11-16-07 Letting, Item 050

CONTRACT NO. 62618

F.A.P.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	COOK	22	1

**(7-YV-1&8R-1) WRS&7-YV-1-BR

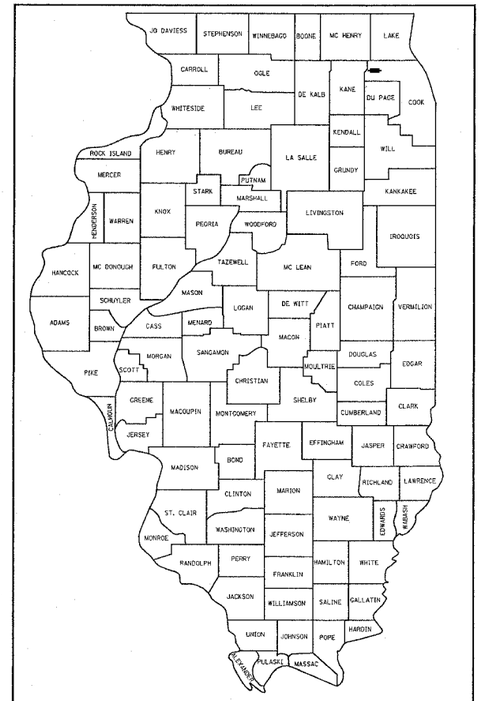
FOR INDEX OF SHEETS, SEE SHEET NO. 2

THE IMPROVEMENT IS LOCATED IN THE CITY OF ELGIN

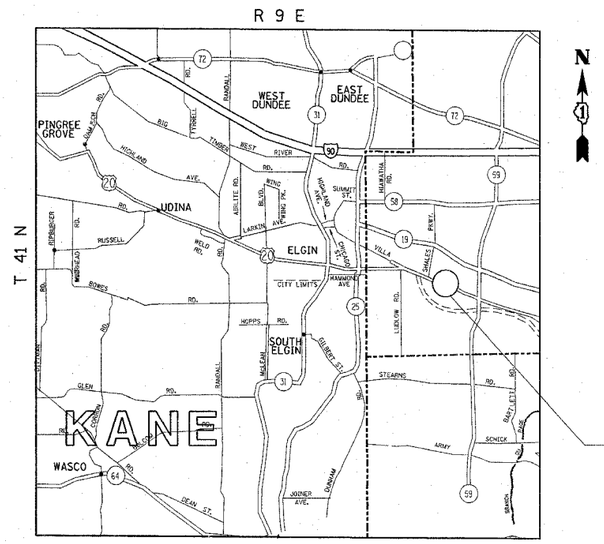
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
PLANS FOR PROPOSED HIGHWAY

F.A.P. 345: US 20 (LAKE STREET)
OVER EJ&E RR
SECTION: (7–YV–1&8R–1) WRS&7–YV–1–BR
BRIDGE BEAM REPLACEMENT
COOK COUNTY
C–91–138–03

D–91–138–03



LOCATION OF SECTION INDICATED THUS:– ■



U.S. ROUTE 20
IMPROVEMENT LOCATION
SN: 016-0219

TRAFFIC DATA

US 20: 2005 ADT = 37700

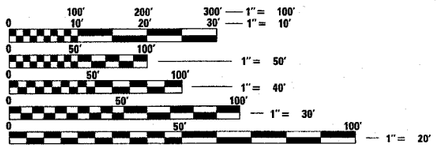
POSTED SPEED LIMIT= 50 MPH

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED Aug. 16 20 07
Diane O'Keefe/CA
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER
October 12, 20 07
Eric E. Harm PE RD
Interim ENGINEER OF DESIGN AND ENVIRONMENT
October 12, 20 07
Milton L Sees PE RD
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY OF THE STATE OF ILLINOIS

DISTRICT ONE DESIGN PLAN PREPARATION ENGINEER:
KEN ENG/BOB BORO (847)705-4178



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

CONTRACT NO. 62618

CONTRACT NO. 62618

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	COOK	22	2
STA.	TO STA.			
FED. ROAD DIST. NO. 1	ILLINOIS	FED. AID PROJECT		

** (7-YV-1&8R-1) WRS&7-YV-1-BR

INDEX OF SHEETS

LIST OF STATE STANDARDS

STANDARD NO.	DESCRIPTION
420401-05	BRIDGE APPROACH PAVEMENT
606001-03	CONCRETE CURB AND COMBINATION CONCRETE CURB AND GUTTER
631026-03	TRAFFIC BARRIER TERMINAL, TYPE 5
701426-02	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS $\geq$ 45 MPH
701601-04	URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN
701606-04	URBAN LANE CLOSURE, MULTILANE, 2W WITH MOUNTABLE MEDIAN
702001-06	TEMPORARY CONTROL DEVICE
704001-03	TEMPORARY CONCRETE BARRIER

GENERAL NOTES

BEFORE STARTING ANY EXCAVATION, THE CONTRACTOR SHALL CALL "JULIE" AT 800-892-0123 FOR FIELD LOCATIONS OF BURIED ELECTRIC, TELEPHONE AND GAS FACILITIES. (48 HOUR NOTIFICATION IS REQUIRED) THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH UTILITY COMPANIES.

THE CONTRACTOR WILL NOT BE ALLOWED TO SET UP A YARD OR FIELD OFFICE ON STATE PROPERTY WITHOUT WRITTEN PERMISSION FROM THE DEPARTMENT.

ALL DAMAGE TO EXISTING PAVEMENT MARKING, RAISED REFLECTIVE PAVEMENT MARKINGS OUTSIDE THE REMOVAL LINE SHOWN ON THE PLANS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

BUTT JOINTS WILL BE INSTALLED AT THE ENDS OF ALL RESURFACING (WHERE RESURFACING MEETS EXISTING PAVEMENT). IN ACCORDANCE WITH "BUTT JOINT AND HOT-MIX ASPHALT TAPER DETAILS" SHEET INCLUDE IN THE PLANS, UNLESS OTHERWISE SPECIFIED.

WHEN ARTIFICIAL LIGHTING IS UTILIZED IN NIGHT OPERATIONS, THE CONTRACTOR SHALL EXERCISE THE UTMOST PRECAUTIONS IN PREVENTING ADVERSE VISIBILITY TO THE MOTORING PUBLIC AND ADJOINING RESIDENTIAL AREA.

BEFORE BEGINNING ANY WORK, THE CONTRACTOR SHALL RETAIN AND RECORD FOR FUTURE REFERENCE, ALL EXISTING PAVEMENT MARKING LINES (AND RAISED REFLECTIVE PAVEMENT MARKERS) IN ORDER THAT THESES LOCATIONS CAN BE RE-ESTABLISHED FOR STRIPING. EXACT LOCATIONS OF ALL PAVEMENT MARKINGS SHALL BE AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL CONTACT THE DISTRICT ONE TRAFFIC CONTROL SUPERVISOR AT (847) 705-4470 A MINIMUM OF 72 HOURS IN ADVANCE OF BEGINNING WORK.

THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ACCESS TO ABUTTING PROPERTY AT ALL TIMES DURRING THE CONSTRUCTION OF THIS PROJECT.

DOUBLE LANE MARKERS ARE TO BE USED AS SHOWN ON THE DISTRICT ONE DETAIL "TYPICAL APPLICATIONS - RAISED REFLECTIVE PAVEMENT MARKERS (SNOW-PLOW RESISTANT)" SHOWN IN THE PLANS.

THE ENGINEER SHALL CONTACT DON CHIARUGI TRAFFIC FIELD ENGINEER AT (847) 741-5302. A MINIMUM OF (2) WEEKS PRIOR TO PLACEMENT OF PERMANENT PAVEMENT MARKINGS.

CONCRETE WEARING SURFACE SHALL HAVE A SEVEN DAY MINIMUM CURE.

DO NOT SCALE PLANS FOR CONSTRUCTION DIMENSIONS

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

INDEX OF SHEETS
LIST OF STATE STANDARDS
GENERAL NOTES

SCALE: VERT. : NONE HORIZ.
DATE

DRAWN BY:
CHECKED BY:

8/30/2007
c:\projects\d113703\design_stage.dgn
VI=BD7

CONTRACT NO. 62618

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	COOK	22	3
FED. ROAD DIST. NO. 1	ILLINOIS	HIGHWAY PROJECT		

**(7-YV-1&8R-1) WRS&7-YV-1-BR

SUMMARY OF QUANTITIES

CODE NO	ITEM	UNIT	URBAN TOTAL QUANTITIES	CONSTRUCTION TYPE CODE: STATE 100% X180-2A					
X0325840	WET REFLECTIVE TEMPORARY TAPE TYPE III, 12 INCH	FOOT	40	40					
40600200	BITUMINOUS MATERIALS (PRIME COAT)	TON	0.12	0.12					
40600300	AGGREGATE (PRIME COAT)	TON	0.61	0.61					
40600400	MIXTURE FOR CRACKS, JOINTS, AND FLANGEWAYS	TON	0.09	0.09					
40600635	LEVELING BINDER (MACHINE METHOD), N70	TON	21.3	21.3					
40603340	HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N70	TON	25.6	25.6					
42001165	BRIDGE APPROACH PAVEMENT	SQ YD	340	340					
42001300	PROTECTIVE COAT	SQ YD	470	470					
42001420	BRIDGE APPROACH PAVEMENT CONNECTOR (PCC)	SQ YD	68.4	68.4					
44000100	PAVEMENT REMOVAL	SQ YD	202	202					
44000198	HOT-MIX ASPHALT SURFACE REMOVAL, VARIABLE DEPTH	SQ YD	288	288					
44000500	COMBINATION CURB AND GUTTER REMOVAL	FOOT	201	201					
44000700	APPROACH SLAB REMOVAL	SQ YD	181	181					
50101500	REMOVAL OF EXISTING SUPERSTRUCTURES	EACH	1	1					
50300260	BRIDGE DECK GROOVING	SQ YD	559	559					
50300300	PROTECTIVE COAT	SQ YD	593	593					
50400305	PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	5328	5328					
50800205	REINFORCEMENT BARS, EPOXY COATED	POUND	8020	8020					
50800515	BAR SPLICERS	EACH	103	103					
51500100	NAME PLATES	EACH	1	1					
59000200	EPOXY CRACK INJECTION	FOOT	243	243					
60605000	COMBINATION CONCRETE CURB AND GUTTER, TYPE B-6.24	FOOT	165	165					
* 63000000	STEEL PLATE BEAM GUARD RAIL, TYPE A	FOOT	196	196					
* 63100070	TRAFFIC BARRIER TERMINAL, TYPE 5	EACH	4	4					
63200310	GUARDRAIL REMOVAL	FOOT	254	254					
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	5	5					
67100100	MOBILIZATION	L SUM	1	1					

SUMMARY OF QUANTITIES

CODE NO	ITEM	UNIT	URBAN TOTAL QUANTITIES	CONSTRUCTION TYPE CODE: STATE 100% X180-2A					
70101800	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	L SUM	1	1					
70400100	TEMPORARY CONCRETE BARRIER	FOOT	337.5	337.5					
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	337.5	337.5					
* 78008210	POLYUREA PAVEMENT MARKING TYPE I - LINE 4"	FOOT	473	473					
* 78100100	RAISED REFLECTIVE PAVEMENT MARKER	EACH	20	20					
* 78100105	RAISED REFLECTIVE PAVEMENT MARKER (BRIDGE)	EACH	10	10					
78300200	RAISED REFLECTIVE PAVEMENT MARKER REMOVAL	EACH	6	6					
85000200	MAINTENANCE OF EXISTING TRAFFIC SIGNAL INSTALLATION	EACH	2	2					
X0322256	TEMPORARY INFORMATION SIGNING	SQ FT	51.4	51.4					
X0325134	WIRELESS INTERCONNECT, COMPLETE	EACH	1	1					
X0325303	STRUCTURAL REPAIR OF CONCRETE (DEPTH GREATER THAN 5 INCHES)	SQ FT	241	241					
X0325305	STRUCTURAL REPAIR OF CONCRETE (DEPTH EQUAL TO OR LESS THAN 5 INCHES)	SQ FT	44	44					
X0325775	WET REFLECTIVE TEMPORARY TAPE TYPE III, 4 INCH	FOOT	4164	4164					
X5030305	CONCRETE WEARING SURFACE, 5"	SQ YD	593	593					
Z0030250	IMPACT ATTENUATORS, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2	2					
Z0030350	IMPACT ATTENUATORS, RELOCATE (NON-REDIRECTIVE), TEST LEVEL 3	EACH	2	2					
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	L SUM	1	1					
50901050	STEEL RAILING, TYPE SM	FOOT	206	206					
X0325876	WET REFLECTIVE TEMPORARY TAPE TYPE III, 8 INCH	FOOT	60	60					
X0325878	TRAFFIC SIGNAL WOOD POLE, 60 FT., CLASS 4	EACH	2	2					

*SPECIALTY ITEMS

Rev.

REVISIONS	
NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

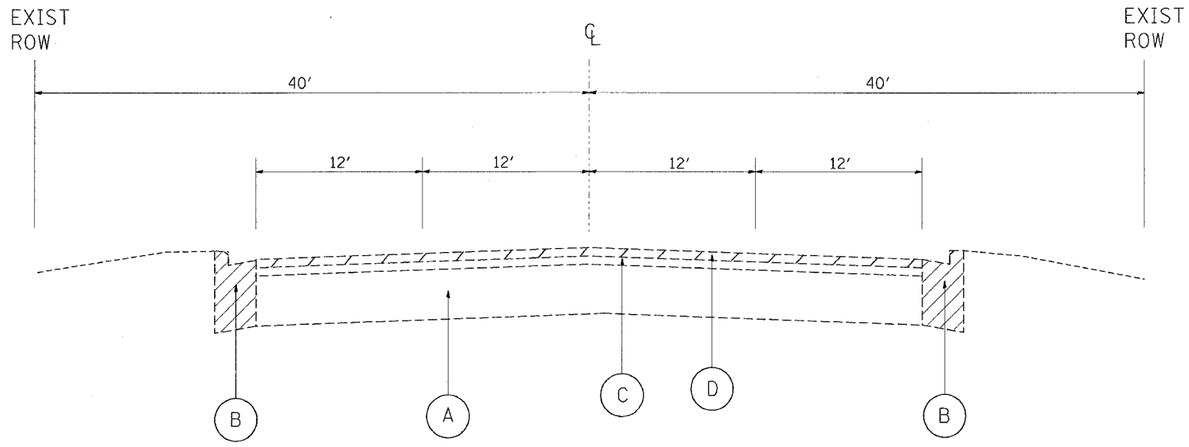
SUMMARY OF QUANTITIES

PLOT DATE: 8/31/2007

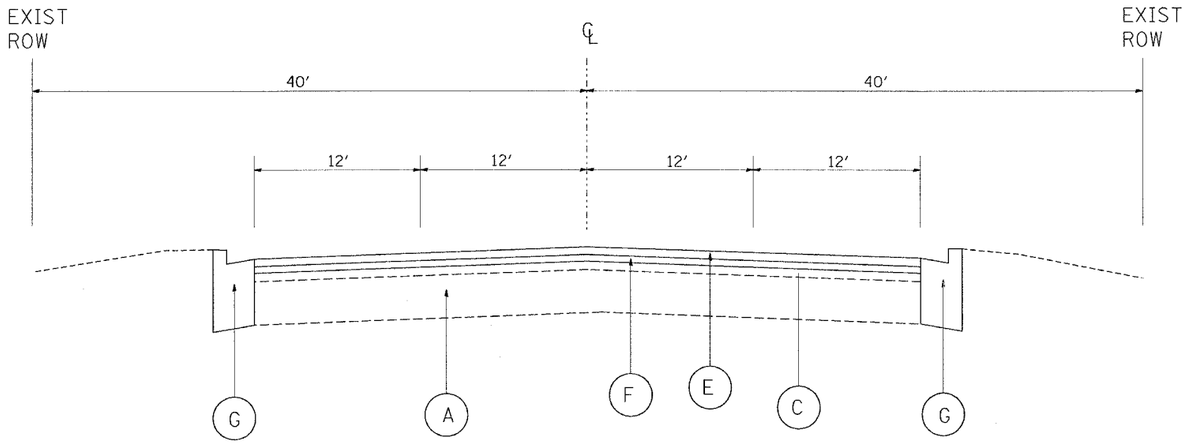
CONTRACT NO. 62618

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	COOK	20	4
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

**(7-YV-1&8R-1) WRS&7-YV-1-BR



EXISTING TYPICAL SECTION
U.S. ROUTE 20
STA. 92+02.9 TO STA. 92+33.8
STA. 94+03.2 TO STA. 94+33.8



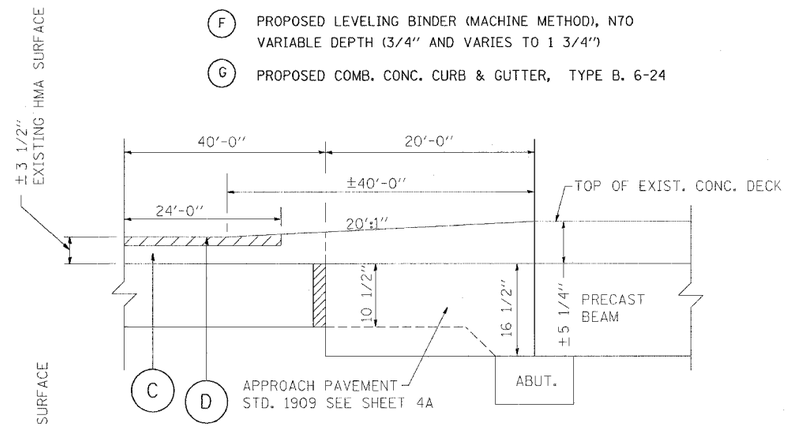
PROPOSED TYPICAL SECTION
U.S. ROUTE 20
STA. 92+02.9 TO STA. 92+31.1
STA. 94+02.2 TO STA. 94+33.6

HMA MIXTURE REQUIREMENTS		
MIX TYPE	AC TYPE	AIR VOIDS
HOT MIX ASPHALT SURFACE COURSE MIX "D", N70 (IL 9.5 mm)	PG 64-22	4% @ 70 GYR
LEVELING BINDER (MACHINE METHOD), N70	PG 64-22 *	4% @ 70 GYR

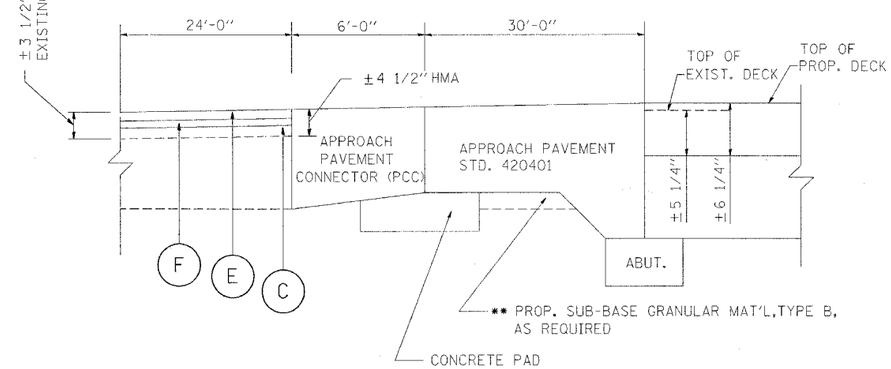
NOTE 1:
THE UNIT WEIGHT USED TO CALCULATE ALL HOT-MIX ASPHALT SURFACE MIXTURE IS 112 LBS/SQYD/IN
* WHEN RAP EXCEEDS 20%, THE NEW ASPHALT BINDER IN THE MIX SHALL BE PG 58-22

LEGEND

- (A) EXISTING PCC PAVEMENT (US 20), ± 9½″
- (B) EXISTING COMB. CONC. CURB & GUTTER REMOVAL
- (C) EXISTING HMA AFTER MILLING (US 20), ± 1 1/4 ″
- (D) PROPOSED HOT-MIX ASPHALT SURFACE REMOVAL (VARIABLE DEPTH)
- (E) PROPOSED HOT-MIX ASPHALT SURFACE COURSE MIX "D", N70, 1 1/2″
- (F) PROPOSED LEVELING BINDER (MACHINE METHOD), N70 VARIABLE DEPTH (3/4″ AND VARIES TO 1 3/4″)
- (G) PROPOSED COMB. CONC. CURB & GUTTER, TYPE B. 6-24



EXIST. LONGITUDINAL SECTION OF BRIDGE APPROACH



PROP. LONGITUDINAL SECTION OF BRIDGE APPROACH

** THE COST OF THE SUB-BASE SHALL BE INCLUDED IN THE COST OF BRIDGE APPROACH PAVEMENT USE TYPE B INSTEAD OF TYPE A ON HIGHWAY STD. 420401

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION
U.S. ROUTE 20
OVER EJ&E RR
EXISTING/ PROPOSED
TYPICAL SECTIONS

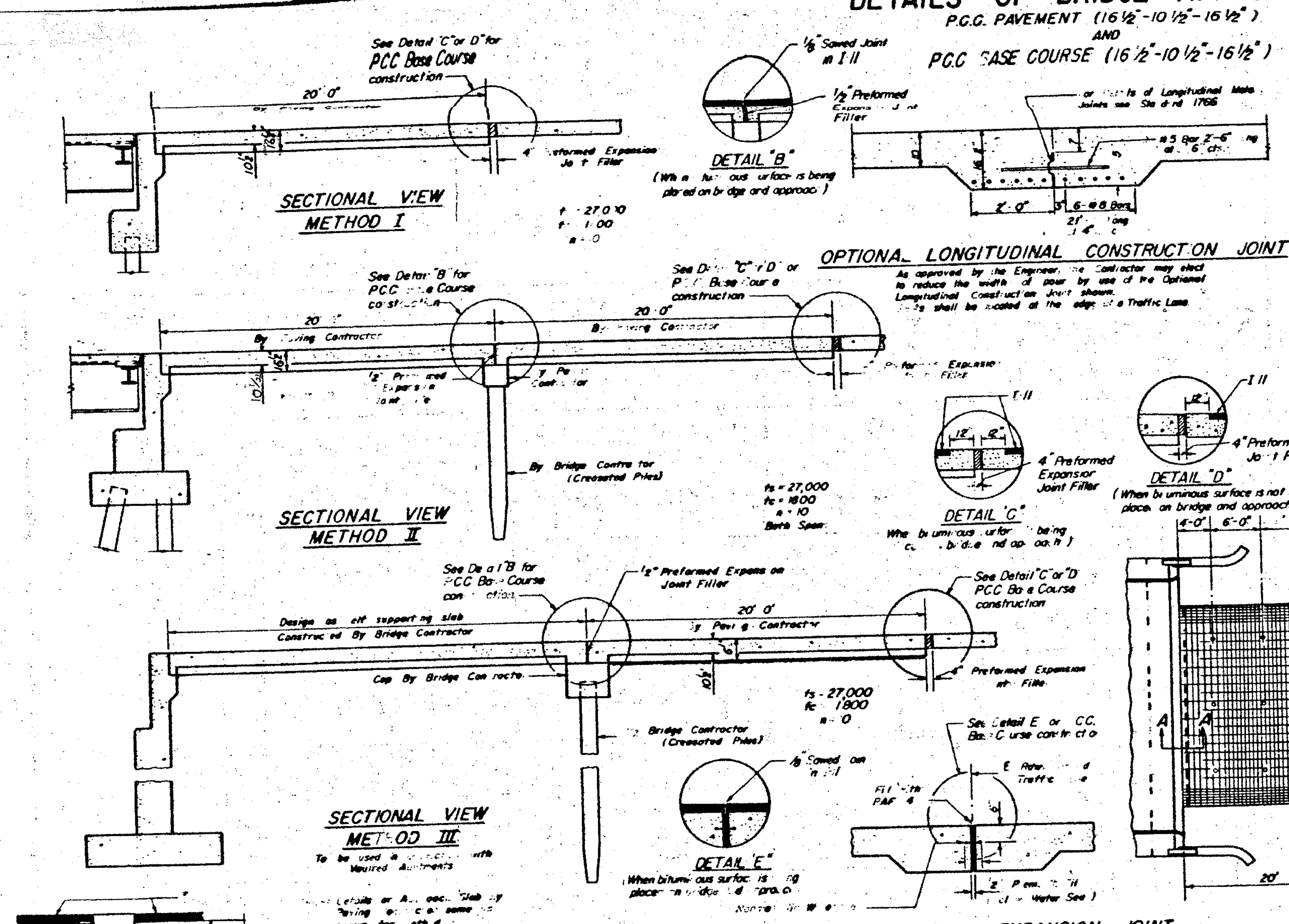
SCALE: VERT. HORIZ.
DATE
DRAWN BY
CHECKED BY

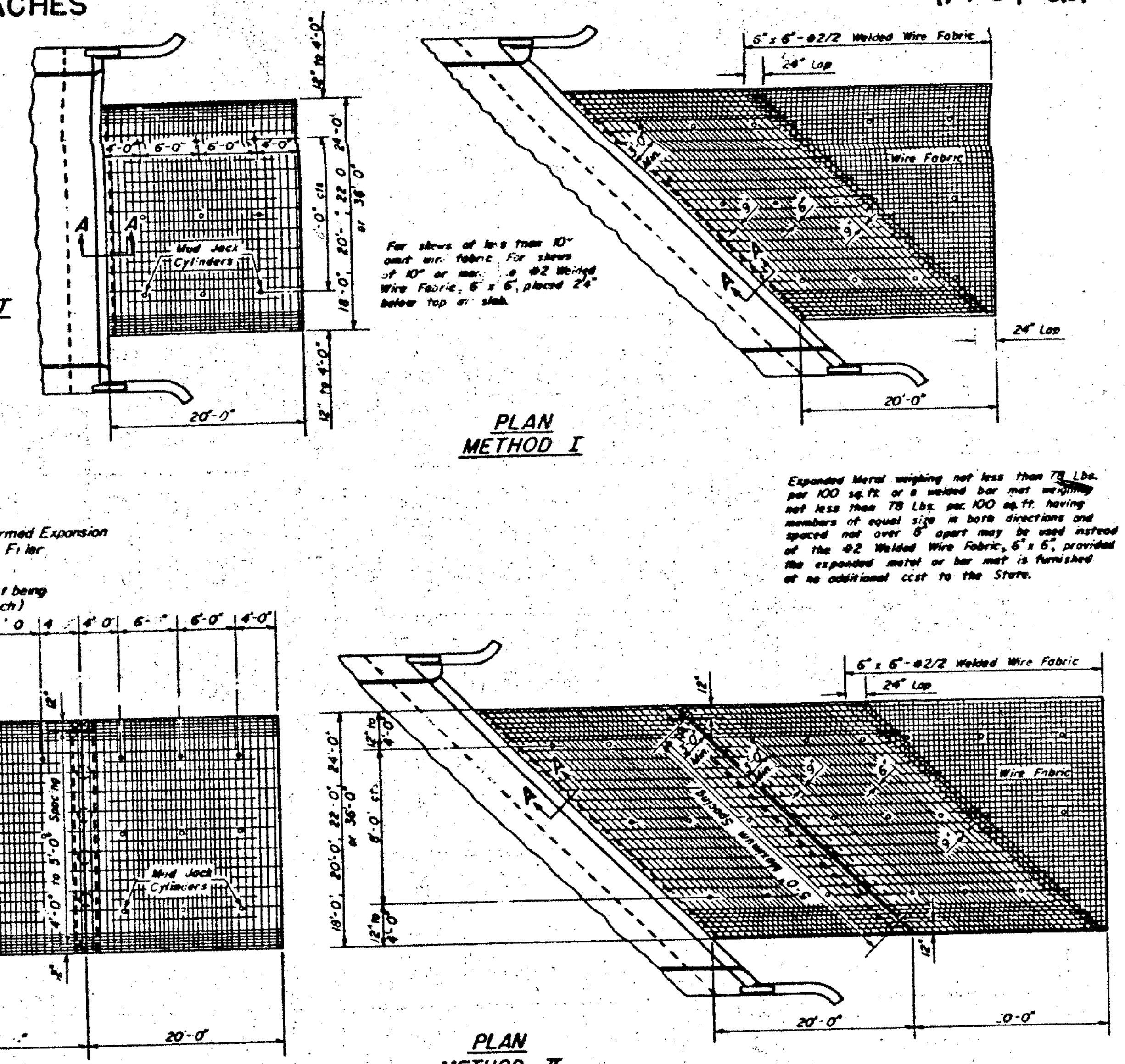
PLOT DATE = 8/31/2007
FILE NAME = c:\projects\d13703\design_stage.dgn
PLOT SCALE = 49.9991 ' / IN.
REFERENCE = REF

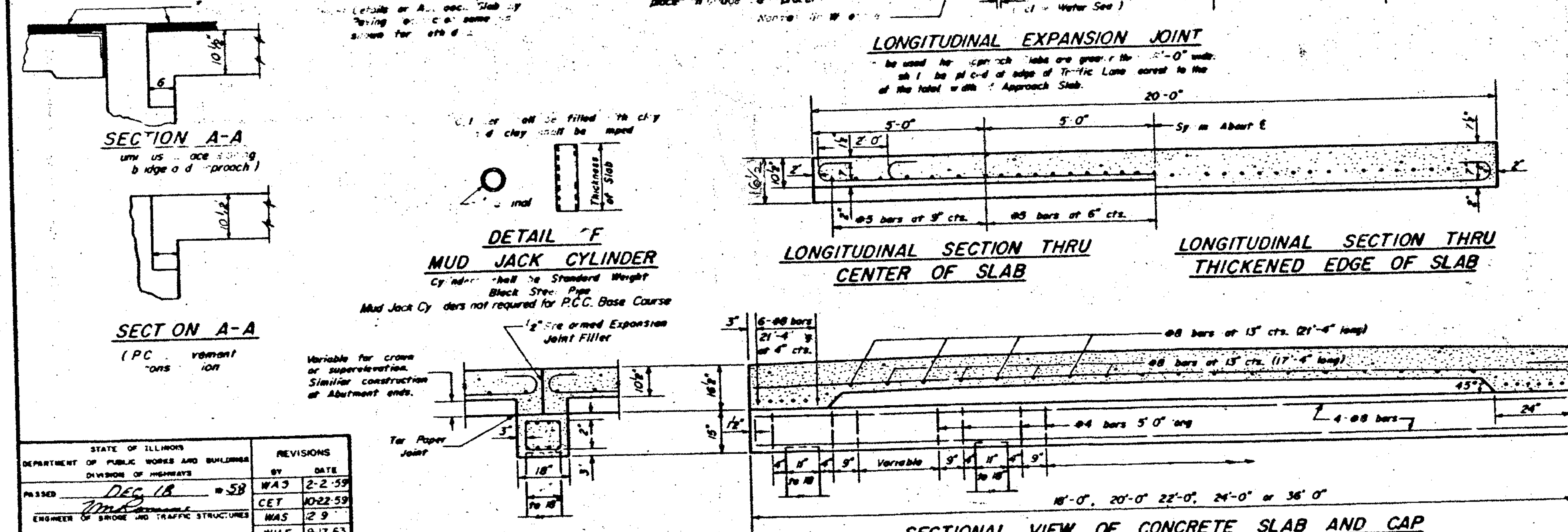
Dec 2 1963

DETAILS OF BRIDGE APPROACHES

P.C.C. PAVEMENT (16½"-10½"-16½")
AND
P.C.C. BASE COURSE (16½"-10½"-16½")


SECTIONAL VIEW
METHOD I
SECTIONAL VIEW
METHOD II
SECTIONAL VIEW
METHOD III
DETAIL "B"
DETAIL "C"
DETAIL "D"
DETAIL "E"
OPTIONAL LONGITUDINAL CONSTRUCTION JOINT
LONGITUDINAL EXPANSION JOINT
By Paving Contractor
By Bridge Contractor (Creosoted Piles)
fs = 27,000
fc = 1800
n = 10
20'-0"


PLAN
METHOD I
PLAN
METHOD II
6" x 6" - #2/2 Welded Wire Fabric
24" Lap
Wire Fabric
Mud Jack Cylinders
20'-0"
For skews of less than 10° omit wire fabric. For skews of 10° or more use #2 Welded Wire Fabric, 6" x 6", placed 2" below top of slab.
Expanded Metal weighing not less than 78 Lbs. per 100 sq. ft. or a welded bar mat weighing not less than 78 Lbs. per 100 sq. ft. having members of equal size in both directions and spaced not over 6" apart may be used instead of the #2 Welded Wire Fabric, 6" x 6", provided the expanded metal or bar mat is furnished at no additional cost to the State.


SECTION A-A
SECTION A-A
(P.C.C. Pavement Construction)
DETAIL "F"
MUD JACK CYLINDER
Mud Jack Cylinders not required for P.C.C. Base Course
LONGITUDINAL SECTION THRU
CENTER OF SLAB
LONGITUDINAL SECTION THRU
THICKENED EDGE OF SLAB
SECTIONAL VIEW OF CONCRETE SLAB AND CAP
#5 bars at 9" cts.
#5 bars at 6" cts.
#8 bars at 15" cts. (21'-4" long)
#8 bars at 15" cts. (17'-4" long)
#4 bars 5'-0" long
Tar Paper Joint
18'-0", 20'-0", 22'-0", 24'-0" or 36'-0"
Variable for crown or superelevation. Similar construction at Abutment ends.

Note: When road plans show curb and gutter or gutter adjacent to approach slabs place #4 Tie bar 2'-6" long at 2'-6" cts. Cost of tie bars included in contract unit price for Curb & Gutter or Gutter.

The transition for gutter shall be made in 100 feet and will be paid for as CONCRETE GUTTER, of the type specified.

The transition for curb and gutter shall be made in 20 feet and will be paid for as COMBINATION CURB and GUTTER, of the type specified.

GENERAL NOTES

FOR P.C.C. PAVEMENT

The slab or slabs will be paid for at the contract unit price for PORTLAND CEMENT CONCRETE PAVEMENT (16½"-10½"-16½").

The concrete cap will be paid for at the contract unit price for CLASS X CONCRETE.

All Reinforcement Bars will be paid for at the contract unit price for REINFORCEMENT BARS, except as noted.

The Welded Wire Fabric, Mud Jack Cylinders, and Preformed Expansion Joint Filler shall be included in the unit price bid for PORTLAND CEMENT CONCRETE PAVEMENT (16½"-10½"-16½").

Preformed Expansion Joint Filler shall conform to Section 129 of the Standard Specification.

Width of Bridge Approach Slab pours shall be determined before the reinforcement bars are fabricated.

FOR P.C.C. BASE COURSE

The slab or slabs will be paid for at the contract unit price for PORTLAND CEMENT CONCRETE BASE COURSE (16½"-10½"-16½").

The concrete cap will be paid for at the contract unit price for CLASS X CONCRETE.

All Reinforcement Bars will be paid for at the contract unit price for REINFORCEMENT BARS, except as noted.

The Welded Wire Fabric, Concrete Headers and Preformed Expansion Joint Filler shall be included in the unit price bid for PORTLAND CEMENT CONCRETE BASE COURSE (16½"-10½"-16½").

Preformed Expansion Joint Filler shall conform to Section 129 of the Standard Specification.

Width of Bridge Approach Slab pours shall be determined before the reinforcement bars are fabricated.

FOR INFORMATION ONLY

STANDARD 1909 – 4

C-6.1 f

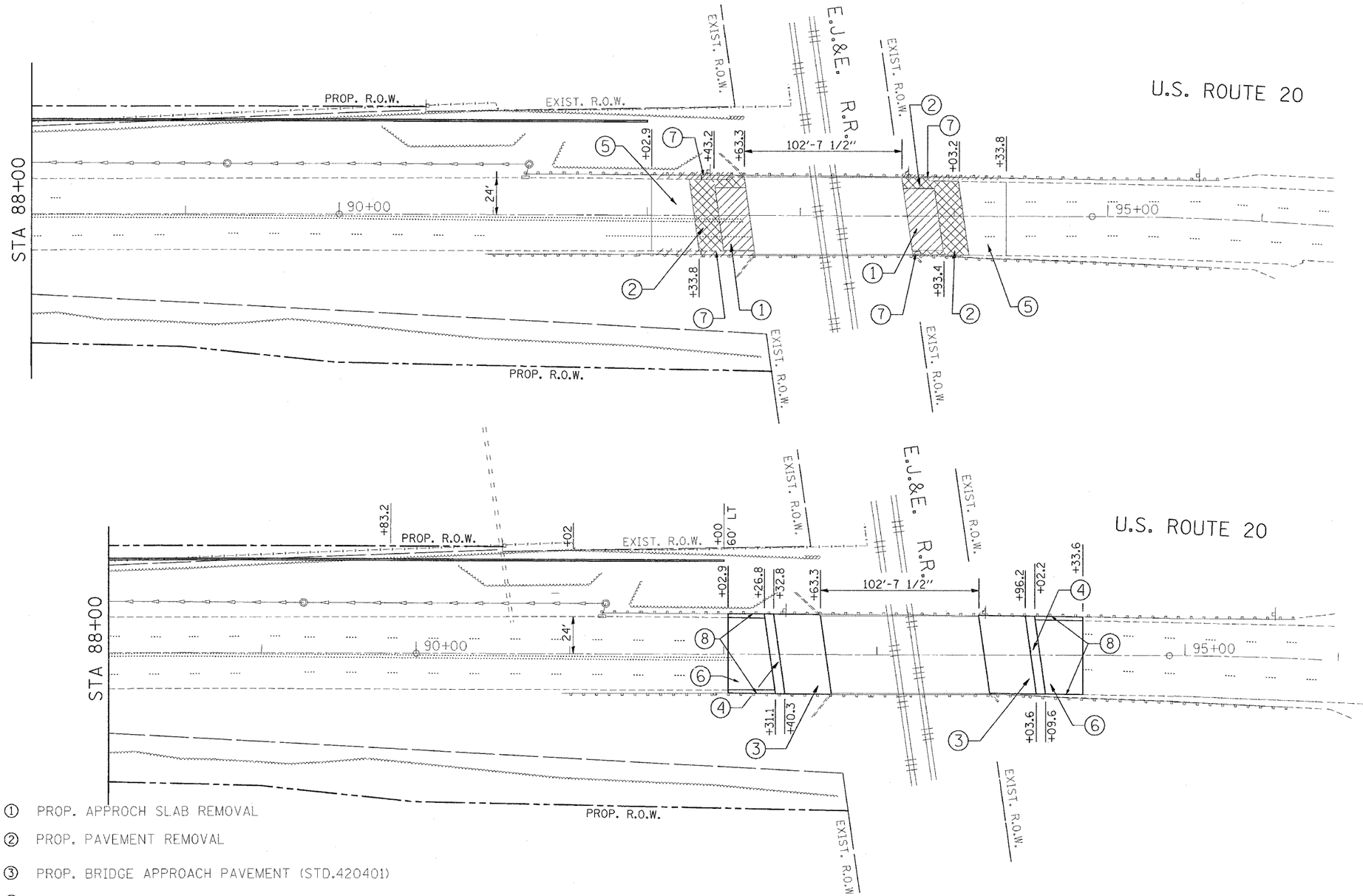
STATE OF ILLINOIS	REVISIONS	
DEPARTMENT OF PUBLIC WORKS AND BUILDINGS, DIVISION OF HIGHWAYS	BY	DATE
PASSED Dec. 18 1958	WAS	2-2-59
ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES	CET	10-22-59
APPROVED Dec. 18 1958	WAS	2-9
ENGINEER OF DESIGN	WHF	9-17-63

DESIGNED CET JR. CHECKED WAS JR. DRAWN WAS JR. 26 NOV. 1958

CONTRACT NO. 62618

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	COOK	22	5
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

**(7-YV-1&8R-1) WRS&7-YV-1-BR



① PROP. APPROCH SLAB REMOVAL

② PROP. PAVEMENT REMOVAL

③ PROP. BRIDGE APPROACH PAVEMENT (STD.420401)

④ PROP. BRIDGE APPROACH PAVEMENT CONNECTOR (PCC) (STD. 420401)

⑤ PROP. HMA SURFACE REMOVAL (VARIABLE DEPTH)

⑥ PROP. HOT-MIX ASPHALT SURFACE COURSE MIX"D", N70, 2"
PROP. LEVELING BINDER (MACHINE METHOD), N70
VARIABLE DEPTH (2" AND VARIES TO 3")

⑦ PROP. COMB. CURB AND GUTTER REMOVAL

⑧ PROP. COMB. CONC. CURB AND GUTTER, TYPE B-6.24

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

EXIST. & PROP. APPROCH PAVEMENT PLAN
U.S. RTE. 20 @
OVER EJ&E RR

SCALE: VERT.
HORIZ.
DATE

DRAWN BY
CHECKED BY

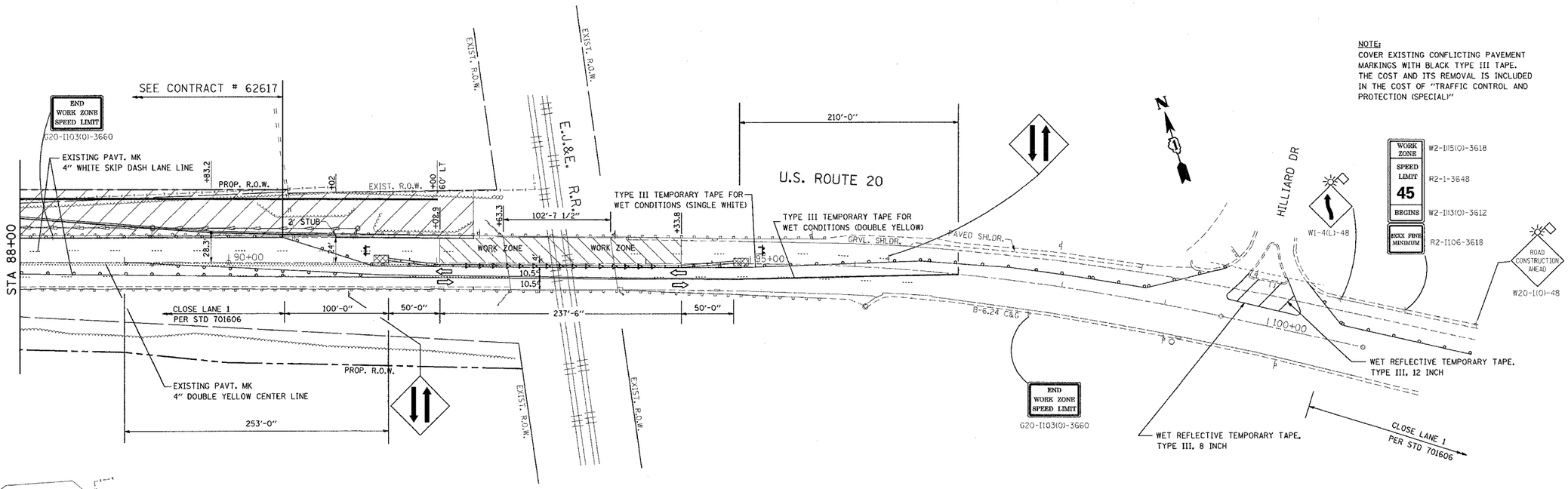
PLOT DATE = 8/31/2007
FILE NAME = c:\projects\vdl13782\design.stage1.dgn
PLOT SCALE = 50.0000 '/ IN.
USER NAME = abehrens

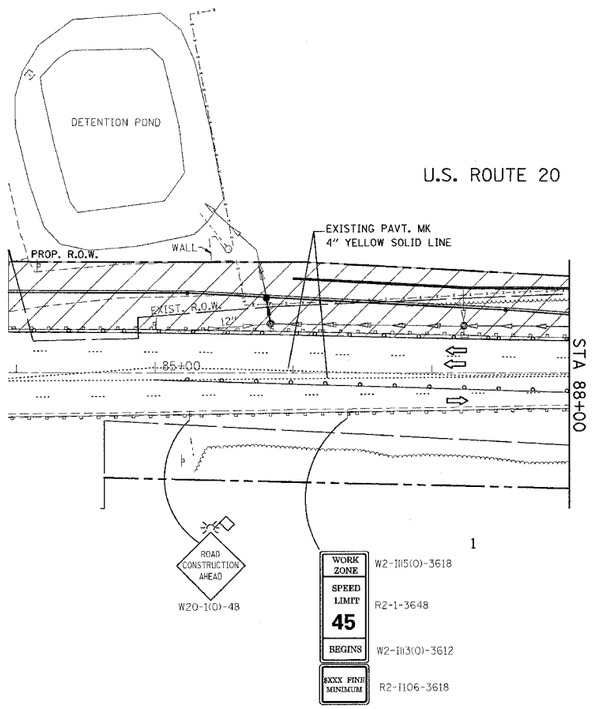
CONTRACT NO. 62618

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	COOK	22	6
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

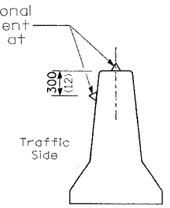
**(7-YV-1&8R-1) WRS&7-YV-1-BR

NOTE:
COVER EXISTING CONFLICTING PAVEMENT MARKINGS WITH BLACK TYPE III TAPE. THE COST AND ITS REMOVAL IS INCLUDED IN THE COST OF "TRAFFIC CONTROL AND PROTECTION (SPECIAL)"





Type C monodirectional reflectors on tangent portion of barrier at 15 m (50') cts.



DETAIL A
(BARRIER WALL REFLECTORS)

LEGEND

- Sign
- Type C Monodirectional reflector
- Impact attenuators
- Type III Barricade w/steady burn lights
- Drums with steady burn monodirectional light
  50' C-C TANGENTS
  25' C-C LANE SHIFTS & TAPERS
  10' C-C RADII
  (TYP)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STAGE I CONSTRUCTION
U.S. RTE. 20 @
OVER EJ&E RR

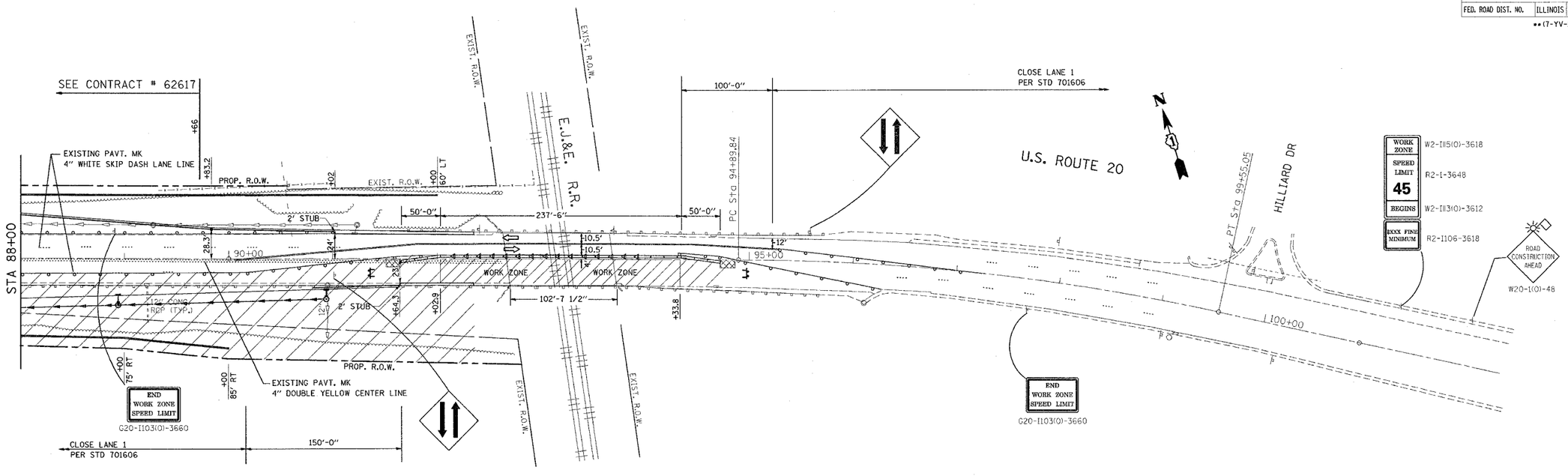
SCALE: VERT.
HORIZ.
DATE
DRAWN BY
CHECKED BY

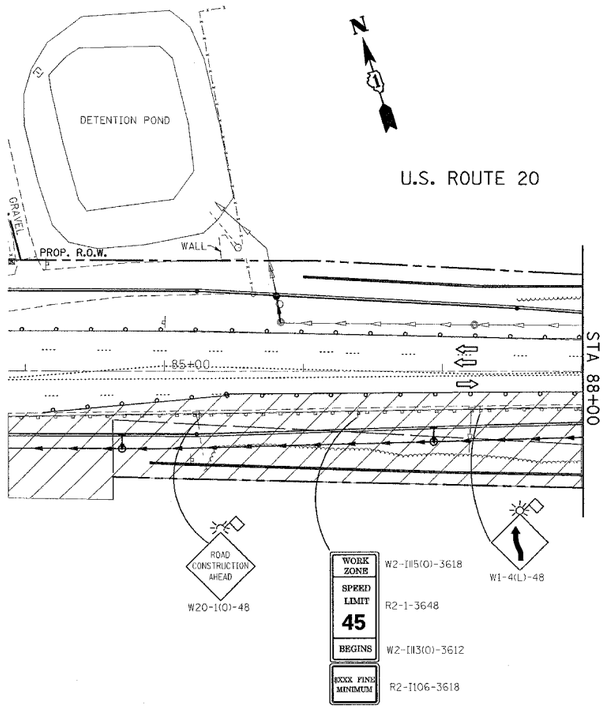
PLOT DATE = 6/31/2007
FILE NAME = e:\projects\d0137@3\design_stage1.dgn
PLOT SCALE = 50.0000 ' / IN.
USER NAME = dbaldwin

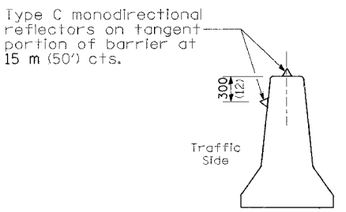
CONTRACT NO. 62618

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	COOK	22	7
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

**(7-YV-1&BR-1) WRS&7-YV-1-BR







DETAIL A
(BARRIER WALL REFLECTORS)

LEGEND

- Sign
- Type C Monodirectional reflector
- Impact attenuators
- Type III Barricade w/steady burn lights
- Drums with steady burn monodirectional light
  50' C-C TANGENTS
  25' C-C LANE SHIFTS & TAPERS
  10' C-C RADII
  (TYP)

REVISIONS NAME	DATE

ILLINOIS DEPARTMENT OF TRANSPORTATION

STAGE II CONSTRUCTION
U.S. RTE. 20 @
OVER EJ&E RR

SCALE: VERT.
HORIZ.
DATE

DRAWN BY
CHECKED BY

PLOT DATE = 8/31/2007
FILE NAME = c:\projects\d13783\design_stage.dgn
PLOT SCALE = 50.0000 ' / IN.
USER NAME = asebaoe

Benchmark: Brass Disc at S.W. Corner of Existing Bridge. El. 812.05 (current USGS elev. is different from elev. listed on 1986 plans)
Existing Structure: No. 016-0219 was built in 1929 with a R.C.D.G. superstructure on R.C. closed abutments and solid piers. The bridge was widened in kind in 1931.
The superstructure was reconstructed with P.P.C. deck beams in 1969, with length of 102'-7½" back to back of abutments and total width of 52'-6" out to out of superstructure.
Substructure was modified accordingly. Superstructure was resurfaced and railing replaced in 1986. Minor repairs were made to substructure.
Salvage: None for removal components except existing name plates.

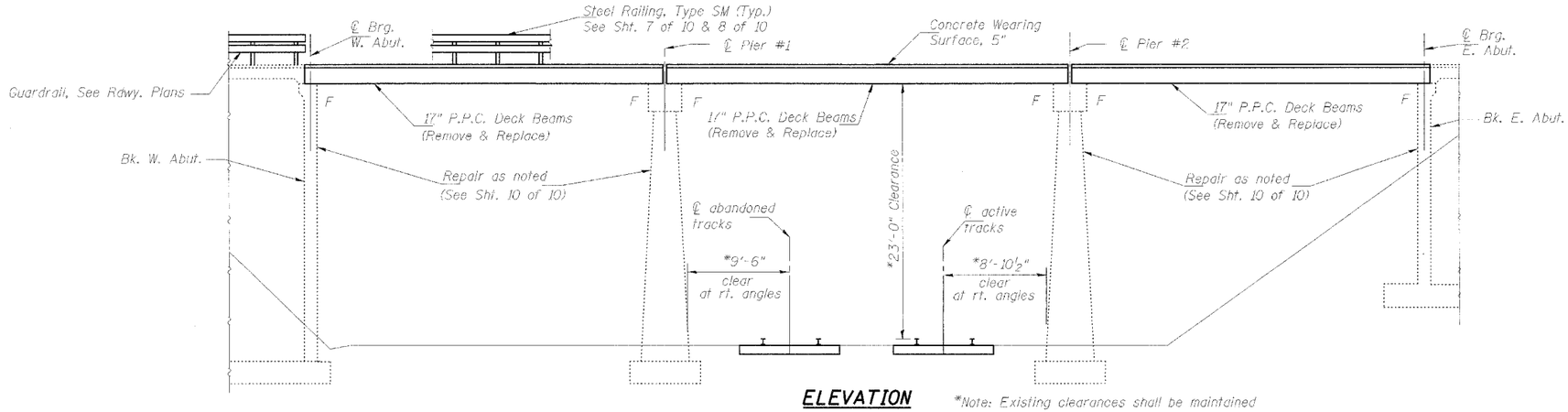
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Rte 20	-	Cook	22	8
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 1
10 SHEETS

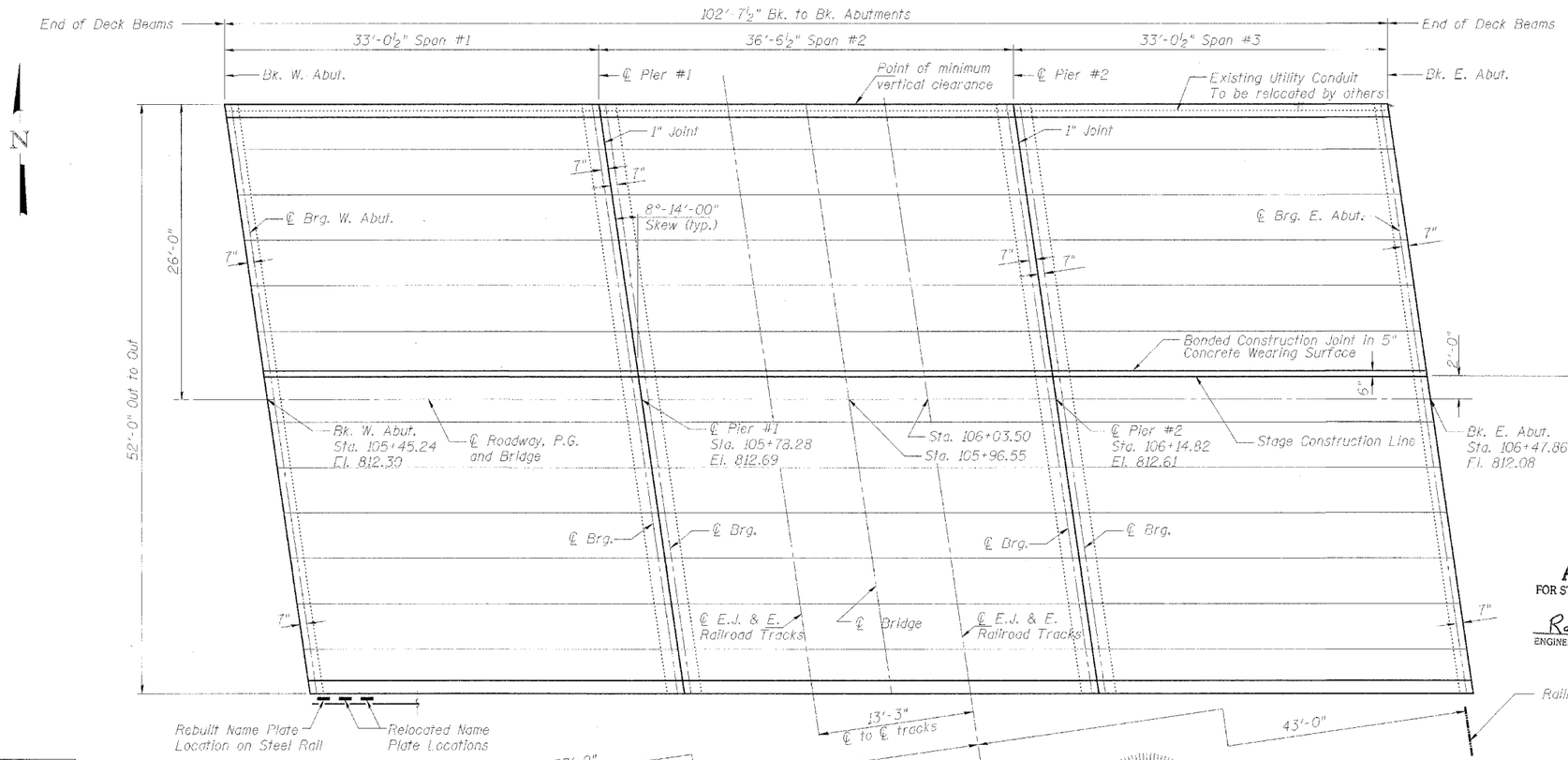
Contract # 62618

INDEX OF SHEETS



ELEVATION

*Note: Existing clearances shall be maintained



PLAN

Note:
See Sht. 6 of 10 for Sections through Abutments and Piers. See Sht. 6 of 10 for Cross Section through Bridge Deck.

LOADING HS20-44

No Allowance for future wearing surface

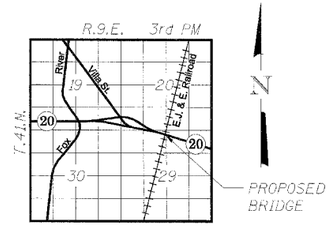
DESIGN SPECIFICATIONS

2002 AASHTO Standard Specifications

DESIGN STRESSES

FIELD UNITS
f'_c = 3,500 psi
f_y = 60,000 psi (reinforcement)

PRECAST PRESTRESSED UNITS
f'_c = 5,000 psi
f'_{ci} = 4,000 psi
f'_s = 270,000 psi (1/2" ϕ low lax strands)
f'_{si} = 201,960 psi (1/2" ϕ low lax strands)



LOCATION SKETCH

RAILROAD DATA

Crossing: DOT/AAR No. 260 529L
Mile Post: 38.57

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Ralph E. Anderson (TJD)
ENGINEER OF BRIDGES AND STRUCTURES

GENERAL PLAN & ELEVATION
U.S. RTE. 20 (F.A.P. 426)
OVER E.J. & E. RAILROAD
COOK COUNTY, STA. 106+03.50
STRUCTURE NO. 016-0219

DESIGNED	DDB
CHECKED	LLV
DRAWN	MGM
CHECKED	LLV

200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

STATE OF ILLINOIS — DONALD D. BELL — 4544 — LICENSED STRUCTURAL ENGINEER — PEORIA, IL

Donald D. Bell
Donald D. Bell
Illinois Licensed Structural Engineer No. 4544
Lic. Expires: 11/30/08
Date 8-22-07

STS CONSULTANTS
111 NE Jefferson Ave.
Peoria, Illinois 61602
Ph(309)676-8464
FAX(309)676-5445
IL Design Firm Reg. No. 184-001518

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Rte. 20	-	Cook	22	9
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 2
10 SHEETS

Contract # 62618

GENERAL NOTES

1. Reinforcement bars shall conform to the requirements of ASTM A706 Gr. 60 (IL Modified). See special provisions.

2. Plan dimensions and details relative to existing plans are subject to routine variations. The contractor shall field verify existing dimension and details affecting new construction and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.

3. All Construction joints shall be bonded.

4. The minimum thickness of the Concrete Wearing Surface shall be 5" and varies as required to adjust for the profile grade and beam camber. See Sht. 7 of 10.

5. The cut strands at each beam end shall be given two coats of zinc dust spray or paint meeting the requirement of ASTM A780. The zinc dust spray or paint shall be applied before corrosion appears and allowed to dry according to the manufacturer's specifications prior to another coat of zinc. A concrete sealer meeting the requirements of Section 587 of the Standard Specifications shall be applied to the exterior face and 9" in on the underside of the fascia beams. The sealer shall be applied after visible crack growth has subsided. The work shall be performed by the producer and included with the cost of the beam.

6. The contractor shall coordinate all construction work with railroad prior to commencing work.

7. Repair of the pier caps and abutment shall be completed prior to placement of the new deck beams.

8. The contractor is advised that the existing PPC Deck Beams are in a deteriorated condition with reduced load carrying capacity. It is the contractor's responsibility to account for the condition of the beams when developing construction procedures for removal and replacement of the superstructure.

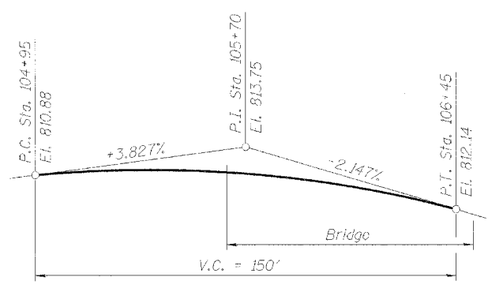
9. If the contractor's procedure for existing beam removal or placement of new beams involves placement of cranes or other heavy equipment on new beams a detailed procedure shall be submitted to the Engineer for approval. The procedure shall include calculations, prepared and sealed by an Illinois Licensed Structural Engineer, verifying that the equipment and procedure used will not overstress the new beams. To distribute load to multiple beams and protect the concrete, in all cases a double layer mat of heavy timbers shall be used at all times under crane tracks or wheels and any outriggers in the down position. If necessary, shims shall be used under the crane mat to ensure uniform contact with the underlying beams. Prior to placement of the timber mats, the following shall be done: placement and tightening of transverse tie assemblies, grouting and curing the dowel rods 24 hours minimum, and after grouting and curing the shear keys. A temporary means of lateral restraint will be required for facia beams at expansion ends of beams to prevent movement of the beams.

STATION 106+03.50
REBUILT 200_ BY
STATE OF ILLINOIS
U.S RTE. 20
LOADING HS20
STR. NO. 016-0219

NAME PLATE

See Std. 515001

Relocate existing name plate(s) next to rebuilt name plate, cost included in Name Plates.



PROFILE GRADE

U.S. Rte. 20
(Use for Bridge CWS only)

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Protective Coat	Sq. Yd.	593.0	-	593.0
Removal of Existing Superstructures	Each	1	-	1
Bridge Deck Grooving	Sq. Yd.	559.0	-	559.0
Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	5,328	-	5,328
Reinforcement Bars, Epoxy Coated	Pound	8,020	-	8,020
Steel Railing, Type SM	Foot	206	-	206
Name Plates	Each	1	-	1
Concrete Wearing Surface, 5"	Sq. Yd.	593	-	593
Bar Splicers	Each	103	-	103
Structural Repair of Concrete (Depth Greater Than 5")	Sq. Ft.	-	241	241
Structural Repair of Concrete (Depth Equal to or Less Than 5")	Sq. Ft.	-	44	44
Epoxy Crack Injection	Foot	-	243	243

DESIGNED	DDB
CHECKED	LLV
DRAWN	MGM
CHECKED	LLV

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

GENERAL NOTES AND TOTAL BILL OF MATERIAL U.S. RTE. 20 (F.A.P. 426) OVER E.J. & E. RAILROAD COOK COUNTY, STA. 106+03.50 STRUCTURE NO. 016-0219

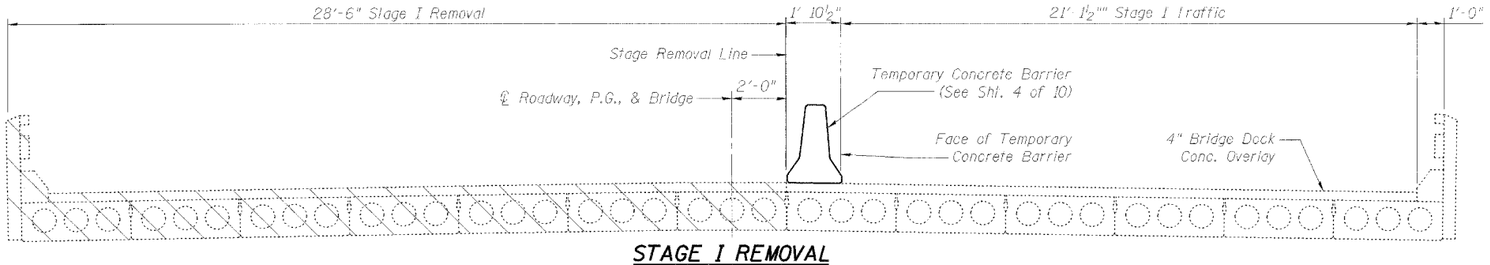
STS CONSULTANTS
111 NE Jefferson Ave.
Peoria, Illinois 61602
Ph(309)676-8464
FAX(309)676-5445
IL Design Firm Reg. No. 184-001518

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

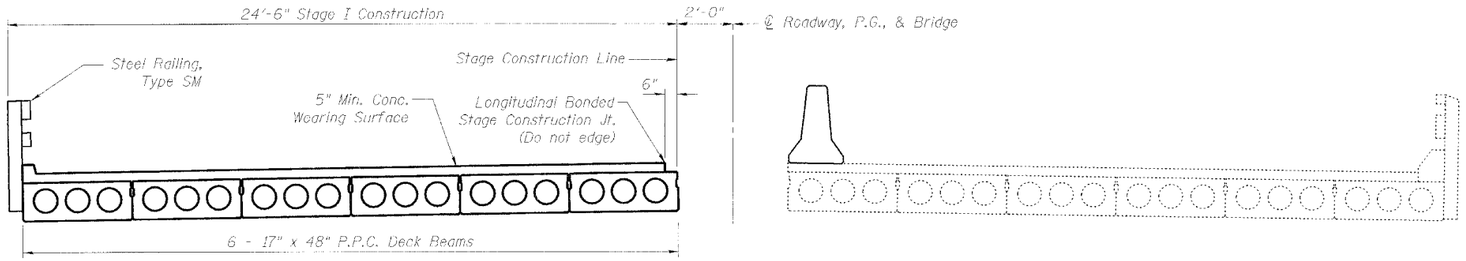
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Rte. 20	-	Cook	22	10
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 3
10 SHEETS

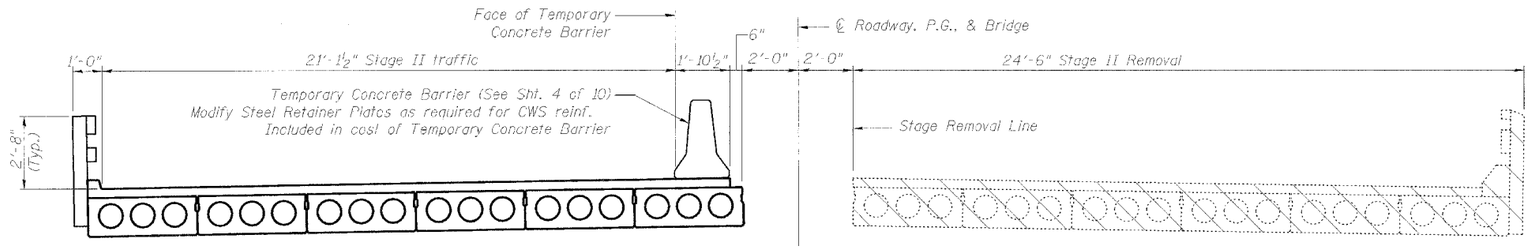
Contract # 62618



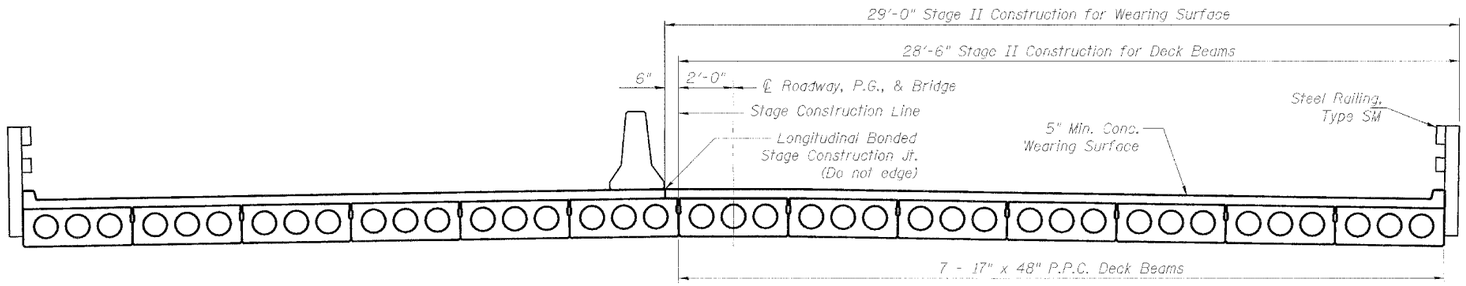
STAGE I REMOVAL
(Looking East)



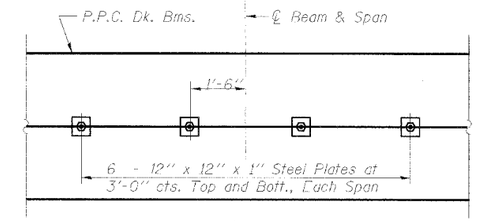
STAGE I CONSTRUCTION
(Looking East)



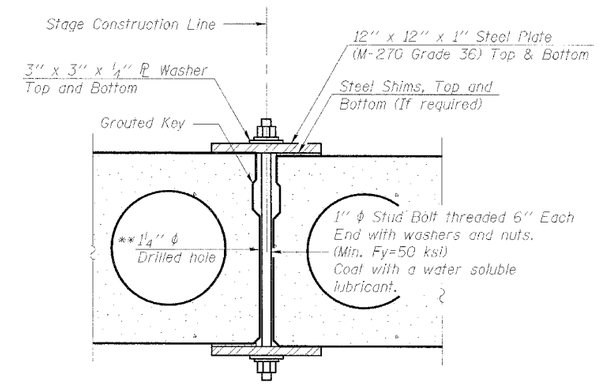
STAGE II REMOVAL
(Looking East)



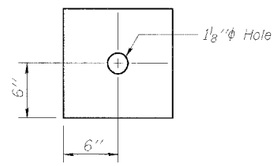
STAGE II CONSTRUCTION
(Looking East)



PLAN



SECTION



CLAMPING PLATE

SHEAR KEY CLAMPING DETAILS AT STAGE CONST. JT.

Cost included with Precast Prestressed Concrete Deck Beams.
See Stage Construction Details for traffic lanes.

** As an alternate to the drilled holes, the Contractor may request the Fabricator to cast 2" diameter semi-circular recesses in the sides of each beam adjacent to the stage construction line. These recesses should align to form a hole at the appropriate locations for the clamping device bolts. If the Contractor elects to use this alternate, the details shall be identified on the shop drawings.

STAGE CONSTRUCTION
U.S. RTE. 20 (F.A.P. 426)
OVER E.J. & E. RAILROAD
COOK COUNTY, STA. 106+03.50
STRUCTURE NO. 016-0219

DESIGNED	DDB
CHECKED	LLV
DRAWN	MGM
CHECKED	LLV

- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

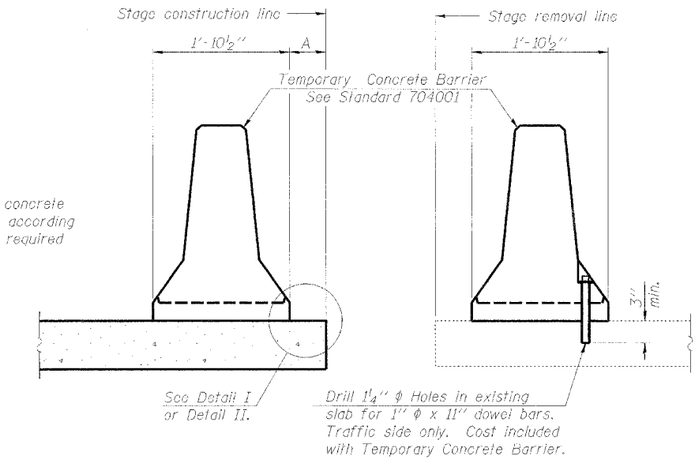
STS CONSULTANTS
111 NE Jefferson Ave.
Peoria, Illinois 61602
Ph:(309)676-8464
FAX:(309)676-5445
IL Design Firm Reg. No. 184-001518

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Rte. 20	-	Cook	22	11
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 4
10 SHEETS

Contract # 62618



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

SECTIONS THRU SLAB

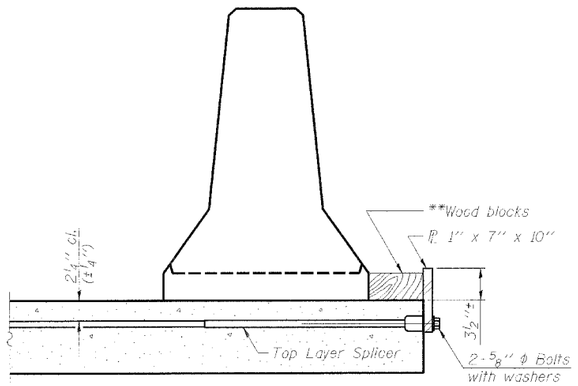
NOTES

Detail I - With Bar Splicer or Couplers:
Connect one (1) 1"x1"x10" steel ℄ to the top layer of couplers with 2-⅝" ϕ bolts screwed to coupler at approximate ℄ of each barrier panel.

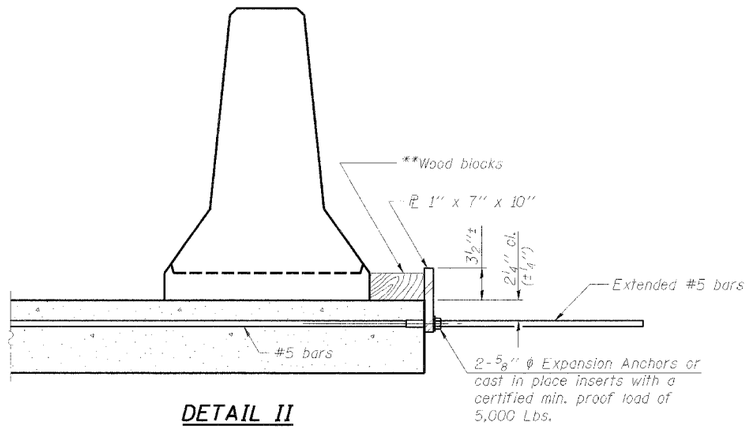
Detail II - With Extended Reinforcement Bars:
Connect one (1) 1"x7"x10" steel ℄ to the concrete slab with 2-⅝" ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate ℄ of each barrier panel.

Cost of anchorage is included with Temporary Concrete Barrier.

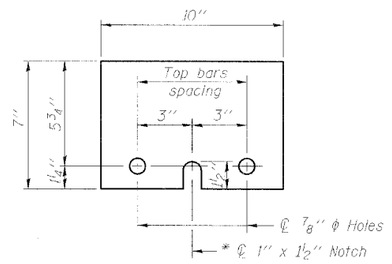
The 1" x 7" x 10" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.



DETAIL I



DETAIL II



STEEL RETAINER ℄ 1" x 7" x 10"

* Required only with 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.

DESIGNED	DDB
CHECKED	LLV
DRAWN	MGM
CHECKED	LLV

- 20D

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION U.S. RTE. 20 (F.A.P. 426) OVER E.J. & E. RAILROAD COOK COUNTY, STA. 106+03.50 STRUCTURE NO. 016-0219

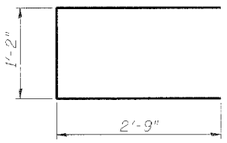
STS Consultants
111 NE Jefferson Ave.
Peoria, Illinois 61602
PH(309)676-8464
FAX(309)676-5445
IL Design Firm Reg. No. 184-001518

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

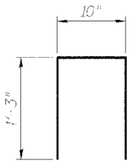
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Rte. 20	-	Cook	22	12
FED. ROAD DIST. NO. 9		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 5
10 SHEETS

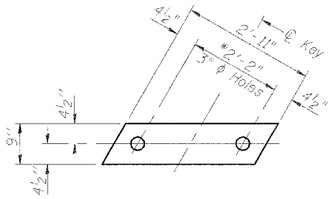
Contract # 62618



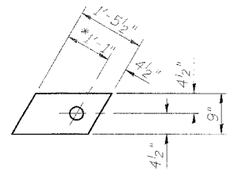
BAR U



D(E) BAR

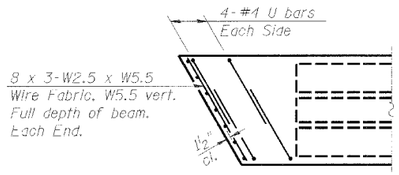


INTERIOR
72 Req'd

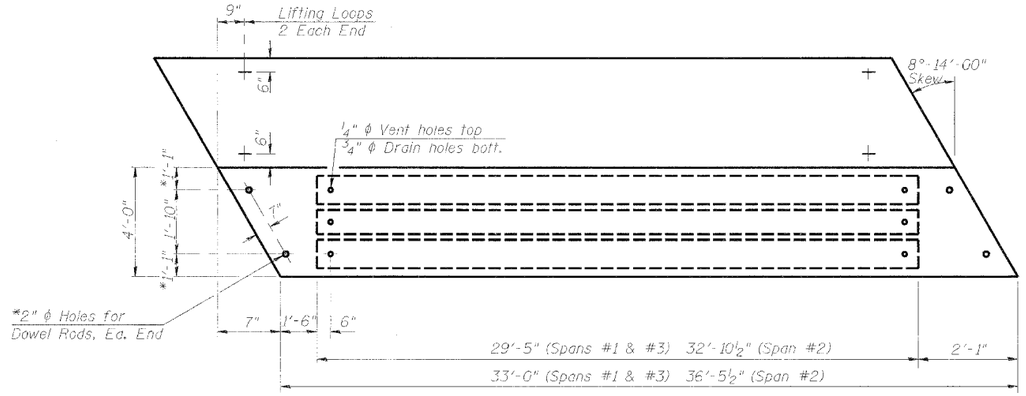


EXTERIOR
12 Req'd

FIXED FABRIC BEARING PAD - 48" BEAM



END PLAN



PLAN - 48" BEAM
(26 Req'd Spans #1 & #3. 13 Req'd Span #2)

* Dowel hole spacing is non standard to miss existing dowel rods in existing abutments and piers.

NOTES

1. Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270.

2. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in.

3. Lifting loops shall be 2-½" ϕ 270 ksi strands, as shown.

4. Non prestressing steel shall conform to ASTM A706 Gr. 60 (1L Modified). See Special Provisions.

5. The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two ⅛" fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

6. Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beam and the bottom edge of the key.

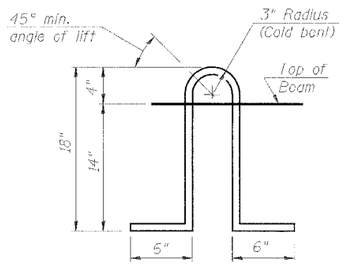
7. Corrosion Inhibitor per Article 1020.05(b)(12) of the Standard Specifications shall be used in the concrete for precast prestressed concrete deck beams.

8. Required Release Strength, f'ci, shall be 4,000 p.s.i.

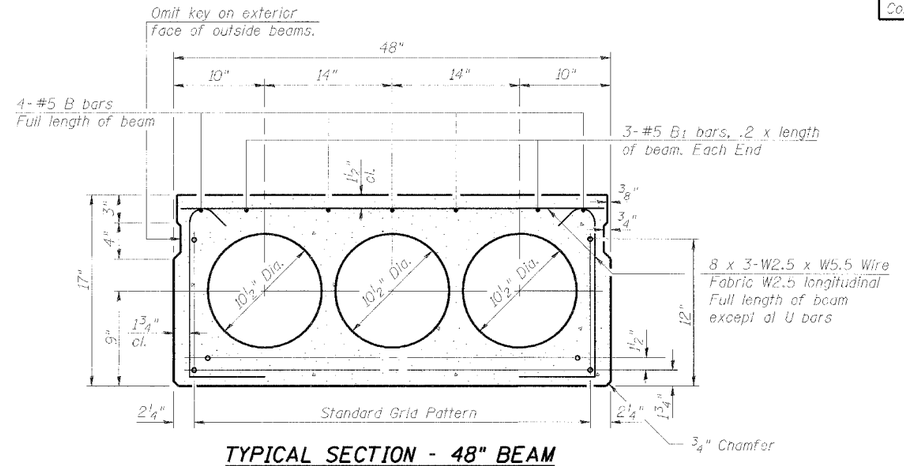
9. See Sht. 7 of 10 and Sht. 8 of 10 for D(E) bars and Rail Post Anchor devices cast into exterior beams.

BILL OF MATERIAL

Item	Unit	Quantity
Precast Prestressed Conc. Deck Bms. (17" Depth)	Sq. Ft.	5,328



LIFTING LOOP DETAIL



TYPICAL SECTION - 48" BEAM
19 - ½" ϕ Strands. Each Strand Stressed to 30,900 Lbs.
13 - Strands 1¾" up. 4 - Strands 3¼"' up. 2 - Strands 12" up

Note: Place strands symmetrically about ℄ of beam.

DESIGNED	DDB
CHECKED	LLV
DRAWN	MGM
CHECKED	LLV

\- 200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

SUPERSTRUCTURE DETAILS
17" DECK BEAMS
U.S. RTE. 20 (F.A.P. 426)
OVER E.J. & E. RAILROAD
COOK COUNTY, STA. 106+03.50
STRUCTURE NO. 016-0219

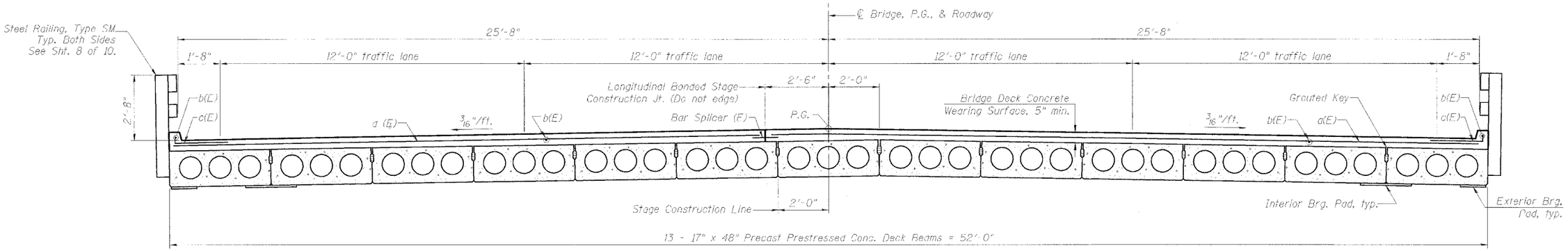
STS Consultants
111 NE Jefferson Ave.
Peoria, Illinois 61602
PH(309)676-8464
FAX(309)676-5445
IL Design Firm Reg. No. 184-001518

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

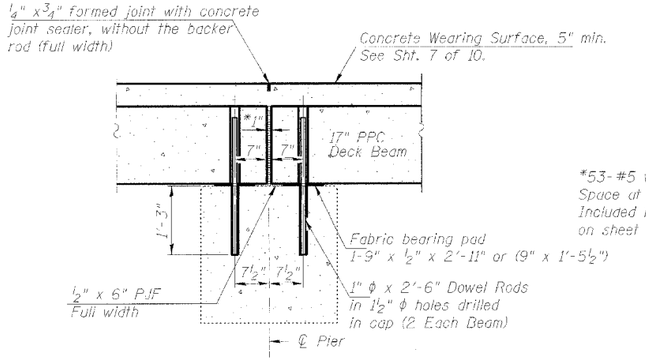
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Rte. 20	-	Cook	22	13
FED. ROAD DIST. NO. 9	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 6
10 SHEETS

Contract # 62618

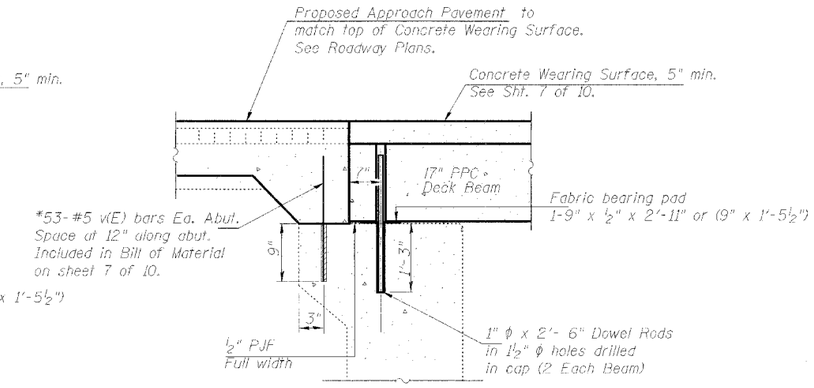


CROSS SECTION
(Looking East)



SECTION THRU FIXED PIERS

* 1" Jt. shall be filled with non-shrink grout. 1" dimension may vary to accommodate tolerance in beam lengths.

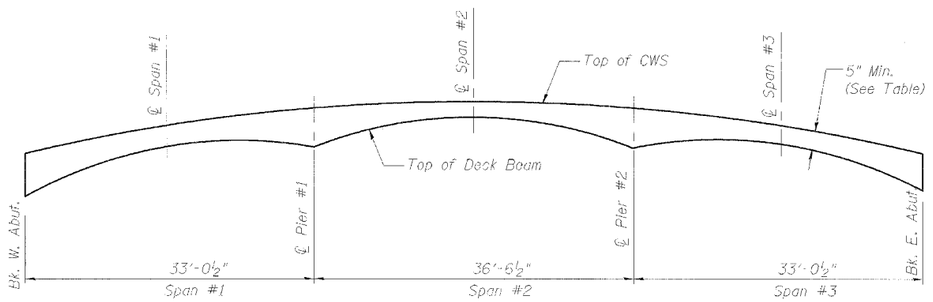


SECTION THRU FIXED ABUTMENTS

* Epoxy grout #5 v(E) bars into abut. according to Section 584 of the Standard Specifications. Cost included with Reinforcement Bars, Epoxy Coated.

CONCRETE WEARING SURFACE THICKNESS TABLE

Location / CWS Depth	Bk. W. Abut.	℄ Span #1	℄ Pier #1	℄ Span #2	℄ Pier #2	℄ Span #3	Bk. E. Abut.
Left Fascia Beam	5 1/2"	5"	6 1/8"	5 1/2"	6 1/4"	5 5/8"	6 1/2"
CWS Construction Joint	6 1/8"	5 5/8"	6 3/8"	5 3/4"	6 1/4"	5 3/4"	6 5/8"
℄ Profile Grade	6 1/4"	5 5/8"	6 1/2"	5 3/4"	6 1/4"	5 5/8"	6 5/8"
Right Fascia Beam	6 1/8"	5 1/2"	6 1/2"	5 5/8"	6"	5"	5 3/4"



REINFORCED CONCRETE WEARING SURFACE PROFILE
See Above Table for Location and Thickness

Notes:
1. After beams have been erected, holes shall be drilled into substructure and anchor dowels placed. Dowel holes shall be filled with non shrink grout to top of beam and allowed to cure min. 24 hrs. prior to grouting the shear keys.

2. All horizontal dimensions are at right angles to beam ends.

3. See Sht. 5 of 10 for Bearing Pad Details.

DESIGNED	DDB
CHECKED	LLV
DRAWN	MGM
CHECKED	LLV

- 200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

SUPERSTRUCTURE DETAILS SECTIONS & JOINT DETAILS U.S. RTE. 20 (F.A.P. 426) OVER E.J. & E. RAILROAD COOK COUNTY, STA. 106+03.50 STRUCTURE NO. 016-0219

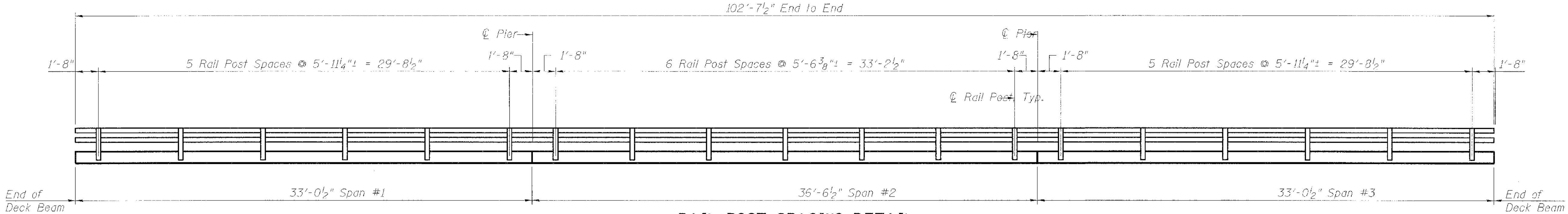
STS Consultants
111 NE Jefferson Ave.
Peoria, Illinois 61602
PH(309)676-8464
FAX(309)676-5445
IL Design Firm Reg. No. 184-001518

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

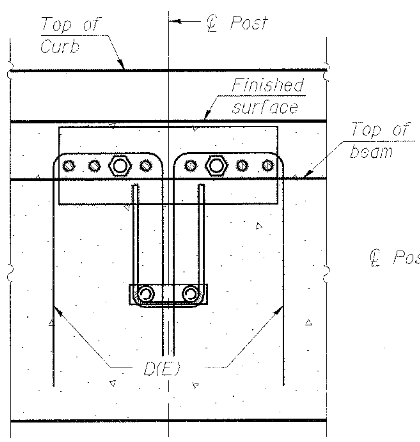
Route No.	Section	County	Total Sheets	Sheet No.
Rte. 20	-	Cook	22	14

SHEET NO. 7 — 10 SHEETS

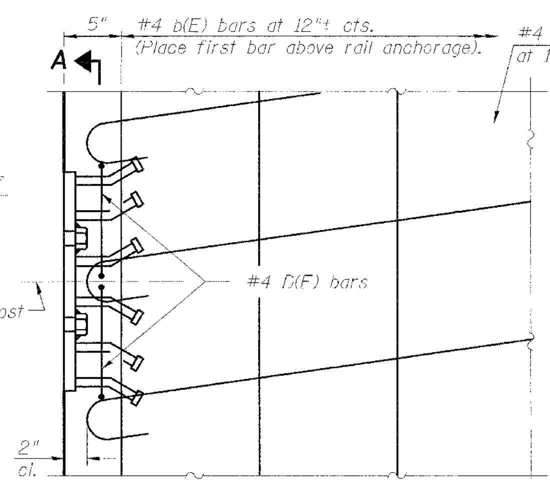
Contract # 62618



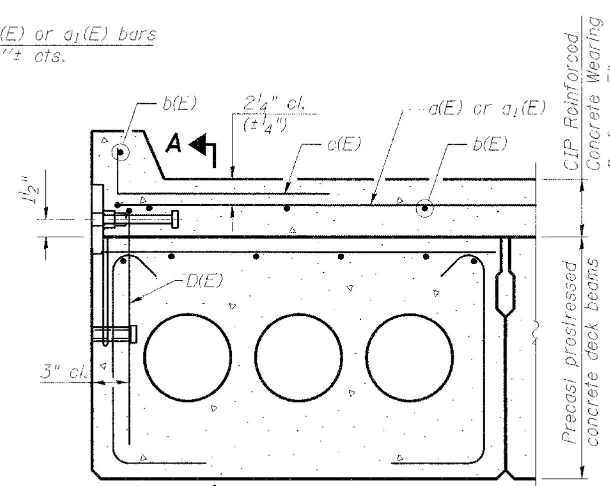
RAIL POST SPACING DETAIL



SECTION A-A



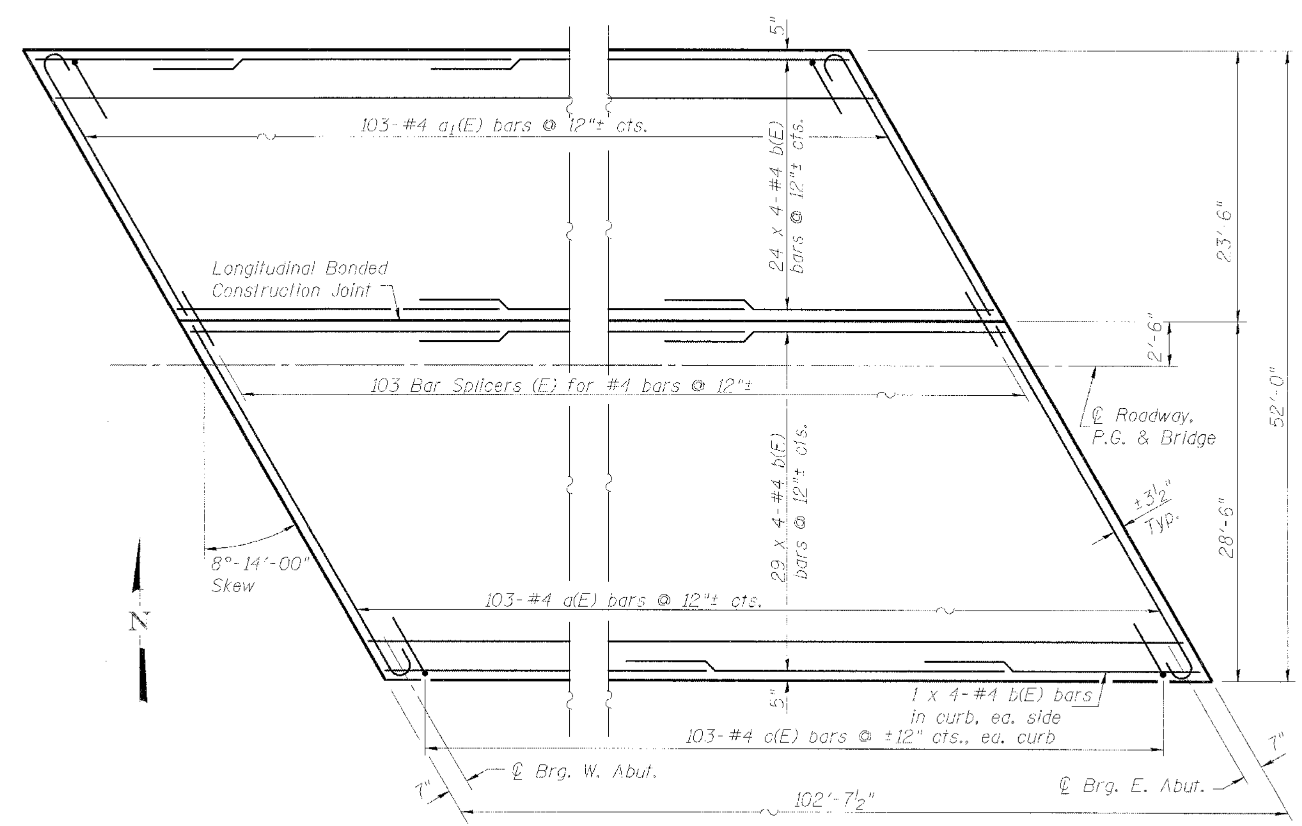
PLAN AT RAIL POST



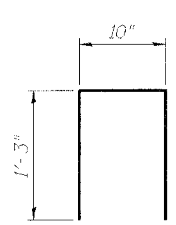
CROSS SECTION

REINFORCED CONCRETE WEARING SURFACE AND RAILING CONNECTION DETAILS

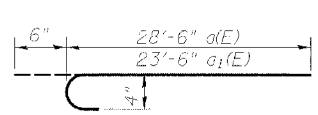
The rail anchorage shall be cast with the beam and the wearing surface shall be cast in the field. Formwork necessary for the wearing surface may be secured utilizing the bottom rail anchorage inserts and/or additional inserts cast into the beam. Drilling into the beam will not be permitted.



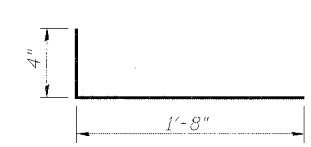
CONCRETE WEARING SURFACE PARTIAL PLAN



D(E) BAR
76 Req'd



a(E) & a1(E) BAR



c(E) BAR

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a(F)	103	#4	29'-0"	
a_1(E)	103	#4	24'-0"	
b(E)	220	#4	26'-7"	
c(E)	206	#4	2'-0"	
v(E)	106	#5	1'-9"	

BILL OF MATERIAL

Item	Unit	Quantity
Reinforcement Bars, Epoxy Coated	Pound	7,830
Concrete Wearing Surface, 5"	Sq. Yd.	593

Cost of Curb shall be included in Concrete Wearing Surface, 5"

BAR LAPS
#4 bars - 1'-4"

RAIL POST SPACING & CONCRETE WEARING SURFACE PLAN
U.S. RTE. 20 (F.A.P. 426)
OVER E.J. & E. RAILROAD
COOK COUNTY, STA. 106+03.50
STRUCTURE NO. 016-0219

DESIGNED	DDB
CHECKED	LLV
DRAWN	MGM
CHECKED	LLV

200
EXAMINED
ENGINEER OF BRIDGE DESIGN
PASSED
ENGINEER OF BRIDGES AND STRUCTURES

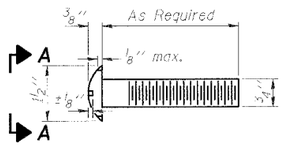
STS Consultants
111 NE Jefferson Ave.
Peoria, Illinois 61602
PH(309)676-8464
FAX(309)676-5445
IL Design Firm Reg. No. 184-001518

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

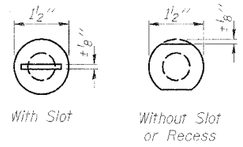
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Rte. 20		Cook	22	15
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 8
10 SHEETS

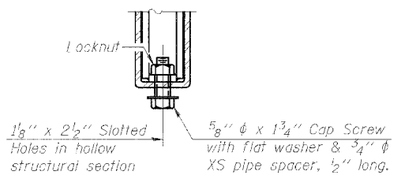
Contract # 62618



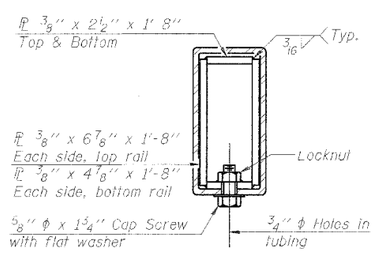
DETAIL OF 3/4" ϕ ROUND HEAD BOLT



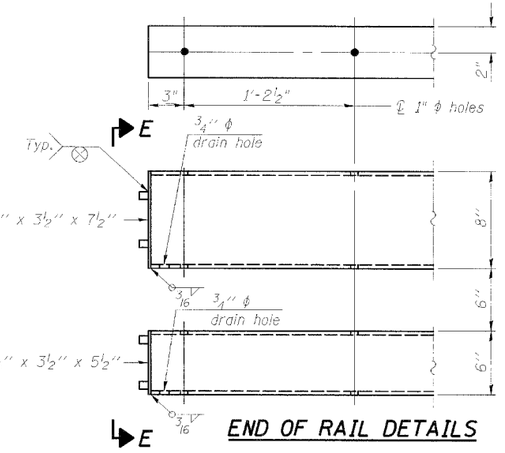
VIEW A-A



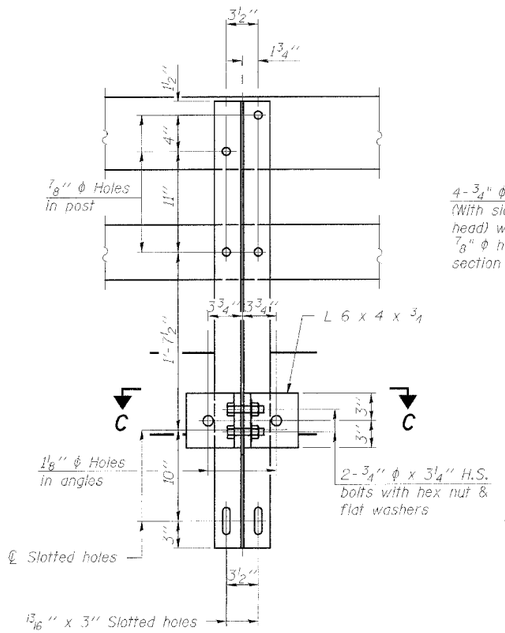
RAIL SPLICE CONNECTION AT EXPANSION JT.



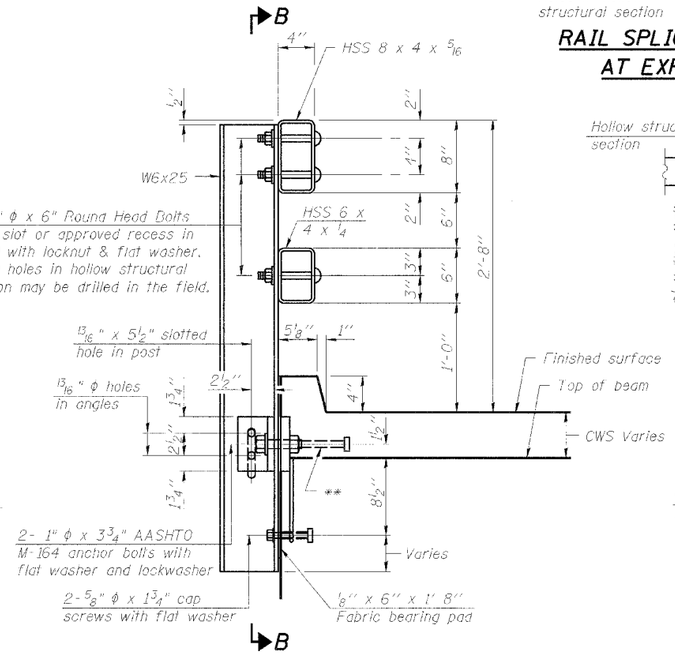
SECTION AT RAIL SPLICE



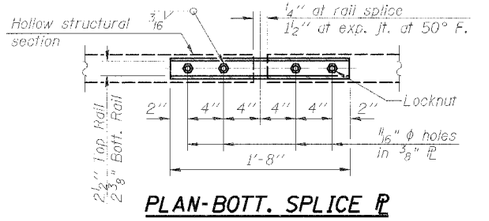
END OF RAIL DETAILS



SECTION B-B

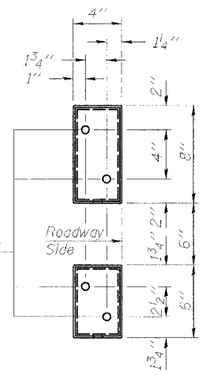


SECTION AT RAIL POST

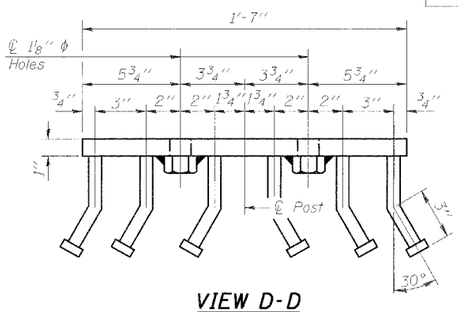


PLAN-BOTT. SPLICE ℘ TYPICAL

℄ -5/8" reduced base welded studs. Provide 4 - 5/8" washers and self-locking nuts or nuts and jam nuts for guardrail connection shown on Std. 631032

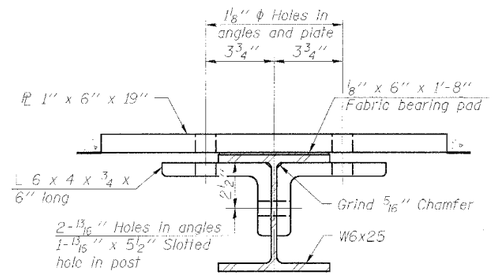


VIEW E-E

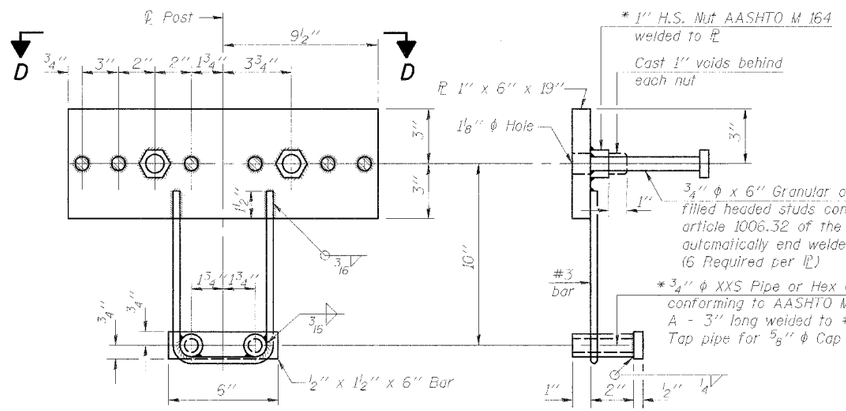


VIEW D-D

Notes:
All field drilled holes shall be coated with an approved zinc rich paint before erection.
For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.
All steel railing 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.



SECTION C-C



ANCHOR DEVICE

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

(6'-3" Maximum Post Spacing) (5" minimum to 7 1/8" maximum CWS thickness)

DESIGNED	DDB
CHECKED	LLV
DRAWN	MGM
CHECKED	LLV

\- 200

EXAMINED

ENGINEER OF BRIDGE DESIGN

PASSED

ENGINEER OF BRIDGES AND STRUCTURES

STEEL RAILING, TYPE SM WITH CONCRETE WEARING SURFACE AND CURB U.S. RTE. 20 (F.A.P. 426) OVER E.J. & E. RAILROAD COOK COUNTY, STA. 106+03.50 STRUCTURE NO. 016-0219

BILL OF MATERIAL

Item	Unit	Quantity
Steel Railing, Type SM	Foot	206

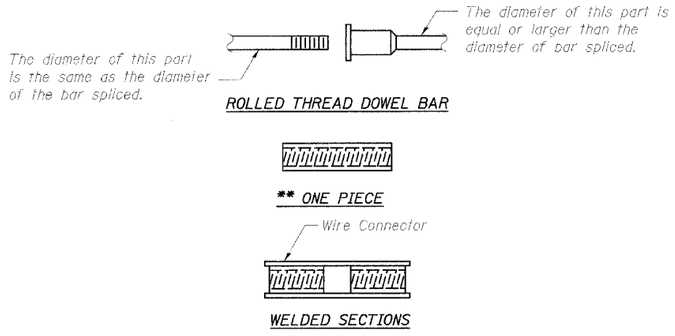
STS Consultants
111 NE Jefferson Ave.
Peoria, Illinois 61602
Ph(309)676-8464
FAX(309)676-5445
IL Design Firm Reg. No. 184-001518

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Rte. 20	-	Cook	22	16
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

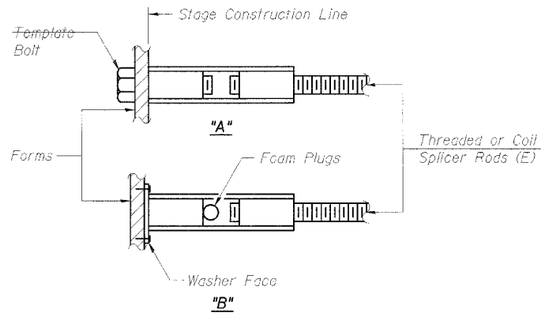
SHEET NO. 9
10 SHEETS

Contract # 62618



BAR SPLICER ASSEMBLY ALTERNATIVES

** Heavy Hex Nuts conforming to ASTM A 563, Grade C, D or DH may be used.



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.

NOTES

Bar splicer assemblies shall be of an approved type and shall develop in tension at least 125 percent of the yield strength of the lapped reinforcement bars.

Splicer rods shall be of minimum 60 ksi yield strength, threaded or coiled full length.

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

Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars.

Other systems of similar design may be submitted to the Engineer for approval. Approval shall be based on certified test results from an approved testing laboratory that the proposed bar splicer assembly satisfies the following requirements:

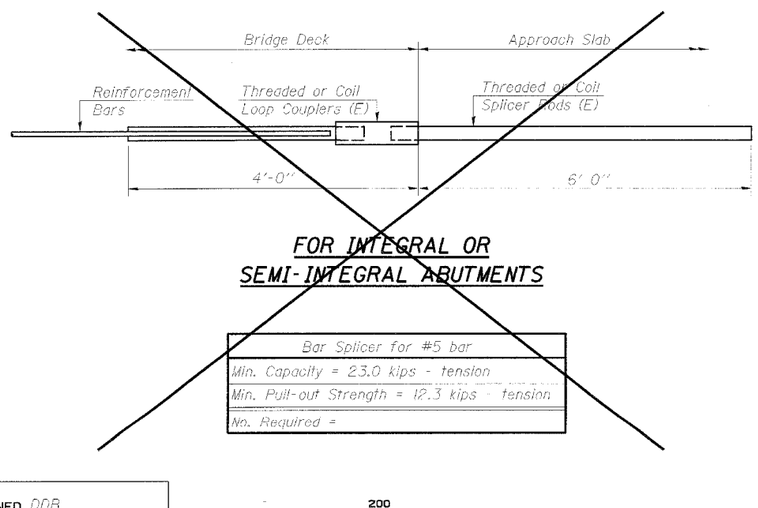
① Minimum Capacity (Tension in kips) = $1.25 \times f_y \times A_t$

② Minimum *Pull-out Strength (Tension in kips) = $0.66 \times f_y \times A_t$

Where f_y = Yield strength of lapped reinforcement bars in ksi.
A_t = Tensile stress area of lapped reinforcement bars.
* = 28 day concrete

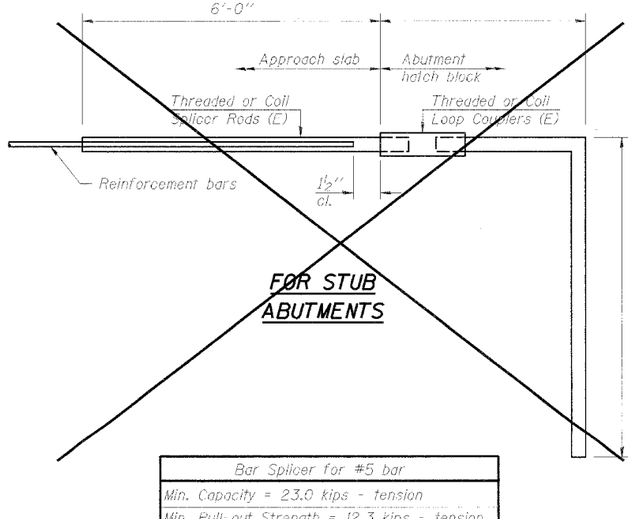
BAR SPLICER ASSEMBLIES

Bar Size to be Spliced	Splicer Rod or Dowel Bar Length	Strength Requirements	
		Min. Capacity kips - tension	Min. Pull-Out Strength kips - tension
#4	1'-8"	14.7	7.9
#5	2'-0"	23.0	12.3
#6	2'-7"	33.1	17.4
#7	3'-5"	45.1	23.8
#8	4'-6"	58.9	31.3
#9	5'-9"	75.0	39.6
#10	7'-3"	96.0	50.3
#11	9'-0"	117.4	61.8



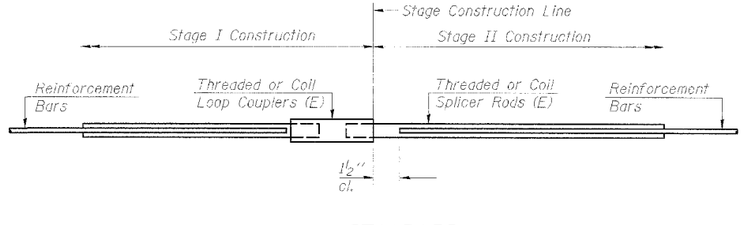
FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 12.3 kips - tension
No. Required =



FOR STUB ABUTMENTS

Bar Splicer for #5 bar
Min. Capacity = 23.0 kips - tension
Min. Pull-out Strength = 12.3 kips - tension
No. Required =



STANDARD

Bar Size	No. Assemblies Required	Location
#4	103	Wearing Surface

DESIGNED DDB
CHECKED LLV
DRAWN MGM
CHECKED LLV

200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

BAR SPLICER ASSEMBLY DETAILS
U.S. RTE. 20 (F.A.P. 426)
OVER E.J. & E. RAILROAD
COOK COUNTY, STA. 106+03.50
STRUCTURE NO. 016-0219

STS Consultants
111 NE Jefferson Ave.
Peoria, Illinois 61602
PH(309)676-8464
FAX(309)676-5445
IL Design Firm Reg. No. 184-001518

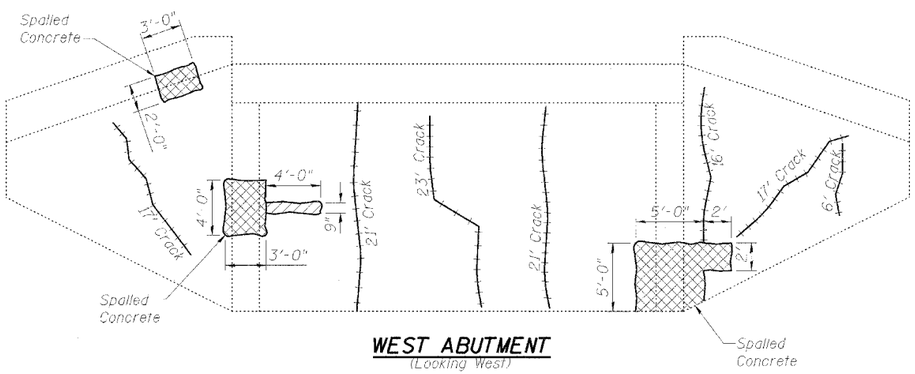
016-0219.dgn 8/20/2001 3:53:14 PM

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

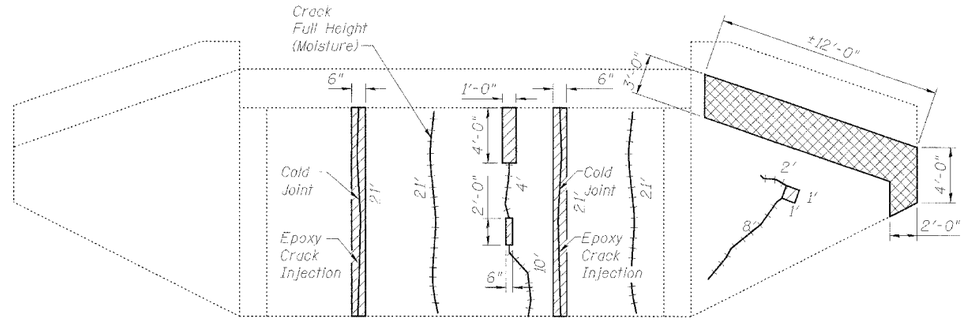
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
Rte. 20	-	Cook	22	17
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT-		

SHEET NO. 10
10 SHEETS

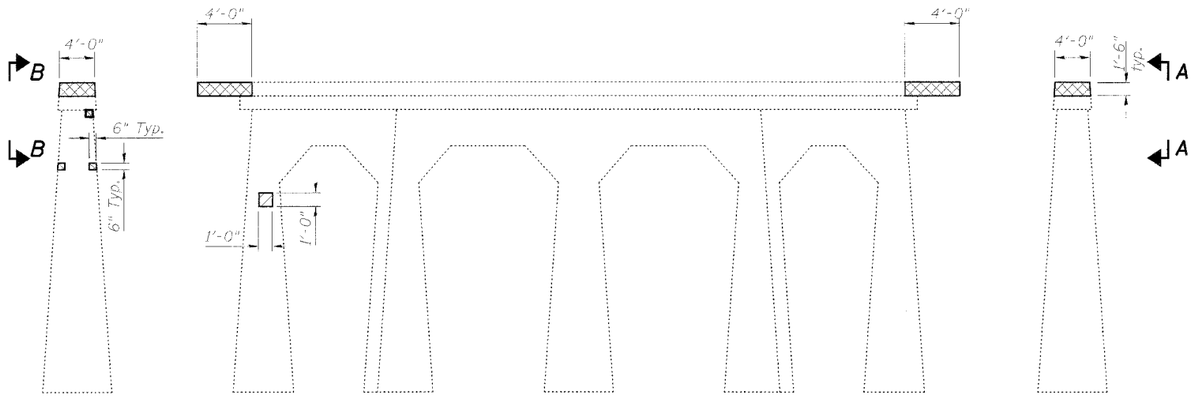
Contract # 62618



WEST ABUTMENT
(Looking West)



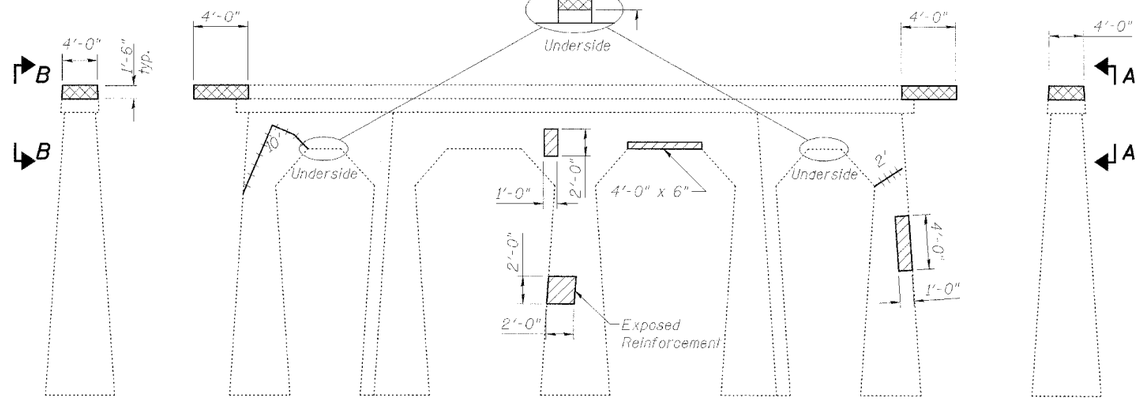
EAST ABUTMENT
(Looking East)



NORTH FACE
(Pier #1)

PIER #1
(Looking East)

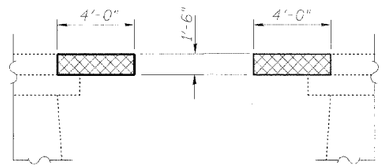
SOUTH FACE
(Pier #1)



NORTH FACE
(Pier #2)

PIER #2
(Looking East)

SOUTH FACE
(Pier #2)



SECTION B-B

SECTION A-A

SUBSTRUCTURE REPAIRS
GENERAL PLAN & ELEVATION
U.S. RTE. 20 (F.A.P. 426)
OVER E.J. & E. RAILROAD
COOK COUNTY, STA. 106+03.50
STRUCTURE NO. 016-0219

DESIGNED	DDB
CHECKED	LLV
DRAWN	MGM
CHECKED	LLV

200

EXAMINED
ENGINEER OF BRIDGE DESIGN

PASSED
ENGINEER OF BRIDGES AND STRUCTURES

BILL OF MATERIAL

Item	Unit	Quantity
Structural Repair of Concrete (Depth Greater Than 5")	Sq. Ft.	241
Structural Repair of Concrete (Depth Equal to or Less Than 5")	Sq. Ft.	44
Epoxy Crack Injection	Foot	243

LEGEND

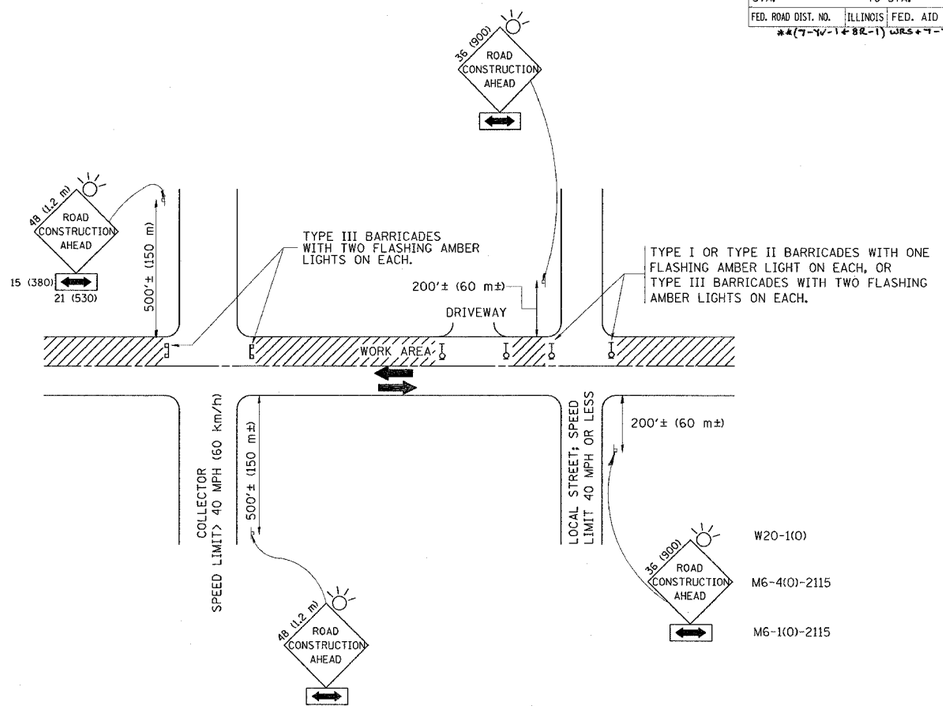
- Structural Repair of Concrete (Depth Equal to or Less than 5")
- Structural Repair of Concrete (Depth Greater than 5")
- Epoxy Crack Injection

STS Consultants
111 NE Jefferson Ave.
Peoria, Illinois 61602
PH(309)676-8464
FAX(309)676-5445
IL Design Firm Reg. No. 184-001518

CONTRACT NO. 62618

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	Cook	22	18
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

**(7-IV-14 88-1) WRS 7-IV-1-88



TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS

NOTES:

A. FOR NO LANE RESTRICTION ON THE SIDE ROAD OR DRIVEWAYS

1. SIDE ROAD WITH A SPEED LIMIT OF 40 MPH (60 km/h) OR LESS AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:

   a) ONE **ROAD CONSTRUCTION AHEAD** SIGN 36 x 36 (900x900) WITH A FLASHER AND FLAG MOUNTED ON IT APPROXIMATELY 200' (60 m) IN ADVANCE OF THE MAIN ROUTE.

   b) THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE I, TYPE II OR TYPE III BARRICADES, 1/3 OF THE CROSS SECTION OF THE CLOSED PORTION.

2. SIDE ROAD WITH A SPEED LIMIT GREATER THAN 40 MPH (60 km/h) AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER:

   a) ONE **ROAD CONSTRUCTION AHEAD** SIGN 48 x 48 (1.2 m x 1.2 m) WITH A FLASHER MOUNTED ON IT APPROXIMATELY 500' (150 m) IN ADVANCE OF THE MAIN ROUTE.

   b) THE CLOSED PORTION OF THE MAIN ROUTE SHALL BE PROTECTED BY BLOCKING WITH TYPE III BARRICADES, 1/2 OF THE CROSS SECTION OF THE CLOSED PORTION.

3. WHEN THE SIDE ROAD LIES BETWEEN THE BEGINNING OF THE MAINLINE SIGNING AND THE WORK ZONE, A SINGLE HEADED ARROW (M6-1) SHALL BE USED IN LIEU OF THE DOUBLE HEADED ARROW (M6-4).

B. FOR A LANE CLOSURE ON A SIDE ROAD OR DRIVEWAY:

USE APPLICABLE PORTIONS OF THE TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES (STD. 701501, STD. 701606 OR THE APPROPRIATE STANDARD). THE SPACING OF SIGNS AND BARRICADES SHALL BE ADJUSTED FOR FIELD CONDITIONS AS DIRECTED BY THE ENGINEER. THE DIRECTIONAL ARROW SHALL BE COVERED OR REMOVED WHEN NO LONGER CONSISTENT WITH THE SIDE ROAD LANE CLOSURE.

C. ADVANCE WARNING SIGNS ARE TO BE OMITTED ON DRIVEWAY UNLESS OTHERWISE NOTED.

D. THE TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS SHALL BE INCIDENTAL TO THE COST OF SPECIFIED TRAFFIC CONTROL STANDARDS OR ITEMS.

All dimensions are in millimeters (inches) unless otherwise shown.

REVISIONS	
NAME	DATE
LHA	6/89
T. RAMMACHER	09/08/94
J. OBERLE	10/18/95
A. HOUSEH	03/06/96
A. HOUSEH	10/15/96
T. RAMMACHER	01/06/00

ILLINOIS DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS

SCALE: NONE

DRAWN BY

CHECKED BY

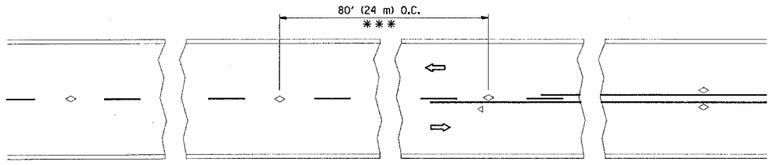
TC-10

PLOT DATE = 8/15/2007
FILE NAME = c:\projects\tc10.dgn
PLOT SCALE = 50.000 '/ IN.
USER NAME = dbehbehe

CONTRACT NO. 62618

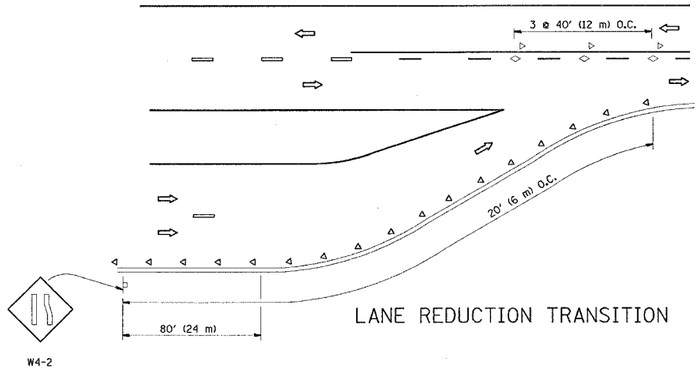
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	Cook	22	19
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

**(T-3V-14-8R-1)WRS-3V-1BR

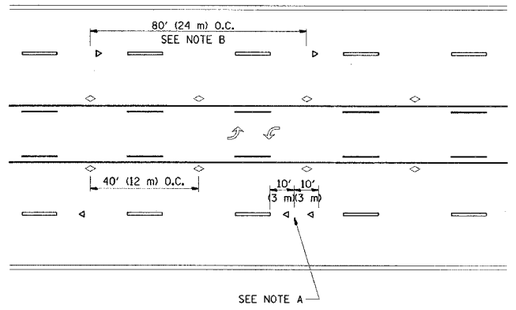


*** REDUCE TO 40' (12 m) O.C. ON CURVES WITH POSTED OR ADVISORY SPEED 45 M.P.H. (70 km/h) OR LESS.

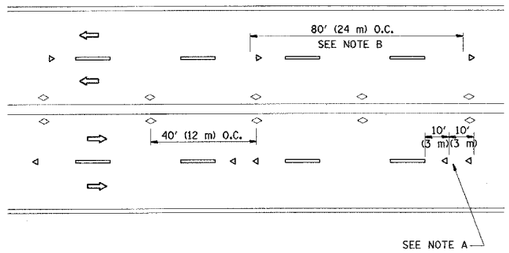
TWO-LANE/TWO-WAY



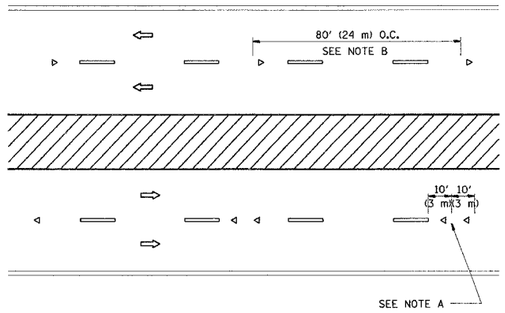
LANE REDUCTION TRANSITION



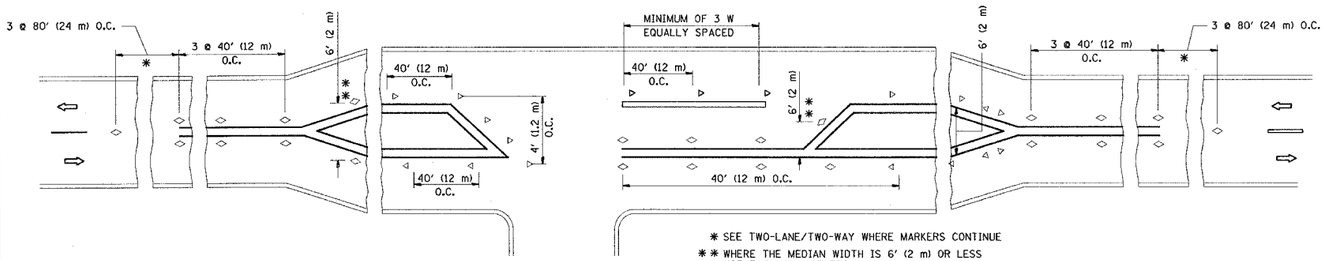
TWO-WAY LEFT TURN



MULTI-LANE/UNDIVIDED



MULTI-LANE/DIVIDED



* SEE TWO-LANE/TWO-WAY WHERE MARKERS CONTINUE

** WHERE THE MEDIAN WIDTH IS 6' (2 m) OR LESS USE TWO-WAY MARKERS.

LEFT TURN

GENERAL NOTES

1. MARKERS USED WITH DASHED LINES SHALL BE CENTERED IN THE GAP BETWEEN SEGMENTS.
2. MARKERS USED ADJACENT TO SOLID LINES SHALL BE OFFSET 2 TO 3 (50 TO 75) TOWARD TRAFFIC AS SHOWN.
3. MARKERS THROUGH TANGENTS LESS THAN 500' (150 m) IN LENGTH BETWEEN CURVES SHALL BE INSTALLED AT THE LESSER OF THE TWO CURVE SPACINGS.

LANE MARKER NOTES

B. REDUCE TO 40' (12 m) O.C. ON CURVES WHERE ADVISORY SPEEDS ARE 10 M.P.H (20 km/h) LOWER THAN POSTED SPEEDS.

A. USE DOUBLE LANE LINE MARKERS SPACED AS SHOWN.

SYMBOLS

- YELLOW STRIPE
- WHITE STRIPE
- ONE-WAY AMBER MARKER
- ONE-WAY CRYSTAL MARKER (W/O)
- TWO-WAY AMBER MARKER

All dimensions are in inches (millimeters) unless otherwise shown.

REVISIONS NAME	DATE
T. RAMMACHER	09-19-94
T. RAMMACHER	03-12-99
T. RAMMACHER	01-06-00

ILLINOIS DEPARTMENT OF TRANSPORTATION

TYPICAL APPLICATIONS RAISED REFLECTIVE PAVEMENT MARKERS (SNOW-PLOW RESISTANT)

SCALE: NONE

DRAWN BY CADD

CHECKED BY TC-11

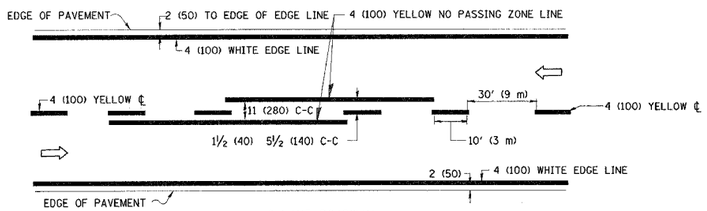
PLOT DATE = 7/17/2007
FILE NAME = w:\district\tc11.dgn
PLOT SCALE = 50.000 ' / IN.
USER NAME = dbabbone

d:\district\tc11.dgn 7/17/2007 11:35:14 AM User=dbabbone

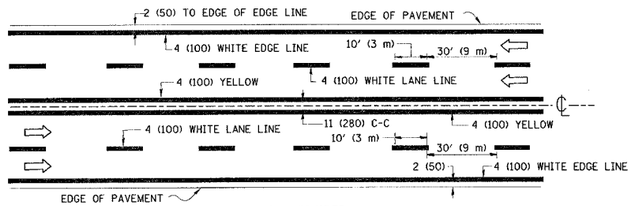
CONTRACT NO. 62618

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	**	Cook	22	20
STA.		TO STA.		
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

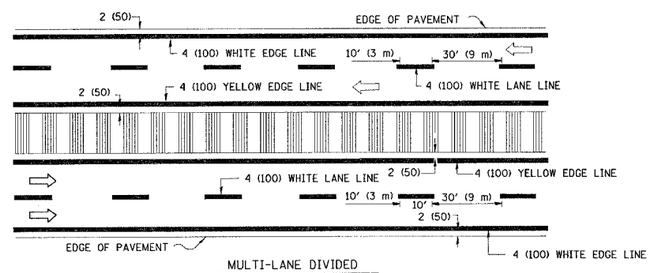
**(7-IV-1+BR-1) WRS+7-IV-13R



2-LANE ROADWAY



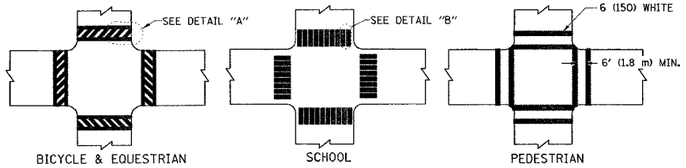
MULTI-LANE UNDIVIDED



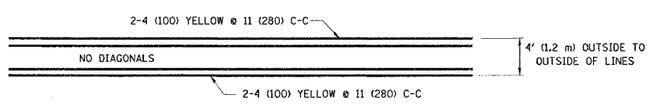
MULTI-LANE DIVIDED
WITH MOUNTABLE MEDIAN

NOTE: MEDIANS WITH BARRIER CURB DO NOT REQUIRE AN EDGE LINE

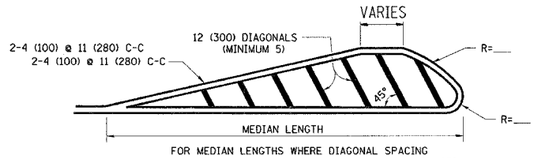
TYPICAL LANE AND EDGE LINE MARKING



TYPICAL CROSSWALK MARKING



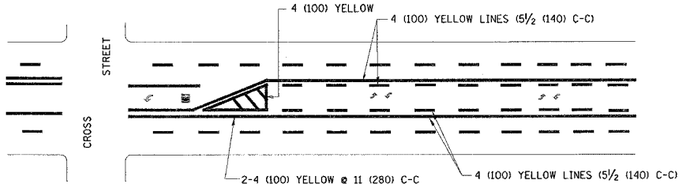
4' (1.2 m) WIDE MEDIANS ONLY



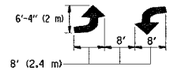
FOR MEDIAN LENGTHS WHERE DIAGONAL SPACING CANNOT BE ATTAINED, USE 5 (FIVE) EQUALLY SPACED DIAGONAL LINES.

DIAGONAL LINE SPACING: 50' (15 m) C-C (LESS THAN 30MPH (50 km/h))
75' (25 m) C-C 30MPH (50 km/h) TO 45MPH (70 km/h))
150' (45 m) C-C (MORE THAN 45MPH (70 km/h))

MEDIANS OVER 4' (1.2 m) WIDE

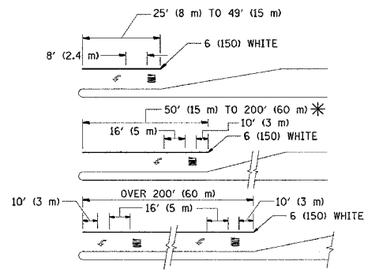


A MINIMUM OF TWO PAIRS OF TURN ARROWS SHALL BE USED, WHITE IN COLOR. ADDITIONAL PAIRS SHALL BE PLACED AT 200' (60 m) TO 300' (90 m) INTERVALS.



MEDIAN WITH TWO-WAY LEFT TURN LANE

TYPICAL PAINTED MEDIAN MARKING

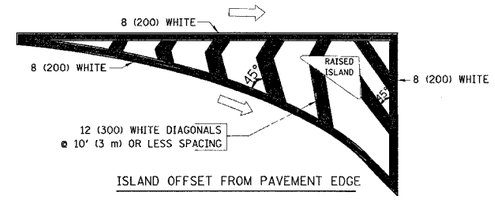


FULL SIZE LETTERS 8' (2.4 m) AND ARROWS SHALL BE USED.
↰ AREA = 15.6 SQ. FT. (1.5 m^2) ONLY AREA = 20.8 SQ. FT. (1.9 m^2)

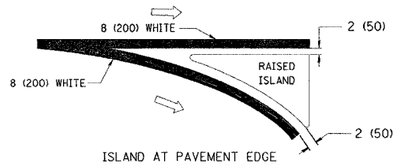
✳ TURN LANES IN EXCESS OF 400' (120 m) IN LENGTH MAY HAVE AN ADDITIONAL SET OF ARROW - "ONLY" INSTALLED MIDWAY BETWEEN THE OTHER TWO SETS OF ARROW - "ONLY".

TYPICAL LEFT (OR RIGHT) TURN LANE

TYPICAL TURN LANE MARKING



ISLAND OFFSET FROM PAVEMENT EDGE



ISLAND AT PAVEMENT EDGE

TYPICAL ISLAND MARKING

TYPE OF MARKING	WIDTH OF LINE	PATTERN	COLOR	SPACING / REMARKS
CENTERLINE ON 2 LANE PAVEMENT	4 (100)	SKIP-DASH	YELLOW	10' (3 m) LINE WITH 30' (9 m) SPACE
CENTERLINE ON MULTI-LANE UNDIVEDED PAVEMENT	2 @ 4 (100)	SOLID	YELLOW	11 (280) C-C
NO PASSING ZONE LINES: FOR ONE DIRECTION FOR BOTH DIRECTIONS	4 (100) 2 @ 4 (100)	SOLID SOLID	YELLOW YELLOW	5½ (140) C-C FROM SKIP-DASH CENTERLINE 11 (280) C-C OMIT SKIP-DASH CENTERLINE BETWEEN
LANE LINES	4 (100) 5 (125) ON FREEWAYS	SKIP-DASH SKIP-DASH	WHITE WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE
DOTTED LINES (EXTENSIONS OF CENTER, LANE OR TURN LANE MARKINGS)	SAME AS LINE BEING EXTENDED	SKIP-DASH	SAME AS LINE BEING EXTENDED	2' (600) LINE WITH 6' (1.8 m) SPACE
EDGE LINES	4 (100)	SOLID	YELLOW-LEFT WHITE-RIGHT	OUTLINE MOUNTABLE MEDIANS IN YELLOW; EDGE LINES ARE NOT USED NEXT TO BARRIER CURB
TURN LANE MARKINGS	6 (150) LINE; FULL SIZE LETTERS & SYMBOLS (8' (2.4m))	SOLID	WHITE	SEE TYPICAL TURN LANE MARKING DETAIL
TWO WAY LEFT TURN MARKING	2 @ 4 (100) EACH DIRECTION 8' (2.4m) LEFT ARROW	SKIP-DASH AND SOLID IN PAIRS	YELLOW WHITE	10' (3 m) LINE WITH 30' (9 m) SPACE FOR SKIP-DASH; 5½ (140) C-C BETWEEN SOLID LINE AND SKIP-DASH LINE SEE TYPICAL TWO-WAY LEFT TURN MARKING DETAIL
CROSSWALK LINES (PEDESTRIAN) A. DIAGONALS (BIKE & EQUESTRIAN) B. LONGITUDINAL BARS (SCHOOL)	2 @ 6 (150) 12 (300) @ 45° 12 (300) @ 90°	SOLID SOLID SOLID	WHITE WHITE WHITE	NOT LESS THAN 6' (1.8 m) APART 2' (600) APART 2' (600) APART SEE TYPICAL CROSSWALK MARKING DETAILS.
STOP LINES	24 (600)	SOLID	WHITE	PLACE 4' (1.2 m) IN ADVANCE OF AND PARALLEL TO CROSSWALK, IF PRESENT. OTHERWISE, PLACE AT DESIRED STOPPING POINT. PARALLEL TO CROSSROAD CENTERLINE, WHERE POSSIBLE.
PAINTED MEDIANS	2 @ 4 (100) WITH 12 (300) DIAGONALS @ 45° NO DIAGONALS USED FOR 4' (1.2 m) WIDE MEDIANS	SOLID	YELLOW: TWO WAY TRAFFIC WHITE: ONE WAY TRAFFIC	11 (280) C-C FOR THE DOUBLE LINE SEE TYPICAL PAINTED MEDIAN MARKING.
GORE MARKING AND CHANNELIZING LINES	8 (200) WITH 12 (300) DIAGONALS @ 45°	SOLID	WHITE	DIAGONALS: 15' (4.5 m) C-C (LESS THAN 30MPH (50 km/h)) 20' (6 m) C-C 30MPH (50 km/h) TO 45MPH (70 km/h)) 30' (9 m) C-C (OVER 45MPH (70 km/h))
RAILROAD CROSSING	24 (600) TRANSVERSE LINES; "RR" IS 6' (1.8 m) LETTERS; 16 (400) LINE FOR "X"	SOLID	WHITE	SEE STATE STANDARD 780001 AREA OF: "R"=3.6 SQ. FT. (0.33 m^2) EACH "X"=54.0 SQ. FT. (5.0 m^2)
SHOULDER DIAGONALS	12 (300) @ 45°	SOLID	WHITE - RIGHT YELLOW - LEFT	50' (15 m) C-C (LESS THAN 30MPH (50 km/h)) 75' (25 m) C-C (30 MPH (50 km/h) TO 45MPH (70 km/h)) 150' (45 m) C-C (OVER 45MPH (70 km/h))

FOR FURTHER DETAILS ON PAVEMENT MARKING REFER TO STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION AND STATE STANDARD 780001.

All dimensions are in inches (millimeters) unless otherwise shown.

REVISIONS	
NAME	DATE
EVERS	03-19-90
T. RAMMACHER	10-27-94
ALEX HOUSEH	10-09-96
ALEX HOUSEH	10-17-96
T. RAMMACHER	01-06-00

ILLINOIS DEPARTMENT OF TRANSPORTATION

DISTRICT ONE
TYPICAL PAVEMENT MARKINGS

SCALE: NONE

DRAWN BY CADD

CHECKED BY

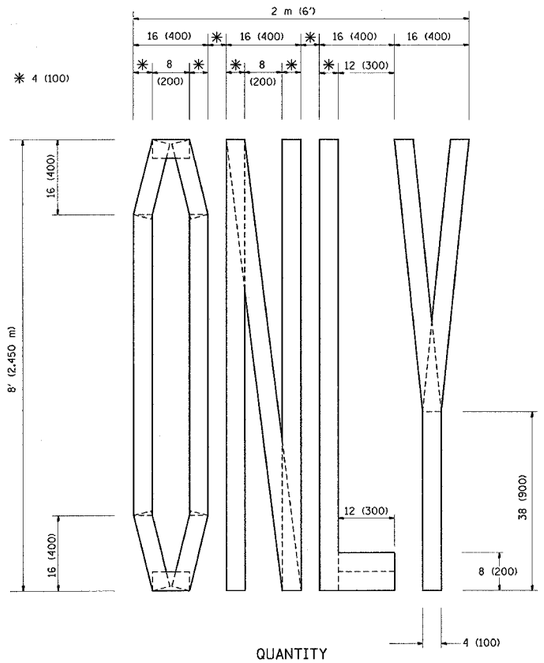
TC-13

PLOT DATE = 7/17/2007
FILE NAME = w:\district\tc13.dgn
PLOT SCALE = 50.000 '/ IN.
USER NAME = abebawa

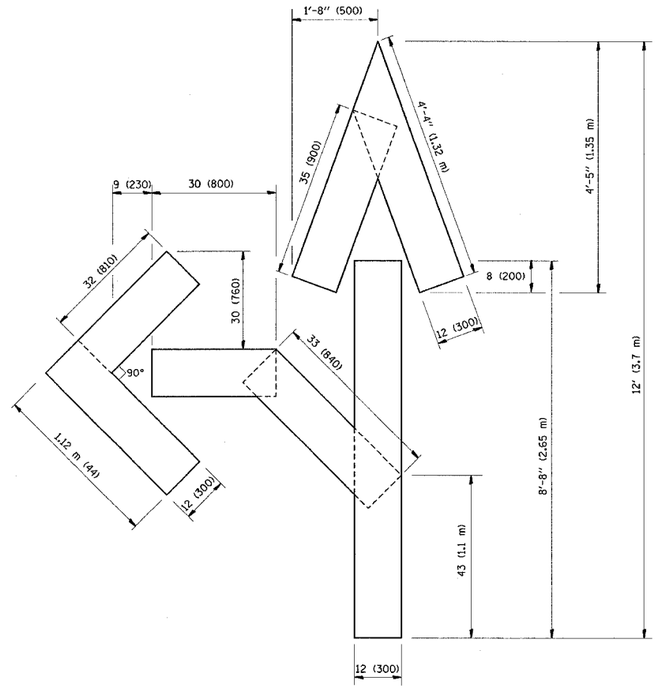
CONTRACT NO. 62618

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
345	* *	Cook	22	21
STA.	TO STA.			
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT		

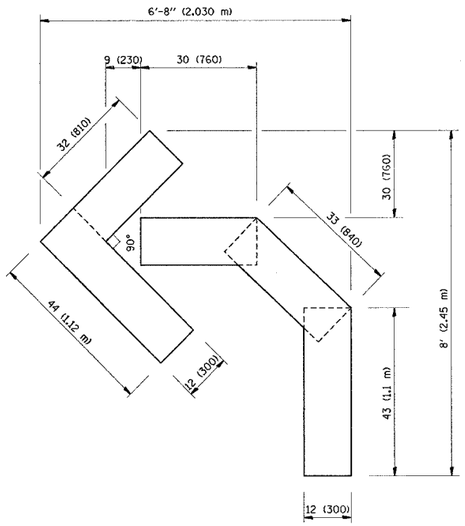
* * (7-YV-1 * 82-1) WRD * 7-YV-182



QUANTITY
4 (100) LINE = 64.1 ft. (19.7 m)
21.1 sq. ft. (1.97 sq. m)



QUANTITY
4 (100) LINE = 82.5 ft. (25.3 m)
27.5 sq. ft. (2.53 sq. m)



QUANTITY
4 (100) LINE = 45.5 ft. (13.9 m)
15.2 sq. ft. (1.39 sq. m)

All dimensions are in inches (millimeters) unless otherwise shown.

REVISIONS	
NAME	DATE
T. RAMMACHER	09/18/94
J. OBERLE	06/01/96
T. RAMMACHER	06/05/96
T. RAMMACHER	11/04/97
T. RAMMACHER	03/02/98
E. GOMEZ	08/28/00

ILLINOIS DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING LETTERS AND SYMBOLS FOR TRAFFIC STAGING

SCALE: NONE

DRAWN BY CADD

CHECKED BY

TC-16

PLOT DATE = 7/17/2007
FILE NAME = w:\dist1d\cad\tc16.dgn
PLOT SCALE = 49.9999 '/ IN.
USER NAME = dbabbone

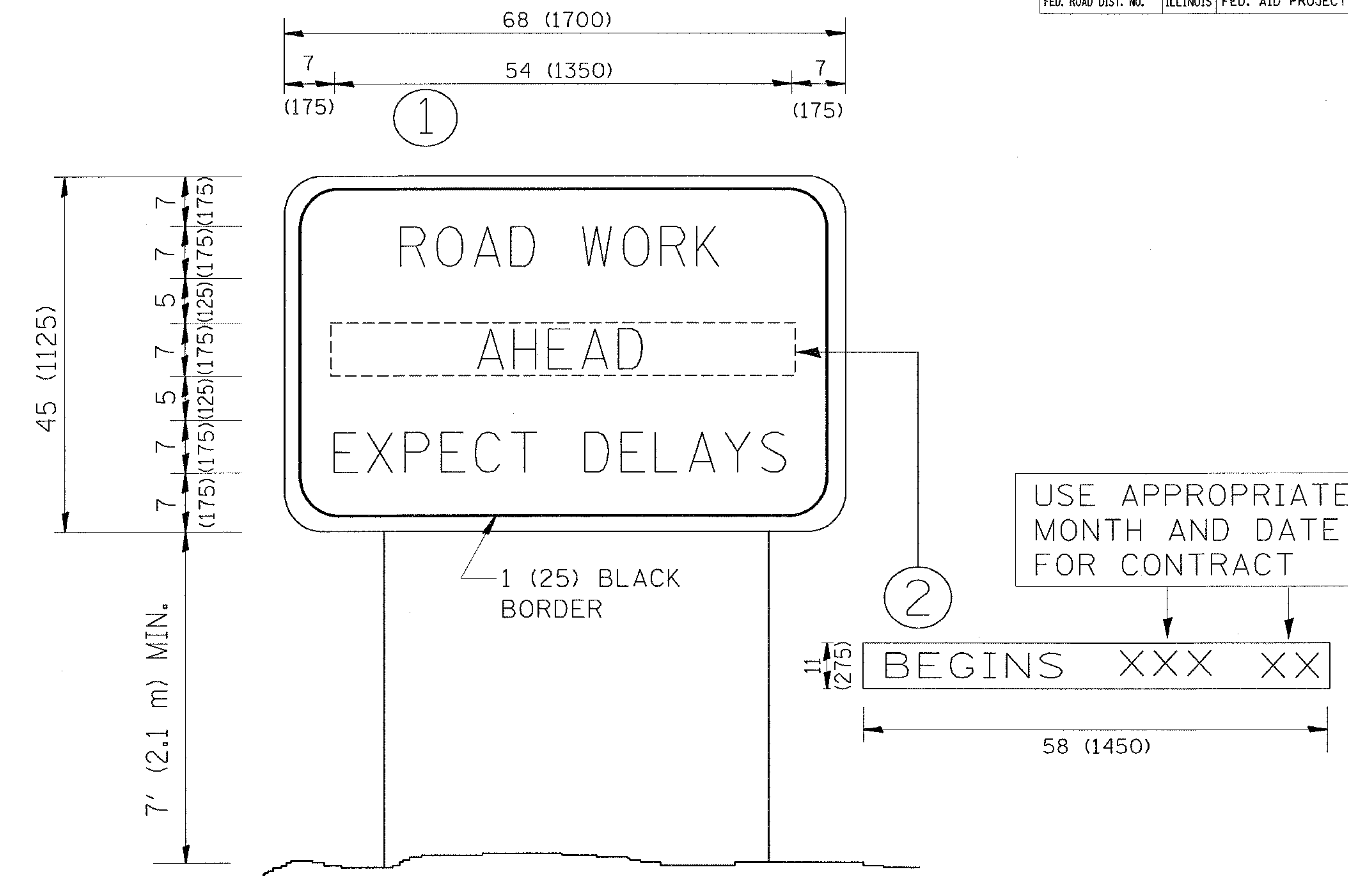
c:\dist1d\cad\tc16.dgn 7/17/2007 11:06:36 AM dbabbone

CONTRACT NO. 62618

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			22	22

STA. TO STA.

FED. ROAD DIST. NO. | ILLINOIS | FED. AID PROJECT



NOTES:

1. USE BLACK LETTERING ON ORANGE BACKGROUND.
2. ERECT SIGNS IN ADVANCE OF THE LOCATION FOR THE "ROAD CONSTRUCTION AHEAD" SIGN AT LOCATIONS AS DIRECTED BY THE ENGINEER.
3. ERECT SIGN (1) WITH INSTALLED PANEL (2) ONE WEEK PRIOR TO THE START OF CONSTRUCTION.
4. REMOVE PANEL (2) SOON AFTER THE START OF CONSTRUCTION.
5. SEE SPECIAL PROVISION FOR "TEMPORARY INFORMATION SIGNING" FOR ADDITIONAL INFORMATION.
6. ONE SIGN ASSEMBLY EQUALS 25.70 SQ. FT. (2.3 SQ. M.)
7. SHALL BE PAID FOR AS TEMPORARY INFORMATION SIGNING.

ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.

REVISIONS	
NAME	DATE
R. MIRS	9-15-97
R. MIRS	12-11-97
T. RAMMACHER	2-2-99
C. JUCIUS	1-31-07

ILLINOIS DEPARTMENT OF TRANSPORTATION

ARTERIAL ROAD INFORMATION SIGN

SCALE: NONE

DRAWN BY DESIGN

CHECKED BY

TC22

PLOT DATE = 7/17/2007
FILE NAME = w:\diststd\tc22.dgn
PLOT SCALE = 50.000 ' / IN.
USER NAME = abebawa

d\tc22.dgn 7/17/2007 11:08:21 AM User=abebawa