAIL AT BUTT JOINTS

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS AND CONSTRUCTION DETAILS

SCALE: N.T.S. | SHEET NO. 1 OF 1 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	6
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		

PAVEMENT SCHEDULE

STATION	OFFSET	STATION	OFFSET	BIT MATLS PR CT (NOTE 1) (GAL)	PCC SURF REM BUTT JT (SQ YD)	HMA SC "D" N50 (NOTE 1) (TON)	BR APPR PVT CON (PCC) (SQ YD)	PAVEMENT REM (SQ YD)	PAVED SHLD REMOVAL (SQ YD)	HMA SHOULDERS 10 (SQ YD)
170+94	RT	171+93	RT							88
170+94	RT	172+25	RT						78	
170+22	LT	171+93	LT							152
170+22	LT	172+25	LT						150	
171+33		171+63			80					
171+33		171+93		12		13				
171+93		171+99					27			
171+93		172+25						85		
173+19		173+51						85		
173+19	RT	174+50	RT						98	
173+19	LT	175+22	LT						129	
173+45		173+51					27			
173+51		174+11		12		16				
173+51	RT	174+50	RT							88
173+51	LT	175+22	LT							152
173+81		174+11			80					
TOTAL				24	160	29	54	170	455	480

PAVEMENT NOTES:
1. HOT-MIX ASPHALT SURFACING QUANTITY IS CALCULATED AT A RATE OF 112 LB / SQ YD / IN. BITUMINOUS MATERIALS (PRIME COAT) IS CALCULATED AT A RATE OF 0.075 GAL/SQ YD.

SEEDING SCHEDULE

STATION	OFFSET	STATION	OFFSET	SEEDING CL 2 (ACRE)	NITROGEN FERT NUTR (NOTE 1) (POUND)	PHOSPHORUS FERT NUTR (NOTE 1) (POUND)	POTASSIUM FERT NUTR (NOTE 1) (POUND)	MULCH METHOD 2 (NOTE 1) (ACRE)
171+00	RT	172+18	RT	0.1	9	9	9	0.1
170+89	LT	172+18	LT	0.1	9	9	9	0.1
173+26	RT	175+03	RT	0.2	18	18	18	0.2
173+26	LT	175+50	LT	0.2	18	18	18	0.2
TOTAL				0.6	54	54	54	0.6

SEEDING NOTES:
1. FERTILIZER NUTRIENTS ARE CALCULATED AT A RATE OF 90 LBS/ACRE.

PAVEMENT MARKING SCHEDULE

STATION	OFFSET	STATION	OFFSET	COMMENT	TEMP RUMBLE STRIPS (NOTE 2) (EACH)	SHORT TERM PAVT MKING (FOOT)	TEMP PVT MK LINE 4 (FOOT)	TEMP PVT MK LINE 24 (FOOT)	WORK ZONE PAVT MK REM (SQ FT)	PAINT PVT MK LINE 4 (NOTE 1) (FOOT)	PAVT MARKING REMOVAL (SQ FT)
				STAGE 1 EB APPROACH	3						
				STAGE 2 EB APPROACH	3						
168+66	RT			EB LANE STOP BAR				12	24		
168+66	CL	176+78	CL	CENTERLINE		81				203	
169+27	RT	176+18	RT	RT EDGE LINE		28				691	
169+50	LT	175+94	LT	LT EDGE LINE		26				644	
169+50	LT	175+94	LT	STG 1 - LT EDGE LINE - WHITE			644		215		
170+94	RT	174+50	RT	STG 1 - RT EDGE LINE - WHITE			356		119		
169+26	RT	176+18	RT	STG 2 - RT EDGE LINE - WHITE			692		231		
169+50	LT	175+94	LT	STG 2 - LT EDGE LINE - WHITE			644		215		
169+27	12' RT	176+18	12' RT	WHITE EDGE LINE							230
168+66	CL	171+33	CL	CL 10' DASH							22
174+11	CL	176+78	CL	CL 10' DASH							22
169+50	12' LT	171+33	12' LT	WHITE EDGE LINE							61
174+11	12' LT	175+94	12' LT	WHITE EDGE LINE							61
176+78	LT			WB LANE STOP BAR				12	24		
				STAGE 1 WB APPROACH	3						
				STAGE 2 WB APPROACH	3						
TOTAL					12	135	2336	24	828	1538	396

PAVEMENT MARKING NOTES:
1. SEE HIGHWAY STANDARD 780001 FOR PAVEMENT MARKING DETAILS.
2. SEE HIGHWAY STANDARD 701321 FOR LOCATIONS.

GUARDRAIL/BARRIER WALL SCHEDULE

STATION	STATION	COMMENT	TRAF BAR TERM T6A (EACH)	TR BAR TRM T1 SPL TAN (EACH)	GUARDRAIL REMOV (FOOT)	TEMP CONC BARRIER (FOOT)	REL TEMP CONC BARRIER (FOOT)	IMP ATTN TEMP NRD TL3 (EACH)	IMP ATTN REL NRD TL3 (EACH)	GUARDRAIL MKR TYPE A (EACH)	BAR WALL MKR TYPE C (EACH)	TERMINAL MARKER DA (EACH)
		SW QUAD	1	1						2		1
		NW QUAD	1	1						2		1
		SE QUAD	1	1						2		1
		NE QUAD	1	1						2		1
171+24	172+25	RT			101							
173+19	174+20	LT			101							
170+90	174+54	STAGE 1 & 2				364	364					
170+90		STAGE 1 & 2						1	1			
174+54		STAGE 1 & 2						1	1			
172+28	173+16	NORTH SIDE (WB)									2	
172+28	173+16	SOUTH SIDE (EB)									2	
TOTAL			4	4	202	364	364	2	2	8	4	4

RIGHT OF WAY MARKER SCHEDULE

STATION	OFFSET	SURVEY POINT DESCRIPTION	FUR ERECT ROW MARKERS (EACH)
174+00	75' LT	PR ROW	1
177+00	60' LT	PR ROW	1
TOTAL			2

EROSION CONTROL SCHEDULE

STATION	OFFSET	STATION	OFFSET	EROSION CONTR BLANKET (SQ YD)	TEMP EROS CONTR SEED (NOTE 1) (POUND)	TEMP DITCH CHECKS (FOOT)	STONE RIPRAP CL A4 (SQ YD)	FILTER FABRIC (SQ YD)
170+58		175+22			120			
171+00	RT	172+18	RT	105		18		
170+89	LT	172+18	LT	115		18		
172+18	BRIDGE	173+26	BRIDGE				1337	1337
173+00	LT	174+00	LT				241	241
173+26	RT	175+03	RT	157		18		
174+00	LT	175+50	LT	133		18		
TOTAL				510	120	72	1578	1578

EROSION CONTROL NOTES:
1. TEMPORARY EROSION CONTROL SEEDING QUANTITY ASSUMES TWO SEPARATE APPLICATIONS AT A RATE OF 100 LBS/ACRE/APPLICATION.

EARTHWORK SCHEDULE

STATION	STATION	EARTH EXCAVATION (CU YD)	EARTH EXCAVATION ADJUSTED FOR SHRINKAGE (NOTE 1) (CU YD)	EMBANKMENT (NOTE 2) (CU YD)	FURNISHED EXCAVATION (CU YD)
MORO ROAD					
170+22	172+28	105	80	785	705
173+16	175+60	545	410	750	345
INDIAN CREEK					
3+45	4+55	530	400		-400
TOTAL		1180	890	1535	650

EARTHWORK NOTES:
1. ESTIMATED SHRINKAGE FACTOR = 25%.
2. APPROXIMATE EMBANKMENT QUANTITY IS SHOWN FOR INFORMATION ONLY.

CULVERT REMOVAL SCHEDULE

STATION	OFFSET	SIZE (INCHES)	EXISTING CULVERT TYPE	PIPE CULVERT REMOV (FOOT)
173+57	48' RT	15	CMP	48
TOTAL				48

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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SCHEDULE OF QUANTITIES

SCALE: | SHEET 1 OF 1 SHEETS | STA. | TO STA.

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	7
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			

LEGEND

- PAVEMENT REMOVAL
- PAVED SHOULDER REMOVAL
- TREE REMOVAL

N/F HOWARD E & LOIS ANN SCHULTE
16-1-03-33-00-000-006

N/F RICHARD W GVILLO
16-1-03-33-00-000-007

1337 SY STONE RIPRAP CL A4
1337 SY FILTER FABRIC

241 SY STONE RIPRAP CL A4
241 SY FILTER FABRIC

CLEARING/TREE REMOVAL TO BE INCLUDED WITH EARTH EXCAVATION

MATCH EXIST. ROW LINE AT STA. 177+00 60' LT

LIMITS OF CONSTRUCTION

EX ROW

PR ROW

℄ SN 060-3359
STA. 172+72 MORO RD
STA. 4+00 INDIAN CREEK

INDIAN CREEK

℄ MORO ROAD

BEGIN CONST
STA. 170+22.00

END CONST
STA. 175+22.00

BRIDGE APPR PVMT CONNECTOR

EARTH SHOULDER (TYP)

TY 1 TERM

TY 6A TERM

+33.33, BEGIN SECTION

+93.33, BEGIN TRANSITION

+50.67, END TRANSITION

+10.67, END SECTION

24" CMP TBS

18" CMP TBS

15" CMP TBR

REMOVE FE

200 PR CABLE - AT&T

24 FIBER - AT&T

4" PVC

EX ℄ STREAM

T.C.E.

N/F LINDA AND STAN SCHILLINGER
15-2-09-04-00-000-047

N/F MARLIN AND MARILYN SCHOENBAUM
15-1-09-04-00-000-001

SCALE: 1" = 20'

CP#3 SPINDLE
STA 167+08.07, 18.21' LT
ELEVATION = 511.88

CP#1 IRON BAR
STA 173+43.83, 25.58' RT
ELEVATION = 501.71

CP#2 SPINDLE
STA 178+95.42, 19.45' LT
ELEVATION = 512.89

60' INCIDENTAL HMA SURF TRANSITION

VPI STA. 171+93.33
ELEVATION 502.60

BK. ABUTMENT STA. 172+28.33
ELEVATION 502.60

PROPOSED GRADE LINE

VPI STA. 173+50.67
ELEVATION 502.60

EXISTING GRADE LINE

SP DITCH LT=0.40%

SP DITCH RT=0.50%

EXISTING GROUND LINE

DRW. ELEV. 494.4

STREAMBED ELEV. 482.5

+95.00 499.78

+78.00 493.40

+35.00 495.22

+46.00 492.56

+08.00 492.34

+95.00 489.52

+00.00 493.30

+50.00 490.54

502.80 | 502.52 | 502.36 | 502.34 / 502.38 | 502.39 / 502.60 | 502.44 / 502.60 | 502.39 / 502.60 | 502.36 / 502.60 | 502.32 / 502.35 | 502.35 | 502.36 | 502.38

510 505 500 495 490 485 480 475

170+00 170+50 171+00 171+50 172+00 172+50 173+00 173+50 174+00 174+50 175+00 175+50

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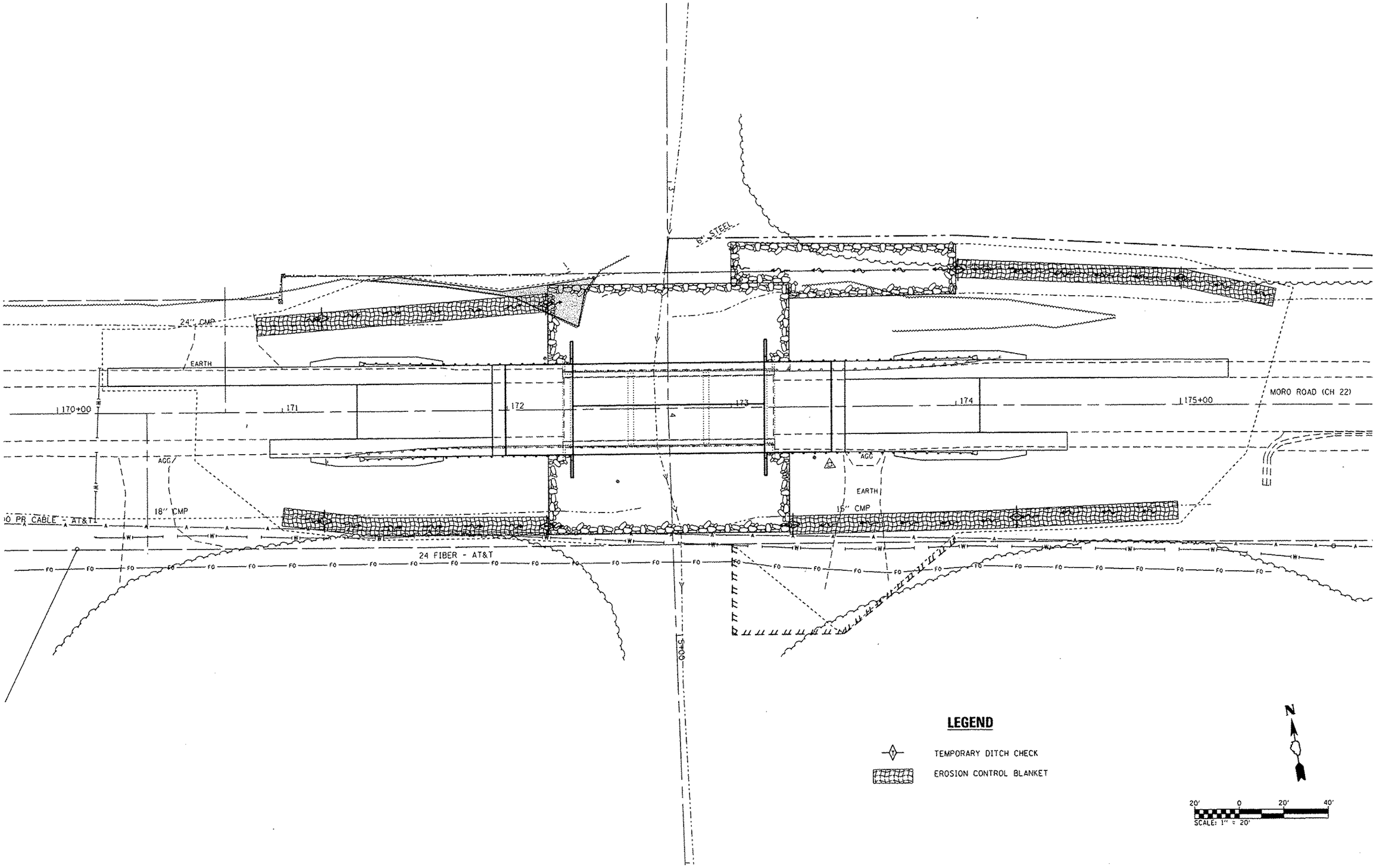
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PLAN & PROFILE SHEET

SCALE: 1" = 20' | SHEET NO. 1 OF 1 SHEETS | STA. 170+00 TO STA. 175+50

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	8
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		



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STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

EROSION AND SEDIMENT CONTROL SHEET

SCALE: | SHEET 1 OF 1 SHEETS | STA. | TO STA.

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	9
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			

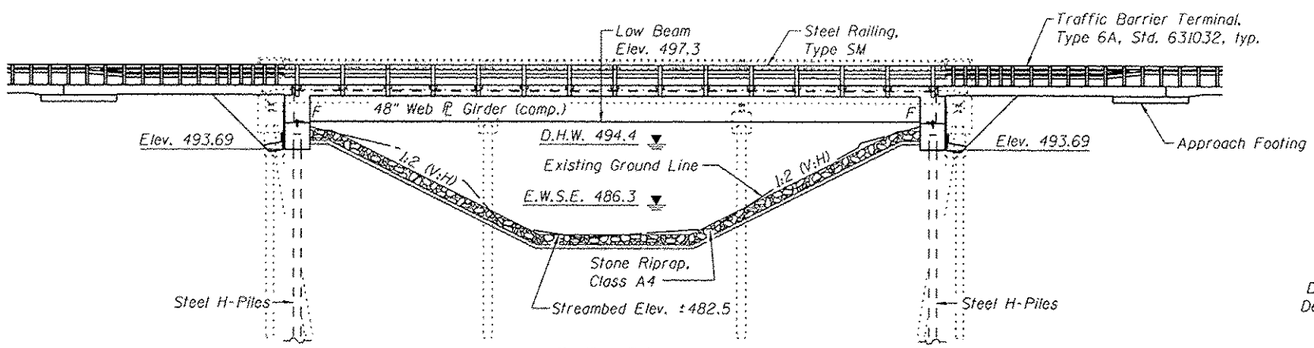
Bench Mark: CP #1 Iron bar, Sta. 173+43.83, 25.58' RT., Elev. 501.71

Existing Structure: S.N. 060-3034 was originally built in 1963 as F.A.U. Route 9016, Section 110-B M.F.T. Short term repairs to the deck were made in 2011. The back to back abutment length is 94'-4" and the out-to-out width measures 33'-8". The structure consists of a three span steel W21 superstructure supported by open abutments founded on metal shell piles and concrete piers founded on precast concrete piles. Structure to be removed and replaced.

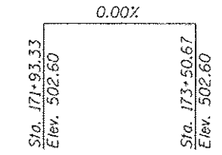
Traffic Control: Stage construction will be utilized to maintain one lane of traffic.

Salvage: None

Notes:
(1) All concrete in the bridge deck and abutment diaphragms shall use f'c = 5,000 psi. All other concrete may use f'c = 3,500 psi.



ELEVATION



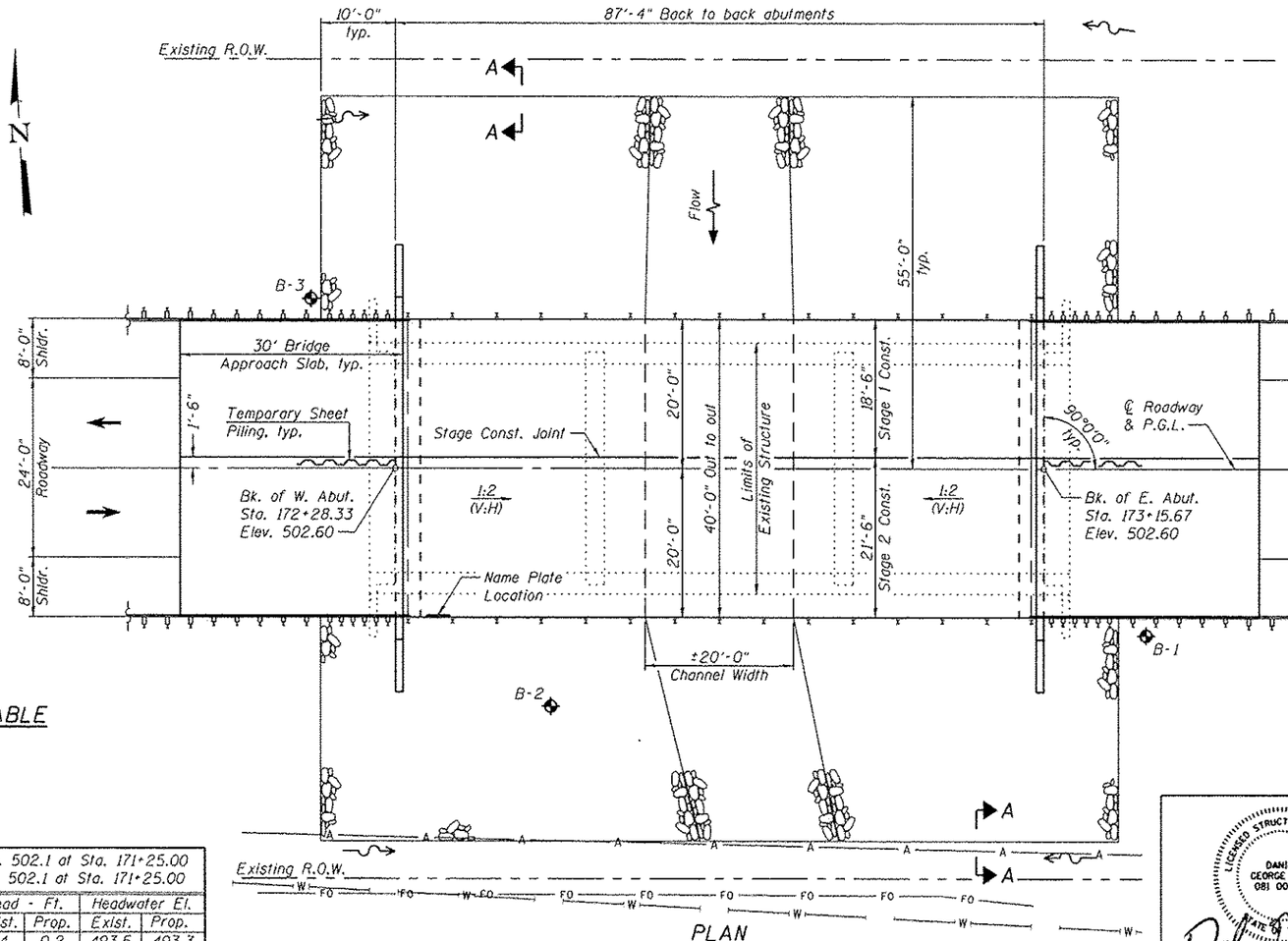
PROFILE GRADE
(Along ℄ Roadway)

SEISMIC DATA
Seismic Performance Zone (SPZ) = 1
Design Spectral Acceleration at 1.0 sec. (SD1) = 0.15g
Design Spectral Acceleration at 0.2 sec. (SDS) = 0.37g
Soil Site Class = C

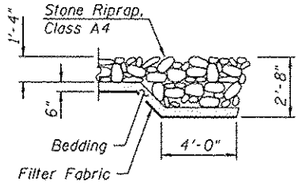
LOADING HL-93
Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS
2012 AASHTO LRFD Bridge Design Specifications, 6th Edition

DESIGN STRESSES
FIELD UNITS
f'c = 5,000 psi (1)
f'c = 3,500 psi (1)
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (AASHTO M 270 Grade 50)
fy = 36,000 psi (AASHTO M 270 Grade 36)



PLAN



SECTION A-A

DESIGN SCOUR ELEVATION TABLE

Design Scour Elevations (ft.)	
E. Abut.	W. Abut.
493.7	493.7

WATERWAY INFORMATION

Drainage Area = 14.3 Sq. Mi.
Exist. Low Grade Elev. 502.1 at Sta. 171+25.00
Prop. Low Grade Elev. 502.1 at Sta. 171+25.00

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	1,830	400	440	493.1	0.4	0.2	493.5	493.3
Design	30	2,620	476	520	494.4	0.6	0.4	495.0	494.8
	50	3,040	488	535	494.6	0.7	0.5	495.3	495.1
Base	100	3,520	506	550	494.9	1.0	0.8	495.9	495.7
Max Calc.	500	4,650	565	620	495.8	1.3	1.1	497.1	496.9

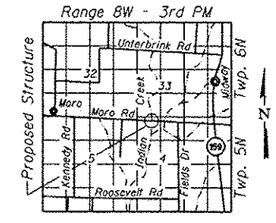
I certify that to the best of knowledge, information and belief, this bridge design is structurally adequate for the design loading shown. The design is an economical one for the style of structure and complies with the requirements of the current AASHTO LRFD Bridge Design Specifications.

LICENSED STRUCTURAL ENGINEER
DANIEL GEORGE LUTZ
081 006772
STATE OF ILLINOIS

DATE: 12/12/2013
EXPIRATION: 11/30/2014

INDIAN CREEK
BUILT 20__ BY
MADISON COUNTY
SEC. 11-00110-02-BR
F.A.U. RT. 9016 STA. 172+72.00
STR. NO. 060-3359 LOADING HL-93

NAME PLATE
See Std. 515001



LOCATION SKETCH

GENERAL PLAN AND ELEVATION
MORO ROAD OVER INDIAN CREEK
F.A.U. RTE. 9016
SECTION 11-00110-02-BR
MADISON COUNTY
STATION 172+72.00
STRUCTURE NO. 060-3359

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SHEET NO. 1 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	10
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		

GENERAL NOTES

Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts. Bolts $^{3}/_{4}$ in. ϕ. holes $^{15}/_{16}$ in. ϕ. unless otherwise noted.

Calculated weight of Structural Steel = AASHTO M 270 Grade 50 = 76,240 pounds
AASHTO M 270 Grade 36 = 11,280 pounds

No field welding is permitted except as specified in the contract documents.

Reinforcement bars designated (E) shall be epoxy coated.

Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.

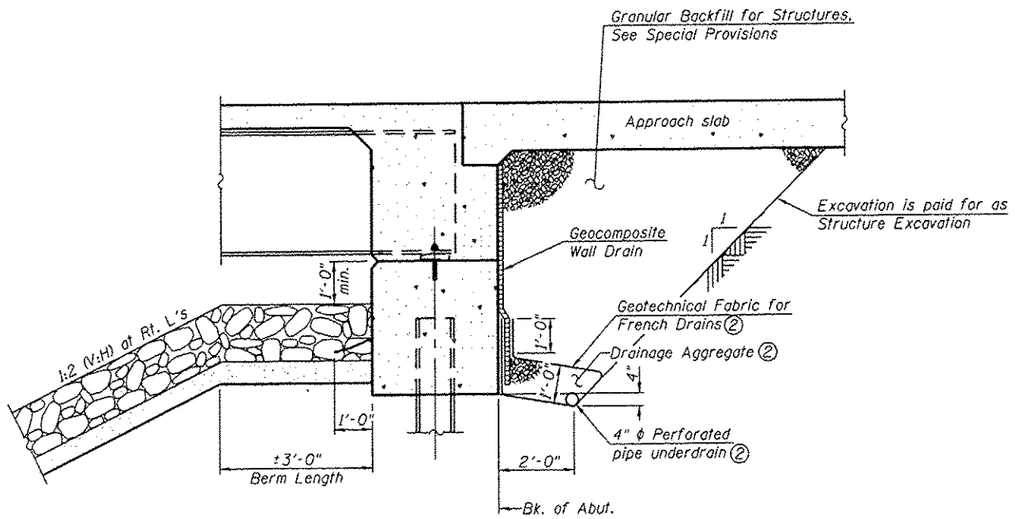
The Organic Zinc Rich Primer / Epoxy / Urethane Paint System shall be used for painting of new structural steel except where otherwise noted. The entire system shall be shop applied, with the exception of the exterior surface and the bottom of the bottom flange of fascia beams, masked off connection surfaces, field installed fasteners and damaged areas shall be touched up in the field. The color of the final finish coat for all steel surfaces shall be Gray, Munsell No. 5B 7/1.

The Contractor is advised that the existing concrete deck is in a deteriorated condition. It is the Contractor's responsibility to account for the condition of the deck when developing construction procedures for the removal and replacement of the structure.

TOTAL BILL OF MATERIAL

	ITEM	UNIT	SUPER	SUB	TOTAL
	Stone Riprap, Class A4	Sq. Yd.	-	1,337	1,337
	Filter Fabric	Sq. Yd.	-	1,337	1,337
	Removal of Existing Structures	Each	-	-	1
	Structure Excavation	Cu. Yd.	-	216	216
	Concrete Structures	Cu. Yd.	-	71.3	71.3
(3)	Concrete Superstructure	Cu. Yd.	252.8	-	252.8
	Bridge Deck Grooving	Sq. Yd.	614	-	614
	Protective Coat	Sq. Yd.	673	-	673
	Furnishing and Erecting Structural Steel	L. Sum	1	-	1
	Stud Shear Connectors	Each	1,152	-	1,152
	Reinforcement Bars, Epoxy Coated	Pound	52,470	14,880	67,350
	Bar Splicers	Each	434	104	538
	Steel Railing, Type SM	Foot	174	-	174
	Furnishing Steel Piles HP12x53	Foot	-	705	705
	Driving Piles	Foot	-	705	705
	Test Pile Steel HP12x53	Each	-	2	2
	Pile Shoes	Each	-	12	12
	Name Plates	Each	1	-	1
	Anchor Bolts, 1"	Each	24	-	24
	Geocomposite Wall Drain	Sq. Yd.	-	91	91
	Temporary Sheet Piling	Sq. Ft.	-	280	280
	Pipe Underdrains for Structures 4"	Foot	-	168	168
	Granular Backfill for Structures	Cu. Yd.	-	171	171

INDEX OF SHEETS



SECTION THRU INTEGRAL ABUTMENT (1)
(Horiz. dim. at Rt. L's)

Notes:
(1) All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend until intersecting with the side slopes. The pipes shall drain into concrete headwalls. See Article 601.05 of the Standard Specifications and Highway Standard 601101.
(2) Included in the cost of Pipe Underdrains for Structures 4", see Special Provisions.
(3) Calculated volume of Concrete Superstructure = 134.8 (f'c = 5,000 psi)
118.0 (f'c = 3,500 psi)

BATES ASSOCIATES Engineering + Architecture
ILLINOIS: Eastport Business Center 1, 100 Lenny Court, Suite 1, Collinsville, IL 62234, tel 618.345.2000, fax 618.345.7233
MISSOURI: Ladue Geo Building, 720 Olive, Suite 1800, St. Louis, MO 63101, tel 314.588.8281, fax 314.588.9828
www.batesassociates.com

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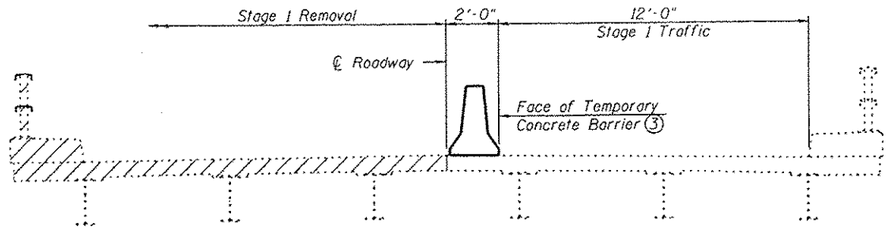
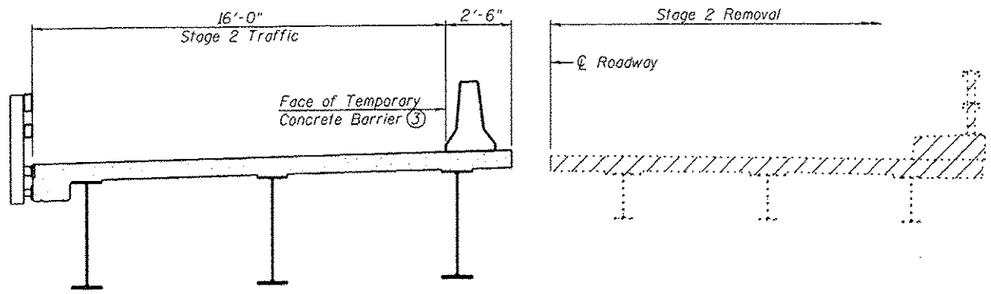
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

GENERAL DATA
STRUCTURE NO. 060-3359
SHEET NO. 2 OF 23 SHEETS

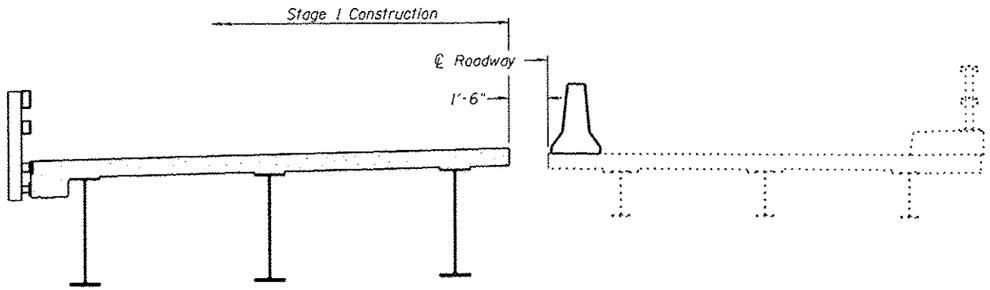
CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	11
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			



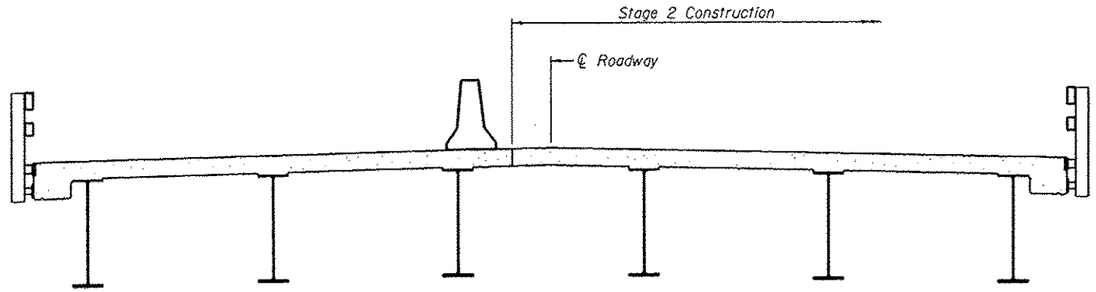
STAGE 1 REMOVAL ①④



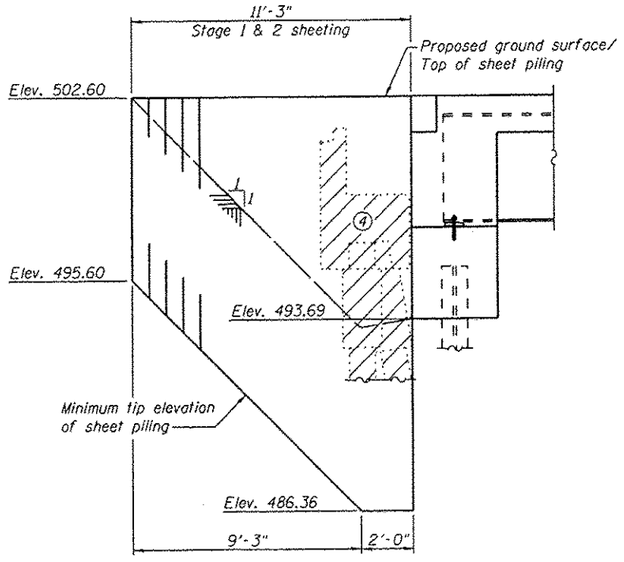
STAGE 2 REMOVAL ①④



STAGE 1 CONSTRUCTION ①



STAGE 2 CONSTRUCTION ①



TEMPORARY SHEET PILING DETAIL ②

Minimum Section
Modulus = 10 in ^{3}/ft

Notes:
① All views shown looking east.
② If the Contractor chooses to alter the temporary cantilevered sheet piling design requirements shown, a design submittal including plan details and calculations will be required for review and acceptance by the Engineer.
③ For details of Temporary Concrete Barrier, see sheet 4 of 23. For quantity of Temporary Concrete Barrier and related traffic control, see roadway plans.
④ Hatched area indicates Removal of Existing Structures.

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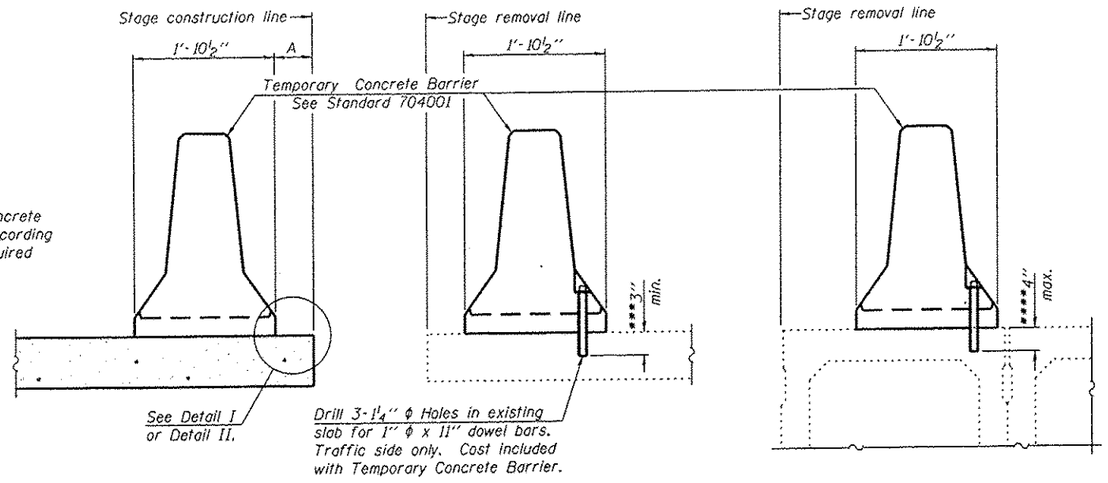
DEPARTMENT OF TRANSPORTATION

STAGE CONSTRUCTION DETAILS
STRUCTURE NO. 060-3359
SHEET NO. 3 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	12
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			

When "A" is 3'-6" or less, the temporary concrete barrier shall be anchored to the new slab according to Detail I or Detail II. No anchorage is required when "A" is greater than 3'-6".



NEW SLAB | EXISTING SLAB | EXISTING DECK BEAM

NOTES

Detail I - With Bar Splicer or Couplers:
Connect one (1) 1" x 7' 'x "W" steel ℄ to the top layer of couplers with 2-⅝" ϕ bolts screwed to coupler at approximate ℄ of each barrier panel.

Detail II - With Extended Reinforcement Bars:
Connect one (1) 1" x 7" x "W" steel ℄ to the concrete slab or concrete wearing surface with 2-⅝" ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ℄ of each barrier panel.

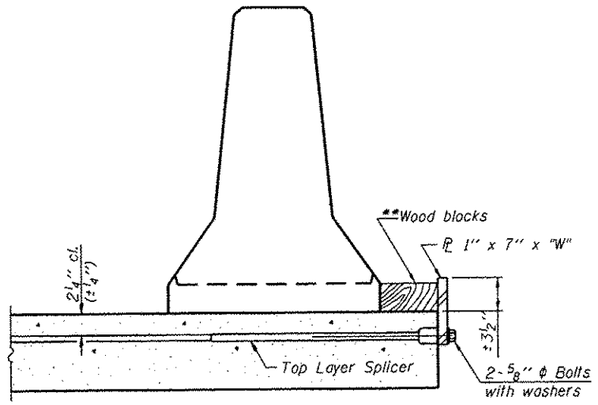
Cost of anchorage is included with Temporary Concrete Barrier.

The 1" x 7" x "W" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

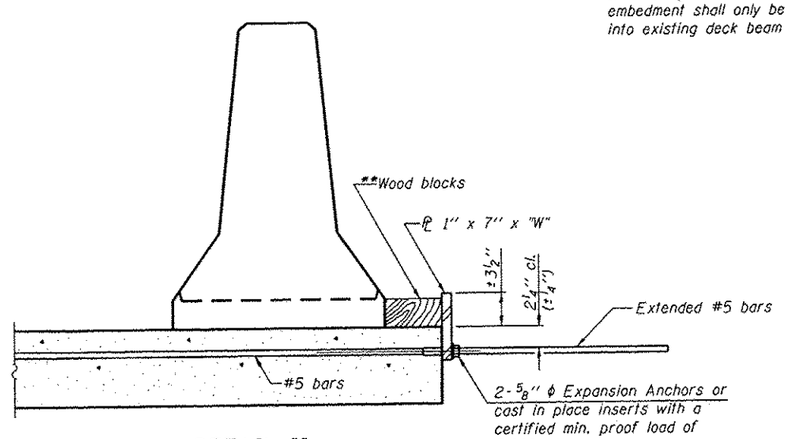
SECTIONS THRU SLAB OR DECK BEAM

*** Dimension shown is minimum required embedment into concrete. If hot-mix asphalt wearing surface is present, minimum embedment shall be in addition to wearing surface depth.

**** If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



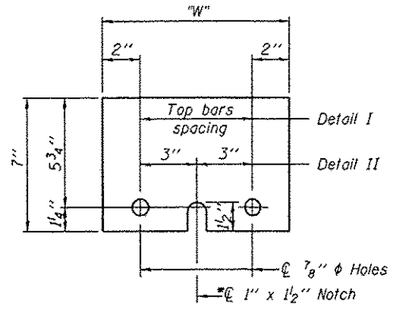
DETAIL I



DETAIL II

** Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

"W" = Top bars spacing + 4"



STEEL RETAINER ℄ 1" x 7" x "W"

* Required only with Detail II

R-27 7-1-10

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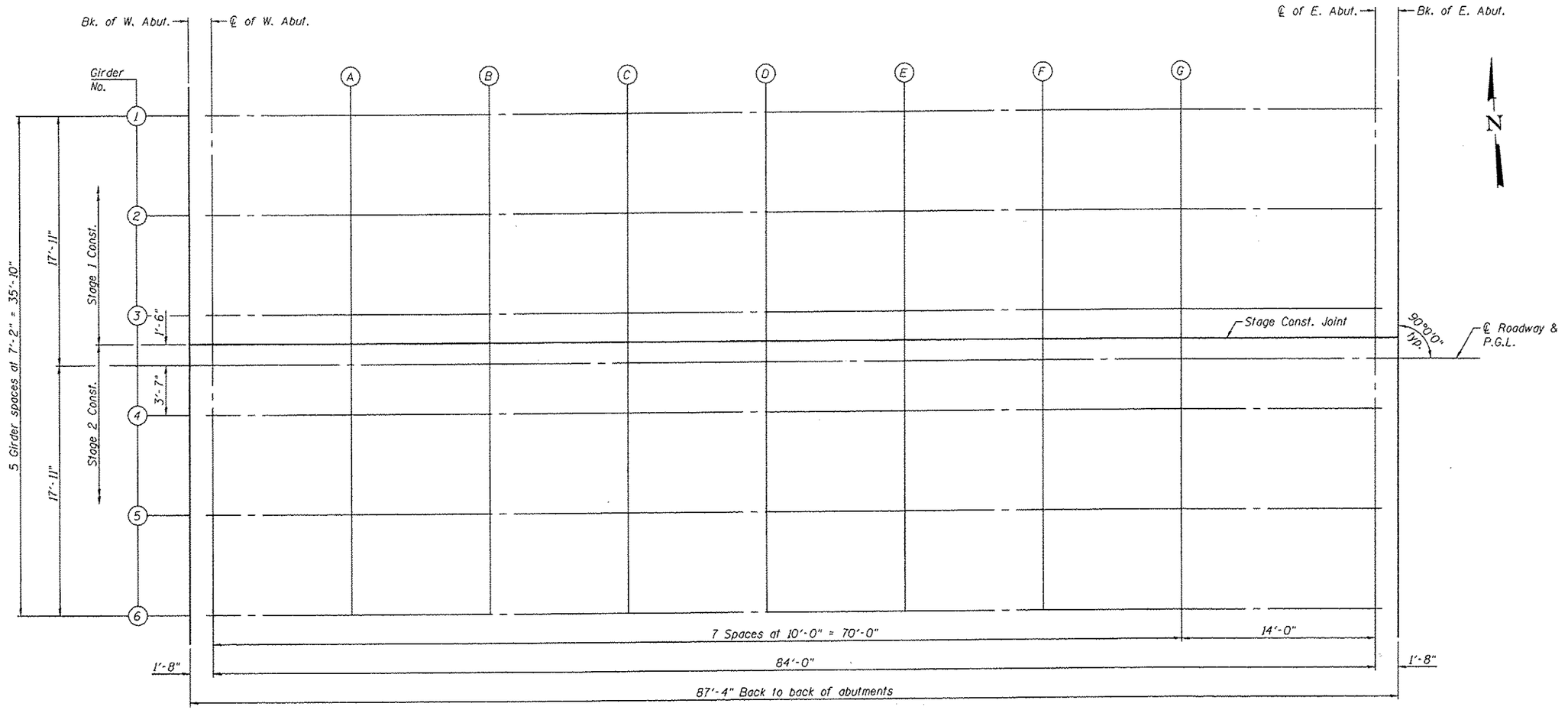
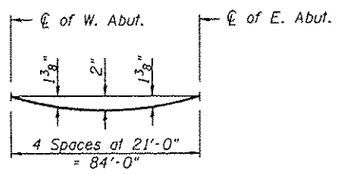
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION
STRUCTURE NO. 060-3359
SHEET NO. 4 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	13
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			

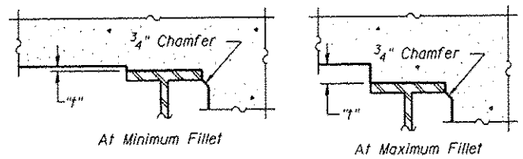


PLAN



DEAD LOAD DEFLECTION DIAGRAM ①

(Includes weight of concrete only.)



FILLET HEIGHTS ②

Notes:

① The deflections shown are not to be used in the field if the Engineer is working from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" as shown on sheet 6 of 23.

② To determine "t": After all structural steel has been erected, elevations of the top flanges of the girders shall be taken at intervals shown. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheet 6 of 23, minus slab thickness, equals the fillet heights "t" above top flange of girders.

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DEPARTMENT OF TRANSPORTATION

TOP OF SLAB ELEVATIONS
STRUCTURE NO. 060-3359

SHEET NO. 5 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	14
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			

GIRDER 1

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of W. Abut.	172+28.33	-17.92	502.23	502.23
℄ of W. Abut.	172+30.00	-17.92	502.23	502.23
A	172+40.00	-17.92	502.23	502.29
B	172+50.00	-17.92	502.23	502.34
C	172+60.00	-17.92	502.23	502.37
D	172+70.00	-17.92	502.23	502.39
E	172+80.00	-17.92	502.23	502.38
F	172+90.00	-17.92	502.23	502.36
G	173+00.00	-17.92	502.23	502.31
℄ of E. Abut.	173+14.00	-17.92	502.23	502.23
Bk. of E. Abut.	173+15.67	-17.92	502.23	502.23

GIRDER 2

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of W. Abut.	172+28.33	-10.75	502.38	502.38
℄ of W. Abut.	172+30.00	-10.75	502.38	502.38
A	172+40.00	-10.75	502.38	502.44
B	172+50.00	-10.75	502.38	502.49
C	172+60.00	-10.75	502.38	502.52
D	172+70.00	-10.75	502.38	502.54
E	172+80.00	-10.75	502.38	502.53
F	172+90.00	-10.75	502.38	502.50
G	173+00.00	-10.75	502.38	502.46
℄ of E. Abut.	173+14.00	-10.75	502.38	502.38
Bk. of E. Abut.	173+15.67	-10.75	502.38	502.38

GIRDER 3

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of W. Abut.	172+28.33	-3.58	502.53	502.53
℄ of W. Abut.	172+30.00	-3.58	502.53	502.53
A	172+40.00	-3.58	502.53	502.59
B	172+50.00	-3.58	502.53	502.64
C	172+60.00	-3.58	502.53	502.67
D	172+70.00	-3.58	502.53	502.69
E	172+80.00	-3.58	502.53	502.68
F	172+90.00	-3.58	502.53	502.65
G	173+00.00	-3.58	502.53	502.61
℄ of E. Abut.	173+14.00	-3.58	502.53	502.53
Bk. of E. Abut.	173+15.67	-3.58	502.53	502.53

STAGE CONST. JOINT

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of W. Abut.	172+28.33	-1.50	502.57	502.57
℄ of W. Abut.	172+30.00	-1.50	502.57	502.57
A	172+40.00	-1.50	502.57	502.63
B	172+50.00	-1.50	502.57	502.68
C	172+60.00	-1.50	502.57	502.72
D	172+70.00	-1.50	502.57	502.73
E	172+80.00	-1.50	502.57	502.72
F	172+90.00	-1.50	502.57	502.70
G	173+00.00	-1.50	502.57	502.65
℄ of E. Abut.	173+14.00	-1.50	502.57	502.57
Bk. of E. Abut.	173+15.67	-1.50	502.57	502.57

℄ ROADWAY & P.G.L.

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of W. Abut.	172+28.33	0.00	502.60	502.60
℄ of W. Abut.	172+30.00	0.00	502.60	502.60
A	172+40.00	0.00	502.60	502.66
B	172+50.00	0.00	502.60	502.71
C	172+60.00	0.00	502.60	502.75
D	172+70.00	0.00	502.60	502.76
E	172+80.00	0.00	502.60	502.76
F	172+90.00	0.00	502.60	502.73
G	173+00.00	0.00	502.60	502.68
℄ of E. Abut.	173+14.00	0.00	502.60	502.60
Bk. of E. Abut.	173+15.67	0.00	502.60	502.60

GIRDER 4

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of W. Abut.	172+28.33	3.58	502.53	502.53
℄ of W. Abut.	172+30.00	3.58	502.53	502.53
A	172+40.00	3.58	502.53	502.59
B	172+50.00	3.58	502.53	502.64
C	172+60.00	3.58	502.53	502.67
D	172+70.00	3.58	502.53	502.69
E	172+80.00	3.58	502.53	502.68
F	172+90.00	3.58	502.53	502.65
G	173+00.00	3.58	502.53	502.61
℄ of E. Abut.	173+14.00	3.58	502.53	502.53
Bk. of E. Abut.	173+15.67	3.58	502.53	502.53

GIRDER 5

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of W. Abut.	172+28.33	10.75	502.38	502.38
℄ of W. Abut.	172+30.00	10.75	502.38	502.38
A	172+40.00	10.75	502.38	502.44
B	172+50.00	10.75	502.38	502.49
C	172+60.00	10.75	502.38	502.52
D	172+70.00	10.75	502.38	502.54
E	172+80.00	10.75	502.38	502.53
F	172+90.00	10.75	502.38	502.50
G	173+00.00	10.75	502.38	502.46
℄ of E. Abut.	173+14.00	10.75	502.38	502.38
Bk. of E. Abut.	173+15.67	10.75	502.38	502.38

GIRDER 6

Location	Station	Offset	Theoretical Grade Elevations	Theoretical Grade Elevations Adjusted For Dead Load Deflection
Bk. of W. Abut.	172+28.33	17.92	502.23	502.23
℄ of W. Abut.	172+30.00	17.92	502.23	502.23
A	172+40.00	17.92	502.23	502.29
B	172+50.00	17.92	502.23	502.34
C	172+60.00	17.92	502.23	502.37
D	172+70.00	17.92	502.23	502.39
E	172+80.00	17.92	502.23	502.38
F	172+90.00	17.92	502.23	502.36
G	173+00.00	17.92	502.23	502.31
℄ of E. Abut.	173+14.00	17.92	502.23	502.23
Bk. of E. Abut.	173+15.67	17.92	502.23	502.23

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TOP OF SLAB ELEVATIONS
STRUCTURE NO. 060-3359
SHEET NO. 6 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	15
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			

NORTH EDGE OF SHOULDER

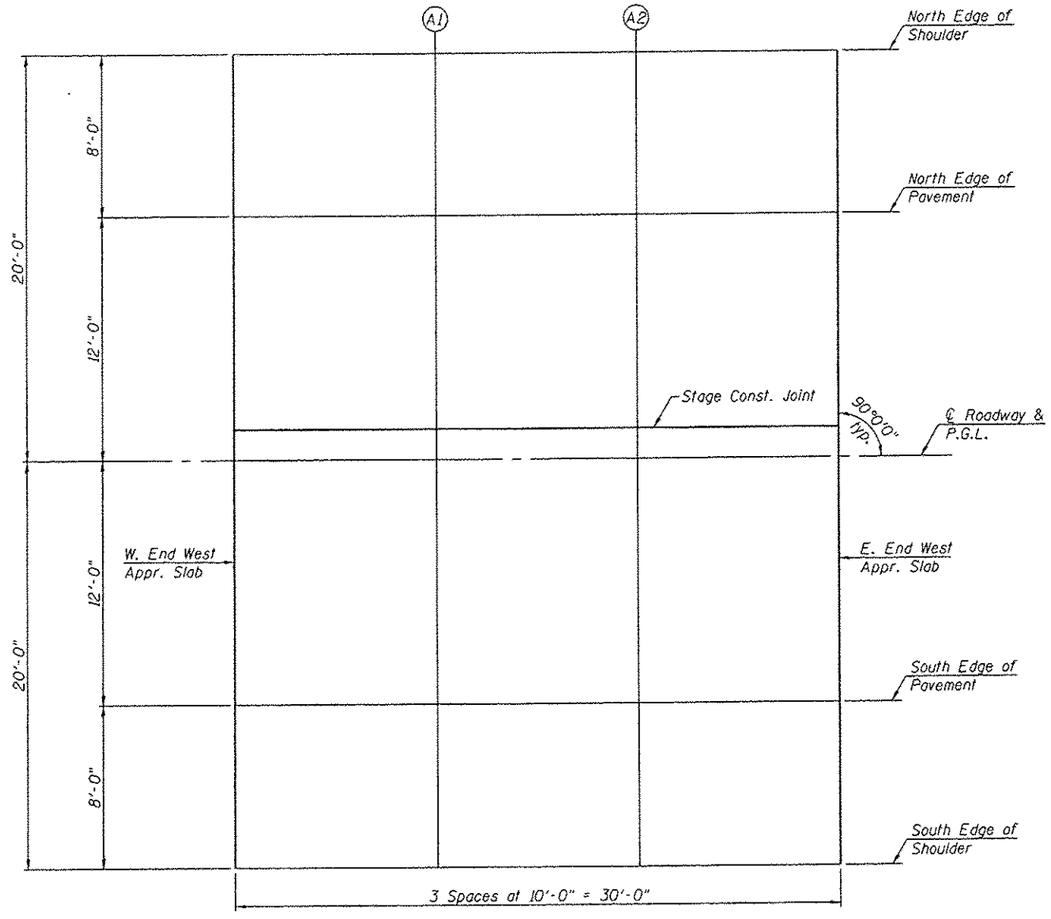
Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	171+99.33	-20.00	502.18
A1	172+09.33	-20.00	502.18
A2	172+19.33	-20.00	502.18
E. End West Appr. Slab	172+29.33	-20.00	502.18

NORTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	171+99.33	-12.00	502.35
A1	172+09.33	-12.00	502.35
A2	172+19.33	-12.00	502.35
E. End West Appr. Slab	172+29.33	-12.00	502.35

STAGE CONST. JOINT

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	171+99.33	-1.50	502.57
A1	172+09.33	-1.50	502.57
A2	172+19.33	-1.50	502.57
E. End West Appr. Slab	172+29.33	-1.50	502.57



PLAN

℄ ROADWAY & P.G.L.

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	171+99.33	0.00	502.60
A1	172+09.33	0.00	502.60
A2	172+19.33	0.00	502.60
E. End West Appr. Slab	172+29.33	0.00	502.60

SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	171+99.33	12.00	502.35
A1	172+09.33	12.00	502.35
A2	172+19.33	12.00	502.35
E. End West Appr. Slab	172+29.33	12.00	502.35

SOUTH EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
W. End West Appr. Slab	171+99.33	20.00	502.18
A1	172+09.33	20.00	502.18
A2	172+19.33	20.00	502.18
E. End West Appr. Slab	172+29.33	20.00	502.18

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TOP OF WEST APPROACH SLAB ELEVATIONS
STRUCTURE NO. 060-3359
SHEET NO. 7 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	16
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		

NORTH EDGE OF SHOULDER

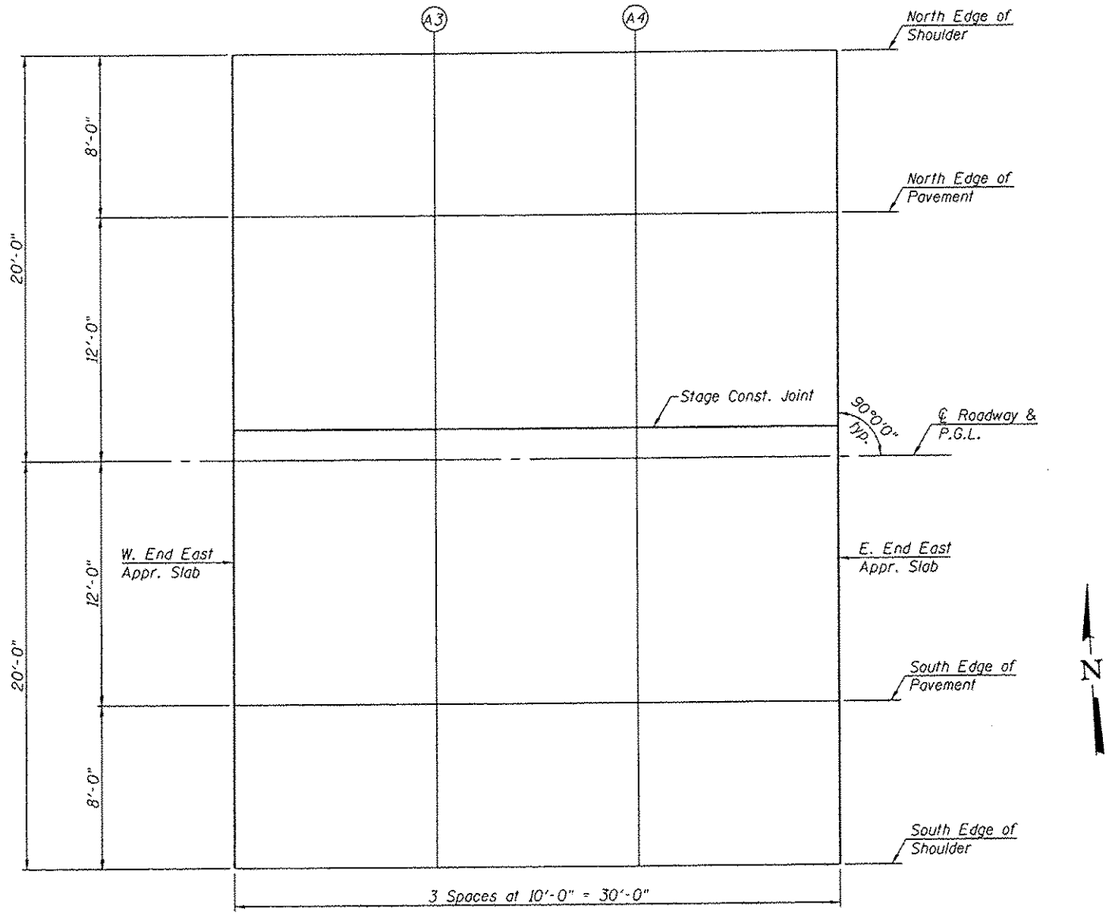
Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	173+14.67	-20.00	502.18
A3	173+24.67	-20.00	502.18
A4	173+34.67	-20.00	502.18
E. End East Appr. Slab	173+44.67	-20.00	502.18

NORTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	173+14.67	-12.00	502.35
A3	173+24.67	-12.00	502.35
A4	173+34.67	-12.00	502.35
E. End East Appr. Slab	173+44.67	-12.00	502.35

STAGE CONST. JOINT

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	173+14.67	-1.50	502.57
A3	173+24.67	-1.50	502.57
A4	173+34.67	-1.50	502.57
E. End East Appr. Slab	173+44.67	-1.50	502.57



PLAN

℄ ROADWAY & P.G.L.

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	173+14.67	0.00	502.60
A3	173+24.67	0.00	502.60
A4	173+34.67	0.00	502.60
E. End East Appr. Slab	173+44.67	0.00	502.60

SOUTH EDGE OF PAVEMENT

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	173+14.67	12.00	502.35
A3	173+24.67	12.00	502.35
A4	173+34.67	12.00	502.35
E. End East Appr. Slab	173+44.67	12.00	502.35

SOUTH EDGE OF SHOULDER

Location	Station	Offset	Theoretical Grade Elevations
W. End East Appr. Slab	173+14.67	20.00	502.18
A3	173+24.67	20.00	502.18
A4	173+34.67	20.00	502.18
E. End East Appr. Slab	173+44.67	20.00	502.18

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TOP OF EAST APPROACH SLAB ELEVATIONS
STRUCTURE NO. 060-3359
SHEET NO. 8 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	17
		CONTRACT NO. 97548		
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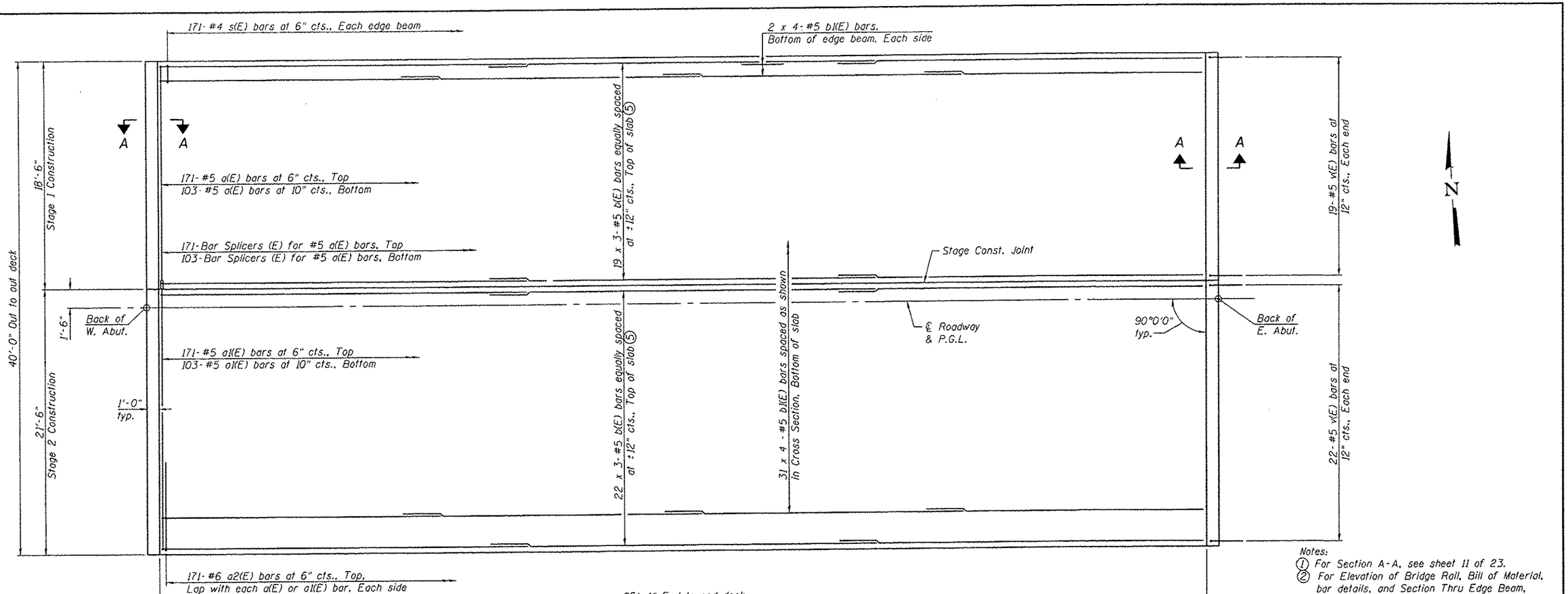
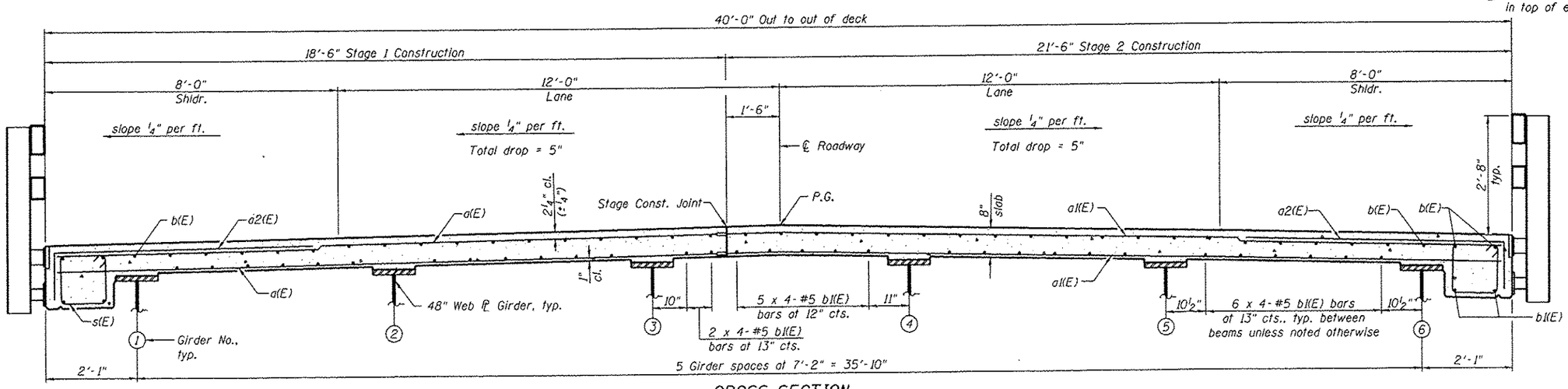


PLAN

Notes:
1. For Section A-A, see sheet 11 of 23.
2. For Elevation of Bridge Rail, Bill of Material, bar details, and Section Thru Edge Beam, see sheet 10 of 23.
3. Bars indicated thus 22 x 3- #5 etc. indicates 22 lines of bars with 3 lengths per line.
4. For details of Bar Splicers, see sheet 20 of 23.
5. Place 2 lines of b(E) bars inside of s(E) bars in top of edge beam as shown in cross section.



CROSS SECTION
(Looking East)

MINIMUM BAR LAP
#5 bar = 2'-7"

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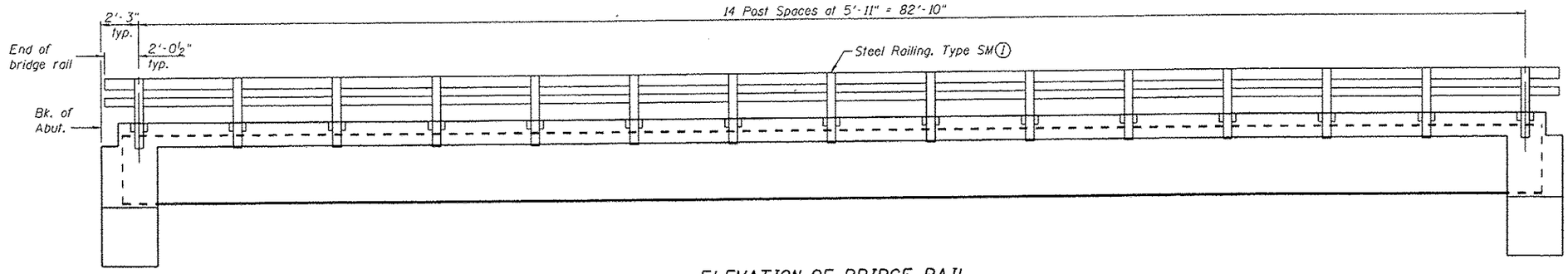
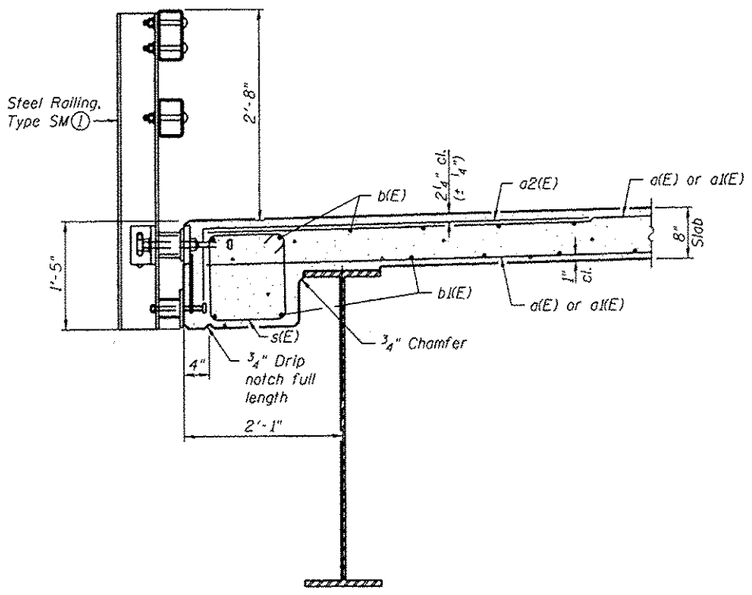
SUPERSTRUCTURE
STRUCTURE NO. 060-3359
SHEET NO. 9 OF 23 SHEETS

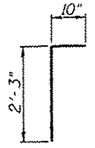
CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	18
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		



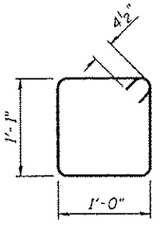
ELEVATION OF BRIDGE RAIL



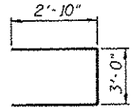
SECTION THRU EDGE BEAM



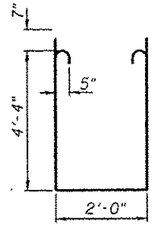
BAR v(E)



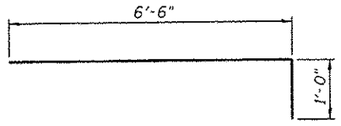
BAR s(E)



BAR s1(E)



BAR s2(E)



BAR a2(E)

SUPERSTRUCTURE BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(E)	274	#5	18'-2"	
a1(E)	274	#5	21'-2"	
a2(E)	342	#6	7'-6"	
b(E)	123	#5	30'-1"	
b1(E)	140	#5	23'-3"	
m(E)	10	#6	18'-2"	
m1(E)	10	#6	21'-2"	
m2(E)	32	#6	6'-9"	
m3(E)	16	#6	1'-8"	
m4(E)	48	#5	4'-0"	
m5(E)	8	#6	4'-8"	
s(E)	342	#4	4'-11"	
s1(E)	78	#5	8'-8"	
s2(E)	78	#5	11'-10"	
v(E)	82	#5	3'-1"	
Concrete Superstructure			Cu. Yd.	134.8
Reinforcement Bars, Epoxy Coated			Pound	26,610

Notes:
(1) For railing details, see sheet 14 of 23.

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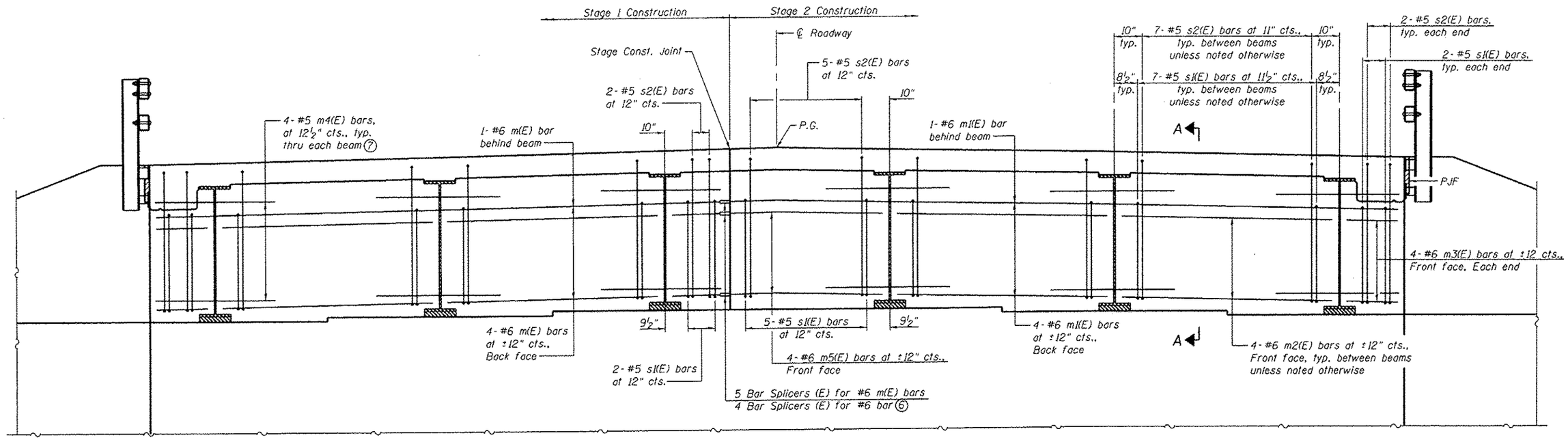
SUPERSTRUCTURE DETAILS
STRUCTURE NO. 060-3359
SHEET NO. 10 OF 23 SHEETS

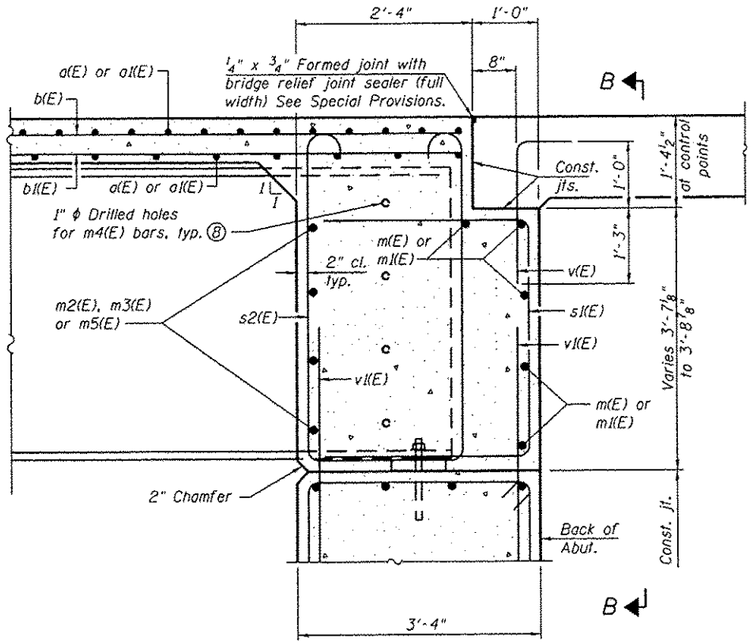
CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	19
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			



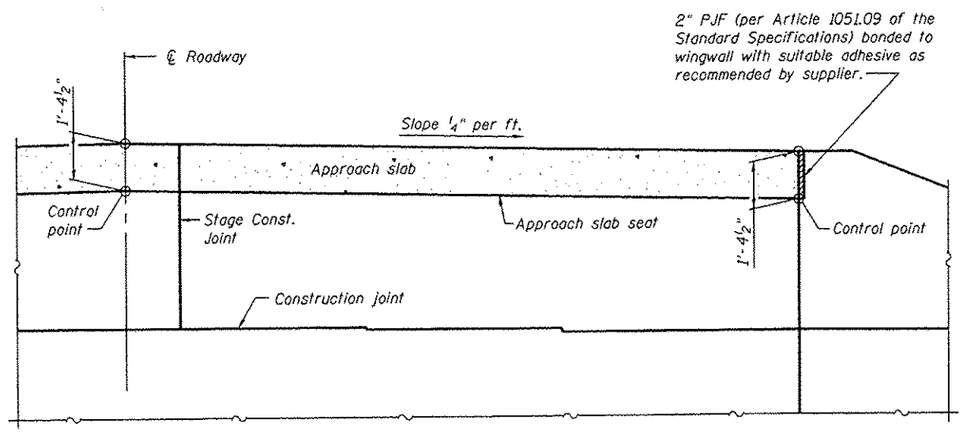
DIAPHRAGM ELEVATION AT ABUTMENT (9)

(Looking East)

Notes:
1. Reinforcement bars in diaphragm are billed with Superstructure on sheet 10 of 23.
2. Concrete in diaphragm is included with Concrete Superstructure on sheet 10 of 23.
3. For details of bars s1(E), s2(E) and v(E), see sheet 10 of 23.
4. The approach slab seat shall have a constant slope determined from the control points shown.
5. For bearing details, see sheet 16 of 23.
6. Use bar splicers in place of m2(E) bars between girder and stage construction joint. Cut Bar Splicers as required to provide adequate clearance to girder web.
7. Secure m4(E) bars such that they remain centered and level during pouring of the concrete.
8. For hole locations, see sheet 16 of 23.
9. East diaphragm shown, west diaphragm similar.
10. For details of Bar Splicers, see sheet 20 of 23.

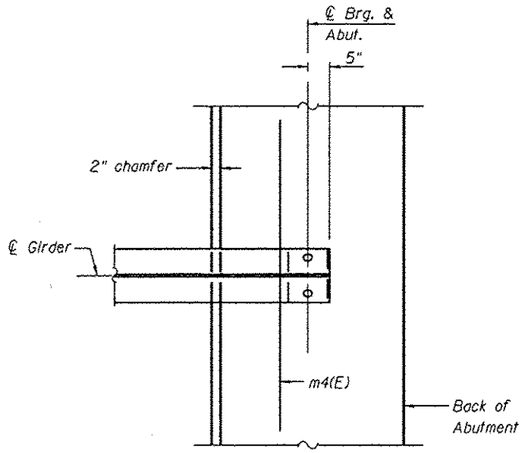


SECTION A-A



SECTION B-B (4)(9)

(Looking West)



PARTIAL PLAN AT ABUTMENT

(Showing bottom flange of girder)

GATES ASSOCIATES Engineering + Architecture

USER NAME =	DESIGNED - DBB	REVISED	
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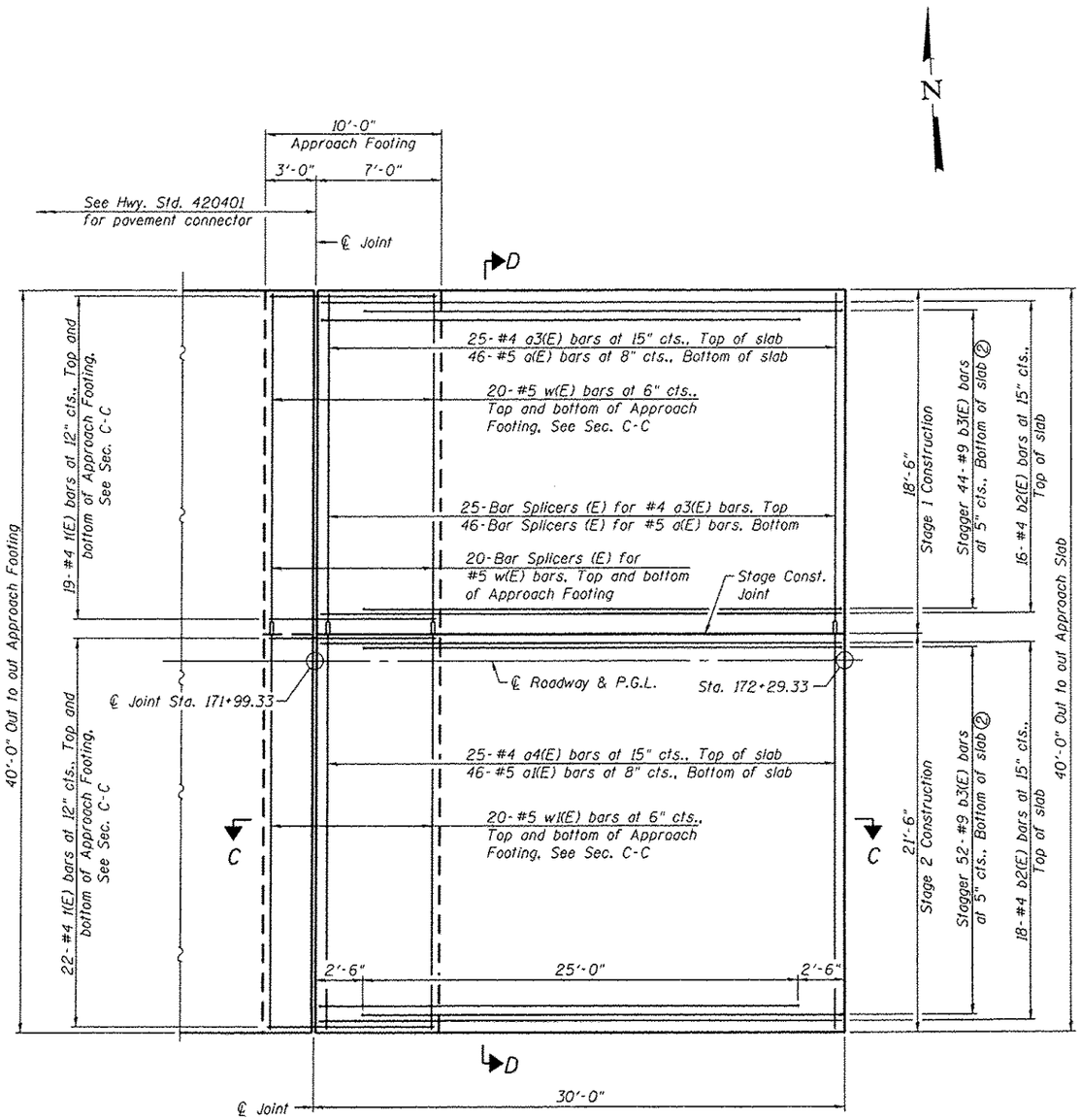
PLOT DATE =	CHECKED - JAD	REVISED	

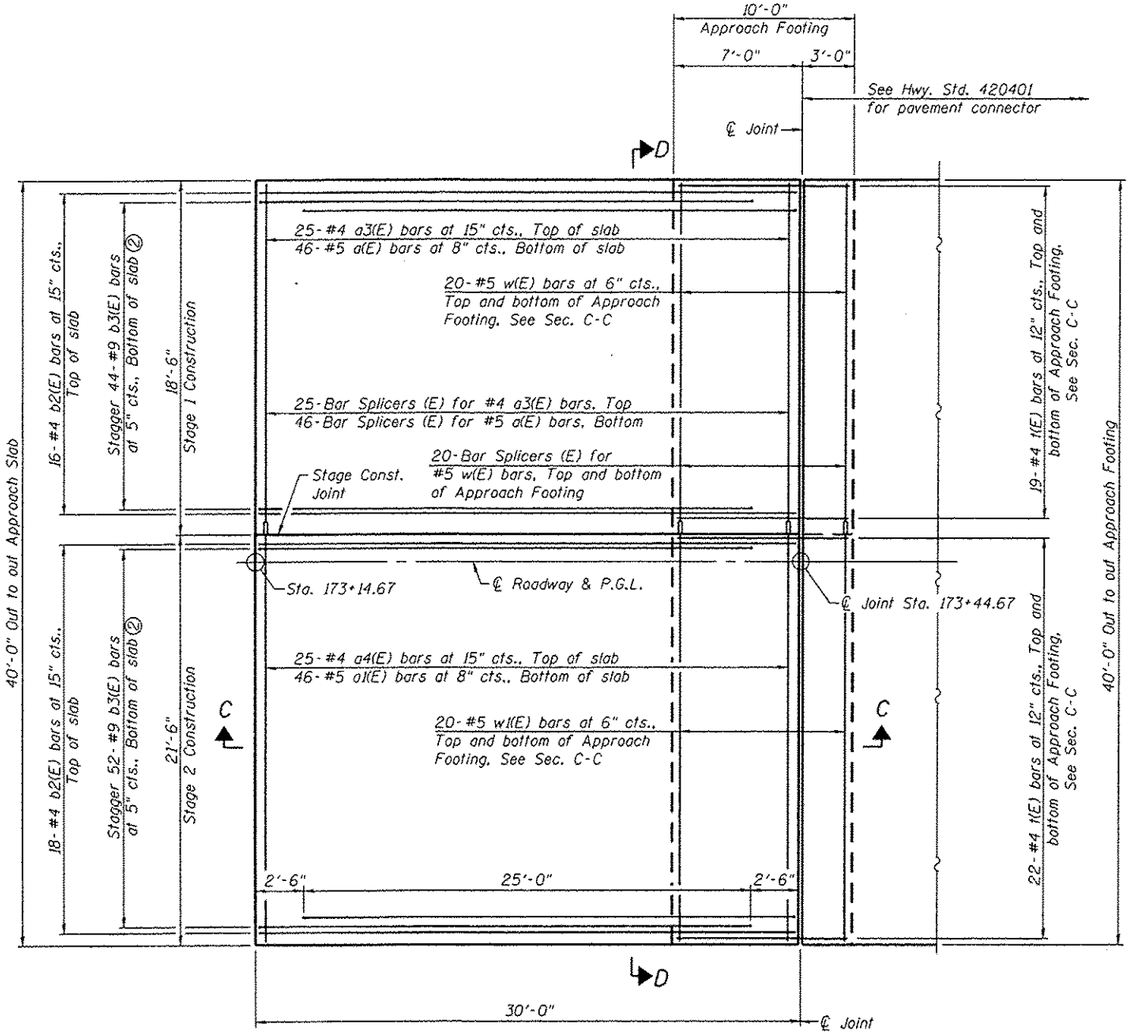
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INTEGRAL ABUTMENT DIAPHRAGM DETAILS
STRUCTURE NO. 060-3359
SHEET NO. 11 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	20
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			



WEST APPROACH PLAN



EAST APPROACH PLAN

Notes:
1. For Sections C-C & D-D, see sheet 13 of 23.
2. Tilt #9 b3(E) bars as required to maintain clearance.
3. For details of Bar Splicers, see sheet 20 of 23

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Engineering + Architecture

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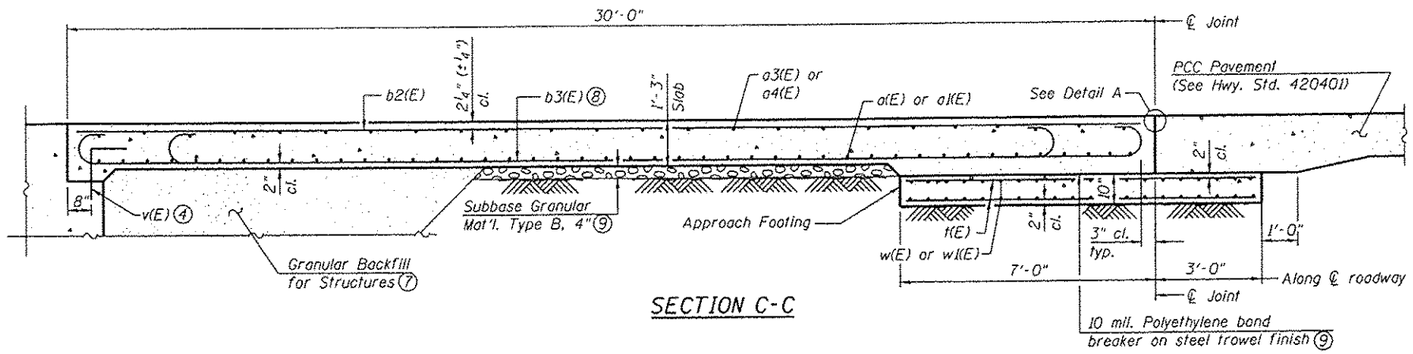
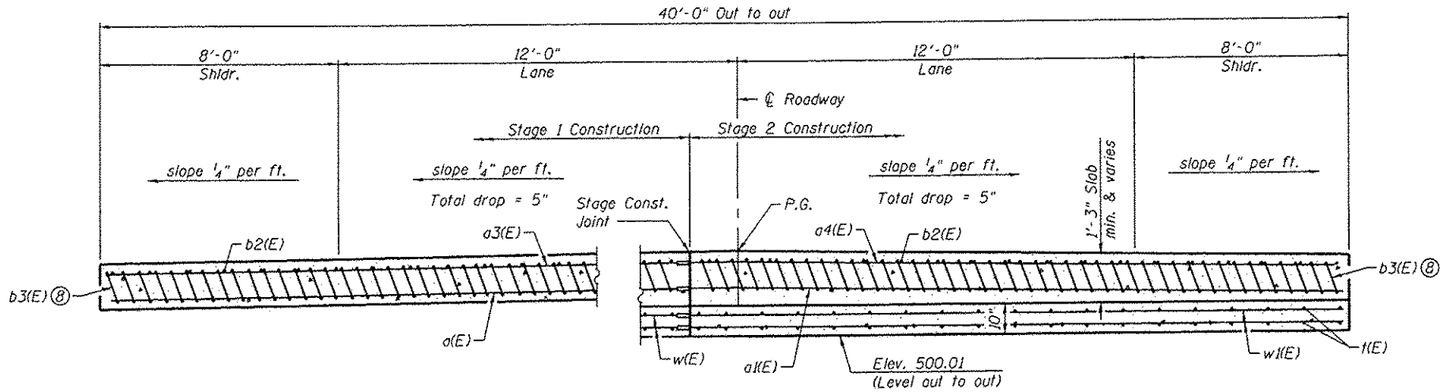
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 060-3359
SHEET NO. 12 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	21
		CONTRACT NO. 97548		
	ILLINOIS	FED. AID PROJECT		



SECTION C-C

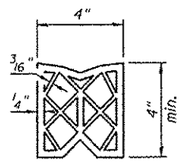


NEAR ABUTMENT

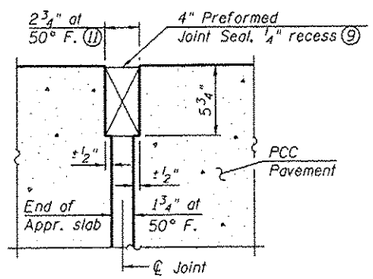
AT APPROACH FOOTING

SECTION D-D

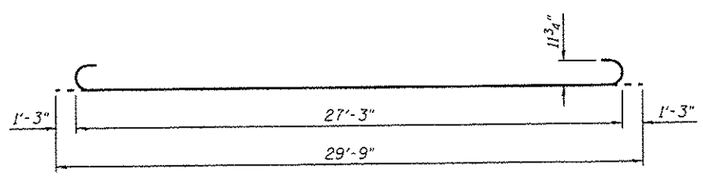
(See Plan for dimensions not shown)



PREFORMED JOINT SEAL



DETAIL A



BAR b3(E)

Notes:

1. Approach slab concrete shall be paid for as Concrete Superstructure.
2. Approach footing concrete shall be paid for as Concrete Structures.
3. Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.
4. For v(E) bar details, see sheet 10 of 23.
5. The approach footing maximum applied service bearing pressure (Qmax) = 2.0 ksf.
6. Cost of excavation for approach footing included with Concrete Structures.
7. For Granular Backfill for Structures and drainage treatment details, see sheet 2 of 23.
8. Tilt #9 b3(E) bars as required to maintain clearance.
9. Cost included with Concrete Superstructure.
10. Calculated weight of Reinforcement Bars, Epoxy Coated = 25,860 (Superstructure) 4,340 (Substructure)
11. The joint opening shall be determined per Article 520.04, except that the distance described as the bridge length between the nearest fixed bearings each way from the joint shall be taken as half the bridge length plus the approach slab length. The minimum dimension shall be 1½" for installation purposes.
12. Any excavation required for approach slab construction not included in Pavement Removal or Removal of Existing Structures shall be included with Concrete Superstructure.

TWO APPROACHES

BILL OF MATERIAL

	Bar	No.	Size	Length	Shape
	a(E)	92	#5	18'-2"	
	a1(E)	92	#5	21'-2"	
	a3(E)	50	#4	18'-2"	
	a4(E)	50	#4	21'-2"	
	b2(E)	68	#4	29'-8"	
	b3(E)	192	#9	29'-9"	
	f(E)	164	#4	9'-8"	
	w(E)	80	#5	18'-2"	
	w1(E)	80	#5	21'-2"	
	Concrete Structures			Cu. Yd.	24.7
	Concrete Superstructure			Cu. Yd.	118.0
(10)	Reinforcement Bars, Epoxy Coated			Pound	30,200

SATES ASSOCIATES
Engineering + Architecture

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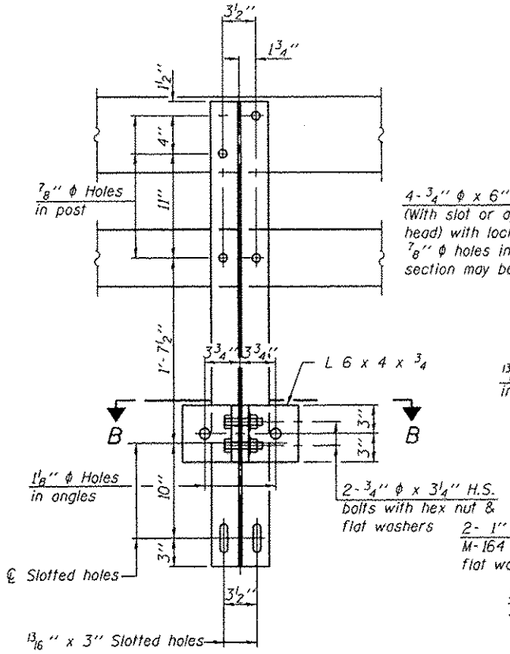
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

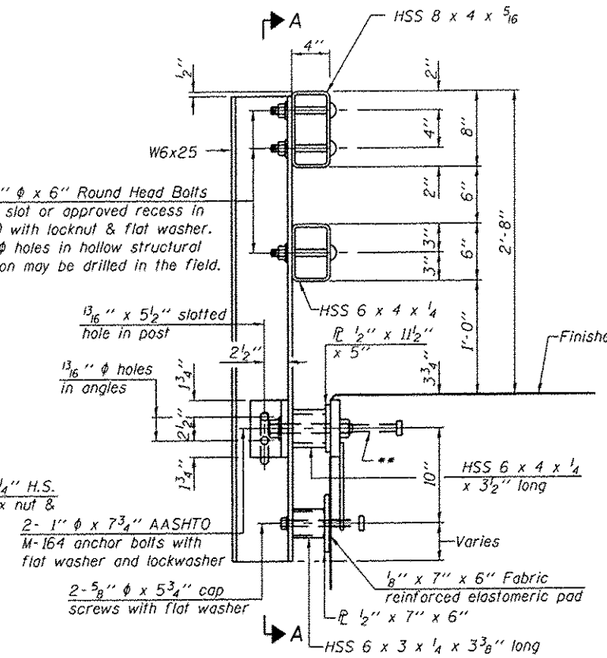
BRIDGE APPROACH SLAB DETAILS
STRUCTURE NO. 060-3359

SHEET NO. 13 OF 23 SHEETS

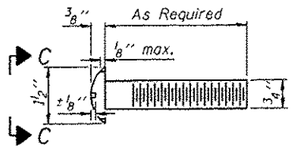
CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	22
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		



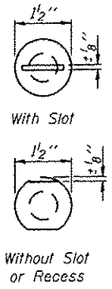
SECTION A-A



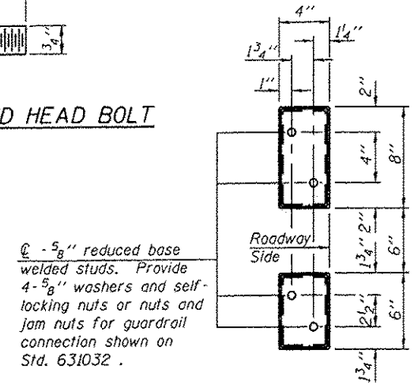
SECTION AT RAIL POST



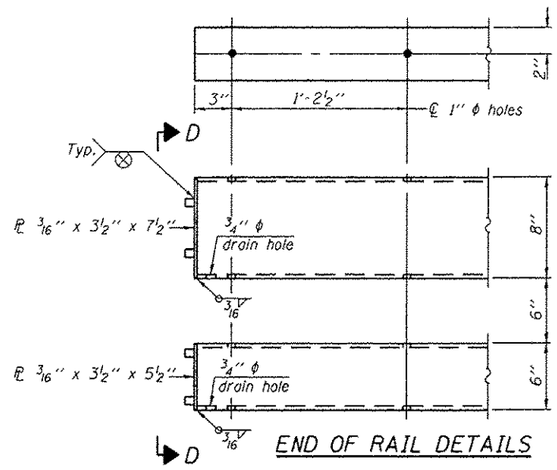
DETAIL OF ¾" ϕ ROUND HEAD BOLT



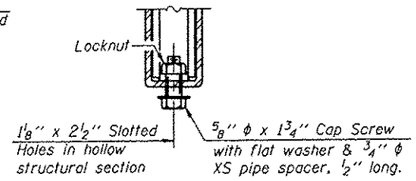
VIEW C-C



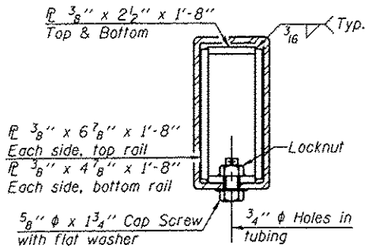
VIEW D-D



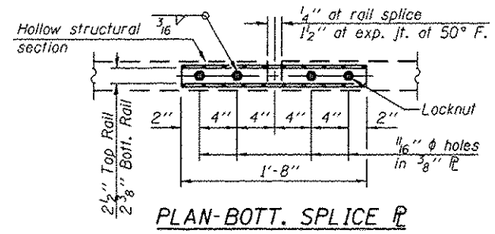
END OF RAIL DETAILS



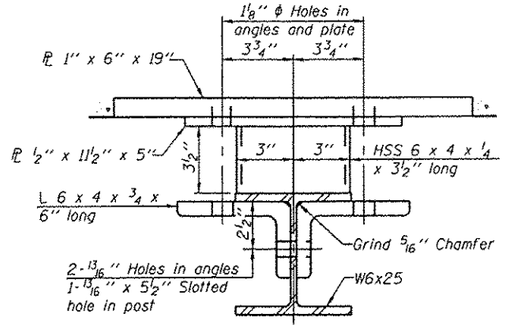
RAIL SPLICE CONNECTION AT EXPANSION JT.



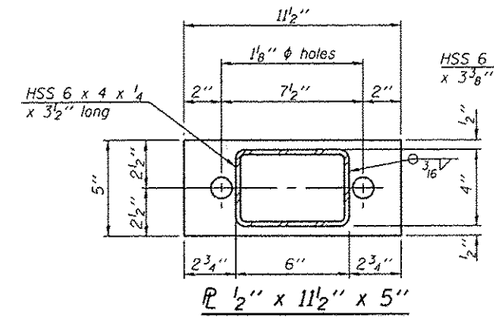
SECTION AT RAIL SPLICE



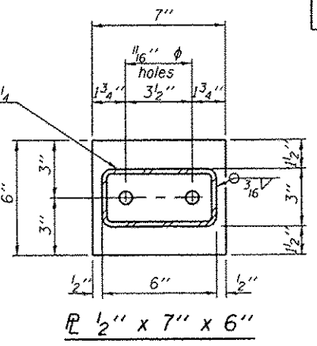
PLAN-BOTT. SPLICE PL TYPICAL



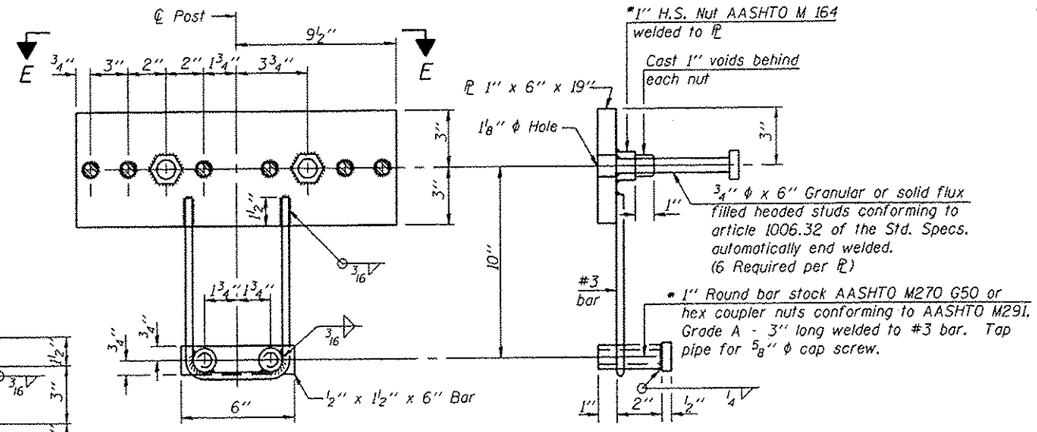
SECTION B-B



PL ½" x 11½" x 5"

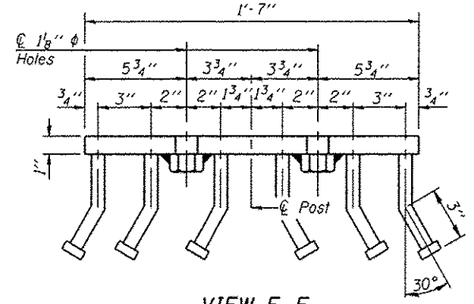


PL ½" x 7" x 6"



ANCHOR DEVICE

*Threaded areas shall be plugged or blocked off during casting of deck. Galvanized after fabrication.



VIEW E-E

Notes:

All field drilled holes shall be coated with an approved zinc rich paint before erection.

For multi-span bridges, sufficient ¼" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.

Steel rail elements shall be galvanized according to Article 509.05 of the Standard Specifications.

** The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	174

(6'-3" Maximum Post Spacing)

GATES ASSOCIATES Engineering • Architecture

ILLINOIS: Centrum Business Center 1, 100 Lenox Court, Suite 1, Collinsville, IL 62234, tel 618.345.2200, fax 618.345.7733

MISSOURI: Laclede Gas Building, 720 Olive, Suite 1950, St. Louis, MO 63101, tel 314.588.8581, fax 314.588.8606

www.gatesassociates.com

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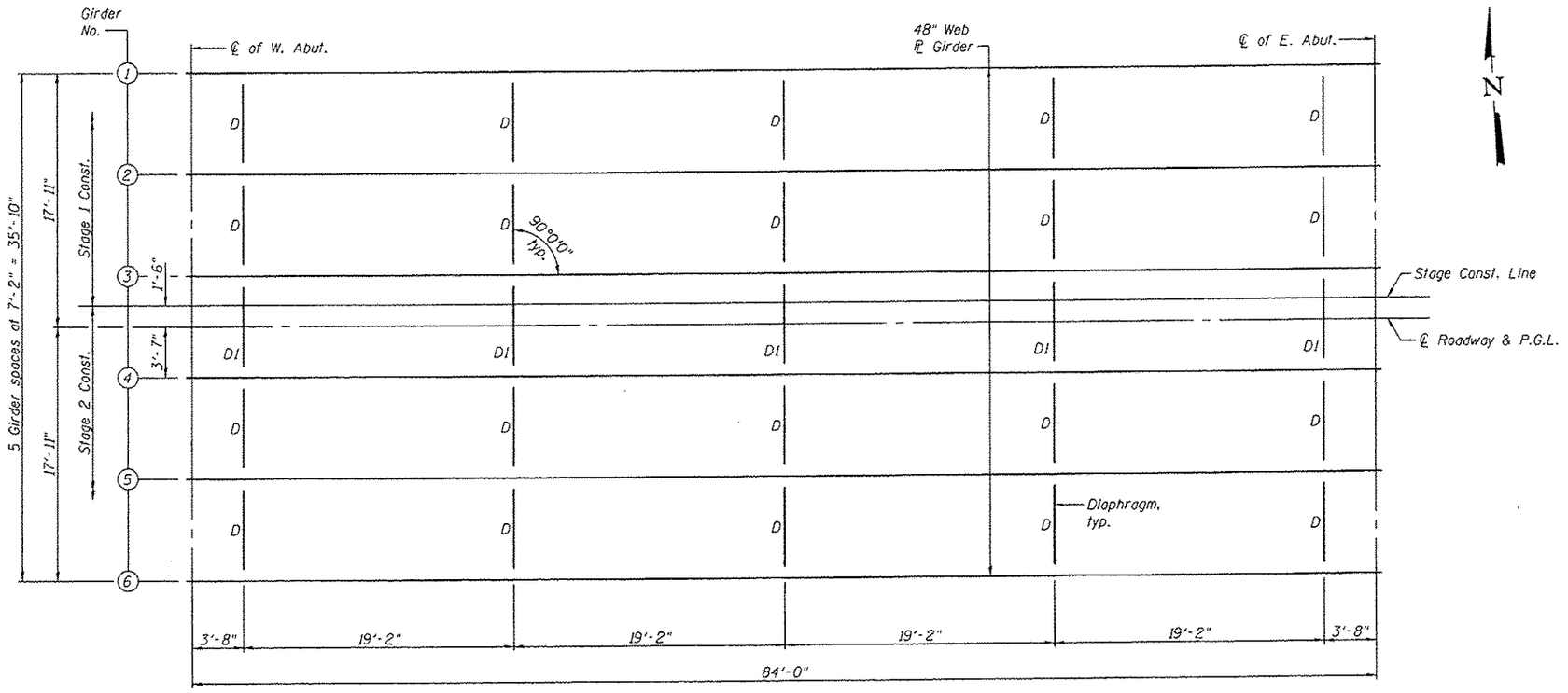
PLOT DATE =	CHECKED - JAD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

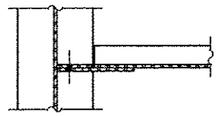
STEEL RAILING, TYPE SM
STRUCTURE NO. 060-3359

SHEET NO. 14 OF 23 SHEETS

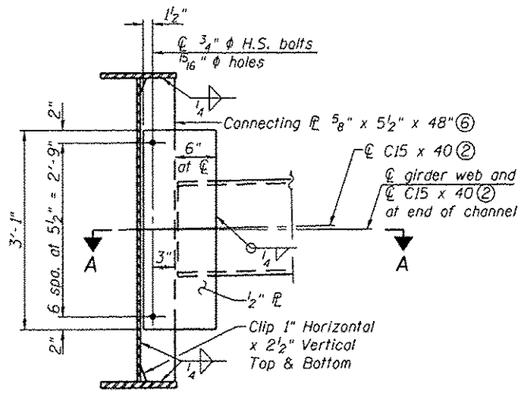
CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	23
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		



FRAMING PLAN

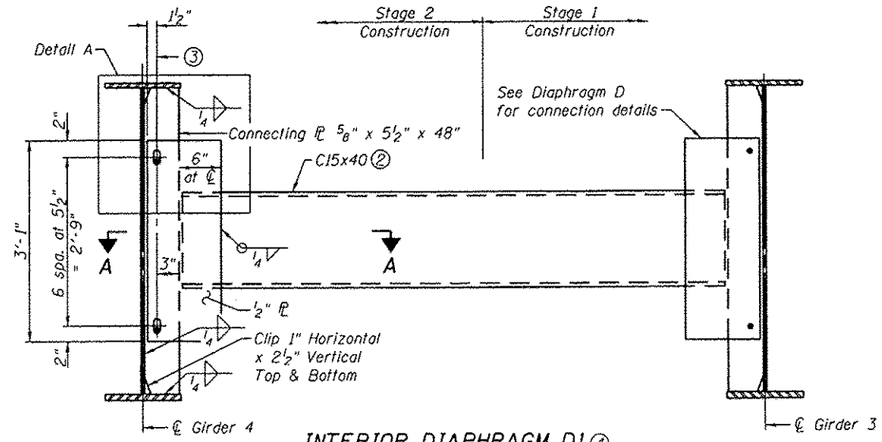


SECTION A-A



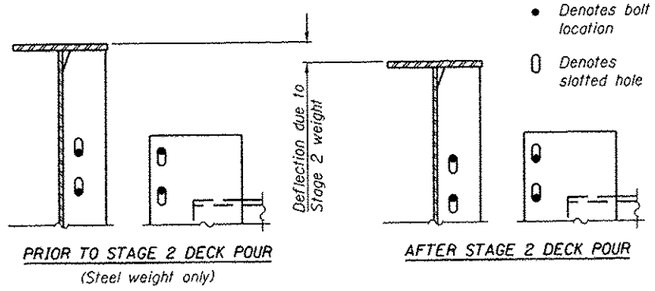
INTERIOR DIAPHRAGM D

(20 Required)



INTERIOR DIAPHRAGM D1 ④

(5 Required)



DETAIL A

Notes:

1. Two hardened washers required for each set of oversized holes.
2. Alternate channels C15x50 are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section. The alternate, if utilized, shall be provided at no additional cost to the Department.
3. Use ¾" ϕ H.S. bolts. Provide 13/16" x 1⅞" vertical slotted holes in connection plate attached to channel diaphragm and girder. Two ⅝" structural plate washers required for each set of slotted holes.
4. The Fabricator shall detail connection plate locations on channel to allow for differential deflection during Stage 2 deck pour. The bolts shall be finger tight until the Stage 2 deck concrete is poured, allowing the Stage 2 girders to deflect vertically without stressing the D1 diaphragms or Stage 1 girders. The bolts shall be fully tightened after the Stage 2 deck concrete is poured. The diaphragm connection shall be detailed so that the centerline of girder web and centerline of diaphragm channel align in their final position.
5. All diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted.
6. Do not provide plate on exterior face of fascia girders.

BATES ASSOCIATES
Engineering • Architecture
ILLINOIS: Eastport Business Center 1, 102 Lamer Court, Suite 1, Collinsville, IL 62234, tel 618.342.2900, fax 618.345.7733
MISSOURI: Laclede Gas Building, 720 Olive, Suite 1650, St. Louis, MO 63101, tel 314.696.9361, fax 314.668.9905
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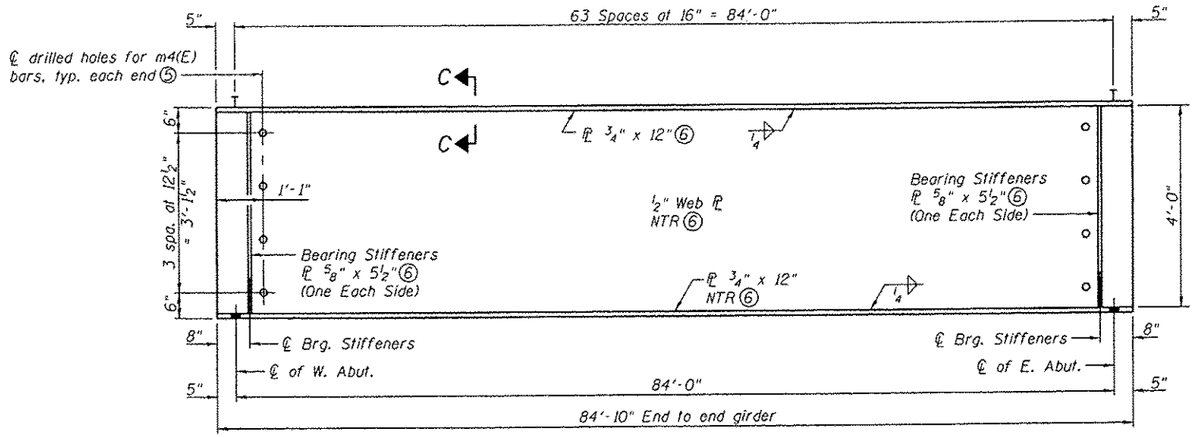
PLOT SCALE =	DRAWN - DBB	REVISED
PLOT DATE =	CHECKED - JAD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN AND GIRDER DETAILS
STRUCTURE NO. 060-3359

SHEET NO. 15 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	24
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		



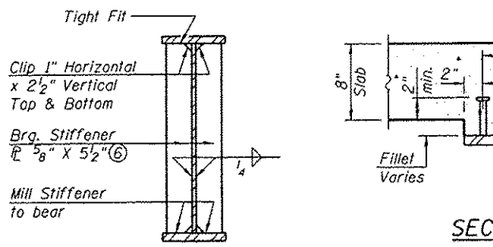
GIRDER ELEVATION

(6 Required)

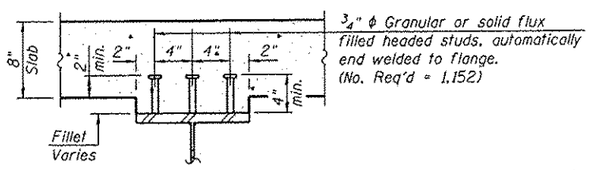
TOP OF WEB ELEVATIONS*

	Girder 1	Girder 2	Girder 3	Girder 4	Girder 5	Girder 6
℄ of W. Abut.	501.44	501.58	501.73	501.73	501.58	501.44
℄ of E. Abut.	501.44	501.58	501.73	501.73	501.58	501.44

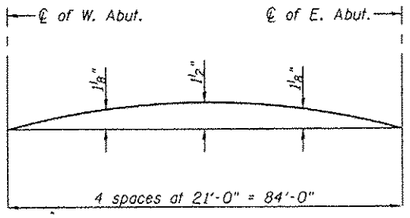
*For fabrication only.



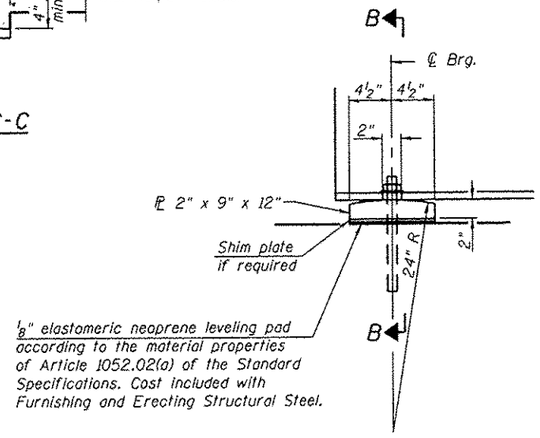
BEARING STIFFENER AT ABUTMENT



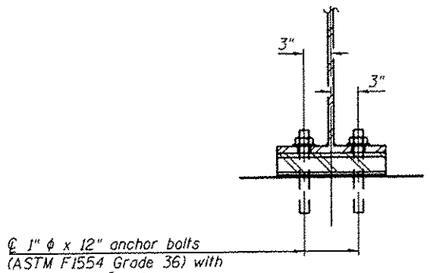
SECTION C-C



CAMBER DIAGRAM



ELEVATION AT ABUTMENT



SECTION B-B

FIXED BEARING

(12 Required)

INTERIOR GIRDER MOMENT TABLE

		0.5 Span
I_s	(in^4)	15,303
$I_c(n)$	(in^4)	40,149
$I_c(3n)$	(in^4)	30,691
$I_c(cr)$	(in^4)	-
S_s	(in^3)	618
$S_c(n)$	(in^3)	894
$S_c(3n)$	(in^3)	822
$S_c(cr)$	(in^3)	-
DC1	(k/')	0.910
M_{DC1}	('k)	802.8
DC2	(k/')	0.033
M_{DC2}	('k)	29.4
DW	(k/')	0.333
M_{DW}	('k)	294.0
M_{L+IM}	('k)	1,324.0
M_u (Strength I)	('k)	3,798.2
$\phi_f M_n$	('k)	5,259.8
f_s DC1	(ksi)	15.59
f_s DC2	(ksi)	0.43
f_s DW	(ksi)	4.29
f_s (L+IM)	(ksi)	17.77
f_s (Service II)	(ksi)	43.41
$0.95R_hF_{yf}$	(ksi)	47.50
f_s (Total)(Strength I)	(ksi)	-
$\phi_f F_n$	(ksi)	-
V_f	(k)	26.2

INTERIOR GIRDER REACTION TABLE

		Abutments
R_{DC1}	(k)	38.2
R_{DC2}	(k)	1.4
R_{DW}	(k)	14.0
R_{L+IM}	(k)	84.6
R_{Total}	(k)	138.2

BILL OF MATERIAL

Item	Unit	Total
Anchor Bolts, 1"	Each	24

I_s, S_s: Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total-Strength I, and Service II) due to non-composite dead loads (in.⁴ and in.³).

$I_c(n)$, $S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total-Strength I, and Service II) in uncracked sections due to short-term composite live loads (in.⁴ and in.³).

$I_c(3n)$, $S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total-Strength I, and Service II) in uncracked sections, due to long-term composite (superimposed) dead loads (in.⁴ and in.³).

$I_c(cr)$, $S_c(cr)$: Composite moment of inertia and section modulus of the steel and longitudinal deck reinforcement, used for computing f_s (Total-Strength I and Service II) in cracked sections, due to both short-term composite live loads and long-term composite (superimposed) dead loads (in.⁴ and in.³).

DC1: Un-factored non-composite dead load (kips/ft.).

M_{DC1}: Un-factored moment due to non-composite dead load (kip-ft.).

DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).

M_{DC2}: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).

DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).

M_{DW}: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).

M_{L+IM}: Un-factored live load moment plus dynamic load allowance (impact) (kip-ft.).

M_u (Strength I): Factored design moment (kip-ft.).
$1.25\ (M_{DC1} + M_{DC2}) + 1.5\ M_{DW} + 1.75\ M_{L+IM}$

$\phi_f M_n$: Compact composite positive moment capacity computed according to Article 6.10.7.1 or non-slender negative moment capacity according to Article A6.1.1 or A6.1.2 (kip-ft).

f_s DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).
M_{DC1} / S_{nc}

f_s DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).
$M_{DC2} / S_c(3n)$ or $M_{DC2} / S_c(cr)$ as applicable.

f_s DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).
$M_{DW} / S_c(3n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (L+IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live load plus impact loads as calculated below (ksi).
$M_{L+IM} / S_c(n)$ or $M_{DW} / S_c(cr)$ as applicable.

f_s (Service II): Sum of stresses as computed below (ksi).
$f_{sDC1} + f_{sDC2} + f_{sDW} + 1.3\ f_s(L+IM)$

$0.95R_hF_yf$: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).

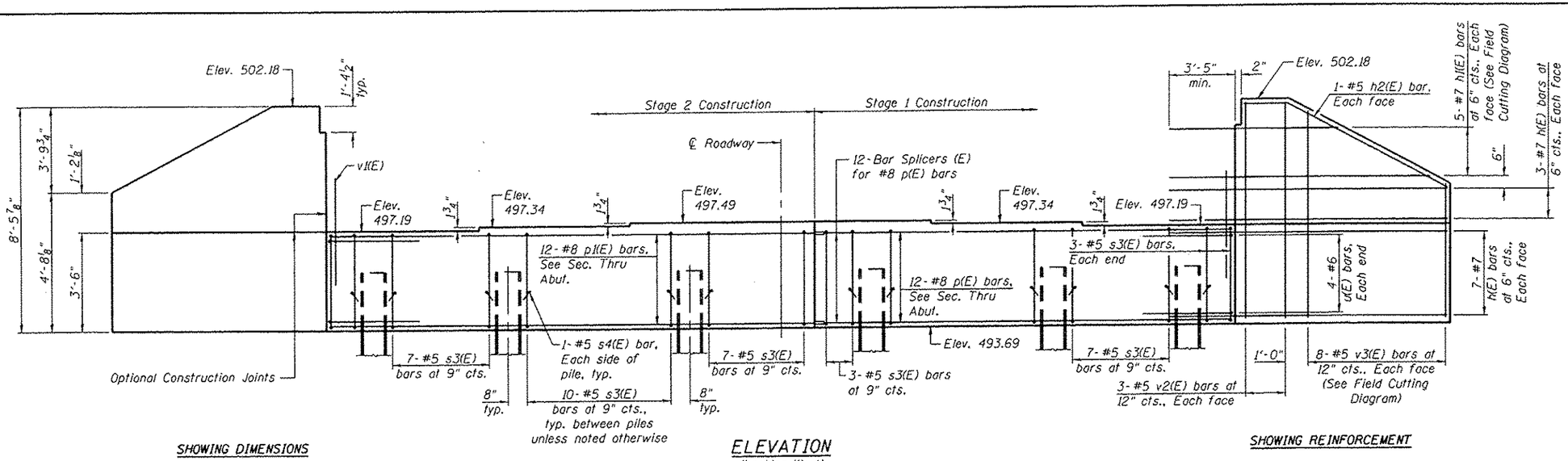
f_s (Total)(Strength I): Sum of stresses as computed below on non-compact section (ksi).
$1.25\ (f_{sDC1} + f_{sDC2}) + 1.5\ f_{sDW} + 1.75\ f_s(L+IM)$

$\phi_f F_n$: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7 or 6.10.8 (ksi).

V_f: Maximum factored shear range in span computed according to Article 6.10.10.

Notes:

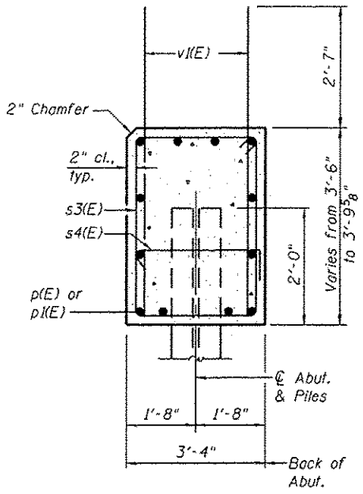
1. Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.
2. Anchor bolts shall be ASTM F1554 all-thread or an Engineer-approved alternate material of the grade and diameter specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.
3. Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.
4. Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.
5. For hole ϕ, see sheet 11 of 23.
6. AASHTO M 270 Grade 50 steel.
7. Two ⅛ in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.



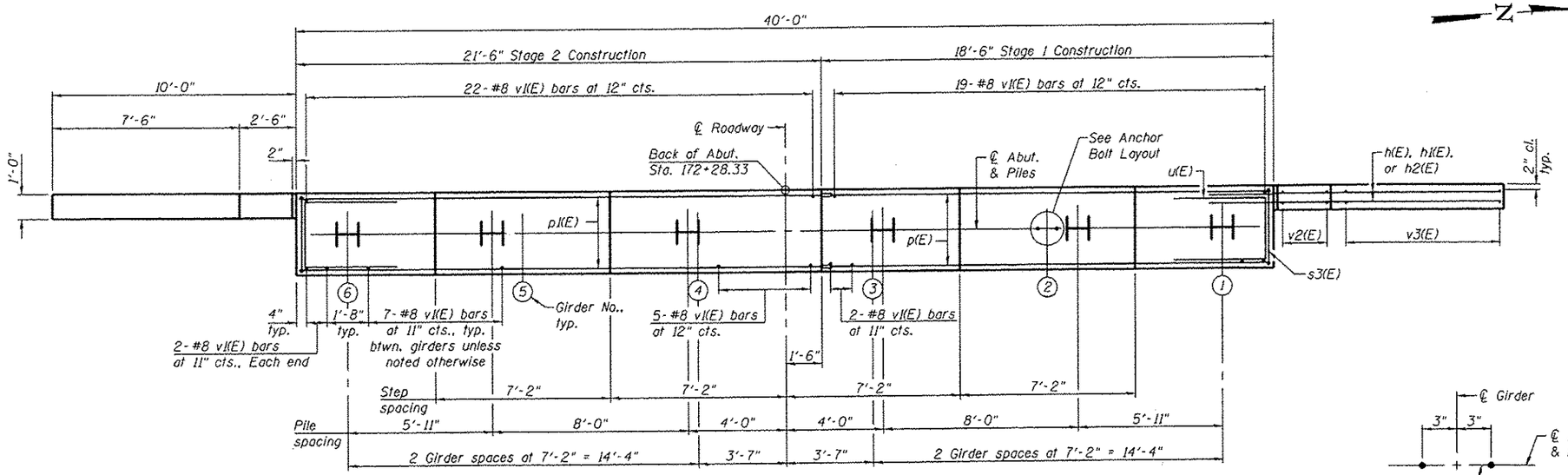
SHOWING DIMENSIONS

ELEVATION
(Looking West)

SHOWING REINFORCEMENT



SEC. THRU ABUT.



PLAN

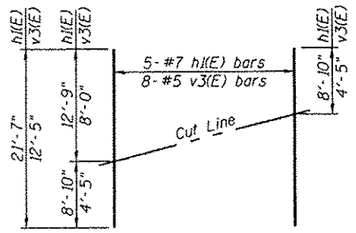
ANCHOR BOLT LAYOUT ③

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	40	#7	13'-3"	
h1(E)	10	#7	21'-7"	
h2(E)	4	#5	10'-3"	
p(E)	12	#8	18'-2"	
p1(E)	12	#8	21'-2"	
s3(E)	50	#5	13'-3"	
s4(E)	12	#5	4'-0"	
u(E)	8	#6	10'-6"	
v1(E)	80	#8	5'-11"	
v2(E)	12	#5	8'-2"	
v3(E)	16	#5	12'-5"	
Structure Excavation		Cu. Yd.	108	
Concrete Structures		Cu. Yd.	23.3	
Reinforcement Bars, Epoxy Coated		Pound	5,270	
Furnishing Steel Piles HP12x53		Foot	350	
Driving Piles		Foot	350	
Test Pile Steel HP12x53		Each	1	
Pile Shoes		Each	6	

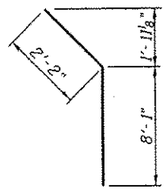
PILE DATA

Type: Steel HP12x53 with Pile Shoes
Nominal Required Bearing: 419 kips
Factored Resistance Available: 230 kips
Est. Length: 70'
No. Production Piles: 5
No. Test Piles: 1

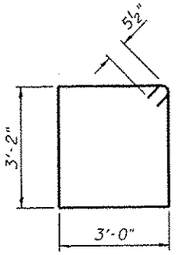


FIELD CUTTING DIAGRAM

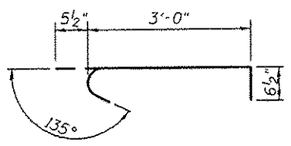
Order h1(E) and v3(E) full length. Cut as shown and use remainder of bars in opposite face.



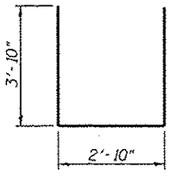
BAR h2(E)



BAR s3(E)



BAR s4(E)



BAR u(E)

Notes:
1. Pour steps monolithically with cap.
2. For details of piles, see sheet 19 of 23.
3. Space reinforcement in cap to miss anchor bolts.
4. For details of Bar Splicers, see sheet 20 of 23.
5. Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.07 of the Standard Specifications, shall be used in the concrete for the abutment cap and wingwalls. Cost included with Concrete Structures.

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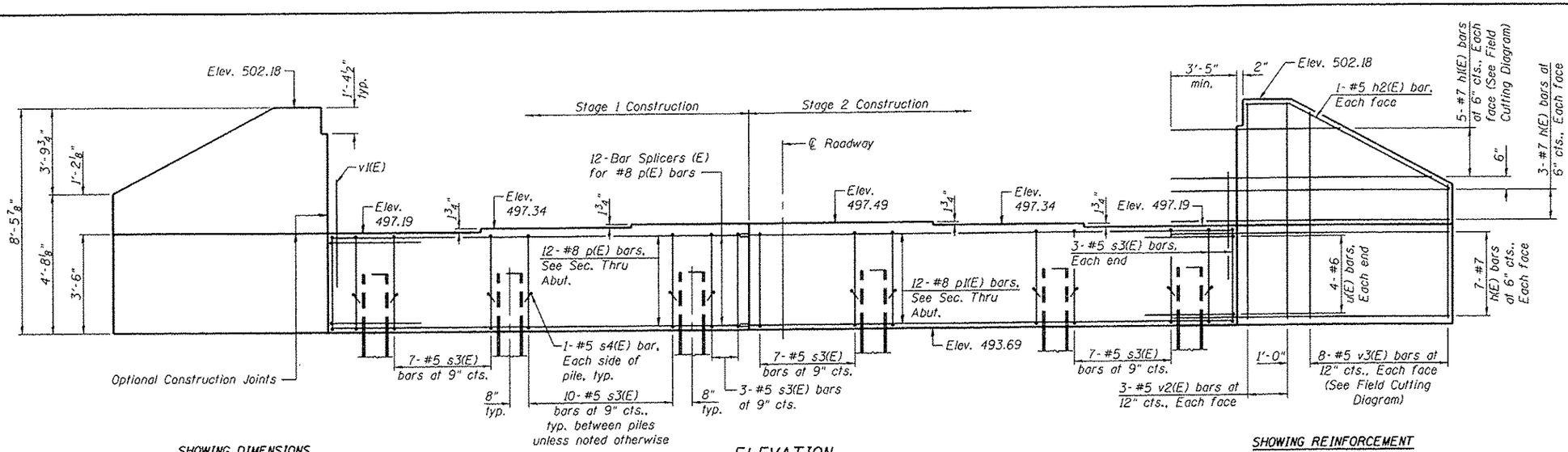
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

WEST ABUTMENT DETAILS
STRUCTURE NO. 060-3359
SHEET NO. 17 OF 23 SHEETS

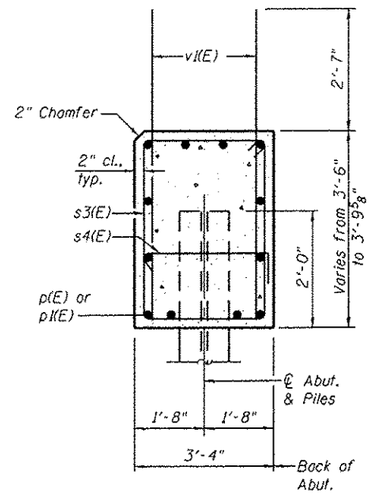
CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	26
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		



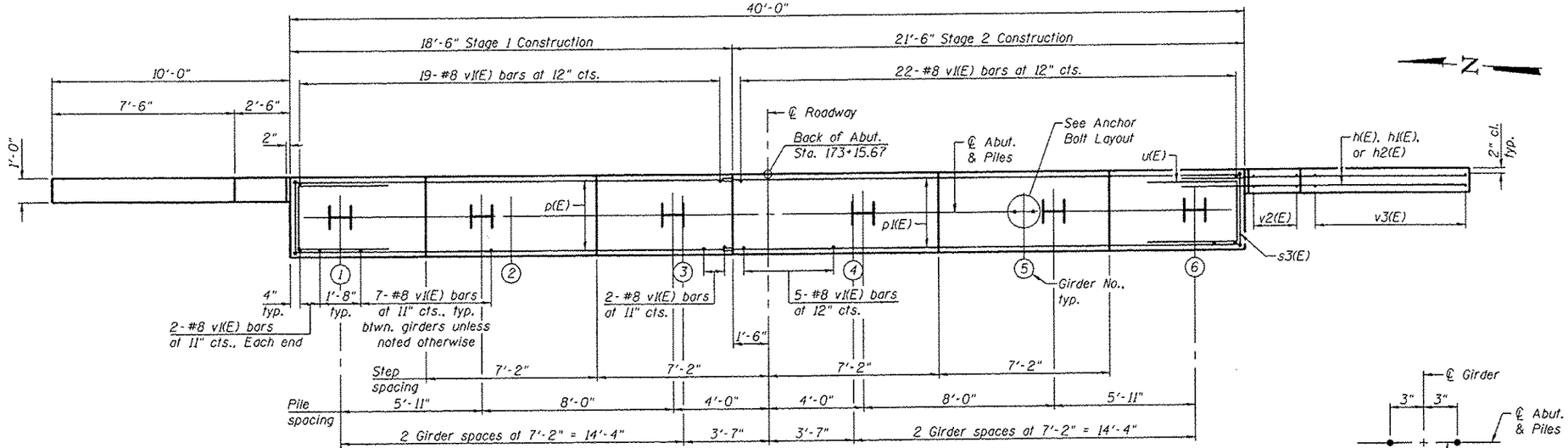
SHOWING DIMENSIONS

SHOWING REINFORCEMENT

ELEVATION
(Looking East)



SEC. THRU ABUT.



PLAN

ANCHOR BOLT LAYOUT ③

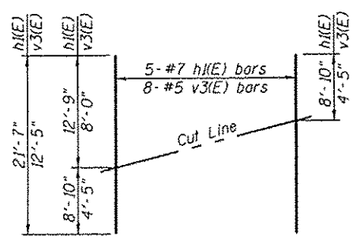
BILL OF MATERIAL

Bar	No.	Size	Length	Shape
h(E)	40	#7	13'-3"	
h1(E)	10	#7	21'-7"	
h2(E)	4	#5	10'-3"	
p(E)	12	#8	18'-2"	
p1(E)	12	#8	21'-2"	
s3(E)	50	#5	13'-3"	
s4(E)	12	#5	4'-0"	
u(E)	8	#6	10'-6"	
v1(E)	80	#8	5'-11"	
v2(E)	12	#5	8'-2"	
v3(E)	16	#5	12'-5"	

Structure Excavation	Cu. Yd.	108
Concrete Structures	Cu. Yd.	23.3
Reinforcement Bars, Epoxy Coated	Pound	5,270
Furnishing Steel Piles HP12x53	Foot	355
Driving Piles	Foot	355
Test Pile Steel HP12x53	Each	1
Pile Shoes	Each	6

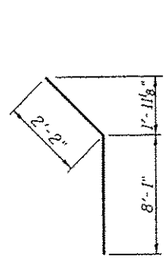
PILE DATA

Type: Steel HP12x53 with Pile Shoes
Nominal Required Bearing: 419 kips
Factored Resistance Available: 230 kips
Est. Length: 71'
No. Production Piles: 5
No. Test Piles: 1

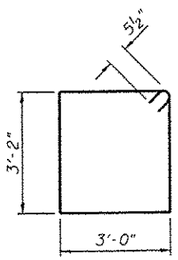


FIELD CUTTING DIAGRAM

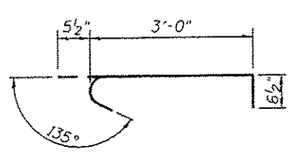
Order h1(E) and v3(E) full length. Cut as shown and use remainder of bars in opposite face.



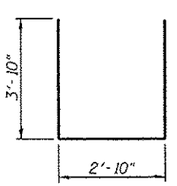
BAR h2(E)



BAR s3(E)



BAR s4(E)



BAR u(E)

Notes:
1. Pour steps monolithically with cap.
2. For details of piles, see sheet 19 of 23.
3. Space reinforcement in cap to miss anchor bolts.
4. For details of Bar Splicers, see sheet 20 of 23.
5. Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.07 of the Standard Specifications, shall be used in the concrete for the abutment cap and wingwalls. Cost included with Concrete Structures.

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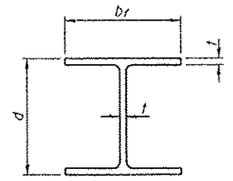
PLOT DATE =	CHECKED - JAD	REVISED

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

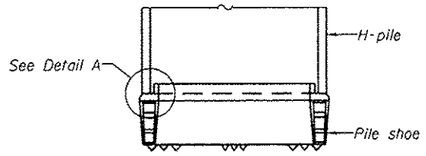
EAST ABUTMENT DETAILS
STRUCTURE NO. 060-3359
SHEET NO. 18 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	27
		CONTRACT NO. 97548		
	ILLINOIS	FED. AID PROJECT		

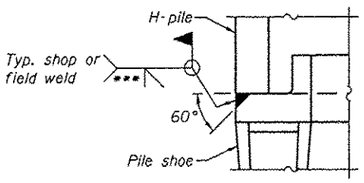


STEEL PILE TABLE

Designation	Depth d	Flange width b_f	Web and Flange thickness t	Encasement diameter A
HP 14x117	$14\frac{1}{4}''$	$14\frac{7}{8}''$	$\frac{13}{16}''$	30''
x102	14''	$14\frac{3}{4}''$	$\frac{11}{16}''$	30''
x89	$13\frac{7}{8}''$	$14\frac{3}{4}''$	$\frac{5}{8}''$	30''
x73	$13\frac{5}{8}''$	$14\frac{5}{8}''$	$\frac{1}{2}''$	30''
HP 12x84	$12\frac{1}{4}''$	$12\frac{1}{4}''$	$\frac{11}{16}''$	24''
x74	$12\frac{1}{8}''$	$12\frac{1}{4}''$	$\frac{5}{8}''$	24''
x63	12''	$12\frac{1}{8}''$	$\frac{1}{2}''$	24''
x53	$11\frac{3}{4}''$	12''	$\frac{7}{16}''$	24''
HP 10x57	10''	$10\frac{1}{4}''$	$\frac{9}{16}''$	24''
x42	$9\frac{3}{4}''$	$10\frac{1}{8}''$	$\frac{7}{16}''$	24''
HP 8x36	8''	$8\frac{1}{8}''$	$\frac{7}{16}''$	18''

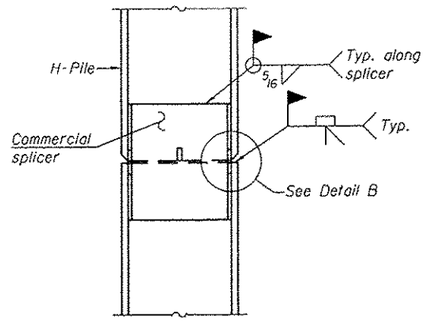


ELEVATION



DETAIL A

H-PILE SHOE ATTACHMENT



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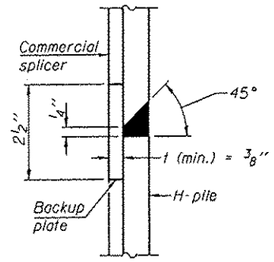
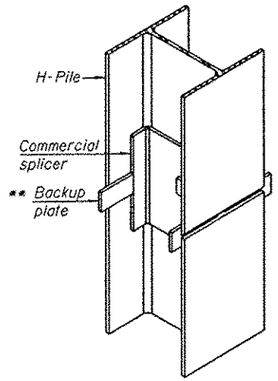
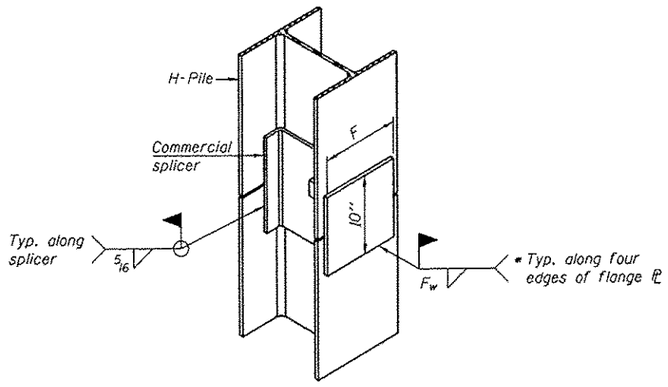


DETAIL "B"



ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE



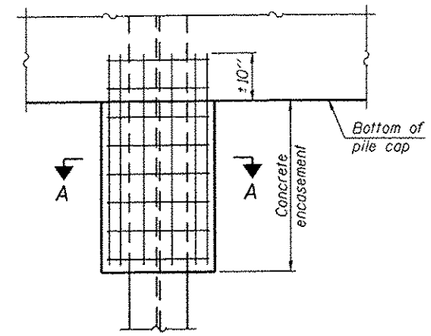
ISOMETRIC VIEW

WELDED COMMERCIAL SPLICE ALTERNATE

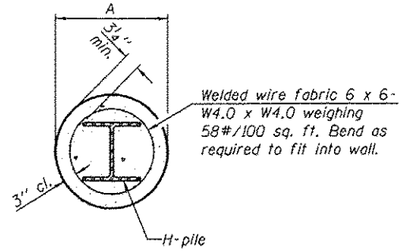
* Interrupt welds ¼'' from end of web and/or each flange.

** Remove portions of backup plates that extend outside the flanges.

*** Weld size per pile shoe manufacturer ($\frac{5}{16}$'' min.).



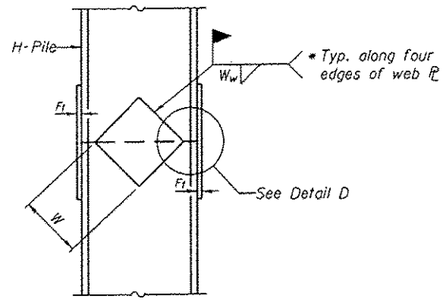
ELEVATION



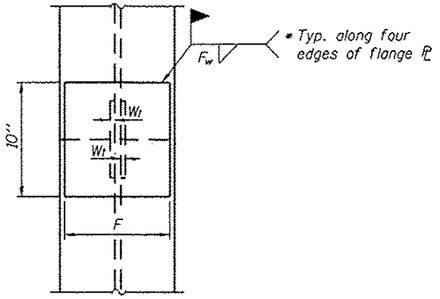
Note:
Forms for encasement may be omitted when soil conditions permit.

SECTION A-A

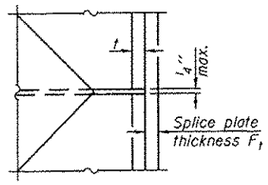
PILE ENCASEMENT



ELEVATION



END VIEW



DETAIL D

Designation	F	F_f	F_w	W	W_f	W_w
HP 14x117	$12\frac{1}{2}''$	1''	$\frac{7}{8}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x102	$12\frac{1}{2}''$	$\frac{7}{8}''$	$\frac{3}{4}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x89	$12\frac{1}{2}''$	$\frac{3}{4}''$	$\frac{11}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x73	$12\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{9}{16}''$	$7\frac{3}{4}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
HP 12x84	10''	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x74	10''	$\frac{7}{8}''$	$\frac{11}{16}''$	$6\frac{1}{2}''$	$\frac{5}{8}''$	$\frac{1}{2}''$
x63	10''	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x53	10''	$\frac{5}{8}''$	$\frac{1}{2}''$	$6\frac{1}{2}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 10x57	8''	$\frac{3}{4}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
x42	8''	$\frac{5}{8}''$	$\frac{9}{16}''$	$5\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$
HP 8x36	7''	$\frac{5}{8}''$	$\frac{7}{16}''$	$4\frac{1}{4}''$	$\frac{1}{2}''$	$\frac{3}{8}''$

WELDED PLATE FIELD SPLICE

Note:
The steel H-piles shall be according to AASHTO M270 Grade 50.

F-HP 1-27-12

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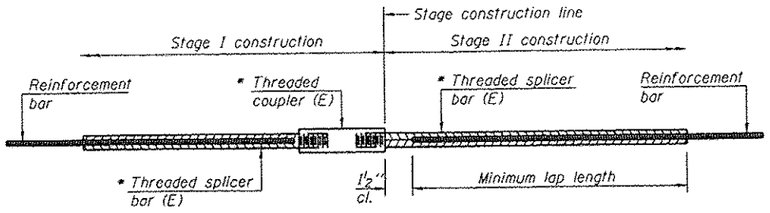
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

HP PILE DETAILS
STRUCTURE NO. 060-3359
SHEET NO. 19 OF 23 SHEETS

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	28
		CONTRACT NO. 97548		
	ILLINOIS	FED. AID PROJECT		



STANDARD BAR SPLICER ASSEMBLY

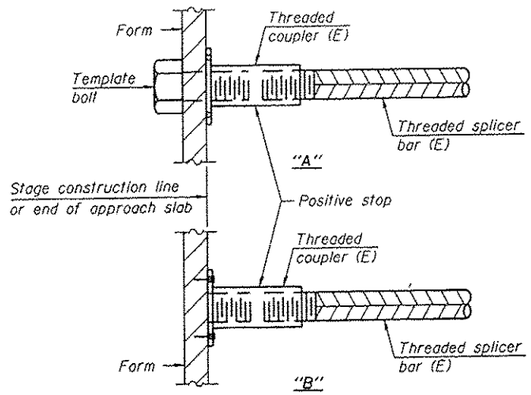
Minimum Lap Lengths						
Bar size to be spliced	Table 1	Table 2	Table 3	Table 4	Table 5	Table 6
3, 4	1'-5"	1'-11"	2'-1"	2'-4"	2'-7"	2'-11"
5	1'-9"	2'-5"	2'-7"	2'-11"	3'-3"	3'-8"
6	2'-1"	2'-11"	3'-1"	3'-6"	3'-10"	4'-5"
7	2'-9"	3'-10"	4'-2"	4'-8"	5'-2"	5'-10"
8	3'-8"	5'-1"	5'-5"	6'-2"	6'-9"	7'-8"
9	4'-7"	6'-5"	6'-10"	7'-9"	8'-7"	9'-8"

Table 1: Black bar, 0.8 Class C
Table 2: Black bar, Top bar lap, 0.8 Class C
Table 3: Epoxy bar, 0.8 Class C
Table 4: Epoxy bar, Top bar lap, 0.8 Class C
Table 5: Epoxy bar, Class C
Table 6: Epoxy bar, Top bar lap, Class C

Threaded splicer bar length = min. lap length + 1½" + thread length

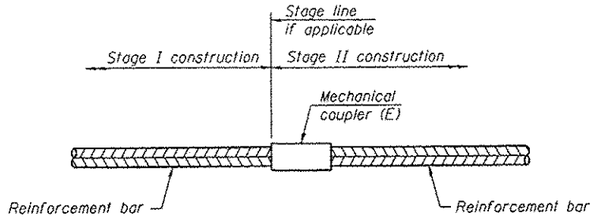
* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

Location	Bar size	No. assemblies required	Table for minimum lap length
Deck	#5	274	Table 3
Abutment Diaphragm	#6	18	Table 4
Top of Appr. Slab	#4	50	Table 4
Bottom of Appr. Slab	#5	92	Table 3
Appr. Footing	#5	80	Table 3
Abutment Cap	#8	24	Table 4



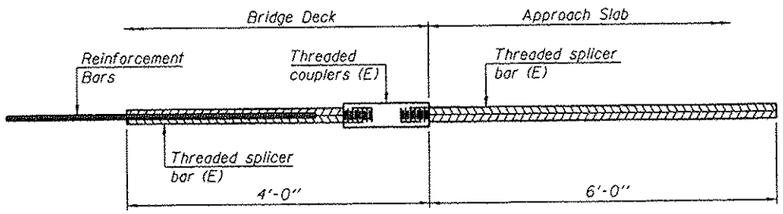
INSTALLATION AND SETTING METHODS

"A" : Set bar splicer assembly by means of a template bolt.
"B" : Set bar splicer assembly by nailing to wood forms or cementing to steel forms.
(E) : Indicates epoxy coating.



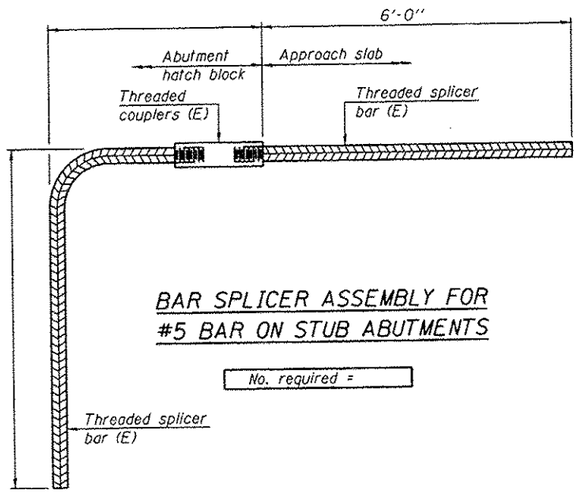
STANDARD MECHANICAL SPLICER

Location	Bar size	No. assemblies required



BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

No. required =



BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS

No. required =

NOTES

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.

All reinforcement shall be lapped and tied to the splicer bars.

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.

See approved list of bar splicer assemblies and mechanical splicers for alternatives.

Illinois Department of Transportation
Division of Highways
BDE Engineering

SOIL BORING LOG

Date 6/13-14/2012

ROUTE Moro Road (CH 22) DESCRIPTION Moro Road Bridge - Structure Boring LOGGED BY SCI (JS)

SECTION 11-00110-02-BR LOCATION NE 1/4 of the NW 1/4, SEC. 4, TWP. 5N, RNG. 6W,
Latitude , Longitude

COUNTY Madison DRILLING METHOD CME 550X with HSA HAMMER TYPE Automatic

STRUCT. NO. 060-3359
Station 172+72

BORING NO. B-1
Station 173+36.93
Offset 22.4 ft RT
Ground Surface Elev. 501.81 ft

Surface Water Elev. ft
Stream Bed Elev. 482.5 ft

Groundwater Elev.:
First Encounter 483.61 ft ▼
Upon Completion 482.81 ft ▽
After 16.25 Hrs. 485.91 ft ▽

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DESCRIPTION
501.6				GRASS COVER
500.8				FILL: Brown silty clay, with sand, trace roots [A-6]
	2 4 7	>4.5 P 2.3 P	17	
497.1				FILL: Brown and gray silt, with iron stains, trace fine sand, and roots [A-4]
-5	3 3 3	<0.25 P 1.8 P	25	
	2 2 3	1.7 B	20	FILL: Brown clay, trace fine sand and organics [A-7]
493.1				
-10	2 5 5	3.0 S/10	17	FILL: Gray sandy silt, trace organics and crushed rock [A-4]
490.8				
	2 2 3	1.4 S/15	22	SILTY CLAY: Dark gray, with fine sand, trace iron nodules [A-6]
488.3				
-15	2 3 3	2.3 B	17	CLAY: Gray, trace fine sand and iron nodules [A-7]
	2 3 3	2.3 P	21	
-20	1 2 2	0.8 B	29	
	1 2 2	0.8 B	28	CLAY: Gray, trace fine sand and iron nodules [A-7] *(continued)*
478.8				
-25	1 2 2	1.1 B	31	SILTY CLAY: Gray and brown, with iron stains and sand [A-6]
	1 2 2	0.8 B	28	
473.8				
-30	2 2 3	1.0 B	19	SANDY CLAY: Gray and brown, trace gravel [A-6]
469.8				
	4 7 12	4.0 B	16	CLAY: Brown, with sand, trace gravel, sandstone fragments, and coal [A-6]
-35				Becomes greenish-gray
464.8				
	7 8 9	2.7 B	15	CLAY: Brown, with sand, trace gravel, sandstone fragments, and coal [A-7]
-40				2" fine-to-medium sand layer
				2" fine-to-medium sand layer

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
AASHTO Classifications are based on visual classifications unless otherwise noted BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
BDE Engineering

SOIL BORING LOG

Date 6/13-14/2012

ROUTE Moro Road (CH 22) DESCRIPTION Moro Road Bridge - Structure Boring LOGGED BY SCI (JS)

SECTION 11-00110-02-BR LOCATION NE 1/4 of the NW 1/4, SEC. 4, TWP. 5N, RNG. 6W,
Latitude , Longitude

COUNTY Madison DRILLING METHOD CME 550X with HSA HAMMER TYPE Automatic

STRUCT. NO. 060-3359
Station 172+72

BORING NO. B-1
Station 173+36.93
Offset 22.4 ft RT
Ground Surface Elev. 501.81 ft

Surface Water Elev. ft
Stream Bed Elev. 482.5 ft

Groundwater Elev.:
First Encounter 483.61 ft ▼
Upon Completion 482.81 ft ▽
After 16.25 Hrs. 485.91 ft ▽

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	DESCRIPTION
				CLAY: Brown, with sand, trace gravel, sandstone fragments, and coal [A-7] *(continued)*
-45	2 3 4	1.1 B	21	Difficult drilling observed
-50	4 4 4	1.1 B	20	Trace sand observed at top of sample
-55	11 8 9	2.4 B	20	Fine to medium sand lense
-60	2 3 4	1.3 B	22	Pieces of wood observed at bottom of sample
				CLAY: Brown, with sand, trace gravel, sandstone fragments, and coal [A-7] *(continued)*
-65	2 3 6	1.2 B	21	
434.8				
				COAL: Black
432.6				
-70	19 22 22	2.5 S/5	32 21	CLAYEY SHALE: Gray, trace fine sand
				Difficult drilling observed
426.8	12 20 33	3.1 S/5	15	
-75				Auger refusal at 75 feet.
-80				

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
AASHTO Classifications are based on visual classifications unless otherwise noted BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
BOI Engineering

SOIL BORING LOG

Date 6/14-15/2012

ROUTE Moro Road (CH 22) DESCRIPTION Moro Road Bridge - Structure Boring LOGGED BY SCI (JS)

SECTION 11-00110-02-BR LOCATION NE 1/4 of the NW 1/4, SEC. 4, TWP. 5N, RNG. 8W.
Latitude , Longitude

COUNTY Madison DRILLING METHOD CME 550X with HSA HAMMER TYPE Automatic

STRUCT. NO. 060-3359
Station 172+72

BORING NO. B-2
Station 172+49.28
Offset 31.9 ft RT
Ground Surface Elev. 493.27 ft

Surface Water Elev. ft
Stream Bed Elev. 482.5 ft

Groundwater Elev.:
First Encounter 469.27 ft ▼
Upon Completion ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				FILL: Brown sandy silt, trace roots and crushed rock [A-4]
	3 4 5	>4.5 P	8	
469.6				
	3 3 4	3.0 S/15	22	CLAY: Gray, with iron stains, trace fine sand and roots [A-7]
467.8				
	3 4 5	2.0 S/15	20	SILTY CLAY: Brown and gray, trace sand and iron nodules [A-6]
464.0				
	1 2 2	0.6 B	17	SANDY CLAY: Brown and gray [A-6]
462.8				
	2 2 3	0.7 B	15	SANDY CLAY: Gray, with gravel [A-6]
				Rough drilling observed
				Becomes gray, trace large gravel
	3 5 7	4.9 B 6.6 B	22 13	Becomes brownish gray
477.8				
	5 8 10	4.1 B	12	CLAY: Gray, with sand, trace gravel and sandstone fragments [A-6]
				Becomes brown and gray
	5 7 11	5.5 B	15	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				CLAY: Gray, with sand, trace gravel and sandstone fragments [A-6] *(continued)*
	3 7 10	6.4 B	16	
	4 6 10	4.6 B	16	
	7 10 11	5.9 S/15	17	Coal fragments observed
465.3				
	4 5 7	3.1 B	17	CLAY: Gray, with sand, trace gravel and sandstone fragments [A-7]
	3 5 7	2.3 B	18	
	3 5 6	2.2 B	18	

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
AASHTO Classifications are based on visual classifications unless otherwise noted BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
BOI Engineering

SOIL BORING LOG

Date 6/14-15/2012

ROUTE Moro Road (CH 22) DESCRIPTION Moro Road Bridge - Structure Boring LOGGED BY SCI (JS)

SECTION 11-00110-02-BR LOCATION NE 1/4 of the NW 1/4, SEC. 4, TWP. 5N, RNG. 8W.
Latitude , Longitude

COUNTY Madison DRILLING METHOD CME 550X with HSA HAMMER TYPE Automatic

STRUCT. NO. 060-3359
Station 172+72

BORING NO. B-2
Station 172+49.28
Offset 31.9 ft RT
Ground Surface Elev. 493.27 ft

Surface Water Elev. ft
Stream Bed Elev. 482.5 ft

Groundwater Elev.:
First Encounter 469.27 ft ▼
Upon Completion ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				CLAY: Gray, with sand, trace gravel and sandstone fragments [A-7] *(continued)*
	3 3 5	1.6 B	20	
	3 4 5	1.5 B	19	
	3 4 5	1.5 B	20	
424.5				
	9 10 14	N/A	37	COAL: Black

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	Description
				COAL: Black *(continued)*
432.3				
				CLAYEY SHALE: Gray
	11 21 25	>4.5 P	17	
				Difficult drilling observed
				Auger refusal at 66.5 feet
	12 25 50/4"	3.6 S/10	14	With rock fragments
425.4				
				Split spoon sampler refusal at 67.8 feet.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
AASHTO Classifications are based on visual classifications unless otherwise noted BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
BOI Engineering

SOIL BORING LOG

Date 6/12-13/2012

ROUTE Moro Road (CH 22) DESCRIPTION Moro Road Bridge - Structure Boring LOGGED BY SCI (JS)

SECTION 11-00110-02-BR LOCATION SE 1/4 of the SW 1/4, SEC. 33, TWP. 6N, RNG. 8W, Latitude , Longitude

COUNTY Madison DRILLING METHOD CME 550X with HSA HAMMER TYPE Automatic

STRUCT. NO. 060-3359
Station 172+72

BORING NO. B-3
Station 172+16.96
Offset 22.8 ft LT
Ground Surface Elev. 501.7 ft

Surface Water Elev. ft
Stream Bed Elev. 482.5 ft

Groundwater Elev.:
First Encounter 482.37 ft
Upon Completion 459.2 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				FILL: Brown silty clay, trace crushed rock and organics
500.2				
	10 12 5	4.5 P	18	FILL: Crushed rock - 8 inches
499.5				FILL: Brown clay, trace fine sand
	2 3 3	1.4 S/15	21	Becomes dark gray Becomes brown and gray, with iron stains
496.2				FILL: Dark gray silty clay
	1 2 2	<0.25 P	27	
493.7				SILTY CLAY: Brown, trace fine sand and organics [A-6]
	2 2 3	1.1 S/20	23	
	1 2 3	1.4 B	23	
488.7				SANDY CLAY: Brown and gray, trace sand and gravel [A-6]
	2 2 4	1.8 B	19	
	2 3 4	1.8 S/15	16	
483.7				CLAY: Gray and brown, trace gravel and roots, with sand [A-7]
482.5	2 3 3	1.9 B	19	SAND: Brown, fine-to-medium
482.2			22	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				[A-2]
				SANDY CLAY: Brown and gray [A-6] *(continued)*
480.2	1 2 3	1.9 B	21	SAND: Brown, fine-to-medium [A-3]
479.7				CLAY: Gray, trace gravel, with sand and iron stains [A-7]
476.7	5 6 10	4.7 B	11	SANDY CLAY: Gray, trace gravel and organics [A-6]
473.7	4 7 10	4.9 B	11	CLAY: Brown and gray, trace gravel, coal, and sandstone fragments, with sand [A-6]
	4 6 9	4.1 B	18	
	5 9 16	5.4 B	15	Becomes greenish-gray, with fine silty sand lenses
	2 4 6	2.2 B	20	Becomes gray

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
AASHTO Classifications are based on visual classifications unless otherwise noted BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
BOI Engineering

SOIL BORING LOG

Date 6/12-13/2012

ROUTE Moro Road (CH 22) DESCRIPTION Moro Road Bridge - Structure Boring LOGGED BY SCI (JS)

SECTION 11-00110-02-BR LOCATION SE 1/4 of the SW 1/4, SEC. 33, TWP. 6N, RNG. 8W, Latitude , Longitude

COUNTY Madison DRILLING METHOD CME 550X with HSA HAMMER TYPE Automatic

STRUCT. NO. 060-3359
Station 172+72

BORING NO. B-3
Station 172+16.96
Offset 22.8 ft LT
Ground Surface Elev. 501.7 ft

Surface Water Elev. ft
Stream Bed Elev. 482.5 ft

Groundwater Elev.:
First Encounter 482.37 ft
Upon Completion 459.2 ft
After Hrs. ft

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY: Brown and gray, trace gravel, coal, and sandstone fragments, with sand [A-6] *(continued)*
457.7	11 27 32	1.4 S/15 2.5 S/15	14 21	SILT: Gray, with sand [A-4]
454.7				SANDY SILT: Gray [A-4]
452.2	13 16 24	1.9 S/5	19	SILT: Gray, with sand [A-4]
449.7				CLAY: Gray, trace gravel, sandstone fragments, coal, and organics, with sand [A-7]
	4 5 7	2.0 B	16	
	3 4 5	1.9 B	19	

DEPTH (ft)	BLOWS (/6")	UCS Qu (tsf)	MOIST (%)	
				CLAY: Gray, trace gravel, sandstone fragments, coal, and organics, with sand [A-7] *(continued)*
456.7	2 6 7	1.6 B	19	COAL: Black
	15 14 12	3.3 S/10	33 24	SHALEY CLAY: Gray [A-7]
429.2	8 17 31	3.5 S/5	15	Difficult drilling observed
429.0				CLAYEY SHALE: Gray Auger refusal at 72.5 feet. Borehole continued with rock coring.

The Unconfined Compressive Strength (UCS) Failure Mode is indicated by (B-Bulge, S-Shear, P-Penetrometer)
AASHTO Classifications are based on visual classifications unless otherwise noted BBS, form 137 (Rev. 8-99)

Illinois Department of Transportation
Division of Highways
BOI Engineering

ROCK CORE LOG

Date 6/12-13/2012

ROUTE Moro Road (CH 22) DESCRIPTION Moro Road Bridge - Structure Boring LOGGED BY SCI (JS)

SECTION 11-00110-02-BR LOCATION SE 1/4 of the SW 1/4, SEC. 33, TWP. 6N, RNG. 8W, Latitude , Longitude

COUNTY Madison CORING METHOD Rotary, surface set diamond bit

STRUCT. NO. 060-3359
Station 172+72

BORING NO. B-3
Station 172+16.96
Offset 22.8 ft LT
Ground Surface Elev. 501.7 ft

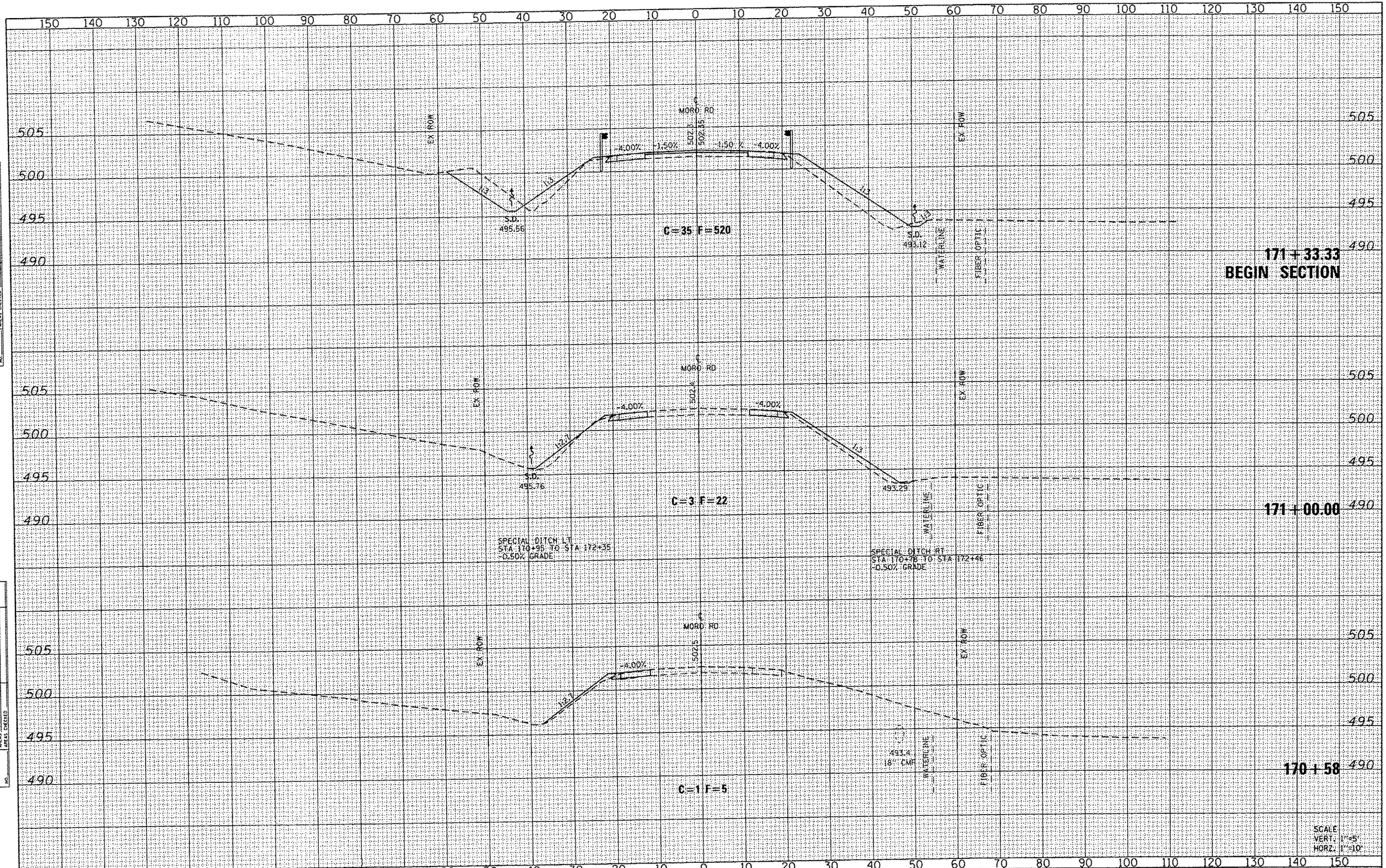
CORING BARREL TYPE & SIZE NX
Core Diameter 2 in
Top of Rock Elev. 429.20 ft
Begin Core Elev. 429.20 ft

DEPTH (ft)	CORE (#)	RECOVERY (%)	R.Q.D. (%)	CORE TIME (min/ft)	STRENGTH (tsf)	
429.20	1	61	28	7.5		LIMESTONE: Gray, moderately hard, finely crystalline, thinly bedded, moderately weathered Moisture content = 9.2%
428.91						SHALEY CLAY: Gray [A-7]
						Moisture content = 18.9%
423.20	2	93	48	5		COAL: Black
422.70					2.7	SHALEY CLAY: Gray [A-7]
						Moisture content = 17.7%
421.37						CLAYEY SHALE: Gray, very soft
						Moisture content = 13.4%
419.20						Boring terminated at 82.5 ft.

Color pictures of the cores Yes
Cores will be stored for examination until
The "Strength" column represents the unlaxial compressive strength of the core sample (ASTM D-2938)
BBS, form 138 (Rev. 8-99)

FINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	TEMPLATE	
	AREAS	
	AREAS CHECKED	

ORIGINAL SURVEY	SURVEYED	DATE
NOTE BOOK	PLOTTED	BY
NO.	TEMPLATE	
	AREAS	
	AREAS CHECKED	



SCALE
VERT. 1"=5'
HORZ. 1"=10'

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	PLOT SCALE = 20.0000 ' / in.	CHECKED -	REVISED -
	PLOT DATE = 12/11/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MORO ROAD CROSS SECTIONS

SCALE: 1" = 10' | SHEET NO. 1 OF 5 SHEETS | STA. 170+50.00 TO STA. 171+33.33

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	33
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

505 500 495 490

MORO ROAD

EX. ROW

502.4

502.60

-1.50%

-1.50 %

1:3

1:3

S.D.
495.36

C=3 F=75

S.D.
492.79

EX. ROW

WATER LINE

FIBER OPTIC

172+00.00

MORO RD

EX. ROW

502.4

502.60

-1.50%

-1.50 %

1:3

1:3

S.D.
495.37

C=3 F=75

S.D.
492.80

EX. ROW

WATER LINE

FIBER OPTIC

171+93.33

APPROACH SECTION

MORO RD

EX. ROW

502.3

502.58

-4.00%

-1.50%

-1.50 %

-4.00%

1:2

1:3

1:3

1:2

S.D.
495.56

C=45 F=51

S.D.
493.04

EX. ROW

WATER LINE

FIBER OPTIC

171+50.00

SCALE
VERT. 1"=5'
HORZ. 1"=10'

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

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	PLOT DATE = 12/11/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

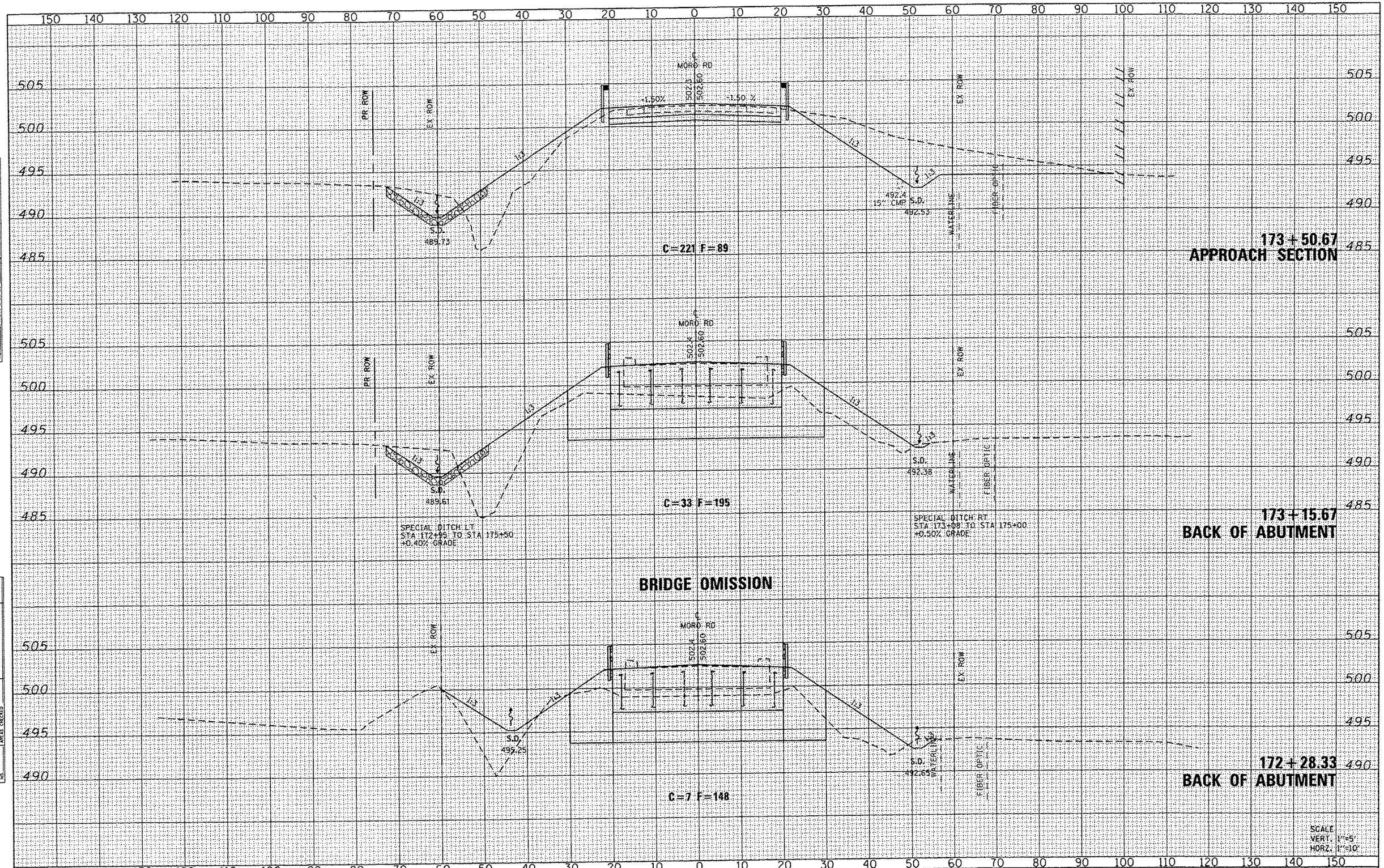
MORO ROAD CROSS SECTIONS

SCALE: 1" = 10' | SHEET NO. 2 OF 5 SHEETS | STA. 171+50.00 TO STA. 172+00.00

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	34
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			

FINAL SURVEY	NOTE BOOK	NO.
SURVEYED		
PLOTTED		
TEMPLATE		
AREAS		
AREAS CHECKED		

BY | DATE



ORIGINAL SURVEY	NOTE BOOK	NO.
SURVEYED		
PLOTTED		
TEMPLATE		
AREAS		
AREAS CHECKED		

BY | DATE

SCALE
VERT. 1"=5'
HORZ. 1"=10'

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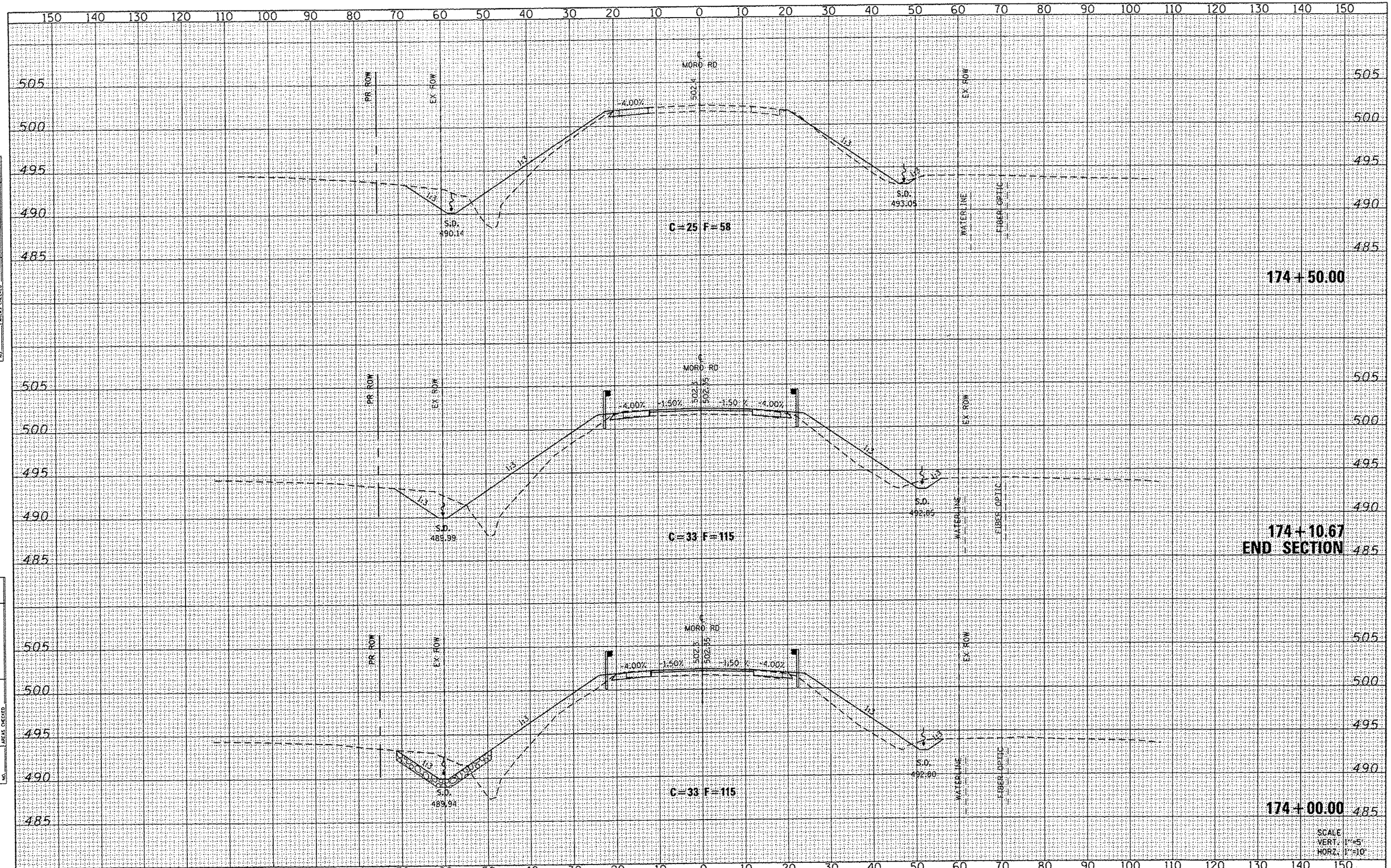
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MORO ROAD CROSS SECTIONS

SCALE: 1" = 10' | SHEET NO. 3 OF 5 SHEETS | STA. 172+28.33 TO STA. 173+50.67

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	35
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		



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	PLOT DATE = 12/11/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MORO ROAD CROSS SECTIONS

SCALE: 1" = 10' | SHEET NO. 4 OF 5 SHEETS | STA. 174+00.00 TO STA. 174+50.00

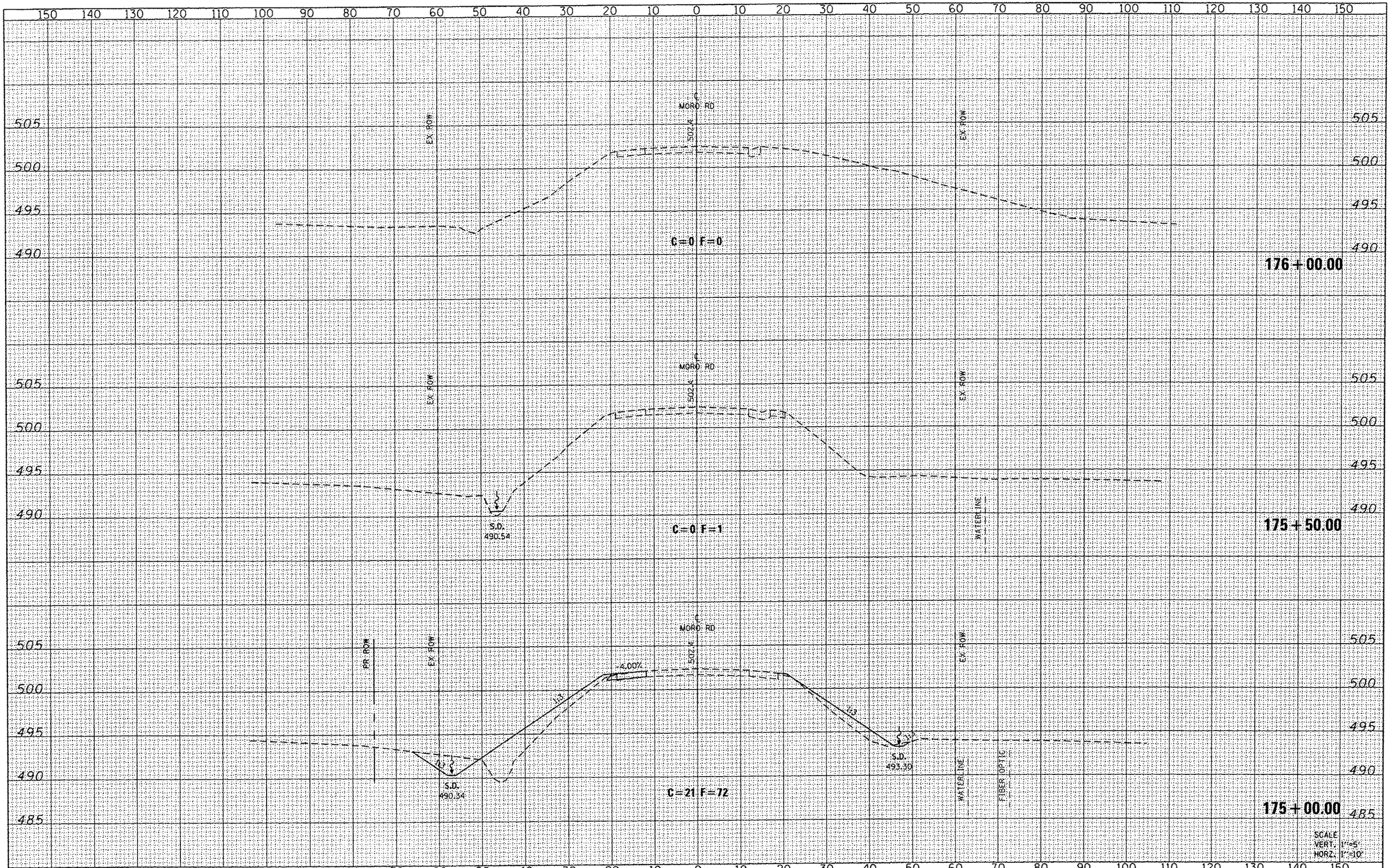
CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	36
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		

FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

FINAL SURVEY	NOTE BOOK	NO.	SURVEYED	PLOTTED	TEMPLATE	AREAS	AREAS CHECKED	BY	DATE

ORIGINAL SURVEY	NOTE BOOK	NO.	SURVEYED	PLOTTED	TEMPLATE	AREAS	AREAS CHECKED	BY	DATE



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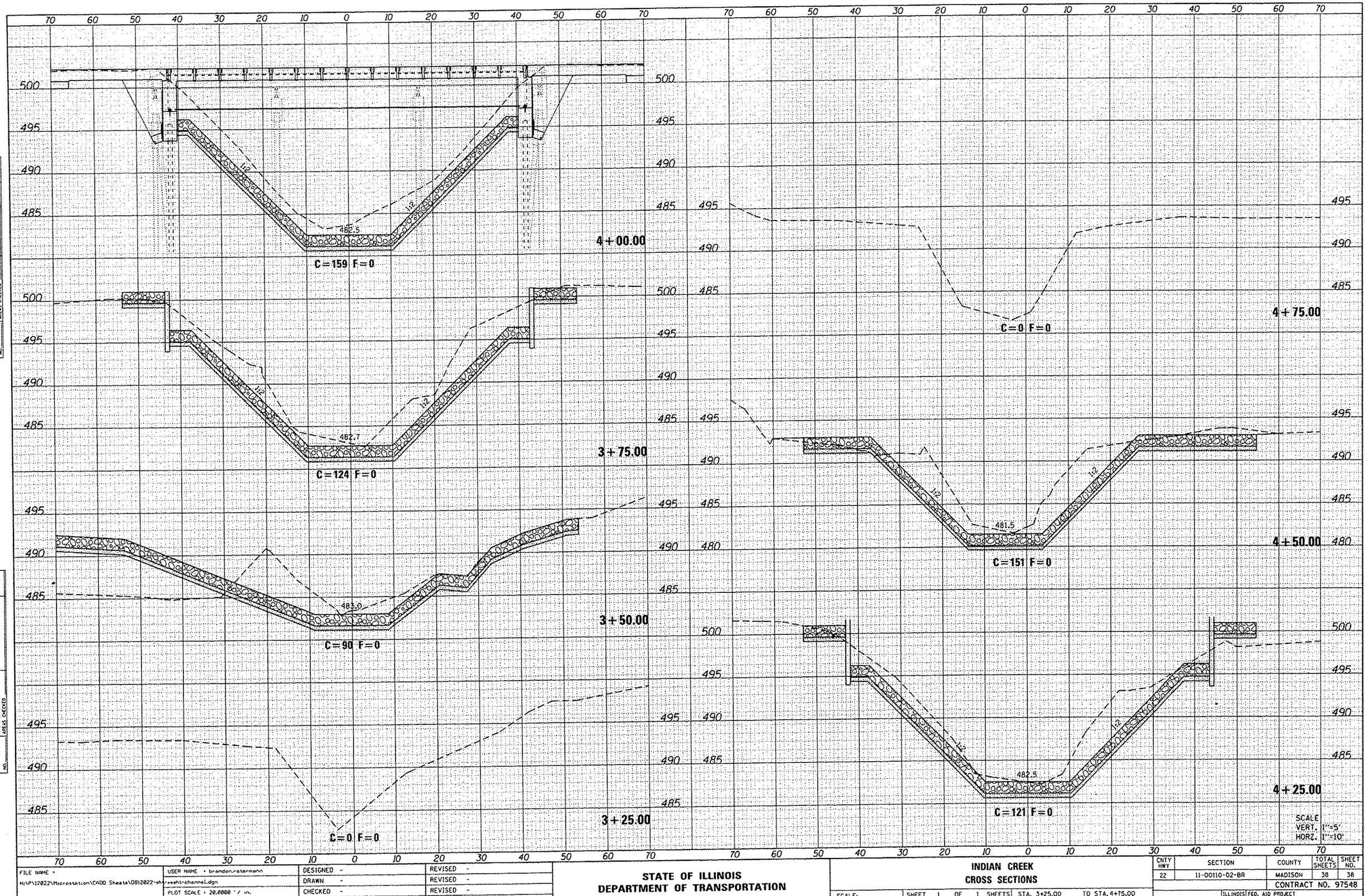
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

MORO ROAD CROSS SECTIONS

SCALE: 1" = 10' | SHEET NO. 5 OF 5 SHEETS | STA. 175+00.00 TO STA. 176+00.00

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	37
		CONTRACT NO. 97548		
	ILLINOIS FED. AID PROJECT			



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Default	PLOT DATE = 12/11/2013	DATE -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

INDIAN CREEK
CROSS SECTIONS

SCALE: | SHEET 1 OF 1 SHEETS | STA. 3+25.00 TO STA. 4+75.00

CNTY HWY	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
22	11-00110-02-BR	MADISON	38	38
		CONTRACT NO. 97548		
		ILLINOIS FED. AID PROJECT		

DATE / BY / FINAL SURVEY / NOTE BOOK / NO. / SURVEYED / PLOTTED / TEMPLATE / AREAS / AREAS CHECKED

ORIGINAL SURVEY / NOTE BOOK / NO. / SURVEYED / PLOTTED / TEMPLATE / AREAS / AREAS CHECKED / BY / DATE