

|                       |         |            |                      |           |
|-----------------------|---------|------------|----------------------|-----------|
| ROUTE NO.             | SECTION | COUNTY     | TOTAL SHEETS         | SHEET NO. |
| CH 9                  | *       | CASS       | 29                   | 1         |
| FED. ROAD DIST. NO. 7 |         | ILLINOIS   | PROJECT BRS-580(105) |           |
| #04-00068-00-BR       |         | CONTRACT # |                      |           |

93474

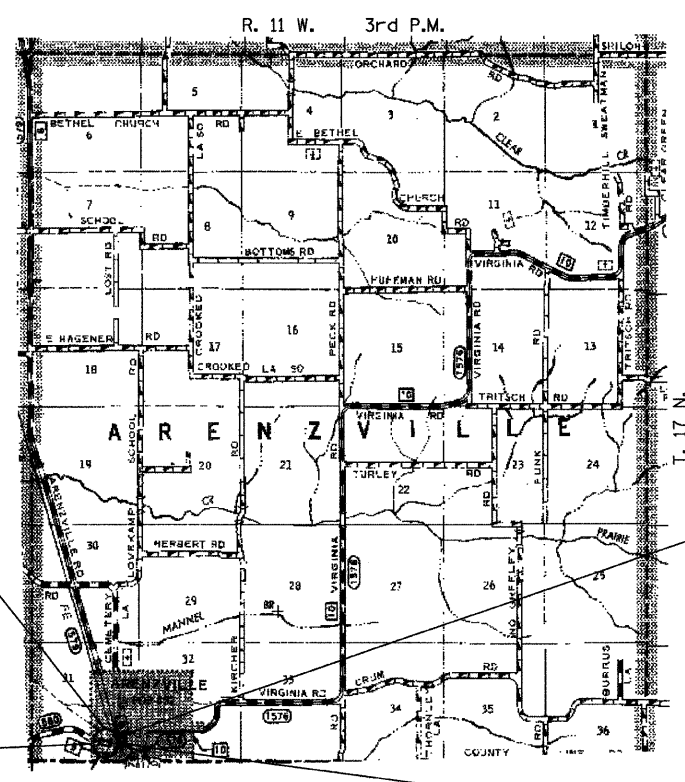
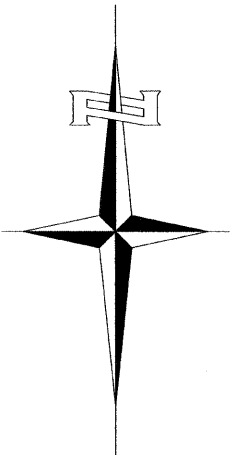
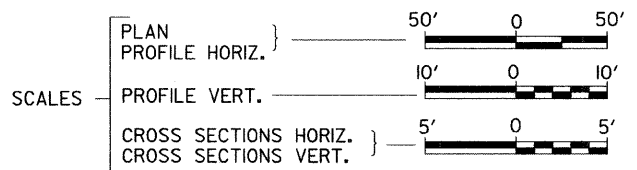
**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**  
**PLANS FOR PROPOSED**  
**MAJOR BRIDGE PROGRAM**  
**CASS COUNTY**  
**SECTION 04-00068-00-BR**  
**F.A.S. 580 (CH 9) OVER INDIAN CREEK**  
**PROJECT NO. BRS-580(105)**  
**JOB NUMBER C-96-210-09**

INDEX OF SHEETS

| SHEET NO. | DESCRIPTION                                       |
|-----------|---|
| 1.        | COVER SHEET                                       |
| 2.        | GENERAL NOTES, DETAILS, AND TYPICAL SECTIONS      |
| 3.        | ENTRANCE AND BUTT JOINT DETAILS                   |
| 4.        | SUMMARY OF QUANTITIES AND SCHEDULES OF QUANTITIES |
| 5.        | TRAFFIC CONTROL PLAN                              |
| 6.        | STORMWATER POLLUTION PREVENTION PLAN              |
| 7.        | PLAN AND PROFILE                                  |
| 8.-19.    | STRUCTURE PLANS                                   |
| 20.-29.   | CROSS SECTIONS                                    |

REQUIRED HIGHWAY STANDARDS

|           |           |
|-----------|-----------|
| 000001-05 | 701001-02 |
| 280001-04 | 701006-03 |
| 420401-07 | 701011-02 |
| 515001-03 | 701201-03 |
| 630001-08 | 701301-03 |
| 630301-05 | 701306-02 |
| 631011-05 | 701311-03 |
| 631032-04 | 701901-01 |
| 635006-03 | 780001-02 |
| 635011-02 | BLR 21-8  |



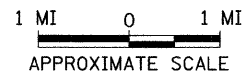
PROPOSED STRUCTURE NO. 009-3033  
 THREE SPAN 27" & 33" P.P.C. DECK BEAM  
 STRUCTURE ON CONC. SPILL THRU  
 ABUTMENTS AND CONC. ENCASED PIERS,  
 196'-0" BK. TO BK. AND 33'-0" O. TO O.,  
 30° RT. AH. SKEW

EXISTING STRUCTURE 009-3032  
 THREE SPAN STEEL STRINGER WITH CONCRETE  
 DECK ON PILE BENT SPILL THRU ABUTMENTS AND  
 MULTIPLE COLUMN CONCRETE PILE BENT PIERS,  
 WITH CONCRETE SLOPE WALLS,  
 ±172'-0" BK. TO BK., AND ±25'-0" O. TO O.,  
 30° RT. AH. SKEW (TO BE REMOVED)

SECTION 04-00068-00-BR  
 BEGINS  
 STATION 45+50.00

SECTION 04-00068-00-BR  
 ENDS  
 STATION 56+00.00

LOCATION MAP



NET LENGTH OF PROJECT = 1050.00 FEET = 0.199 MILES  
 DESIGN CLASSIFICATION: MAJOR COLLECTOR (NON-URBAN)  
 DESIGN ADT = 1800 (2028)  
 DESIGN SPEED = 30 MPH (POSTED)

UTILITY COMPANIES

- WATER & SEWER  
ARENZVILLE, ILLINOIS
- CASS COMM. TELEPHONE & CABLE  
VIRGINIA, ILLINOIS
- MEDIACOM CABLE  
JACKSONVILLE, ILLINOIS
- AMEREN IP  
BEARDSTOWN, ILLINOIS
- VERIZON  
JACKSONVILLE, ILLINOIS
- FRONTIER COMMUNICATIONS  
MT. PULASKI, ILLINOIS

CALL J.U.L.I.E.  
 BEFORE YOU DIG  
 1-800-892-0123 OR 811

CONTRACT NO. **93474**

**Hutchison Engineering, Inc.**  
 JACKSONVILLE ILLINOIS

2008 JOB#2417

APPROVED 9/23/08 2008  
*Timothy J. Schaefer*  
 CASS COUNTY ENGINEER

PASSED October 8 2008

*Taranna Jantzen*  
 DISTRICT SIX ENGINEER OF  
 LOCAL ROADS & STREETS

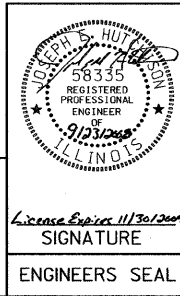
PASSED October 8 2008

*Ron DeChambeau*  
 DISTRICT SIX ENGINEER  
 OF CONSTRUCTION

Released For  
 Bid Based on  
 Limited Review October 8, 2008

*Rogan Driskell*  
 DEPUTY DIRECTOR OF HIGHWAYS,  
 REGION FOUR ENGINEER

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION



24ITE001

**STRUCTURAL DESIGN INFORMATION  
COUNTY HIGHWAY 9**

**HOT-MIX ASPHALT MIXTURE REQUIREMENTS**

| MIXTURE USE      | BINDER   | INCIDENTAL SURFACING | SURFACE (MIX "C") |
|------------------|----------|----------------------|-------------------|
| AC/PG            | PG 64-22 | PG 64-22             | PG 64-22          |
| DESIGN AIR VOIDS | 4% @ N50 | 4% @ N50             | 4% @ N50          |
| MIX COMPOSITION  | IL-19.0  | IL-19.0 OR 12.5      | IL-12.5 OR IL-9.5 |

If RAP option is selected, the asphalt cement grade may need to be adjusted. This will be determined by the Engineer.

ROAD CLASSIFICATION: CLASS III 80,000 lb./20 YEAR DESIGN  
STRUCTURAL DESIGN TRAFFIC:  
PV = 1,413 SU = 112 MU = 80  
PERCENT OF STRUCTURAL DESIGN TRAFFIC IN DESIGN LANE:  
P = 88% S = 7% M = 5%  
MINIMUM SUBGRADE SUPPORT RATING: GRANULAR  
FLEXIBLE PAVEMENT DESIGN: MINIMUM TF = 0.43  
ASPHALT PAVEMENT THICKNESS: 7 1/4"  
AGGREGATE BASE COURSE, TYPE A: 8"

**GENERAL NOTES**

PLAN QUANTITIES FOR TREE REMOVAL HAVE BEEN BASED ON ALL TREES WITHIN THE PROPOSED RIGHT OF WAY. THIS QUANTITY MAY BE REVISED DURING CONSTRUCTION, AT THE DIRECTION OF THE ENGINEER, BY DELETING FROM THE TREE REMOVAL QUANTITIES, SUCH TREES THAT DO NOT INTERFERE WITH THE PROPOSED CONSTRUCTION.

ALL WASTE OR UNDESIRABLE MATERIAL AS IDENTIFIED BY THE ENGINEER SHALL BE DISPOSED OF OUTSIDE THE LIMITS OF THE RIGHT OF WAY AT THE CONTRACTOR'S EXPENSE.

ALL EXISTING PRIVATELY OWNED UTILITIES REQUIRING ADJUSTMENT WILL BE MADE BY THE UTILITY COMPANY INVOLVED. WHERE NO PROVISIONS HAVE BEEN MADE FOR ADJUSTMENTS ON THE PLANS, NO ADDITIONAL COMPENSATION WILL BE ALLOWED DUE TO DELAYS OR INCONVENIENCES CAUSED BY THE SAID UTILITY ADJUSTMENTS.

ALL EXISTING DRAINAGE STRUCTURES NOT BEING REMOVED BY THE CONTRACTOR THAT ARE DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

THE PROFILE GRADE ELEVATIONS SHOWN ON THE PLAN AND PROFILE SHEETS AND IN THE STATION CROSS SECTIONS ARE TO THE TOP OF THE FINISHED SURFACE.

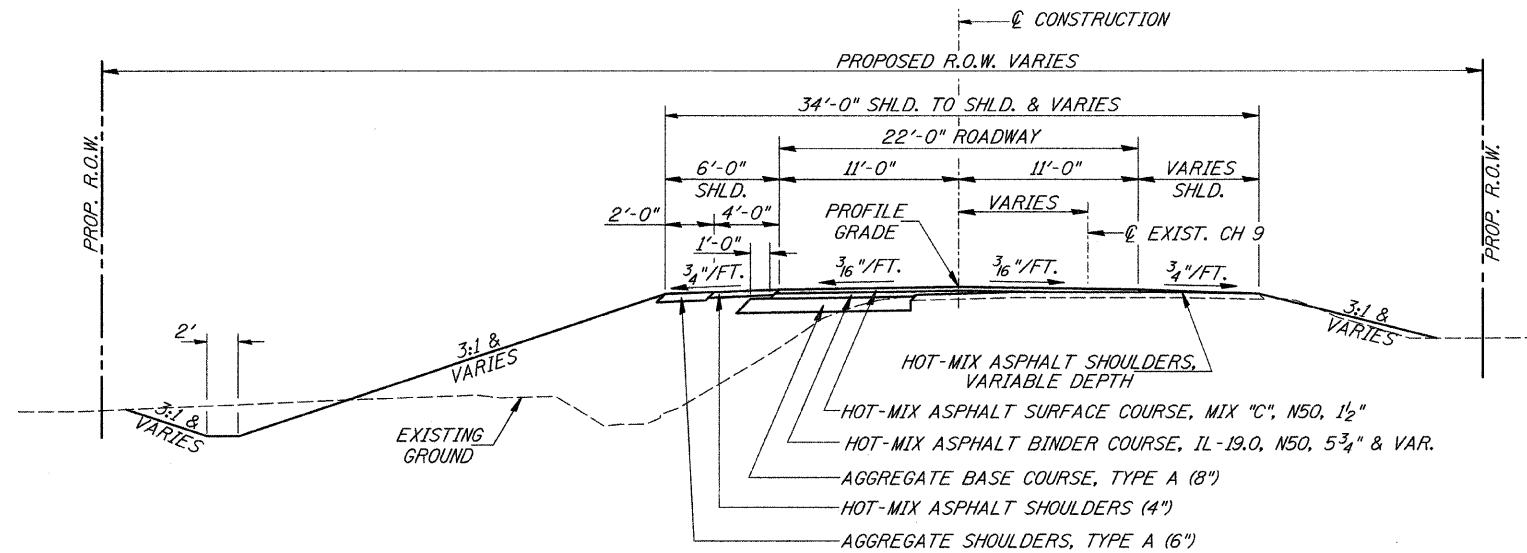
ANY REFERENCE TO STANDARDS THROUGHOUT THE PLANS SHALL BE INTERPRETED TO BE THE LATEST STANDARDS OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION

THE LOCATION OF UNDERGROUND UTILITIES SHOWN ON THE PLANS REPRESENTS THE BEST KNOWLEDGE OF THE COUNTY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS OF UNDERGROUND INSTALLATIONS BEFORE STARTING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL INDEMNIFY THE COUNTY, ITS OFFICERS AND EMPLOYEES AGAINST ALL CLAIMS DUE TO DAMAGE TO CORPORATE OR PRIVATE PROPERTY RESULTING FROM HIS CONSTRUCTION OPERATIONS AS DESCRIBED IN ARTICLES 107.20 AND 107.26 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR MAY BE REQUIRED TO CONDUCT SOME OF HIS GRADING AND TRENCHING OPERATIONS AROUND TRANSMISSION POLES AND UNDER TRANSMISSION LINES. THE ADDED COST OF SO DOING SHALL BE INCLUDED IN THE COST OF EARTH EXCAVATION.

WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND PRESERVE PROPERTY MARKERS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR, OR AGENT, HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

ALL ELEVATIONS SHOWN REFER TO AN U.S.G.S. MEAN SEA LEVEL DATUM.

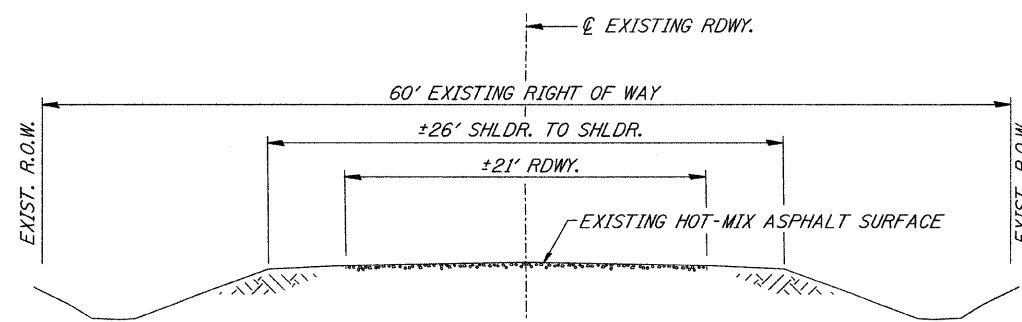


**PROPOSED TYPICAL SECTION**

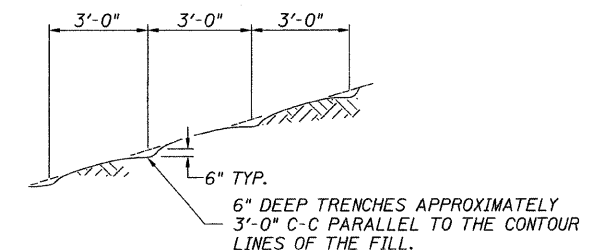
STA. 45+50.00 TO STA. 48+64.52  
STA. 51+20.52 TO STA. 56+00.00  
EXCEPT TRANSITIONS

STA. 48+64.52 TO STA. 48+94.52  
STA. 50+90.52 TO STA. 51+20.52  
BRIDGE APPROACH PAVEMENT

BRIDGE OMISSION  
STA. 48+94.52 TO STA. 50+90.52



**EXISTING TYPICAL SECTION**

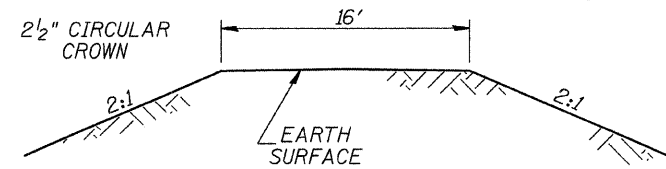
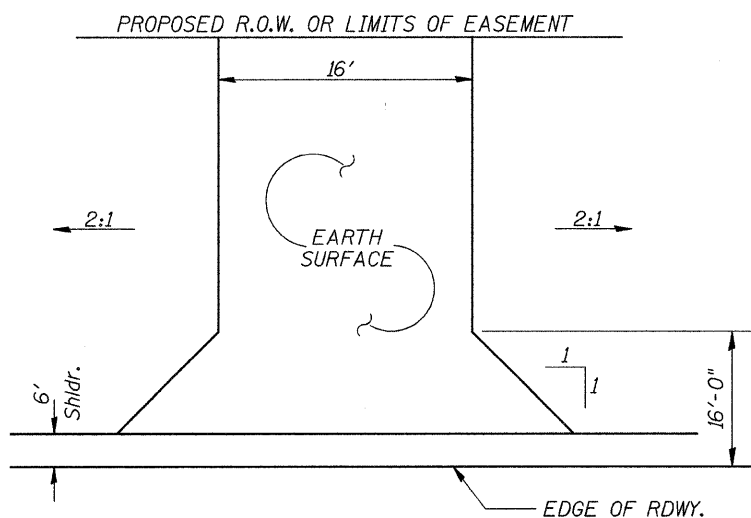


NOTE: ALL SLOPES 3:1 OR STEEPER AND GREATER THAN 5' IN HEIGHT SHALL BE CONTOUR PLOWED AS SHOWN IN DETAIL. COST SHALL BE INCLUDED WITH SEEDING, CLASS 2 (SPECIAL).

**DETAIL OF CONTOUR PLOWING**

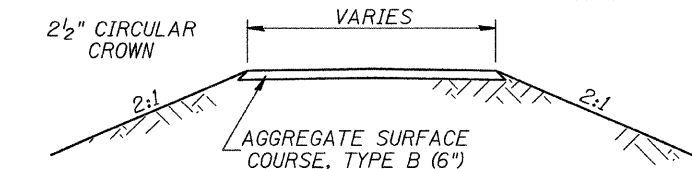
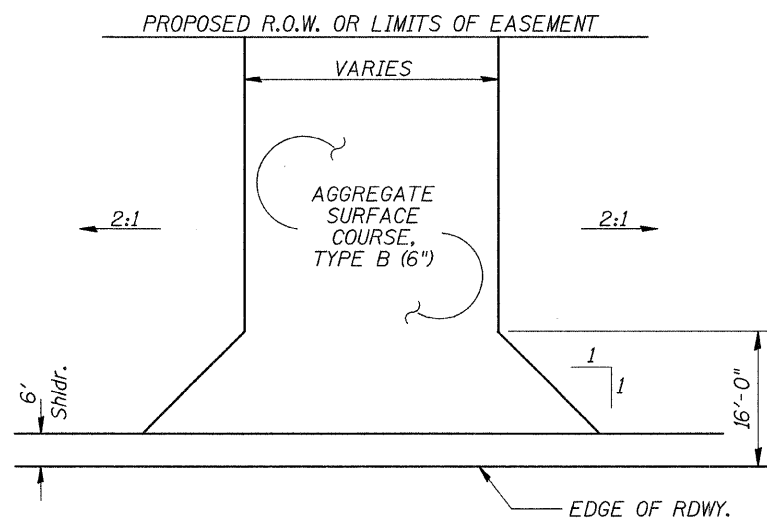
| ROUTE NO.             | SECTION | COUNTY     | TOTAL SHEETS         | SHEET NO. |
|-----------------------|---------|------------|----------------------|-----------|
| CH 9                  | *       | CASS       | 29                   | 3         |
| FED. ROAD DIST. NO. 7 |         | ILLINOIS   | PROJECT BRS-580(105) |           |
| *04-00068-00-BR       |         | CONTRACT * |                      |           |

93474



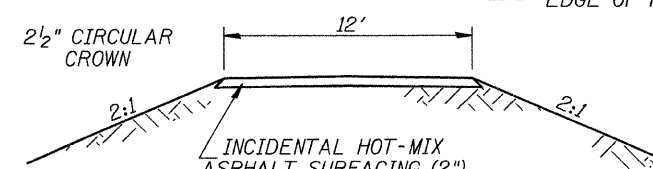
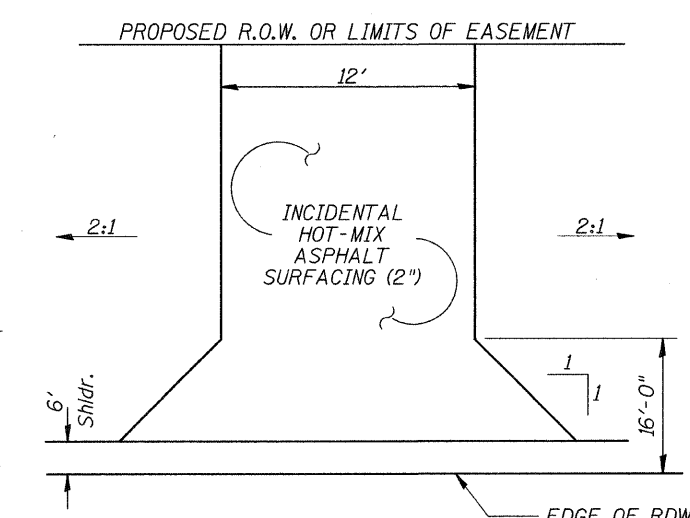
**PROPOSED FIELD ENTRANCE**

STA 45+57 LT (16' WIDE)



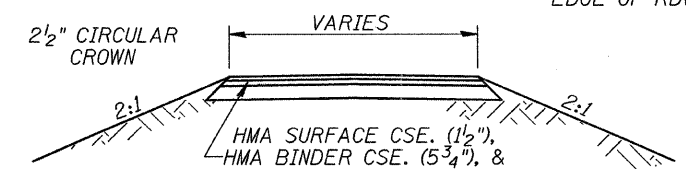
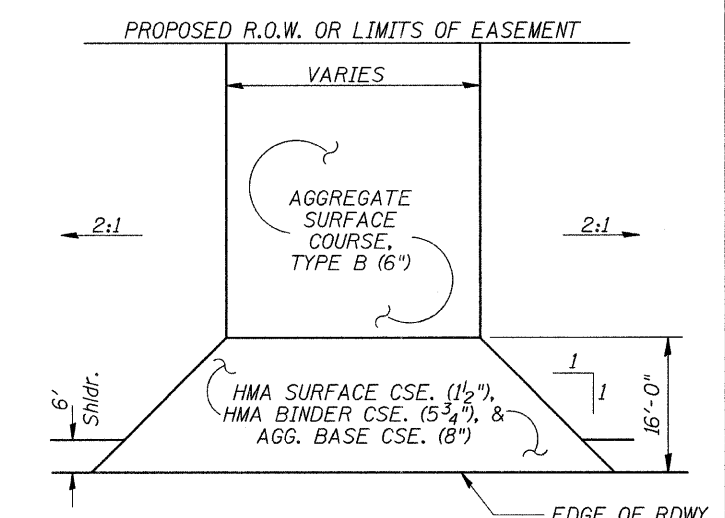
**PROPOSED PRIVATE/FIELD ENTRANCES**

STA 47+40 RT (12' WIDE)  
STA 55+68 RT (16' WIDE)



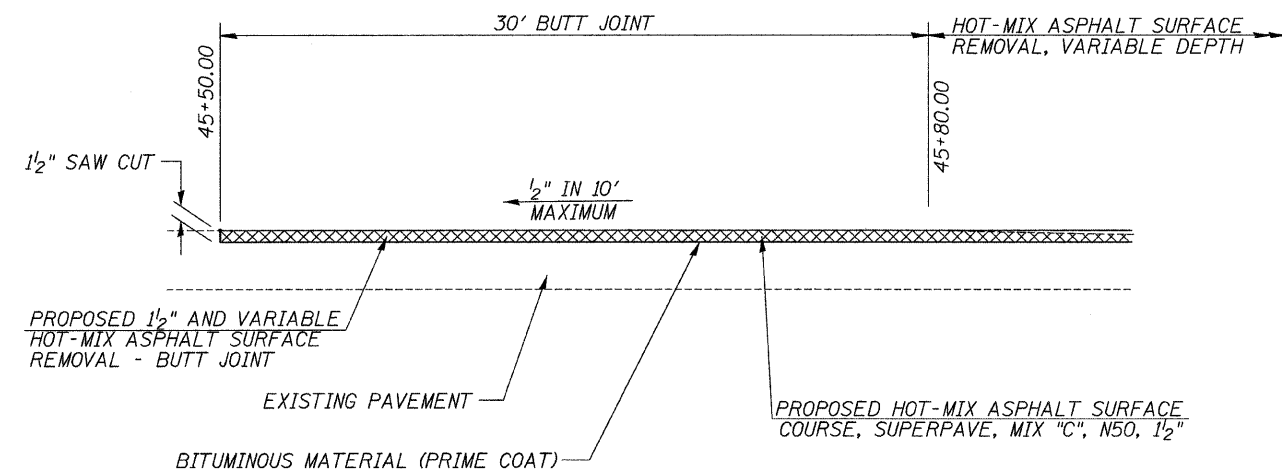
**PROPOSED PRIVATE ENTRANCE**

STA 48+55 RT

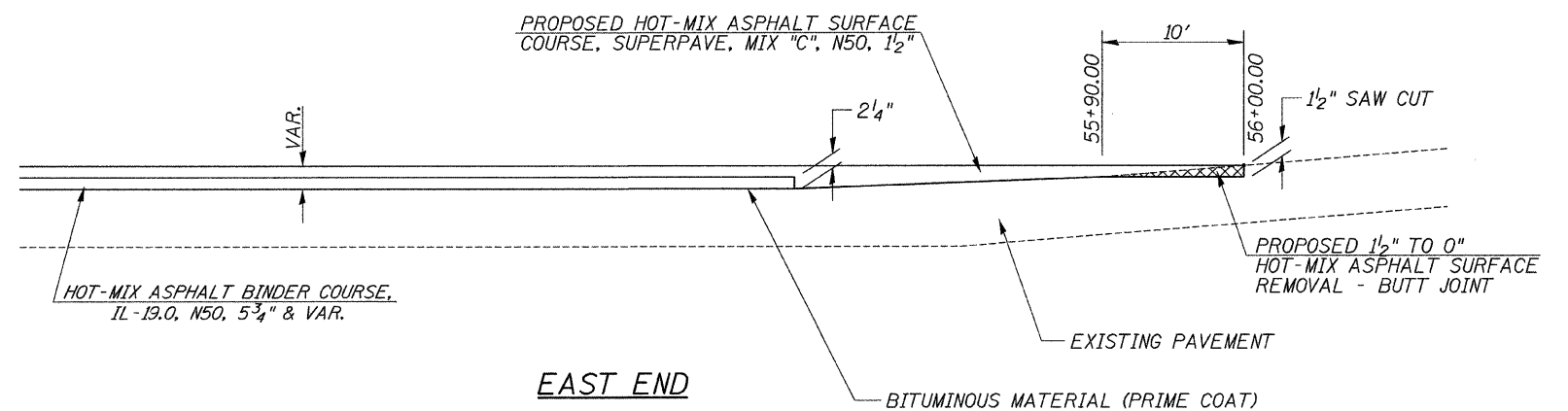


**PROPOSED COMMERCIAL ENTRANCES**

STA 51+27 LT (50' WIDE)  
STA 52+84 LT (35' WIDE)  
STA 54+22 LT (22' WIDE)  
STA 55+29 LT (33' WIDE)



**WEST END**



**EAST END**

**BUTT JOINT DETAILS**

SUMMARY OF QUANTITIES

Table with 4 columns: CODE NO., ITEM, UNIT, QUANTITY. Lists various construction items such as tree removal, earth excavation, channel excavation, seeding, erosion control, aggregate base course, asphalt surface removal, culvert removal, and guardrail removal.

① SEE SPECIAL PROVISIONS
\* SPECIALTY ITEMS

CONSTRUCTION CODE TYPE: X081-24

AGGREGATE SURFACE COURSE, TYPE B

Table with 4 columns: STATION TO STATION, WIDTH, LENGTH, TON. Lists aggregate surface course data for various stationing points.

AGGREGATE DITCH\*\*

Table with 5 columns: STATION TO STATION, SIDE, WIDTH, TON, FILTER FABRIC (SQ YD). Lists aggregate ditch data.

\*\* Aggregate Ditch shall conform to material type B-3 of the Standard Specifications

TREE REMOVAL

Table with 5 columns: STATION, OFFSET, SIDE, 6 TO 15 UNITS, OVER 15 UNITS. Lists tree removal data.

GUARDRAIL REMOVAL

Table with 3 columns: STATION TO STATION, SIDE, FOOT. Lists guardrail removal data.

INLET & PIPE PROTECTION

Table with 3 columns: STATION, SIDE, EACH. Lists inlet and pipe protection data.

PERIMETER EROSION BARRIER

Table with 3 columns: STATION TO STATION, SIDE, FOOT. Lists perimeter erosion barrier data.

PAVEMENT SCHEDULE

Large table with 8 columns: STATION TO STATION, WIDTH, LENGTH, AGGREGATE BASE COURSE, PRIME COAT GALLON, HOT-MIX ASPHALT BINDER CSE, HOT-MIX ASPHALT SURF CSE, INC HOT-MIX ASPHALT SURF. Lists pavement schedule data.

HOT-MIX ASPHALT SHOULDERS

Table with 5 columns: STATION TO STATION, SIDE, WIDTH, LENGTH, TON. Lists hot-mix asphalt shoulder data.

HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT

Table with 4 columns: STATION TO STATION, WIDTH, LENGTH, SQ YD. Lists hot-mix asphalt surface removal data.

PIPE CULVERT REMOVAL

Table with 4 columns: @ STATION, SIZE, SIDE, FOOT. Lists pipe culvert removal data.

PIPE CULVERTS, CLASS D, TYPE 2 15"

Table with 3 columns: STATION, SIDE, FOOT. Lists pipe culvert data.

HOT-MIX ASPHALT SURFACE REMOVAL - VARIABLE DEPTH

Table with 4 columns: STATION TO STATION, WIDTH, LENGTH, SQ YD. Lists hot-mix asphalt surface removal data.

TEMPORARY DITCH CHECKS

Table with 3 columns: STATION, SIDE, EACH. Lists temporary ditch checks data.

AGGREGATE SHOULDERS, TYPE A

Table with 5 columns: STATION TO STATION, SIDE, WIDTH, LENGTH, TON. Lists aggregate shoulder data.

TRAFFIC BARRIER TERMINAL, TYPE 6A

Table with 3 columns: SIDE, STATION TO STATION, EACH. Lists traffic barrier terminal data.

TRAFFIC BARRIER TERMINAL, TYPE 2

Table with 3 columns: SIDE, STATION TO STATION, EACH. Lists traffic barrier terminal data.

TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT

Table with 3 columns: SIDE, STATION TO STATION, EACH. Lists traffic barrier terminal data.

THERMOPLASTIC PAVEMENT MARKING - LINE 4"

Table with 4 columns: STATION TO STATION, SIDE, DESCRIPTION, FOOT. Lists thermoplastic pavement marking data.

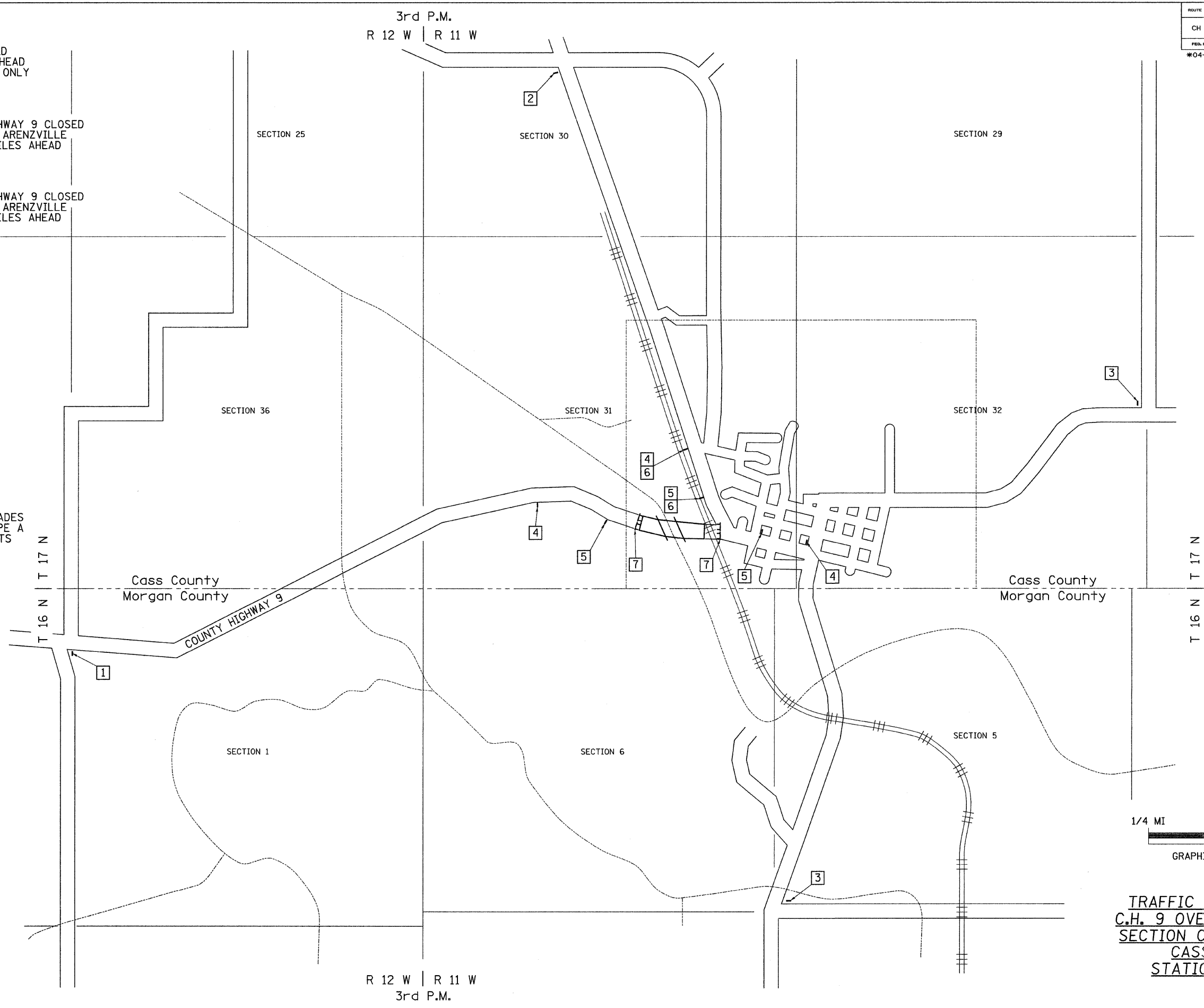
EARTHWORK SUMMARY

Table with 6 columns: STATION TO STATION, EARTH EXCAVATION, CHANNEL EXCAVATION, STRUCTURE EXCAVATION, FILL, WASTE (SHORTAGE). Lists earthwork summary data.

| ROUTE NO.             | SECTION | COUNTY   | TOTAL SHEETS         | SHEET NO. |
|-----------------------|---------|----------|----------------------|-----------|
| CH 9                  | *       | CASS     | 29                   | 5         |
| FED. ROAD DIST. NO. 7 |         | ILLINOIS | PROJECT BRS-580(105) |           |
| *04-00068-00-BR       |         |          | CONTRACT * 93474     |           |

- 1 ROAD CLOSED 1 3/4 MILES AHEAD LOCAL TRAFFIC ONLY R11-3      ROAD CLOSED 1 3/4 MILES AHEAD LOCAL TRAFFIC ONLY R11-3
- 2 COUNTY HIGHWAY 9 CLOSED WEST OF ARENZVILLE 1 1/2 MILES AHEAD M3-1      COUNTY HIGHWAY 9 CLOSED WEST OF ARENZVILLE 1 1/2 MILES AHEAD M3-1
- 3 COUNTY HIGHWAY 9 CLOSED WEST OF ARENZVILLE 1 1/4 MILES AHEAD M3-1      COUNTY HIGHWAY 9 CLOSED WEST OF ARENZVILLE 1 1/4 MILES AHEAD M3-1
- 4 ROAD CLOSED AHEAD W20-3      ROAD CLOSED AHEAD W20-3
- 5 ROAD CLOSED 500 FT W20-3      ROAD CLOSED 500 FT W20-3
- 6 AS SHOWN M5-1R
- 7 TYPE III BARRICADES EACH WITH 2 TYPE A FLASHING LIGHTS

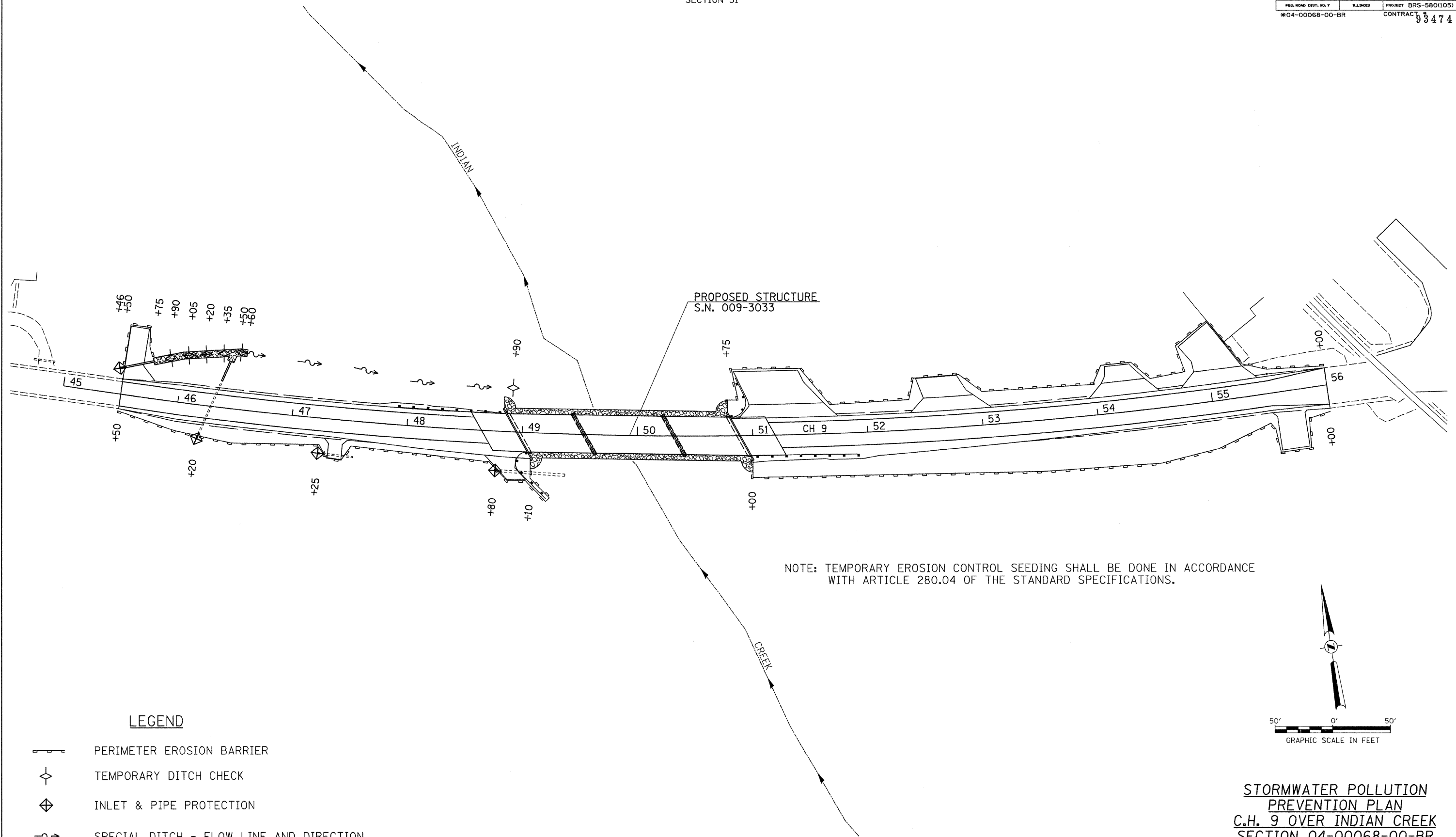
SEE STANDARD BLR 21 AND SPECIAL PROVISIONS



TRAFFIC CONTROL PLAN  
 C.H. 9 OVER INDIAN CREEK  
 SECTION 04-00068-00-BR  
 CASS COUNTY  
 STATION 49+92.52






T 17 N, R 11 W, 3rd PM  
SECTION 31

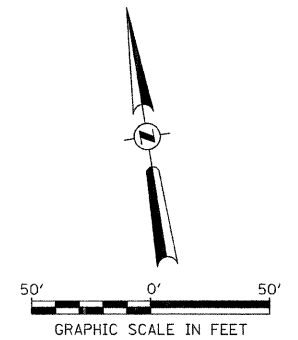
| ROUTE NO.             | SECTION | COUNTY   | TOTAL SHEETS         | SHEET NO. |
|-----------------------|---------|----------|----------------------|-----------|
| CH 9                  | *       | CASS     | 29                   | 6         |
| FED. ROAD DIST. NO. 7 |         | ILLINOIS | PROJECT BR5-580(105) |           |
| *04-00068-00-BR       |         | CONTRACT |                      | 3474      |



NOTE: TEMPORARY EROSION CONTROL SEEDING SHALL BE DONE IN ACCORDANCE WITH ARTICLE 280.04 OF THE STANDARD SPECIFICATIONS.

**LEGEND**

-  PERIMETER EROSION BARRIER
-  TEMPORARY DITCH CHECK
-  INLET & PIPE PROTECTION
-  SPECIAL DITCH - FLOW LINE AND DIRECTION
-  PROPOSED RIPRAP / AGGREGATE DITCH PLACEMENT

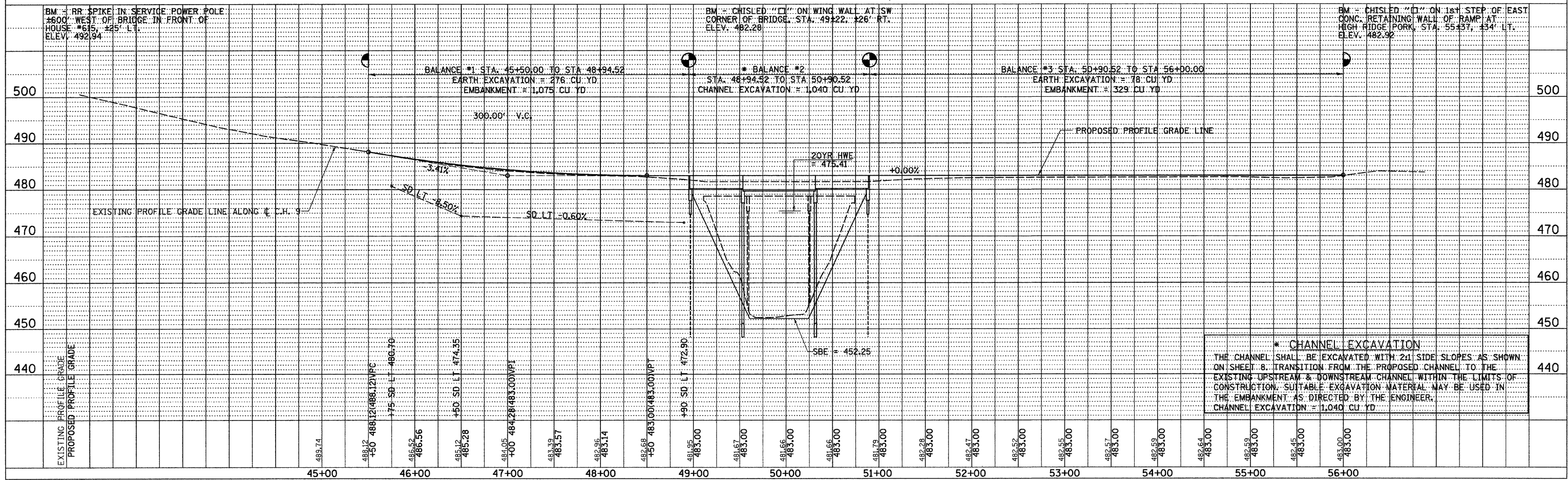
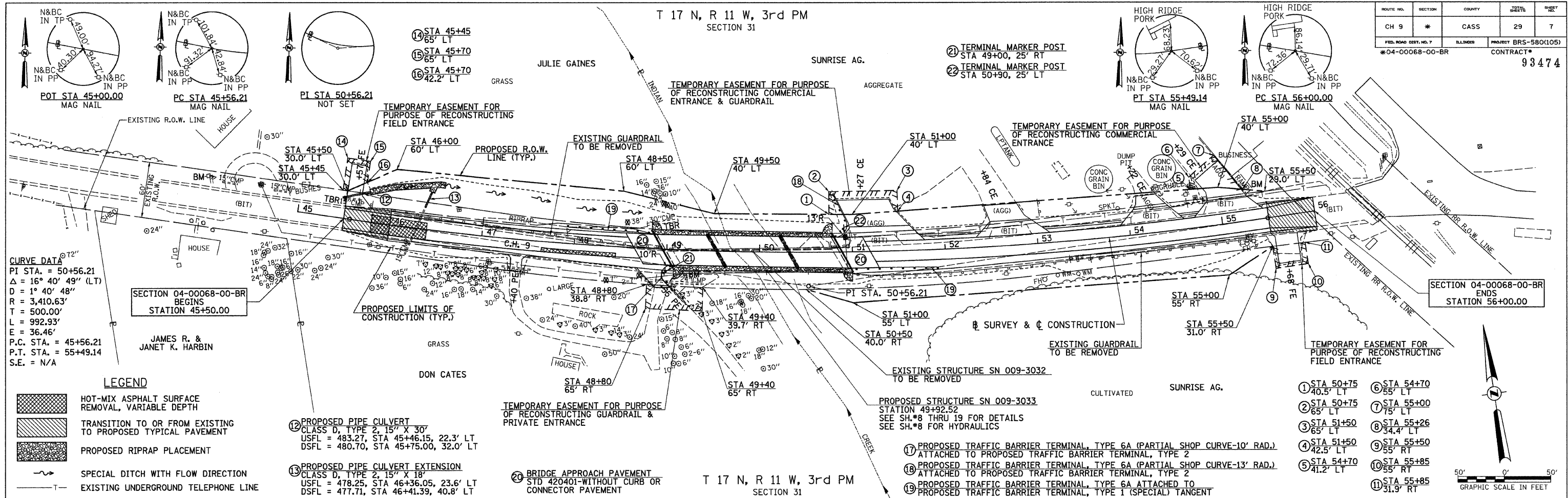


**STORMWATER POLLUTION  
PREVENTION PLAN  
C.H. 9 OVER INDIAN CREEK  
SECTION 04-00068-00-BR  
CASS COUNTY  
STATION 49+92.52**

T 17 N, R 11 W, 3rd PM  
SECTION 31

T 17 N, R 11 W, 3rd PM  
SECTION 31

| ROUTE NO.             | SECTION | COUNTY   | TOTAL SHEETS         | SHEET NO. |
|-----------------------|---------|----------|----------------------|-----------|
| CH 9                  | *       | CASS     | 29                   | 7         |
| FED. ROAD DIST. NO. 7 |         | ILLINOIS | PROJECT BRS-580(105) |           |
| *04-00068-00-BR       |         | CONTRACT |                      | 93474     |



B.M.: RR Spike in Power Pole,  
±600' W. of Bridge, N. Side of Road  
House # 615  
Elev. 492.94

Chiseled "a" on Step at E. Retaining Wall  
Entrance Ramp to High Ridge Pork  
Sta. 55±37, ±34' Lt.  
Elev. 482.92

**Existing Structure:**

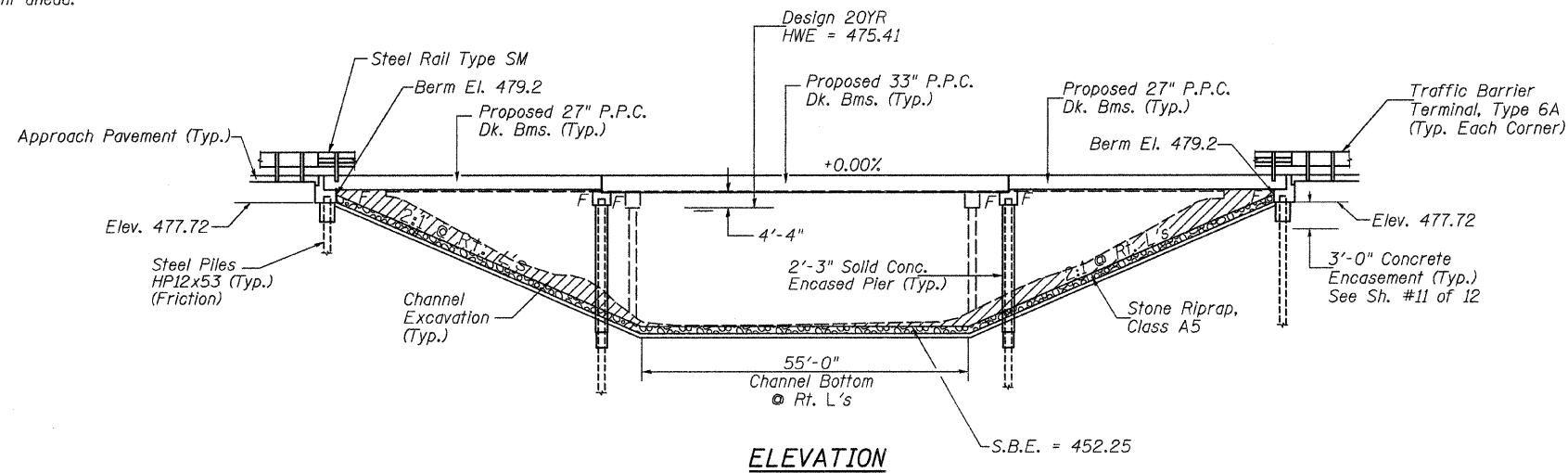
Three span reinforced concrete deck on steel stringers  
superstructure supported on pile bent spill thru abutments  
and multi-column concrete pile bent piers. The structure  
is ±172' back to back of abutments, ±25' out to out of  
deck and is skewed 30° right ahead.  
Str. No. 009-3032

Salvage: None

Road to be closed to traffic  
during construction.

|                       |         |                  |              |           |
|-----------------------|---------|------------------|--------------|-----------|
| ROUTE NO.             | SECTION | COUNTY           | TOTAL SHEETS | SHEET NO. |
| CH 9                  | *       | CASS             | 29           | 8         |
| FED. ROAD DIST. NO. 7 |         | ILLINOIS PROJECT | BRS-580(105) |           |
| *04-00068-00-BR       |         | CONTRACT * 93474 |              |           |

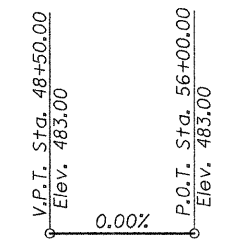
NOTE:  
For Section A-A, Additional Details, Bill of Material,  
and General Notes, See Sheet 2 of 12.



**INDIAN CREEK  
BUILT 200... BY  
CASS COUNTY  
SEC. 04-00068-00-BR  
C.H. 9 STATION 49+92.52  
F.A. PROJ. BRS-580(105)  
STR. NO. 009-3033 LOADING HL-93**

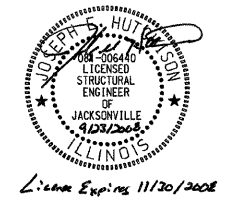
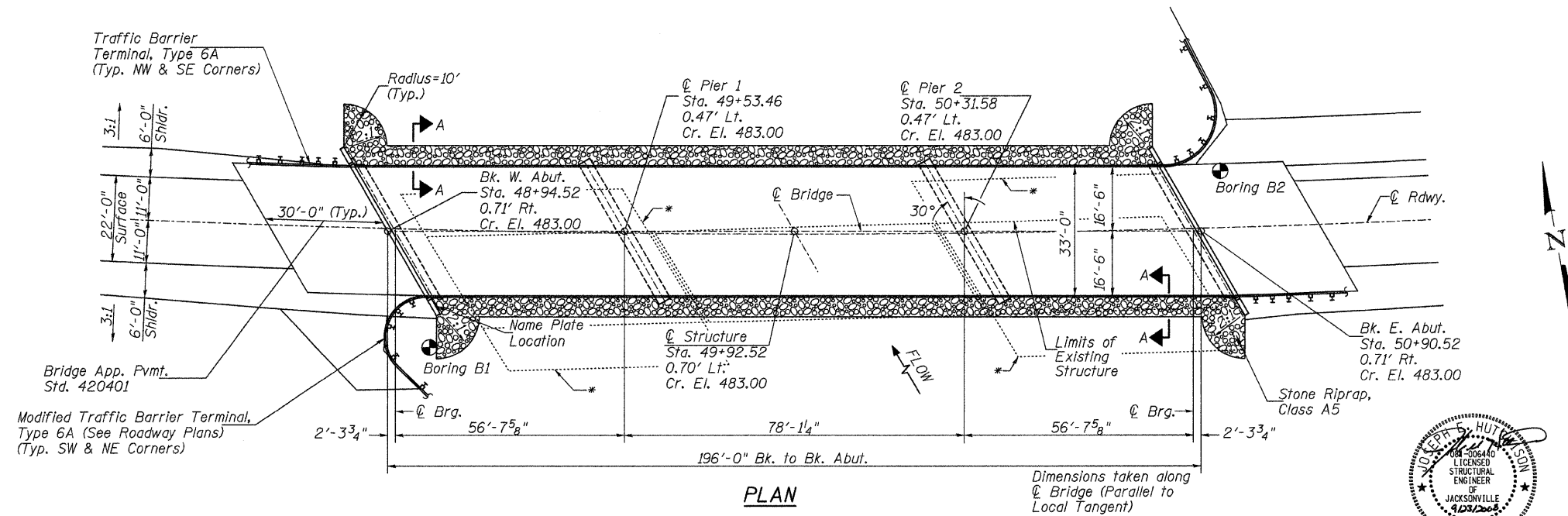
**NAME PLATE**

Locate Name Plate at S.W. Wingwall  
Corner of Bridge (See Std. 515001)



**CURVE DATA**

PI STA. = 50+56.21  
Δ = 16° 40' 49" (LT)  
D = 1° 40' 48"  
R = 3,410.63'  
T = 500.00'  
L = 992.93'  
E = 36.46'  
P.C. STA. = 45+56.21  
P.T. STA. = 55+49.14  
S.E. = N/A



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 LRFD Bridge Design Specifications.  
This design complies with all requirements of the current AASHTO Guide Specifications for Seismic Design of highway bridges.

*Joseph S. Hutcheson* 9/23/2008  
Illinois Structural No. 6440  
Expires 11/30/2008

\* Approximate Limits of Existing Slopewall (To Be Removed)

**WATERWAY INFORMATION**

Drainage Area = 167.4 Sq. Mi. Low Grade Elev. = 483.00 @ Sta. 49+92.52

| Flood  | Freq. Yr. | Q C.F.S. | Opening Sq. Ft. |       | Nat. H.W.E. |       | Head - Ft. |        | Headwater El. |       |
|--------|-----------|----------|-----------------|-------|-------------|-------|------------|--------|---------------|-------|
|        |           |          | Exist.          | Prop. | Exist.      | Prop. | Exist.     | Prop.  | Exist.        | Prop. |
| Design | 20        | 9,681    | 1,987           | 2,266 | 475.41      | 0.07  | 0.03       | 475.48 | 475.44        |       |
| Base   | 100       | 14,324   | 2,151           | 2,452 | 476.70      | 0.56  | 0.46       | 477.26 | 477.16        |       |

Construction of this project complies with IDNR,  
Office of Water Resources Statewide Permit No. 2

**DESIGN SPECIFICATIONS**

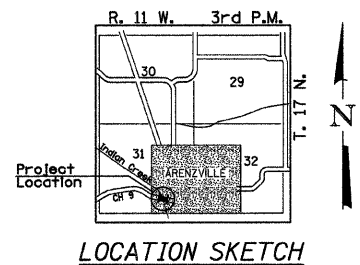
2007 AASHTO (LRFD) & Interims

**DESIGN STRESSES**

(FIELD UNITS) (PRECAST PRESTRESSED UNITS)  
f'c = 3,500 p.s.i. f'c = 6,000 p.s.i.  
fy = 60,000 p.s.i. (Rein.) f'ci = 5,000 p.s.i.  
f's = 270,000 p.s.i. (1/2" Strands)  
f'si = 201,960 p.s.i. (1/2" Strands)

**LOADING HL-93**

Allow 50#/sq. ft. for future wearing surface.

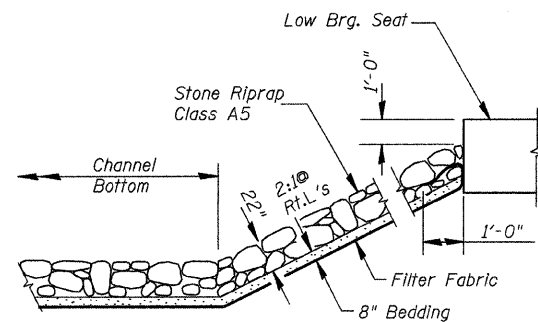


**GENERAL PLAN & ELEVATION**

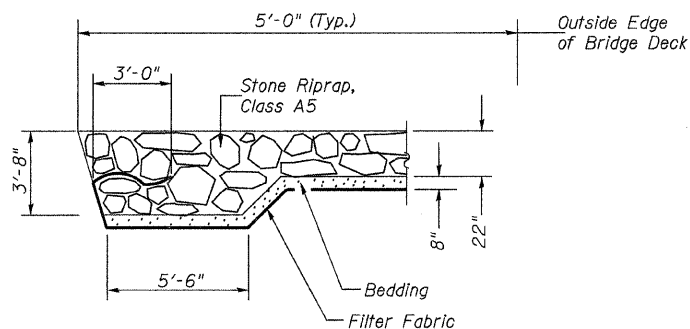
**COUNTY HIGHWAY 9 OVER  
INDIAN CREEK  
SEC. 04-00068-00-BR  
CASS COUNTY  
STR. NO. 009-3033  
STATION 49+92.52**

|          |               |
|----------|---------------|
| DESIGNED | J.O.H./C.T.M. |
| CHECKED  | J.E.H.        |
| DRAWN    | C.E.T./T.A.C. |
| CHECKED  | J.E.H.        |





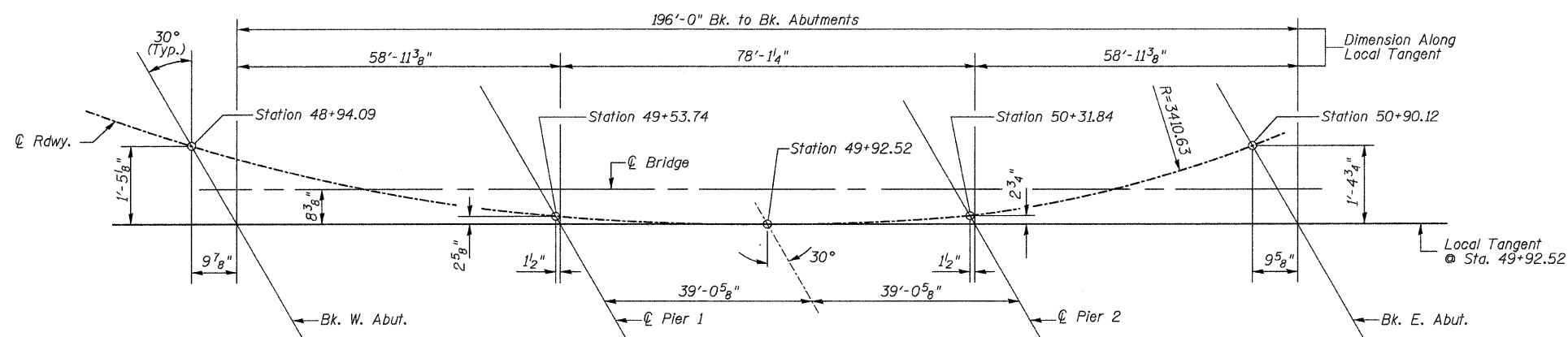
**STONE RIPRAP DETAIL**



**SECTION A-A**

**GENERAL NOTES**

The Contractor shall drive test piles to 110% of the nominal required bearing specified in production locations at the substructures specified or approved by the Engineer before ordering the remainder of the piles.  
 For Soil Boring Logs, See Special Provisions.  
 A Corrosion Inhibitor shall be used in the concrete for Precast Prestressed Concrete Deck Beams according to Article 1020.05(b)(12) of the Standard Specifications.  
 Reinforcement Bars shall conform to the requirements of ASTM A706 Grade 60. See Special Provisions.  
 Reinforcement Bars designated (E) shall be epoxy coated.  
 Layout of the slope protection system may be varied in the field to suit ground conditions as directed by the Engineer.  
 The existing structural steel coating may contain lead. The contractor should take appropriate precautions to deal with the presence of lead on this project.  
 The top surface of the beams shall be finished according to the IDOT Manual for Fabrication of Precast Prestressed Concrete Products.



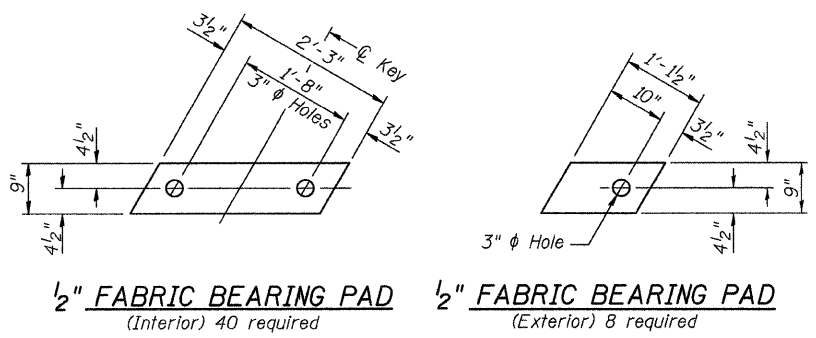
**OFFSET SKETCH**  
(Tangent to  $\varnothing$  Rdwy. at Sta. 49+92.52)

**TOTAL BILL OF MATERIAL**

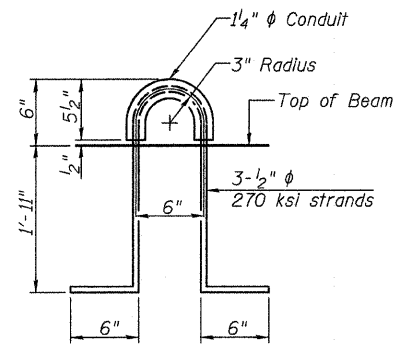
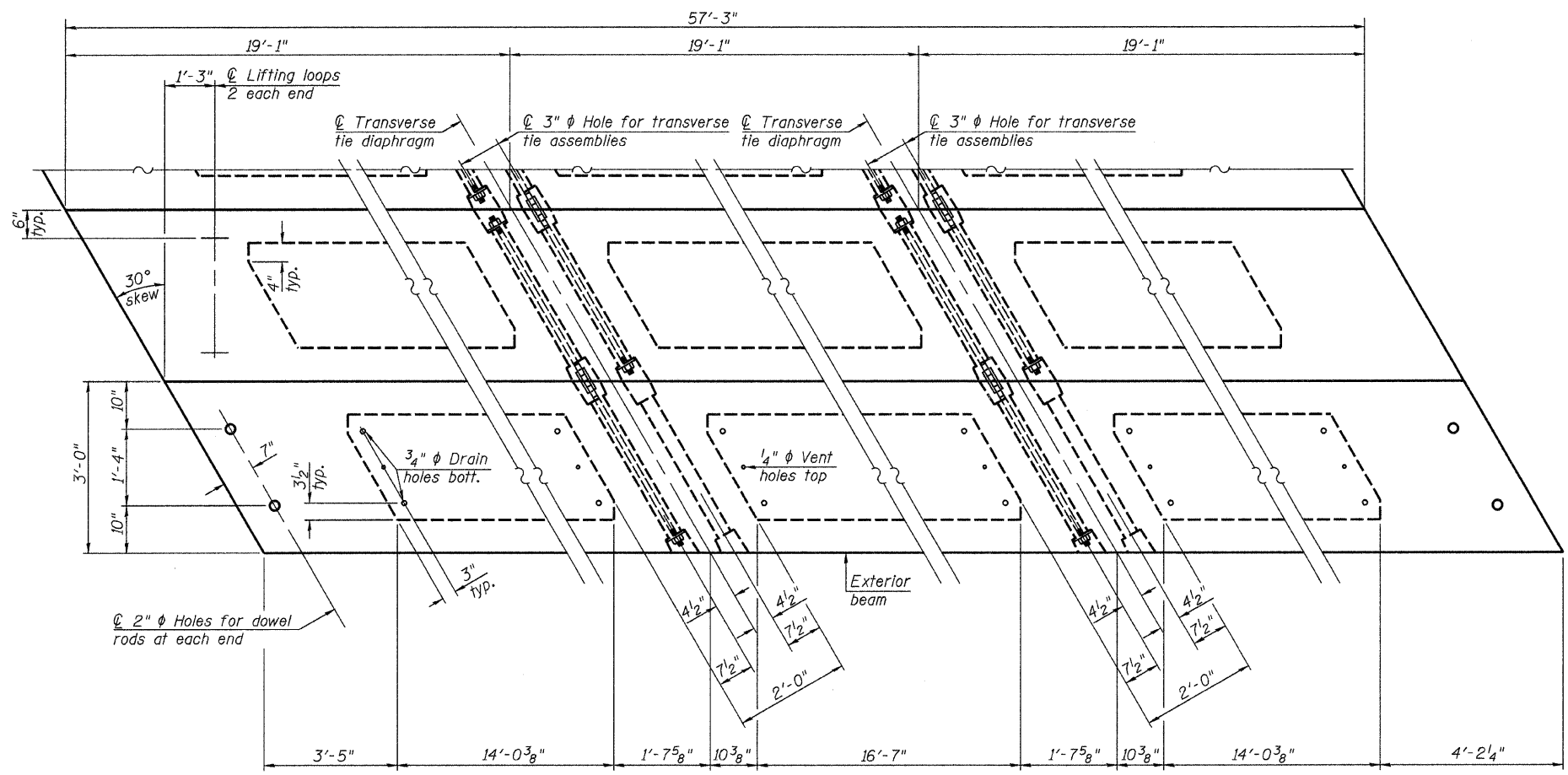
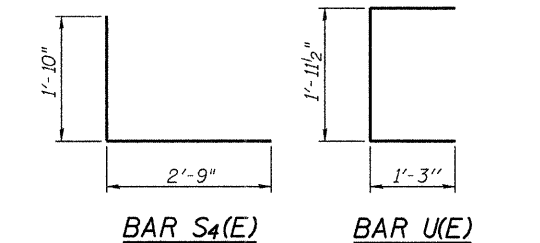
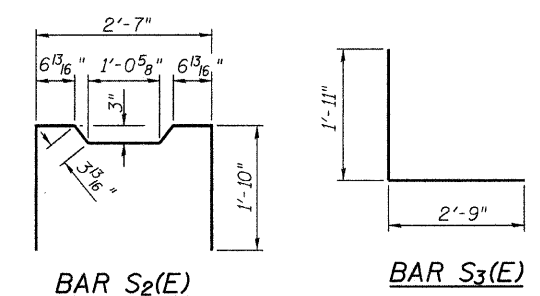
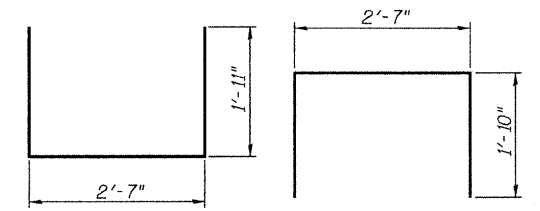
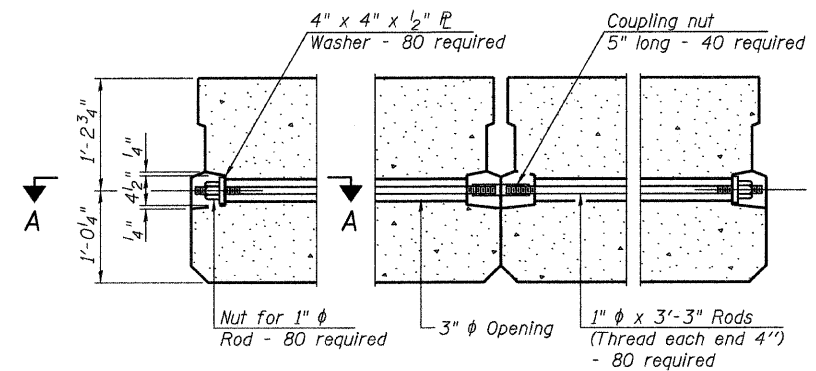
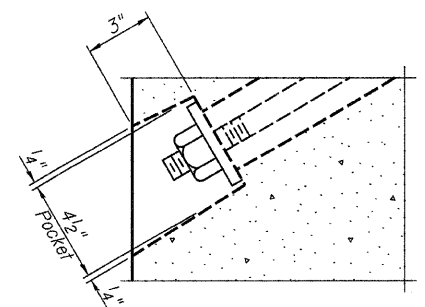
| ITEM  | UNIT  | SUPER | SUB    | TOTAL  |
|---|-------|-------|--------|--------|
| Channel Excavation  | CU YD | —     | 1,040  | 1,040  |
| Stone Riprap, Class A5  | TON   | —     | 1,195  | 1,195  |
| Filter Fabric   | SQ YD | —     | 1,160  | 1,160  |
| ① Removal of Existing Structures                                  | EACH  | —     | —      | 1      |
| Structure Excavation  | CU YD | —     | 135    | 135    |
| Concrete Structures   | CU YD | —     | 236.6  | 236.6  |
| ① Precast Prestressed Concrete Deck Beams (27" Depth)             | SQ FT | 3,779 | —      | 3,779  |
| ① Precast Prestressed Concrete Deck Beams (33" Depth)             | SQ FT | 2,574 | —      | 2,574  |
| ① Reinforcement Bars  | POUND | —     | 16,410 | 16,410 |
| Steel Railing, Type SM  | FOOT  | 390   | —      | 390    |
| Furnishing Steel Piles HP12x53                                    | FOOT  | —     | 2,140  | 2,140  |
| Driving Piles   | FOOT  | —     | 2,140  | 2,140  |
| Test Pile Steel HP12x53   | EACH  | —     | 4      | 4      |
| Concrete Encasement   | CU YD | —     | 11.9   | 11.9   |
| Name Plates   | EACH  | —     | —      | 1      |
| Waterproofing Membrane System                                     | SQ YD | 707   | —      | 707    |
| Portland Cement Mortar Fairing Course                             | FOOT  | 500   | —      | 500    |
| Hot-Mix Asphalt Surface Course, Mix "C", N50                      | TON   | 84    | —      | 84     |
| ① Slope Wall Removal  | SQ YD | —     | 525    | 525    |
| Bar Splacers  | EACH  | —     | 78     | 78     |
| ① Underwater Structure Excavation Protection-Location 1 (Pier #1) | EACH  | —     | 1      | 1      |
| ① Underwater Structure Excavation Protection-Location 2 (Pier #2) | EACH  | —     | 1      | 1      |

① See Special Provisions

**GENERAL PLAN DETAILS,  
GENERAL NOTES & BILL OF MATERIALS  
COUNTY HIGHWAY 9 OVER  
INDIAN CREEK  
SEC. 04-00068-00-BR  
CASS COUNTY  
STATION 49+92.52**



**FIXED**



Note: Connect beams in pairs with the transverse tie configuration shown.

**PLAN VIEW**

**NOTES**

Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1"  $\phi$  rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions)

Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.

A minimum 2 1/2"  $\phi$  lifting pin shall be used to engage the lifting loops during handling.

Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.

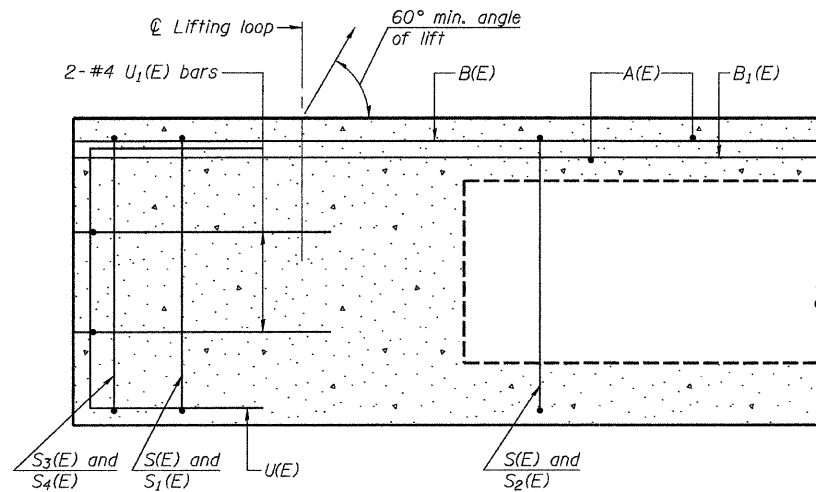
Compressive strength of prestressed concrete,  $f'_c$ , shall be 6000 psi.

Compressive strength of prestressed concrete at release,  $f'_{ci}$ , shall be 5000 psi.

**BILL OF MATERIAL - SPANS 1 & 3**

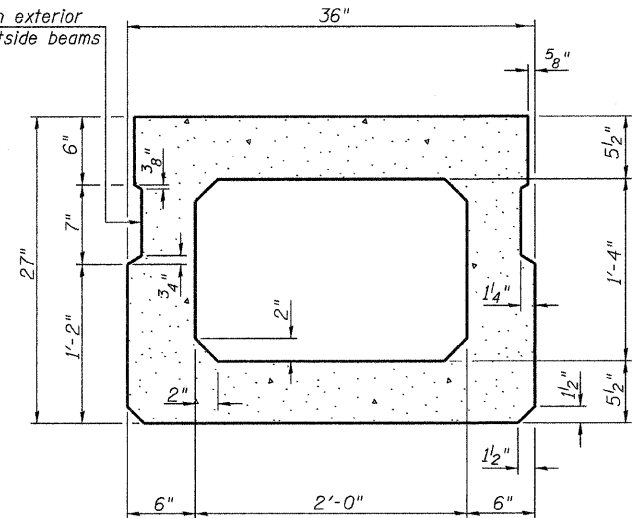
| ITEM  | UNIT  | QUANTITY |
|---|-------|----------|
| Precast Prestressed Concrete Deck Beams (27" Depth) | SQ FT | 3,779    |

**SUPERSTRUCTURE - SPANS 1 & 3**  
**COUNTY HIGHWAY 9 OVER**  
**INDIAN CREEK**  
**SEC. 04-00068-00-BR**  
**CASS COUNTY**  
**STATION 49+92.52**

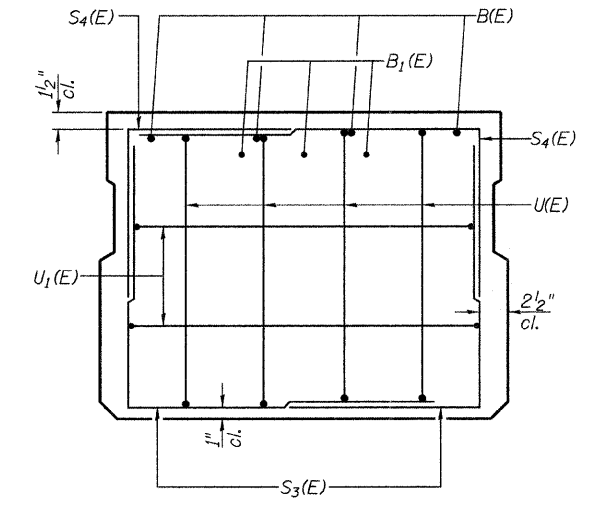


**SECTION C-C**

\*\*Omit key on exterior face of outside beams

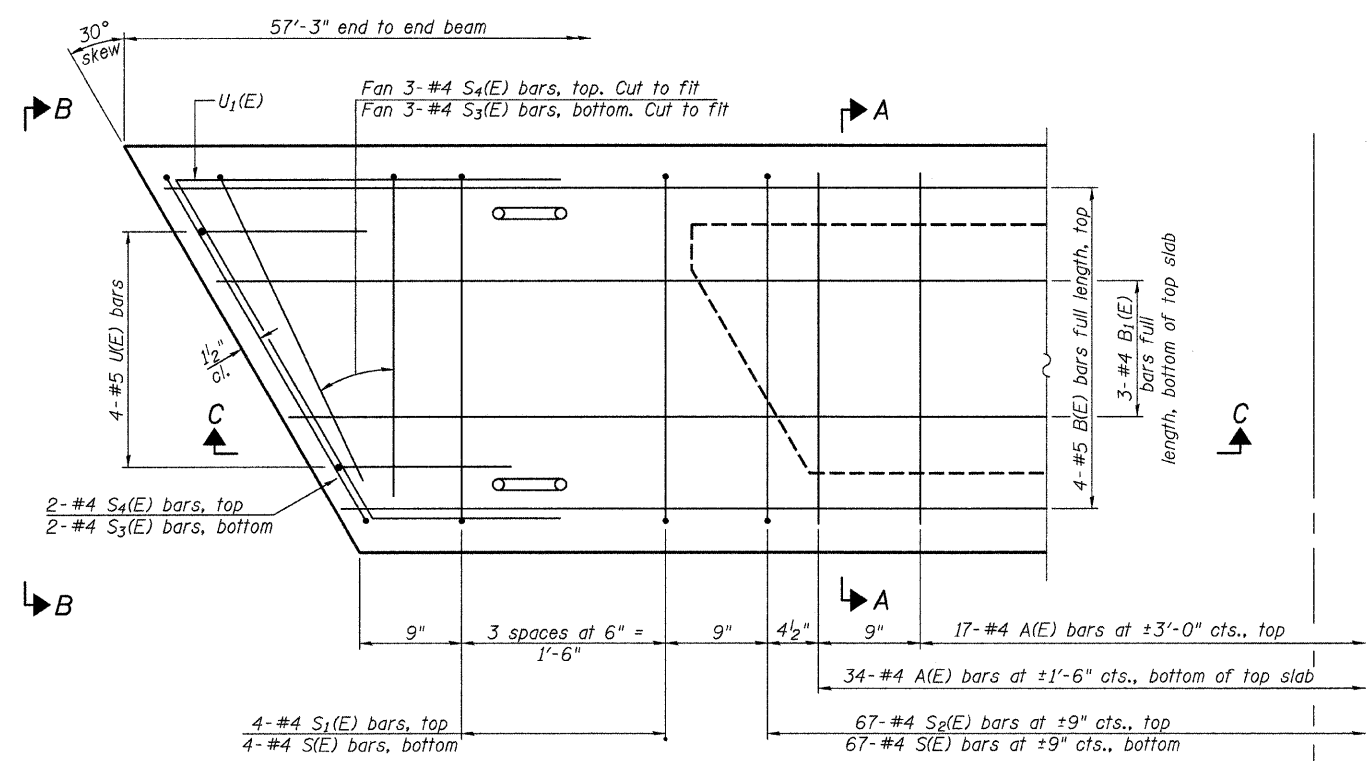


**SECTION A-A**  
(Showing dimensions)

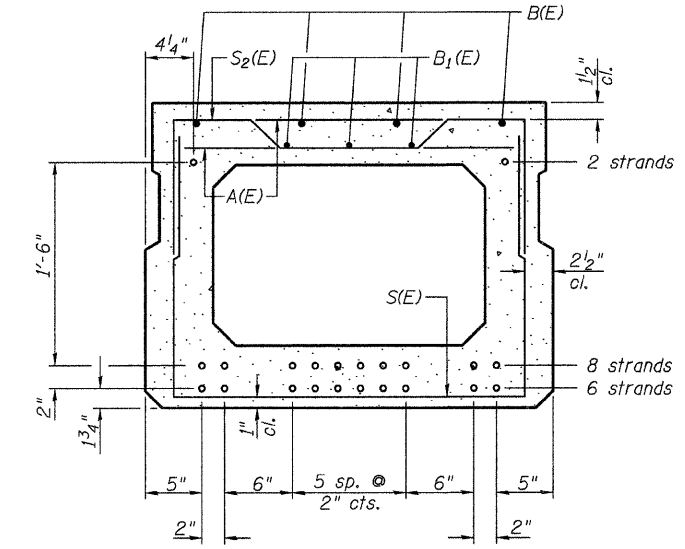


**VIEW B-B**

\*\*Rail post anchor devices (Sheet 7 of 12) to be cast into exterior face of outside beams.



**PLAN VIEW**



**SECTION A-A**  
16-1/2" Strands Each Strand Stressed to 30,900 Lbs.  
6-Strands 1 3/4" up, 8-Strands 3 3/4" up, 2-Strands 1'-9 3/4" up

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

**BAR LIST**  
**ONE BEAM ONLY**  
(For information only)

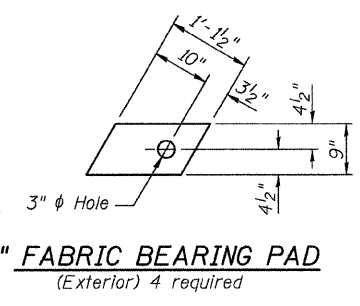
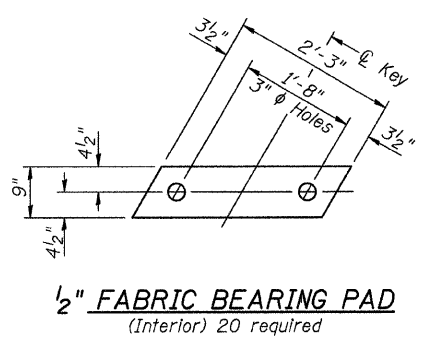
| Bar   | No. | Size | Length  | Shape |
|-------|-----|------|---------|-------|
| A(E)  | 51  | #4   | 2'-7"   | —     |
| B(E)  | 4   | #5   | *57'-0" | —     |
| B1(E) | 3   | #4   | *57'-0" | —     |
| S(E)  | 75  | #4   | 6'-5"   | ┌     |
| S1(E) | 8   | #4   | 6'-3"   | ┌     |
| S2(E) | 67  | #4   | 6'-6"   | ┌     |
| S3(E) | 10  | #4   | 4'-8"   | ┌     |
| S4(E) | 10  | #4   | 4'-7"   | ┌     |
| U(E)  | 8   | #5   | 4'-6"   | ┌     |
| U1(E) | 4   | #4   | 6'-10"  | ┌     |

\* Total Length, Lap as necessary

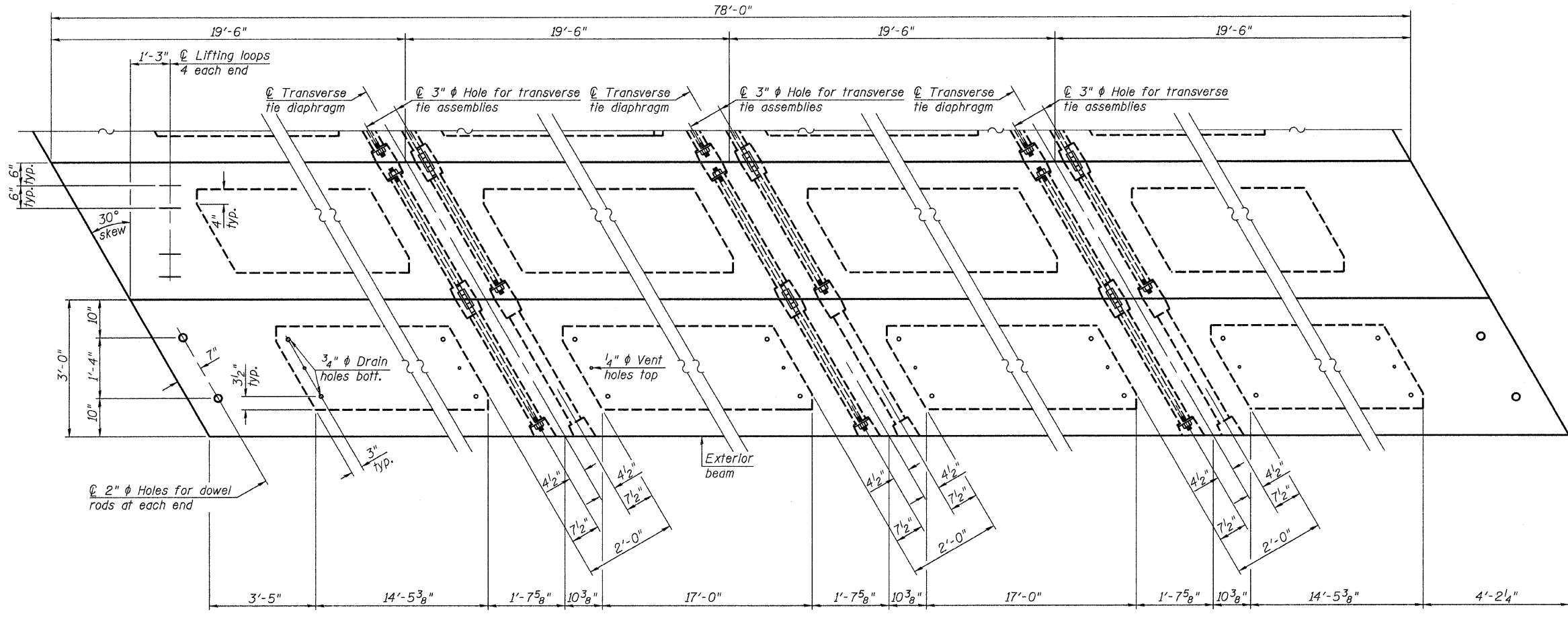
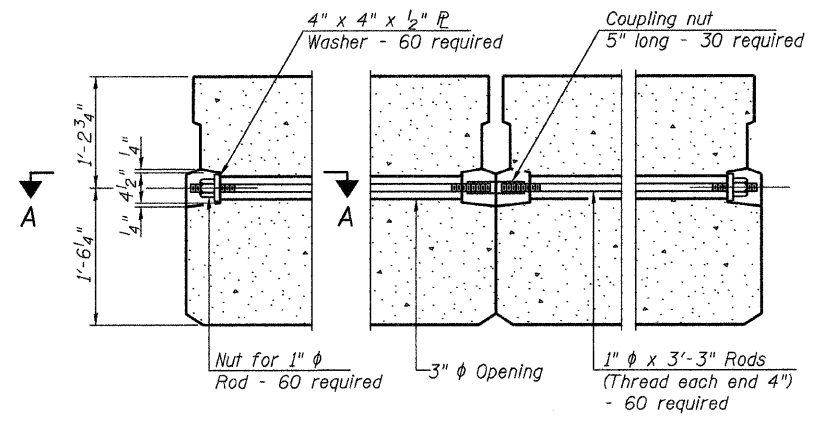
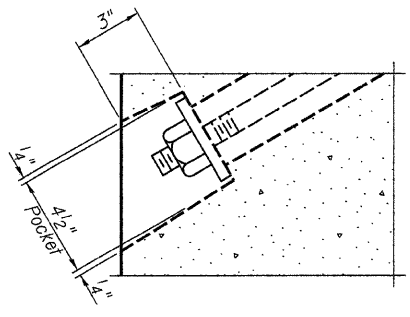
Note: See sheet 3 of 12 for additional details and Bill of Material.

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

**SUPERSTRUCTURE DETAILS - SPANS 1 & 3**  
**COUNTY HIGHWAY 9 OVER**  
**INDIAN CREEK**  
**SEC. 04-00068-00-BR**  
**CASS COUNTY**  
**STATION 49+92.52**



**FIXED**



Note: Connect beams in pairs with the transverse tie configuration shown.

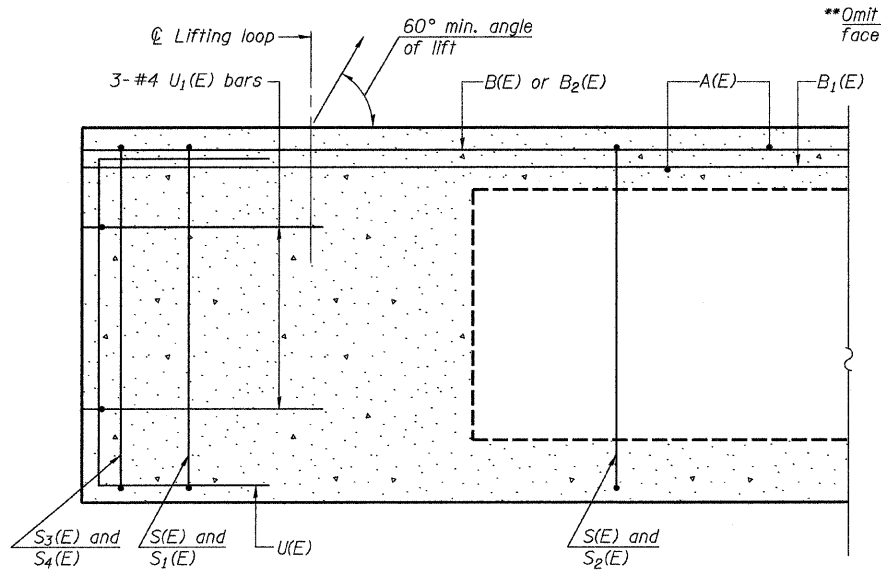
**NOTES**

- Prestressing steel shall be uncoated high strength, low relaxation 7-wire strand, Grade 270. The nominal diameter shall be 1/2" and the nominal cross-sectional area shall be 0.153 sq. in. The 1" rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets on exterior faces of bridge shall be filled with grout after transverse tie assembly is in place.
- Reinforcement bars shall conform to ASTM A 706, Grade 60. (See Special Provisions)
- Two 1/8" fabric adjusting shims of the dimensions of the exterior bearing pad shall be provided for each bearing pad location.
- A minimum 2 1/2" diameter lifting pin shall be used to engage the lifting loops during handling.
- Corrosion Inhibitor, per Article 1020.05(b)(12) and 1021.06 of the Standard Specifications, shall be used in the concrete for precast prestressed concrete deck beams.
- Compressive strength of prestressed concrete, f'c, shall be 6000 psi.
- Compressive strength of prestressed concrete at release, f'ci, shall be 5000 psi.

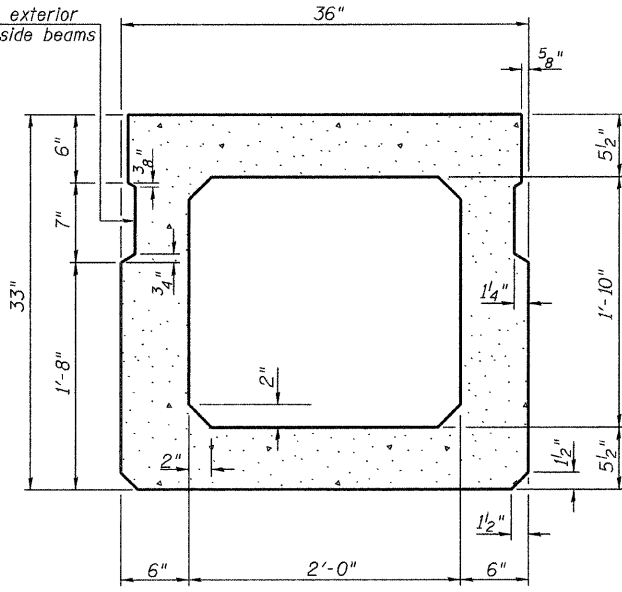
**BILL OF MATERIAL - SPAN 2**

| ITEM  | UNIT  | QUANTITY |
|---|-------|----------|
| Precast Prestressed Concrete Deck Beams (33" Depth) | SQ FT | 2,574    |

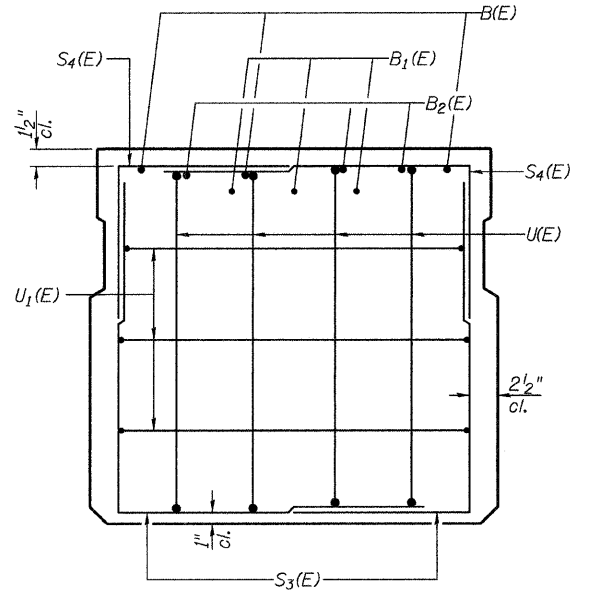
**SUPERSTRUCTURE - SPAN 2**  
**COUNTY HIGHWAY 9 OVER**  
**INDIAN CREEK**  
**SEC. 04-00068-00-BR**  
**CASS COUNTY**  
**STATION 49+92.52**



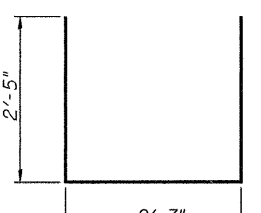
**SECTION C-C**



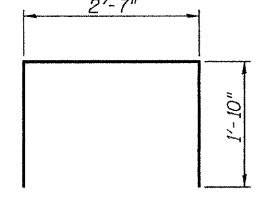
**SECTION A-A**  
(Showing dimensions)



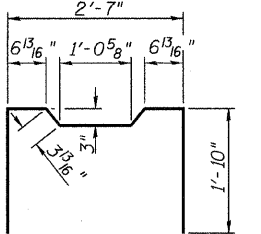
**VIEW B-B**



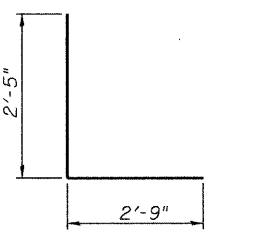
**BAR S(E)**



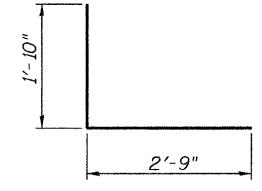
**BAR S1(E)**



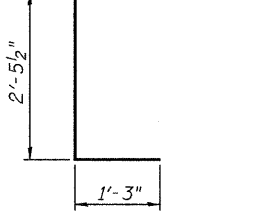
**BAR S2(E)**



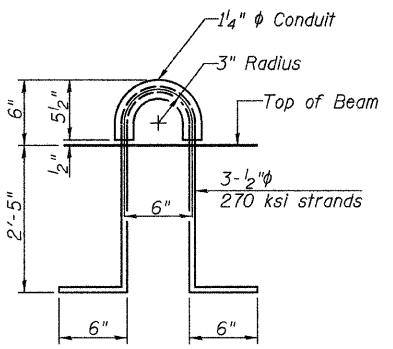
**BAR S3(E)**



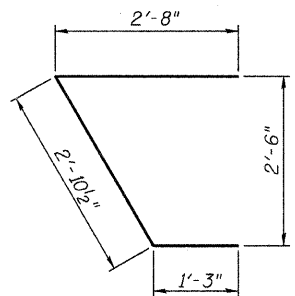
**BAR S4(E)**



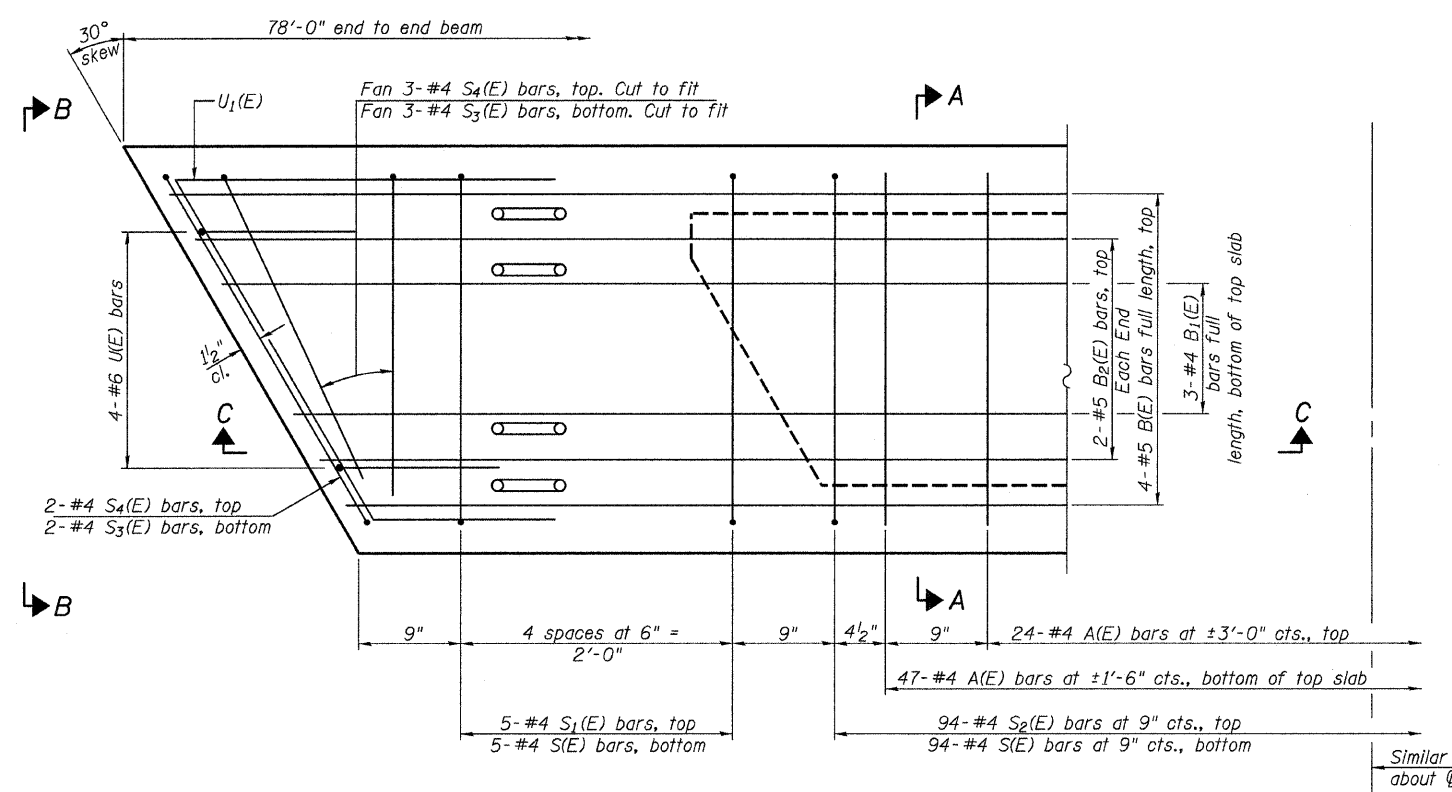
**BAR U(E)**



**LIFTING LOOP DETAIL**



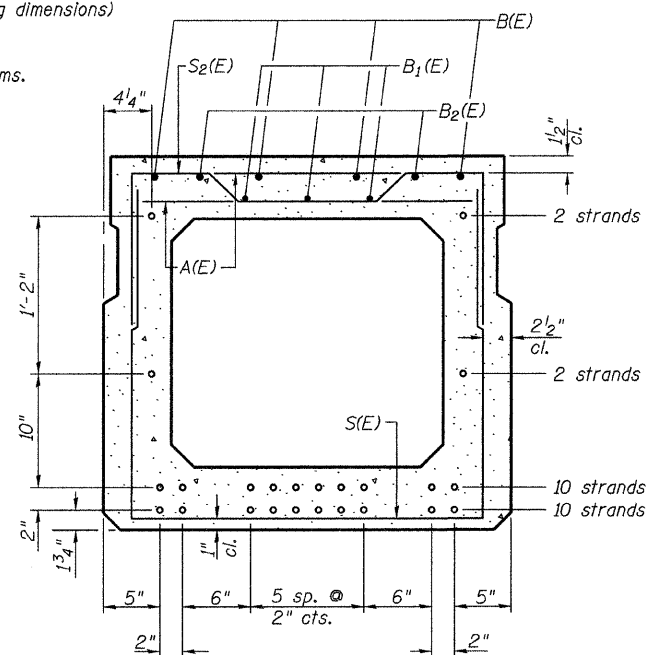
**BAR U1(E)**



**PLAN VIEW**

Note: Spacing of S(E) and S2(E) bars may be adjusted up to 4" in the immediate area of the transverse tie diaphragms to miss the block outs for the transverse ties.

\*\*Rail post anchor devices (Sheet 7 of 12) to be cast into exterior face of outside beams.



**SECTION A-A**

24-1/2" Strands Each Strand Stressed to 30,900 Lbs.  
10-Strands 1 3/4" up, 10-Strands 3 3/4" up,  
2-Strands 1'-1 3/4" up, 2-Strands 2'-3 3/4" up

Note: Place the number of strands specified in each row symmetrically about the centerline of beam in the permissible strand locations shown.

**BAR LIST - ONE BEAM ONLY**

(For information only)

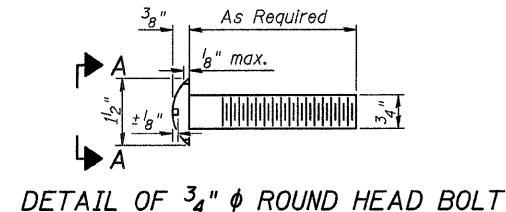
| Bar   | No. | Size | Length  | Shape |
|-------|-----|------|---------|-------|
| A(E)  | 71  | #4   | 2'-7"   | —     |
| B(E)  | 4   | #5   | *77'-9" | —     |
| B1(E) | 3   | #4   | *77'-9" | —     |
| B2(E) | 4   | #5   | 15'-9"  | —     |
| S(E)  | 104 | #4   | 7'-5"   | ┌┐    |
| S1(E) | 10  | #4   | 6'-3"   | ┌┐    |
| S2(E) | 94  | #4   | 6'-6"   | ┌┐    |
| S3(E) | 10  | #4   | 5'-2"   | ┌┐    |
| S4(E) | 10  | #4   | 4'-7"   | ┌┐    |
| U(E)  | 8   | #6   | 5'-0"   | ┌┐    |
| U1(E) | 6   | #4   | 6'-10"  | ┌┐    |

Note: See sheet 5 of 12 for additional details and Bill of Material.

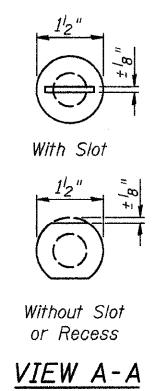
\* Total Length, Lap as necessary

**SUPERSTRUCTURE DETAILS - SPAN 2**  
**COUNTY HIGHWAY 9 OVER**  
**INDIAN CREEK**  
**SEC. 04-00068-00-BR**  
**CASS COUNTY**  
**STATION 49+92.52**

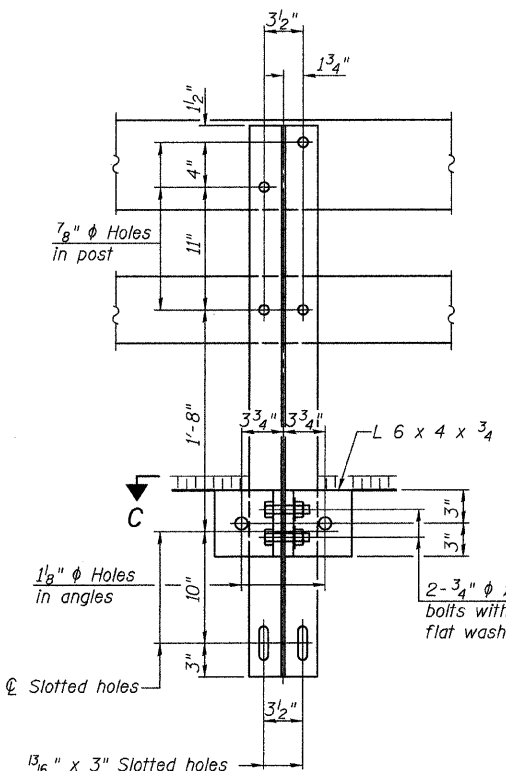
FOR RAIL POST SPACING SEE SH.#8 OF 12



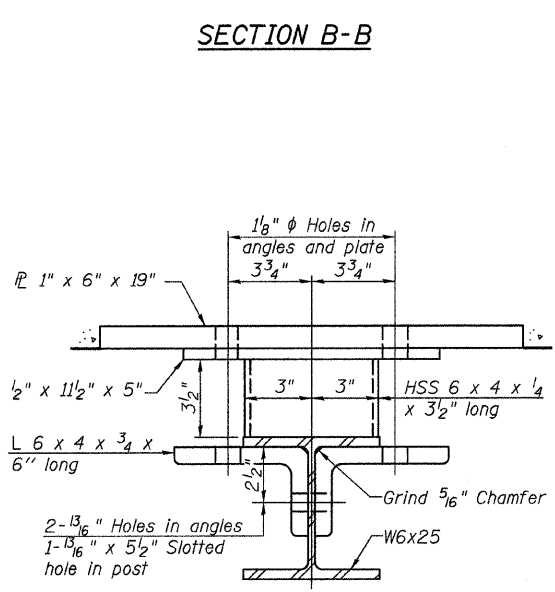
DETAIL OF 3/4"  $\phi$  ROUND HEAD BOLT



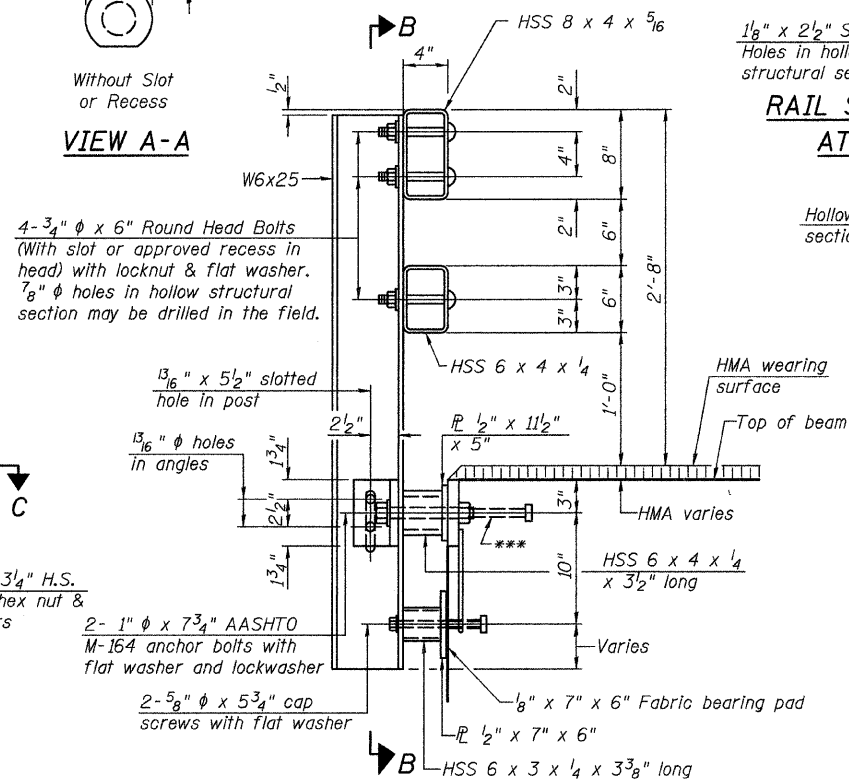
VIEW A-A



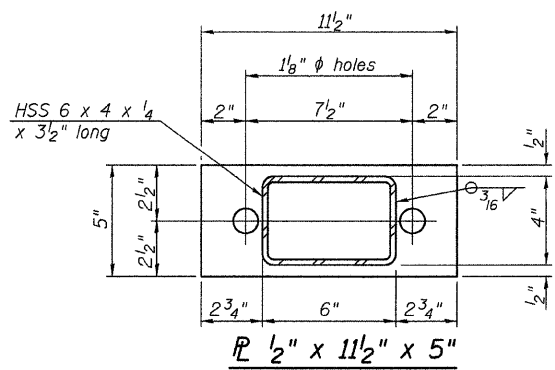
SECTION B-B



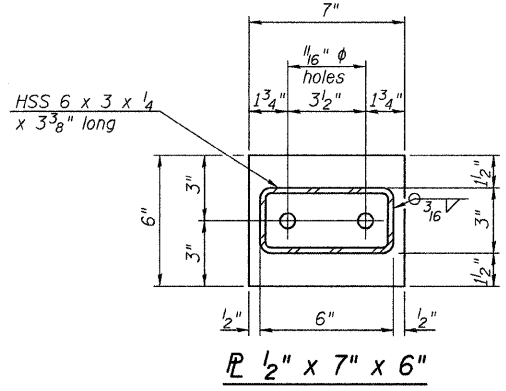
SECTION C-C



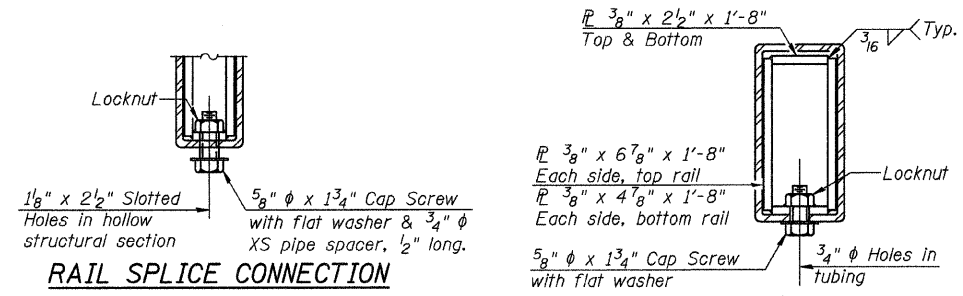
SECTION AT RAIL POST



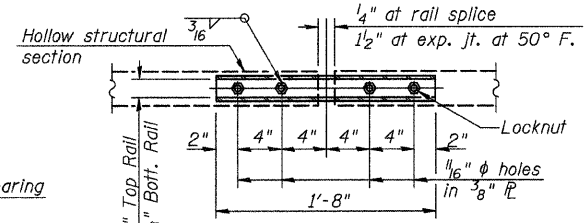
PLAN-BOTT. SPLICE TYPICAL



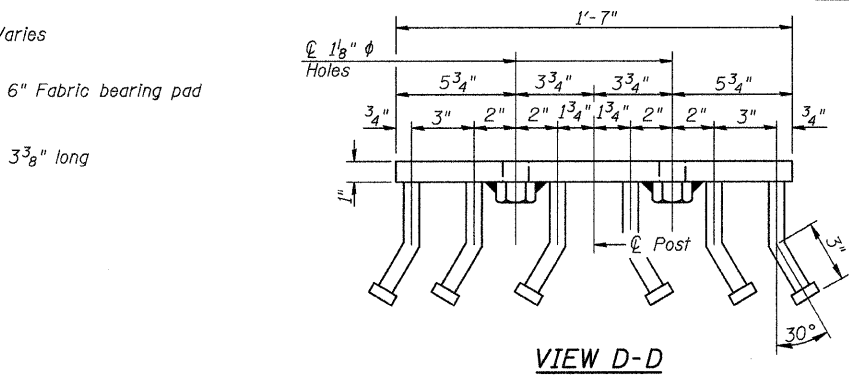
ANCHOR DEVICE



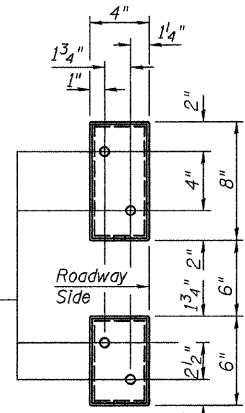
RAIL SPLICE CONNECTION AT EXPANSION JT.



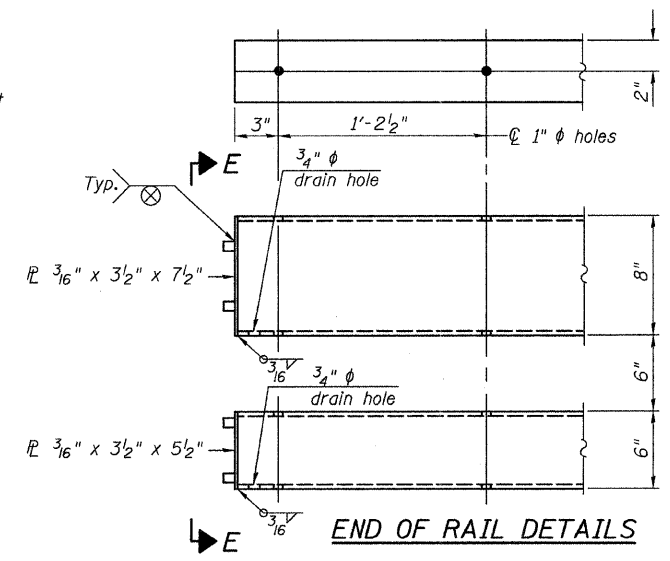
SECTION AT RAIL SPLICE



VIEW D-D



VIEW E-E



END OF RAIL DETAILS

NOTES

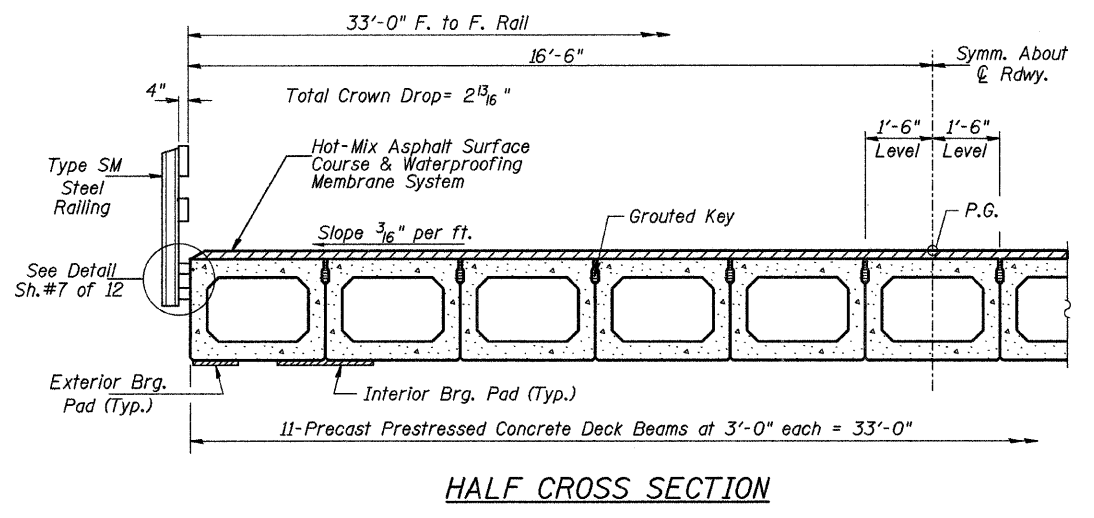
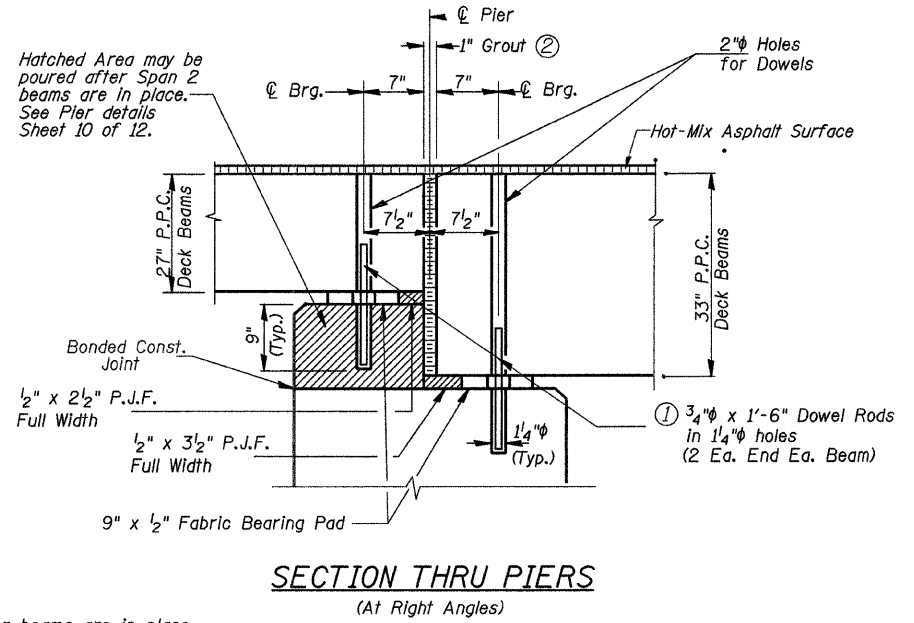
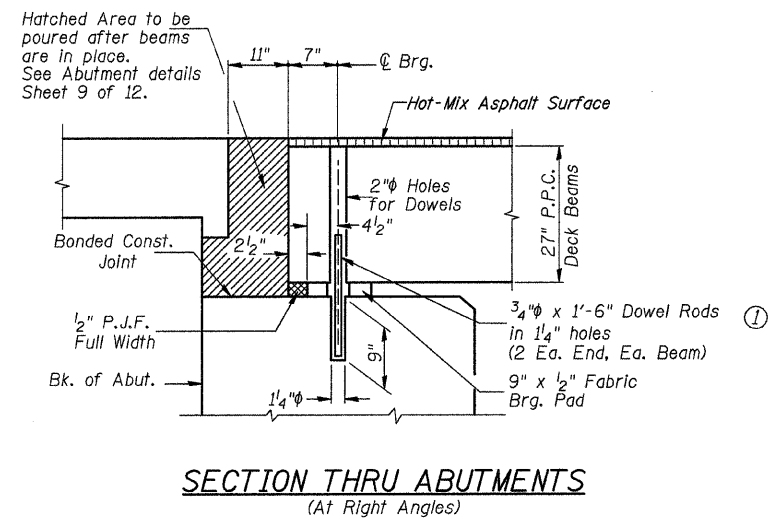
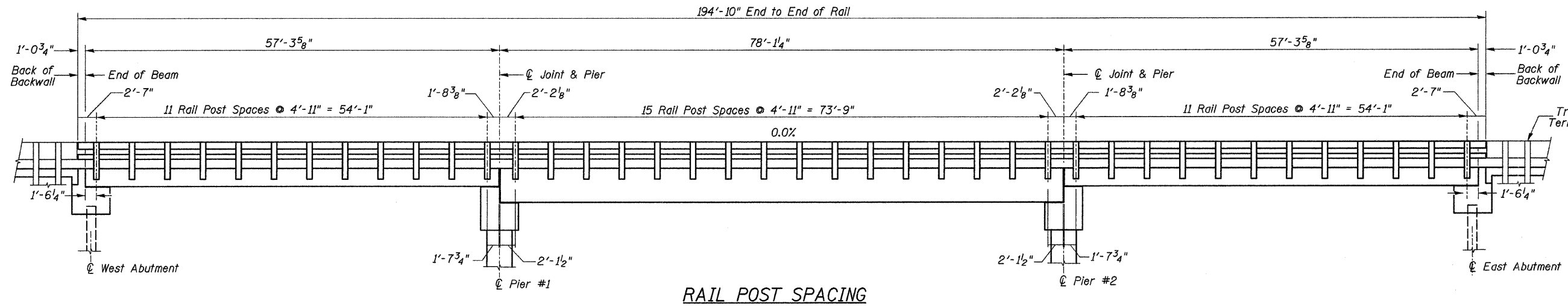
All field drilled holes shall be coated with an approved zinc rich paint before erection.  
 For multi-span bridges, sufficient 1/4" x 6" x 1'-2" galvanized steel shims shall be provided to align rail between adjacent spans. Cost included with Steel Railing, Type SM.  
 All steel rail members shall be galvanized according to Article 509.05 of the Standard Specifications.  
 \*\*\*The studs of the anchor devices shall be placed below the top reinforcement bars and the outermost longitudinal reinforcement bar shall be placed directly above the studs of the rail post anchor device.

BILL OF MATERIAL

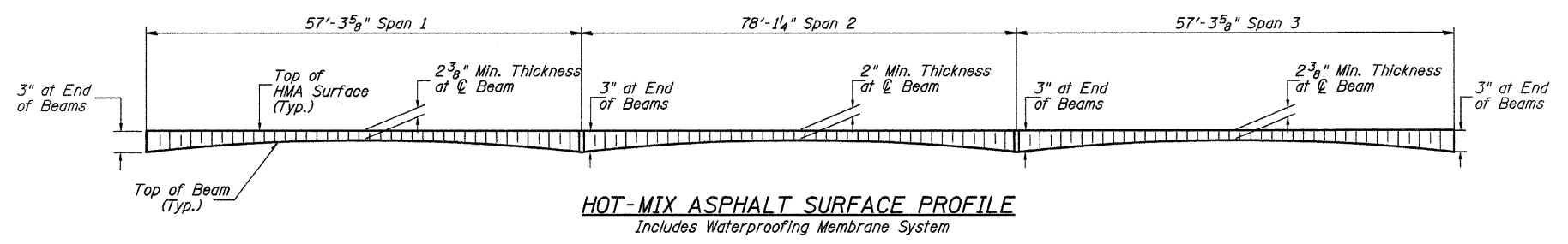
| Item                   | Unit | Quantity |
|------------------------|------|----------|
| Steel Railing, Type SM | FOOT | 390      |

TYPE SM STEEL RAILING  
 COUNTY HIGHWAY 9 OVER  
 INDIAN CREEK  
 SEC. 04-00068-00-BR  
 CASS COUNTY  
 STATION 49+92.52

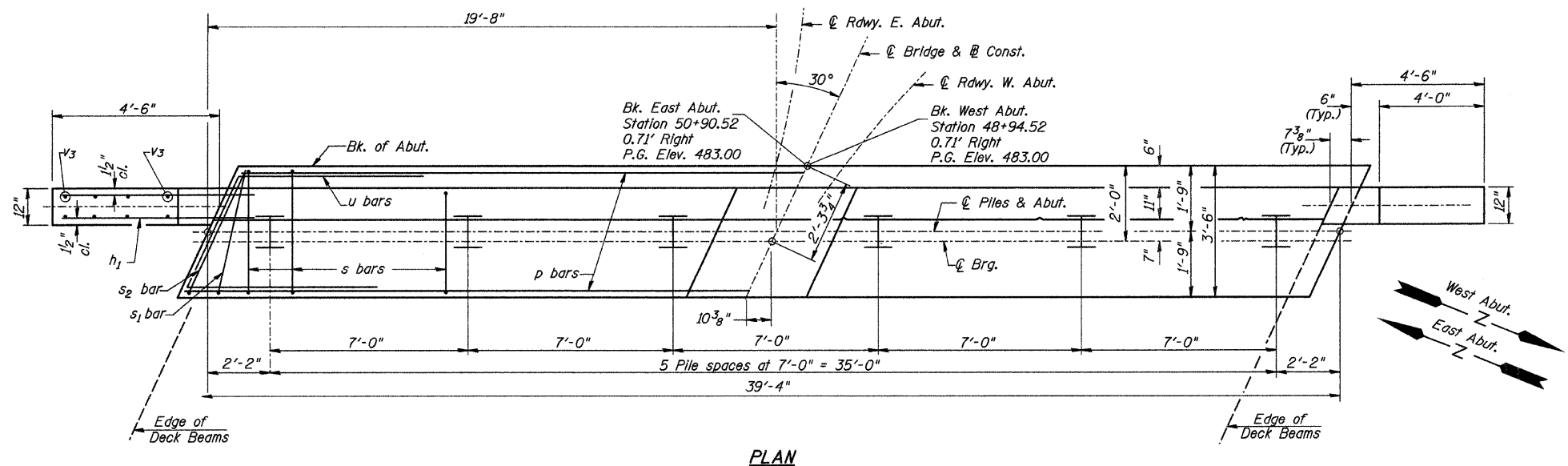
\*Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.  
 \*\*Whenever the lower insert assemblies interfere with strand locations, the #3 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 1/2".



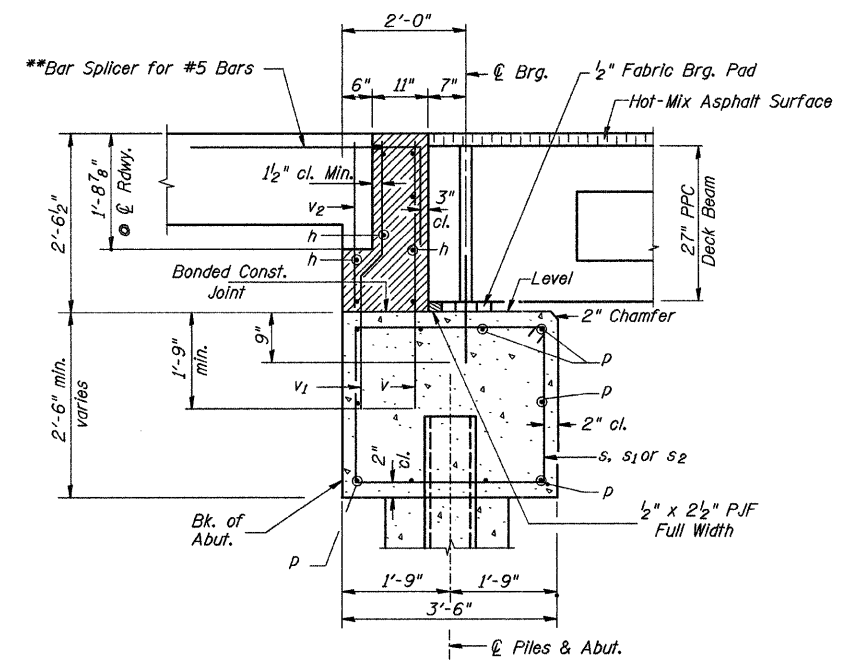
- ① Dowel Rods to be grouted after beams are in place and allowed to cure (Min. 24 hr.) prior to grouting the shear keys.
- ② 1" Joint shall be packed with a very dry mix of 2:1 sand and P.C. mortar. 1" Dimension may vary plus or minus to accommodate tolerance in beam lengths.



**SUPERSTRUCTURE DETAILS  
AND RAIL POST SPACING  
COUNTY HIGHWAY 9 OVER  
INDIAN CREEK  
SEC. 04-00068-00-BR  
CASS COUNTY  
STATION 49+92.52**

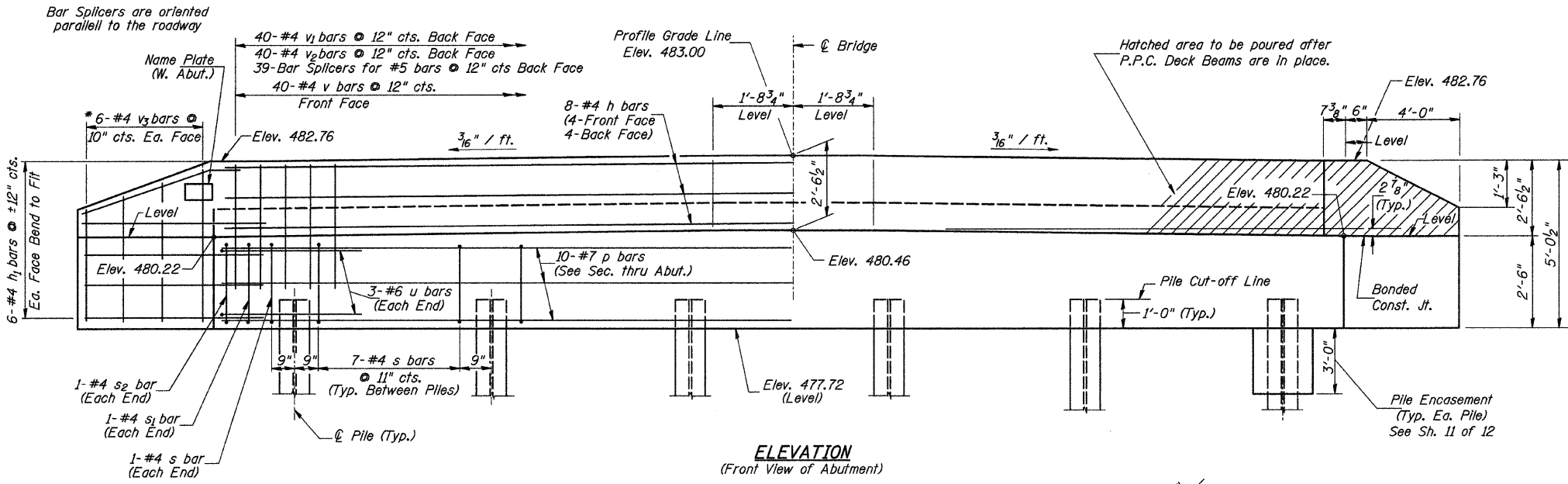


**PLAN**



**SECTION THRU ABUT.**  
(At Right Angles)

\*\*Alternate with backwall vertical reinforcement, place parallel to beams



**ELEVATION**  
(Front View of Abutment)

**TWO ABUTMENTS  
BILL OF MATERIAL**

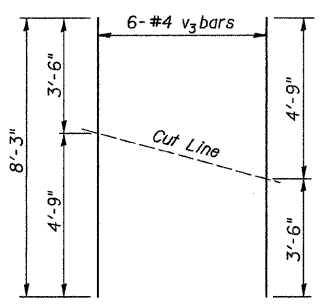
| BAR                     | NO. | SIZE  | LENGTH | SHAPE |
|-------------------------|-----|-------|--------|-------|
| h                       | 16  | #4    | 39'-1" | —     |
| h <sub>1</sub>          | 48  | #4    | 6'-6"  | —     |
| p                       | 20  | #7    | 39'-1" | —     |
| s                       | 74  | #4    | 11'-5" | □     |
| s <sub>1</sub>          | 4   | #4    | 8'-8"  | □     |
| s <sub>2</sub>          | 4   | #4    | 9'-6"  | □     |
| u                       | 12  | #6    | 12'-7" | □     |
| v                       | 80  | #4    | 4'-3"  | —     |
| v <sub>1</sub>          | 80  | #4    | 4'-5"  | —     |
| v <sub>2</sub>          | 80  | #4    | 2'-3"  | —     |
| v <sub>3</sub>          | 24  | #4    | 8'-3"  | —     |
| Concrete Structures     |     | CU YD | 38.0   |       |
| Reinforcement Bars      |     | POUND | 3,780  |       |
| Structure Excavation    |     | CU YD | 105    |       |
| Name Plates             |     | EACH  | 1      |       |
| Furnishing Steel Piles  |     | FOOT  | 650    |       |
| HP12x53                 |     |       |        |       |
| Driving Piles           |     | FOOT  | 650    |       |
| Test Pile Steel HP12x53 |     | EACH  | 2      |       |
| Concrete Encasement     |     | CU YD | 4.2    |       |
| Bar Splicers            |     | EACH  | 78     |       |

① See Special Provisions

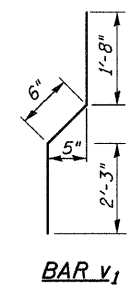
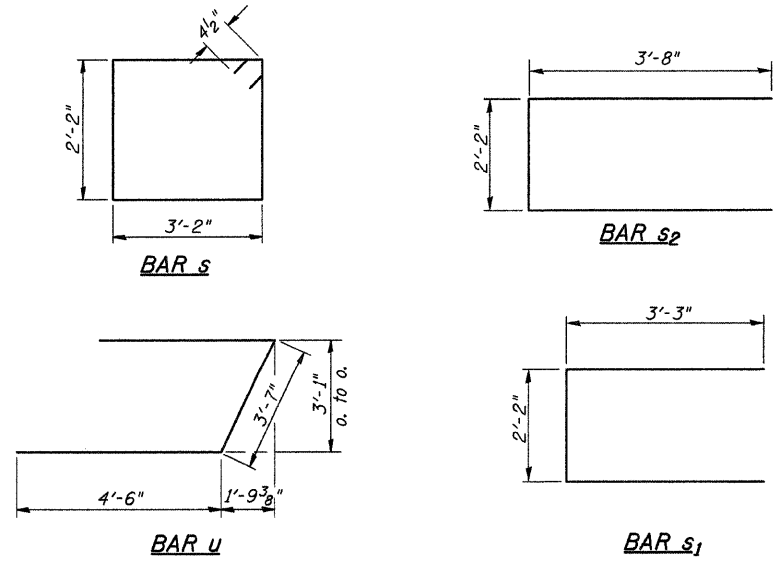
**DESIGN STRESSES**  
f'<sub>c</sub> = 3,500 p.s.i.  
f<sub>y</sub> = 60,000 p.s.i.

**PILE DATA**  
Type & Size: Steel HP12x53  
Nominal Required Bearing: 4.19 kips  
Factored Resistance Available: 2.10 kips  
Est. Length: 61' West Abutment  
69' East Abutment  
No. Req'd.: 12 (Includes 1 Test Pile at Each Abut.)

**NOTES**  
1. The Backwall and the portion of the Wingwalls above the bonded construction joint shall be cast against the in-place beam.  
2. Reinforcement bars shall conform to ASTM A706 Grade 60.



**BAR CUTTING DIAGRAM**  
\* Order v<sub>3</sub> bars Full length. Cut as shown and use remainder of bars in opposite face.



**BAR v<sub>1</sub>**

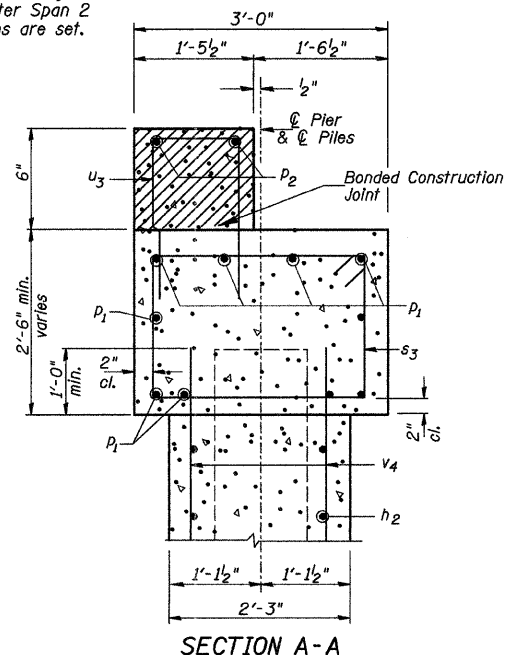
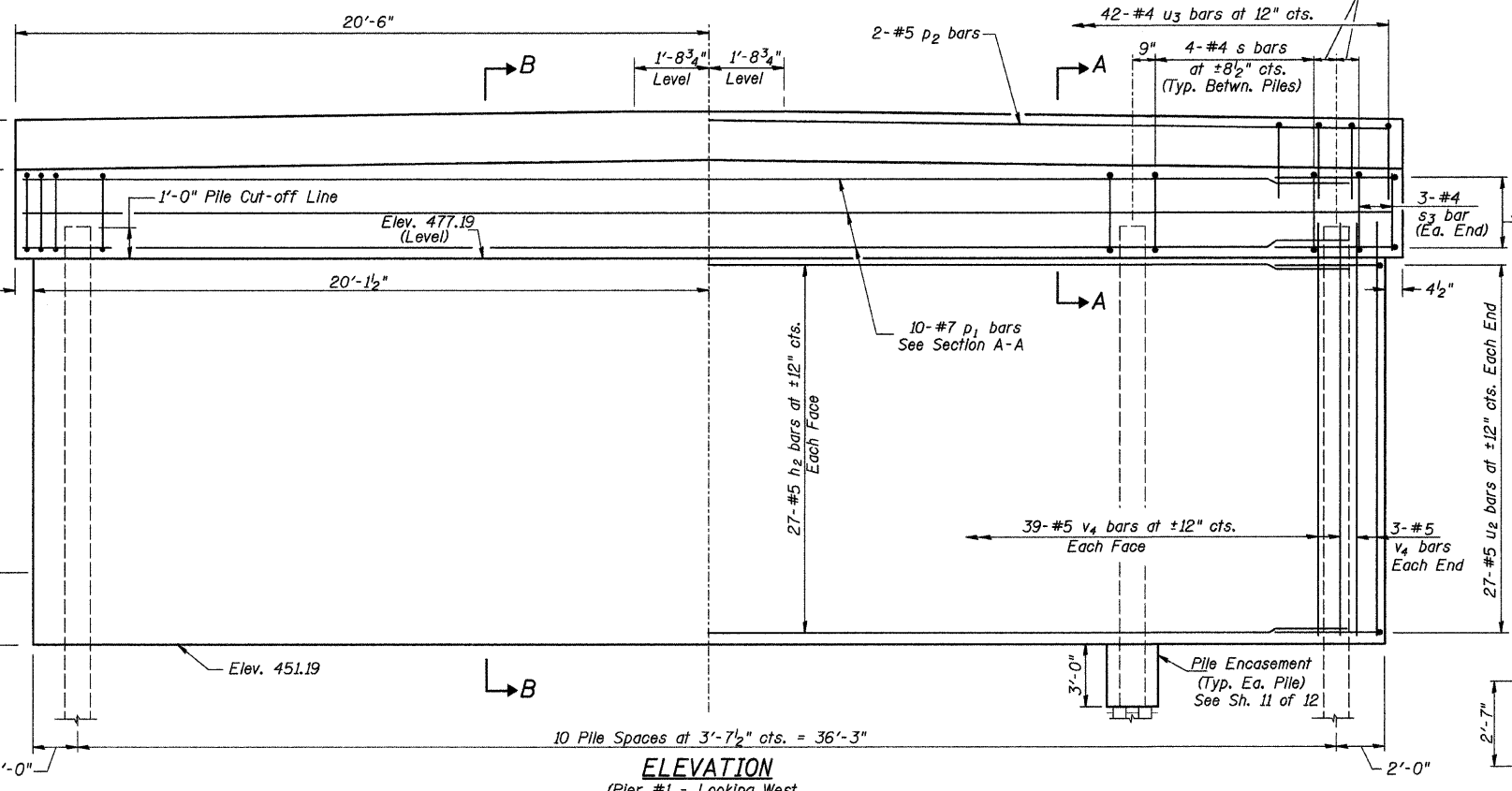
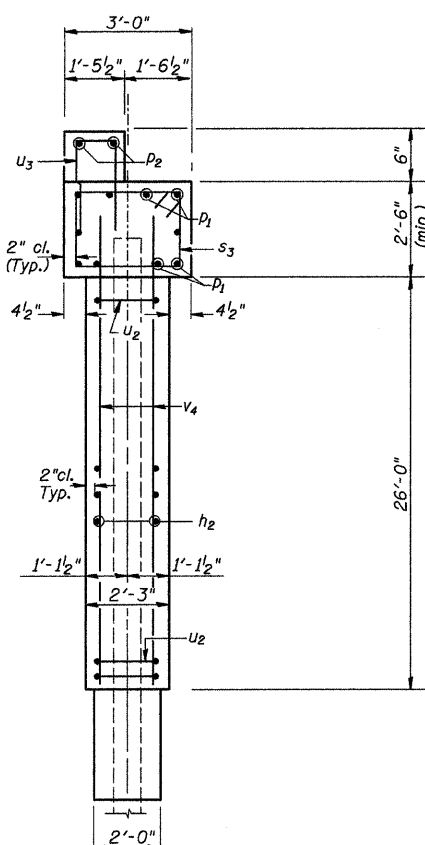
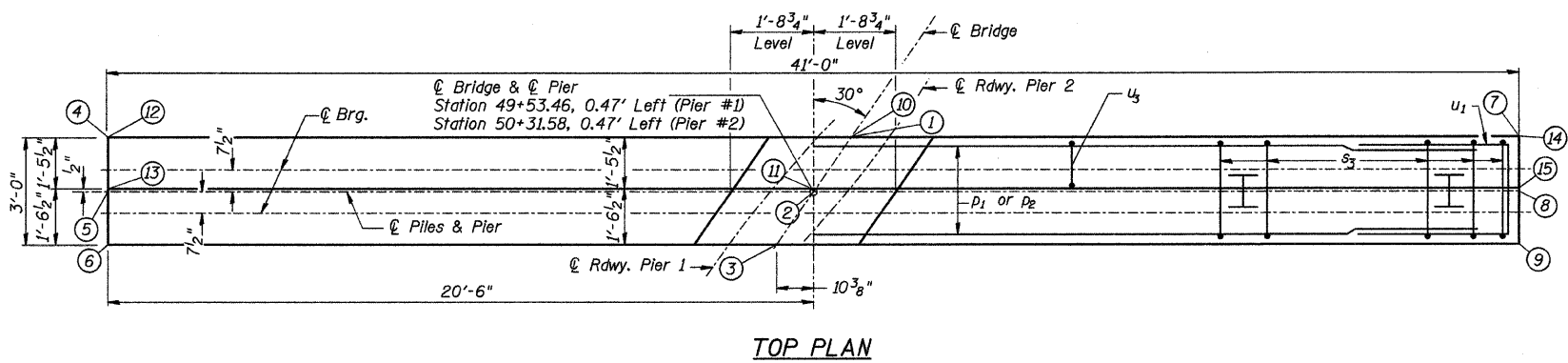
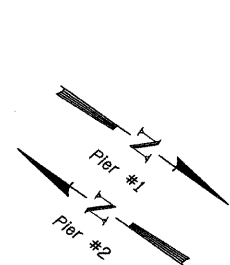
**ABUTMENTS  
COUNTY HIGHWAY 9 OVER  
INDIAN CREEK  
SEC. 04-00068-00-BR  
CASS COUNTY  
STATION 49+92.52**



NOTES:  
All edges shall have standard  
3/4" chamfer.

|                       |         |                  |         |              |
|-----------------------|---------|------------------|---------|--------------|
| ROUTE NO.             | SECTION | COUNTY           | DATE    | SHEET        |
| CH 9                  | *       | CASS             | 29      | 17           |
| FED. ROAD DIST. NO. 7 |         | ILLINOIS         | PROJECT | BRS-580(105) |
| *04-00068-00-BR       |         | CONTRACT # 93474 |         |              |

Hatched Area may be  
poured after Span 2  
PPC Beams are set.



**TWO PIERS  
BILL OF MATERIAL**

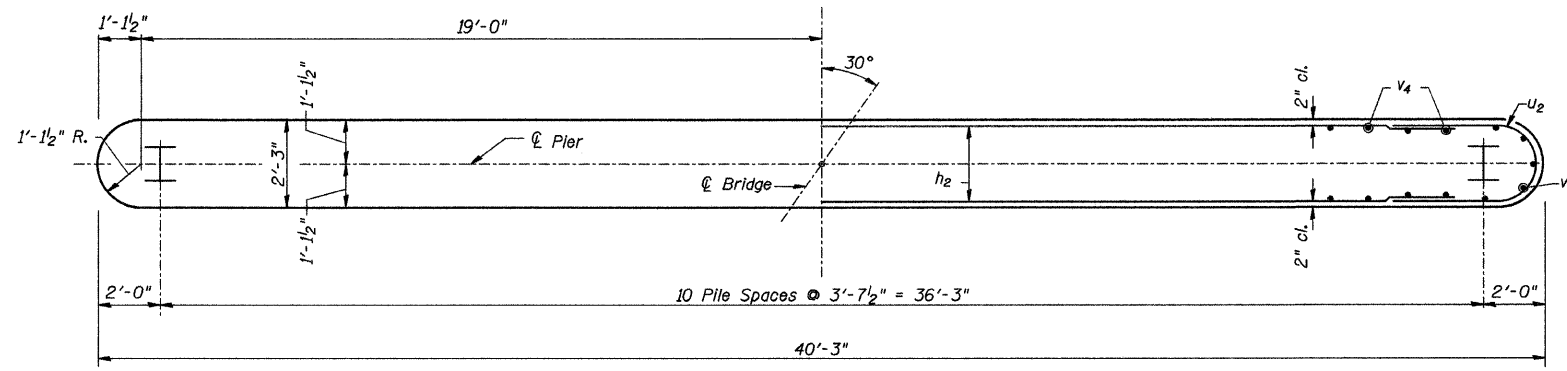
| BAR   | NO. | SIZE | LENGTH  | SHAPE  |
|---|-----|------|---------|--------|
| h <sub>2</sub>  | 108 | #5   | 37'-8"  | —      |
| p <sub>1</sub>  | 20  | #7   | 40'-9"  | —      |
| p <sub>2</sub>  | 4   | #5   | 40'-9"  | —      |
| s <sub>3</sub>  | 92  | #4   | 10'-5"  | □      |
| u <sub>1</sub>  | 12  | #6   | 11'-7"  | ⊏      |
| u <sub>2</sub>  | 108 | #5   | 7'-0"   | ⊏      |
| u <sub>3</sub>  | 84  | #4   | 3'-9"   | ⊏      |
| v <sub>4</sub>  | 168 | #5   | 26'-10" | —      |
| Concrete Structures   |     |      | CU YD   | 198.6  |
| ① Reinforcement Bars  |     |      | POUND   | 12,630 |
| Structure Excavation  |     |      | CU YD   | 30     |
| Furnishing Steel Piles<br>HP12x53                           |     |      | FOOT    | 1,490  |
| Driving Piles   |     |      | FOOT    | 1,490  |
| Test Pile Steel HP12x53                                     |     |      | EACH    | 2      |
| Concrete Encasement   |     |      | CU YD   | 7.7    |
| ① Underwater Structure<br>Excavation Protection, Location 1 |     |      | EACH    | 1      |
| ① Underwater Structure<br>Excavation Protection, Location 2 |     |      | EACH    | 1      |

① See Special Provisions

**SECTION B-B**

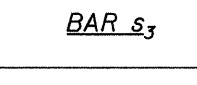
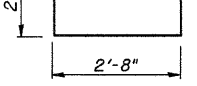
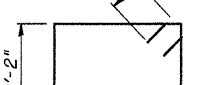
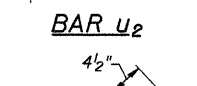
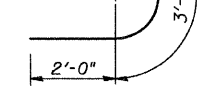
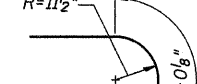
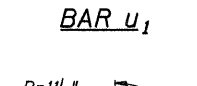
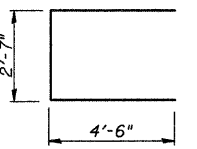
**TABLE OF ELEVATIONS**

| LOCATION | DESCRIPTION | ELEVATION |
|----------|-------------|-----------|
| ①        | Top of Cap  | 479.96    |
| ②        | Top of Cap  | 479.96    |
| ③        | Top of Cap  | 479.96    |
| ④        | Top of Cap  | 479.69    |
| ⑤        | Top of Cap  | 479.71    |
| ⑥        | Top of Cap  | 479.72    |
| ⑦        | Top of Cap  | 479.72    |
| ⑧        | Top of Cap  | 479.71    |
| ⑨        | Top of Cap  | 479.69    |
| ⑩        | Top of Step | 480.46    |
| ⑪        | Top of Step | 480.46    |
| ⑫        | Top of Step | 480.19    |
| ⑬        | Top of Step | 480.21    |
| ⑭        | Top of Step | 480.22    |
| ⑮        | Top of Step | 480.21    |

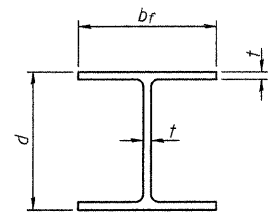


**PILE DATA**  
Type & Size: Steel HP12x53  
Nominal Required Bearing: 405 kips  
Factored Resistance Available: 203 kips  
Est. Length: 69' Pier #1  
80' Pier #2  
No. Req'd.: 22 (Includes 1 Test  
Pile at Each Pier)

**FOOTING PLAN**



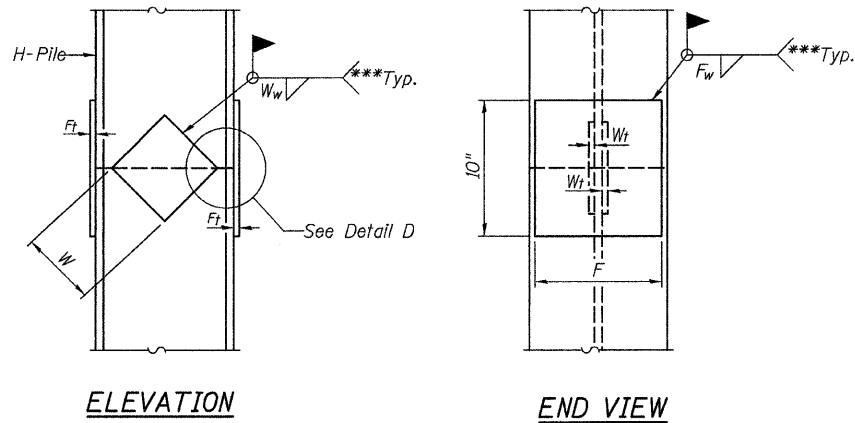
**PIERS  
COUNTY HIGHWAY 9 OVER  
INDIAN CREEK  
SEC. 04-00068-00-BR  
CASS COUNTY  
STATION 49+92.52**



**STEEL PILE TABLE**

| Designation | Depth d | Flange width b <sub>f</sub> | Web and Flange thickness t | Encasement diameter A |
|-------------|---------|-----------------------------|----------------------------|-----------------------|
| HP 14x117   | 14 1/4" | 14 7/8"                     | 13/16"                     | 30"                   |
| x102        | 14"     | 14 3/4"                     | 1/16"                      | 30"                   |
| x89         | 13 7/8" | 14 3/4"                     | 5/8"                       | 30"                   |
| x73         | 13 5/8" | 14 5/8"                     | 1/2"                       | 30"                   |
| HP 12x84    | 12 1/4" | 12 1/4"                     | 1/16"                      | 24"                   |
| x74         | 12 1/8" | 12 1/4"                     | 5/8"                       | 24"                   |
| x63         | 12"     | 12 1/8"                     | 1/2"                       | 24"                   |
| x53         | 11 3/4" | 12"                         | 7/16"                      | 24"                   |
| HP 10x57    | 10"     | 10 1/4"                     | 9/16"                      | 24"                   |
| x42         | 9 3/4"  | 10 1/8"                     | 7/16"                      | 24"                   |
| HP 8x36     | 8"      | 8 1/8"                      | 7/16"                      | 18"                   |

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

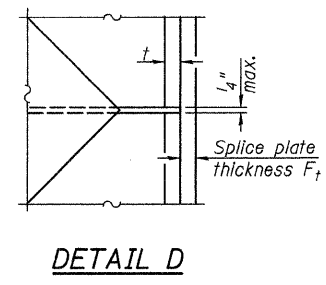


**ELEVATION**

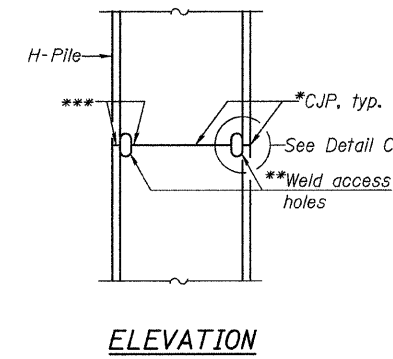
**END VIEW**

| Designation | F       | F <sub>t</sub> | F <sub>w</sub> | W      | W <sub>t</sub> | W <sub>w</sub> |
|-------------|---------|----------------|----------------|--------|----------------|----------------|
| HP 14x117   | 12 1/2" | 1"             | 7/8"           | 7 3/4" | 5/8"           | 1/2"           |
| x102        | 12 1/2" | 7/8"           | 3/4"           | 7 3/4" | 5/8"           | 1/2"           |
| x89         | 12 1/2" | 3/4"           | 1/16"          | 7 3/4" | 5/8"           | 1/2"           |
| x73         | 12 1/2" | 5/8"           | 9/16"          | 7 3/4" | 5/8"           | 1/2"           |
| HP 12x84    | 10"     | 7/8"           | 1/16"          | 6 1/2" | 5/8"           | 1/2"           |
| x74         | 10"     | 7/8"           | 1/16"          | 6 1/2" | 5/8"           | 1/2"           |
| x63         | 10"     | 5/8"           | 1/2"           | 6 1/2" | 1/2"           | 3/8"           |
| x53         | 10"     | 5/8"           | 1/2"           | 6 1/2" | 1/2"           | 3/8"           |
| HP 10x57    | 8"      | 3/4"           | 9/16"          | 5 1/4" | 1/2"           | 3/8"           |
| x42         | 8"      | 5/8"           | 9/16"          | 5 1/4" | 1/2"           | 3/8"           |
| HP 8x36     | 7"      | 5/8"           | 7/16"          | 4 1/4" | 1/2"           | 3/8"           |

**WELDED PLATE FIELD SPLICE**



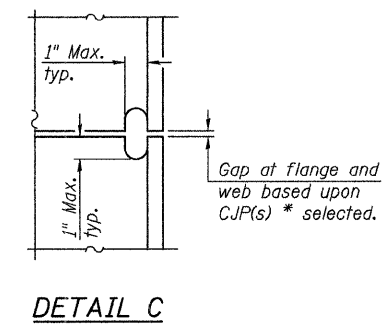
**DETAIL D**



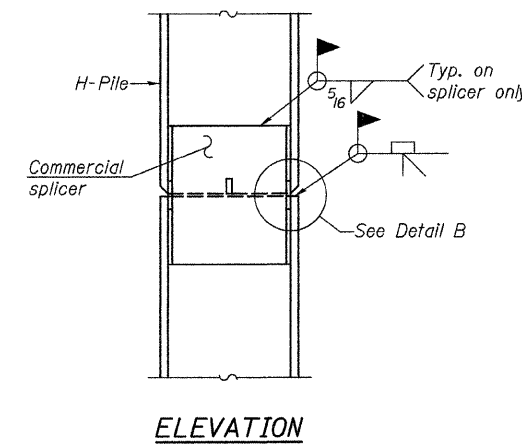
**ELEVATION**

**COMPLETE PENETRATION WELD SPLICE**

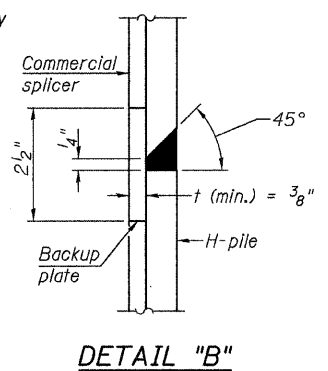
\*Use joint conforming to Figure 3.4 in AWS D1.1, Structure Welding Code - Steel.  
\*\*Preparation per Fig. 5.2 in AWS D1.1, Structure Welding Code - Steel.  
\*\*\*Interrupt welds 1/4" from end of each pile.



**DETAIL C**

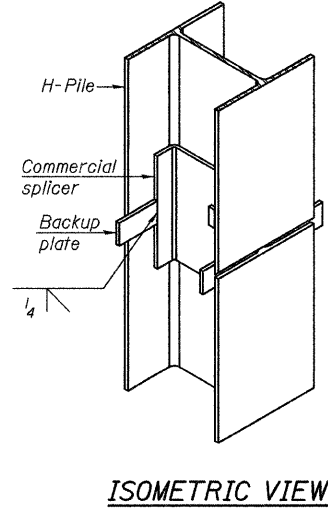


**ELEVATION**

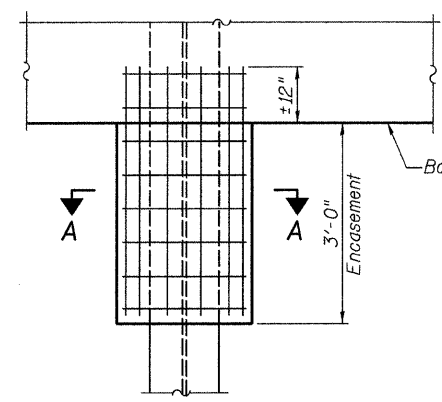


**DETAIL "B"**

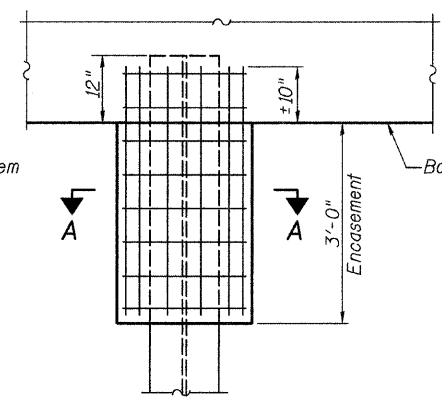
**WELDED COMMERCIAL SPLICE**



**ISOMETRIC VIEW**

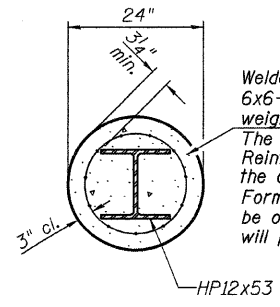


**PIER ELEVATION**



**ABUTMENT ELEVATION**

**PILE ENCASEMENT**



**SECTION A-A**

**PILE DETAILS**  
**COUNTY HIGHWAY 9 OVER**  
**INDIAN CREEK**  
**SEC. 04-00068-00-BR**  
**CASS COUNTY**  
**STATION 49+92.52**

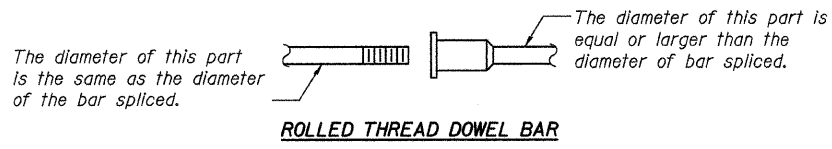
**NOTES**

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 =  $1.25 \times f_y \times A_t$   
(Tension in kips)
- ② Minimum \*Pull-out Strength =  $0.66 \times f_y \times A_t$   
(Tension in kips)

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

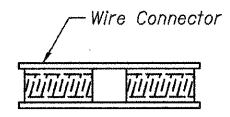
| Bar Size to be Spliced | Splicer Rod or Dowel Bar Length | Strength Requirements        |                                       |
|------------------------|---------------------------------|------------------------------|---------------------------------------|
|                        |                                 | 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"                           | 95.0                         | 50.3                                  |
| #11                    | 9'-0"                           | 117.4                        | 61.8                                  |



**ROLLED THREAD DOWEL BAR**



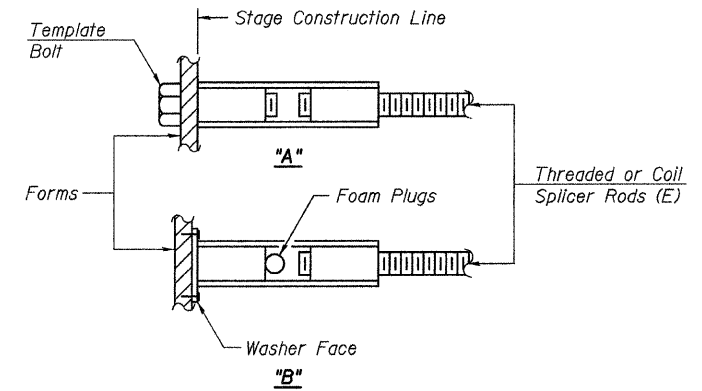
**\*\* ONE PIECE**



**WELDED SECTIONS**

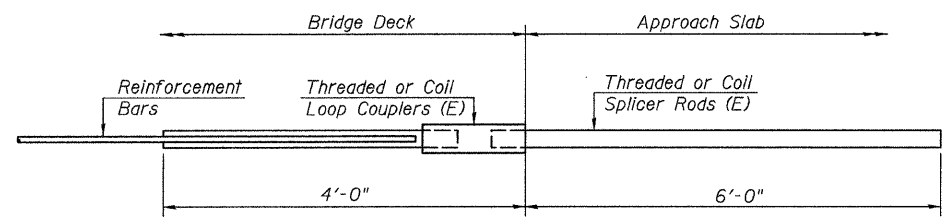
**BAR SPLICER ASSEMBLY ALTERNATIVES**

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



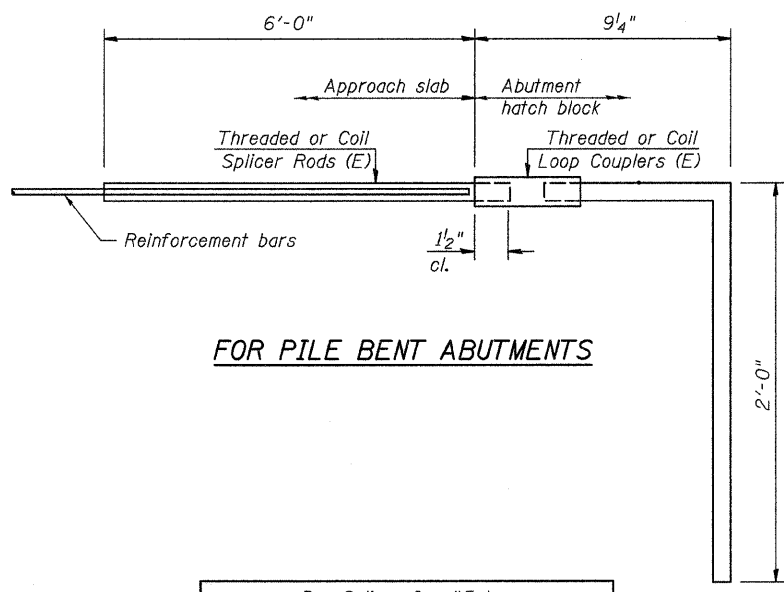
**INSTALLATION AND SETTING METHODS**

"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.



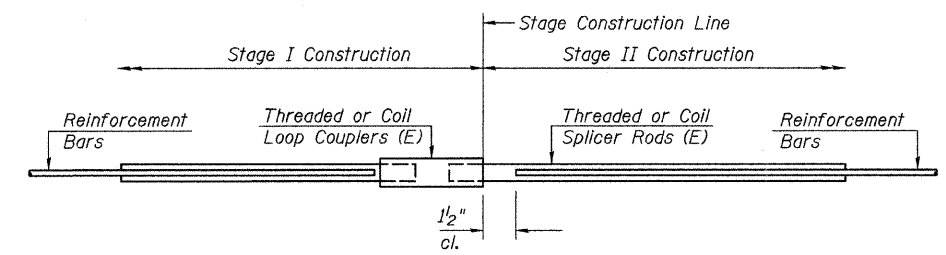
**FOR INTEGRAL OR SEMI-INTEGRAL ABUTMENTS**

|  |
|--|
| Bar Splicer for #5 bar                       |
| Min. Capacity = 23.0 kips - tension          |
| Min. Pull-out Strength = 12.3 kips - tension |
| No. Required = 0                             |



**FOR PILE BENT ABUTMENTS**

|  |
|--|
| Bar Splicer for #5 bar                       |
| Min. Capacity = 23.0 kips - tension          |
| Min. Pull-out Strength = 12.3 kips - tension |
| No. Required = 78                            |



**STANDARD**

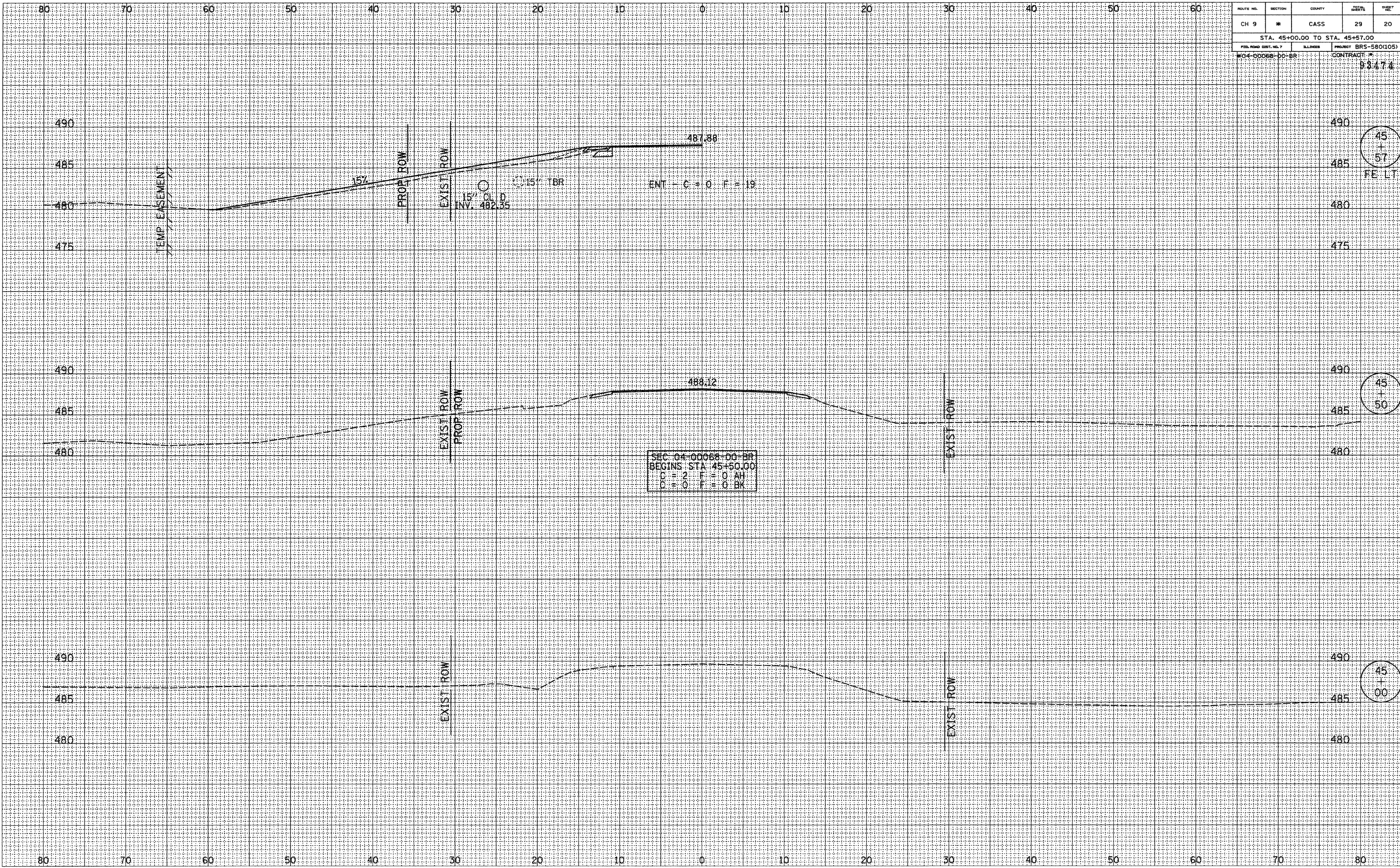
| Bar Size | No. Assemblies Required | Location |
|----------|-------------------------|----------|
|          |                         |          |
|          |                         |          |
|          |                         |          |
|          |                         |          |

**BAR SPLICER ASSEMBLY DETAILS**  
 COUNTY HIGHWAY 9 OVER  
 INDIAN CREEK  
 SEC. 04-00068-00-BR  
 CASS COUNTY  
 STATION 49+92.52

|                                |          |                      |           |
|--------------------------------|----------|----------------------|-----------|
| ROUTE NO.                      | SECTION  | COUNTY               | SHEET NO. |
| CH 9                           | *        | CASS                 | 20        |
| STA. 45+00.00 TO STA. 45+57.00 |          |                      |           |
| FED. ROAD DIST. NO. 7          | ILLINOIS | PROJECT BRS-580(105) |           |
| 04-00068-00-BR                 |          | CONTRACT NO.         | 03474     |

BY \_\_\_\_\_ DATE \_\_\_\_\_  
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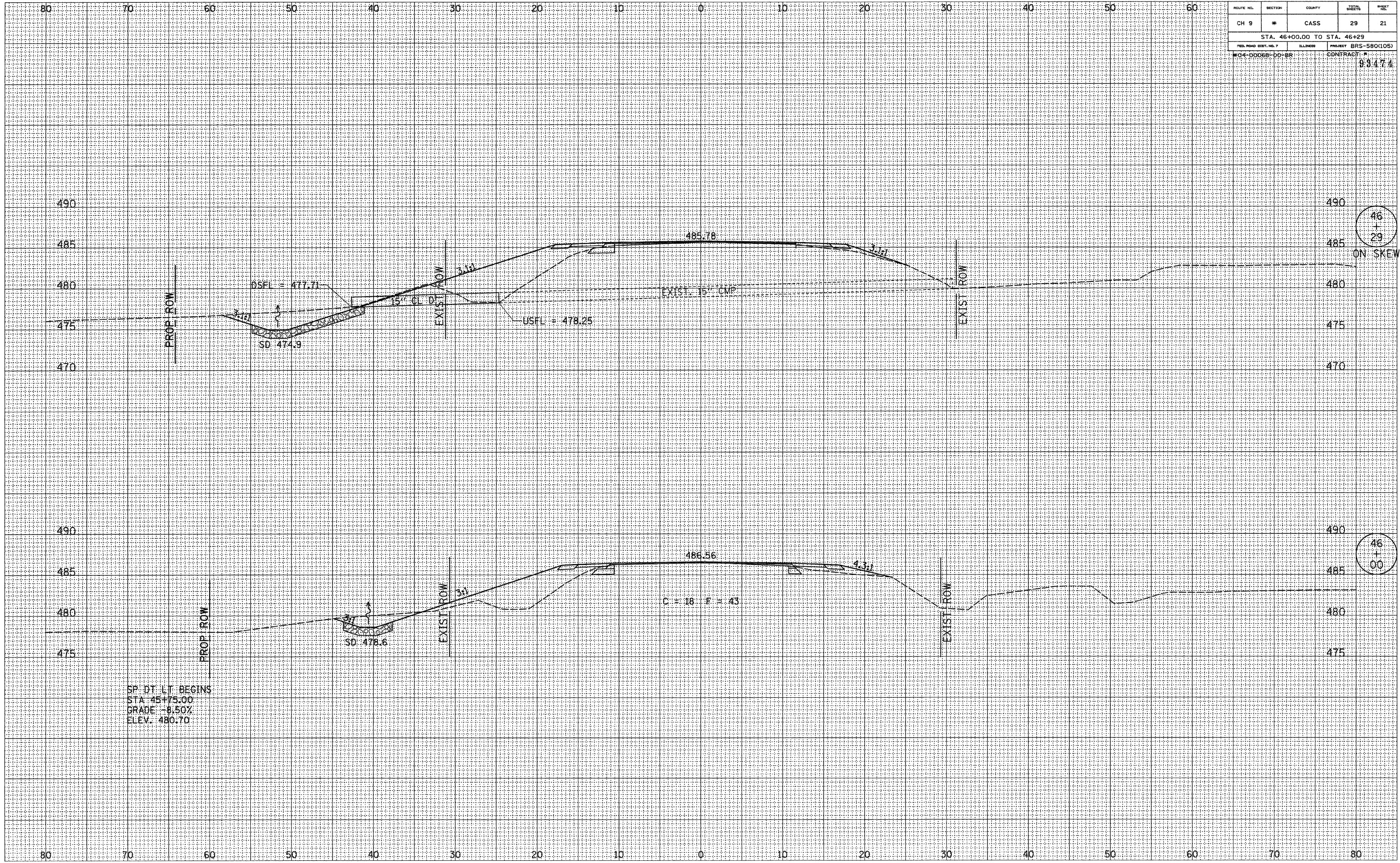
BY \_\_\_\_\_ DATE \_\_\_\_\_  
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| ROUTE NO.                   | SECTION  | COUNTY   | DATE         | SHEET |
| CH 9                        | *        | CASS     | 29           | 21    |
| STA. 46+00.00 TO STA. 46+29 |          |          |              |       |
| FED. ROAD DIST. NO. 7       | ILLINOIS | PROJECT  | BRS-580(105) |       |
| 04-00088-00-BR              |          | CONTRACT | 93474        |       |

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

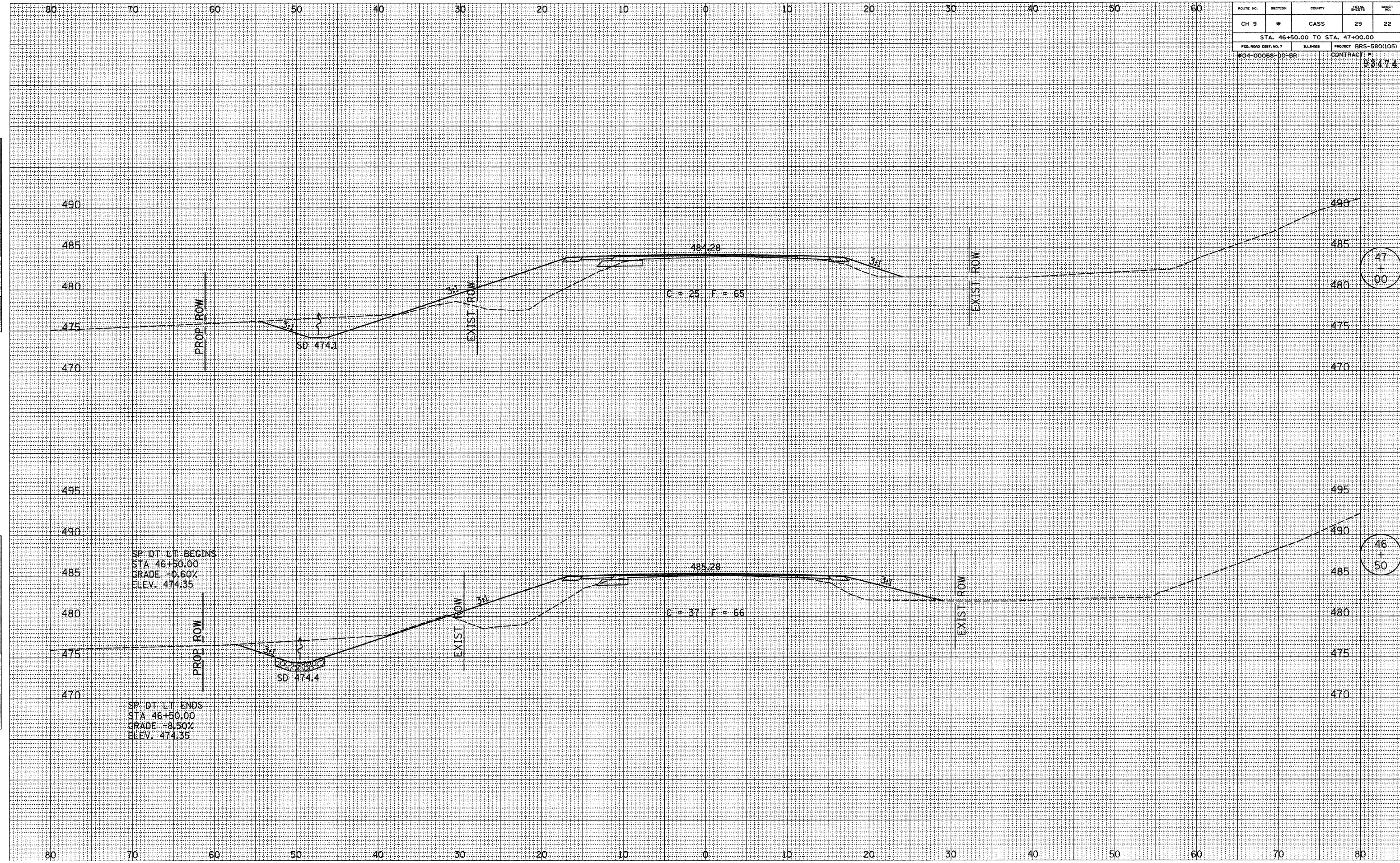
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| DATE            | BY            |
|                 |               |
| ORIGINAL SURVEY | SURVEYED      |
| NOTE BOOK       | PLOTTED       |
| NO.             | TEMPLATE      |
|                 | AREAS CHECKED |



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| ROUTE NO.                      | SECTION  | COUNTY   | SHEET        | SHEET |
| CH 9                           | *        | CASS     | 29           | 22    |
| STA. 46+50.00 TO STA. 47+00.00 |          |          |              |       |
| FED. ROAD DIST. NO. 7          | ILLINOIS | PROJECT  | BRS-580(105) |       |
| MO4-00068-DO-BR                |          | CONTRACT | 93474        |       |

DATE \_\_\_\_\_  
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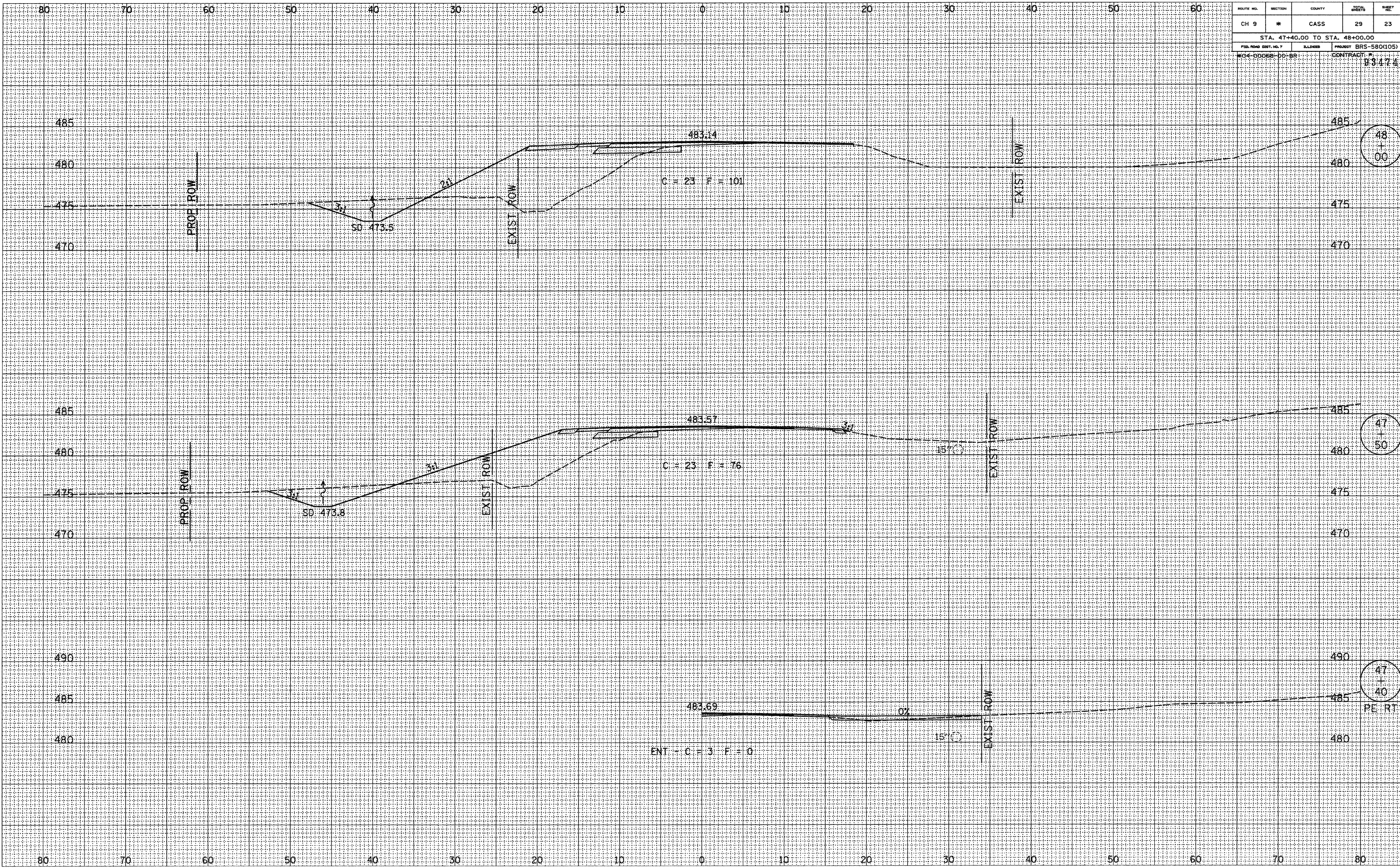
47  
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46  
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| ROUTE NO.                      | SECTION  | COUNTY               | SHEET NO. |
| CH 9                           | #        | CASS                 | 23        |
| STA. 47+40.00 TO STA. 48+00.00 |          |                      |           |
| FED. ROAD DIST. NO. 7          | ILLINOIS | PROJECT BRS-580(105) |           |
| NO. 4-00068-00-BR              |          | CONTRACT #           | 03174     |

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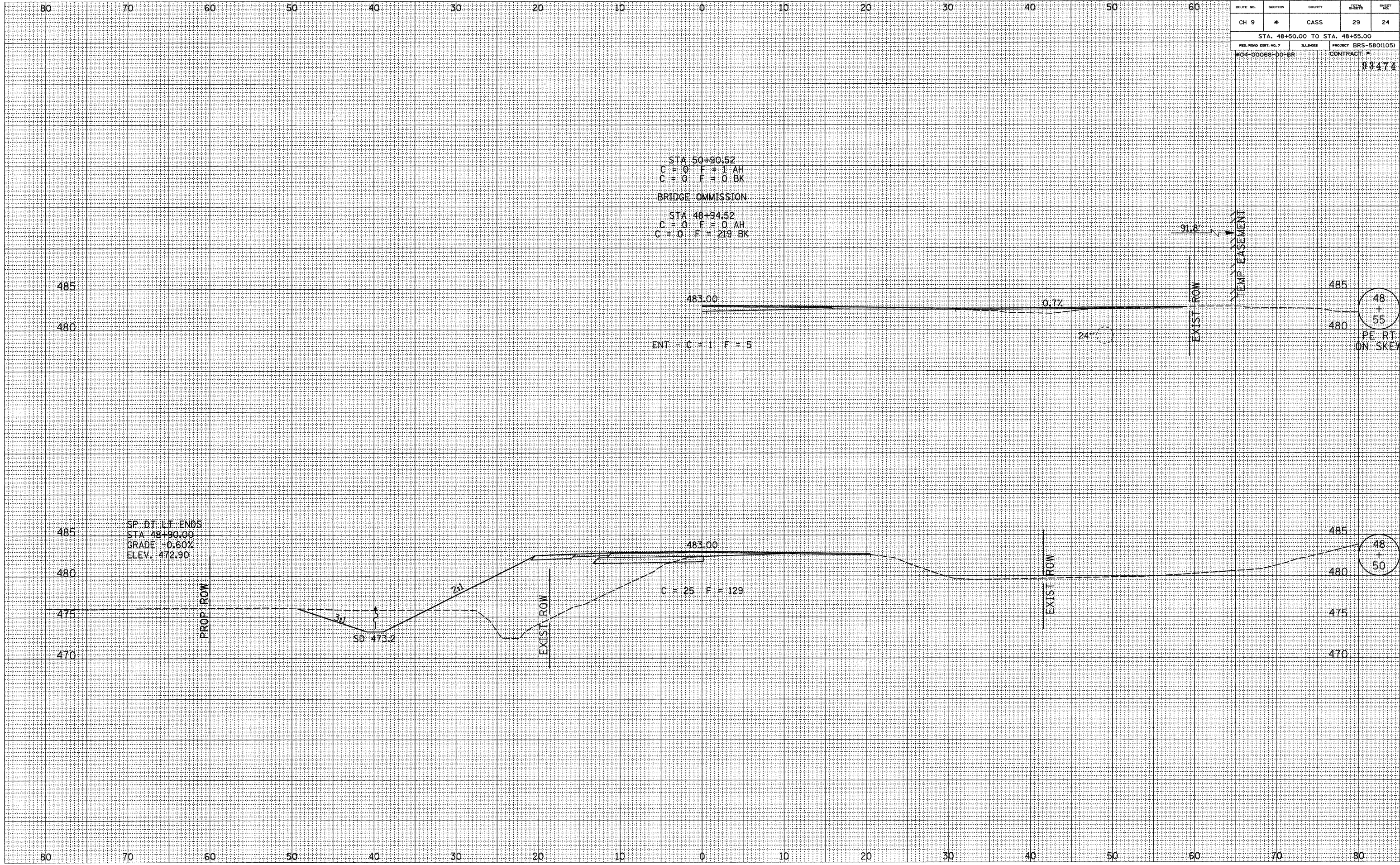


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| ROUTE NO.                      | SECTION  | COUNTY   | TOTAL SHEETS | SHEET NO. |
| CH 9                           | #        | CASS     | 29           | 24        |
| STA. 48+50.00 TO STA. 48+55.00 |          |          |              |           |
| FED. ROAD DIST. NO. 7          | ILLINOIS | PROJECT  | BRS-580(105) |           |
| 04-00088-00-BR                 |          | CONTRACT | 99474        |           |

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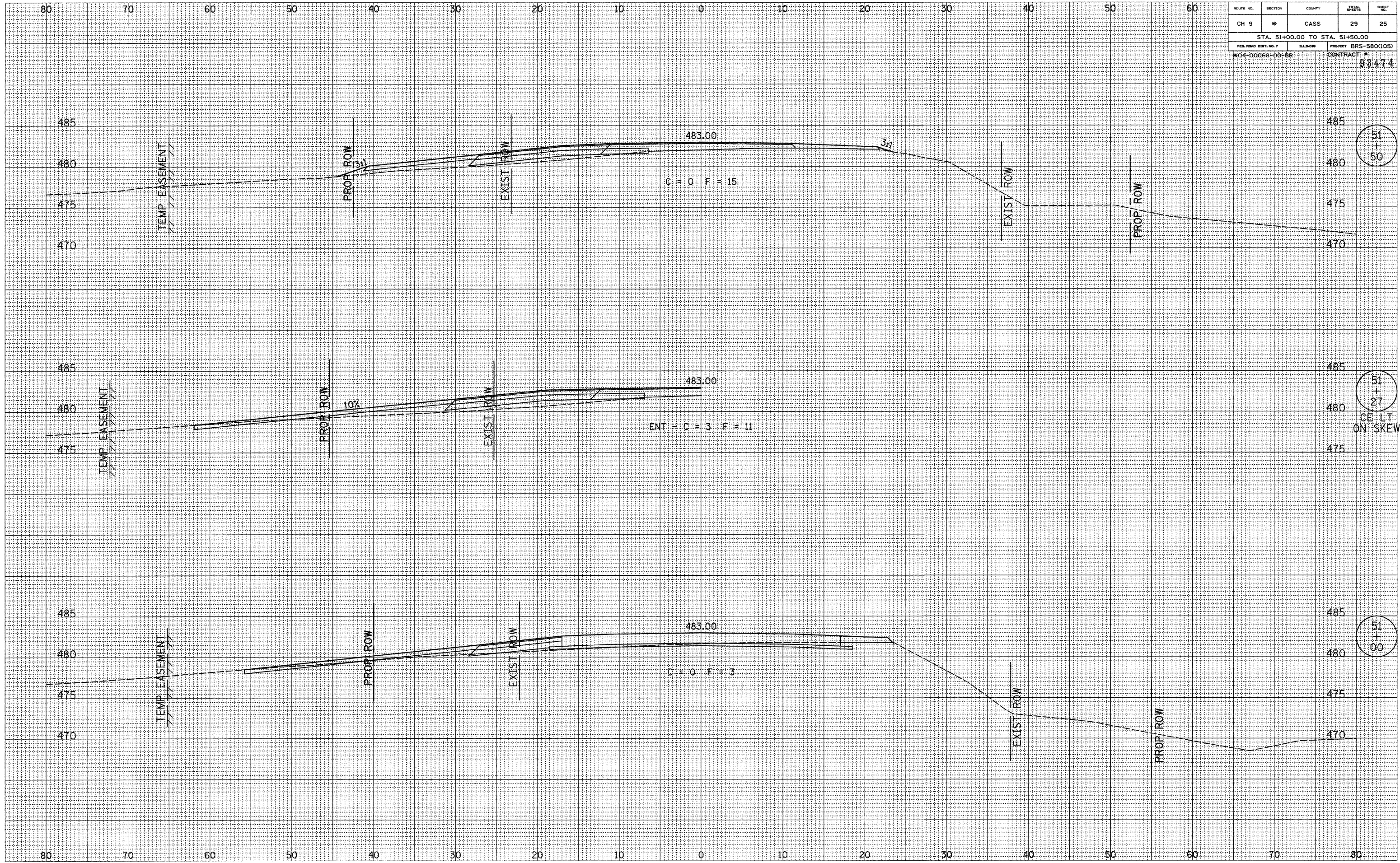




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|--------------------------------|---------|--------|------------------|----------------------|
| ROUTE NO.                      | SECTION | COUNTY | SHEET NO.        | SHEET NO.            |
| CH 9                           | *       | CASS   | 29               | 25                   |
| STA. 51+00.00 TO STA. 51+50.00 |         |        |                  |                      |
| FED. ROAD DIST. NO. 7          |         |        | ILLINOIS         | PROJECT BRS-580(105) |
| #04-D0068-DD-BR                |         |        | CONTRACT # 99474 |                      |

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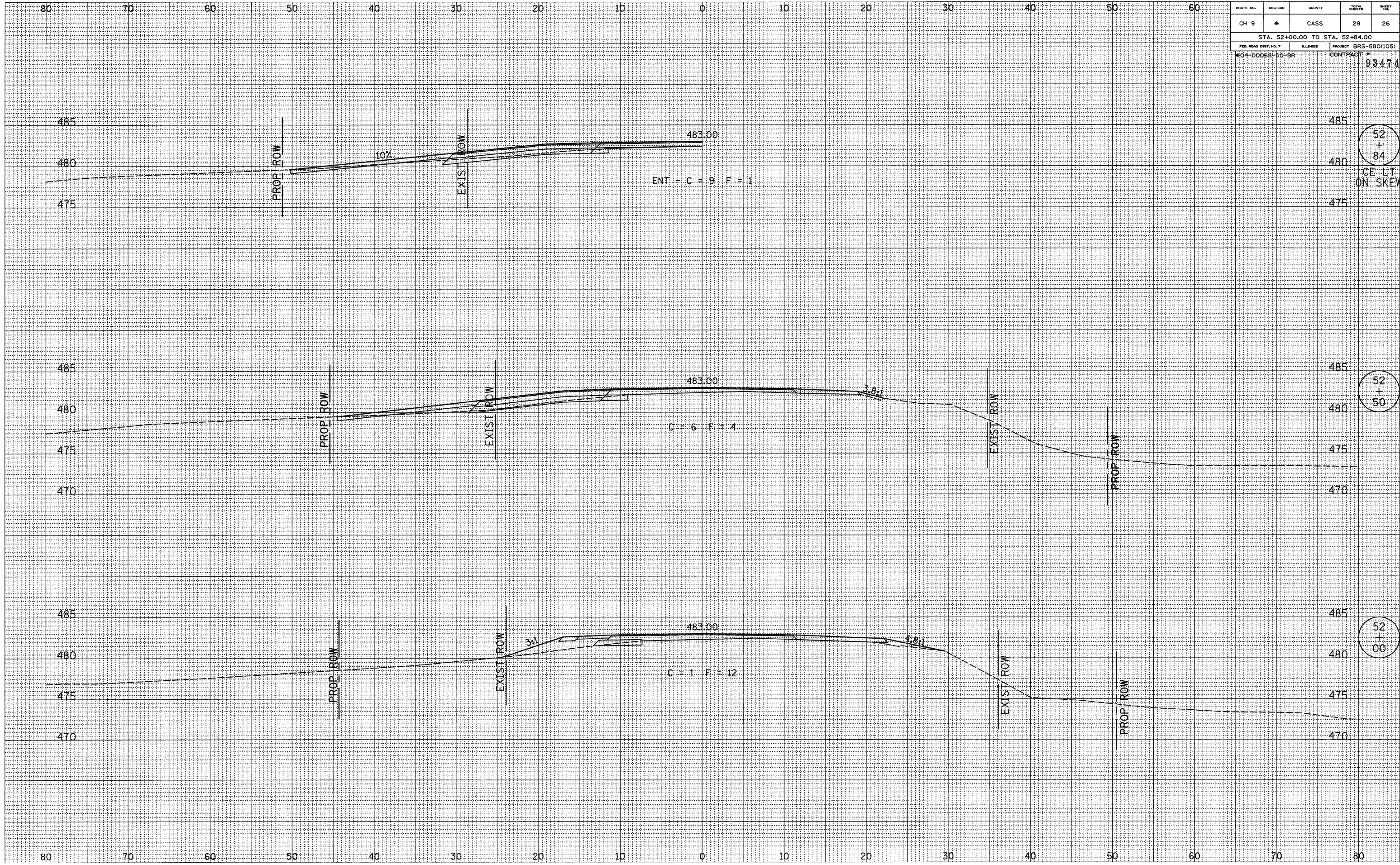
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| ROUTE NO.                      | SECTION  | COUNTY     | TOWNSHIP     | SHEET |
|--------------------------------|----------|------------|--------------|-------|
| CH 9                           | *        | CASS       | 29           | 26    |
| STA. 52+00.00 TO STA. 52+84.00 |          |            |              |       |
| FED. ROAD DIST. NO. 7          | ILLINOIS | PROJECT    | BRS-580(105) |       |
| W04-0006B-D0-BR                |          | CONTRACT # | 93474        |       |

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 BY \_\_\_\_\_  
 SURVEYED \_\_\_\_\_  
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 ORIGINAL SURVEY NOTE BOOK NO. \_\_\_\_\_  
 PLATE AREAS CHECKED \_\_\_\_\_



52 + 84  
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 ON-SKEW

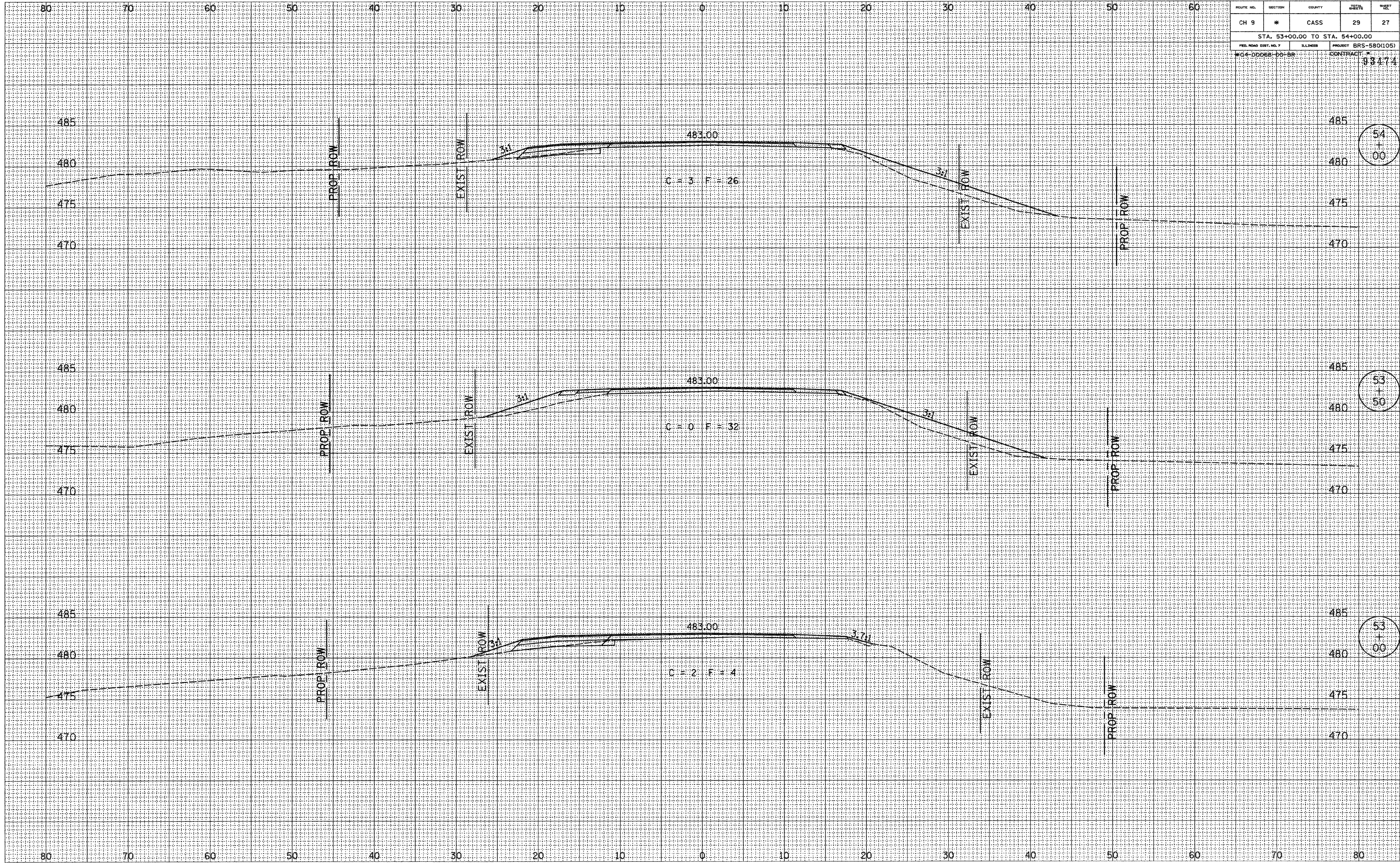
52 + 50

52 + 00

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| ROUTE NO.                      | SECTION  | COUNTY   | TOTAL SHEETS | SHEET |
| CH 9                           | *        | CASS     | 29           | 27    |
| STA. 53+00.00 TO STA. 54+00.00 |          |          |              |       |
| FED. ROAD DIST. NO. 7          | ILLINOIS | PROJECT  | BRS-580(105) |       |
| MD-00068-00-BR                 |          | CONTRACT | 93174        |       |

DATE \_\_\_\_\_  
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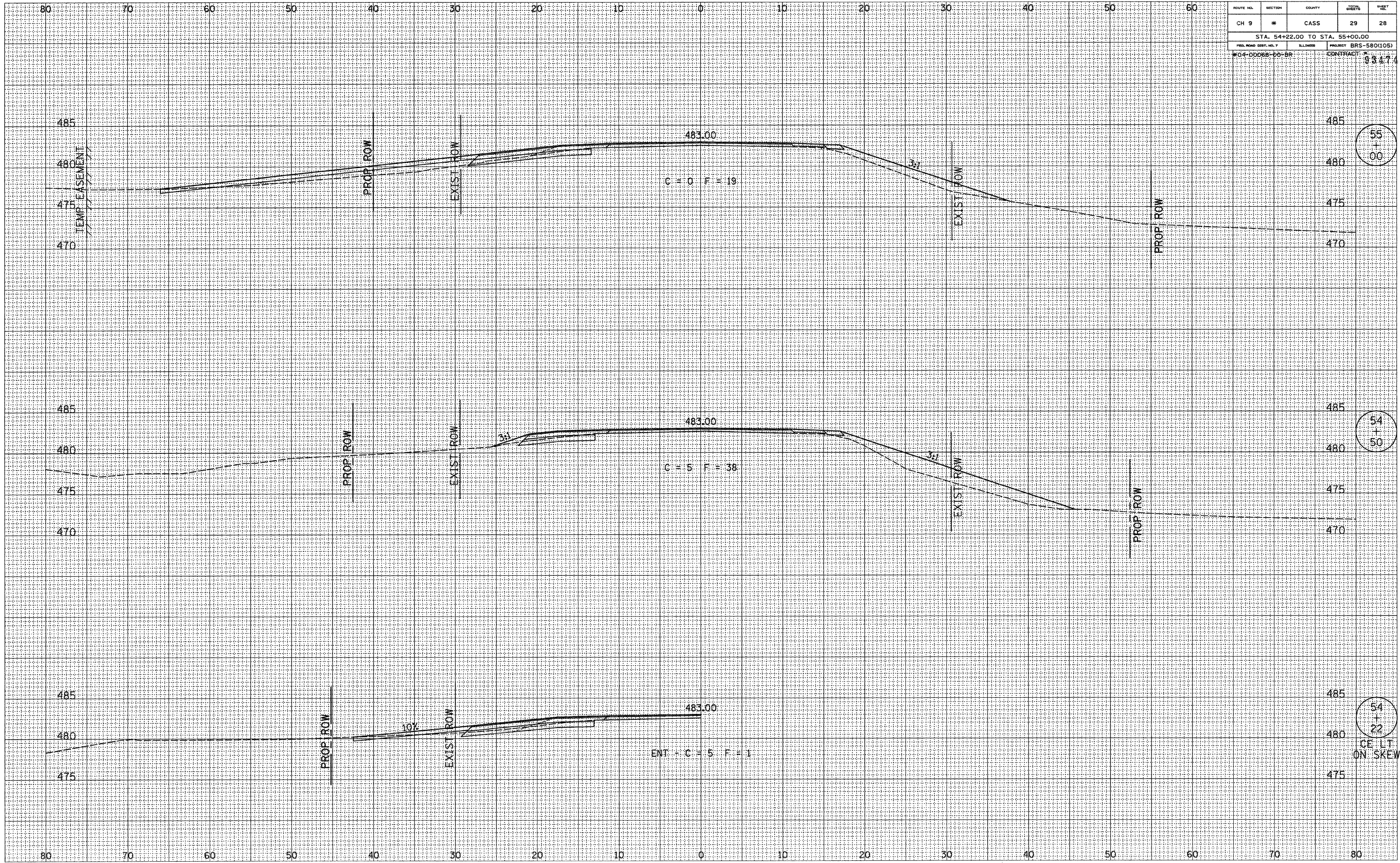
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| ROUTE NO.                      | SECTION    | COUNTY   | SHEET        | TOTAL SHEETS |
| CH 9                           | *          | CASS     | 29           | 28           |
| STA. 54+22.00 TO STA. 55+00.00 |            |          |              |              |
| FED. ROAD DIST. NO. 7          | ILL. NO. 8 | PROJECT  | BRS-580(105) |              |
| 04-00088-00-BR                 |            | CONTRACT | 93474        |              |

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ON SKEW

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| ROUTE NO.                      | SECTION  | COUNTY   | SHEET NO.    | TOTAL SHEETS |
| CH 9                           | *        | CASS     | 29           | 29           |
| STA. 55+29.00 TO STA. 56+00.00 |          |          |              |              |
| FED. ROAD DIST. NO. 7          | ILLINOIS | PROJECT  | BRS-580(105) |              |
| 04-00068-00-BR                 |          | CONTRACT | 98474        |              |

SEC 04-00068-00-BR  
 ENDS STA: 56+00.00  
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