C.H.	SECTION	COUNTY	SHEETS	NO.
9	01-00069-00-BR	KENDALL	7	1

STATE OF ILLINOIS
KENDALL COUNTY HIGHWAY DEPARTMENT

PLANS FOR PROPOSED
NON-MFT PROJECT

SCALES
- PLAN 0' — 50'
- PROFILE HORIZ. 0' — 50'
- PROFILE VERT. 0' — 5'
- CROSS SECTIONS 0' — 5'

COUNTY HIGHWAY 9 / GALENA ROAD
OVER ROB ROY CREEK
SECTION 01-00069-00-BR
STRUCTURE NO. 047-3018

INDEX OF SHEETS

SEE PROPOSAL BOOKLET FOR STANDARDS:

- 515001-01 NAME PLATE
- 606001-01 CONCRETE CURB & COMBINATION CONCRETE CURB & GUTTER
- 630001-02 STEEL PLATE BEAM GUARDRAIL
- 631026-01 TRAFFIC BARRIER TERMINAL, TYPE 5A
- 702001-02 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES
- BLR 21-5 TYPICAL APPLICATION OF TRAFFIC CONTROL DEVICES TWO LANE, TWO WAY, RURAL, OVER ONE DAY
- BLR 23-1 TRAFFIC BARRIER TERMINAL TYPE 1

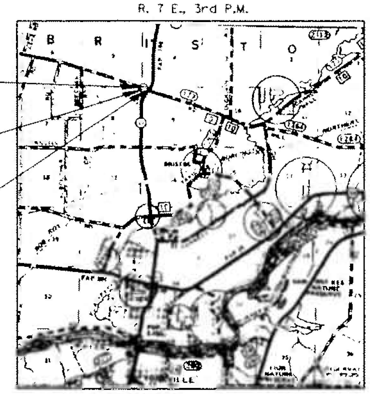
UTILITIES

COMMONWEALTH EDISON
123 ENERGY AVENUE
ROCKFORD, ILLINOIS 61109-1040
ATTN: ENGINEERING DEPARTMENT
MR. MIKE LENOX

NICOR GAS
P.O. BOX 190
AURORA, ILLINOIS 60507-0190
ATTN: LYNNE SINCLAIR
(630)983-8888

AMERITECH
65 WEST WEBSTER
JOLIET, ILLINOIS 60431
ATTN: RON HARSEIM

R. 7 E., 3rd P.M.



LAYOUT

APPROXIMATE SCALE: 0 — 1 Mile

NET LENGTH OF SECTION = 151.65 FEET = 0.029 MILES

N

WARNING
CALL BEFORE YOU DIG

APPROVED BY: ____________ COUNTY ENGINEER

DATE: ____________ 20____

DATE: March 15, 2001

BY: Michael G. Berry

LICENSE EXPIRES: EXPIRES 11-30-01

LICENSE NO. 33868

SEAL: MICHAEL G. BERRY 33868 LICENSED PROFESSIONAL ENGINEER STATE OF ILLINOIS

HLR

Account Number 12-06-002-H

Rice, Berry and Uzman
A Division of Hanson, Lenzini and Reneiss, Inc.
Civil & Structural Engineers
801 S. Durkin Drive
Springfield, Illinois 62704
217-546-3400
608 ½ Eastgate Dr.
Carbondale, Illinois 62901
618-457-116

C.H. 9	01-00069 -00-BR	KENDALL	7	2

SUMMARY OF QUANTITIES

ITEM	UNIT	QUANTITY
POROUS GRANULAR EMBANKMENT	TON	25
BITUMINOUS MATERIALS (PRIME COAT)	GAL	30
BITUMINOUS CONCRETE SURFACE COURSE, MIXTURE D, CLASS I, TYPE 2	TON	55
> COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT	FOOT	8
REMOVE AND RE-ERECT OF EXISTING STEEL PLATE BEAM GUARD RAIL, TYPE A	FOOT	20
> REMOVAL OF EXISTING SUPERSTRUCTURES	EACH	1
STRUCTURE EXCAVATION	CU YD	18
CONCRETE STRUCTURES	CU YD	0.1
> SETTING PRECAST PRESTRESSED CONCRETE DECK BEAMS (17" DEPTH)	SQ FT	1,368
NAME PLATES	EACH	1
> ERECTING STEEL RAILING, TYPE SM	FOOT	74
STEEL PLATE BEAM GUARD RAIL, TYPE A	FOOT	25
STEEL PLATE BEAM GUARD RAIL, TYPE B	FOOT	25
TRAFFIC BARRIER TERMINAL, TYPE 5A	EACH	2
> TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL (TANGENT)	EACH	1
TRAFFIC BARRIER TERMINAL, TYPE 1	EACH	1
> FORMED CONCRETE REPAIR (DEPTH EQUAL TO OR LESS THAN 5")	SQ FT	10
> FORMED CONCRETE REPAIR (DEPTH GREATER THAN 5")	SQ FT	10

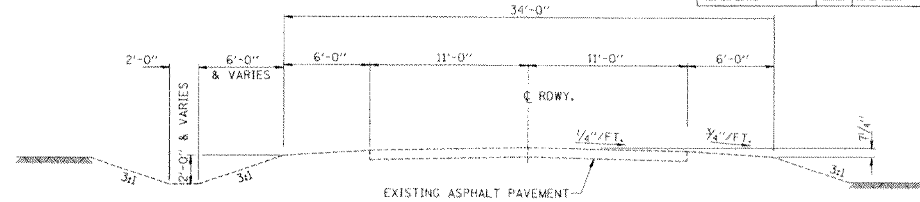
> SEE SPECIAL PROVISIONS

GENERAL NOTES

1. THE LOCATIONS OF EXISTING GAS MAINS, ELECTRIC POWER LINES, TELEPHONE LINES AND OTHER UTILITIES AS SHOWN ON THE PLANS, ARE BASED ON CAREFUL FIELD INVESTIGATION AND THE BEST INFORMATION AVAILABLE, BUT THE LOCATIONS ARE NOT GUARANTEED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE UTILITY COMPANIES AND BY FIELD INSPECTION.
2. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THIER LOCATION.
3. THE REVISION NUMBER INDICATED FOR THE STANDARD SHOWN IN THE INDEX OF SHEETS SHALL BE USED IN THE CONSTRUCTION OF THESE SECTIONS.
4. THE FOLLOWING RATES OF APPLICATION HAVE BEEN USED IN CALCULATING PLAN QUANTITIES:

BITUMINOUS CONCRETE	115 LBS/SQ.YD./IN.
POROUS GRANULAR EMBANKMENT	2.00 TON/CU. YD.

5. REMOVAL AND DISPOSAL OF THE EXISTING BITUMINOUS SURFACING IS INCLUDED IN THE ITEMS. REMOVAL OF EXISTING SUPERSTRUCTURES AND STRUCTURE EXCAVATION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.



ROAD CLASSIFICATION - COLLECTOR DHV 400-1425
CURRENT ADT = 5,800
DESIGN SPEED: 50 M.P.H.

EXISTING TYPICAL CROSS SECTION

REMOVE AND RE-ERECT STEEL PLATE BEAM GUARD RAIL, TYPE A

NORTHEAST CORNER	= 10 FOOT
SOUTHEAST CORNER	= 10 FOOT
TOTAL	20 FOOT

COMBINATION CONCRETE CURB AND GUTTER REMOVAL AND REPLACEMENT

NORTHEAST CORNER	= 4 FOOT
SOUTHEAST CORNER	= 4 FOOT
TOTAL	8 FOOT

TRAFFIC BARRIER TERMINAL, TYPE 5A

NORTHWEST CORNER	= 1 EACH
SOUTHWEST CORNER	= 1 EACH
TOTAL	2 EACH

TRAFFIC BARRIER TERMINAL, TYPE 1 SPECIAL (TANGENT)

NORTHWEST CORNER = 1 EACH

TRAFFIC BARRIER TERMINAL, TYPE 1

SOUTHWEST CORNER = 1 EACH

STEEL PLATE BEAM GUARD RAIL, TYPE A

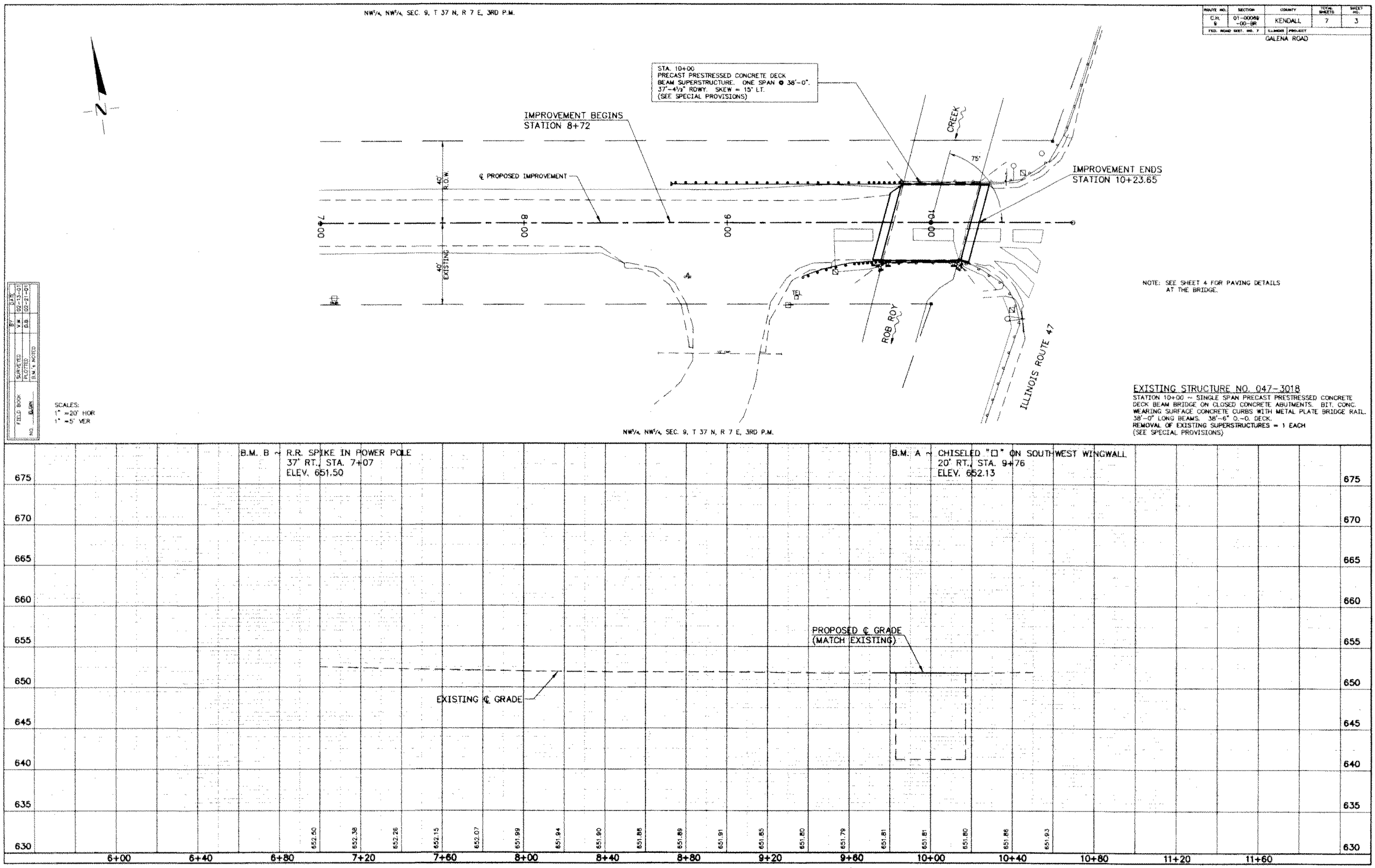
NORTHWEST CORNER = 25 FOOT

STEEL PLATE BEAM GUARD RAIL, TYPE B

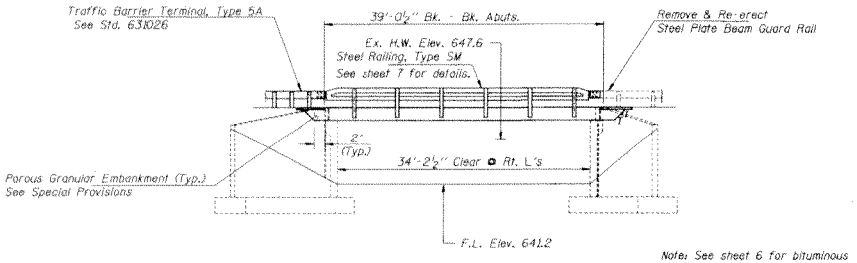
NORTHWEST CORNER = 25 FOOT

HLR
Rice, Berry and Uzman
A Division of Hampton, Lenzini and Renwick, Inc.
Civil & Structural Engineers
801 S. Durkin Drive Springfield, Illinois 62704 217-546-3400
606 1/2 Eastgate Dr. Carbondale, Illinois 62901 618-457-1186
Account Number 12-06-0021-I
Date: 2-22-01
DESIGNED: M.G.B. CHECKED: T.L.W. DRAWN: D.B.

SUMMARY OF QUANTITIES AND TYPICAL SECTIONS
SECTION 01-00069-00-BR
C.H. 9 / GALENA ROAD
KENDALL COUNTY
STATION 10+00

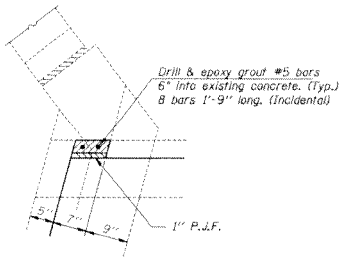

ROUTE NO. C.H. 9
SECTION 01-00068 -00-BR
COUNTY KENDALL
TOTAL SHEETS 7
SHEET NO. 3
GALENA ROAD
NW¼, NW¼, SEC. 9, T 37 N, R 7 E, 3RD P.M.
STA. 10+00
PRECAST PRESTRESSED CONCRETE DECK BEAM SUPERSTRUCTURE. ONE SPAN @ 38'-0". 37'-4½" RDWY. SKEW = 15' LT.
(SEE SPECIAL PROVISIONS)
IMPROVEMENT BEGINS
STATION 8+72
IMPROVEMENT ENDS
STATION 10+23.65
℄ PROPOSED IMPROVEMENT
40' R.O.W.
40' EXISTING
CREEK
ROB ROY
ILLINOIS ROUTE 47
TEL
NOTE: SEE SHEET 4 FOR PAVING DETAILS AT THE BRIDGE.
EXISTING STRUCTURE NO. 047-3018
STATION 10+00 ~ SINGLE SPAN PRECAST PRESTRESSED CONCRETE DECK BEAM BRIDGE ON CLOSED CONCRETE ABUTMENTS. BIT. CONC. WEARING SURFACE CONCRETE CURBS WITH METAL PLATE BRIDGE RAIL. 38'-0" LONG BEAMS. 38'-6" O.-O. DECK.
REMOVAL OF EXISTING SUPERSTRUCTURES = 1 EACH
(SEE SPECIAL PROVISIONS)
SCALES:
1" =20' HOR
1" =5' VER
FIELD BOOK
SURVEYED V.W. 02-13-01
PLOTTED D.B. 02-21-01
B.M.'s NOTED
B.M. B ~ R.R. SPIKE IN POWER POLE
37' RT., STA. 7+07
ELEV. 651.50
B.M. A ~ CHISELED "□" ON SOUTHWEST WINGWALL
20' RT., STA. 9+76
ELEV. 652.13
PROPOSED ℄ GRADE
(MATCH EXISTING)
EXISTING ℄ GRADE
675
670
665
660
655
650
645
640
635
630
652.50 652.38 652.26 652.15 652.07 651.99 651.94 651.90 651.88 651.89 651.91 651.85 651.80 651.79 651.81 651.81 651.80 651.86 651.93
6+00 6+40 6+80 7+20 7+60 8+00 8+40 8+80 9+20 9+60 10+00 10+40 10+80 11+20 11+60

ROUTE NO.	SECTION	COUNTY	SHEET NO.	TOTAL SHEETS
C.H. 9	01-00069-00-BR	KENDALL	7	4
FED. ROAD DIST. NO.		ILLINOIS	FED. AID PROJECT	



Note: See sheet 6 for bituminous surfacing details.

ELEVATION



DETAIL B

Note: Hatched to be poured after superstructure is in place. (Typ.)
Match existing top of wing elevation.

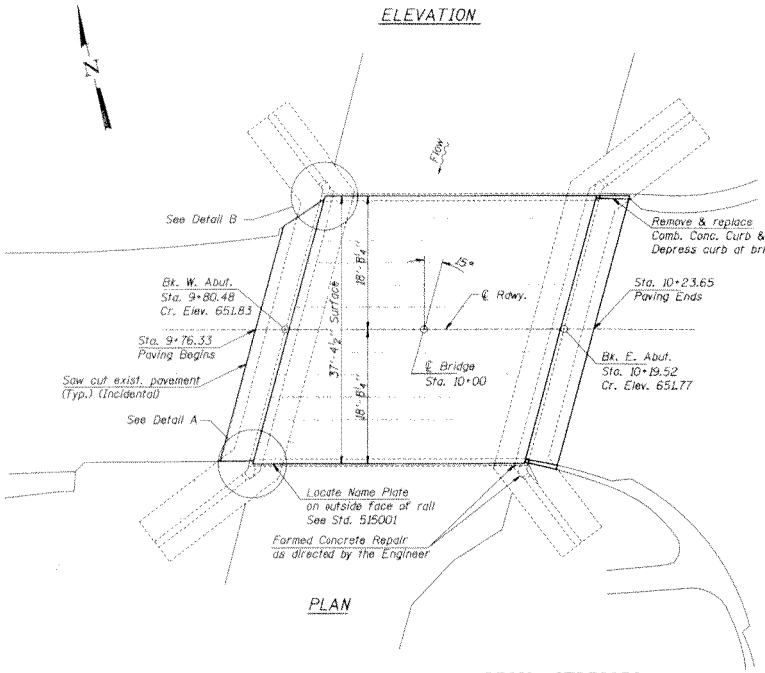
GENERAL NOTES

Plan dimensions and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field 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.

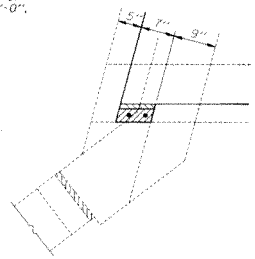
The Contractor shall excavate behind the abutments to the bearing seat elevations prior to the removal of the existing superstructure. The cost of the excavation shall be paid for at the contract unit price per cubic yard of Structure Excavation. The excavation shall be backfilled with Porous Granular Embankment after the dowels are grouted and cured.

The Contractor shall not allow any materials to be dropped into the stream during removal operations or during construction procedures. A Regional Permit from the Army Corp. of Engineers is required for any material dropped into the stream.

The Contractor shall remove and dispose of the existing bituminous concrete wearing surface prior to removal of the deck beams.

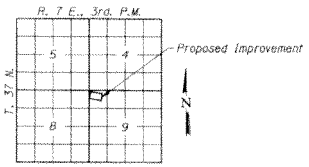


PLAN



DETAIL A

See Detail B for typical notes.



LOCATION SKETCH

TOTAL BILL OF MATERIAL

ITEM	UNIT	SUPER	SUB	TOTAL
Setting Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	1,368		1,368
Erecting Steel Railing, Type SM	Foot	74		74
Name Plates	Each	1		1
Formed Concrete Repair (Depth Equal to or Less Than 5")	Sq. Ft.		10	10
Formed Concrete Repair (Depth Greater than 5")	Sq. Ft.		10	10
Structure Excavation	Cu. Yd.			18
Concrete Structures	Cu. Yd.		0.1	0.1
Bit. Materials (Prime Coat)	Gallon	30		30
Porous Granular Embankment	Ton			25
Bit. Conc. Surf. Crse., Mix. D, Cl. 1, Ty. 2	Ton	55		55

ROB ROY CREEK
RE-BUILT 2001 BY
KENDALL COUNTY
SEC. 01-00069-00-BR
C.H. 9 / GALENA ROAD
STR. NO. 047-3018
LOADING HS 20-44

NAME PLATE

See Std. 515001-01

DESIGN STRESSES

f'c = 5,000 psi (Prestressed Beams)
f'ci = 4,000 psi (Prestressed Beams)
fc = 1,400 psi (Class SI Concrete)
f's = 270,000 psi (Prestressed Strands)
fsi = 189,000 psi (Prestressed Strands)
fs = 20,000 psi (Reinf. Bars - Field Units)
fy = 60,000 psi (Reinf. Bars - Precast Units)
n = 9 (Class SI Concrete)
Loading HS 20-44
Design Specifications: 1996 AASHTO & all applicable interims.
50#/Sq. Ft. included in dead load for future wearing surface.

I certify that to the best of my knowledge, information and belief, this bridge design is structurally adequate for the design loading shown on the plans. The design is an economical one for the style of structure and complies with requirements of the current "AASHTO Standard Specifications for Highway Bridges".

Michael G. Berry 3/15/01
ILLINOIS STRUCTURAL NO. 4622

MICHAEL G. BERRY 4622 LICENSED STRUCTURAL ENGINEER OF SPRINGFIELD, ILLINOIS

Expires 11-30-02

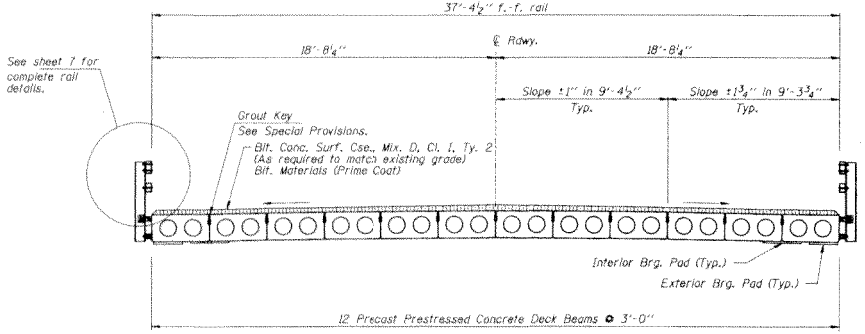
Rice, Berry and Uzzell
A Division of Hampton, Lenzini and Renwick, Inc.
Civil & Structural Engineers
8015 Durkin Drive
Springfield, Illinois 62704
217-546-3400
604 ½ Eastgate Dr.
Carbondale, Illinois 62901
618-457-486

Account Number 12-06-0021-1
Date: 2-21-01
DESIGNED: M.G.B. | CHECKED: D.B. | DRAWN: D.B.

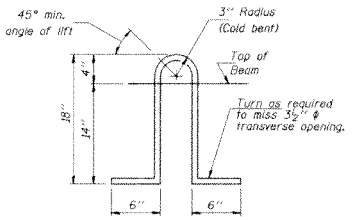
GENERAL PLAN AND ELEVATION

SECTION 01-00069-00-BR
C.H. 9 / GALENA ROAD
KENDALL COUNTY
STATION 10+00

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET
C.H. 9	01-00069 -00-BR	KENDALL	7	5



CROSS SECTION

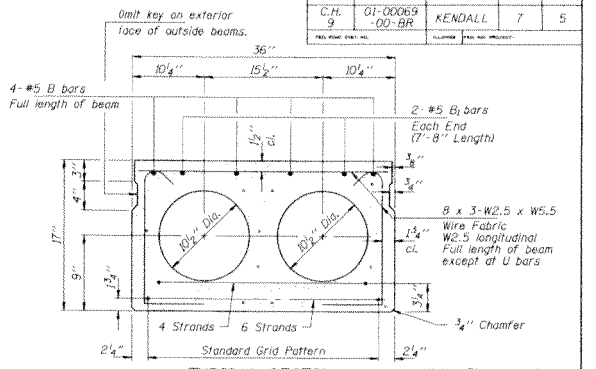


LIFTING LOOP DETAIL

Approved alternate may be substituted for the above.

Note: The loop shall be formed in a manner such that all strands are engaged during lifting. Loops shall be burned or cut off after the beams have been erected.

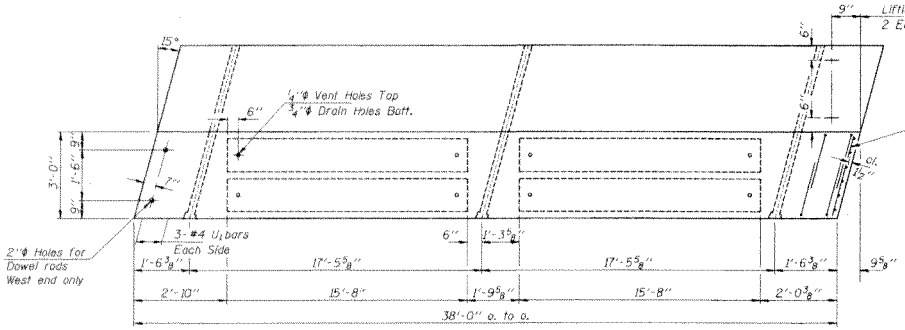
Note: Omit dowel holes at expansion end of beam.



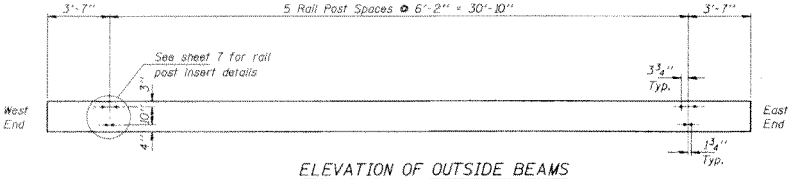
TYPICAL SECTION

10-½"ϕ Strands, Each Strand Stressed to 28,900 Lbs.
6-Strands 1¾" up, 4-Strands 3¼" up
Expected camber = ⅞"

Note: Place strands symmetrically about ℄ of beam.

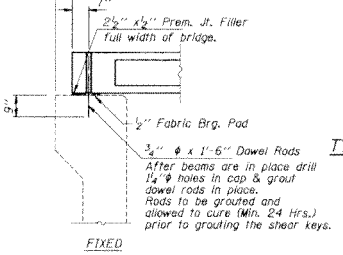


PLAN



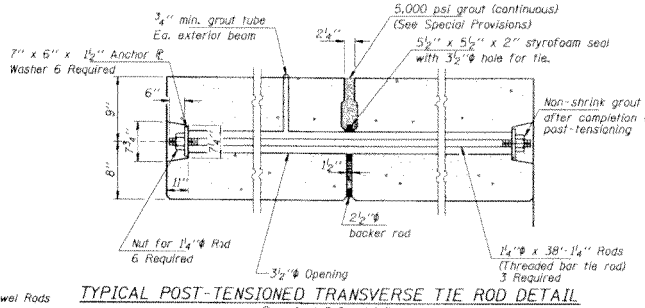
ELEVATION OF OUTSIDE BEAMS

Showing Rail Post Spacing



SECTION AT WEST ABUTMENT

@ Rt. L's

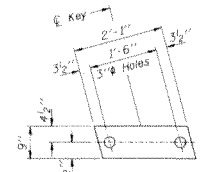


TYPICAL POST-TENSIONED TRANSVERSE TIE ROD DETAIL

See sheet 6 for details

1¼"ϕ Threaded Bar tensioned to 120,000 lb. max. transfer load (Lockoff)

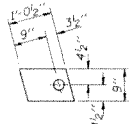
Note: The Contractor shall block off the grouted joint at each end of the beams as approved by the Engineer.



FABRIC BEARING PAD

(Interior Fixed End ½" pads - 11 Req'd)
(Interior Expansion End ¼" pads - 22 Req'd)

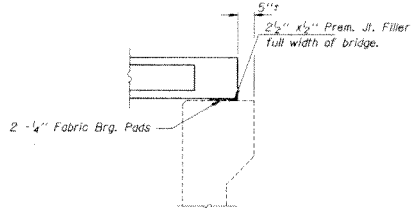
Note: Omit holes in ½" pads at expansion end.



FABRIC BEARING PAD

(Exterior Fixed End ½" pads - 2 Req'd)
(Exterior Expansion End ¼" pads - 4 Req'd)

BAR U1



SECTION AT EAST ABUTMENT

@ Rt. L's

BILL OF MATERIAL

ITEM	UNIT	QUANTITY
Setting Precast Prestressed Concrete Deck Beams (17" Depth)	Sq. Ft.	4,368

Rice, Berry and Uzzell
A Division of Hampton, Lenzini and Renwick, Inc.
Civil & Structural Engineers
801 S. Durkin Drive
Springfield, Illinois 62704
217-546-3400
608 ½ Eastgate Dr.
Carbondale, Illinois 62901
618-457-186
Account Number 12-06-0021-1
Dated: 2-21-01
DESIGNED M.G.B. | CHECKED D.B. | DRAWN D.B.

SUPERSTRUCTURE

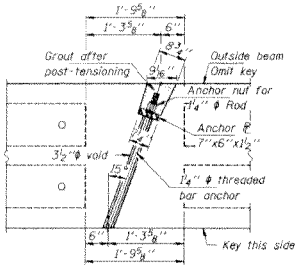
SECTION 01-00069-00-BR

C.H. 9 / GALENA ROAD

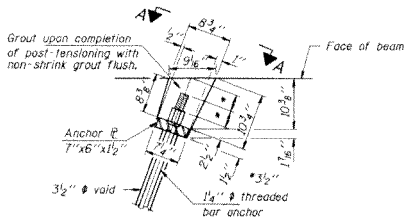
KENDALL COUNTY

STATION 10+00

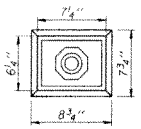
ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET
C.H. 9	01-00069 -00-BR	KENDALL	7	6
FED. ROAD DIST. NO.		ILLINOIS FED. AID PROJECT		



PLAN AT POST-TENSIONED TRANSVERSE TIE ROD



PLAN-THREADED BAR ANCHOR



VIEW A-A

NOTES

Prestressing steel shall be non-galvanized high strength, stress-relieved 7 wire strand, Grade 270. The nominal diameter shall be ½" and the nominal cross-sectional area shall be 0.153 sq. in. Lifting loops shall be 7 - wire stress-relieved 2-½" ϕ-270 ksi strands.

Reinforcement bars shall conform to the requirements of AASHTO M-31, M-42 or M-53 Grade 60.

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.

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.

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

An equal substitution of the low-relaxation strands for the stress relieved strands will be permitted.

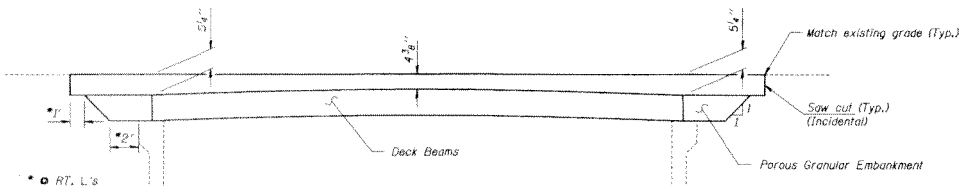
Threaded bar post-tensioning rod to be 1¼"ϕ diameter, ultimate stress 150 ksi (Ultimate Strength 187.5 k). Conforming to ASTM A722 Steel hot rolled and proof stressed. The bar deformations shall conform to the requirements of ASTM A615.

Anchor plates, couplers and nuts shall exceed the requirements of ACI 318 and AASHTO Standard Specifications for Highway Bridges, 1996, Section 9, Article 9.27 Post Tensioning Anchorages and Couplers.

Voids around threed bar to be grouted after post-tensioning is complete. See Special Provisions for grout and grouting pressures.

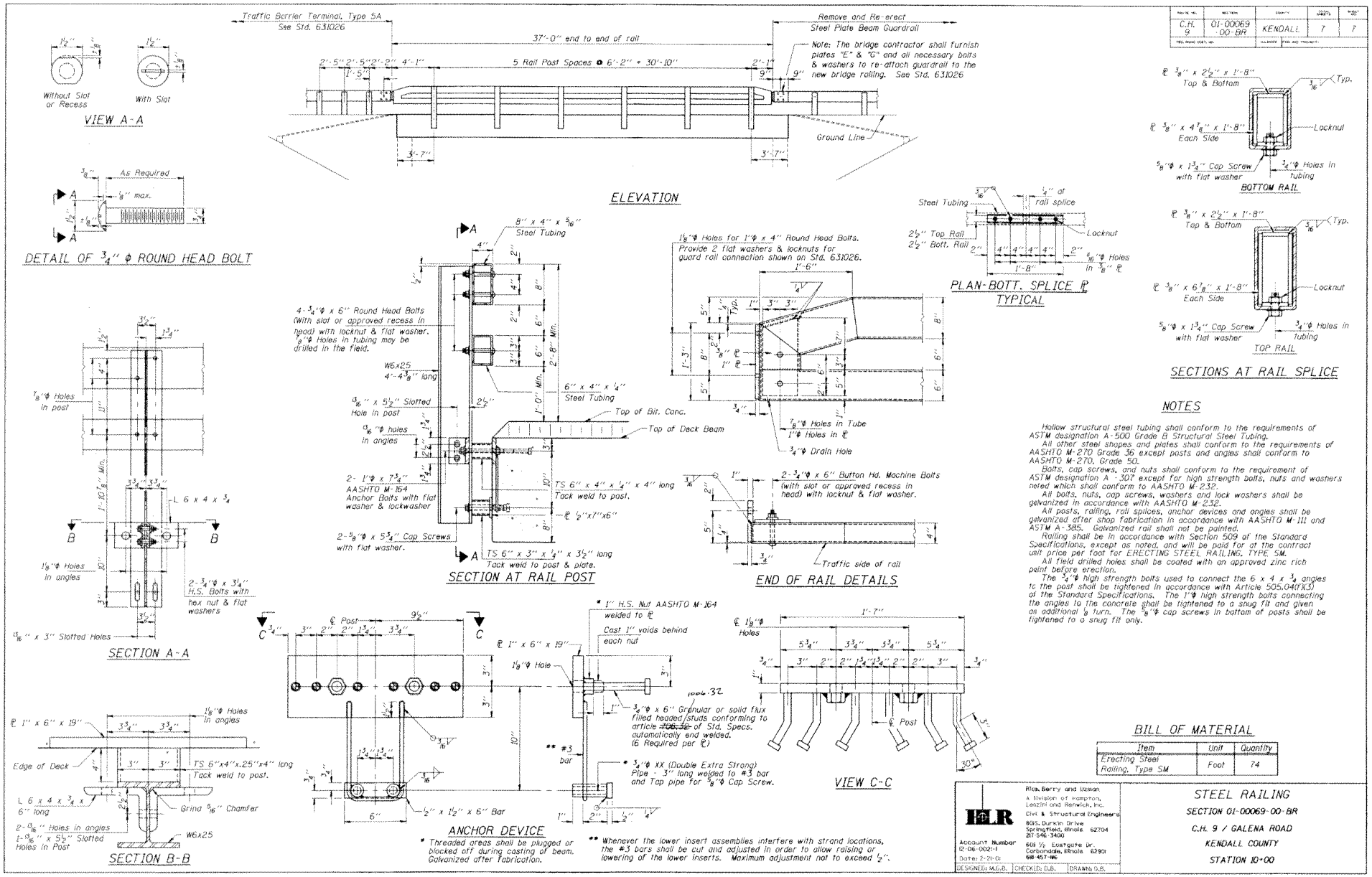
All threaded bars shall be initially stressed to not more than 62 k (temporary) and the nut tightened. After all bars have been stressed to 62 k, the jacking may commence for 120 k maximum transfer load (lockoff).

A Calcium Nitrate Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.



SURFACING DETAIL

HLR	Rice, Berry and Uzzell A Division of Hampton, Lenzini and Renwick, Inc. Civil & Structural Engineers 8015. Durkin Drive Springfield, Illinois 62704 217-546-3400 808 ½ Eastgate Dr. Carbondale, Illinois 62901 618-457-86	SUPERSTRUCTURE DETAILS SECTION 01-00069-00-BR C.H. 9 / GALENA ROAD KENDALL COUNTY STATION 10+00
Account Number 12-08-0021-1 Date: 2-21-01		
DESIGNED: M.C.B.	CHECKED: D.B.	DRAWN: D.B.



C.H. 9	01-00069-00-BR	KENDALL	7	7

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B Structural Steel Tubing.

All other steel shapes and plates shall conform to the requirements of AASHTO M-270 Grade 36 except posts and angles shall conform to AASHTO M-270, Grade 50.

Bolts, cap screws, and nuts shall conform to the requirement of ASTM designation A-307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M-232.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with AASHTO M-232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with AASHTO M-111 and ASTM A-385. Galvanized rail shall not be painted.

Railing shall be in accordance with Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per foot for ERECTING STEEL RAILING, TYPE SM.

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

The 3/4"ø high strength bolts used to connect the 6 x 4 x 3/4 angles to the post shall be tightened in accordance with Article 505.04(f)(3) of the Standard Specifications. The 1"ø high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 7/8"ø cap screws in bottom of posts shall be tightened to a snug fit only.

BILL OF MATERIAL

Item	Unit	Quantity
Erecting Steel Railing, Type SM	Foot	74

Rice, Berry and Uzelman
A Division of Hampton, Lenzini and Renwick, Inc.
Civil & Structural Engineers
805 Dunkin Drive
Springfield, Illinois 62704
217-546-3400
608 1/2 Eastgate Dr.
Carbondale, Illinois 62901
618-457-4116
Account Number 12-06-0021-1
Date: 2-21-01
DESIGNED: M.G.B. | CHECKED: D.B. | DRAWN: D.B.

STEEL RAILING

SECTION 01-00069-00-BR

C.H. 9 / GALENA ROAD

KENDALL COUNTY

STATION 10+00