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| 1     |
| 2     |
| 3-8   |
| 9-12  |
| 13-15 |
| 16    |
| 17-19 |
| 20-22 |
| 23    |
| 24-49 |
| 50-60 |
| 61-73 |
| ---   |
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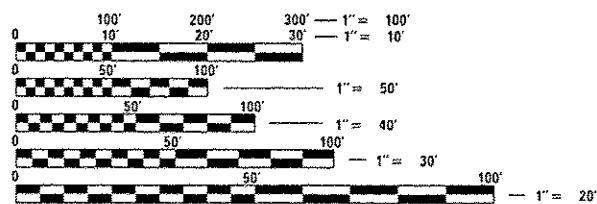
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|---|
| COVER SHEET                                   |
| GENERAL NOTES, COMMITMENTS & MIX REQUIREMENTS |
| SUMMARY OF QUANTITIES                         |
| TYPICAL SECTIONS                              |
| SCHEDULE OF QUANTITIES                        |
| ALIGNMENT, TIES & BENCHMARKS                  |
| PLAN & PROFILE                                |
| STAGE CONSTRUCTION TRAFFIC DETAILS            |
| EROSION CONTROL PLAN                          |
| STRUCTURE PLANS                               |
| DISTRICT 4 CADD STANDARDS                     |
| CROSS SECTIONS                                |
| ILLINOIS DOT HIGHWAY STANDARDS                |

LIST OF ILLINOIS DOT HIGHWAY STANDARDS

|           |           |
|-----------|-----------|
| 000001-08 | 701001-02 |
| 001001-02 | 701006-05 |
| 280001-07 | 701011-04 |
| 420401-11 | 701201-04 |
| 482001-02 | 701301-04 |
| 482011-03 | 701306-03 |
| 615001-03 | 701311-03 |
| 542301-03 | 701321-14 |
| 601101-01 | 701326-04 |
| 630001-10 | 701801-04 |
| 630301-06 | 704001-07 |
| 631031-13 | 780001-05 |
| 635006-03 | 781001-03 |
| 635011-02 |           |

LIST OF DISTRICT 4 CADD STANDARDS

|           |
|-----------|
| 205001-D4 |
| 406101-D4 |
| 406301-D4 |
| 630101-D4 |
| 667101-D4 |
| 780001-D4 |



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

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

PROJECT ENGINEER: CHRISTOPHER MAUSHARD 309-671-3453

PROJECT MANAGER: DAVID LAYNE 309-671-3475

CATALOG NO. 034249-00D

CONTRACT NO. 68899

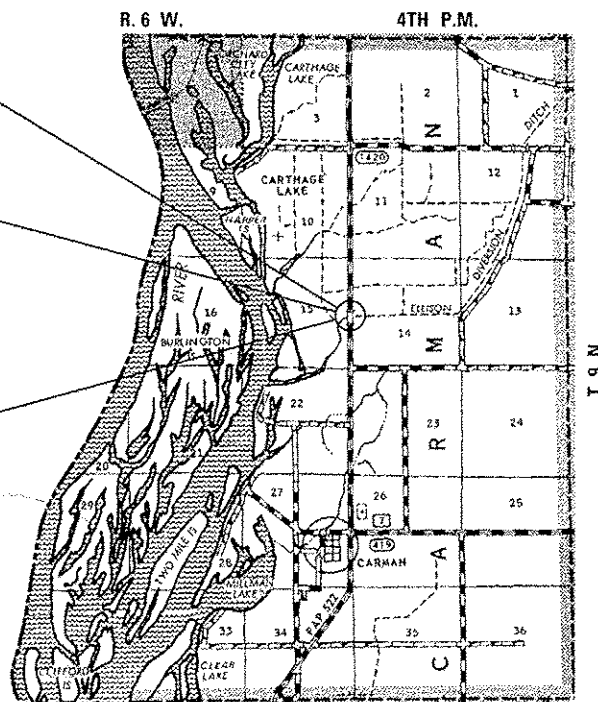
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
**PROPOSED  
HIGHWAY PLANS**

FAP 522 (CARMAN RD)  
SECTION (14B)BR  
PROJECT: ACF-0522 (009)  
HENDERSON COUNTY  
C-94-092-09

BEGIN PROJECT  
SEC (14B)BR  
STA 151 + 75.00

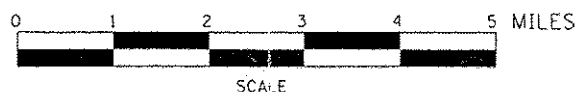
REMOVE & REPLACE  
EX STRUCTURE OVER  
ELLISON CREEK  
EX SN 036-3001  
PR SN 036-6073  
STA 159 + 75.00

END PROJECT  
SEC (14B)BR  
STA 168 + 25.00



LOCATION PLAN

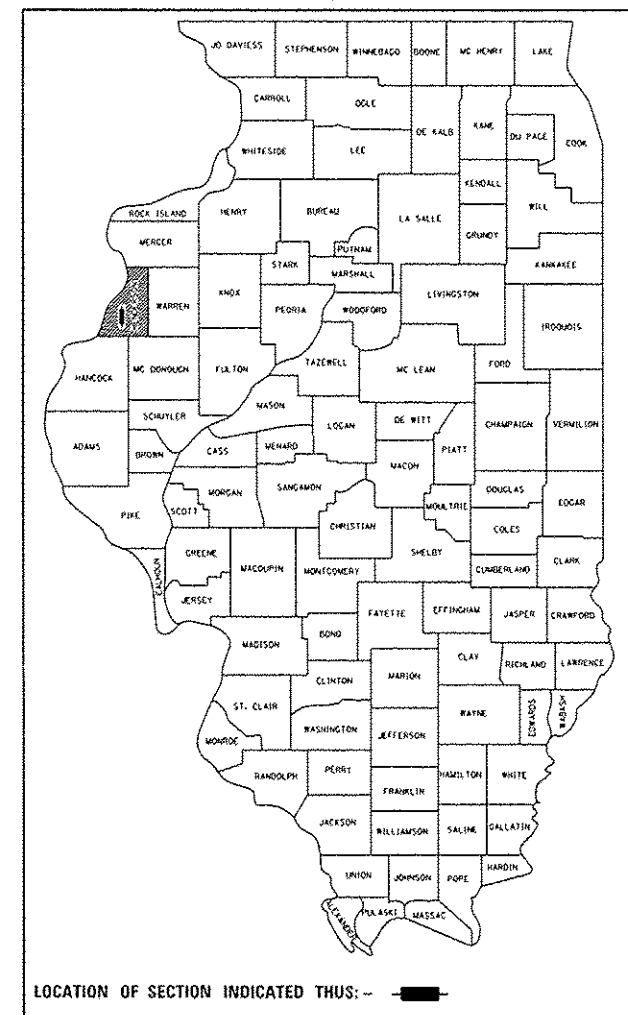
NET LENGTH OF PROJECT = 1650.00 FEET = 0.313 MILES



Allen Henderson & Associates, Inc.  
Civil and Structural Engineers Springfield, IL  
62703 Phone: (217)544-8033 IL Design Firm  
No. 184-001907

| F.A.E. RTE.         | SECTION  | COUNTY       | TOTAL SHEETS | SHEET NO. |
|---------------------|----------|--------------|--------------|-----------|
| 522                 | (14B)BR  | HENDERSON    | 73           | 1         |
| FED. ROAD DIST. NO. | ILLINOIS | CONTRACT NO. | 68899        |           |

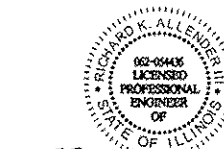
D-94-065-09



LOCATION OF SECTION INDICATED THUS: -

ADT = 3850 (2006)  
% SU = 1.5 (2006)  
% MU = 1.5 (2006)  
TOWNSHIP: CARMAN  
FUNCTIONAL CLASSIFICATION: MINOR ARTERIAL (NON-URBAN)

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
SUBMITTED Oct 16 20 2014  
Ronald G. Starnes III  
DEPUTY DIRECTOR OF HIGHWAYS, REGION THREE ENGINEER  
Dec 18 20 2014  
John D. Baranzelli PE 1/a  
acting ENGINEER OF DESIGN AND ENVIRONMENT  
Dec 18 20 2014  
Ormer Osman PE 1/a  
DIRECTOR OF HIGHWAYS, CHIEF ENGINEER



Robert W. Alexander III 9-9-14  
EXPIRATION: 11/30/2015

PRINTED BY THE AUTHORITY  
OF THE STATE OF ILLINOIS

I.D.O.T. DISTRICT 4 GENERAL NOTES

1. AVAILABILITY OF ELECTRONIC FILES

MICROSTATION AND GEOPAK FILES OF THIS PROJECT WILL BE MADE AVAILABLE TO THE CONTRACTOR. IF THERE IS A CONFLICT BETWEEN THE ELECTRONIC FILES AND THE PRINTED CONTRACT PLANS AND DOCUMENTS, THE PRINTED CONTRACT PLANS AND DOCUMENTS SHALL TAKE PRECEDENCE OVER THE ELECTRONIC FILES. THE CONTRACTOR SHALL ACCEPT ALL RISK ASSOCIATED WITH USING THE ELECTRONIC FILES AND SHALL HOLD THE DEPARTMENT HARMLESS FOR ANY ERRORS OR OMISSIONS IN THE ELECTRONIC FILES AND THE DATA CONTAINED THEREIN. ERRORS OR DELAYS RESULTING FROM THE USE OF THE ELECTRONIC FILES BY THE CONTRACTOR SHALL NOT RESULT IN AN EXTENSION OF TIME FOR ANY INTERIM OR FINAL COMPLETION DATE OR SHALL NOT BE CONSIDERED CAUSE FOR ADDITIONAL COMPENSATION. THE CONTRACTOR SHALL NOT USE, SHARE, OR DISTRIBUTE THESE ELECTRONIC FILES EXCEPT FOR THE PURPOSE OF CONSTRUCTING THIS CONTRACT. ANY CLAIMS BY THIRD PARTIES DUE TO USE OR ERRORS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL INCLUDE THIS DISCLAIMER WITH THE TRANSFER OF THESE ELECTRONIC FILES TO ANY OTHER PARTIES AND SHALL INCLUDE APPROPRIATE LANGUAGE BINDING THEM TO SIMILAR RESPONSIBILITIES.

2. UTILITIES - LOCATIONS / INFORMATION ON PLANS

THE LOCATIONS OF EXISTING WATER MAINS, GAS MAINS, SEWERS, 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 THEY ARE NOT GUARANTEED. UNLESS ELEVATIONS ARE SHOWN --- ALL UTILITY LOCATIONS SHOWN ON THE CROSS SECTIONS ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY THE UTILITY COMPANY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ASCERTAIN THEIR EXACT LOCATION FROM THE UTILITY COMPANIES AND BY FIELD INSPECTION.

3. PLAN ELEVATIONS - U.S.C.S. MEAN SEA LEVEL DATUM

ALL ELEVATIONS SHOWN REFER TO U. S. C. S. DATUM AT MEAN SEA LEVEL UNLESS OTHERWISE NOTED.

4. PROPERTY OWNER ACCESS REQUIREMENTS

ACCESS MUST BE MAINTAINED TO ALL EXISTING PROPERTIES DURING CONSTRUCTION PER ARTICLE 107.09 UNLESS ARRANGEMENTS ARE MADE IN WRITING BY THE CONTRACTOR WITH THE PROPERTY OWNERS WITH A COPY TO THE ENGINEER FOR SHORT-TERM CLOSURES.

5. SEEDING - SIDE SLOPE RIPPING

ALL SLOPES STEEPER THAN 3 TO 1 AND OVER 15 FT (4.5 M) IN HEIGHT SHALL BE RIPPED. THIS SHALL CONSIST OF RIPPING BETWEEN 18 INCHES TO 24 INCHES (450 MM TO 600 MM) DEEP NORMAL TO THE SLOPE. THE INTERVAL OF RIPPING ALONG THE SLOPE SHALL BE 12 FT. (3.6 M). THIS WORK SHALL BE DONE AFTER THE SEED BED HAS BEEN PREPARED BUT BEFORE ANY FERTILIZER OR SEED HAS BEEN APPLIED. THE FERTILIZER AND SEED SHALL BE APPLIED WITHIN A 24-HOUR PERIOD AFTER THE RIPPING HAS BEEN DONE. THIS WORK WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE COST OF THE VARIOUS ITEMS OF SEEDING INVOLVED.

6. PAVEMENT STATIONING NUMBERS & PLACEMENT

THE CONTRACTOR SHALL PROVIDE LABOR AND MATERIALS REQUIRED TO IMPRINT PAVEMENT STATION NUMBERS IN THE FINISHED SURFACE OF THE PAVEMENT AND/OR OVERLAY. THE NUMBERS SHALL BE APPROXIMATELY 3/4 INCH (20MM) WIDE, 5 INCHES (125 MM) HIGH AND 5/8 INCH (15 MM) DEEP.

THE PAVEMENT STATION NUMBERS SHALL BE INSTALLED AS SPECIFIED HEREIN:  
 INTERVAL - 200 FEET (ENGLISH STATIONING) OR 100 METERS (METRIC STATIONING)  
 BOTTOM OF NUMBERS - 6 INCHES (150 MM) FROM THE INSIDE EDGE OF THE PAVEMENT MARKING LOCATION:

- 2, 3, & 5 LANE PAVEMENTS - RIGHT EDGE OF PAVEMENT IN DIRECTION OF INCREASING STATIONS
- MULTI-LANE DIVIDED ROADWAYS - OUTSIDE EDGE OF PAVEMENT IN BOTH DIRECTIONS
- RAMPS - ALONG BASELINE EDGE OF PAVEMENT

POSITION - STATIONS SHALL BE PLACED SO THEY CAN BE READ FROM THE ADJACENT SHOULDER  
 FORMAT - ENGLISH (METRIC) PAVEMENT STATIONS SHALL USE THIS FORMAT "XXX (XX+XXX)"  
 WHERE X REPRESENTS THE PAVEMENT STATION

THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE CONSIDERED INCLUDED IN THE COST OF THE ASSOCIATED PAVEMENT AND/OR OVERLAY PAY ITEMS.

HOT-MIX ASPHALT MIXTURE REQUIREMENTS

| MIXTURE USE(S)             | HOT-MIX ASPHALT SURFACE COURSE (1 1/2" NOMINAL) | POLYMER LEVELING BINDER (3/4" MIN) | HOT-MIX ASPHALT BINDER COURSE (2 1/4" MIN) | HOT-MIX ASPHALT SHOULDERS (SURFACE LIFT) | HOT-MIX ASPHALT SHOULDERS 8" (LOWER LIFTS) | HOT-MIX ASPHALT BASE CRSE WIDENING 8" |
|----------------------------|---|------------------------------------|--|--|--|---------------------------------------|
| AC / PC                    | PG 64-22  | SBS OR SBR T6-22                   | PG 64-22                                   | PG 64-22                                 | PG 64-22                                   | PG 64-22                              |
| RAP % (MAX)**              | 15  | 10                                 | 15   | 15                                       | 25   | 25                                    |
| DESIGN AIR Voids           | 4.0% @ N = 50                                   | 4.0% @ N = 50                      | 4.0% @ N = 50                              | 4.0% @ N = 50                            | 4.0% @ N = 50                              | 4.0% @ N = 50                         |
| MIXTURE COMPOSITION        | IL 9.5  | IL 4.75                            | IL 9.5                                     | IL 9.5                                   | IL 19.0                                    | IL 19.0                               |
| FRICTION AGGREGATE         | MIX D (DOLOMITE ONLY)                           | N/A                                | N/A  | MIX C                                    | N/A  | N/A                                   |
| QUALITY MANAGEMENT PROGRAM | QC/OA   | QC/OA                              | QC/OA                                      | QC/OA                                    | QC/OA                                      | QC/OA                                 |

\*\* IF THE RAP OPTION IS SELECTED, THE ASPHALT CEMENT GRADE MAY NEED TO BE ADJUSTED; THIS WILL BE DETERMINED BY THE ENGINEER.

NOTES: INDIVIDUAL LIFT THICKNESSES OF EACH MIX TYPE WILL BE NO LESS THAN 3 X NOMINAL MAXIMUM AGGREGATE SIZE AND NO MORE THAN 6 X NOMINAL MAXIMUM AGGREGATE SIZE.

7. BUTT JOINT CUTTING TIME RESTRICTION

BUTT JOINTS SHALL NOT BE MILLED MORE THAN THREE (3) DAYS PRIOR TO PLACEMENT OF THE BITUMINOUS SURFACE COURSE.

8. PAVING SURFACE COURSE

CONTINUOUS PAVING OPERATIONS ON THE MAIN ROADWAY SHALL BE MAINTAINED AT ALL TIMES DURING THE CONSTRUCTION OF THE HOT-MIX ASPHALT SURFACE. NO INTERRUPTIONS FOR SIDE ROADS, ENTRANCES, TURN LANES, ETC. WILL BE ALLOWED.

9. ORDERING LENGTH CONFIRMATION - DRAINAGE ITEMS

THE CONTRACTOR SHALL CONSULT WITH THE ENGINEER IN REGARD TO THE EXACT LENGTH OF THE BOX/PIPE CULVERTS, STORM SEWERS, AND/OR PIPE DRAINS REQUIRED PRIOR TO ORDERING THESE ITEMS.

10. EXISTING DRAINAGE PIPES CONNECTED TO NEW STRUCTURES

IN ACCORDANCE WITH SECTION 602 OF THE STANDARD SPECIFICATIONS, THE CONNECTING OF EXISTING DRAIN TILES, PIPE CULVERTS, OR STORM SEWERS TO THE PROPOSED DRAINAGE SYSTEM STRUCTURES WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE CONSIDERED AS INCLUDED IN THE PAY ITEMS PROVIDED.

11. ENGINEERS FIELD OFFICE

ADD THE FOLLOWING SENTENCE TO THE END OF PARAGRAPH 670.02 (I) AND 670.04 (E): ALL OF THE TELEPHONE LINES PROVIDED SHALL HAVE UNPUBLISHED NUMBERS.

12. ENVIRONMENTAL REVIEWS

PRIOR TO THE USE OF ANY PROPOSED BORROW AREAS, USE AREAS (TEMPORARY ACCESS ROADS, DETOURS, RUN-AROUNDS, ETC.) AND/OR WASTE AREAS, THE CONTRACTOR SHALL FILE THE REQUIRED ENVIRONMENTAL RESOURCE REQUEST SURVEYS ACCORDING TO SECTION 107.22 OF THE STANDARD SPECIFICATIONS. THESE SURVEYS ARE REQUIRED IN ORDER FOR THE DEPARTMENT TO CONDUCT CULTURAL AND BIOLOGICAL RESOURCE SURVEYS FOR THE PROPOSED SITE.

THE REQUIRED ENVIRONMENTAL RESOURCE DOCUMENTATION SHALL INCLUDE THE FOLLOWING:

- BDE FORM 2289 (ENVIRONMENTAL SURVEY REQUEST)
- BDE FORM 2290 (WASTE/USE AREA REVIEW)
- A LOCATION MAP SHOWING THE SIZE LIMITS AND LOCATION OF THE USE AREA
- COLOR PHOTOGRAPHS DEPICTING THE USE AREA
- BORROW AREA ENTRY AGREEMENT FROM-D4 P10101

PRIOR TO ANY WASTE MATERIALS BEING REMOVED FROM CONSTRUCTION SITE THE REQUIRED ENVIRONMENTAL RESOURCE SURVEYS WILL NEED TO BE OBTAINED AND FILED BY THE CONTRACTOR. EXCESS WASTE PRODUCTS REMOVED FROM THE CONSTRUCTION SITE SHALL BE DISPOSED OF AS REQUIRED IN SECTION 202.03 OF THE STANDARD SPECIFICATIONS.

ANY PROTRUDING METAL BARS SHALL BE REMOVED PRIOR TO THE DISPOSAL OF BROKEN CONCRETE AT APPROVED DISPOSAL SITES.

PLEASE NOTE THAT A MINIMUM OF FOUR WEEKS SHALL BE ALLOWED FOR THE DISTRICT TO OBTAIN THE REQUIRED ENVIRONMENTAL CLEARANCES.

13. SOIL REPORT AVAILABILITY

THE SOILS REPORT AND ALL SOILS DATA COLLECTED AND PROCESSED FOR THE SOILS REPORT MADE IN CONJUNCTION WITH THE DESIGN OF THIS IMPROVEMENT IS ON FILE AT THE DISTRICT OFFICE WHERE IT IS AVAILABLE FOR INSPECTION BY CONTRACTORS AND PROSPECTIVE BIDDERS. BY SUBMITTING A BID, THE CONTRACTOR ACKNOWLEDGES THAT THE SOILS REPORT HAS BEEN MADE AVAILABLE AND IS AWARE OF THE REPORT CONTENT AND APPENDICES.

PROJECT SPECIFIC GENERAL NOTES

- WHERE TREE REMOVAL CONFLICTS WITH EXISTING UNDERGROUND UTILITIES, THE CONTRACTOR SHALL CUT THE TREE OFF AT THE GROUND LINE AND GRIND THE STUMP AS DIRECTED BY THE ENGINEER.
- THE THICKNESS OF THE HOT MIX ASPHALT MIXTURES SHOWN ON THE PLANS IS THE NOMINAL THICKNESS. DEVIATIONS FROM THE NOMINAL THICKNESS WILL BE PERMITTED WHEN SUCH DEVIATIONS OCCUR DUE TO IRREGULARITIES IN THE EXISTING SURFACE OR BASE ON WHICH THE HOT MIXED ASPHALT MIXTURES ARE PLACED.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO ORDERING MATERIALS AND COMMENCING CONSTRUCTION.

COMMITMENTS

- COMMITMENTS SHALL NOT BE ALTERED WITHOUT THE WRITTEN CONSENT OF ALL PARTIES TO WHICH THE COMMITMENT WAS MADE.
- NO COMMITMENTS HAVE BEEN PLEDGED ON THIS PROJECT.

CALCULATION FACTORS

AGGREGATE SHOULDERS AND BASES: 0.05833 TONS/SO YD/INCH  
 HOT MIX ASPHALT: 0.056 TONS/SO YD/INCH  
 MULCH METHOD 2: 2 TONS/ACRE  
 NITROGEN FERTILIZER NUTRIENT: 90 LBS/ACRE  
 PHOSPHORUS FERTILIZER NUTRIENT: 90 LBS/ACRE  
 POTASSIUM FERTILIZER NUTRIENT: 90 LBS/ACRE  
 TEMPORARY EROSION CONTROL SEEDING: 100 LBS/ACRE  
 STONE DUMPED RIPRAP: 1.5 TONS/CU YD

STATUS OF UTILITIES TO BE ADJUSTED

| ROUTE/STREET | OFFSET       | LOCATION                   | OWNER                      | TYPE OF UTILITY      | TYPE OF CONFLICT    | DISPOSITION |
|--------------|--------------|----------------------------|----------------------------|----------------------|---------------------|-------------|
| CARMEN RD.   | 28' RT. OF C | STA. 157+25 TO STA. 157+75 | FRONTIER NORTH             | 200 PR COPPER BURIED | SLOPE BENCHING      | RELOCATE    |
| CARMEN RD.   | 25' RT. OF C | STA. 158+80                | FRONTIER NORTH             | UTILITY POLE         | NEW STRUCTURE       | RELOCATE    |
| CARMEN RD.   | 25' RT. OF C | STA. 158+80 TO STA. 161+80 | FRONTIER NORTH             | 200 PR COPPER AERIAL | BEAM REPLACEMENT    | RELOCATE    |
| CARMEN RD.   | 28' RT. OF C | STA. 161+80 TO STA. 168+00 | FRONTIER NORTH             | 200 PR COPPER BURIED | SLOPE BENCHING      | RELOCATE    |
| CARMEN RD.   | 40' LT. OF C | STA. 158+25 TO STA. 157+75 | LIGHTCORE                  | FIBER OPTIC          | SLOPE BENCHING      | RELOCATE    |
| CARMEN RD.   | 40' LT. OF C | STA. 159+00 TO STA. 160+50 | LIGHTCORE                  | FIBER OPTIC          | RIP RAP REPLACEMENT | RELOCATE    |
| CARMEN RD.   | 40' LT. OF C | STA. 161+75 TO STA. 168+00 | LIGHTCORE                  | FIBER OPTIC          | SLOPE BENCHING/ROCK | RELOCATE    |
| CARMEN RD.   | 60' LT. OF C | STA. 155+20                | AMEREN ILLINOIS (ELECTRIC) | POWER POLE           | EMBANKMENT          | RELOCATE    |

|                          |            |           |
|--------------------------|------------|-----------|
| USER NAME = subnug99     | DESIGNED - | REVISED - |
| PLOT SCALE = 2,000' / 1" | DRAWN -    | REVISED - |
| PLOT DATE = 10/17/2014   | CHECKED -  | REVISED - |
|                          | DATE -     | REVISED - |



Allen Henderson & Associates, Inc.  
 Civil and Structural Engineers Springfield, IL  
 62703 Phone: (217)544-8033 IL Design Firm  
 No. 184-001907


**GENERAL NOTES, COMMITMENTS & MIX REQUIREMENTS**

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|---|---------|-----------|--------------|-----------|
| 522   | (14B)BR | HENDERSON | 73           | 2         |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |

| CODE NO. | ITEM  | UNIT  | TOTAL QUANTITY | CONSTRUCTION CODE                   |                                    |
|----------|---|-------|----------------|-------------------------------------|------------------------------------|
|          |   |       |                | 80% FEDERAL<br>20% STATE<br>ROADWAY | 80% FEDERAL<br>20% STATE<br>BRIDGE |
|          |   |       |                | 0004<br>F.A.P. 522                  | 0011<br>036-0073                   |
| 20100210 | TREE REMOVAL (OVER 15 UNITS DIAMETER)         | UNIT  | 108            | 108                                 |                                    |
| 20200100 | EARTH EXCAVATION                              | CU YD | 1046           | 1046                                |                                    |
| 20200500 | EARTH EXCAVATION (WIDENING)                   | CU YD | 12             | 12                                  |                                    |
| 20300100 | CHANNEL EXCAVATION                            | CU YD | 490            | 490                                 |                                    |
| 20400800 | FURNISHED EXCAVATION                          | CU YD | 4401           | 4401                                |                                    |
| 21001000 | GEO TECHNICAL FABRIC FOR GROUND STABILIZATION | SQ YD | 4670           | 4670                                |                                    |
| 21101615 | TOPSOIL FURNISH AND PLACE, 4"                 | SQ YD | 8830           | 8830                                |                                    |
| 25000210 | SEEDING, CLASS 2A                             | ACRE  | 2.2            | 2.2                                 |                                    |
| 25000400 | NITROGEN FERTILIZER NUTRIENT                  | POUND | 198            | 198                                 |                                    |
| 25000500 | PHOSPHORUS FERTILIZER NUTRIENT                | POUND | 198            | 198                                 |                                    |
| 25000600 | POTASSIUM FERTILIZER NUTRIENT                 | POUND | 198            | 198                                 |                                    |
| 25100635 | HEAVY DUTY EROSION CONTROL BLANKET            | SQ YD | 10650          | 10650                               |                                    |
| 28000250 | TEMPORARY EROSION CONTROL SEEDING             | POUND | 220            | 220                                 |                                    |
| 28000400 | PERIMETER EROSION BARRIER                     | FOOT  | 2820           | 2820                                |                                    |
| 28000500 | INLET AND PIPE PROTECTION                     | EACH  | 1              | 1                                   |                                    |

15

|                                  |            |           |   |   |                         |      |             |                    |           |              |           |
|----------------------------------|------------|-----------|---|---|-------------------------|------|-------------|--------------------|-----------|--------------|-----------|
| USER NAME: kashbr                | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL.<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>SUMMARY OF QUANTITIES</b>                    |                         |      | F.A.P. RTE. | SECTION            | COUNTY    | TOTAL SHEETS | SHEET NO. |
| PLOT SCALE: 100.0000 / 1" = 100' | DRAWN -    | REVISED - |   |   |                         |      | 522         | 114B18R            | HENDERSON | 73           | 3         |
| PLOT DATE: 10/17/2014            | CHECKED -  | REVISED - |   | SCALE: NONE                                     | SHEET NO. 1 OF 6 SHEETS | STA. | TO STA.     | CONTRACT NO. 68899 |           |              |           |
|                                  | DATE -     | REVISED - |   | FED. ROAD DIST. NO. [ILLINOIS] FED. AID PROJECT |                         |      |             |                    |           |              |           |

| CODE NO. | ITEM   | UNIT  | TOTAL QUANTITY | CONSTRUCTION CODE                   |                                    |
|----------|--|-------|----------------|-------------------------------------|------------------------------------|
|          |  |       |                | 80% FEDERAL<br>20% STATE<br>ROADWAY | 80% FEDERAL<br>20% STATE<br>BRIDGE |
|          |  |       |                | 0004<br>F.A.P. 522                  | 0011<br>036-0073                   |
| 28100709 | STONE DUMPED RIPRAP, CLASS A5                              | SO YD | 2148           |                                     | 2148                               |
| 28100825 | STONE DUMPED RIPRAP, CLASS B3                              | SO YD | 245            | 245                                 |                                    |
| 28200200 | FILTER FABRIC  | SO YD | 1652           |                                     | 1652                               |
| 35600708 | HOT-MIX ASPHALT BASE COURSE WIDENING, 8"                   | SO YD | 57             | 57                                  |                                    |
| 40200800 | AGGREGATE SURFACE COURSE, TYPE B                           | TON   | 211            | 211                                 |                                    |
| 40600205 | POLYMERIZED BITUMINOUS MATERIALS (PRIME COAT)              | POUND | 5,200          | 5,200                               |                                    |
| 40600827 | POLYMERIZED LEVELING BINDER (MACHINE METHOD), IL-4.75, N50 | TON   | 151            | 151                                 |                                    |
| 40600982 | HOT-MIX ASPHALT SURFACE REMOVAL - BUTT JOINT               | SO YD | 770            | 770                                 |                                    |
| 40600990 | TEMPORARY RAMP   | SO YD | 316            | 316                                 |                                    |
| 40602978 | HOT-MIX ASPHALT BINDER COURSE, IL- 9.5, N50                | TON   | 80             | 80                                  |                                    |
| 40603335 | HOT-MIX ASPHALT SURFACE COURSE, MIX "D", N50               | TON   | 313            | 313                                 |                                    |
| 42001430 | BRIDGE APPROACH PAVEMENT CONNECTOR (FLEXIBLE)              | SO YD | 48             | 48                                  |                                    |
| 44000100 | PAVEMENT REMOVAL   | SO YD | 236            | 236                                 |                                    |
| 44000152 | HOT-MIX ASPHALT SURFACE REMOVAL, 3/4"                      | SO YD | 2907           | 2907                                |                                    |
| 44004250 | PAVED SHOULDER REMOVAL                                     | SO YD | 766            | 766                                 |                                    |

15


Rev.



| CODE NO. | ITEM                                     | UNIT  | TOTAL QUANTITY | CONSTRUCTION CODE |             |
|----------|--|-------|----------------|-------------------|-------------|
|          |  |       |                | 80% FEDERAL       | 80% FEDERAL |
|          |  |       |                | 20% STATE         | 20% STATE   |
|          |  |       |                | ROADWAY           | BRIDGE      |
|          |  |       |                | 0004              | 0011        |
|          |  |       |                | F.A.P. 522        | 036-0073    |
| 48100700 | AGGREGATE SHOULDERS, TYPE A 8"           | SQ YD | 406            | 406               |             |
| 48203003 | HOT-MIX ASPHALT SHOULDERS, 1 1/2"        | SQ YD | 735            | 735               |             |
| 48203029 | HOT-MIX ASPHALT SHOULDERS, 8"            | SQ YD | 1535           | 1535              |             |
| 50100100 | REMOVAL OF EXISTING STRUCTURES           | EACH  | 1              |                   | 1           |
| 50200100 | STRUCTURE EXCAVATION                     | CU YD | 210            |                   | 210         |
| 50300100 | FLOOR DRAINS                             | EACH  | 22             |                   | 22          |
| 50300225 | CONCRETE STRUCTURES                      | CU YD | 85.8           |                   | 85.8        |
| 50300255 | CONCRETE SUPERSTRUCTURE                  | CU YD | 388.3          |                   | 388.3       |
| 50300260 | BRIDGE DECK GROOVING                     | SQ YD | 985            |                   | 985         |
| 50300280 | CONCRETE ENCASEMENT                      | CU YD | 41.0           |                   | 41.0        |
| 50300300 | PROTECTIVE COAT                          | SQ YD | 1241           |                   | 1241        |
| 50500105 | FURNISHING AND ERECTING STRUCTURAL STEEL | L SUM | 1              |                   | 1           |
| 50500505 | STUD SHEAR CONNECTORS                    | EACH  | 4536           |                   | 4536        |
| 50800205 | REINFORCEMENT BARS, EPOXY COATED         | POUND | 105070         |                   | 105070      |

| CODE NO.   | ITEM  | UNIT  | TOTAL QUANTITY | CONSTRUCTION CODE |             |
|------------|---|-------|----------------|-------------------|-------------|
|            |   |       |                | 80% FEDERAL       | 80% FEDERAL |
|            |   |       |                | 20% STATE         | 20% STATE   |
|            |   |       |                | ROADWAY           | BRIDGE      |
|            |   |       |                | 0004              | 0011        |
|            |   |       |                | F.A.P. 522        | 036-0073    |
| 50800515   | BAR SPLICERS  | EACH  | 961            |                   | 961         |
| 50800530   | MECHANICAL SPLICERS                                 | EACH  | 6              |                   | 6           |
| 51200959   | FURNISHING METAL SHELL PILES 14" X 0.312"           | FOOT  | 1687           |                   | 1687        |
| 51202305   | DRIVING PILES                                       | FOOT  | 1687           |                   | 1687        |
| 51203200   | TEST PILE METAL SHELLS                              | EACH  | 1              |                   | 1           |
| 51204650   | PILE SHDES  | EACH  | 28             |                   | 28          |
| 51500100   | NAME PLATES   | EACH  | 1              |                   | 1           |
| 52100520   | ANCHOR BOLTS, 1"                                    | EACH  | 48             |                   | 48          |
| 54213669   | PRECAST REINFORCED CONCRETE FLARED END SECTIONS 24" | EACH  | 2              | 2                 |             |
| 542A1909   | PIPE CULVERTS, CLASS A, TYPE 3 24"                  | FOOT  | 68             | 68                |             |
| 59100100   | GEOCOMPOSITE WALL DRAIN                             | SO YD | 79             |                   | 79          |
| * 63000001 | STEEL PLATE BEAM GUARDRAIL, TYPE A, 6 FOOT POSTS    | FOOT  | 1200           | 1200              |             |
| * 63100085 | TRAFFIC BARRIER TERMINAL, TYPE 6                    | EACH  | 4              | 4                 |             |
| * 63100167 | TRAFFIC BARRIER TERMINAL, TYPE 1 (SPECIAL) TANGENT  | EACH  | 4              | 4                 |             |

\* Specialty Items

|                            |            |           |  |                              |                         |      |             |  |           |              |           |
|----------------------------|------------|-----------|--|------------------------------|-------------------------|------|-------------|--|-----------|--------------|-----------|
| USER NAME = kshbr          | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>SUMMARY OF QUANTITIES</b> |                         |      | F.A.P. RTE. | SECTION  | COUNTY    | TOTAL SHEETS | SHEET NO. |
| PLOT SCALE = 100.0000 / 1" | DRAWN -    | REVISED - |  |                              |                         |      | 522         | 114018R  | HENDERSON | 73           | 6         |
| PLOT DATE = 10/17/2014     | CHECKED -  | REVISED - |  | SCALE: NONE                  | SHEET NO. 4 OF 6 SHEETS | STA. | TO STA.     | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT CONTRACT NO. 68899 |           |              |           |

| CODE NO. | ITEM  | UNIT   | TOTAL QUANTITY | CONSTRUCTION CODE |             |
|----------|---|--------|----------------|-------------------|-------------|
|          |   |        |                | 80% FEDERAL       | 80% FEDERAL |
|          |   |        |                | 20% STATE         | 20% STATE   |
|          |   |        |                | ROADWAY           | BRIDGE      |
|          |   |        |                | 0004              | 0011        |
|          |   |        |                | F.A.P. 522        | 036-0073    |
| 63200310 | GUARDRAIL REMOVAL                               | FOOT   | 2382           | 2382              |             |
| 66700205 | PERMANENT SURVEY MARKERS, TYPE I                | EACH   | 3              | 3                 |             |
| 67000400 | ENGINEER'S FIELD OFFICE, TYPE A                 | CAL MO | 6              | 6                 |             |
| 67100100 | MOBILIZATION                                    | L SUM  | 1              | 1                 |             |
| 70100405 | TRAFFIC CONTROL AND PROTECTION, STANDARD 701321 | EACH   | 1              | 1                 |             |
| 70100450 | TRAFFIC CONTROL AND PROTECTION, STANDARD 701201 | L SUM  | 1              | 1                 |             |
| 70100460 | TRAFFIC CONTROL AND PROTECTION, STANDARD 701306 | L SUM  | 1              | 1                 |             |
| 70100500 | TRAFFIC CONTROL AND PROTECTION, STANDARD 701326 | L SUM  | 1              | 1                 |             |
| 70103815 | TRAFFIC CONTROL SURVEILLANCE                    | CAL DA | 20             | 20                |             |
| 70106500 | TEMPORARY BRIDGE TRAFFIC SIGNALS                | EACH   | 1              | 1                 |             |
| 70300100 | SHORT TERM PAVEMENT MARKING                     | FOOT   | 330            | 330               |             |
| 70300220 | TEMPORARY PAVEMENT MARKING - LINE 4"            | FOOT   | 5630           | 5630              |             |
| 70301000 | WORK ZONE PAVEMENT MARKING REMOVAL              | SO FT  | 110            | 110               |             |
| 70400100 | TEMPORARY CONCRETE BARRIER                      | FOOT   | 600            | 600               |             |

14


Rev

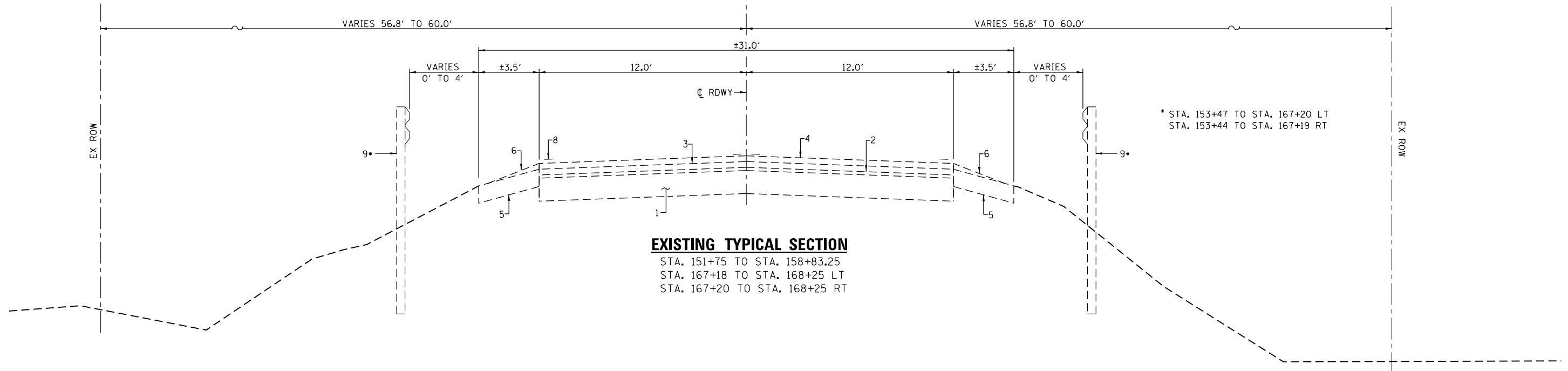
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| CODE NO.   | ITEM  | UNIT  | TOTAL QUANTITY | CONSTRUCTION CODE                             |  |
|------------|---|-------|----------------|---|--|
|            |   |       |                | 80% FEDERAL 20% STATE ROADWAY 0004 F.A.P. 522 | 80% FEDERAL 20% STATE BRIDGE 0011 036-0073 |
|            |   |       |                |   |  |
| 70400200   | RELOCATE TEMPORARY CONCRETE BARRIER                                   | FOOT  | 425            | 425   |  |
| 70600270   | IMPACT ATTENUATORS, TEMPORARY (FULLY REDIRECTIVE, WIDE), TEST LEVEL 3 | EACH  | 2              | 2   |  |
| 70600330   | IMPACT ATTENUATORS, RELOCATE (FULLY REDIRECTIVE), TEST LEVEL 3        | EACH  | 2              | 2   |  |
| * 78001110 | PAINT PAVEMENT MARKING - LINE 4"                                      | FOOT  | 5630           | 5630  |  |
| * 78100100 | RAISED REFLECTIVE PAVEMENT MARKER                                     | EACH  | 22             | 22  |  |
| * 78201000 | TERMINAL MARKER - DIRECT APPLIED                                      | EACH  | 4              | 4   |  |
| 78300100   | PAVEMENT MARKING REMOVAL  | SO FT | 308            | 308   |  |
| 78300200   | RAISED REFLECTIVE PAVEMENT MARKER REMOVAL                             | EACH  | 21             | 21  |  |
| Z0001002   | GUARDRAIL AGGREGATE EROSION CONTROL                                   | TON   | 349            | 349   |  |
| Z0013798   | CONSTRUCTION LAYOUT   | L SUM | 1              | 1   |  |
| Z0034105   | MATERIAL TRANSFER DEVICE  | TON   | 313            | 313   |  |
| Z0046304   | PIPE UNDERDRAINS FOR STRUCTURES 4"                                    | FOOT  | 164            |   | 164  |
| * Z0054500 | ROCK FILL   | TON   | 2160           | 2160  |  |
| Z0073002   | TEMPORARY SOIL RETENTION SYSTEM                                       | SO FT | 231            |   | 231  |
| Ø Z0076600 | TRAINEES  | HOURL | 500            | 500   |  |
| X5860110   | GRANULAR BACKFILL FOR STRUCTURES                                      | CU YD | 150            |   | 150  |
| Ø Z0076604 | TRAINEES-TRAINING PROGRAM GRADUATE                                    | HOURL | 500            | 500   |  |

B0042

\* Specialty Items

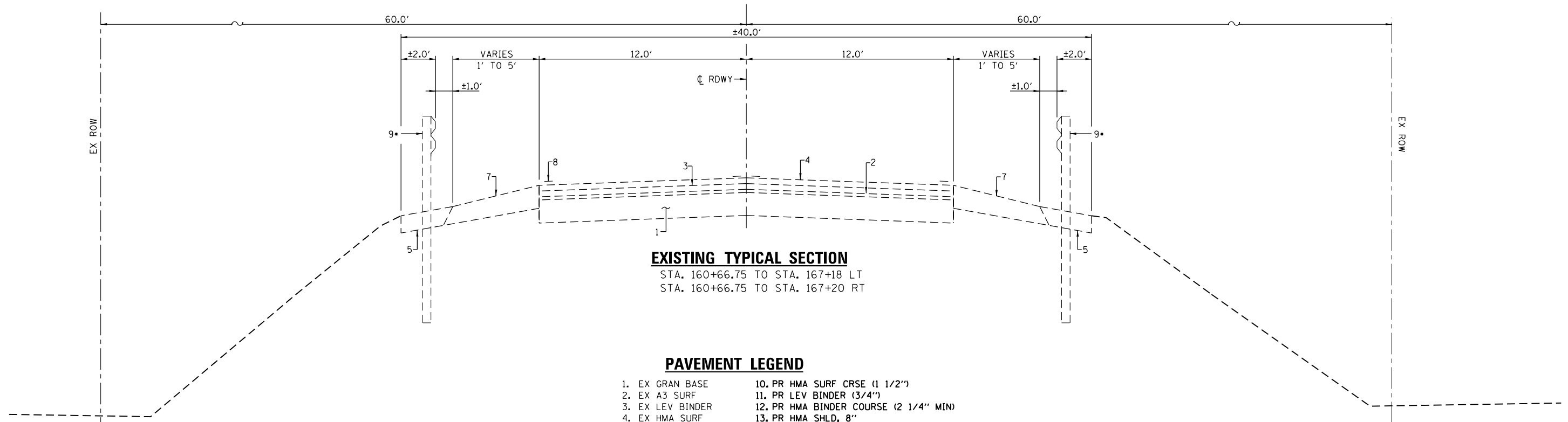
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| USER NAME : ksthr<br>PLOT SCALE : 100.0000 / in.<br>PLOT DATE : 10/17/2014 | DESIGNED -<br>DRAWN -<br>CHECKED -<br>DATE - | REVISED -<br>REVISED -<br>REVISED -<br>REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>SUMMARY OF QUANTITIES</b><br>SCALE: NONE SHEET NO. 6 OF 6 SHEETS STA. TO STA. | F.A.P. RTE. 522<br>SECTION 114B1BR<br>COUNTY HENDERSON<br>TOTAL SHEETS 73<br>SHEET NO. 8<br>CONTRACT NO. 68899 | ILLINOIS FED. AID PROJECT |
|--|--|--|--|--|--|---------------------------|



**EXISTING TYPICAL SECTION**

STA. 151+75 TO STA. 158+83.25  
 STA. 167+18 TO STA. 168+25 LT  
 STA. 167+20 TO STA. 168+25 RT

\* STA. 153+47 TO STA. 167+20 LT  
 STA. 153+44 TO STA. 167+19 RT



**EXISTING TYPICAL SECTION**

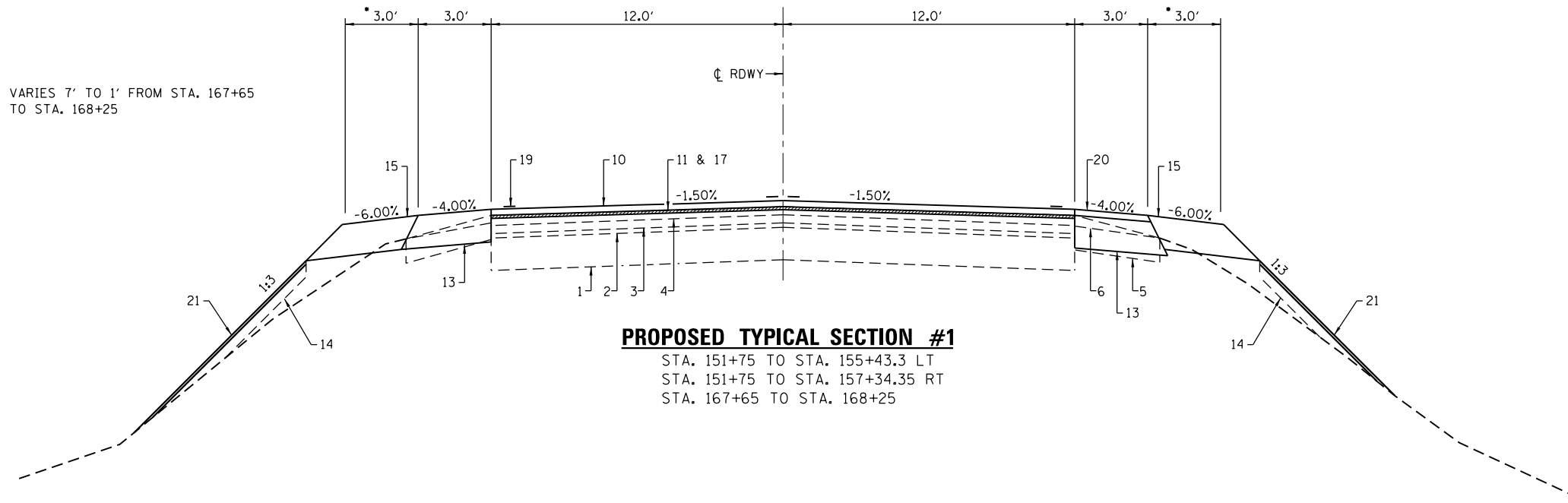
STA. 160+66.75 TO STA. 167+18 LT  
 STA. 160+66.75 TO STA. 167+20 RT

**PAVEMENT LEGEND**

- |                      |  |
|----------------------|--|
| 1. EX GRAN BASE      | 10. PR HMA SURF CRSE (1 1/2")          |
| 2. EX A3 SURF        | 11. PR LEV BINDER (3/4")               |
| 3. EX LEV BINDER     | 12. PR HMA BINDER COURSE (2 1/4" MIN)  |
| 4. EX HMA SURF       | 13. PR HMA SHLD, 8"                    |
| 5. EX AGG SHLD       | 14. PR TOPSOIL, 4"                     |
| 6. EX AGG WEDGE SHLD | 15. PR AGG SHLD, TY A, 8"              |
| 7. EX HMA SHLD       | 16. PR AGG EROS CONTROL SHLD (8")      |
| 8. EX PVMT MRK       | 17. PR HMA SURF REM, 3/4"              |
| 9. EX GUARDRAIL      | 18. PR GUARDRAIL                       |
|                      | 19. PR PVMT MRK                        |
|                      | 20. PR HMA SHLD, 1 1/2"                |
|                      | 21. PR HEAVY DUTY EROS CONTROL BLANKET |
|                      | 22. PR HMA SURF REM-BUTT JOINT         |

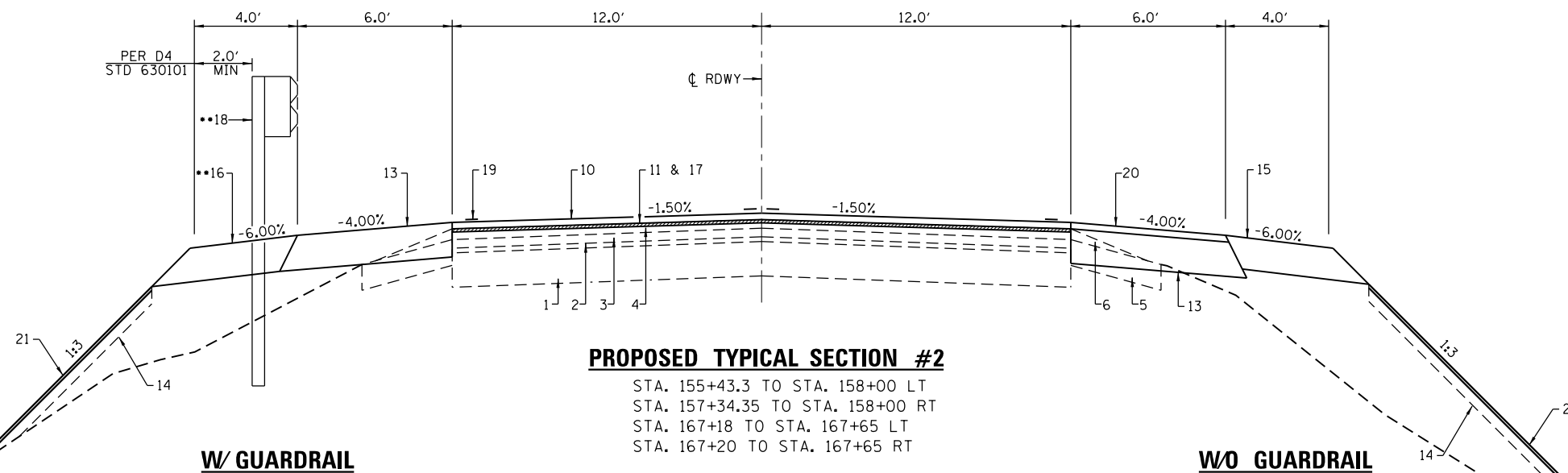
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|----------------------------|------------|-----------|--|---|--|-------------------------|---------|-----------|--------------------|-----------|--|
| USER NAME = keathbr        | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>TYPICAL ROADWAY SECTIONS</b>               |  | F.A.P. RTE.             | SECTION | COUNTY    | TOTAL SHEETS       | SHEET NO. |  |
| PLOT SCALE = 6.0000' / in. | DRAWN -    | REVISED - |  |   |  | 522                     | (14)BR  | HENDERSON | 73                 | 9         |  |
| PLOT DATE = 10/17/2014     | CHECKED -  | REVISED - |  | SCALE: NONE                                   |  | SHEET NO. 1 OF 4 SHEETS | STA.    | TO STA.   | CONTRACT NO. 68899 |           |  |
|                            | DATE -     | REVISED - |  | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |  |                         |         |           |                    |           |  |

\* VARIES 7' TO 1' FROM STA. 167+65 TO STA. 168+25



**PROPOSED TYPICAL SECTION #1**

STA. 151+75 TO STA. 155+43.3 LT  
 STA. 151+75 TO STA. 157+34.35 RT  
 STA. 167+65 TO STA. 168+25



**PROPOSED TYPICAL SECTION #2**

STA. 155+43.3 TO STA. 158+00 LT  
 STA. 157+34.35 TO STA. 158+00 RT  
 STA. 167+18 TO STA. 167+65 LT  
 STA. 167+20 TO STA. 167+65 RT

**W/ GUARDRAIL**

**W/O GUARDRAIL**

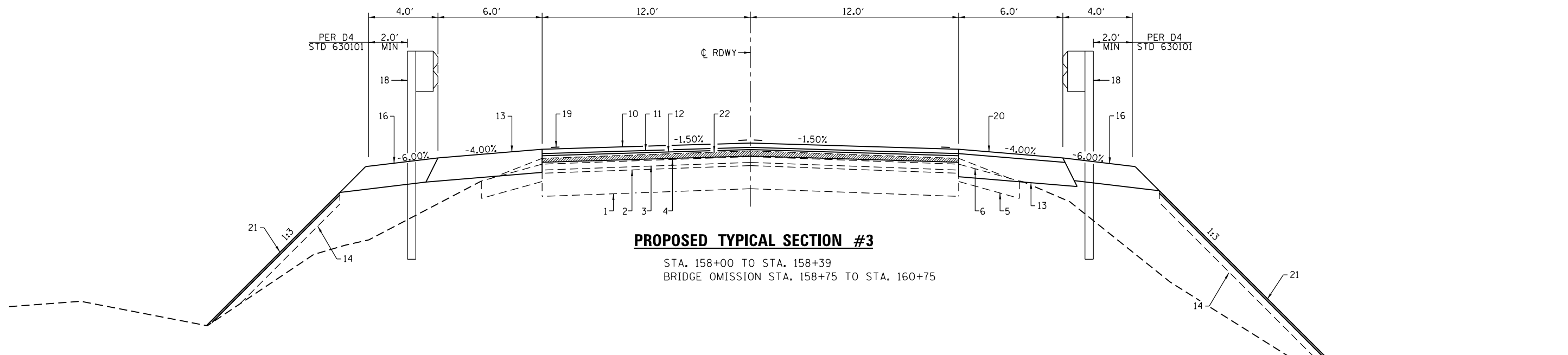
\*\* STA. 156+41.85 TO STA. 167+20.65 LT  
 STA. 157+66.85 TO STA. 167+20.65 RT

**PAVEMENT LEGEND**

- |                      |  |
|----------------------|--|
| 1. EX GRAN BASE      | 10. PR HMA SURF CRSE (1 1/2")          |
| 2. EX A3 SURF        | 11. PR LEV BINDER (3/4")               |
| 3. EX LEV BINDER     | 12. PR HMA BINDER COURSE (2 1/4" MIN)  |
| 4. EX HMA SURF       | 13. PR HMA SHLD, 8"                    |
| 5. EX AGG SHLD       | 14. PR TOPSOIL, 4"                     |
| 6. EX AGG WEDGE SHLD | 15. PR AGG SHLD, TY A, 8"              |
| 7. EX HMA SHLD       | 16. PR AGG EROS CONTROL SHLD (8")      |
| 8. EX PVMT MRK       | 17. PR HMA SURF REM, 3/4"              |
| 9. EX GUARDRAIL      | 18. PR GUARDRAIL                       |
|                      | 19. PR PVMT MRK                        |
|                      | 20. PR HMA SHLD, 1 1/2"                |
|                      | 21. PR HEAVY DUTY EROS CONTROL BLANKET |
|                      | 22. PR HMA SURF REM-BUTT JOINT         |

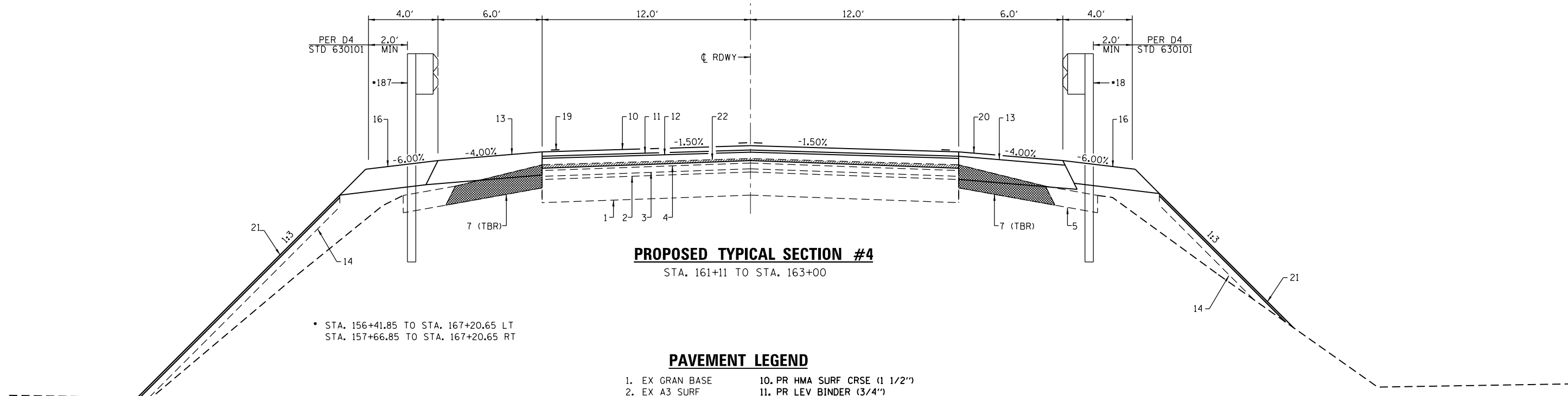
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|----------------------------|------------|-----------|--|---|--|-------------------------|---------|-----------|--------------------|-----------|--|
| USER NAME = keathbr        | DESIGNED - | REVISED - | <p>Allen Henderson &amp; Associates, Inc.<br/>       Civil and Structural Engineers Springfield, IL<br/>       62703 Phone: (217)544-8033 IL Design Firm<br/>       No. 184-001907</p> | <b>TYPICAL ROADWAY SECTIONS</b>               |  | F.A.P. RTE.             | SECTION | COUNTY    | TOTAL SHEETS       | SHEET NO. |  |
| PLOT SCALE = 6.0000' / in. | DRAWN -    | REVISED - |  |   |  | 522                     | (14B)BR | HENDERSON | 73                 | 10        |  |
| PLOT DATE = 10/17/2014     | CHECKED -  | REVISED - |  | SCALE: NONE                                   |  | SHEET NO. 2 OF 4 SHEETS | STA.    | TO STA.   | CONTRACT NO. 68899 |           |  |
|                            | DATE -     | REVISED - |  | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |  |                         |         |           |                    |           |  |





**PROPOSED TYPICAL SECTION #3**

STA. 158+00 TO STA. 158+39  
 BRIDGE OMISSION STA. 158+75 TO STA. 160+75




**PROPOSED TYPICAL SECTION #4**

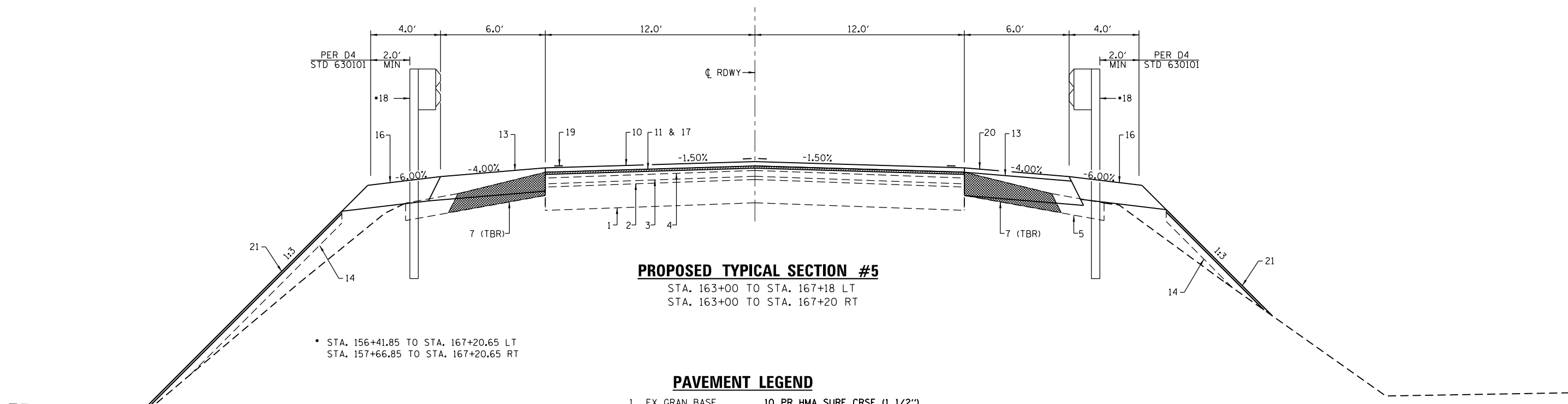
STA. 161+11 TO STA. 163+00

• STA. 156+41.85 TO STA. 167+20.65 LT  
 STA. 157+66.85 TO STA. 167+20.65 RT

**PAVEMENT LEGEND**

- |                      |  |
|----------------------|--|
| 1. EX GRAN BASE      | 10. PR HMA SURF CRSE (1 1/2")          |
| 2. EX A3 SURF        | 11. PR LEV BINDER (3/4")               |
| 3. EX LEV BINDER     | 12. PR HMA BINDER COURSE (2 1/4" MIN)  |
| 4. EX HMA SURF       | 13. PR HMA SHLD, 8"                    |
| 5. EX AGG SHLD       | 14. PR TOPSOIL, 4"                     |
| 6. EX AGG WEDGE SHLD | 15. PR AGG SHLD, TY A, 8"              |
| 7. EX HMA SHLD       | 16. PR AGG EROS CONTROL SHLD (8")      |
| 8. EX PVMT MRK       | 17. PR HMA SURF REM, 3/4"              |
| 9. EX GUARDRAIL      | 18. PR GUARDRAIL                       |
|                      | 19. PR PVMT MRK                        |
|                      | 20. PR HMA SHLD, 1 1/2"                |
|                      | 21. PR HEAVY DUTY EROS CONTROL BLANKET |
|                      | 22. PR HMA SURF REM-BUTT JOINT         |

|                            |            |           |  |   |  |  |                 |                    |                 |              |  |
|----------------------------|------------|-----------|--|---|--|--|-----------------|--------------------|-----------------|--------------|--|
| USER NAME = kesthbr        | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>TYPICAL ROADWAY SECTIONS</b>               |  | F.A.P. RTE. 522                                  | SECTION (14B)BR | COUNTY HENDERSON   | TOTAL SHEETS 73 | SHEET NO. 11 |  |
| PLOT SCALE = 6.0000' / in. | DRAWN -    | REVISED - |  |   |  | SCALE: NONE SHEET NO. 3 OF 4 SHEETS STA. TO STA. |                 | CONTRACT NO. 68899 |                 |              |  |
| PLOT DATE = 10/17/2014     | CHECKED -  | REVISED - |  | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |  |  |                 |                    |                 |              |  |
|                            | DATE -     | REVISED - |  |   |  |  |                 |                    |                 |              |  |



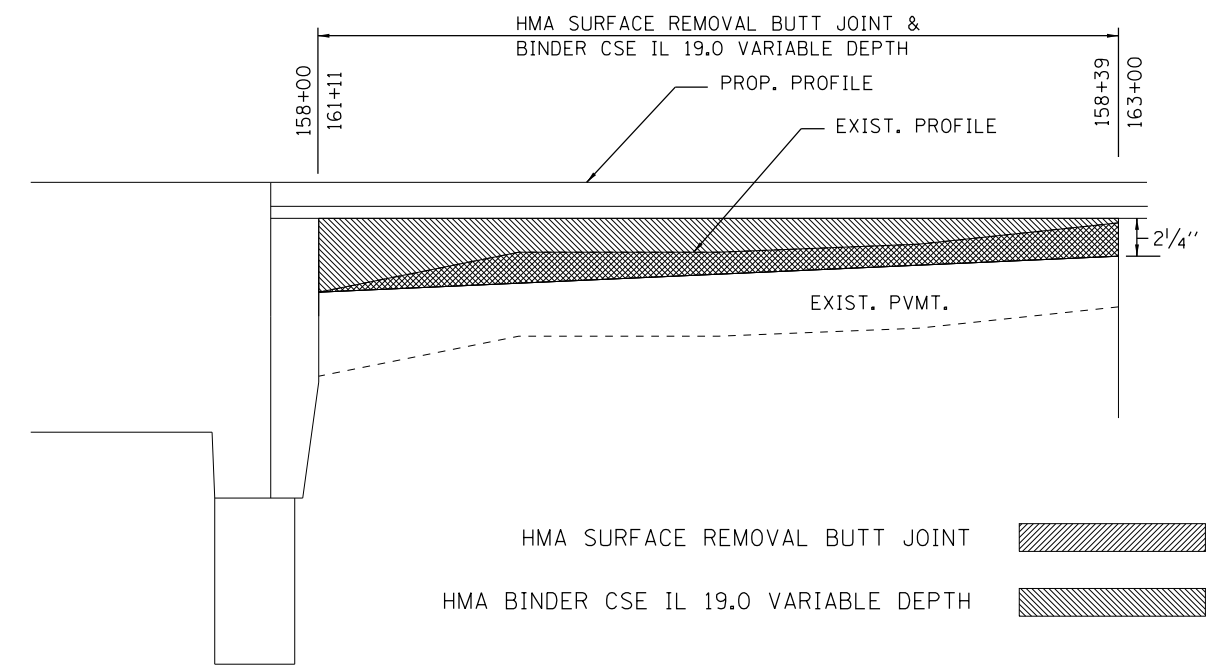
**PROPOSED TYPICAL SECTION #5**

STA. 163+00 TO STA. 167+18 LT  
 STA. 163+00 TO STA. 167+20 RT

• STA. 156+41.85 TO STA. 167+20.65 LT  
 STA. 157+66.85 TO STA. 167+20.65 RT

**PAVEMENT LEGEND**

- |                      |  |
|----------------------|--|
| 1. EX GRAN BASE      | 10. PR HMA SURF CRSE (1 1/2")          |
| 2. EX A3 SURF        | 11. PR LEV BINDER (3/4")               |
| 3. EX LEV BINDER     | 12. PR HMA BINDER COURSE (2 1/4" MIN)  |
| 4. EX HMA SURF       | 13. PR HMA SHLD, 8"                    |
| 5. EX AGG SHLD       | 14. PR TOPSOIL, 4"                     |
| 6. EX AGG WEDGE SHLD | 15. PR AGG SHLD, TY A, 8"              |
| 7. EX HMA SHLD       | 16. PR AGG EROS CONTROL SHLD (8")      |
| 8. EX PVMT MRK       | 17. PR HMA SURF REM, 3/4"              |
| 9. EX GUARDRAIL      | 18. PR GUARDRAIL                       |
|                      | 19. PR PVMT MRK                        |
|                      | 20. PR HMA SHLD, 1 1/2"                |
|                      | 21. PR HEAVY DUTY EROS CONTROL BLANKET |
|                      | 22. PR HMA SURF REM-BUTT JOINT         |



**BUTT JOINT DETAIL**

| EARTHWORK                    |                  |   |            |   |
|------------------------------|------------------|---|------------|---|
| LOCATION                     | EARTH EXCAVATION | EARTH EXCAVATION ADJUSTED FOR SHRINKAGE | EMBANKMENT | EARTHWORK BALANCE WASTE (+) OR SHORTAGE (-) |
|                              | CU YD            | CU YD                                   | CU YD      | CU YD                                       |
| STA 151+75 TO STA 158+72.5   | 131              | 98                                      | 1546       | -1448                                       |
| STA 160+77.5 TO STA 168+25   | 163              | 122                                     | 2031       | -1909                                       |
| STA 0+60 TO STA 2+50 (PE RT) | 12               | 9                                       | 1053       | -1044                                       |
| TOTAL                        | 306              | 229                                     | 4630       | -4401                                       |

| PERMANENT SEEDING                |                   |                              |                                |                               |                                    |
|----------------------------------|-------------------|------------------------------|--------------------------------|-------------------------------|------------------------------------|
| LOCATION                         | SEEDING, CLASS 2A | NITROGEN FERTILIZER NUTRIENT | PHOSPHORUS FERTILIZER NUTRIENT | POTASSIUM FERTILIZER NUTRIENT | HEAVY DUTY EROSION CONTROL BLANKET |
|                                  | ACRE              | POUND                        | POUND                          | POUND                         | SO YD                              |
| STA 151+75 TO STA 158+75 LT & RT | 0.9               | 81                           | 81                             | 81                            | 4356                               |
| STA 160+75 TO STA 168+25 LT & RT | 1.1               | 99                           | 99                             | 99                            | 5324                               |
| STA 0+60 TO STA 2+50 (PE RT)     | 0.2               | 18                           | 18                             | 18                            | 970                                |
| TOTAL                            | 2.2               | 198                          | 198                            | 198                           | 10650                              |

| TREE REMOVAL       |                                  |
|--------------------|----------------------------------|
| LOCATION           | TREE REMOVAL (OVER 15 UNITS DIA) |
|                    | UNIT                             |
| STA 163+15, 54' RT | 48                               |
| STA 163+55, 57' RT | 24                               |
| STA 163+83, 54' RT | 36                               |
| TOTAL              | 108                              |

| HOT-MIX ASPHALT BASE COURSE WIDENING |  |                             |
|--------------------------------------|--|-----------------------------|
| LOCATION                             | HOT-MIX ASPHALT BASE COURSE WIDENING, 8" | EARTH EXCAVATION (WIDENING) |
|                                      | SO YD                                    | CU YD                       |
| STAGE I                              |  |                             |
| STA 157+25 TO STA 158+83.25 LT       | 41                                       | 8                           |
| STA 160+66.75 TO STA 161+28 LT       | 16                                       | 4                           |
| TOTAL                                | 57                                       | 12                          |

| CHANNEL EXCAVATION                                 |                    |
|--|--------------------|
| LOCATION   | CHANNEL EXCAVATION |
|  | CU YD              |
| STA 158+77.5 TO STA 160+72.5, 44.6' LT TO 44.6' RT | 490                |
| TOTAL  | 490                |

| PAVED SHOULDER REMOVAL                   |                        |
|--|------------------------|
| LOCATION                                 | PAVED SHOULDER REMOVAL |
|  | SO YD                  |
| STA 157+25 TO STA 158+83.25 LT (STAGE I) | 36                     |
| STA 160+66.75 TO STA 161+28 LT (STAGE I) | 14                     |
| STA 161+28 TO STA 167+18 LT              | 356                    |
| STA 161+28 TO STA 167+20 RT              | 360                    |
| TOTAL                                    | 766                    |

| PAVEMENT REMOVAL            |                  |
|-----------------------------|------------------|
| LOCATION                    | PAVEMENT REMOVAL |
|                             | SO YD            |
| STA 158+39 TO STA 158+83.25 | 118              |
| STA 160+66.75 TO STA 161+11 | 118              |
| TOTAL                       | 236              |

| TOPSOIL FURNISH AND PLACE, 4"        |                               |
|--------------------------------------|-------------------------------|
| LOCATION                             | TOPSOIL FURNISH AND PLACE, 4" |
|                                      | SO YD                         |
| STA 151+75 TO STA 158+72.5 LT & RT   | 3610                          |
| STA 160+77.5 TO STA 168+25 LT & RT   | 4600                          |
| STA 0+60 TO STA 2+50 LT & RT (PE RT) | 620                           |
| TOTAL                                | 8830                          |

| AGGREGATE SHOULDERS, TYPE A 8" |                                |
|--------------------------------|--------------------------------|
| LOCATION                       | AGGREGATE SHOULDERS, TYPE A 8" |
|                                | SO YD                          |
| STA 151+75 TO STA 152+15 LT    | 9                              |
| STA 152+15 TO STA 155+11 LT    | 99                             |
| STA 155+68 TO STA 156+40 LT    | 32                             |
| STA 167+21 TO STA 167+65 LT    | 47                             |
| STA 151+75 TO STA 152+15 RT    | 9                              |
| STA 152+15 TO STA 157+04 RT    | 163                            |
| STA 167+21 TO STA 167+65 RT    | 47                             |
| TOTAL                          | 406                            |

| PERMANENT SURVEY MARKERS, TYPE 1 |                                 |
|----------------------------------|---------------------------------|
| LOCATION                         | PERMANENT SURVEY MARKERS TYPE 1 |
|                                  | EACH                            |
| STA 148+77.98 - POT              | 1                               |
| BRIDGE ABUTMENT                  | •1                              |
| STA 170+76.73 - POT              | 1                               |
| TOTAL                            | 3                               |

| AGGREGATE SURFACE COURSE, TYPE B |                                  |
|----------------------------------|----------------------------------|
| LOCATION                         | AGGREGATE SURFACE COURSE, TYPE B |
|                                  | TON                              |
| FE - STA 155+43.3 LT             | 91                               |
| STA 0+20 TO STA 2+50 (PE RT)     | 120                              |
| TOTAL                            | 211                              |

| ROCK FILL SCHEDULE          |                              |           |                       |
|-----------------------------|------------------------------|-----------|-----------------------|
| LOCATION                    | EARTH EXCAVATION (ROCK FILL) | ROCK FILL | GEOTECH FAB F/GR STAB |
|                             | CU YD                        | TON       | SO YD                 |
| STA 162+00 TO STA 168+00 LT | 316                          | 840       | 2335                  |
| STA 162+00 TO STA 168+00 RT | 424                          | 1320      | 2335                  |
| TOTAL                       | 740                          | 2160      | 4670                  |

NOTE: SHALL BE AT TOE OF SLOPE AT STATIONS INDICATED ABOVE:  
TOP ELEVATION = 525.0'; BOTTOM ELEVATION = ONE FOOT BELOW EXISTING GROUND

**TABULATION OF RESURFACING QUANTITIES**

| LOCATION                   | LENGTH<br>FOOT | HMA SURFACE<br>REMOVAL -<br>BUTT JOINT<br>SQ YD | TEMPORARY<br>RAMP<br>SQ YD | HMA SURFACE<br>REMOVAL, 3/4"<br>SQ YD | POLYMERIZED BITUMINOUS<br>MATERIALS (PRIME COAT) |            |            | HMA SURFACE<br>COURSE,<br>MIX "D", N50<br>TON | POLYMERIZED<br>LEVELING BINDER (MM)<br>IL-4.75, N50<br>TON | HMA BINDER<br>COURSE, IL-19.0,<br>N50<br>TON | BRIDGE APPR<br>PVMT CONN<br>(FLEXIBLE)<br>SQ YD | MATERIAL<br>TRANSFER<br>DEVICE<br>TON |
|----------------------------|----------------|---|----------------------------|---------------------------------------|--|------------|------------|---|--|--|---|---------------------------------------|
|                            |                |   |                            |                                       | COLD-MILLED                                      | FOG COAT 1 | FOG COAT 2 |   |  |  |   |                                       |
|                            |                |   |                            |                                       | TON  |            |            |   |  |  |   |                                       |
| STA. 151+75 TO STA. 151+80 | 5              | 14  | 14                         |                                       | 20   |            |            | 1   |  |  |   | 1                                     |
| STA. 151+80 TO STA. 152+05 | 25             | 67  |                            |                                       | 60   |            |            | 6   |  |  |   | 6                                     |
| STA. 152+05 TO STA. 156+65 | 460            |   |                            | 1227                                  | 1080   | 540        |            | 104   | 52   |  |   | 104                                   |
| STA. 156+65 TO STA. 158+00 | 135            |   |                            | 360                                   | 320  | 160        |            | 31  | 16   |  |   | 31                                    |
| STA. 158+00 TO STA. 158+39 | 39             | 104   | 140                        |                                       | 100  | 50         | 50         | 9   | 5  | 14   |   | 9                                     |
| STA. 158+39 TO STA. 158+45 | 6              |   |                            |                                       |  |            |            |   |  |  | 24  |                                       |
| STA. 158+45 TO STA. 161+05 | 260            |   |                            |                                       | BRIDGE OMISSION S.N. 036-6073                    |            |            |   |  |  |   |                                       |
| STA. 161+05 TO STA. 161+11 | 6              |   |                            |                                       |  |            |            |   |  |  | 24  |                                       |
| STA. 161+11 TO STA. 163+00 | 189            | 504   | 148                        |                                       | 440  | 220        | 220        | 43  | 22   | 66   |   | 43                                    |
| STA. 163+00 TO STA. 167+95 | 495            |   |                            | 1320                                  | 1160   | 580        |            | 112   | 56   |  |   | 112                                   |
| STA. 167+95 TO STA. 168+20 | 25             | 67  |                            |                                       | 60   |            |            | 6   |  |  |   | 6                                     |
| STA. 168+20 TO STA. 168+25 | 5              | 14  | 14                         |                                       | 20   |            |            | 1   |  |  |   | 1                                     |
|                            |                |   |                            |                                       |  |            |            |   |  |  |   |                                       |
| SUB-TOTAL                  |                |   |                            |                                       | 3260   | 1550       | 270        |   |  |  |   |                                       |
| TOTAL                      | 1650           | 770   | 316                        | 2907                                  | 5080   |            |            | 313   | 151  | 80   | 48  | 313                                   |

| HOT-MIX ASPHALT SHOULDERS, 1 1/2" |  |
|-----------------------------------|--|
| LOCATION                          | HOT-MIX ASPHALT SHOULDERS, 1 1/2"<br>SQ YD |
| STA 151+75 TO STA 158+39 RT       | 279  |
| STA 161+11 TO STA 168+25 RT       | 456  |
| TOTAL                             | 735  |

| HOT-MIX ASPHALT SHOULDERS, 8" |  |
|-------------------------------|--|
| LOCATION                      | HOT-MIX ASPHALT SHOULDERS, 8"<br>SQ YD |
| STA 151+75 TO STA 158+39 LT   | 344                                    |
| STA 161+11 TO STA 168+25 LT   | 456                                    |
| STA 151+75 TO STA 158+39 RT   | 279                                    |
| STA 161+11 TO STA 168+25 RT   | 456                                    |
| TOTAL                         | 1535                                   |

| PIPE CULVERT                  |                                       |                          |
|-------------------------------|---------------------------------------|--------------------------|
| LOCATION                      | PIPE CULVERTS,<br>CLASS D, TYPE 3 24" | FRCFES, 24"<br>FOOT EACH |
| STA 0+73.5, 31.25' LT (PE RT) |                                       | 1                        |
| STA 0+73.5 (PE RT)            | 68                                    |                          |
| STA 0+73.5, 36.75' RT (PE RT) |                                       | 1                        |
| TOTAL                         | 68                                    | 2                        |

| SHORT TERM PAVEMENT MARKING               |                                     |
|---|-------------------------------------|
| LOCATION                                  | SHORT TERM PAVEMENT MARKING<br>FOOT |
| STA 151+75 TO STA 168+25 (2 APPLICATIONS) | 330                                 |
| TOTAL                                     | 330                                 |

| PAVEMENT MARKING REMOVAL                   |                                   |
|--|-----------------------------------|
| LOCATION                                   | PAVEMENT MARKING REMOVAL<br>SQ FT |
| STAGE I                                    |                                   |
| STA 155+12 TO STA 158+83.25 CENTERLINE NPZ | 124                               |
| STA 155+12 TO STA 158+83.25 CENTERLINE S-D | 34                                |
| STA 160+66.75 TO STA 164+26 CENTERLINE NPZ | 120                               |
| STA 160+66.75 TO STA 164+26 CENTERLINE S-D | 30                                |
| TOTAL                                      | 308                               |

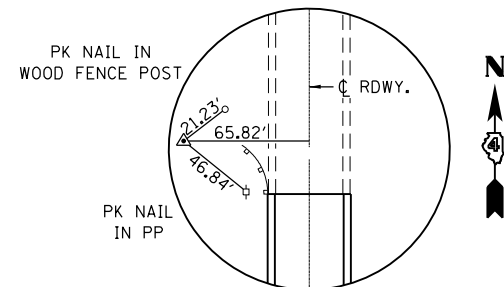
| STONE DUMPED RIPRAP, CL B3 |                 |                        |
|----------------------------|-----------------|------------------------|
| LOCATION                   | RIPRAP<br>SQ YD | FILTER FABRIC<br>SQ YD |
| NORTH EAST BRIDGE APPROACH | 70              | 70                     |
| NORTH WEST BRIDGE APPROACH | 55              | 55                     |
| SOUTH EAST BRIDGE APPROACH | 60              | 60                     |
| SOUTH WEST BRIDGE APPROACH | 60              | 60                     |
| TOTAL                      | 245             | 245                    |

| GUARDRAIL SCHEDULE                |                               |                                     |  |                      |                                   |
|-----------------------------------|-------------------------------|-------------------------------------|--|----------------------|-----------------------------------|
| LOCATION                          | SPBGR,<br>TYPE A,<br>6' POSTS | TRAFFIC BARRIER<br>TERMINAL, TYPE 6 | TRAFFIC BARRIER<br>TERMINAL, TYPE 1<br>(SPECIAL) TANGENT | GUARDRAIL<br>REMOVAL | TERMINAL MARKER<br>DIRECT APPLIED |
|                                   | FOOT                          | EACH                                | EACH   | FOOT                 | EACH                              |
| STA 156+41.85 TO STA 156+91.85 LT |                               |                                     | 1  |                      | 1                                 |
| STA 156+91.85 TO STA 158+16.85 LT | 125                           |                                     |  |                      |                                   |
| STA 158+16.85 TO STA 158+60 LT    |                               | 1                                   |  |                      |                                   |
| STA 160+90 TO STA 161+33.15 LT    |                               | 1                                   |  |                      |                                   |
| STA 161+33.15 TO STA 166+70.65 LT | 537.5                         |                                     |  |                      |                                   |
| STA 166+70.65 TO STA 167+20.65 LT |                               |                                     | 1  |                      | 1                                 |
| STA 157+66.85 TO STA 158+16.85 RT |                               |                                     | 1  |                      | 1                                 |
| STA 158+16.85 TO STA 158+60 RT    |                               | 1                                   |  |                      |                                   |
| STA 160+90 TO STA 161+33.15 RT    |                               | 1                                   |  |                      |                                   |
| STA 161+33.15 TO STA 166+70.65 RT | 537.5                         |                                     |  |                      |                                   |
| STA 166+70.65 TO STA 167+20.65 RT |                               |                                     | 1  |                      | 1                                 |
| STA 153+47 TO STA 155+23 LT       |                               |                                     |  | 176                  |                                   |
| STA 155+54 TO STA 158+83.25 LT    |                               |                                     |  | 330                  |                                   |
| STA 160+41 TO STA 167+20 LT       |                               |                                     |  | 679                  |                                   |
| STA 153+44 TO STA 158+07 RT       |                               |                                     |  | 463                  |                                   |
| STA 158+38 TO STA 158+84 RT       |                               |                                     |  | 56                   |                                   |
| STA 160+41 TO STA 167+19 RT       |                               |                                     |  | 678                  |                                   |
| TOTAL                             | 1200                          | 4                                   | 4  | 2382                 | 4                                 |

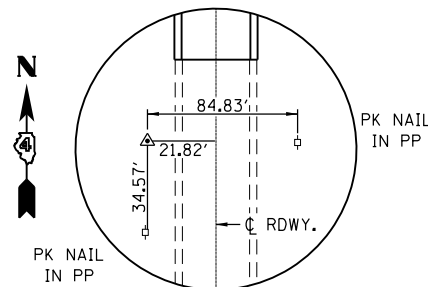
| PAVEMENT MARKING                    |                                  |                 |                               |   |  |
|-------------------------------------|----------------------------------|-----------------|-------------------------------|---|--|
| LOCATION                            | PAINT PAVEMENT MARKING - LINE 4" |                 |                               | TEMPORARY PAVEMENT<br>MARKING - LINE 4" | WORK ZONE<br>PAVEMENT MARKING<br>REMOVAL |
|                                     | SOLID<br>WHITE                   | SOLID<br>YELLOW | SKIP DASH (10'/30')<br>YELLOW |   |  |
|                                     | FOOT                             | FOOT            | FOOT                          | FOOT                                    | SQ FT                                    |
| STA 151+75 TO STA 168+25 LT EDGE    | 1650                             |                 |                               | 1650                                    |  |
| STA 151+75 TO STA 158+00 CENTERLINE |                                  |                 | 160                           | 160                                     |  |
| STA 161+50 TO STA 168+25 CENTERLINE |                                  |                 | 170                           | 170                                     |  |
| STA 151+75 TO STA 161+50 NPZ SB     |                                  | 975             |                               | 975                                     |  |
| STA 158+00 TO STA 168+25 NPZ NB     |                                  | 1025            |                               | 1025                                    |  |
| STA 151+75 TO STA 168+25 RT EDGE    | 1650                             |                 |                               | 1650                                    |  |
| SHORT TERM PAVEMENT MARKING         |                                  |                 |                               |   | 110                                      |
| SUBTOTAL                            | 3300                             | 2000            | 330                           |   |  |
| TOTAL                               |                                  | 5630            |                               | 5630                                    | 110                                      |

| RAISED REFLECTIVE PAVEMENT MARKER |                                      |   |
|-----------------------------------|--------------------------------------|---|
| LOCATION                          | RAISED REFLECTIVE<br>PAVEMENT MARKER | RAISED REFLECTIVE<br>PAVEMENT MARKER<br>REMOVAL |
|                                   | EACH                                 | EACH  |
| STA 151+75 TO STA 168+25          | 22                                   |   |
| STA 151+75 TO STA 158+83.25       |                                      | 10  |
| STA 160+66.75 TO STA 168+25       |                                      | 11  |
| TOTAL                             | 22                                   | 21  |

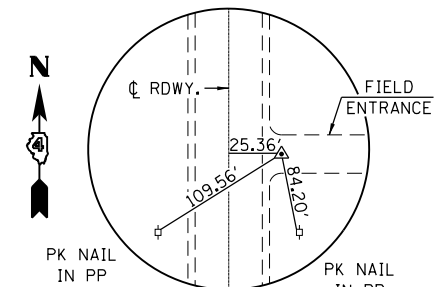
| GUARDRAIL AGGREGATE EROSION CONTROL |  |
|-------------------------------------|--|
| LOCATION                            | GUARDRAIL AGGREGATE<br>EROSION CONTROL |
|                                     | TON                                    |
| STA 156+40 TO STA 158+60 LT         | 49                                     |
| STA 160+90 TO STA 167+21 LT         | 139                                    |
| STA 157+60 TO STA 158+60 RT         | 22                                     |
| STA 160+90 TO STA 167+21 RT         | 139                                    |
| TOTAL                               | 349                                    |



**TIE #1**  
 IRON PIN WITH ALUMINUM CAP  
 STA. 158+46.84, 65.17' RT.  
 EL. 536.08  
 N: 1496212.20  
 E: 2050009.74

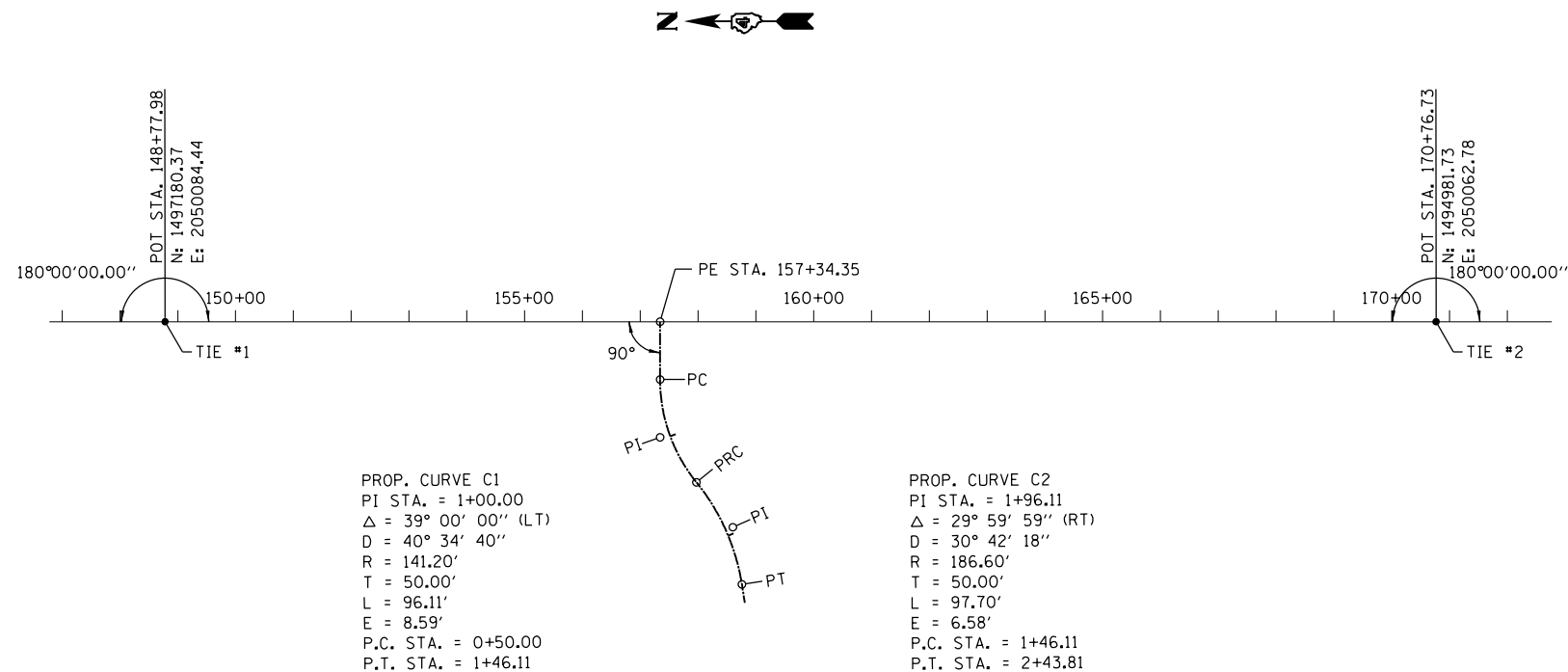


**TIE #2**  
 IRON PIN WITH PLASTIC CAP  
 STA. 161+46.23, 21.18' RT.  
 EL. 536.99  
 N: 1495912.39  
 E: 2050050.78



**TIE #3**  
 IRON PIN WITH PLASTIC CAP  
 STA. 169+97.01, 26.00' LT.  
 EL. 528.10  
 N: 1495061.18  
 E: 2050089.57

BM A - CHISLED "I" ON TOP OF WINGWALL AT  
 S.E. CORNER OF BRIDGE OVER ELLISON CREEK  
 EL. = 538.44



PROP. CURVE C1  
 PI STA. = 1+00.00  
 $\Delta = 39^\circ 00' 00''$  (LT)  
 $D = 40^\circ 34' 40''$   
 $R = 141.20'$   
 $T = 50.00'$   
 $L = 96.11'$   
 $E = 8.59'$   
 P.C. STA. = 0+50.00  
 P.T. STA. = 1+46.11

PROP. CURVE C2  
 PI STA. = 1+96.11  
 $\Delta = 29^\circ 59' 59''$  (RT)  
 $D = 30^\circ 42' 18''$   
 $R = 186.60'$   
 $T = 50.00'$   
 $L = 97.70'$   
 $E = 6.58'$   
 P.C. STA. = 1+46.11  
 P.T. STA. = 2+43.81

|                             |            |           |
|-----------------------------|------------|-----------|
| USER NAME = keathbr         | DESIGNED - | REVISED - |
|                             | DRAWN -    | REVISED - |
| PLOT SCALE = 48.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DATE -     | REVISED - |



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 Civil and Structural Engineers Springfield, IL  
 62703 Phone: (217)544-8033 IL Design Firm  
 No. 184-001907

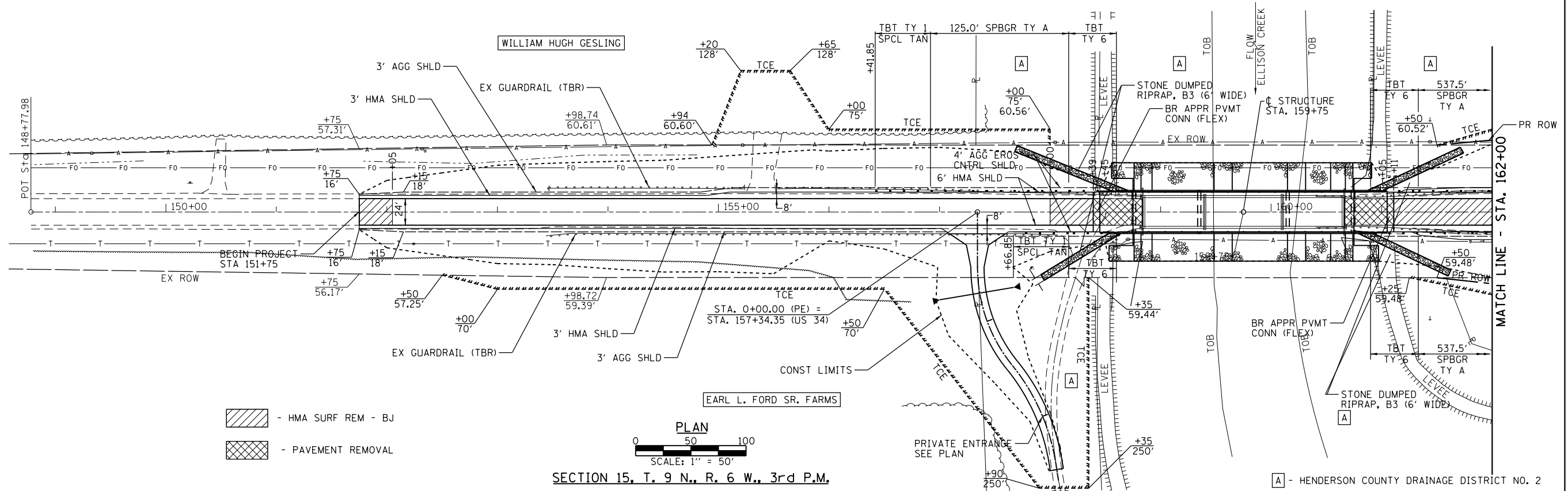
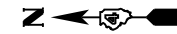
**ALIGNMENT, TIES & BENCHMARKS**

SCALE: NONE SHEET NO. 1 OF 1 SHEETS STA. TO STA.

| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|---|---------|-----------|--------------|-----------|
| 522   | (14B)BR | HENDERSON | 73           | 16        |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |

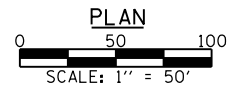


SECTION 14, T. 9 N., R. 6 W., 4th P.M.



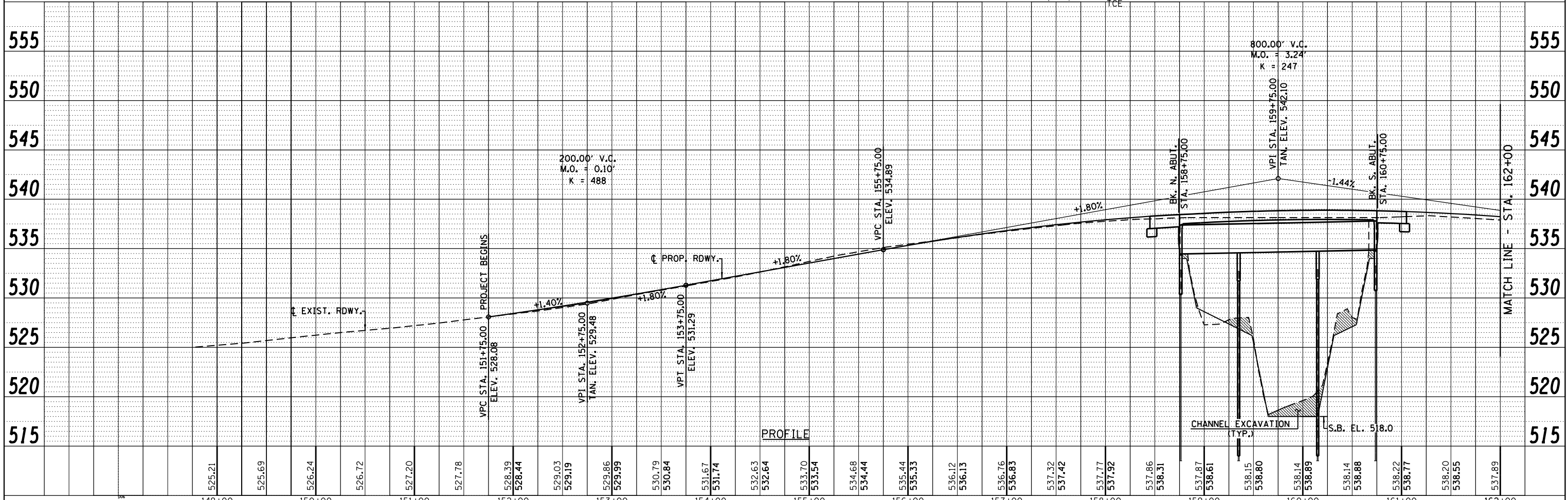
SECTION 15, T. 9 N., R. 6 W., 3rd P.M.

- HMA SURF REM - BJ
- PAVEMENT REMOVAL



|      |                          |      |
|------|--------------------------|------|
| PLAN | SURVEYED                 | DATE |
|      | PLOTTED                  |      |
|      | GRADES CHECKED           |      |
|      | STRUCTURE NOTATIONS OK'D |      |
|      | NOTE BOOK NO.            |      |
|      | FILE NAME                |      |

|         |                          |      |
|---------|--------------------------|------|
| PROFILE | SURVEYED                 | DATE |
|         | PLOTTED                  |      |
|         | GRADES CHECKED           |      |
|         | STRUCTURE NOTATIONS OK'D |      |
|         | NOTE BOOK NO.            |      |
|         | FILE NAME                |      |



|                             |            |           |
|-----------------------------|------------|-----------|
| USER NAME = keathbr         | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000' / 1" | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DRAWN -    | REVISED - |
|                             | CHECKED -  | REVISED - |



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Civil and Structural Engineers Springfield, IL  
62703 Phone: (217)544-8033 IL Design Firm  
No. 184-001907

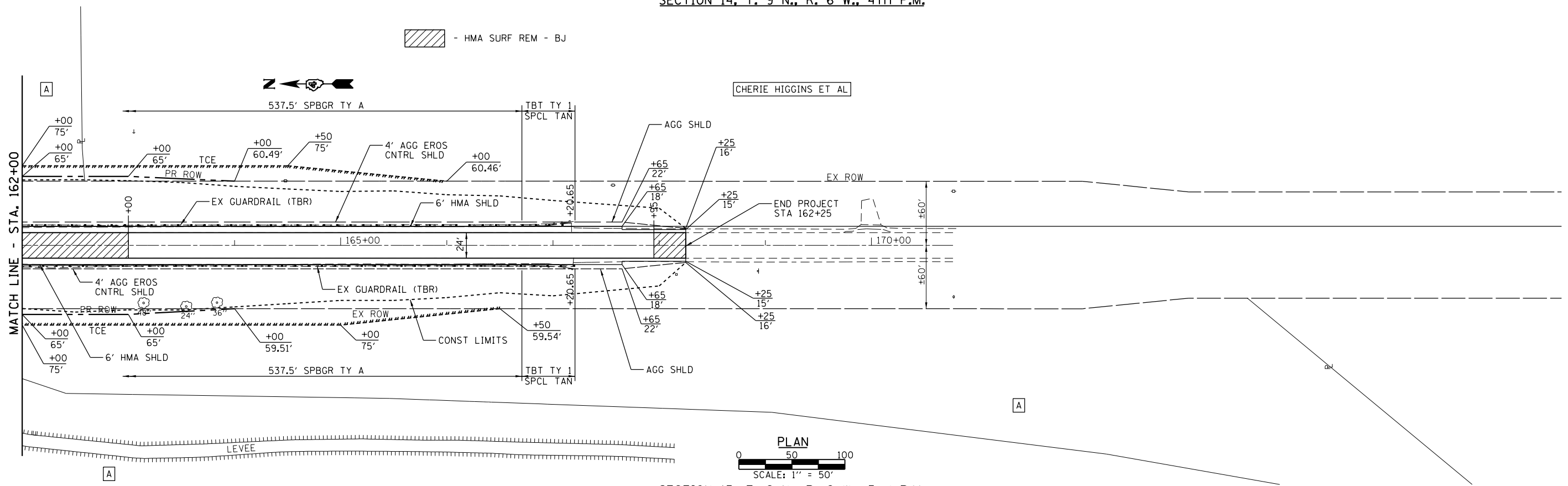
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|--------------------------|--|-------------------------|--|----------------------------------|--|
| SCALE: 1" = 50'          |  | SHEET NO. 1 OF 3 SHEETS |  | STA. 151+75.00 TO STA. 162+25.00 |  |
| PLAN & PROFILE (FAP 522) |  | SECTION (14B)BR         |  | COUNTY HENDERSON                 |  |
| TOTAL SHEETS 73          |  | SHEET NO. 17            |  | CONTRACT NO. 68899               |  |

|   |                 |                  |                 |              |
|---|-----------------|------------------|-----------------|--------------|
| F.A.P. RTE. 522                               | SECTION (14B)BR | COUNTY HENDERSON | TOTAL SHEETS 73 | SHEET NO. 17 |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |                 |                  |                 |              |

SECTION 14, T. 9 N., R. 6 W., 4th P.M.

- HMA SURF REM - BJ

CHERIE HIGGINS ET AL

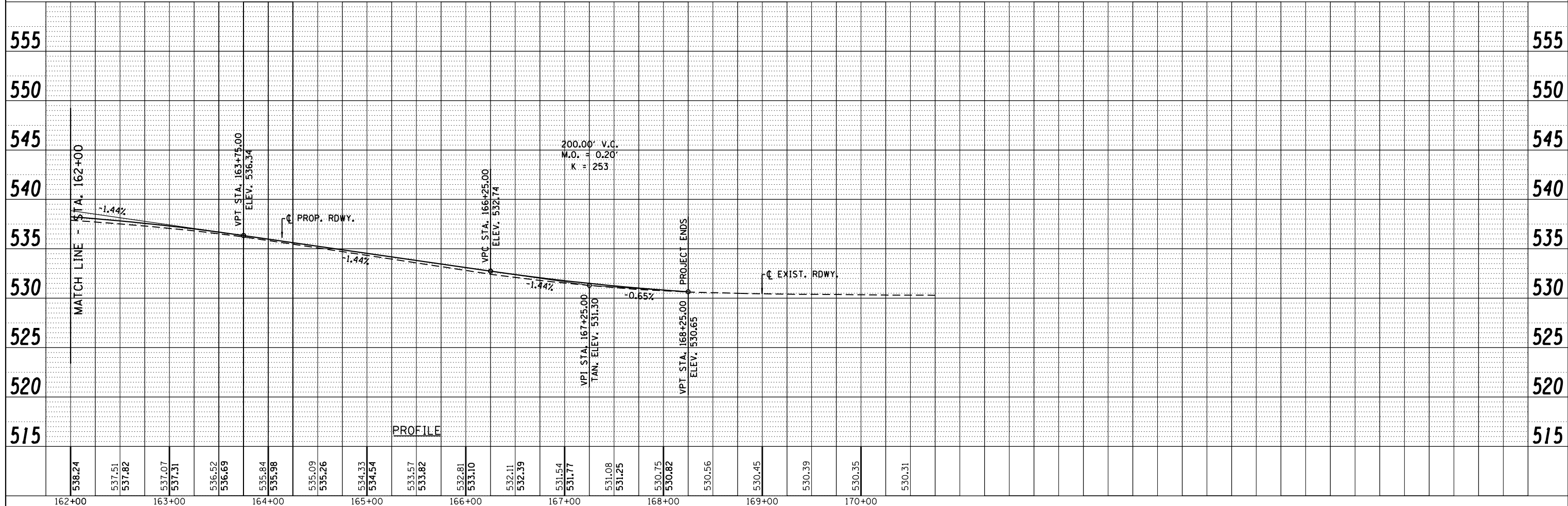


SECTION 15, T. 9 N., R. 6 W., 3rd P.M.

A - HENDERSON COUNTY DRAINAGE DISTRICT NO. 2

|      |                             |      |
|------|-----------------------------|------|
| PLAN | SURVEYED                    | DATE |
|      | PLOTTED                     |      |
|      | GRADES CHECKED              |      |
|      | STRUCTURE NOTATIONS CHECKED |      |
|      | NOTE BOOK NO.               |      |
|      | FILE NAME                   |      |

|         |                             |      |
|---------|-----------------------------|------|
| PROFILE | SURVEYED                    | DATE |
|         | PLOTTED                     |      |
|         | GRADES CHECKED              |      |
|         | STRUCTURE NOTATIONS CHECKED |      |
|         | NOTE BOOK NO.               |      |
|         | FILE NAME                   |      |



|        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 538.24 | 537.51 | 537.82 | 537.07 | 537.31 | 536.52 | 536.69 | 535.84 | 535.98 | 535.09 | 535.26 | 534.33 | 534.54 | 533.57 | 533.82 | 532.81 | 533.10 | 532.11 | 532.39 | 531.54 | 531.77 | 531.08 | 531.25 | 530.75 | 530.82 | 530.56 | 530.45 | 530.39 | 530.35 | 530.31 |
| 162+00 |        |        | 163+00 |        |        |        | 164+00 |        |        |        | 165+00 |        |        |        | 166+00 |        |        | 167+00 |        |        |        | 168+00 |        |        | 169+00 |        | 170+00 |        |        |

|                             |            |           |
|-----------------------------|------------|-----------|
| USER NAME = keathbr         | DESIGNED - | REVISED - |
| PLOT SCALE = 100.0000' / 1" | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DRAWN -    | REVISED - |
|                             | CHECKED -  | REVISED - |

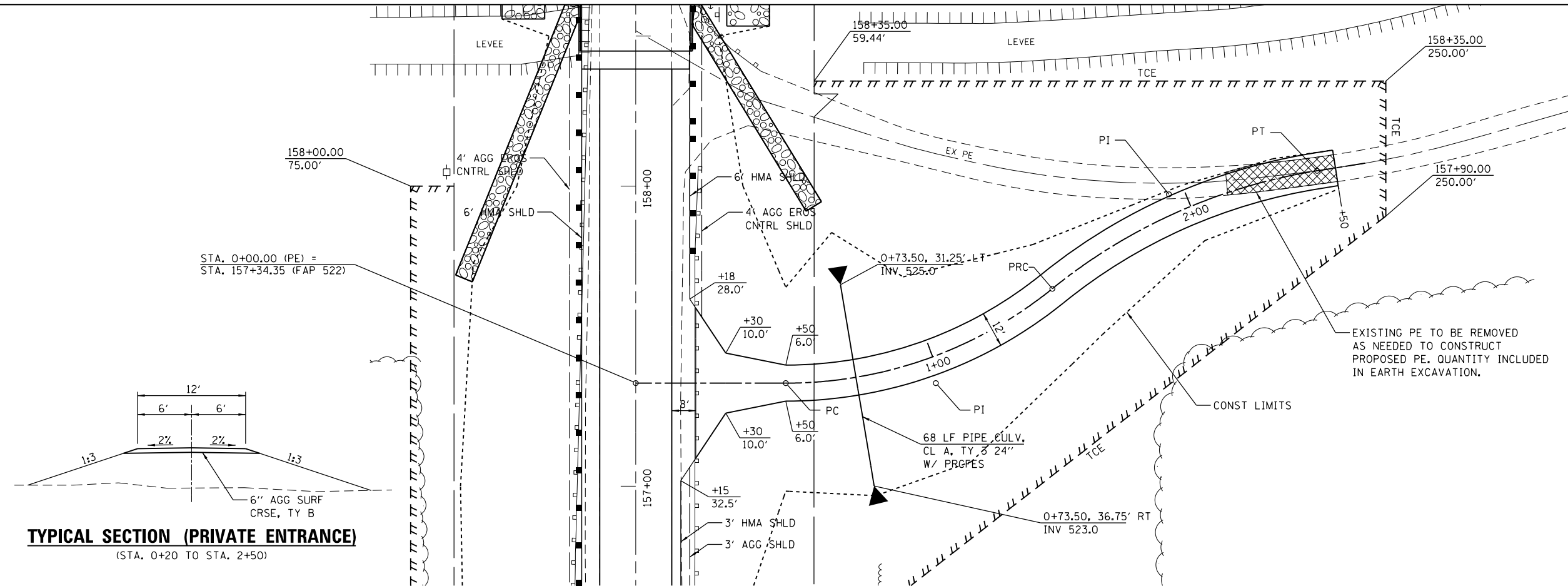
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Civil and Structural Engineers Springfield, IL  
62703 Phone: (217)544-8033 IL Design Firm  
No. 184-001907

|                 |  |  |                         |  |  |                                  |  |  |
|-----------------|--|--|-------------------------|--|--|----------------------------------|--|--|
| SCALE: 1" = 50' |  |  | SHEET NO. 2 OF 3 SHEETS |  |  | STA. 151+75.00 TO STA. 168+25.00 |  |  |
|-----------------|--|--|-------------------------|--|--|----------------------------------|--|--|

|   |                 |                  |                 |              |
|---|-----------------|------------------|-----------------|--------------|
| F.A.P. RTE. 522                               | SECTION (14B)BR | COUNTY HENDERSON | TOTAL SHEETS 73 | SHEET NO. 18 |
| CONTRACT NO. 68899                            |                 |                  |                 |              |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |                 |                  |                 |              |

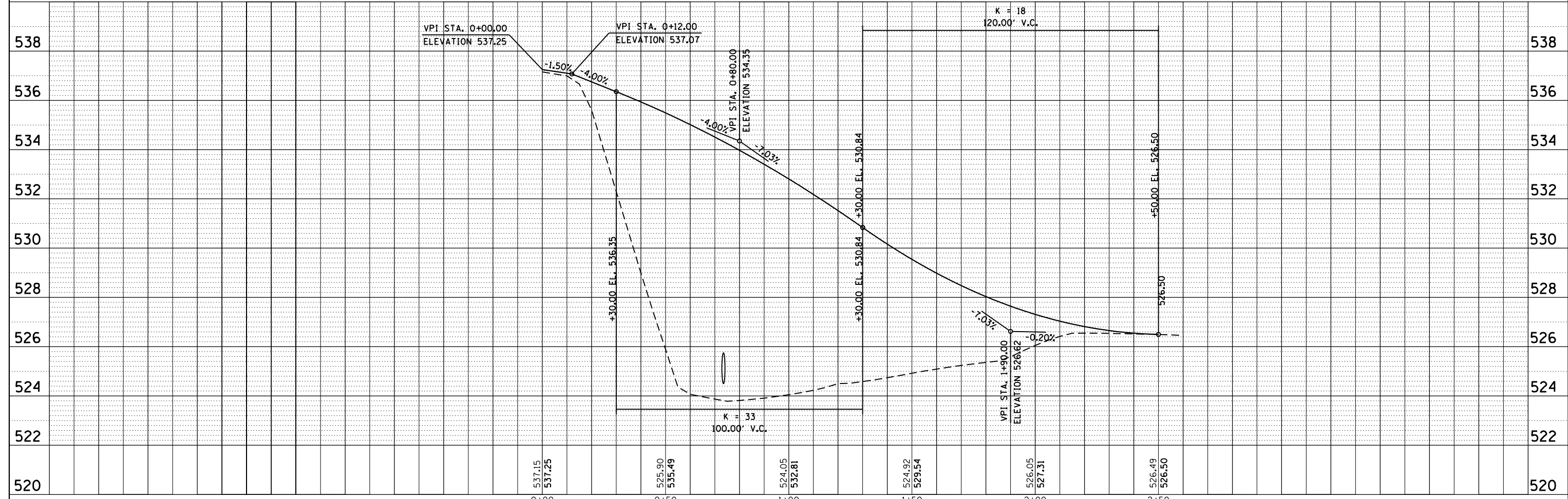
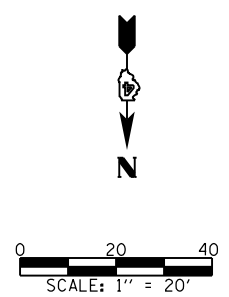
|           |  |
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| DATE      |  |
| BY        |  |
| PLAN      |  |
| SURVEYED  |  |
| PLOTTED   |  |
| NOTE BOOK |  |
| NO.       |  |
| CHECKED   |  |
| FILE NAME |  |

|           |  |
|-----------|--|
| DATE      |  |
| BY        |  |
| PROFILE   |  |
| SURVEYED  |  |
| PLOTTED   |  |
| NOTE BOOK |  |
| NO.       |  |
| CHECKED   |  |
| FILE NAME |  |



**PROP. CURVE C1**  
 PI STA. = 1+00.00  
 Δ = 39° 00' 00" (LT)  
 D = 40° 34' 40"  
 R = 141.20'  
 T = 50.00'  
 L = 96.11'  
 E = 8.59'

**PROP. CURVE C2**  
 PI STA. = 1+96.11  
 Δ = 29° 59' 59" (RT)  
 D = 30° 42' 18"  
 R = 186.60'  
 T = 50.00'  
 L = 97.70'  
 E = 6.58'



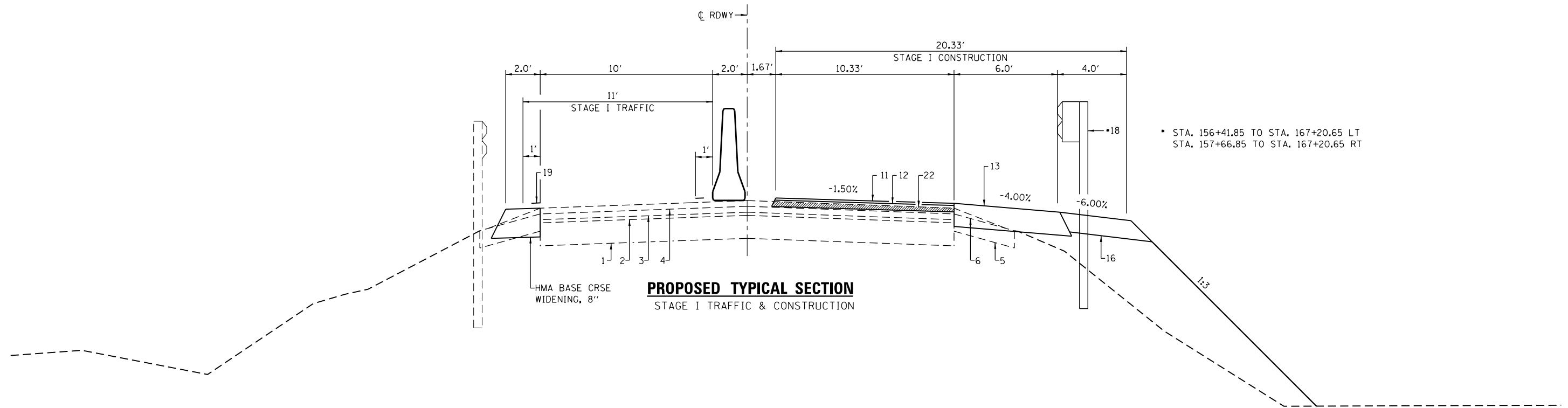
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|-----------------------------|------------|-------------|
| USER NAME = keathbr         | DESIGNED - | REVISIONS - |
|                             | CHECKED -  | REVISIONS - |
| PLOT SCALE = 40.0000' / in. | DRAWN -    | REVISIONS - |
| PLOT DATE = 10/17/2014      | CHECKED -  | REVISIONS - |

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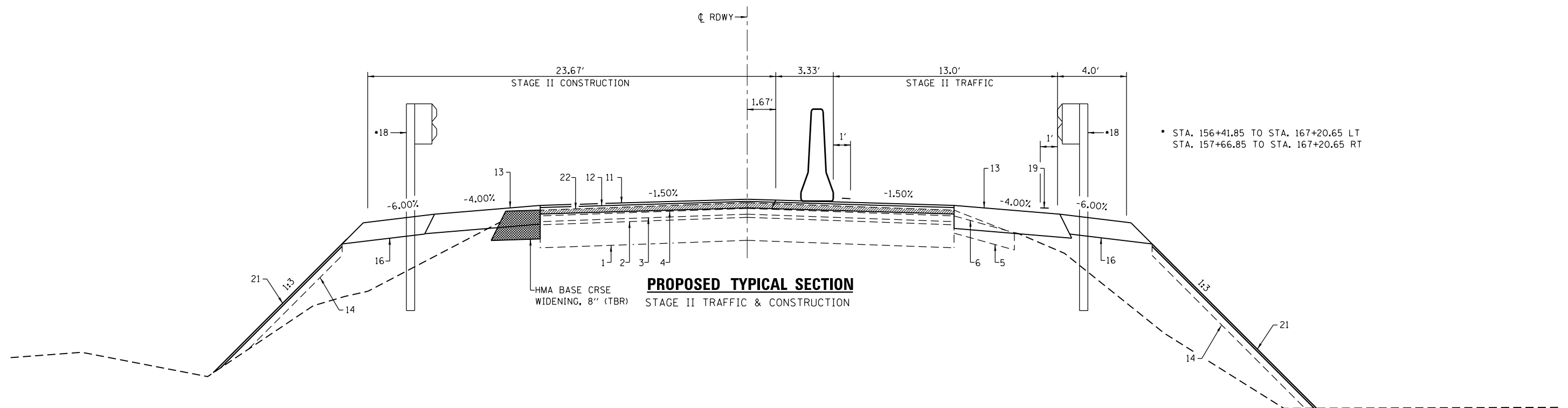
**PLAN & PROFILE (PRIVATE ENTRANCE)**

SCALE: SHEET NO. 3 OF 3 SHEETS STA. TO STA.

|   |                 |                  |                 |              |
|---|-----------------|------------------|-----------------|--------------|
| F.A.P. RTE. 522                               | SECTION (14B)BR | COUNTY HENDERSON | TOTAL SHEETS 73 | SHEET NO. 19 |
| CONTRACT NO. 68899                            |                 |                  |                 |              |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |                 |                  |                 |              |




• STA. 156+41.85 TO STA. 167+20.65 LT  
 STA. 157+66.85 TO STA. 167+20.65 RT

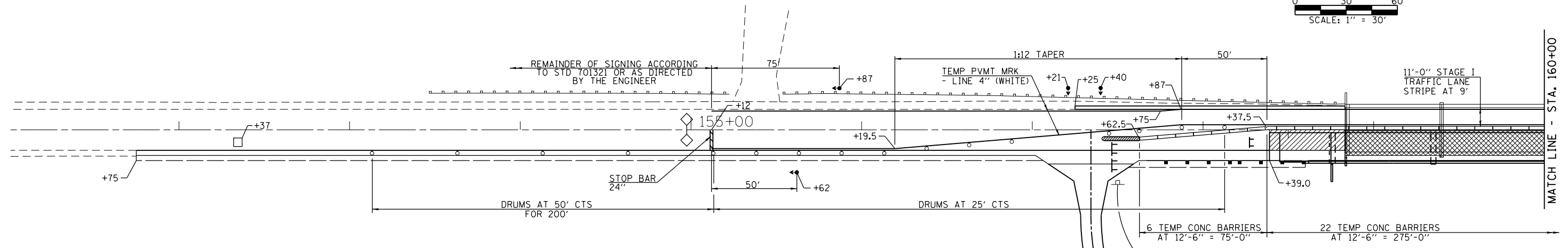
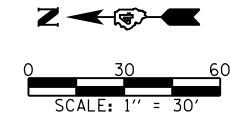


• STA. 156+41.85 TO STA. 167+20.65 LT  
 STA. 157+66.85 TO STA. 167+20.65 RT

**PAVEMENT LEGEND**

- |                      |  |
|----------------------|--|
| 1. EX GRAN BASE      | 10. PR HMA SURF CRSE (1 1/2")          |
| 2. EX A3 SURF        | 11. PR LEV BINDER (3/4")               |
| 3. EX LEV BINDER     | 12. PR HMA BINDER COURSE (2 1/4" MIN)  |
| 4. EX HMA SURF       | 13. PR HMA SHLD, 8"                    |
| 5. EX AGG SHLD       | 14. PR TOPSOIL, 4"                     |
| 6. EX AGG WEDGE SHLD | 15. PR AGG SHLD, TY A, 8"              |
| 7. EX HMA SHLD       | 16. PR AGG EROS CONTROL SHLD (8")      |
| 8. EX PVMT MRK       | 17. PR HMA SURF REM, 3/4"              |
| 9. EX GUARDRAIL      | 18. PR GUARDRAIL                       |
|                      | 19. PR PVMT MRK                        |
|                      | 20. PR HMA SHLD, 1 1/2"                |
|                      | 21. PR HEAVY DUTY EROS CONTROL BLANKET |
|                      | 22. PR HMA SURF REM-BUTT JOINT         |

|                            |            |           |  |   |                         |                 |                    |                  |                 |              |  |
|----------------------------|------------|-----------|--|---|-------------------------|-----------------|--------------------|------------------|-----------------|--------------|--|
| USER NAME = kesthbr        | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>STAGE CONSTRUCTION TRAFFIC DETAILS</b> |                         | F.A.P. RTE. 522 | SECTION (14B)BR    | COUNTY HENDERSON | TOTAL SHEETS 73 | SHEET NO. 20 |  |
| PLOT SCALE = 6.0000' / in. | DRAWN -    | REVISED - |  | SCALE: NONE                               | SHEET NO. 1 OF 3 SHEETS | STA. TO STA.    | CONTRACT NO. 68899 |                  |                 |              |  |
| PLOT DATE = 10/17/2014     | CHECKED -  | REVISED - |  |   |                         |                 |                    |                  |                 |              |  |
|                            | DATE -     | REVISED - |  |   |                         |                 |                    |                  |                 |              |  |



**SUGGESTED STAGE CONSTRUCTION SEQUENCE**

**PRE-STAGE I**

1. CONSTRUCT HMA BASE COURSE WIDENING 8" FROM STA. 157+25 TO STA. 161+28 LT.
2. CONSTRUCT PRIVATE ENTRANCE AND PIPE CULVERT STA. 157+34.35 RT.

**STAGE I**

1. ERECT TRAFFIC CONTROL FOR STAGE I CONSTRUCTION.
2. REMOVE EXISTING HMA SHOULDER FROM STA. 161+28 TO STA. 167+20 RT.
3. REMOVE EXISTING PAVEMENT FROM STA. 158+39 TO STA. 161+11 RT.
4. REMOVE EXISTING STRUCTURE RIGHT, @ 159+75 AND GUARDRAIL.
5. CONSTRUCT PROPOSED STAGE I STRUCTURE, @ 159+75 RT.
6. CONSTRUCT PROPOSED HMA BINDER COURSE AND APPROACH SLABS STA. 158+39 TO STA. 161+11 RT.
7. CONSTRUCT PROPOSED HMA AND AGGREGATE SHOULDERS AND GUARDRAIL FROM STA. 151+75 TO STA. 168+25 RT.

**STAGE II**

1. ERECT TRAFFIC CONTROL FOR STAGE II CONSTRUCTION.
2. REMOVE HMA BASE COURSE WIDENING 8" AND EXISTING HMA SHOULDER FROM STA. 157+25 TO STA. 167+18 LT.
3. REMOVE EXISTING PAVEMENT FROM STA. 158+39 TO STA. 161+11 LT.
4. REMOVE EXISTING STRUCTURE LEFT, @ 159+75 AND GUARDRAIL.
5. CONSTRUCT PROPOSED STAGE II STRUCTURE, @ 159+75 LT.
6. CONSTRUCT PROPOSED HMA BINDER COURSE AND APPROACH SLABS FROM STA. 158+39 TO STA. 161+11 LT.
7. CONSTRUCT FE STA. 155+43.3 LT.
8. CONSTRUCT PROPOSED HMA AND AGGREGATE SHOULDERS AND GUARDRAIL FROM STA. 151+75 TO STA. 168+25 LT.

**FINAL**

1. REMOVE ALL STAGE TRAFFIC CONTROL AND RE-ESTABLISH NORMAL TRAFFIC PATTERNS.
2. COMPLETE HMA LEVEL BINDER COURSE, HMA SURFACE COURSE AND HMA SHOULDERS ON ROADWAY UNDER FLAGGERS.
3. FINAL STRIPING, SEEDING AND MISCELLANEOUS CLEAN-UP.

**GENERAL NOTES**

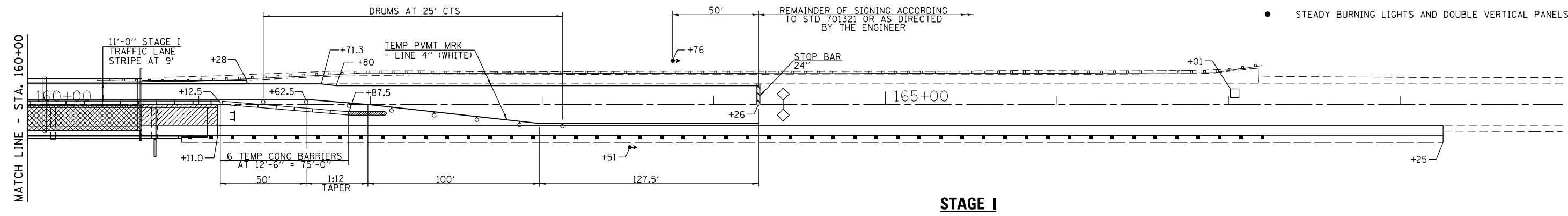
1. THIS TRAFFIC CONTROL DETAIL SHALL BE USED IN CONJUNCTION WITH STANDARD 701321.
2. EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE REVISED STAGE TRAFFIC PATTERNS DURING ALL PHASES OF STAGE CONSTRUCTION SHALL BE REMOVED AS SPECIFIED IN SECTION 783 OF THE STANDARD SPECIFICATIONS AND PAID FOR AS "PAVEMENT MARKING REMOVAL."
3. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES DURING ALL PHASES OF CONSTRUCTION.
4. SIGNING FOR STAGE II SAME AS STAGE I.

**STAGE I**

NO TURN ON RED  
R10-11A-2430

**SYMBOLS**

- SHOULDER REMOVAL
- PAVEMENT REMOVAL
- STRUCTURE REMOVAL
- SIGN
- TYPE III BARRICADE
- DRUM WITH STEADY BURNING LIGHT
- TRAFFIC SIGNAL
- TEMPORARY RUMBLE STRIP
- INDUCTION LOOP DETECTOR
- DOUBLE VERTICAL PANEL
- TYPE C BIDIRECTIONAL REFLECTOR
- TEMPORARY CONCRETE BARRIER
- IMPACT ATTENUATOR
- STEADY BURNING LIGHTS AND DOUBLE VERTICAL PANELS



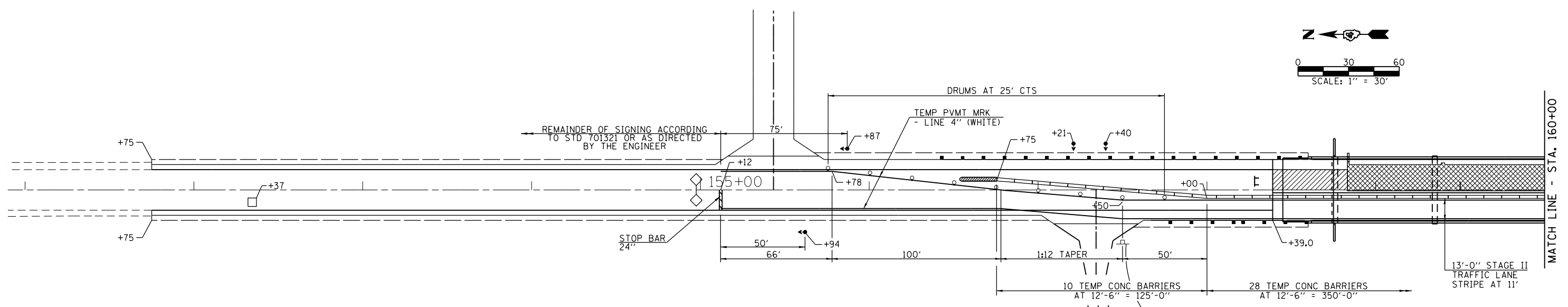
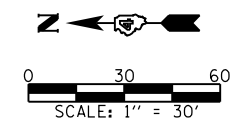
**STAGE I**

|                             |            |           |
|-----------------------------|------------|-----------|
| USER NAME = keathbr         | DESIGNED - | REVISED - |
|                             | DRAWN -    | REVISED - |
| PLOT SCALE = 60.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DATE -     | REVISED - |

**Allen Henderson & Associates, Inc.**  
Civil and Structural Engineers Springfield, IL  
62703 Phone: (217)544-8033 IL Design Firm  
No. 184-001907

|   |                         |      |         |
|---|-------------------------|------|---------|
| <b>STAGE CONSTRUCTION TRAFFIC DETAILS</b> |                         |      |         |
| SCALE:                                    | SHEET NO. 2 OF 3 SHEETS | STA. | TO STA. |

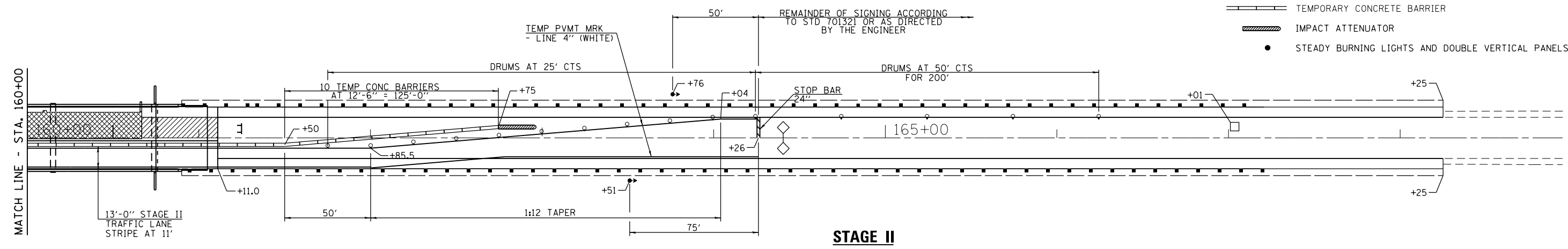
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| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
| 522   | (14B)BR | HENDERSON | 73           | 21        |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |



**STAGE II**

| TEMPORARY CONCRETE BARRIER   |                            |                                     |                   |                            |
|------------------------------|----------------------------|-------------------------------------|-------------------|----------------------------|
| LOCATION                     | TEMPORARY CONCRETE BARRIER | RELOCATE TEMPORARY CONCRETE BARRIER | IMPACT ATTENUATOR | RELOCATE IMPACT ATTENUATOR |
|                              | FOOT                       | FOOT                                | EACH              | EACH                       |
| STAGE I                      |                            |                                     |                   |                            |
| STA 157+40.5 TO STA 157+62.5 |                            |                                     | 1                 |                            |
| STA 157+62.5 TO STA 161+87.5 | 425                        |                                     |                   |                            |
| STA 161+87.5 TO STA 162+09.5 |                            |                                     | 1                 |                            |
| STAGE II                     |                            |                                     |                   |                            |
| STA 156+53 TO STA 156+75     |                            |                                     |                   | 1                          |
| STA 156+75 TO STA 162+75     | 175                        | 425                                 |                   |                            |
| STA 162+75 TO STA 162+97     |                            |                                     |                   | 1                          |
| TOTAL                        | 600                        | 425                                 | 2                 | 2                          |

- SYMBOLS**
- SHOULDER REMOVAL
  - PAVEMENT REMOVAL
  - STRUCTURE REMOVAL
  - SIGN
  - TYPE III BARRICADE
  - DRUM WITH STEADY BURNING LIGHT
  - TRAFFIC SIGNAL
  - TEMPORARY RUMBLE STRIP
  - INDUCTION LOOP DETECTOR
  - DOUBLE VERTICAL PANEL
  - TYPE C BIDIRECTIONAL REFLECTOR
  - TEMPORARY CONCRETE BARRIER
  - IMPACT ATTENUATOR
  - STEADY BURNING LIGHTS AND DOUBLE VERTICAL PANELS



**STAGE II**

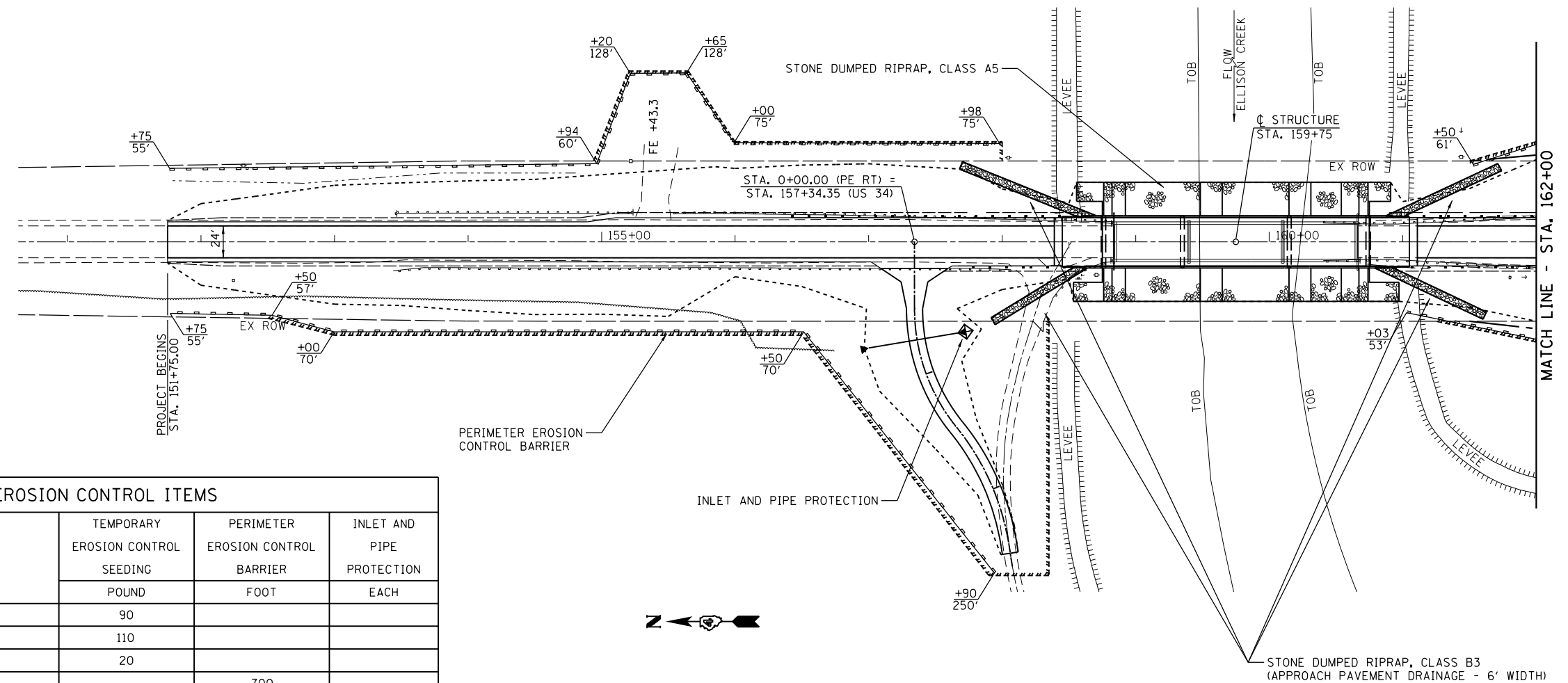
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|-----------------------------|------------|-----------|
| USER NAME = keathbr         | DESIGNED - | REVISED - |
|                             | DRAWN -    | REVISED - |
| PLOT SCALE = 60.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DATE -     | REVISED - |

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 No. 184-001907

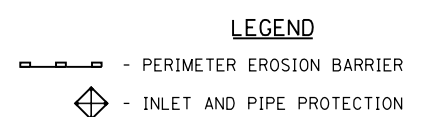
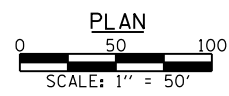
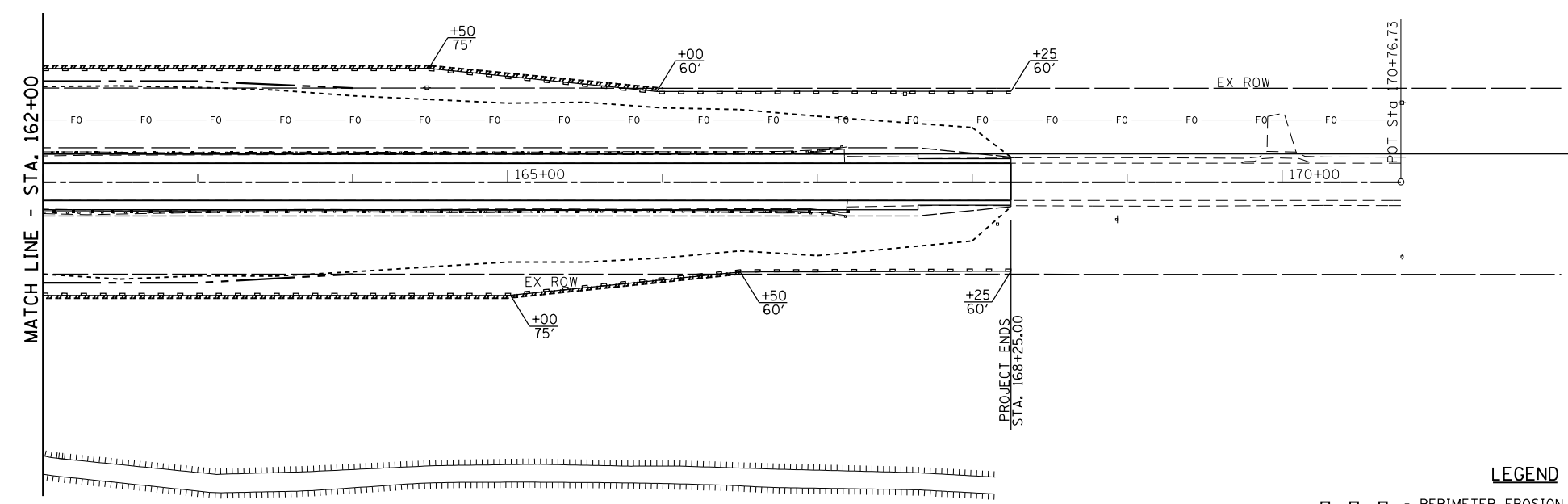
|   |                         |      |         |
|---|-------------------------|------|---------|
| <b>STAGE CONSTRUCTION TRAFFIC DETAILS</b> |                         |      |         |
| SCALE:                                    | SHEET NO. 3 OF 3 SHEETS | STA. | TO STA. |

|   |         |           |              |           |
|---|---------|-----------|--------------|-----------|
| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
| 522   | (14B)BR | HENDERSON | 73           | 22        |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |





| TEMPORARY EROSION CONTROL ITEMS  |                                   |                                   |                           |
|----------------------------------|-----------------------------------|-----------------------------------|---------------------------|
| LOCATION                         | TEMPORARY EROSION CONTROL SEEDING | PERIMETER EROSION CONTROL BARRIER | INLET AND PIPE PROTECTION |
|                                  | POUND                             | FOOT                              | EACH                      |
| STA 151+75 TO STA 158+75 LT & RT | 90                                |                                   |                           |
| STA 160+75 TO STA 168+25 LT & RT | 110                               |                                   |                           |
| STA 0+60 TO STA 2+50 (PE RT)     | 20                                |                                   |                           |
| STA 151+75 TO STA 158+00 LT      |                                   | 700                               |                           |
| STA 151+75 TO STA 157+90 RT      |                                   | 710                               |                           |
| STA 161+50 TO STA 168+25 LT      |                                   | 680                               |                           |
| STA 161+00 TO STA 168+25 RT      |                                   | 730                               |                           |
| STA 0+73.5, 31.3' LT (PE RT)     |                                   |                                   | 1                         |
| TOTAL                            | 220                               | 2820                              | 1                         |



Benchmark #1: Chiseled square on top of the southeast wingwall of the bridge. Elev. 583.44

Existing Structure: S.N. 036-3001 was built under Sec 14-B in 1947 and was raised in elevation in 1967. The superstructure consists of a reinforced concrete deck on steel beams. The substructure consists of spill-thru abutments and pile bent piers. The structure has a length of 183'-6" back-to-back of abutments and 30'-0" out to out of deck, with a clear roadway width of 26'-0". Existing structure is to be removed and replaced utilizing stage construction to maintain one lane of traffic during construction.

No Salvage.

**INDEX OF SHEETS**

- 1 General Plan & Elevation
- 2 General Data
- 3 Stage Construction Details
- 4 Temporary Concrete Barrier
- 5 - 7 Top of Slab Elevations
- 8 Top of South Approach Slab Elevations
- 9 Top of North Approach Slab Elevations
- 10 Superstructure
- 11 Superstructure Details
- 12 Diaphragm Details
- 13 - 14 Bridge Approach Slab Details
- 15 Structural Steel
- 16 Structural Steel Details
- 17 Bearing Details
- 18 North Abutment
- 19 South Abutment
- 20 Pier 1
- 21 Pier 2
- 22 Metal Shell Pile Details
- 23 Bar Splicer Assembly Details
- 24 - 26 Soil Boring Logs

**LOADING HL93**

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

**DESIGN SPECIFICATIONS**

2012 AASHTO LRFD Bridge Design Specifications, 6th Edition

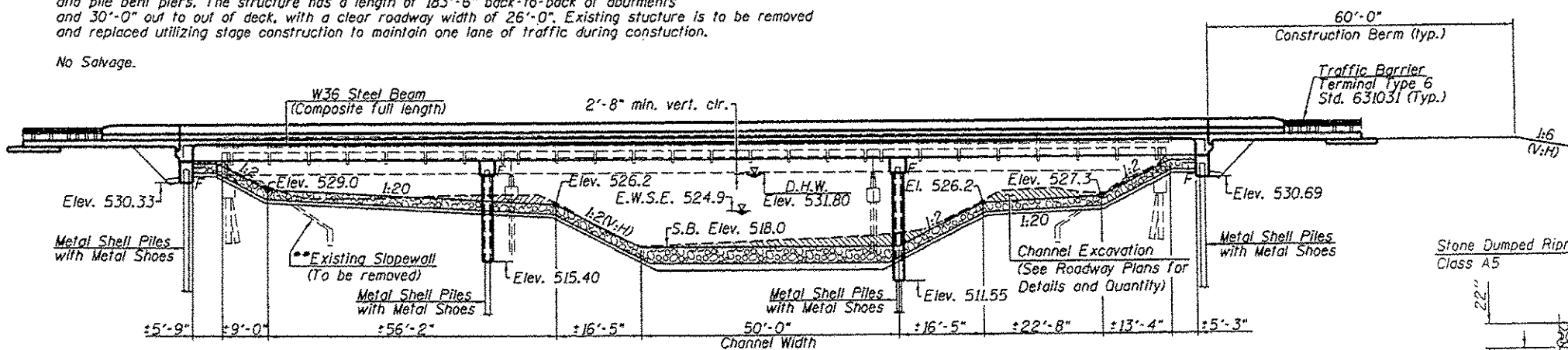
**DESIGN STRESSES**

**FIELD UNITS**

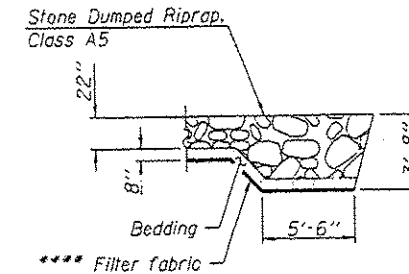
- $f_c = 3,500$  psi
- $f_y = 60,000$  psi (reinforcement)
- $f_y = 50,000$  psi (M270 Grade 50W)

**SEISMIC DATA**

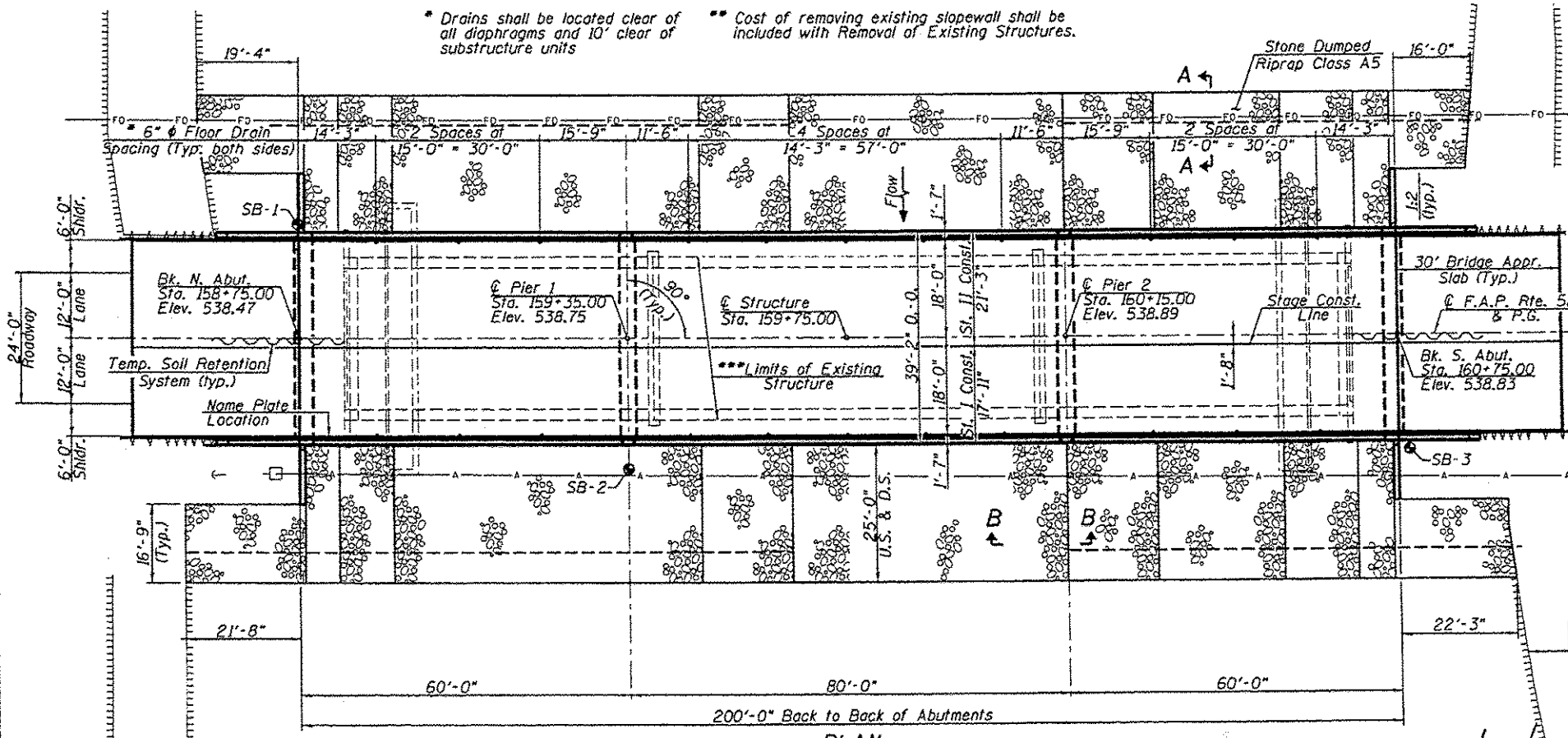
- Seismic Performance Zone (SPZ) = 1
- Seismic Spectral Acceleration at 1.0 sec ( $S_{a1}$ ) = 0.107 g
- Seismic Spectral Acceleration at 0.2 sec ( $S_{a0.2}$ ) = 0.164 g
- Soil Site Class = D



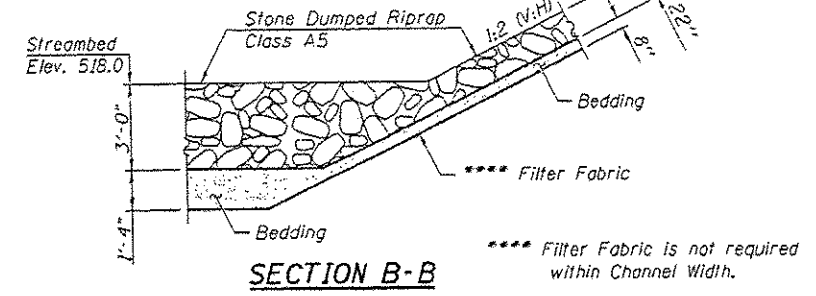
**ELEVATION**



**SECTION A-A**



**PLAN**



**SECTION B-B**

**WATERWAY INFORMATION**

| Drainage Area = 95.9 mi <sup>2</sup> |           | Exist. Overtopping Elev. 537.7 at Sta. 158+83 |                 | Prop. Overtopping Elev. 538.5 at Sta. 158+75 |            |               |
|--------------------------------------|-----------|---|-----------------|--|------------|---------------|
| Flood                                | Freq. Yr. | Q C.F.S.                                      | Opening Sq. Ft. | Nat. H.W.E.                                  | Head - Ft. | Headwater El. |
|                                      |           |   | Exist.          | Prop.  | Exist.     | Prop.         |
| Design                               | 10        | 1065  | 1241            | 1285   | 531.8      | 532.0         |
| Base                                 | 50        | 9450  | 1241            | 1285   | 531.8      | 532.0         |
| Overlop Existing                     | 100       | 10900   | 1281            | 1326   | 532.0      | 532.0         |
| Overlop Proposed                     |           |   |                 |  |            |               |
| Max. Calc.                           | 500       | 14400   | 1348            | 1396   | 532.4      | 532.7         |

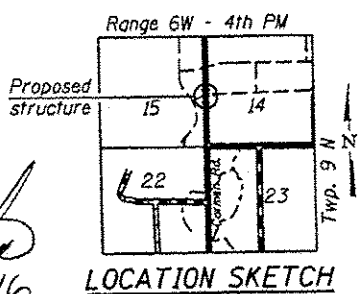
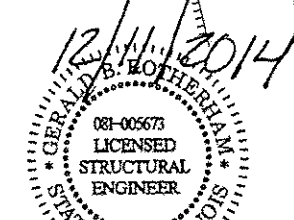
\*\*\* The foundation units for a 70 ft. truss constructed prior to S.N. 036-3001 are not shown. Plans locating the substructure units are not available and their locations are not evident in the field. If the units are encountered and require removal, the cost of removal will be paid for according to Article 109.04 of the Standard Specifications.

**DESIGN SCOUR ELEVATIONS**

|      | N. Abut. | Pier 1 | Pier 2 | S. Abut. |
|------|----------|--------|--------|----------|
| 0100 | 530.32   | 515.5  | 511.85 | 530.68   |
| 0500 | 530.32   | 515.5  | 511.61 | 530.68   |

**APPROVED**  
For Structural Adequacy Only

*Carl Kuyper*  
Engineer of Bridges & Structures



**LOCATION SKETCH**

**PROFILE GRADE**  
(Along & Roadway)

**GENERAL PLAN AND ELEVATION**  
**CARMAN ROAD OVER ELLISON CREEK**  
**F.A.P. RT. 522 - SEC. (14B)BR**  
**HENDERSON COUNTY**  
**STATION 159+75**  
**STRUCTURE NO. 036-0073**

| FILE NAME | USER NAME | DESIGNED | REVISD |
|-----------|-----------|----------|--------|
|           |           | CHECKED  | REVISD |
|           |           | DRAWN    | REVISD |
|           |           | CHECKED  | REVISD |

**Allen Henderson & Associates, Inc.**  
Civil and Structural Engineers Springfield, IL  
62703 Phone: (217)544-8033 IL Design Firm  
No. 184-001907

**GENERAL PLAN & ELEVATION**  
**STRUCTURE NO. 036-0073**  
SHEET NO. 1 OF 26 SHEETS

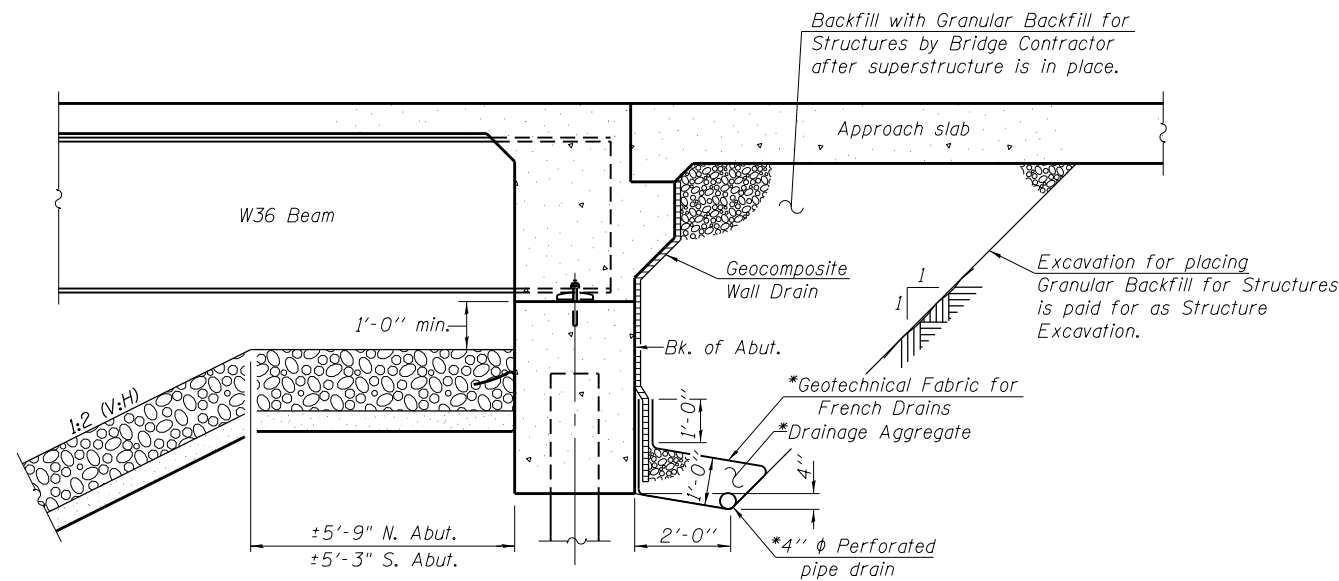
| F.A.P. RTE.        | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|--------------------|---------|-----------|--------------|-----------|
| 522                | (14B)BR | HENDERSON | 73           | 24        |
| CONTRACT NO. 68899 |         |           |              |           |

**GENERAL NOTES**

- Fasteners shall be ASTM A325 Type 1, mechanically galvanized bolts in painted areas and ASTM A325 Type 3 in unpainted areas. Bolts  $7/8"$   $\phi$ , holes  $15/16"$   $\phi$ , unless otherwise noted.
- Calculated weight of Structural Steel = 187,600 lbs. (M270 Grade 50W)
- All structural steel shall be AASHTO M270 Grade 50W.
- No field welding is permitted except as specified in the contract documents.
- Reinforcement bars designated (E) shall be epoxy coated.
- Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of  $1/8$  inch (0.01 ft.). Adjustment shall be made either by grinding the surface or by shimming the bearings.
- Structural steel shall only be painted for a distance equal to the depth of embedment into the concrete cap plus 1'-6". Painted areas shall be primed in the shop with a Department approved zinc rich primer. Field painting will not be required.
- Layout of slope protection system may be varied to suit ground conditions in the field as directed by the Engineer.
- The embankment configuration shown shall be the minimum that must be placed and compacted prior to construction of the abutment.
- Slip forming of the parapets is not allowed.
- The existing structural steel coating contains lead. The Contractor shall take appropriate precautions to deal with the presence of lead on this project.

**TOTAL BILL OF MATERIAL**

| ITEM                                      | UNIT    | SUPER | SUB  | TOTAL  |
|---|---------|-------|------|--------|
| Stone Dumped Riprap, Class A5             | Sq. Yd. |       | 2148 | 2148   |
| Filter Fabric                             | Sq. Yd. |       | 1652 | 1652   |
| Removal of Existing Structures            | Each    |       |      | 1      |
| Structure Excavation                      | Cu. Yd. |       | 210  | 210    |
| Floor Drains                              | Each    | 22    |      | 22     |
| Concrete Structures                       | Cu. Yd. |       | 85.8 | 85.8   |
| Concrete Superstructure                   | Cu. Yd. | 388.3 |      | 388.3  |
| Bridge Deck Grooving                      | Sq. Yd. | 985   |      | 985    |
| Concrete Encasement                       | Cu. Yd. |       | 41.0 | 41.0   |
| Protective Coat                           | Sq. Yd. | 1241  |      | 1241   |
| Furnishing and Erecting Structural Steel  | L. Sum  | 1     |      | 1      |
| Stud Shear Connectors                     | Each    | 4536  |      | 4536   |
| Reinforcement Bars, Epoxy Coated          | Pound   | 95650 | 9420 | 105070 |
| Bar Splicers                              | Each    | 833   | 128  | 961    |
| Mechanical Splicers                       | Each    | 6     |      | 6      |
| Furnishing Metal Shell Piles 14" x 0.312" | Foot    |       | 1687 | 1687   |
| Driving Piles                             | Foot    |       | 1687 | 1687   |
| Test Pile Metal Shells                    | Each    |       | 1    | 1      |
| Pile Shoes                                | Each    |       | 28   | 28     |
| Name Plates                               | Each    | 1     |      | 1      |
| Anchor Bolts, 1"                          | Each    |       | 48   | 48     |
| Geocomposite Wall Drain                   | Sq. Yd. |       | 79   | 79     |
| Granular Backfill for Structures          | Cu. Yd. |       | 150  | 150    |
| Pipe Underdrains for Structures, 4"       | Foot    |       | 164  | 164    |
| Temporary Soil Retention System           | Sq. Ft. |       | 231  | 231    |



**SECTION THRU INTEGRAL ABUTMENT**

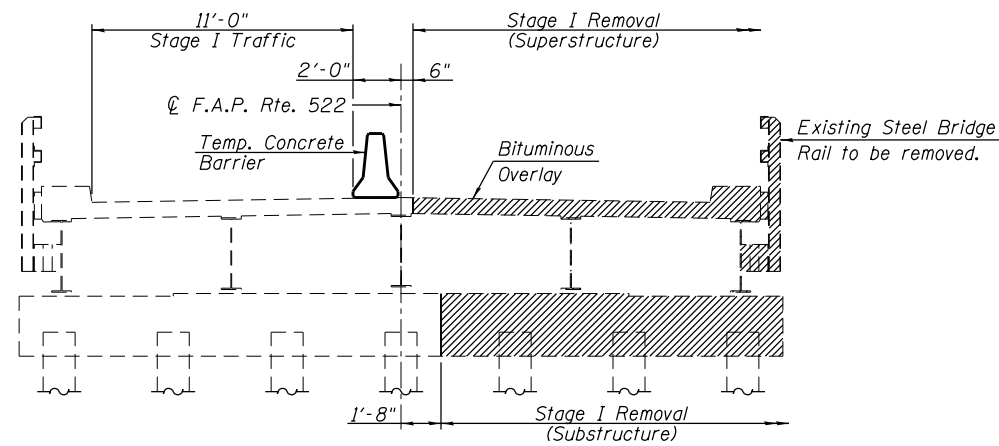
(Horiz. dim. @ Rt. L's)  
\*Included in the cost of Pipe Underdrains for Structures.

Note:  
All drainage system components shall extend to 2'-0" from the end of each wingwall except an outlet pipe shall extend past the wingwalls. Once past the wingwalls the outlet pipe shall turn 90° and shall extend until intersecting with the structures front slopes. The pipes shall drain into concrete headwalls. (See Article 601.05 of the Standard Specifications and Highway Standard 601101).

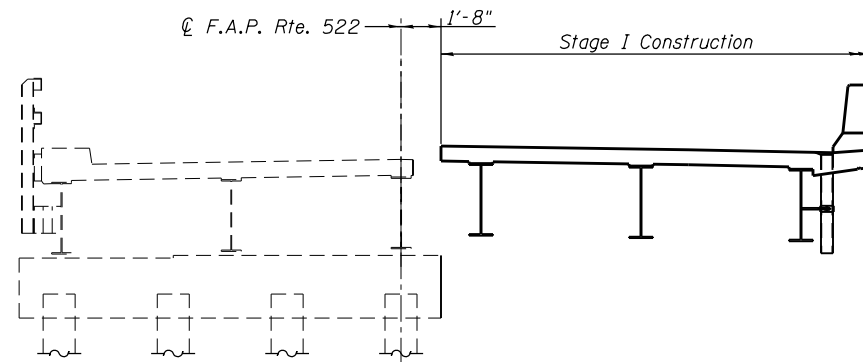
STATION 159+75  
BUILT 20 BY  
STATE OF ILLINOIS  
F.A.P. RTE. 522 SEC. (14B)BR  
LOADING HL-93  
STRUCTURE NO. 036-0073

**NAME PLATE**  
See Std. 515001

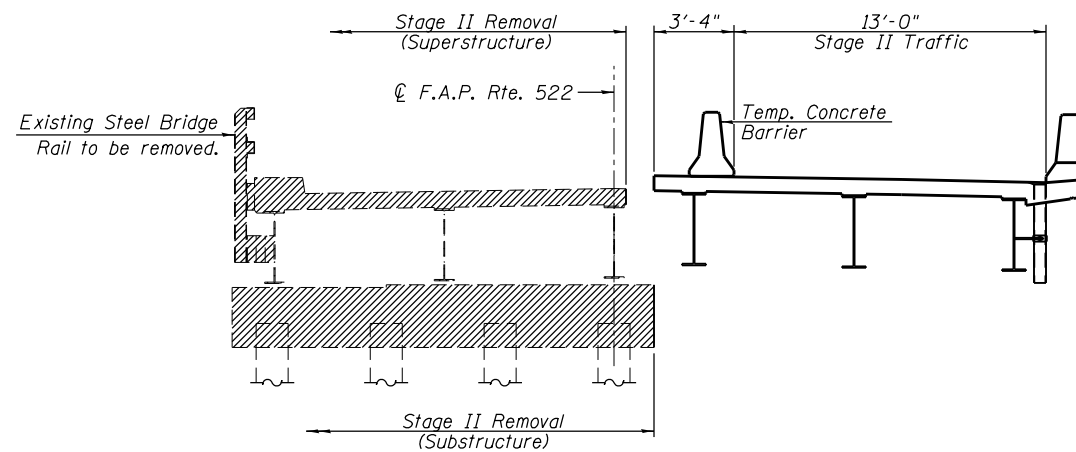
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|-------------|-------------|------------|-----------|--|-------------------------------|--|---------------------------|---------|-----------|--------------|-----------|
| FILE NAME = | USER NAME = | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>GENERAL DATA</b>           |  | F.A.P. RTE.               | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|             |             | CHECKED -  | REVISED - |  | <b>STRUCTURE NO. 036-0073</b> |  | 522                       | (14B)BR | HENDERSON | 73           | 25        |
|             |             | DRAWN -    | REVISED - |  |                               |  | <b>CONTRACT NO. 68899</b> |         |           |              |           |
|             |             | CHECKED -  | REVISED - |  |                               |  | ILLINOIS FED. AID PROJECT |         |           |              |           |



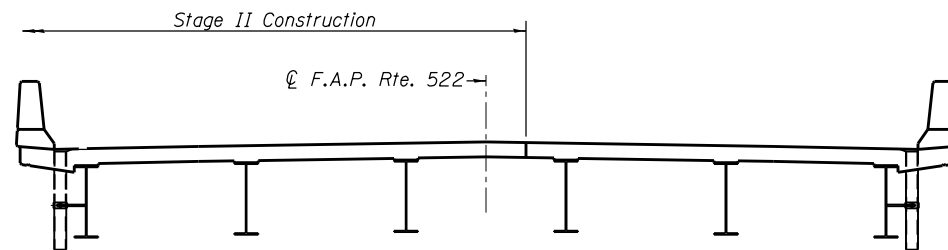
**STAGE I REMOVAL**



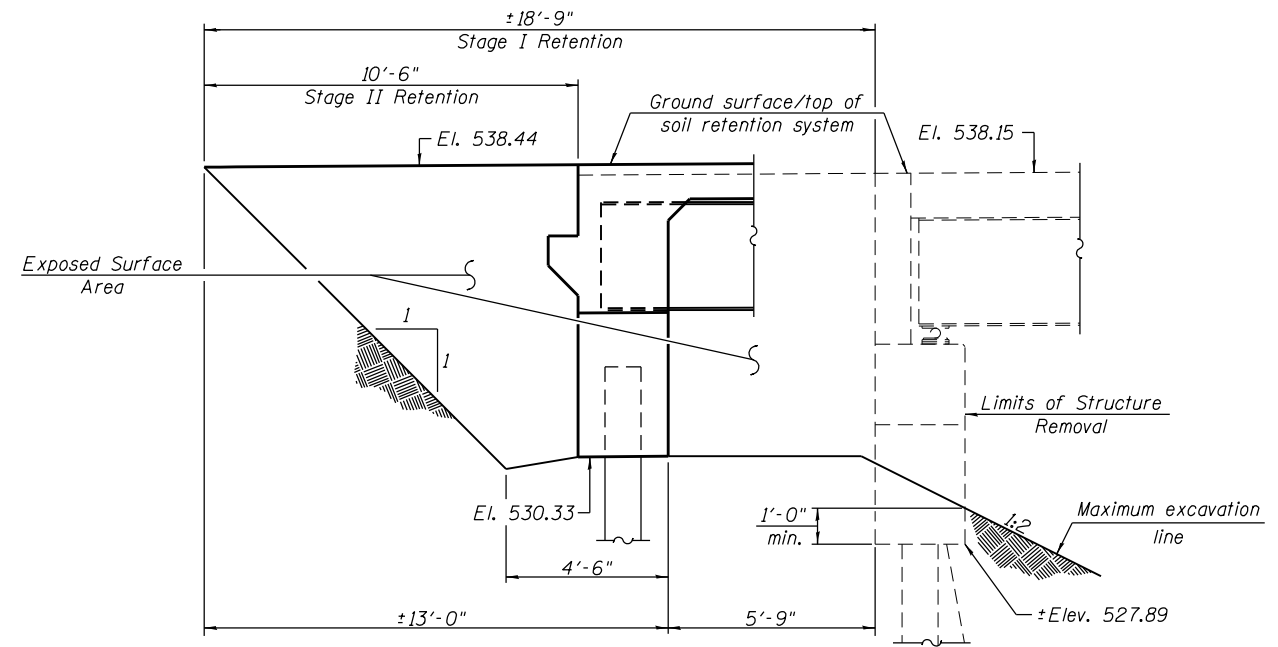
**STAGE I CONSTRUCTION**



**STAGE II REMOVAL**

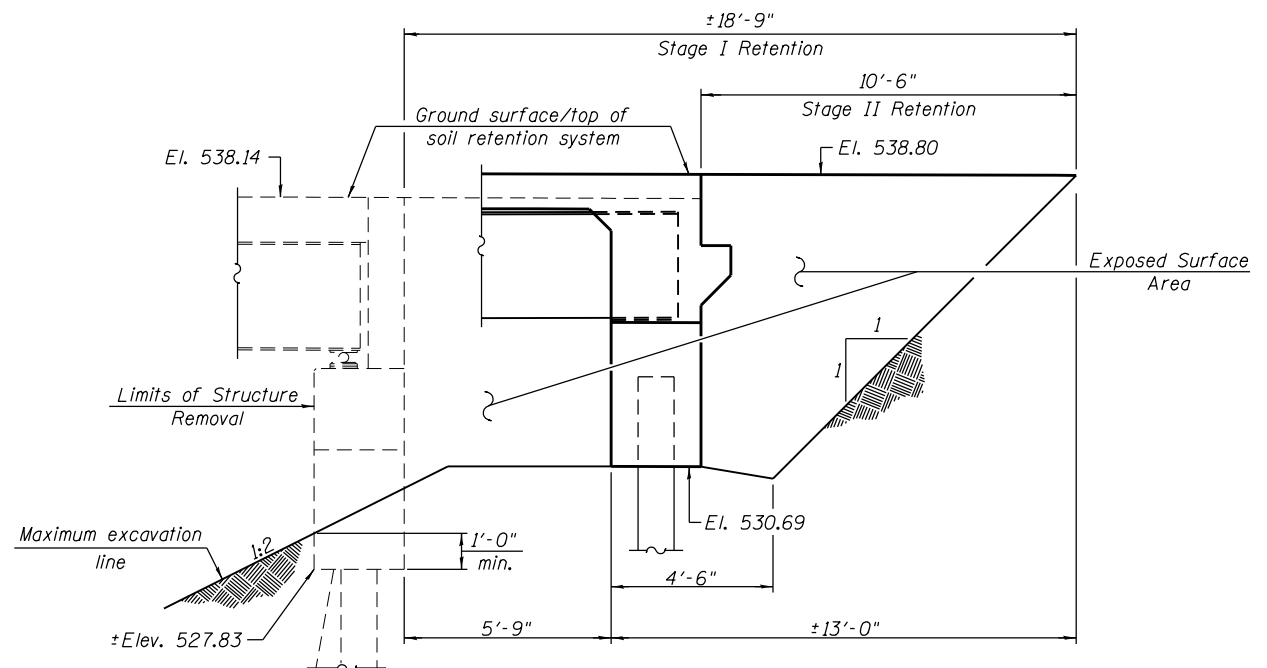


**STAGE II CONSTRUCTION**



**TEMPORARY SOIL RETENTION SYSTEM - NORTH ABUTMENT**


(Looking East)



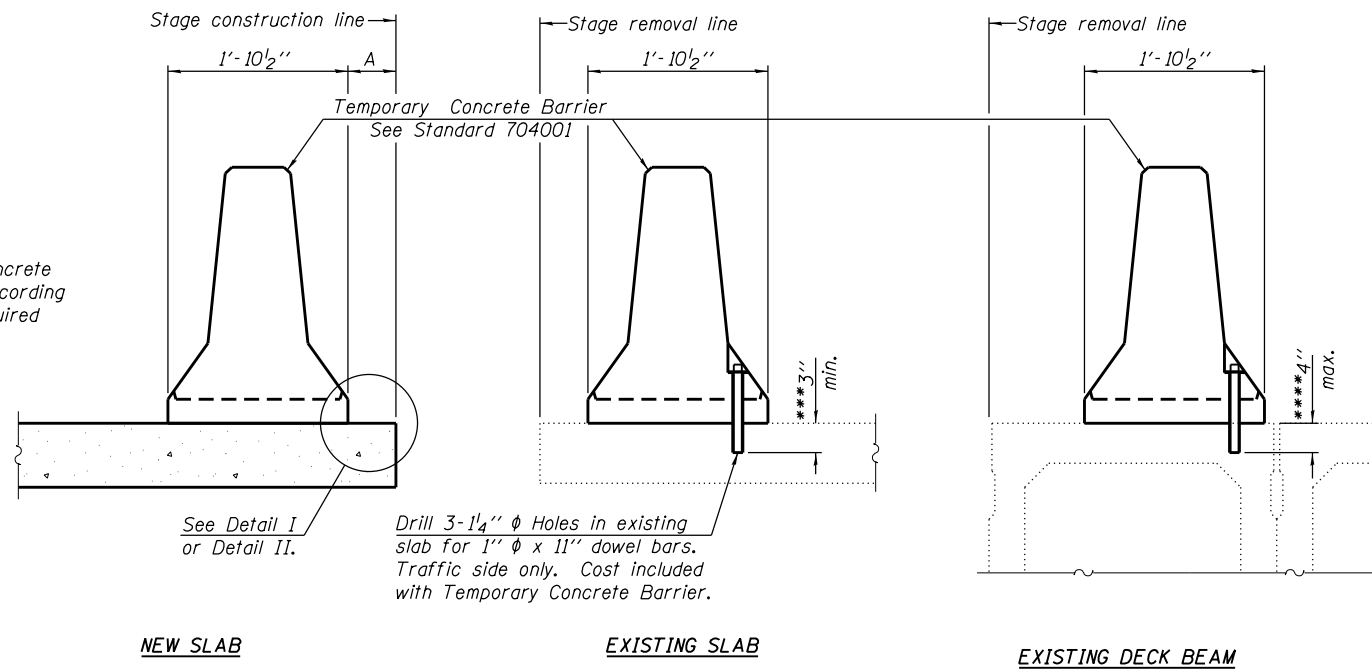
**TEMPORARY SOIL RETENTION SYSTEM - SOUTH ABUTMENT**

(Looking East)

Notes: All staging cross sections are looking South.  
 Hatched areas indicate Limits of Removal of Existing Structures.  
 For quantity of Temporary Concrete Barrier see roadway plans.  
 For details of Temporary Concrete Barrier, See Sheet 4 of 26.  
 Cost of removing existing steel rail and bituminous overlay is included in the Cost of Removal of Existing Structures.  
 A cantilevered sheet piling design does not appear feasible and additional members or other retention systems may be necessary. The Contractor shall submit a temporary soil retention system design including plan details and calculations for review and acceptance by the Engineer.

|              |             |            |           |  |  |                           |         |           |              |           |
|--------------|-------------|------------|-----------|--|--|---------------------------|---------|-----------|--------------|-----------|
| FILE NAME =  | USER NAME = | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>STAGE CONSTRUCTION DETAILS</b><br><b>STRUCTURE NO. 036-0073</b><br>SHEET NO. 3 OF 26 SHEETS | F.A.P. RTE.               | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|              |             | CHECKED -  | REVISED - |  |  | 522                       | (14B)BR | HENDERSON | 73           | 26        |
| PLOT SCALE = |             | DRAWN -    | REVISED - |  |  | <b>CONTRACT NO. 68899</b> |         |           |              |           |
| PLOT DATE =  |             | CHECKED -  | REVISED - |  |  | ILLINOIS FED. AID PROJECT |         |           |              |           |

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



**SECTIONS THRU SLAB OR DECK BEAM**

**NOTES**

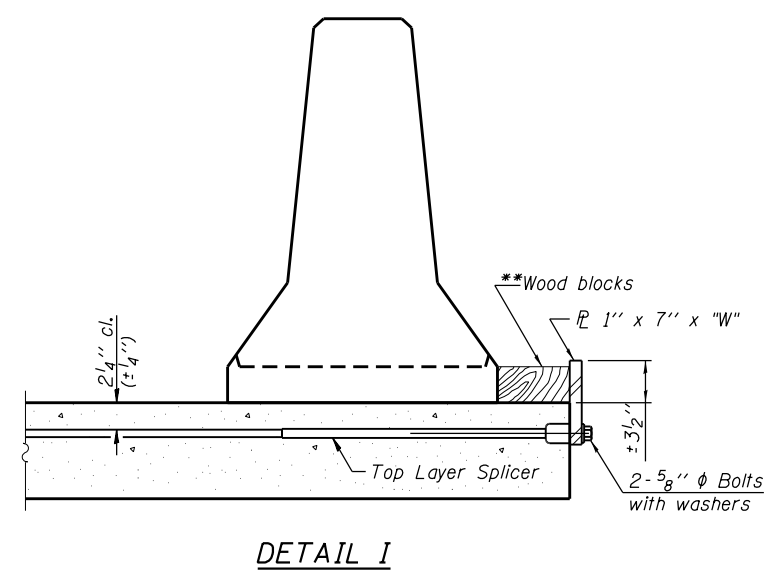
Detail I - With Bar Splicer or Couplers:  
Connect one (1) 1" x 7" x "W" steel PL to the top layer of couplers with 2-5/8" φ bolts screwed to coupler at approximate C of each barrier panel.

Detail II - With Extended Reinforcement Bars:  
Connect one (1) 1" x 7" x "W" steel PL to the concrete slab or concrete wearing surface with 2-5/8" φ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate C of each barrier panel.

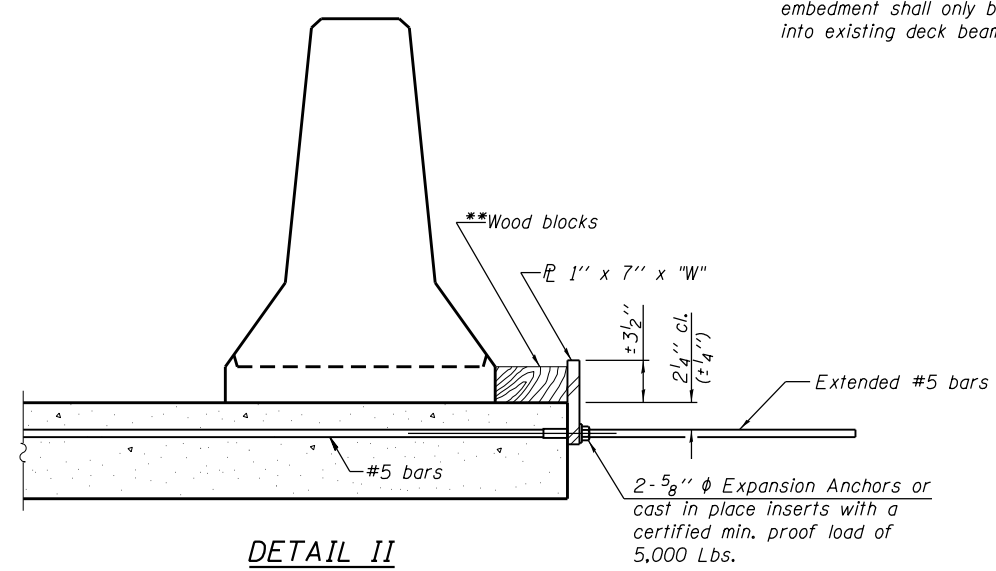
Cost of anchorage is included with Temporary Concrete Barrier. The 1" x 7" x "W" plate shall not be removed until stage II construction forms and all reinforcement bars are in place and the concrete is ready to be placed.

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

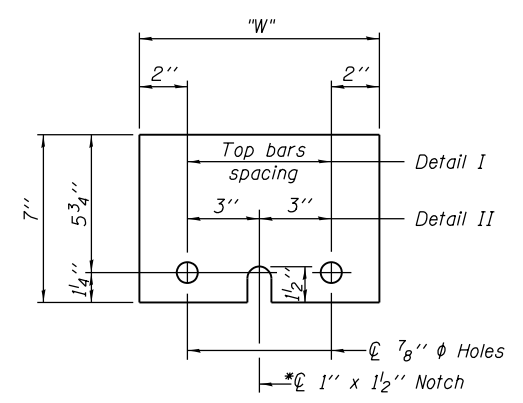
\*\*\*\* If existing deck beam is to remain in place after stage construction, embedment shall only be into wearing surface and not into existing deck beam concrete.



**DETAIL I**



**DETAIL II**




**STEEL RETAINER PL 1" x 7" x "W"**  
\* Required only with Detail II

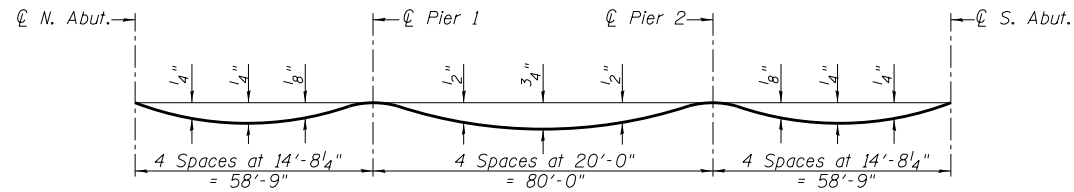
\*\* Wood blocks may be omitted when required to provide minimum stage traffic lane width. When the wood blocks are omitted, the concrete barrier shall be in direct contact with the steel retainer plate.

"W" = Top bars spacing + 4"

R-27

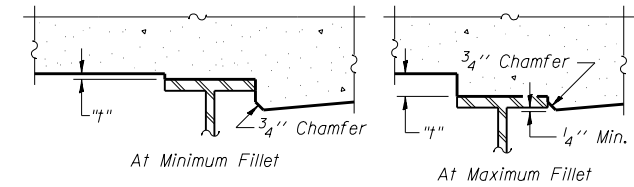
7-1-10

|              |             |            |           |   |   |                           |         |           |              |           |
|--------------|-------------|------------|-----------|---|---|---------------------------|---------|-----------|--------------|-----------|
| FILE NAME =  | USER NAME = | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL.<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>TEMPORARY CONCRETE BARRIER FOR STAGE CONSTRUCTION</b><br><b>STRUCTURE NO. 036-0073</b> | F.A.P. R.T.E.             | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|              |             | CHECKED -  | REVISED - |   |   | 522                       | (14B)BR | HENDERSON | 73           | 27        |
| PLOT SCALE = |             | DRAWN -    | REVISED - |   |   | <b>CONTRACT NO. 68899</b> |         |           |              |           |
| PLOT DATE =  |             | CHECKED -  | REVISED - |   |   | SHEET NO. 4 OF 26 SHEETS  |         |           |              |           |



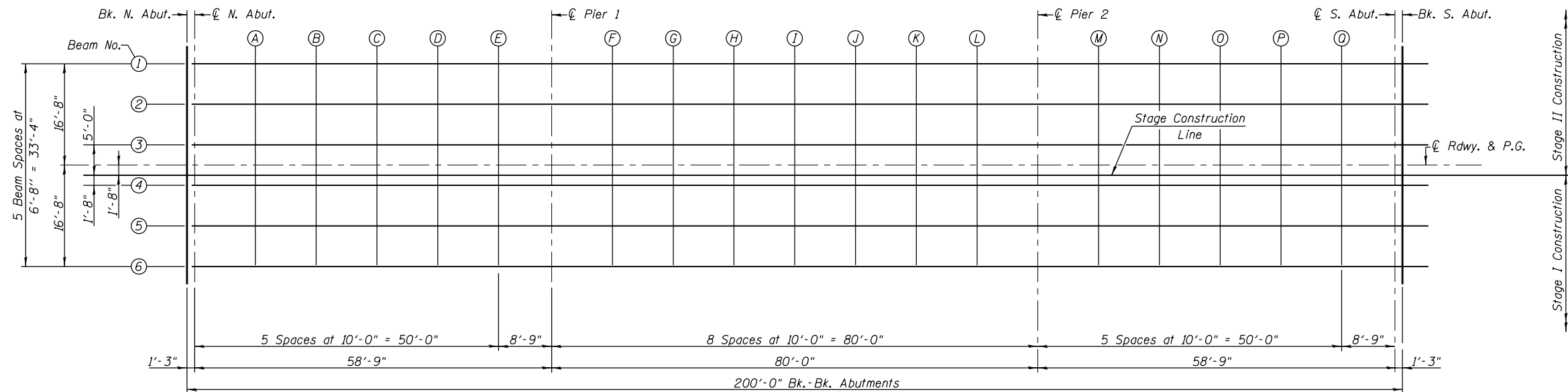
**DEAD LOAD DEFLECTION DIAGRAM**  
(Includes weight of concrete only.)

Note:  
The above deflections are not to be used in the field if the engineer is working from the grade elevations adjusted for dead load deflections as shown on Sheets 6 & 7 of 26.



To determine "t": After all structural steel has been erected, elevations of the top flanges of the beams shall be taken at intervals shown below. These elevations subtracted from the "Theoretical Grade Elevations Adjusted for Dead Load Deflection" shown on sheet 6 & 7 of 26, minus slab thickness, equals the fillet heights "t" above top flange of beams.


**FILLET HEIGHTS**



**PLAN**

E-S

7-1-10

|              |             |            |           |   |  |                           |         |           |              |           |  |
|--------------|-------------|------------|-----------|---|--|---------------------------|---------|-----------|--------------|-----------|--|
| FILE NAME =  | USER NAME = | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL.<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>TOP OF SLAB ELEVATIONS</b><br><b>STRUCTURE NO. 036-0073</b><br>SHEET NO. 5 OF 26 SHEETS | F.A.P. RTE.               | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |  |
|              |             | CHECKED -  | REVISED - |   |  | 522                       | (14)BIR | HENDERSON | 73           | 28        |  |
| PLOT SCALE = |             | DRAWN -    | REVISED - |   |  | <b>CONTRACT NO. 68899</b> |         |           |              |           |  |
| PLOT DATE =  |             | CHECKED -  | REVISED - |   |  | ILLINOIS FED. AID PROJECT |         |           |              |           |  |



| BEAMS 1 & 6  |           |        |                              |  |
|--------------|-----------|--------|------------------------------|--|
| Location     | Station   | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted for Dead Load Deflection |
| Bk. N. Abut  | 158+75.00 | ±16.67 | 538.18                       | 538.18   |
| ☉ N. Abut.   | 158+76.25 | ±16.67 | 538.19                       | 538.19   |
| A            | 158+86.25 | ±16.67 | 538.25                       | 538.26   |
| B            | 158+96.25 | ±16.67 | 538.30                       | 538.32   |
| C            | 159+06.25 | ±16.67 | 538.35                       | 538.37   |
| D            | 159+16.25 | ±16.67 | 538.39                       | 538.40   |
| E            | 159+26.25 | ±16.67 | 538.43                       | 538.43   |
| ☉ Pier 1     | 159+35.00 | ±16.67 | 538.46                       | 538.46   |
| F            | 159+45.00 | ±16.67 | 538.49                       | 538.51   |
| G            | 159+55.00 | ±16.67 | 538.52                       | 538.56   |
| H            | 159+65.00 | ±16.67 | 538.55                       | 538.60   |
| I            | 159+75.00 | ±16.67 | 538.57                       | 538.62   |
| J            | 159+85.00 | ±16.67 | 538.58                       | 538.63   |
| K            | 159+95.00 | ±16.67 | 538.59                       | 538.63   |
| L            | 160+05.00 | ±16.67 | 538.60                       | 538.62   |
| ☉ Pier 2     | 160+15.00 | ±16.67 | 538.61                       | 538.61   |
| M            | 160+25.00 | ±16.67 | 538.60                       | 538.61   |
| N            | 160+35.00 | ±16.67 | 538.60                       | 538.61   |
| O            | 160+45.00 | ±16.67 | 538.59                       | 538.61   |
| P            | 160+55.00 | ±16.67 | 538.58                       | 538.60   |
| Q            | 160+65.00 | ±16.67 | 538.56                       | 538.58   |
| ☉ S. Abut.   | 160+73.75 | ±16.67 | 538.55                       | 538.55   |
| Bk. S. Abut. | 160+75.00 | ±16.67 | 538.54                       | 538.54   |

| BEAMS 2 & 5  |           |        |                              |  |
|--------------|-----------|--------|------------------------------|--|
| Location     | Station   | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted for Dead Load Deflection |
| Bk. N. Abut  | 158+75.00 | ±10.00 | 538.31                       | 538.31   |
| ☉ N. Abut.   | 158+76.25 | ±10.00 | 538.32                       | 538.32   |
| A            | 158+86.25 | ±10.00 | 538.38                       | 538.39   |
| B            | 158+96.25 | ±10.00 | 538.43                       | 538.45   |
| C            | 159+06.25 | ±10.00 | 538.48                       | 538.50   |
| D            | 159+16.25 | ±10.00 | 538.52                       | 538.53   |
| E            | 159+26.25 | ±10.00 | 538.56                       | 538.56   |
| ☉ Pier 1     | 159+35.00 | ±10.00 | 538.59                       | 538.59   |
| F            | 159+45.00 | ±10.00 | 538.62                       | 538.64   |
| G            | 159+55.00 | ±10.00 | 538.65                       | 538.69   |
| H            | 159+65.00 | ±10.00 | 538.67                       | 538.73   |
| I            | 159+75.00 | ±10.00 | 538.69                       | 538.75   |
| J            | 159+85.00 | ±10.00 | 538.71                       | 538.76   |
| K            | 159+95.00 | ±10.00 | 538.72                       | 538.76   |
| L            | 160+05.00 | ±10.00 | 538.73                       | 538.74   |
| ☉ Pier 2     | 160+15.00 | ±10.00 | 538.73                       | 538.73   |
| M            | 160+25.00 | ±10.00 | 538.73                       | 538.74   |
| N            | 160+35.00 | ±10.00 | 538.73                       | 538.74   |
| O            | 160+45.00 | ±10.00 | 538.72                       | 538.74   |
| P            | 160+55.00 | ±10.00 | 538.71                       | 538.73   |
| Q            | 160+65.00 | ±10.00 | 538.69                       | 538.71   |
| ☉ S. Abut.   | 160+73.75 | ±10.00 | 538.68                       | 538.68   |
| Bk. S. Abut. | 160+75.00 | ±10.00 | 538.67                       | 538.67   |

| BEAMS 3 & 4  |           |        |                              |  |
|--------------|-----------|--------|------------------------------|--|
| Location     | Station   | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted for Dead Load Deflection |
| Bk. N. Abut  | 158+75.00 | ±3.33  | 538.42                       | 538.42   |
| ☉ N. Abut.   | 158+76.25 | ±3.33  | 538.42                       | 538.42   |
| A            | 158+86.25 | ±3.33  | 538.48                       | 538.49   |
| B            | 158+96.25 | ±3.33  | 538.53                       | 538.55   |
| C            | 159+06.25 | ±3.33  | 538.58                       | 538.60   |
| D            | 159+16.25 | ±3.33  | 538.62                       | 538.64   |
| E            | 159+26.25 | ±3.33  | 538.66                       | 538.67   |
| ☉ Pier 1     | 159+35.00 | ±3.33  | 538.69                       | 538.69   |
| F            | 159+45.00 | ±3.33  | 538.73                       | 538.74   |
| G            | 159+55.00 | ±3.33  | 538.75                       | 538.79   |
| H            | 159+65.00 | ±3.33  | 538.78                       | 538.83   |
| I            | 159+75.00 | ±3.33  | 538.80                       | 538.86   |
| J            | 159+85.00 | ±3.33  | 538.81                       | 538.87   |
| K            | 159+95.00 | ±3.33  | 538.83                       | 538.86   |
| L            | 160+05.00 | ±3.33  | 538.83                       | 538.85   |
| ☉ Pier 2     | 160+15.00 | ±3.33  | 538.84                       | 538.84   |
| M            | 160+25.00 | ±3.33  | 538.84                       | 538.84   |
| N            | 160+35.00 | ±3.33  | 538.83                       | 538.85   |
| O            | 160+45.00 | ±3.33  | 538.83                       | 538.85   |
| P            | 160+55.00 | ±3.33  | 538.81                       | 538.83   |
| Q            | 160+65.00 | ±3.33  | 538.80                       | 538.81   |
| ☉ S. Abut.   | 160+73.75 | ±3.33  | 538.78                       | 538.78   |
| Bk. S. Abut. | 160+75.00 | ±3.33  | 538.78                       | 538.78   |

| CENTERLINE ROADWAY & PROFILE GRADE |           |        |                              |  |
|------------------------------------|-----------|--------|------------------------------|--|
| Location                           | Station   | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted for Dead Load Deflection |
| Bk. N. Abut                        | 158+75.00 | ± 0.00 | 538.47                       | 538.47   |
| ☉ N. Abut.                         | 158+76.25 | ± 0.00 | 538.48                       | 538.48   |
| A                                  | 158+86.25 | ± 0.00 | 538.53                       | 538.54   |
| B                                  | 158+96.25 | ± 0.00 | 538.58                       | 538.60   |
| C                                  | 159+06.25 | ± 0.00 | 538.63                       | 538.65   |
| D                                  | 159+16.25 | ± 0.00 | 538.68                       | 538.69   |
| E                                  | 159+26.25 | ± 0.00 | 538.72                       | 538.72   |
| ☉ Pier 1                           | 159+35.00 | ± 0.00 | 538.75                       | 538.75   |
| F                                  | 159+45.00 | ± 0.00 | 538.78                       | 538.79   |
| G                                  | 159+55.00 | ± 0.00 | 538.81                       | 538.84   |
| H                                  | 159+65.00 | ± 0.00 | 538.83                       | 538.88   |
| I                                  | 159+75.00 | ± 0.00 | 538.85                       | 538.91   |
| J                                  | 159+85.00 | ± 0.00 | 538.87                       | 538.92   |
| K                                  | 159+95.00 | ± 0.00 | 538.88                       | 538.91   |
| L                                  | 160+05.00 | ± 0.00 | 538.89                       | 538.90   |
| ☉ Pier 2                           | 160+15.00 | ± 0.00 | 538.89                       | 538.89   |
| M                                  | 160+25.00 | ± 0.00 | 538.89                       | 538.89   |
| N                                  | 160+35.00 | ± 0.00 | 538.89                       | 538.90   |
| O                                  | 160+45.00 | ± 0.00 | 538.88                       | 538.90   |
| P                                  | 160+55.00 | ± 0.00 | 538.86                       | 538.89   |
| Q                                  | 160+65.00 | ± 0.00 | 538.85                       | 538.86   |
| ☉ S. Abut.                         | 160+73.75 | ± 0.00 | 538.83                       | 538.83   |
| Bk. S. Abut.                       | 160+75.00 | ± 0.00 | 538.83                       | 538.83   |

| STAGE CONSTRUCTION LINE |           |        |                              |  |
|-------------------------|-----------|--------|------------------------------|--|
| Location                | Station   | Offset | Theoretical Grade Elevations | Theoretical Grade Elevations Adjusted for Dead Load Deflection |
| Bk. N. Abut             | 158+75.00 | +1.67  | 538.44                       | 538.44   |
| ☉ N. Abut.              | 158+76.25 | +1.67  | 538.45                       | 538.45   |
| A                       | 158+86.25 | +1.67  | 538.50                       | 538.51   |
| B                       | 158+96.25 | +1.67  | 538.56                       | 538.58   |
| C                       | 159+06.25 | +1.67  | 538.60                       | 538.62   |
| D                       | 159+16.25 | +1.67  | 538.65                       | 538.66   |
| E                       | 159+26.25 | +1.67  | 538.69                       | 538.69   |
| ☉ Pier 1                | 159+35.00 | +1.67  | 538.72                       | 538.72   |
| F                       | 159+45.00 | +1.67  | 538.75                       | 538.76   |
| G                       | 159+55.00 | +1.67  | 538.78                       | 538.82   |
| H                       | 159+65.00 | +1.67  | 538.80                       | 538.85   |
| I                       | 159+75.00 | +1.67  | 538.82                       | 538.88   |
| J                       | 159+85.00 | +1.67  | 538.84                       | 538.89   |
| K                       | 159+95.00 | +1.67  | 538.85                       | 538.89   |
| L                       | 160+05.00 | +1.67  | 538.86                       | 538.87   |
| ☉ Pier 2                | 160+15.00 | +1.67  | 538.86                       | 538.86   |
| M                       | 160+25.00 | +1.67  | 538.86                       | 538.86   |
| N                       | 160+35.00 | +1.67  | 538.86                       | 538.87   |
| O                       | 160+45.00 | +1.67  | 538.85                       | 538.87   |
| P                       | 160+55.00 | +1.67  | 538.84                       | 538.86   |
| Q                       | 160+65.00 | +1.67  | 538.82                       | 538.83   |
| ☉ S. Abut.              | 160+73.75 | +1.67  | 538.80                       | 538.80   |
| Bk. S. Abut.            | 160+75.00 | +1.67  | 538.80                       | 538.80   |

| EAST EDGE OF SHOULDER   |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of S. Appr. Slab | 160+75.00 | -18.00 | 538.52                       |
| A3                      | 160+85.00 | -18.00 | 538.49                       |
| A4                      | 160+95.00 | -18.00 | 538.46                       |
| S. End of S. Appr. Slab | 161+05.00 | -18.00 | 538.43                       |

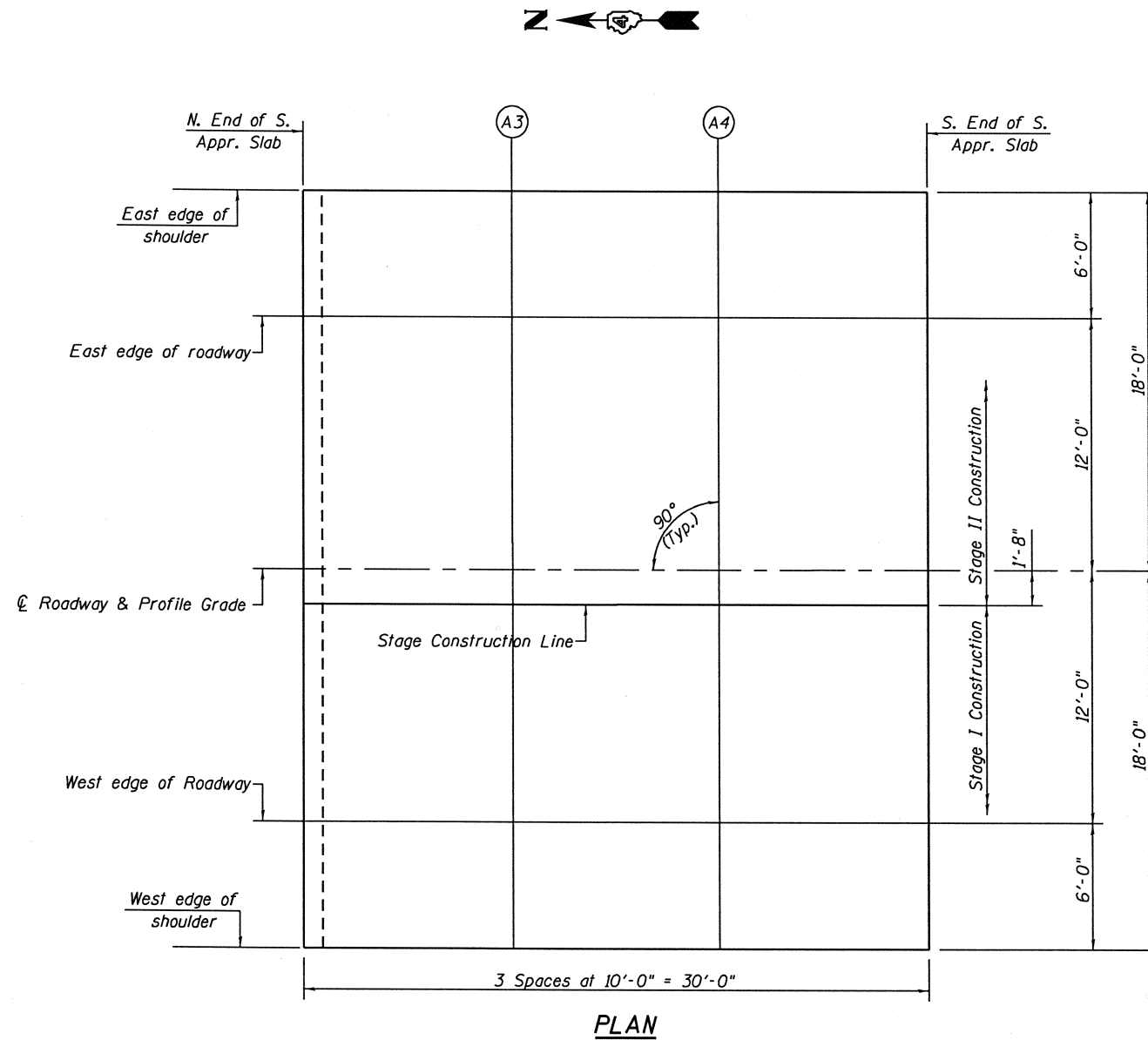
| EAST EDGE OF ROADWAY    |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of S. Appr. Slab | 160+75.00 | -12.00 | 538.64                       |
| A3                      | 160+85.00 | -12.00 | 538.62                       |
| A4                      | 160+95.00 | -12.00 | 538.59                       |
| S. End of S. Appr. Slab | 161+05.00 | -12.00 | 538.56                       |

| CENTERLINE ROADWAY & PROFILE GRADE |           |        |                              |
|------------------------------------|-----------|--------|------------------------------|
| Location                           | Station   | Offset | Theoretical Grade Elevations |
| N. End of S. Appr. Slab            | 160+75.00 | 0.00   | 538.83                       |
| A3                                 | 160+85.00 | 0.00   | 538.80                       |
| A4                                 | 160+95.00 | 0.00   | 538.77                       |
| S. End of S. Appr. Slab            | 161+05.00 | 0.00   | 538.74                       |

| STAGE CONSTRUCTION LINE |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of S. Appr. Slab | 160+75.00 | 1.67   | 538.80                       |
| A3                      | 160+85.00 | 1.67   | 538.78                       |
| A4                      | 160+95.00 | 1.67   | 538.75                       |
| S. End of S. Appr. Slab | 161+05.00 | 1.67   | 538.72                       |

| WEST EDGE OF ROADWAY    |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of S. Appr. Slab | 160+75.00 | 12.00  | 538.64                       |
| A3                      | 160+85.00 | 12.00  | 538.62                       |
| A4                      | 160+95.00 | 12.00  | 538.59                       |
| S. End of S. Appr. Slab | 161+05.00 | 12.00  | 538.56                       |

| WEST EDGE OF SHOULDER   |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of S. Appr. Slab | 160+75.00 | 18.00  | 538.52                       |
| A3                      | 160+85.00 | 18.00  | 538.49                       |
| A4                      | 160+95.00 | 18.00  | 538.46                       |
| S. End of S. Appr. Slab | 161+05.00 | 18.00  | 538.43                       |



PLAN

| EAST EDGE OF SHOULDER   |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of N. Appr. Slab | 158+45.00 | -18.00 | 537.96                       |
| A1                      | 158+55.00 | -18.00 | 538.03                       |
| A2                      | 158+65.00 | -18.00 | 538.10                       |
| S. End of N. Appr. Slab | 158+75.00 | -18.00 | 538.16                       |

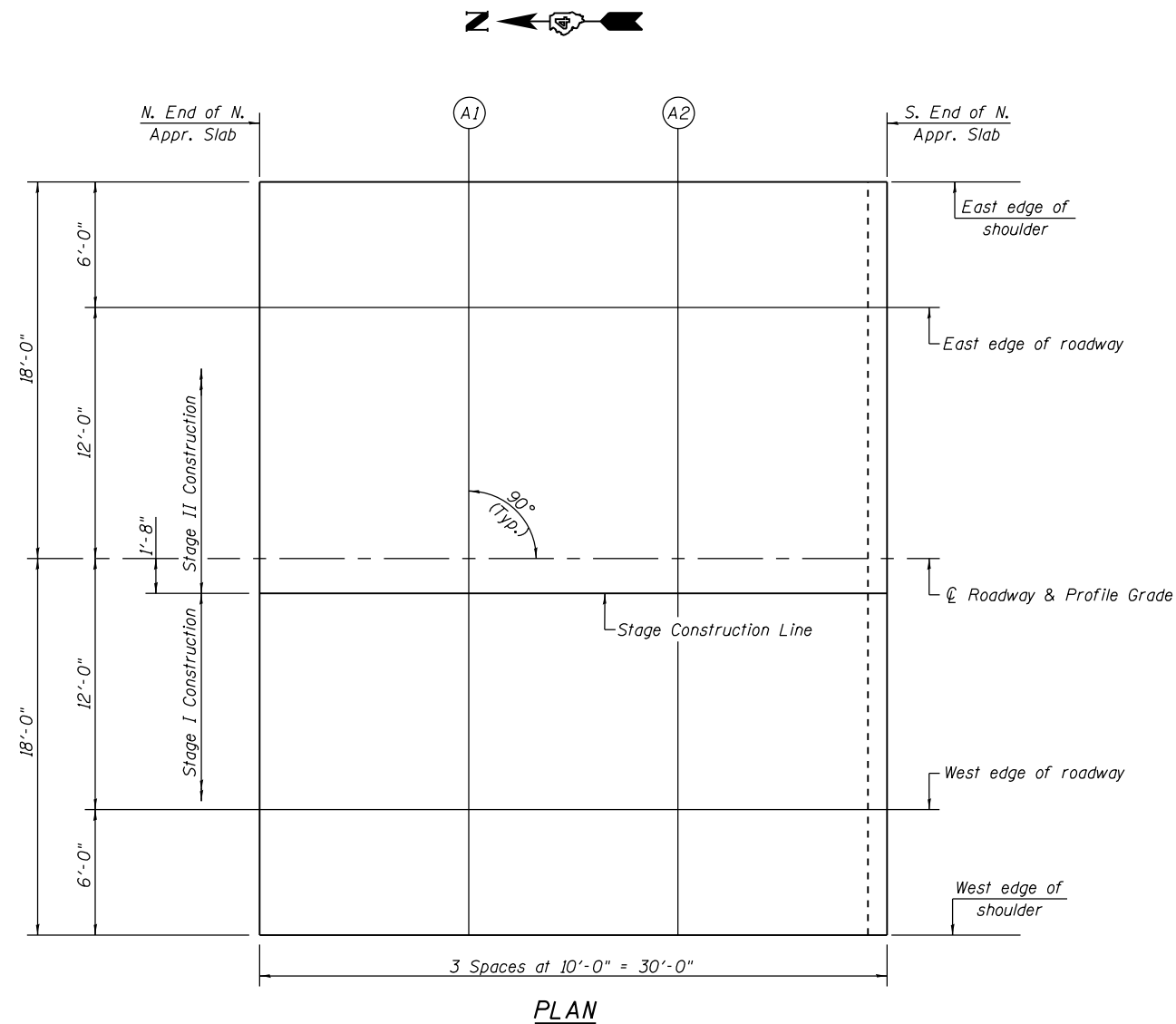
| EAST EDGE OF ROADWAY    |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of N. Appr. Slab | 158+45.00 | -12.00 | 538.09                       |
| A1                      | 158+55.00 | -12.00 | 538.16                       |
| A2                      | 158+65.00 | -12.00 | 538.22                       |
| S. End of N. Appr. Slab | 158+75.00 | -12.00 | 538.28                       |

| CENTERLINE ROADWAY & PROFILE GRADE |           |        |                              |
|------------------------------------|-----------|--------|------------------------------|
| Location                           | Station   | Offset | Theoretical Grade Elevations |
| N. End of N. Appr. Slab            | 158+45.00 | 0.00   | 538.27                       |
| A1                                 | 158+55.00 | 0.00   | 538.34                       |
| A2                                 | 158+65.00 | 0.00   | 538.41                       |
| S. End of N. Appr. Slab            | 158+75.00 | 0.00   | 538.47                       |

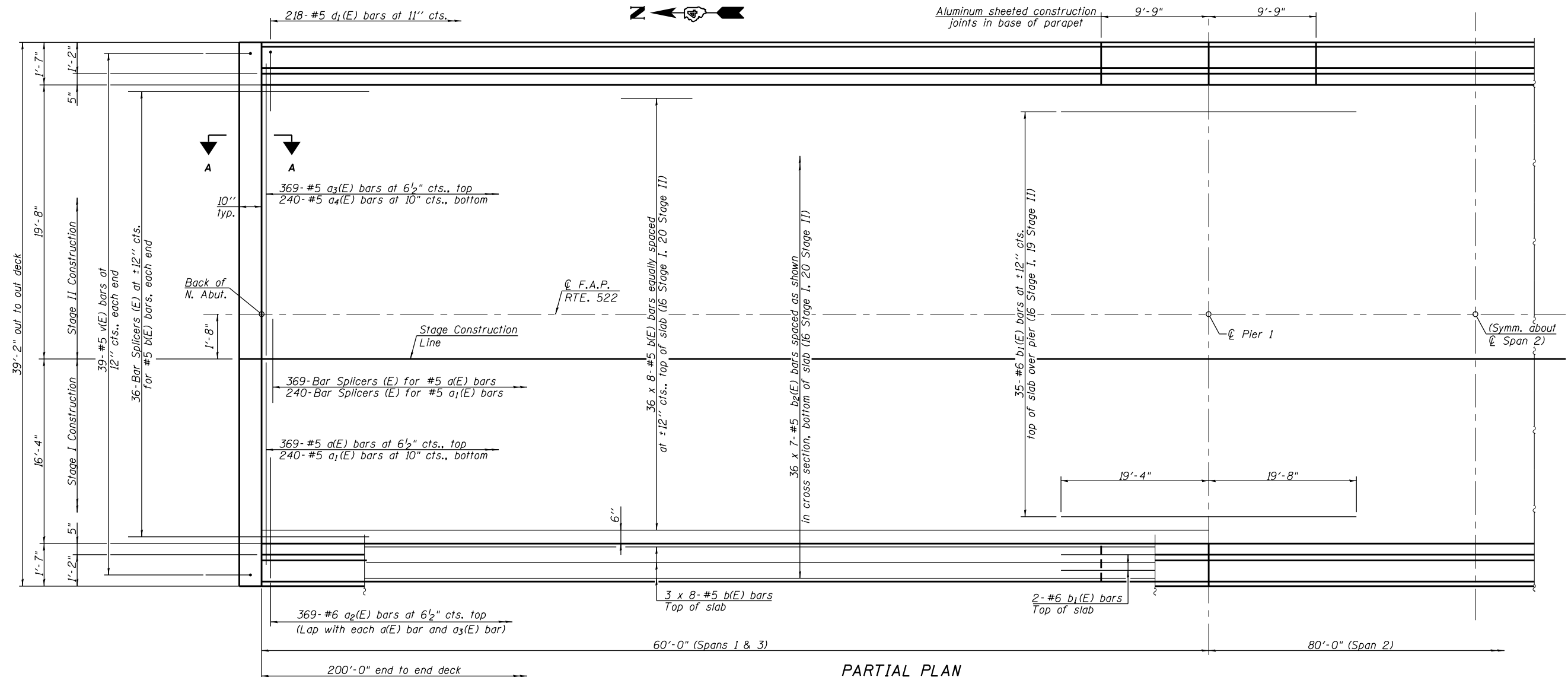
| STAGE CONSTRUCTION LINE |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of N. Appr. Slab | 158+45.00 | 1.67   | 538.25                       |
| A1                      | 158+55.00 | 1.67   | 538.32                       |
| A2                      | 158+65.00 | 1.67   | 538.38                       |
| S. End of N. Appr. Slab | 158+75.00 | 1.67   | 538.44                       |

| WEST EDGE OF ROADWAY    |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of N. Appr. Slab | 158+45.00 | 12.00  | 538.09                       |
| A1                      | 158+55.00 | 12.00  | 538.16                       |
| A2                      | 158+65.00 | 12.00  | 538.22                       |
| S. End of N. Appr. Slab | 158+75.00 | 12.00  | 538.28                       |

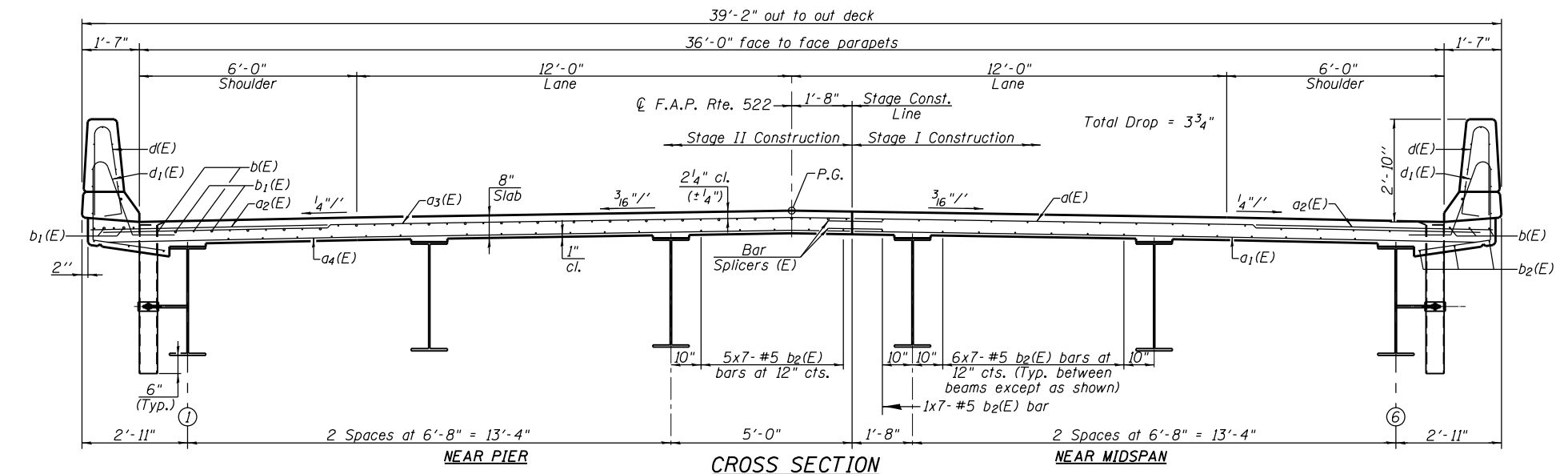
| WEST EDGE OF SHOULDER   |           |        |                              |
|-------------------------|-----------|--------|------------------------------|
| Location                | Station   | Offset | Theoretical Grade Elevations |
| N. End of N. Appr. Slab | 158+45.00 | 18.00  | 537.96                       |
| A1                      | 158+55.00 | 18.00  | 538.03                       |
| A2                      | 158+65.00 | 18.00  | 538.10                       |
| S. End of N. Appr. Slab | 158+75.00 | 18.00  | 538.16                       |



PLAN



**PARTIAL PLAN**



**CROSS SECTION**  
(Looking South)

**MIN. BAR LAP**  
#5 = 2'-6"

Notes:  
See Sheet 11 of 26 for superstructure details and Bill of Material.  
Bars indicated thus 36 x 8-#5 etc. indicates 36 lines of bars with 8 lengths per line.  
See Sheet 11 of 26 for parapet reinforcement.  
See Sheet 23 of 26 for bar splicer details.  
See Sheet 12 of 26 for Section A-A and diaphragm details.

P11-2-0  
7-1-10

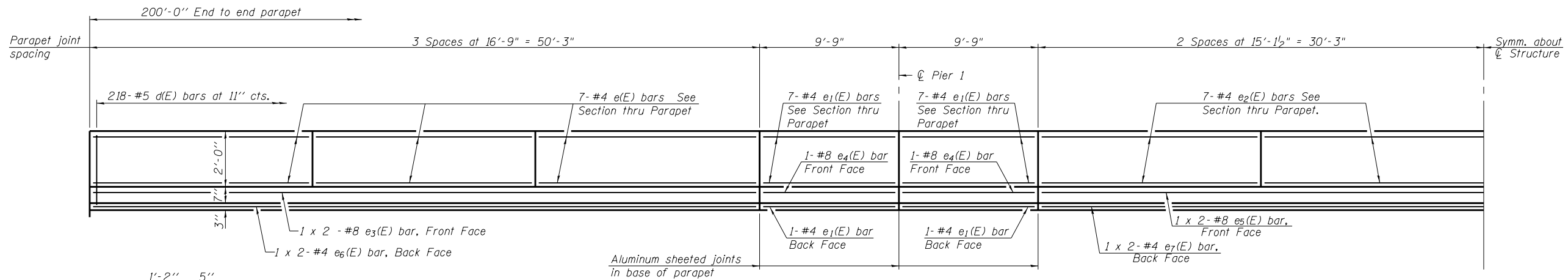
|             |             |            |           |
|-------------|-------------|------------|-----------|
| FILE NAME = | USER NAME = | DESIGNED - | REVISED - |
|             |             | CHECKED -  | REVISED - |
|             |             | DRAWN -    | REVISED - |
|             |             | CHECKED -  | REVISED - |



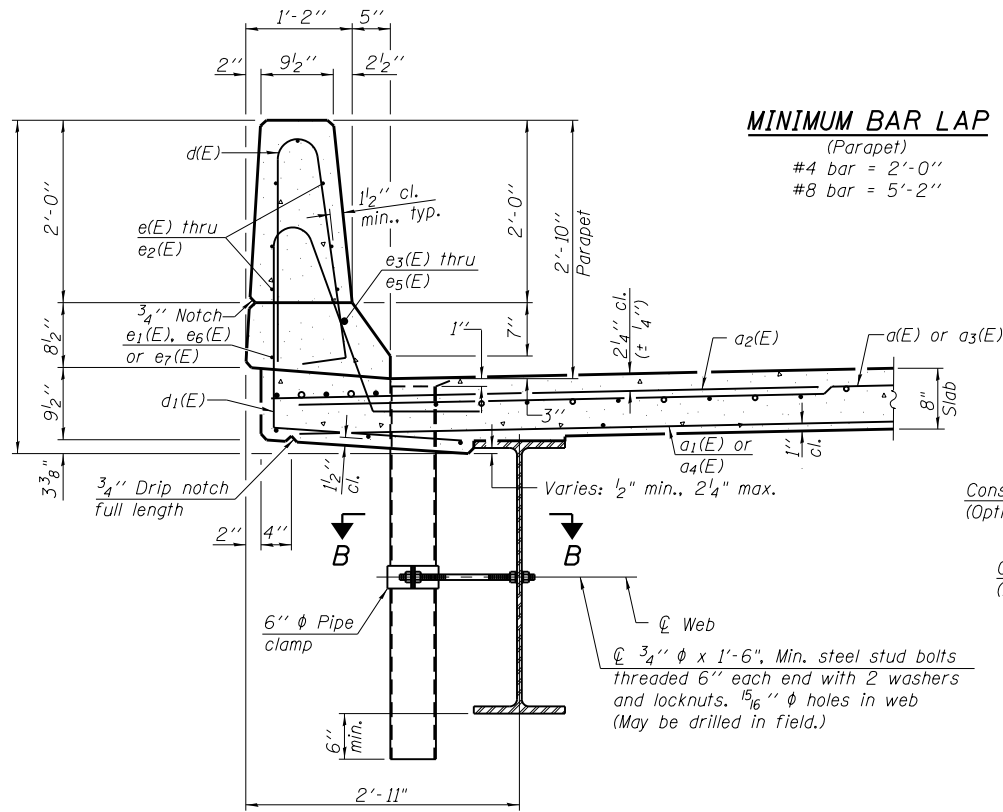
**Allen Henderson & Associates, Inc.**  
Civil and Structural Engineers Springfield, IL.  
62703 Phone: (217)544-8033 IL Design Firm  
No. 184-001907

**SUPERSTRUCTURE**  
**STRUCTURE NO. 036-0073**  
SHEET NO. 10 OF 26 SHEETS

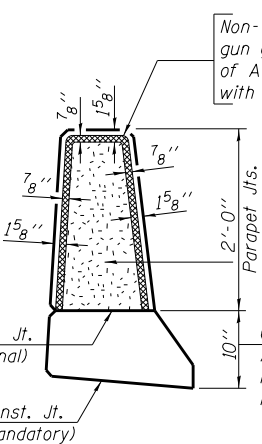
| F.A.P. RTE.        | SECTION | COUNTY    | TOTAL SHEETS              | SHEET NO. |
|--------------------|---------|-----------|---------------------------|-----------|
| 522                | (14)B/R | HENDERSON | 73                        | 33        |
| CONTRACT NO. 68899 |         |           | ILLINOIS FED. AID PROJECT |           |



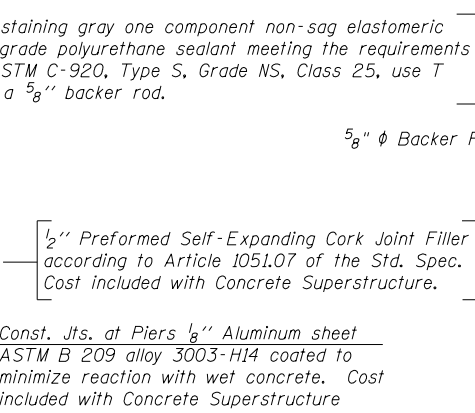
**INSIDE ELEVATION OF PARAPET**



**SECTION THRU PARAPET**

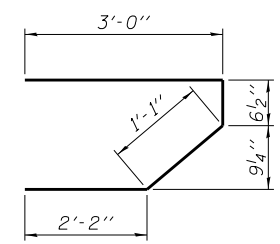


**MINIMUM BAR LAP**  
(Parapet)  
#4 bar = 2'-0"  
#8 bar = 5'-2"

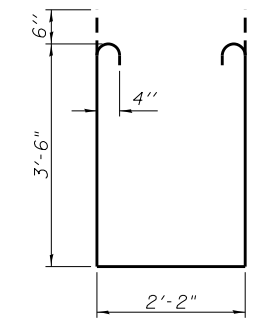


**PARAPET JOINT DETAILS**

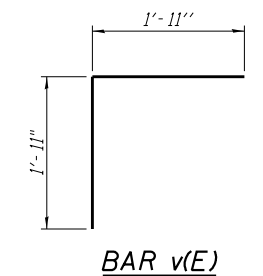
Notes:  
Floor drains need not be painted.  
Fiberglass pipe shall conform to ASTM D 2996, with short-time rupture strength hoop tensile stress of 30,000 p.s.i. minimum.  
Galvanize clamping device according to AASHTO M232. Cost of clamping device and inserts is included with Floor Drains.



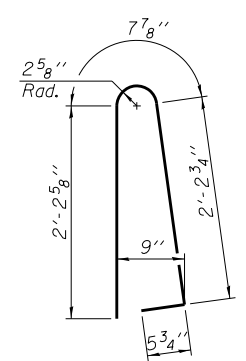
**BAR s(E)**



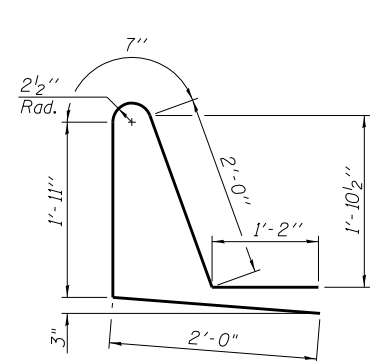
**BAR s1(E)**



**BAR v(E)**



**BAR d(E)**

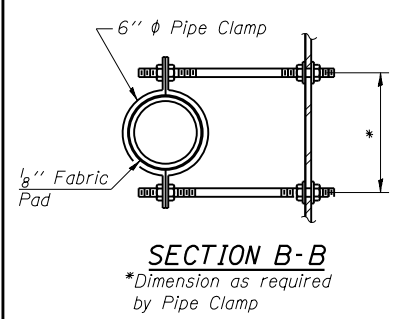


**BAR d1(E)**

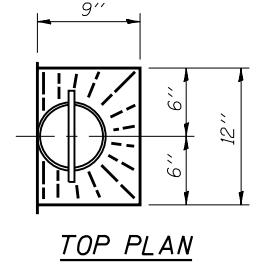
**SUPERSTRUCTURE BILL OF MATERIAL**

| Bar                              | No. | Size     | Length  | Shape |
|----------------------------------|-----|----------|---------|-------|
| d(E)                             | 369 | #5       | 17'-3"  | U     |
| a1(E)                            | 240 | #5       | 16'-11" | U     |
| a2(E)                            | 738 | #6       | 6'-6"   | U     |
| a3(E)                            | 369 | #5       | 20'-9"  | U     |
| a4(E)                            | 240 | #5       | 20'-5"  | U     |
| b(E)                             | 336 | #5       | 27'-6"  | U     |
| b1(E)                            | 78  | #6       | 39'-0"  | U     |
| b2(E)                            | 252 | #5       | 31'-0"  | U     |
| d(E)                             | 436 | #5       | 5'-7"   | U     |
| d1(E)                            | 436 | #5       | 7'-8"   | U     |
| e(E)                             | 84  | #4       | 16'-5"  | U     |
| e1(E)                            | 64  | #4       | 9'-5"   | U     |
| e2(E)                            | 56  | #4       | 14'-9"  | U     |
| e3(E)                            | 8   | #8       | 27'-6"  | U     |
| e4(E)                            | 8   | #8       | 9'-5"   | U     |
| e5(E)                            | 4   | #8       | 32'-10" | U     |
| e6(E)                            | 8   | #4       | 26'-0"  | U     |
| e7(E)                            | 4   | #4       | 31'-3"  | U     |
| m(E)                             | 10  | #6       | 16'-0"  | U     |
| m1(E)                            | 24  | #6       | 10'-0"  | U     |
| m2(E)                            | 10  | #6       | 6'-4"   | U     |
| m3(E)                            | 4   | #6       | 2'-7"   | U     |
| m4(E)                            | 10  | #6       | 19'-4"  | U     |
| s(E)                             | 84  | #5       | 6'-10"  | U     |
| s1(E)                            | 72  | #4       | 10'-2"  | U     |
| v(E)                             | 78  | #5       | 3'-10"  | U     |
| Reinforcement Bars, Epoxy Coated |     | Pound    |         | 65190 |
| Concrete Superstructure          |     | Cu. Yds. |         | 270.0 |

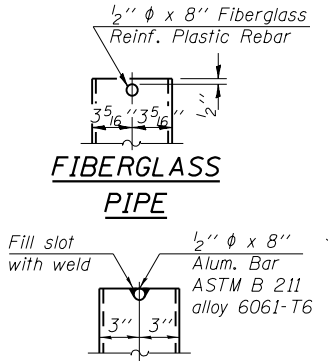
Bars indicated thus 1 x 2-#4 etc. indicates 1 line of bars with 2 lengths per line.



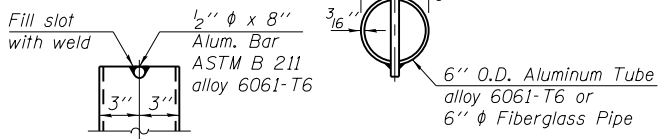
**SECTION B-B**  
\*Dimension as required by Pipe Clamp



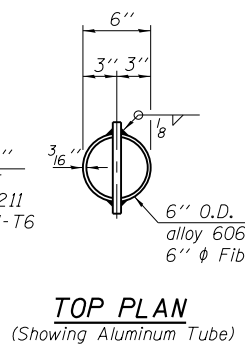
**TOP PLAN**



**FIBERGLASS PIPE**



**ALUMINUM TUBE**



**TOP PLAN**  
(Showing Aluminum Tube)

S-I-D

7-1-10

|             |             |            |           |
|-------------|-------------|------------|-----------|
| FILE NAME = | USER NAME = | DESIGNED - | REVISED - |
|             |             | CHECKED -  | REVISED - |
|             |             | DRAWN -    | REVISED - |
|             |             | CHECKED -  | REVISED - |

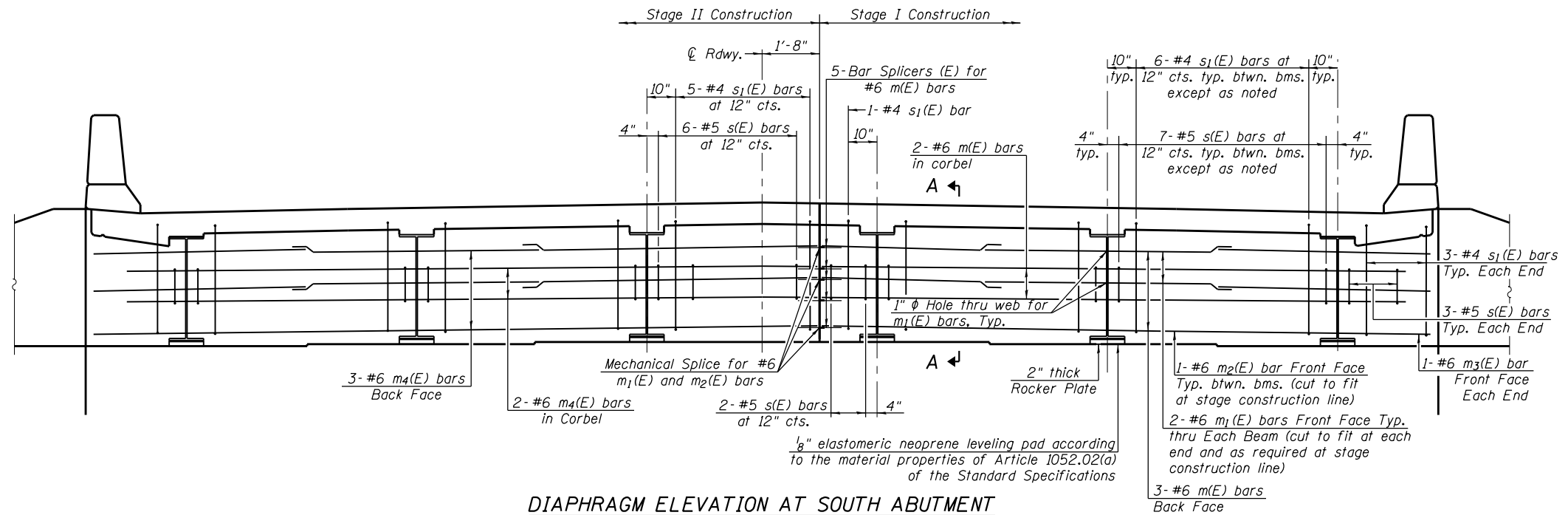


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62703 Phone: (217)544-8033 IL Design Firm  
No. 184-001907

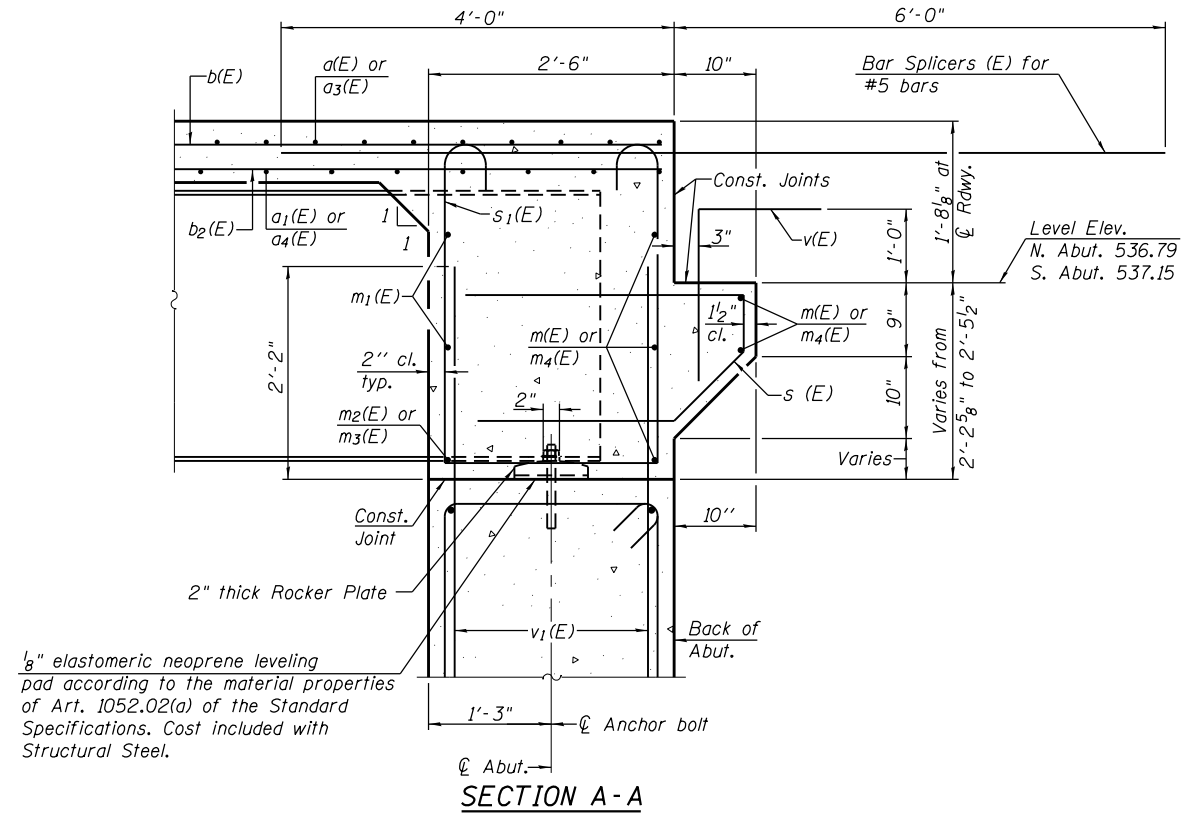
**SUPERSTRUCTURE DETAILS**  
**STRUCTURE NO. 036-0073**

SHEET NO. 11 OF 26 SHEETS

|                           |                 |                  |                 |                    |
|---------------------------|-----------------|------------------|-----------------|--------------------|
| F.A.P. RTE. 522           | SECTION (14B)BR | COUNTY HENDERSON | TOTAL SHEETS 73 | SHEET NO. 34       |
|                           |                 |                  |                 | CONTRACT NO. 68899 |
| ILLINOIS FED. AID PROJECT |                 |                  |                 |                    |




**DIAPHRAGM ELEVATION AT SOUTH ABUTMENT**  
 (Looking South)  
 (North Abutment similar by rotation of 180°)



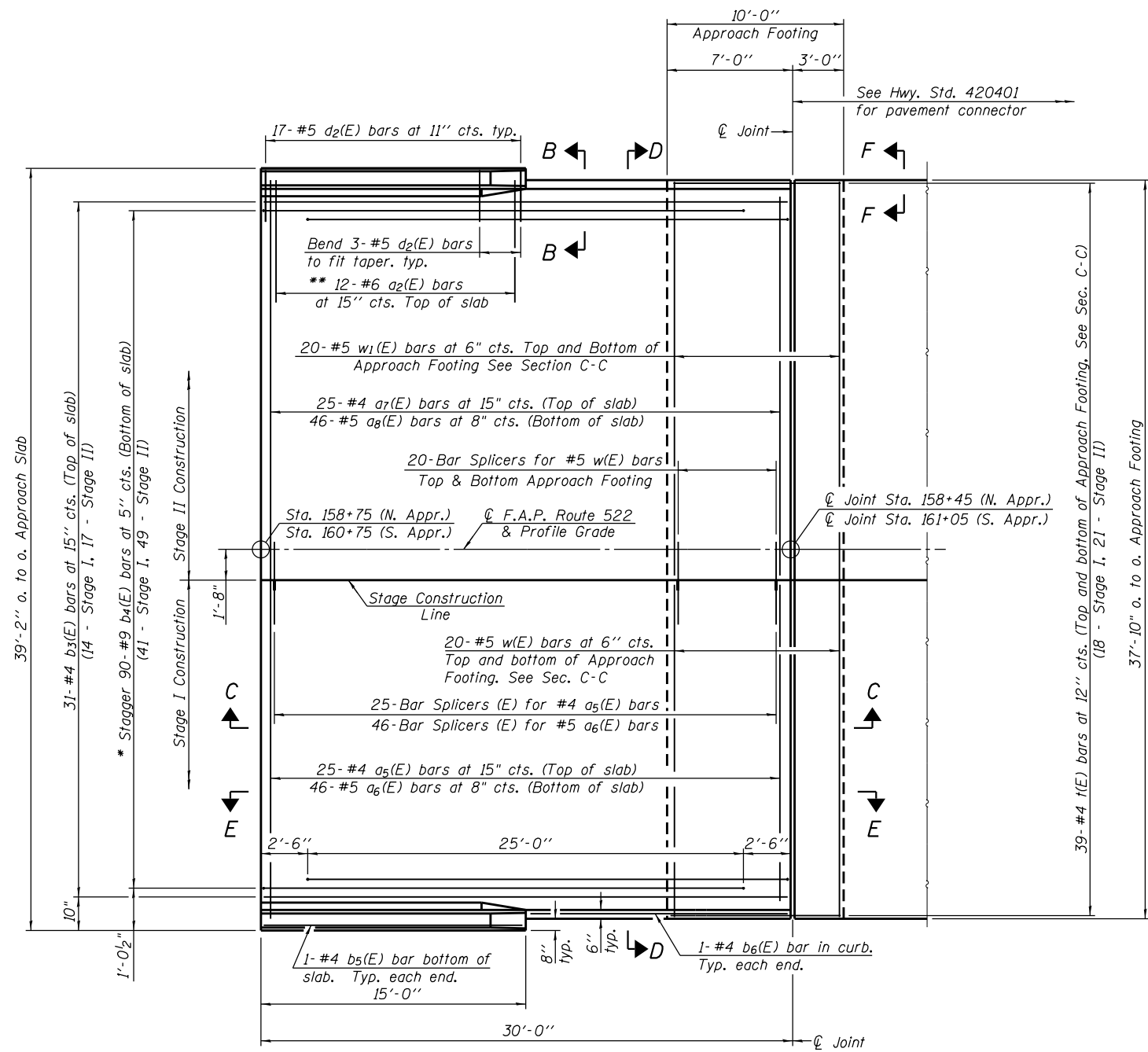
$\frac{1}{8}$ " elastomeric neoprene leveling pad according to the material properties of Art. 1052.02(a) of the Standard Specifications. Cost included with Structural Steel.

Notes:  
 Reinforcement bars in diaphragm are billed with superstructure on sheet 11 of 26.  
 Concrete in diaphragm is included with Concrete Superstructure on sheet 11 of 26.  
 For details of bars s(E) & s<sub>1</sub>(E) see sheet 11 of 26.  
 The s(E) and s<sub>1</sub>(E) bars shall be placed parallel to the beams. Spacing for these bars shall be at right angles to the beams.

**MIN. BAR LAP**  
 #6 bar = 3'-4"

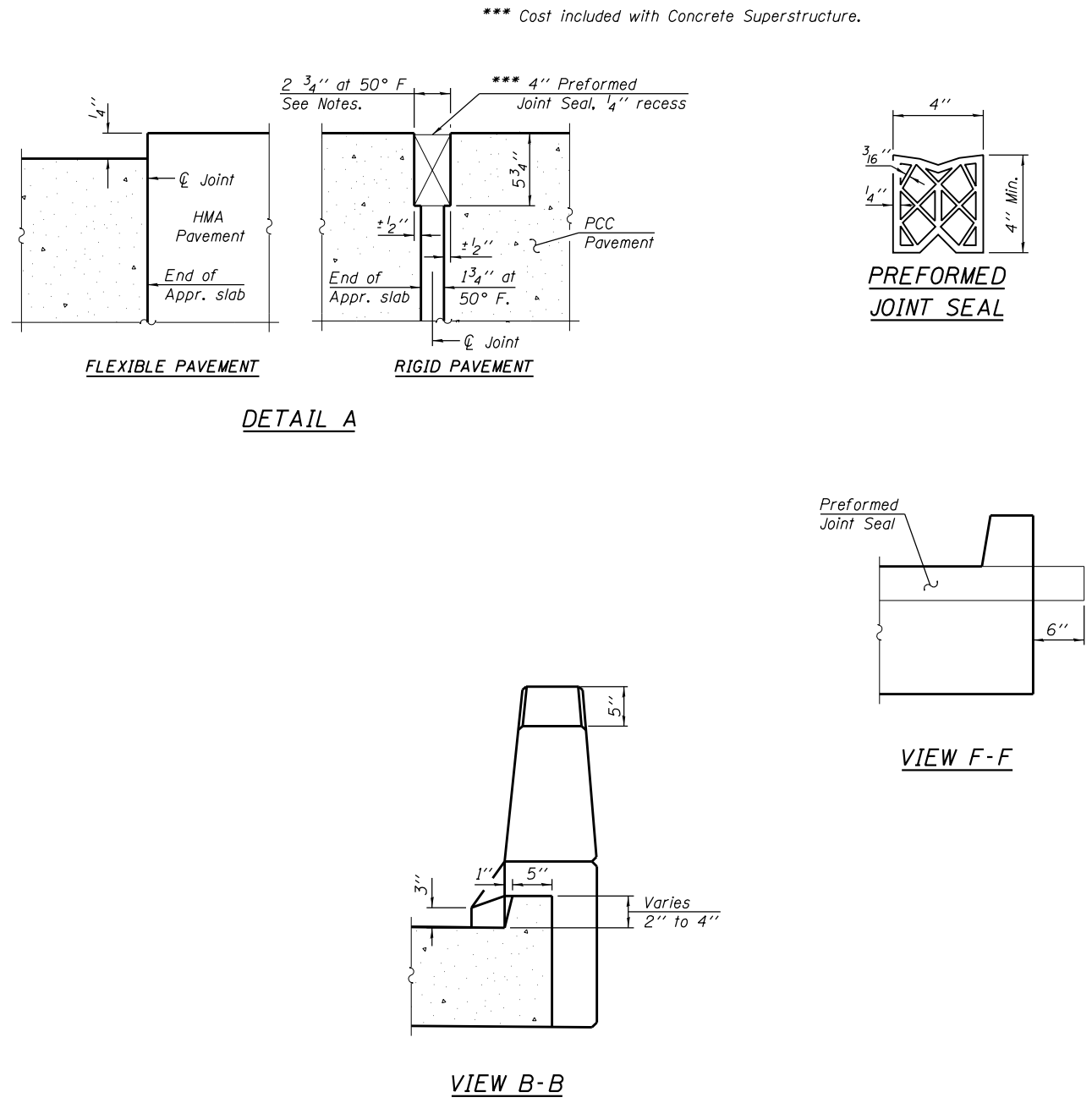
|             |              |            |           |  |  |  |  |                           |         |           |              |           |
|-------------|--------------|------------|-----------|--|--|--|--|---------------------------|---------|-----------|--------------|-----------|
| FILE NAME = | USER NAME =  | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL.<br>62703 Phone: (217)544-8033 IL. Design Firm<br>No. 184-001907 | <b>INTEGRAL ABUTMENT DIAPHRAGM DETAILS</b> |  |  | F.A.P. RTE.               | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|             | PLOT SCALE = | CHECKED -  | REVISED - |  | <b>STRUCTURE NO. 036-0073</b>              |  |  | 522                       | (14B)BR | HENDERSON | 73           | 35        |
|             | PLOT DATE =  | DRAWN -    | REVISED - |  | SHEET NO. 12 OF 26 SHEETS                  |  |  | <b>CONTRACT NO. 68899</b> |         |           |              |           |
|             |              | CHECKED -  | REVISED - |  |  |  |  | ILLINOIS FED. AID PROJECT |         |           |              |           |

Notes:  
 See sheet 14 of 26 for Sections C-C & D-D and View E-E.  
 a<sub>1</sub>(E) and a<sub>1</sub>(E) bar spacings measured along  $\bar{C}$  Rdwy.  
 The joint opening shall be determined per Article 520.04 except that on jointless structures, the distance described as the bridge length between the nearest fixed bearings each way from the joint shall be taken as half the bridge length plus the approach slab length. The minimum dimension shall be 1 1/2' for installation purposes.



**PLAN**  
 (South Approach Shown)

\* Tilt #9 b<sub>4</sub>(E) bars as required to maintain clearance.  
 \*\* Lap with a<sub>5</sub>(E) and a<sub>7</sub>(E) bars, typ. ea. parapet.




**DETAIL A**

**VIEW B-B**

**VIEW F-F**

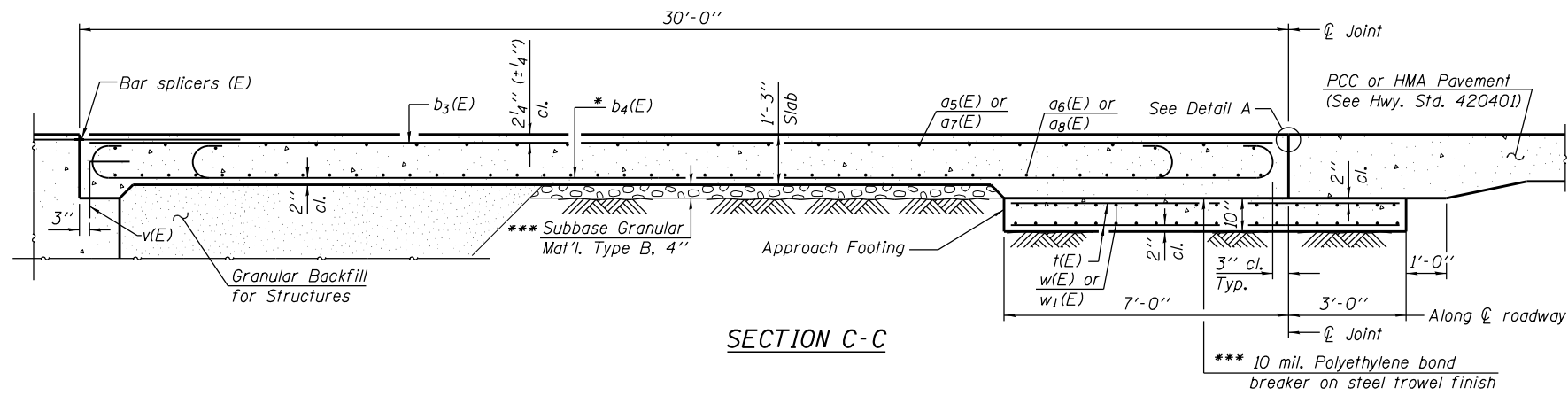
BA-0 12-12-12

(Sheet 1 of 2)

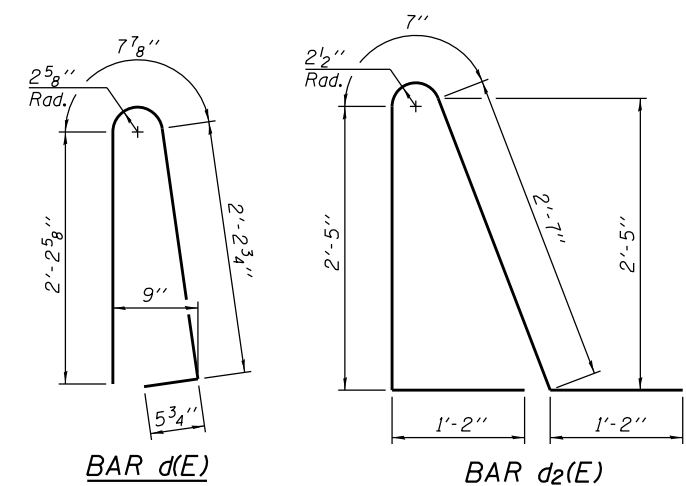
|             |              |            |           |   |                                     |                           |             |           |        |              |           |
|-------------|--------------|------------|-----------|---|-------------------------------------|---------------------------|-------------|-----------|--------|--------------|-----------|
| FILE NAME = | USER NAME =  | DESIGNED - | REVISED - |  <b>Allen Henderson &amp; Associates, Inc.</b><br>Civil and Structural Engineers Springfield, IL.<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>BRIDGE APPROACH SLAB DETAILS</b> |                           | F.A.P. RTE. | SECTION   | COUNTY | TOTAL SHEETS | SHEET NO. |
|             | PLOT SCALE = | CHECKED -  | REVISED - |   |                                     | 522                       | (14B)BR     | HENDERSON | 73     | 36           |           |
|             | PLOT DATE =  | DRAWN -    | REVISED - |   |                                     | CONTRACT NO. 68899        |             |           |        |              |           |
|             |              | CHECKED -  | REVISED - |   |                                     | ILLINOIS FED. AID PROJECT |             |           |        |              |           |

SHEET NO. 13 OF 26 SHEETS

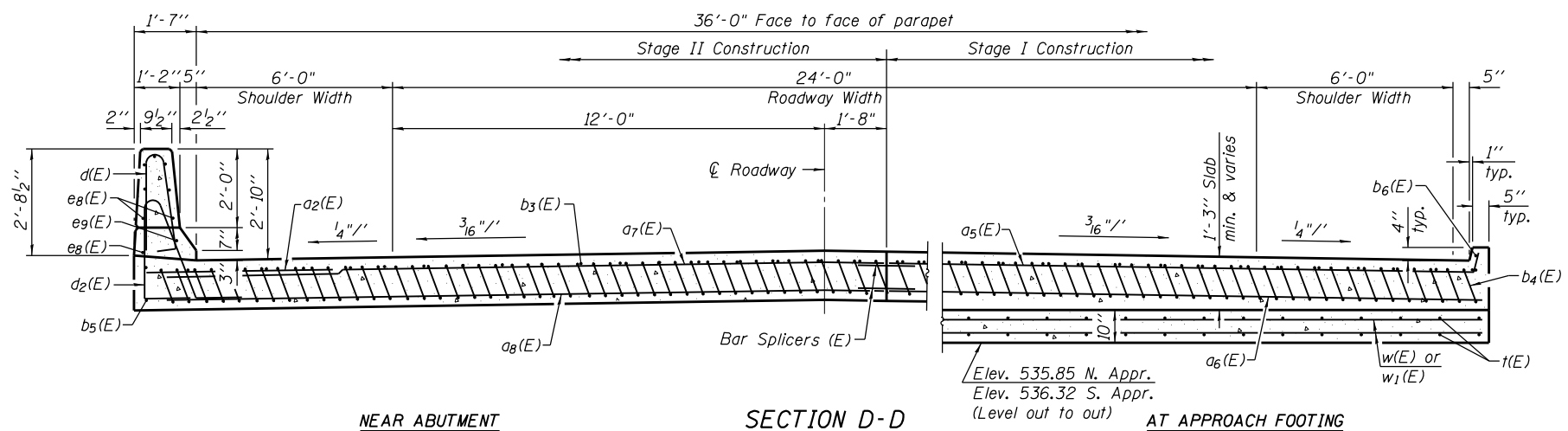




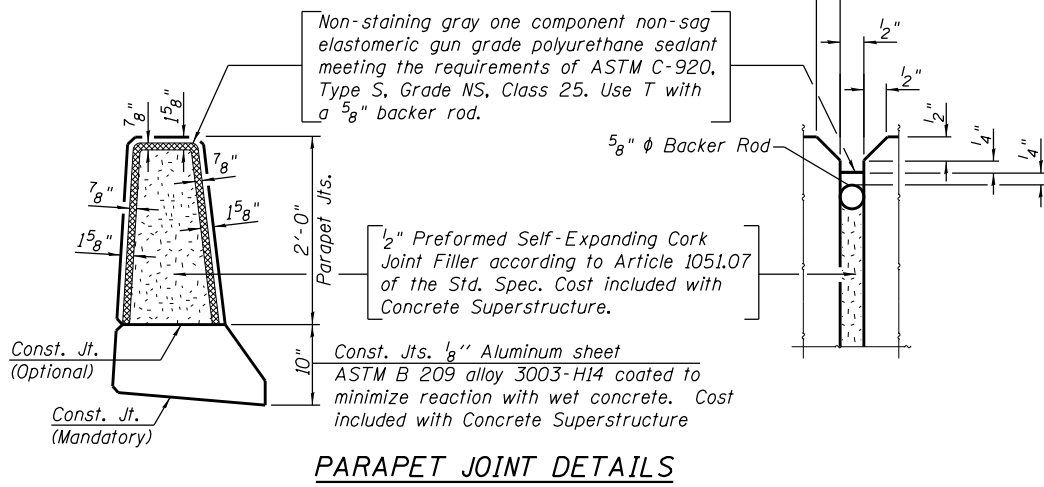
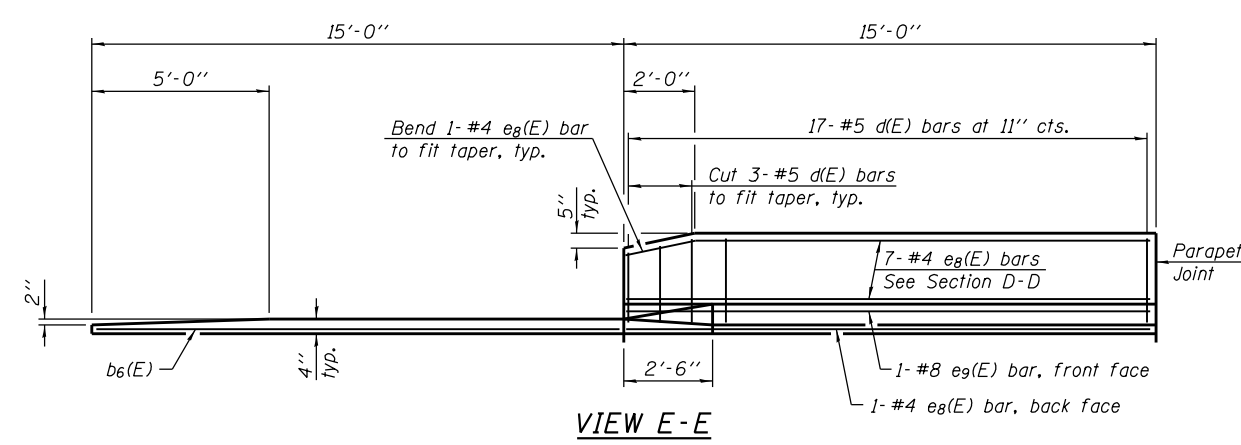
**Notes:**  
 See sheet 13 of 26 for Detail A and View B-B.  
 Approach slab and parapet concrete shall be paid for as Concrete Superstructure.  
 Approach footing concrete shall be paid for as Concrete Structures.  
 Reinforcement shall be paid for as Reinforcement Bars, Epoxy Coated.  
 For v(E) bar details, see sheet 11 of 26.  
 The approach footing maximum applied service bearing pressure ( $Q_{max}$ ) = 2.0 ksf.  
 For bar splicer details, see sheet 23 of 26.  
 Cost of excavation for approach footing included with Concrete Structures.  
 For Granular Backfill for Structures and drainage treatment details, see sheet 2 of 26.  
 For additional parapet details, see sheet 11 of 26.



\* Tilt #9  $b_4(E)$  bars as required to maintain clearance.  
 \*\*\* Cost included with Concrete Superstructure.

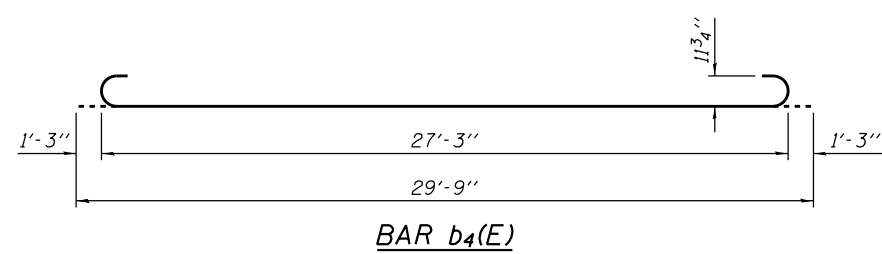
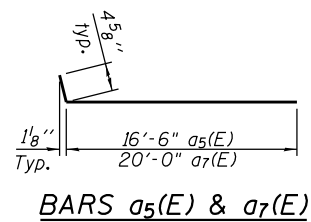


**NEAR ABUTMENT** **SECTION D-D** **AT APPROACH FOOTING**  
 (See Plan for dimensions not shown)



**TWO APPROACHES**  
**BILL OF MATERIAL**

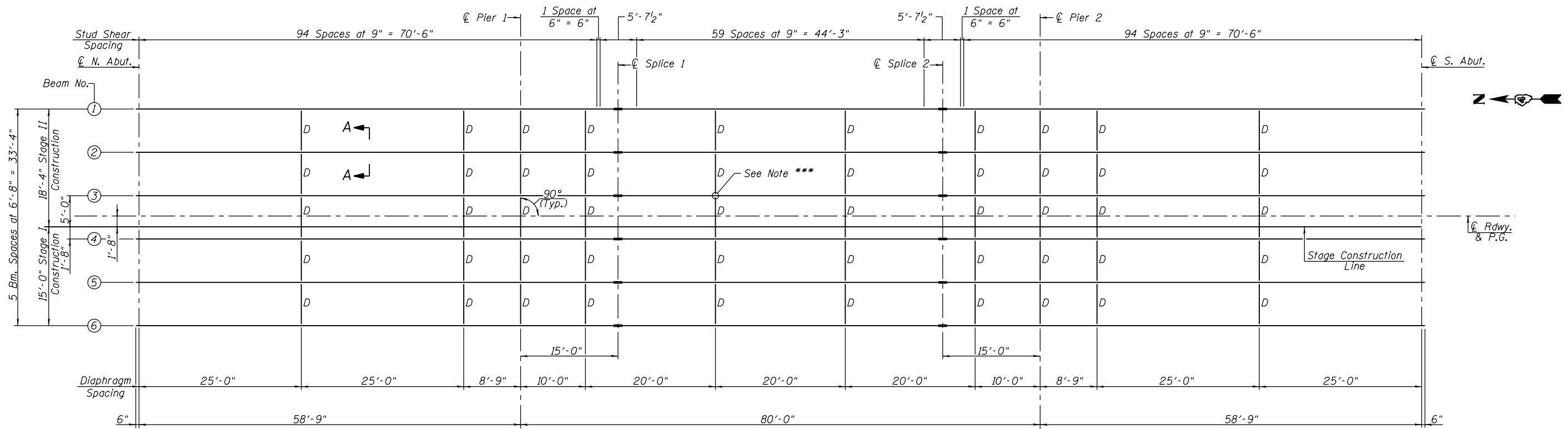
| Bar                              | No. | Size | Length  | Shape   |       |
|----------------------------------|-----|------|---------|---------|-------|
| a <sub>2</sub> (E)               | 48  | #6   | 6'-6"   | —       |       |
| a <sub>5</sub> (E)               | 50  | #4   | 16'-11" | —       |       |
| a <sub>6</sub> (E)               | 92  | #5   | 18'-5"  | —       |       |
| a <sub>7</sub> (E)               | 50  | #4   | 20'-5"  | —       |       |
| a <sub>8</sub> (E)               | 92  | #5   | 20'-3"  | —       |       |
| b <sub>3</sub> (E)               | 62  | #4   | 29'-8"  | —       |       |
| b <sub>4</sub> (E)               | 180 | #9   | 29'-9"  | —       |       |
| b <sub>5</sub> (E)               | 4   | #4   | 14'-8"  | —       |       |
| b <sub>6</sub> (E)               | 4   | #4   | 14'-8"  | —       |       |
| d(E)                             | 68  | #5   | 5'-7"   | —       |       |
| d <sub>2</sub> (E)               | 68  | #5   | 7'-11"  | —       |       |
| e <sub>8</sub> (E)               | 32  | #4   | 14'-8"  | —       |       |
| e <sub>9</sub> (E)               | 4   | #8   | 14'-8"  | —       |       |
| t(E)                             | 156 | #4   | 9'-8"   | —       |       |
| w(E)                             | 80  | #5   | 16'-9"  | —       |       |
| w <sub>1</sub> (E)               | 80  | #5   | 20'-3"  | —       |       |
| Concrete Superstructure          |     |      |         | Cu. Yd. | 118.3 |
| Concrete Structures              |     |      |         | Cu. Yd. | 23.4  |
| Reinforcement Bars, Epoxy Coated |     |      |         | Pound   | 30460 |



BA-0

12-12-12

(Sheet 2 of 2)



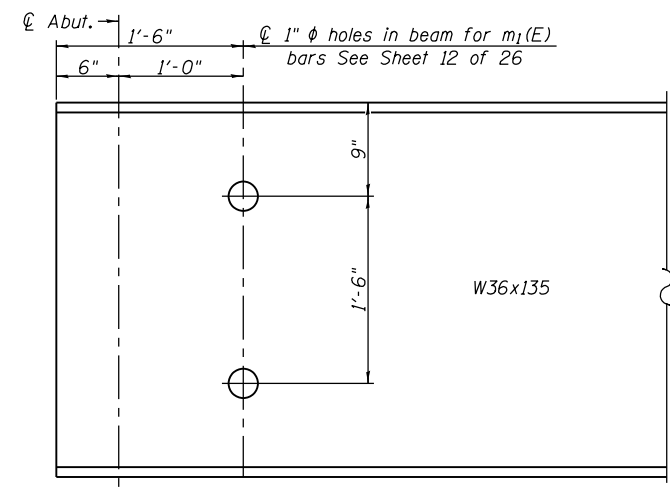
**FRAMING PLAN**

All beams are W36x135, AASHTO M270, Grade 50W, NTR

**\*\*\*\* TOP OF BEAM ELEVATIONS**

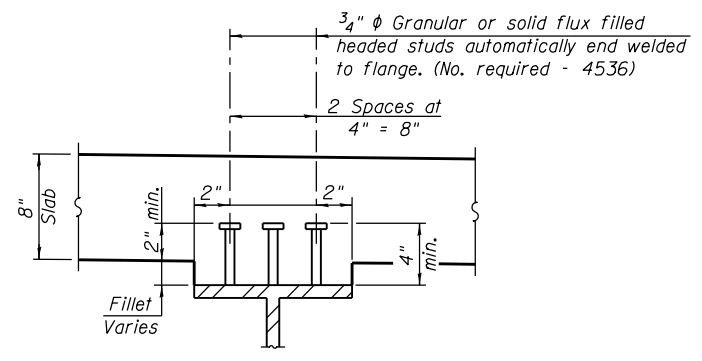
| LOCATION | ☐ N Abut. | ☐ Pier 1 | ☐ Splice 1 | ☐ Splice 2 | ☐ Pier 2 | ☐ S. Abut. |
|----------|-----------|----------|------------|------------|----------|------------|
| Beam 1   | 537.47    | 537.67   | 537.72     | 537.82     | 537.82   | 537.83     |
| Beam 2   | 537.60    | 537.80   | 537.85     | 537.94     | 537.94   | 537.96     |
| Beam 3   | 537.71    | 537.91   | 537.95     | 538.05     | 538.05   | 538.07     |
| Beam 4   | 537.71    | 537.91   | 537.95     | 538.05     | 538.05   | 538.07     |
| Beam 5   | 537.60    | 537.80   | 537.85     | 537.94     | 537.94   | 537.96     |
| Beam 6   | 537.47    | 537.67   | 537.72     | 537.82     | 537.82   | 537.83     |

\*\*\*\* For fabrication only

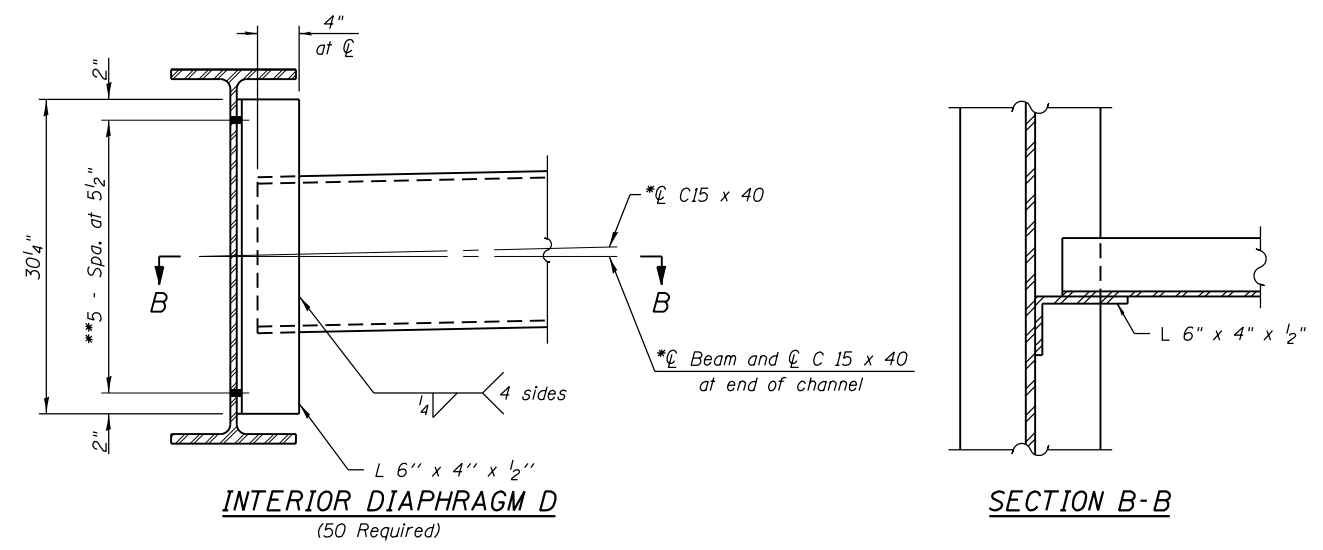


TYP. END OF BEAM ELEVATION

Note: Load carrying components designated "NTR" shall conform to the Impact Testing Requirement, Zone 2.



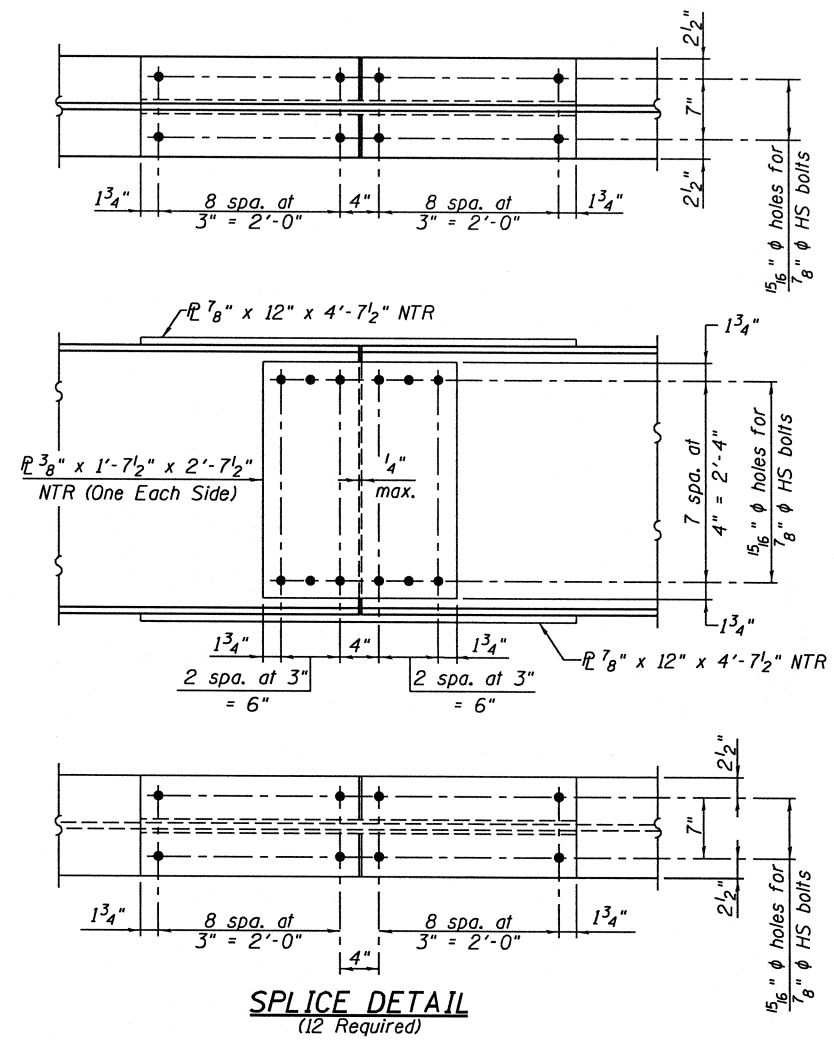
SECTION A-A



INTERIOR DIAPHRAGM D  
(50 Required)

SECTION B-B

Notes: All cross frames or diaphragms shall be installed as steel is erected and secured with erection pins and bolts except as otherwise noted. Individual cross frames or diaphragms at supports may be temporarily disconnected to install bearing anchor rods.  
 Two hardened washers required for each set of oversized holes.  
 \*Alternate channels C15x50 are permitted to facilitate material acquisition. Calculated weight of structural steel is based on the lighter section.  
 The alternate, if utilized, shall be provided at no additional cost to the Department.  
 \*\*3/4" φ HS bolts, 1 5/16" φ holes  
 \*\*\* Use 1 3/16" x 1 7/8" vertical slotted holes in connection angles 6" x 4" x 1/2" at the West side of Beam 3 only. Provide 5/16" plate washers for slotted holes. The bolts for slotted holes in angles at Beam 3 shall only be finger tightened prior to deck pour for Stage II Construction. The bolts shall be fully tightened after completion of the deck pour for Stage II Construction.  
 Position slots so bolts start at one end with no concrete load and finish near the opposite end under deck load.



All splice plates shall be AASHTO M 270, Grade 50W, NTR  
Load carrying components designated "NTR" shall conform to the  
Impact Testing Requirement, Zone 2.

| INTERIOR GIRDER MOMENT TABLE        |                    |                        |             |           |
|-------------------------------------|--------------------|------------------------|-------------|-----------|
|                                     |                    | 0.4 Sp. 1<br>0.6 Sp. 3 | Pier 1 or 2 | 0.5 Sp. 2 |
| $I_s$                               | (in <sup>4</sup> ) | 7800                   | 7800        | 7800      |
| $I_c(n)$                            | (in <sup>4</sup> ) | 20849                  | 20849       | 20849     |
| $I_c(3n)$                           | (in <sup>4</sup> ) | 15302                  | 15302       | 15302     |
| $I_c(cr)$                           | (in <sup>4</sup> ) | -                      | 10667       | -         |
| $S_s$                               | (in <sup>3</sup> ) | 439                    | 439         | 439       |
| $S_c(n)$                            | (in <sup>3</sup> ) | 649.3                  | 649.3       | 649.3     |
| $S_c(3n)$                           | (in <sup>3</sup> ) | 585.6                  | 585.6       | 585.6     |
| $S_c(cr)$                           | (in <sup>3</sup> ) | -                      | 506.5       | -         |
| DC1                                 | (k/')              | .831                   | .831        | .831      |
| M <sub>DC1</sub>                    | (k)                | 178.4                  | -414.6      | 250.3     |
| DC2                                 | (k/')              | .15                    | .15         | .15       |
| M <sub>DC2</sub>                    | (k)                | 32.2                   | -74.8       | 45.2      |
| DW                                  | (k/')              | .33                    | .33         | .33       |
| M <sub>DW</sub>                     | (k)                | 71.5                   | -166.1      | 100.3     |
| M <sub>ℓ · IM</sub>                 | (k)                | 656.8                  | -730.6      | 745.9     |
| M <sub>u</sub> (Strength I)         | (k)                | 1520                   | -2140       | 1825      |
| φ <sub>r</sub> M <sub>n</sub>       | (k)                | 3528                   | 2696        | 3528      |
| f <sub>s</sub> DC1                  | (ksi)              | 4.9                    | -11.3       | 6.8       |
| f <sub>s</sub> DC2                  | (ksi)              | .7                     | -1.8        | .9        |
| f <sub>s</sub> DW                   | (ksi)              | 1.5                    | -3.9        | 2.1       |
| f <sub>s</sub> (ℓ · IM)             | (ksi)              | 12.1                   | -17.3       | 13.8      |
| f <sub>s</sub> (Service II)         | (ksi)              | 22.8                   | -39.5       | 27.7      |
| 0.95R <sub>n</sub> F <sub>y</sub> f | (ksi)              | 47.5                   | 47.5        | 47.5      |
| f <sub>s</sub> (Total Strength I)   | (ksi)              | -                      | -           | -         |
| φ <sub>r</sub> F <sub>n</sub>       | (ksi)              | -                      | -           | -         |
| V <sub>r</sub>                      | (k)                | 24.2                   | -           | 27.1      |

| INTERIOR GIRDER REACTION TABLE |           |       |       |
|--------------------------------|-----------|-------|-------|
|                                | Abutments | Piers |       |
| R <sub>DC1</sub>               | (k)       | 17.4  | 64.5  |
| R <sub>DC2</sub>               | (k)       | 3.1   | 11.7  |
| R <sub>DW</sub>                | (k)       | 7.0   | 25.9  |
| R <sub>ℓ · IM</sub>            | (k)       | 66.7  | 106.8 |
| R <sub>Total</sub>             | (k)       | 94.2  | 208.9 |

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

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

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

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

DC1: Un-factored non-composite dead load (kips/ft.).  
M<sub>DC1</sub>: Un-factored moment due to non-composite dead load (kip-ft.).  
DC2: Un-factored long-term composite (superimposed excluding future wearing surface) dead load (kips/ft.).  
M<sub>DC2</sub>: Un-factored moment due to long-term composite (superimposed excluding future wearing surface) dead load (kip-ft.).  
DW: Un-factored long-term composite (superimposed future wearing surface only) dead load (kips/ft.).  
M<sub>DW</sub>: Un-factored moment due to long-term composite (superimposed future wearing surface only) dead load (kip-ft.).  
M<sub>ℓ · IM</sub>: Un-factored live load moment plus dynamic load allowance (Impact)(kip-ft.).  
M<sub>u</sub> (Strength I): Factored design moment (kip-ft.).  
1.25 (M<sub>DC1</sub> + M<sub>DC2</sub>) + 1.5 M<sub>DW</sub> + 1.75 M<sub>ℓ · IM</sub>  
f<sub>ℓ</sub>: Factored calculated normal stress at edge of flange for controlling steel flange plate due to lateral bending, Strength I or Service II as applicable (kip-ft.).  
φ<sub>r</sub>M<sub>n</sub>: Factored resistance available according to A6.1.1 (k).  
f<sub>s</sub> DC1: Un-factored stress at edge of flange for controlling steel flange due to vertical non-composite dead loads as calculated below (ksi).  
M<sub>DC1</sub> / S<sub>nc</sub>  
f<sub>s</sub> DC2: Un-factored stress at edge of flange for controlling steel flange due to vertical composite dead loads as calculated below (ksi).  
M<sub>DC2</sub> / S<sub>c(3n)</sub> or M<sub>DC2</sub> / S<sub>c(cr)</sub> as applicable.  
f<sub>s</sub> DW: Un-factored stress at edge of flange for controlling steel flange due to vertical composite future wearing surface loads as calculated below (ksi).  
M<sub>DW</sub> / S<sub>c(3n)</sub> or M<sub>DW</sub> / S<sub>c(cr)</sub> as applicable.  
f<sub>s</sub> (ℓ · IM): Un-factored stress at edge of flange for controlling steel flange due to vertical composite live plus impact loads as calculated below (ksi).  
M<sub>ℓ · IM</sub> / S<sub>c(3n)</sub> or M<sub>ℓ · IM</sub> / S<sub>c(cr)</sub> as applicable.  
f<sub>s</sub> + f<sub>ℓ/2</sub> (Service II): Sum of stresses as computed below (ksi).  
f<sub>s</sub> DC1 + f<sub>s</sub> DC2 + f<sub>s</sub> DW + 1.3 f<sub>s</sub> ℓ · IM + f<sub>ℓ/2</sub>  
0.95R<sub>n</sub>F<sub>y</sub>f: Composite stress capacity for Service II loading according to Article 6.10.4.2 (ksi).  
f<sub>s</sub> + f<sub>ℓ/3</sub> (Total Strength I): Sum of stresses as computed below on non-compact section (ksi).  
1.25 (f<sub>s</sub> DC1 + f<sub>s</sub> DC2) + 1.5 f<sub>s</sub> DW + 1.75 f<sub>s</sub> ℓ · IM + f<sub>ℓ/3</sub>  
φ<sub>r</sub>F<sub>n</sub>: Non-Compact composite positive or negative stress capacity for Strength I loading according to Article 6.10.7.2 (ksi).  
V<sub>r</sub>: Maximum factored shear range computed according to Article 6.10.10.

**Notes:**

Anchor bolts shall be ASTM F1554 all-thread (or an Engineer-approved alternate material) of the grade(s) and diameter(s) specified. The corresponding specified grade of AASHTO M314 anchor bolts may be used in lieu of ASTM F1554.

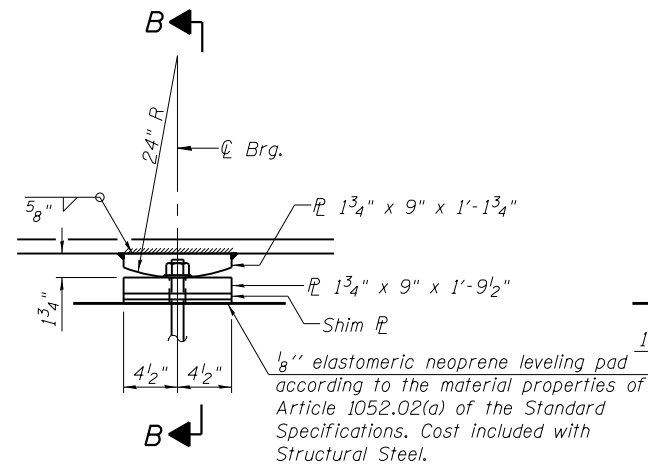
Anchor bolts at fixed bearings may be either cast in place or installed in holes drilled after the supported member is in place.

Anchor bolts for side retainers may be cast in place or installed in holes drilled before or after members are in place.

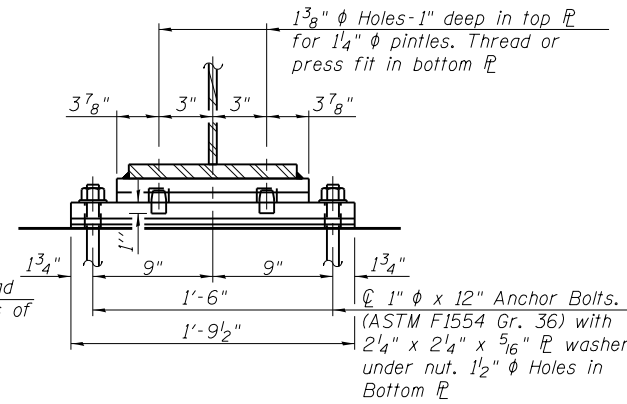
Drilled and set anchor bolts shall be installed according to Article 521.06 of the Standard Specifications.

The structural steel plates of the Bearing Assembly shall conform to the requirements of AASHTO M 270 Grade 50W.

Two 1/8 in. adjusting shims shall be provided for each bearing in addition to all other plates or shims and placed as shown on bearing details.



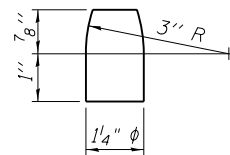
**ELEVATION AT PIER**



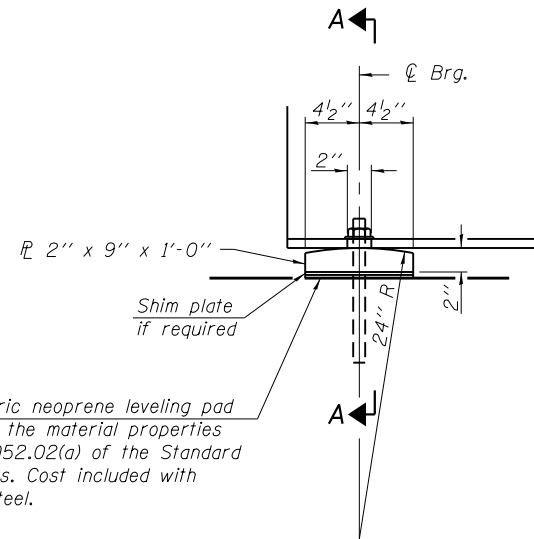
**SECTION B-B**

**FIXED BEARING AT PIERS**

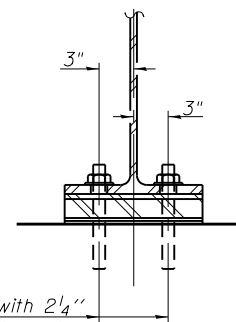
(12 Required)



**PINTLE**



**ELEVATION AT ABUTMENT**



**SECTION A-A**

**FIXED BEARING AT ABUTMENT**

(12 Required)

**BILL OF MATERIAL**

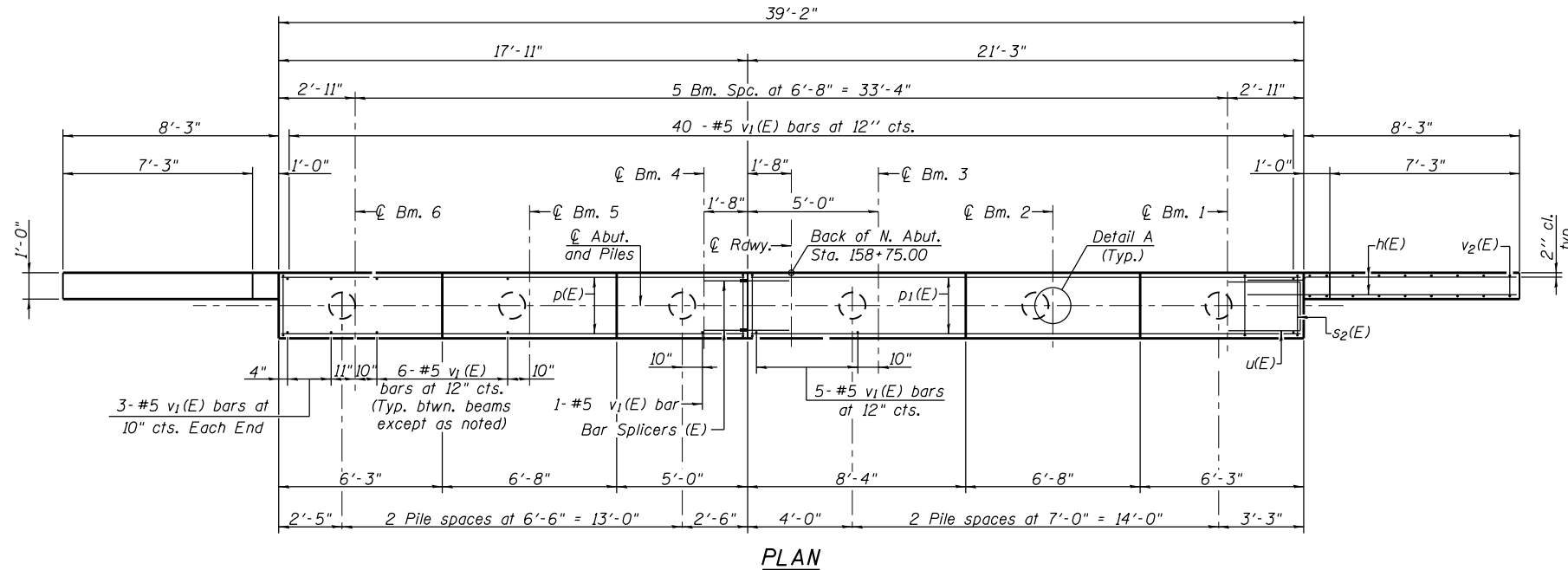
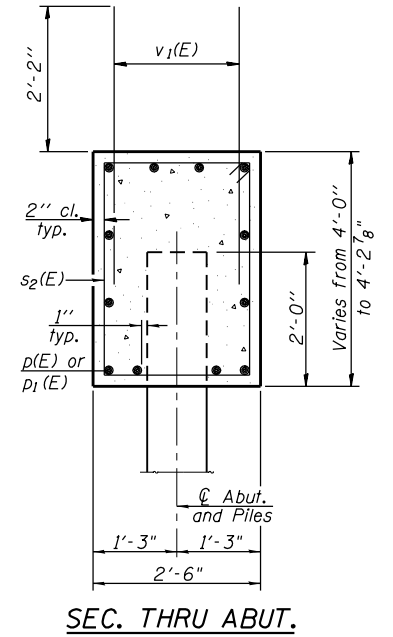
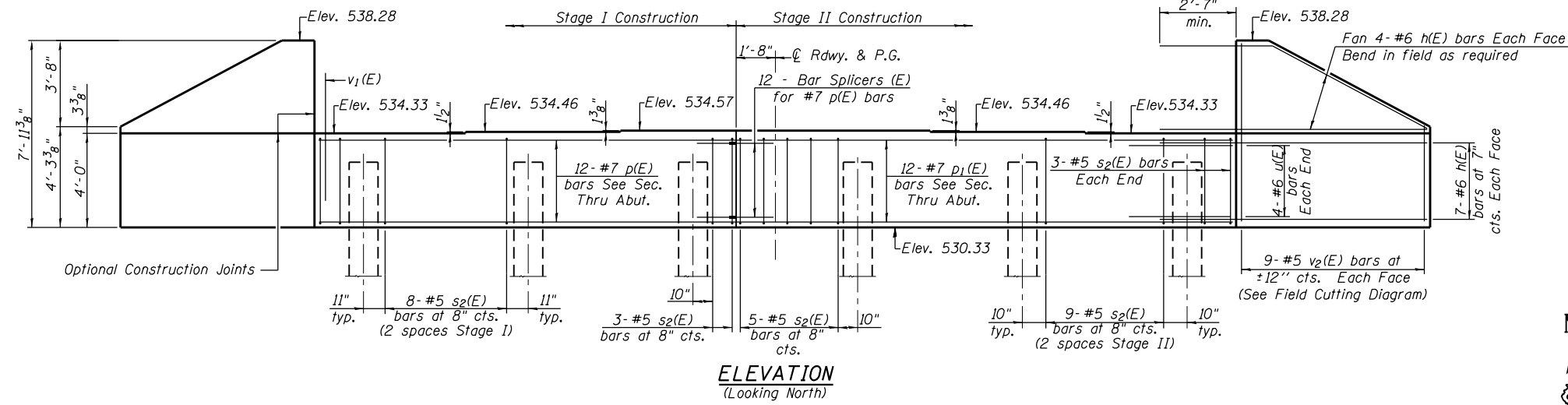
| Item             | Unit | Total |
|------------------|------|-------|
| Anchor Bolts, 1" | Each | 48    |

I-2E-1

1-27-12

|              |             |            |            |   |  |                           |         |           |              |           |
|--------------|-------------|------------|------------|---|--|---------------------------|---------|-----------|--------------|-----------|
| FILE NAME =  | USER NAME = | DESIGNED - | REVISED -  | <p>Allen Henderson &amp; Associates, Inc.<br/>Civil and Structural Engineers Springfield, IL<br/>62703 Phone: (217)544-8033 IL Design Firm<br/>No. 184-001907</p> | <p><b>BEARING DETAILS</b><br/><b>STRUCTURE NO. 036-0073</b></p> <p>SHEET NO. 17 OF 26 SHEETS</p> | F.A.P. RTE.               | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|              |             | CHECKED -  | REVISED -  |   |  | 332                       | (14B)BR | HENDERSON | 73           | 40        |
| PLOT SCALE = | DRAWN -     | REVISIED - | REVISIED - |   |  | CONTRACT NO. 68899        |         |           |              |           |
| PLOT DATE =  | CHECKED -   | REVISIED - | REVISIED - |   |  | ILLINOIS FED. AID PROJECT |         |           |              |           |

Notes:  
 Pour steps monolithically with cap.  
 For details of Bar Splicers, see sheet 23 of 26.  
 For details of piles and Concrete Encasement, see sheet 22 of 26.

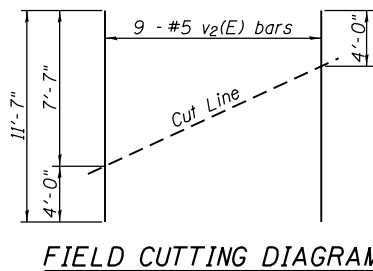
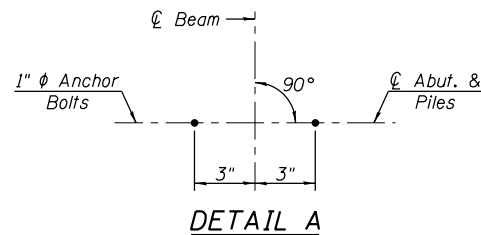


**BILL OF MATERIAL**

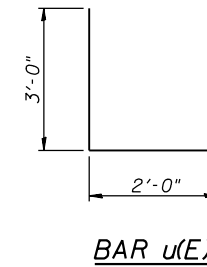
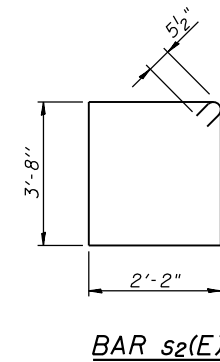
| Bar                                       | No.     | Size | Length | Shape |
|---|---------|------|--------|-------|
| h(E)                                      | 44      | #6   | 10'-7" | —     |
| p(E)                                      | 12      | #7   | 17'-8" | —     |
| p1(E)                                     | 12      | #7   | 21'-0" | —     |
| s2(E)                                     | 48      | #5   | 12'-7" | □     |
| u(E)                                      | 8       | #6   | 8'-0"  | □     |
| v1(E)                                     | 76      | #5   | 4'-4"  | —     |
| v2(E)                                     | 18      | #5   | 11'-7" | —     |
| Structure Excavation                      | Cu. Yd. |      | 102    |       |
| Concrete Structures                       | Cu. Yd. |      | 18.4   |       |
| Reinforcement Bars, Epoxy Coated          | Pound   |      | 2930   |       |
| Furnishing Metal Shell Piles 14" x 0.312" | Foot    |      | 444    |       |
| Driving Piles                             | Foot    |      | 444    |       |
| Pile Shoes                                | Each    |      | 6      |       |

**PILE DATA**

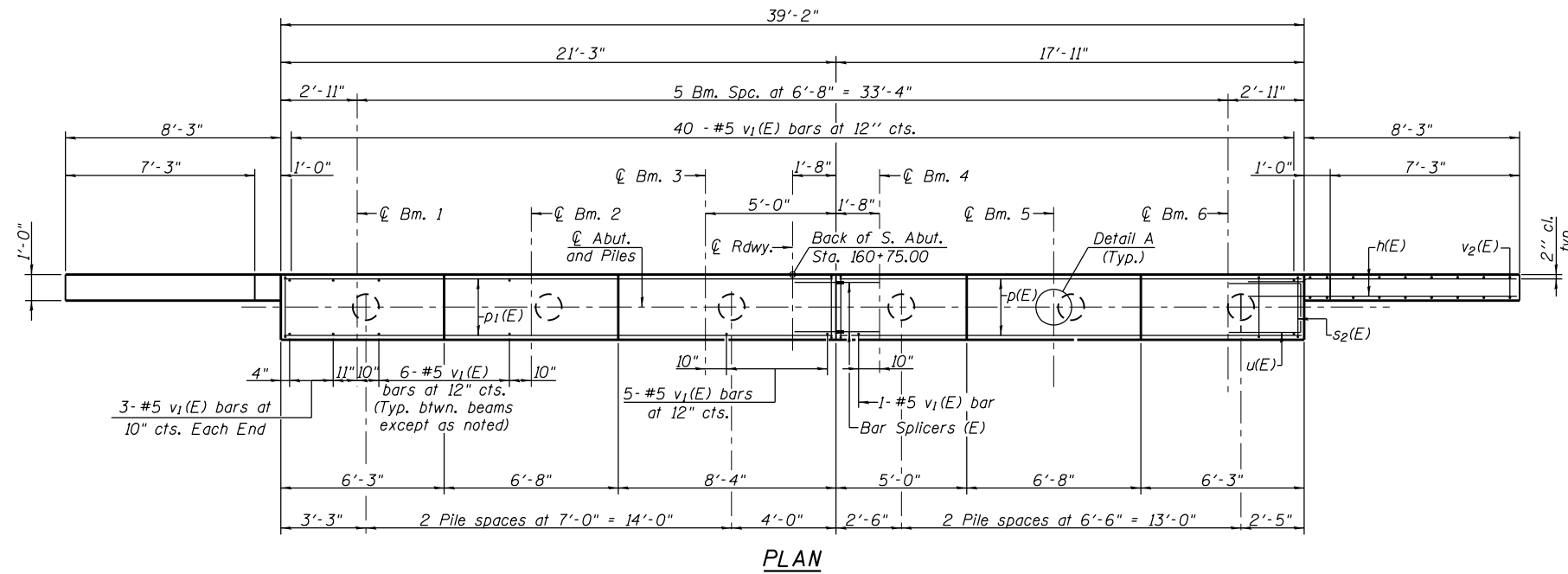
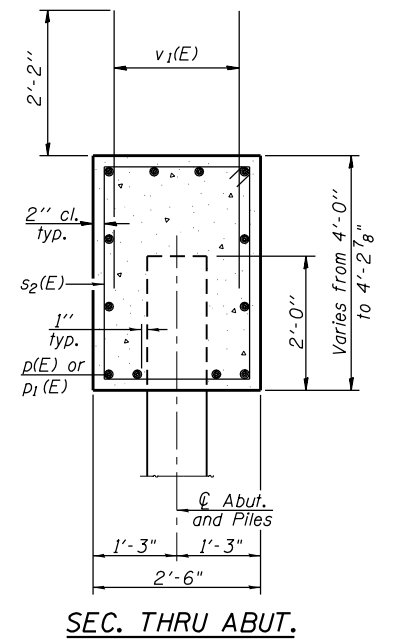
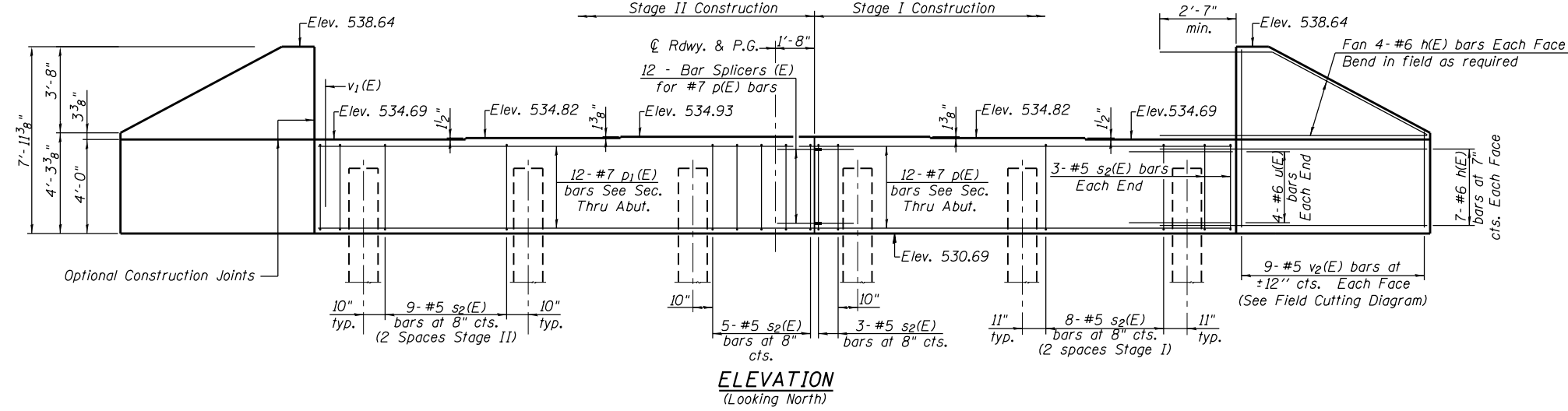
Type: 14"  $\phi$  Metal Shell w/ .312 wall (with metal shoes)  
 Nominal Required Bearing: 504 k  
 Factored Resistance Available: 277 k  
 Est. Length: 74 ft.  
 No. Production Piles: 6  
 No. Test Piles: 0



Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.



Notes:  
 Pour steps monolithically with cap.  
 For details of Bar Splicers, see sheet 23 of 26.  
 For details of piles and Concrete Encasement, see sheet 22 of 26.

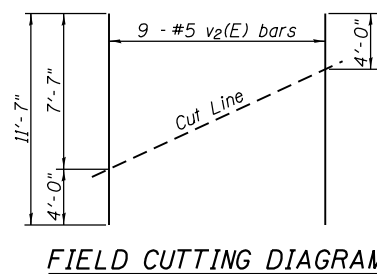
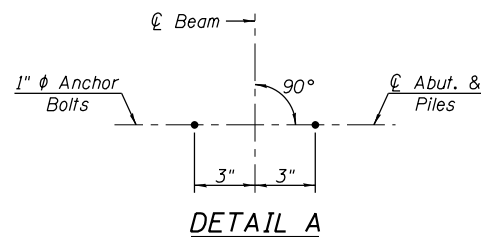


**BILL OF MATERIAL**

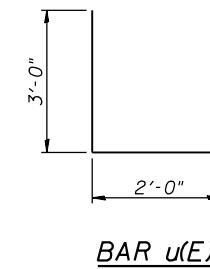
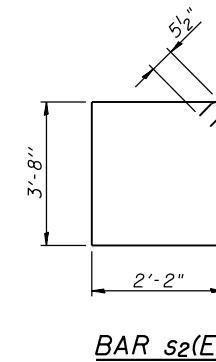
| Bar                                       | No.     | Size | Length | Shape |
|---|---------|------|--------|-------|
| h(E)                                      | 44      | #6   | 10'-7" | —     |
| p(E)                                      | 12      | #7   | 17'-8" | —     |
| p1(E)                                     | 12      | #7   | 21'-0" | —     |
| s2(E)                                     | 48      | #5   | 12'-7" | □     |
| u(E)                                      | 8       | #6   | 8'-0"  | —     |
| v1(E)                                     | 76      | #5   | 4'-4"  | —     |
| v2(E)                                     | 18      | #5   | 11'-7" | —     |
| Structure Excavation                      | Cu. Yd. | 108  |        |       |
| Concrete Structures                       | Cu. Yd. | 18.4 |        |       |
| Reinforcement Bars, Epoxy Coated          | Pound   | 2930 |        |       |
| Furnishing Metal Shell Piles 14" x 0.312" | Foot    | 275  |        |       |
| Driving Piles                             | Foot    | 275  |        |       |
| Test Pile Metal Shells                    | Each    | 1    |        |       |
| Pile Shoes                                | Each    | 6    |        |       |

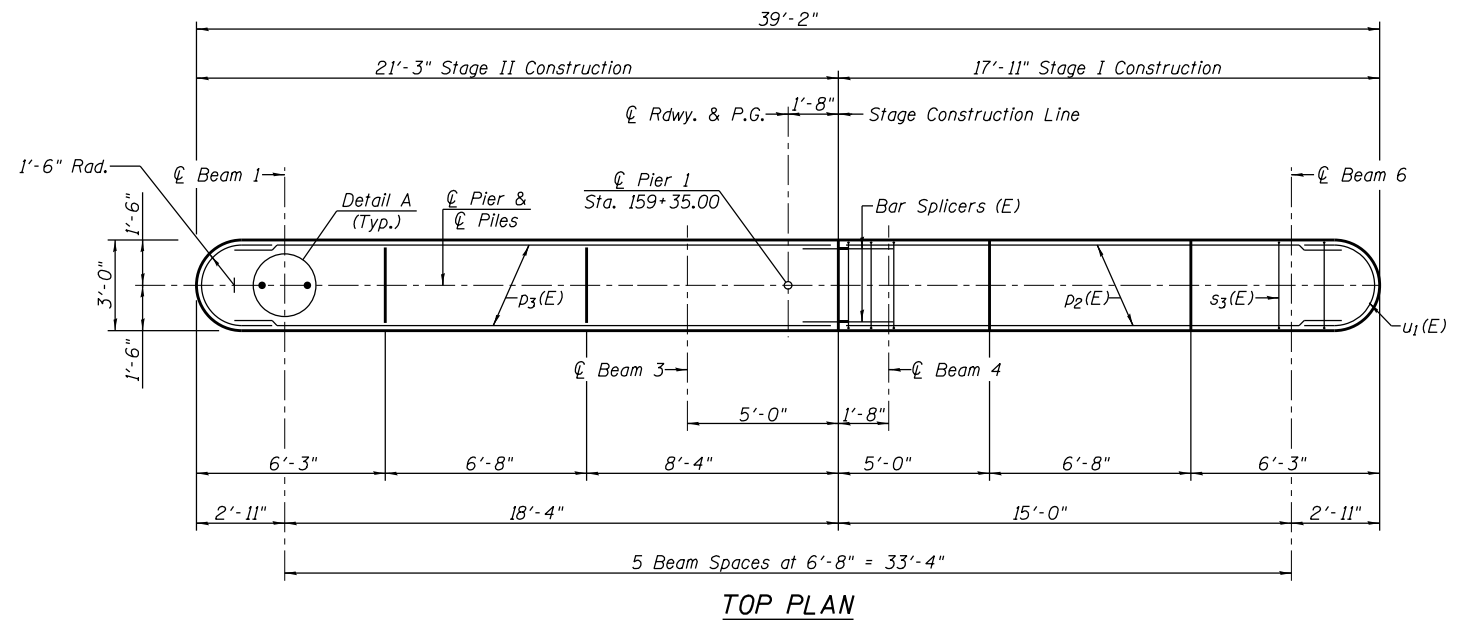
**PILE DATA**

Type: 14"  $\phi$  Metal Shell w/ .312 wall (with metal shoes)  
 Nominal Required Bearing: 472 k  
 Factored Resistance Available: 259 k  
 Est. Length: 55 ft.  
 No. Production Piles: 5  
 No. Test Piles: 1

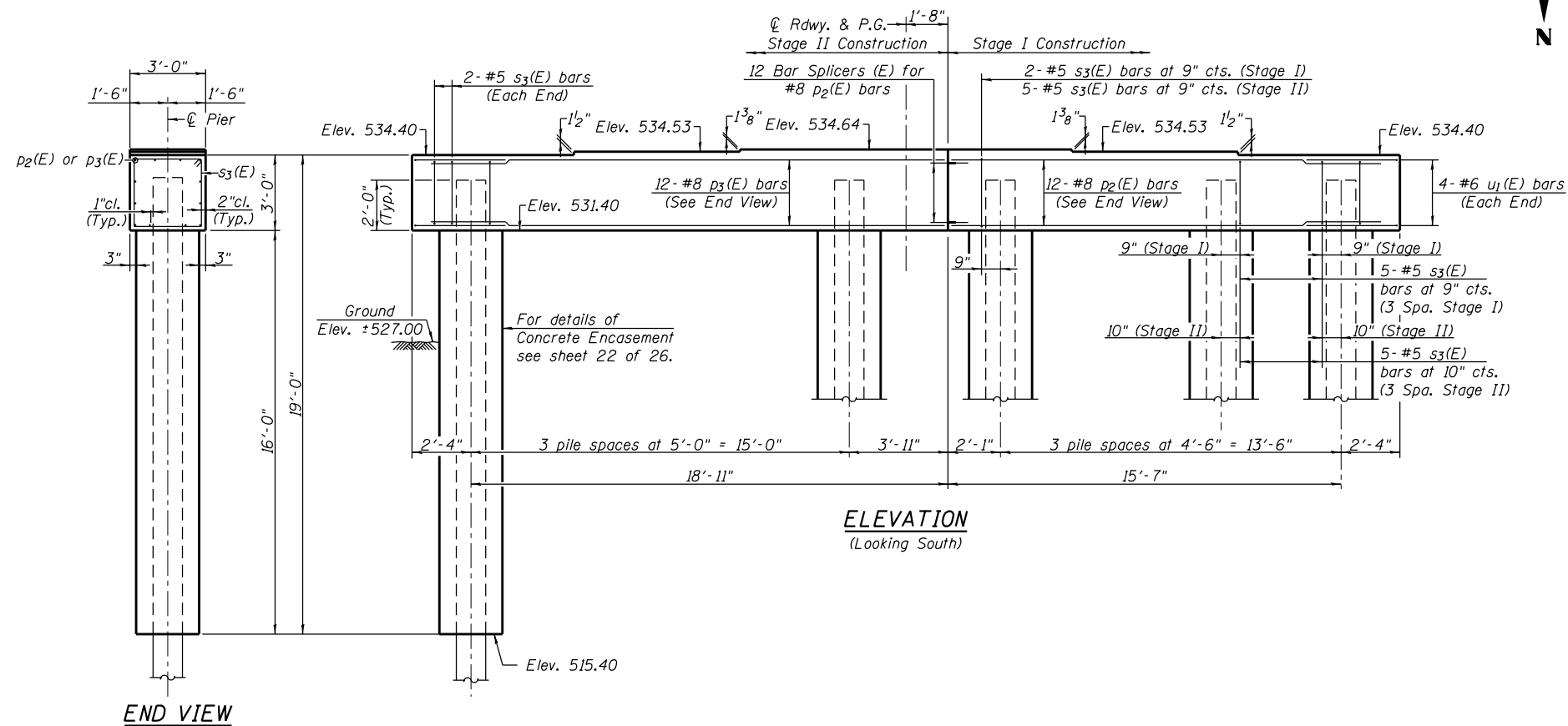
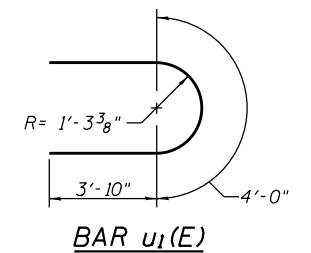
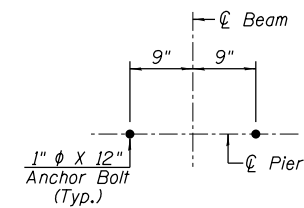
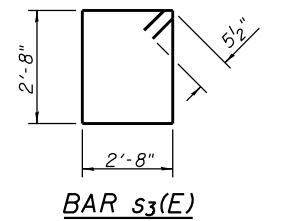


Order v2(E) full length. Cut as shown and use remainder of bars in opposite face.





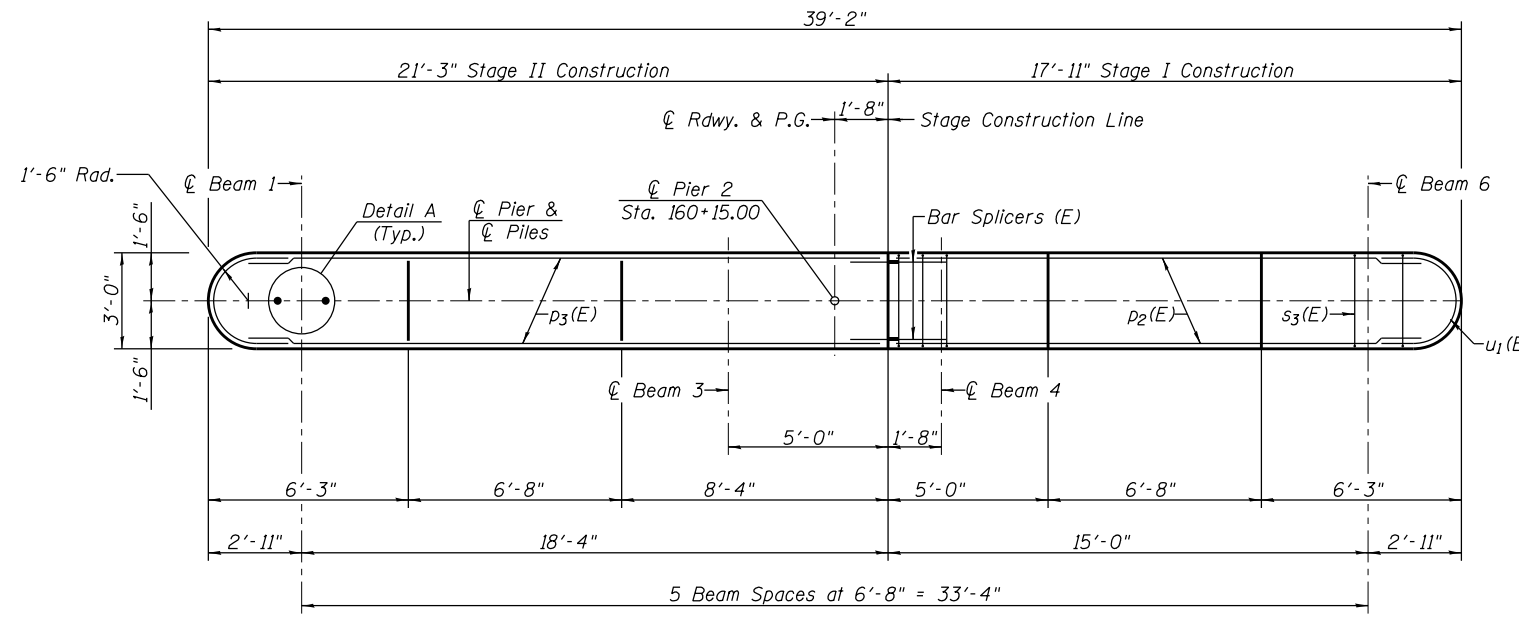
**PILE DATA**  
 Type: Metal Shell 14" x 0.312" (with Metal Shoes)  
 Nominal Required Bearing: 381 kips  
 Allowable Resistance Available: 210 kips  
 Est. Length: 67 ft.  
 No. Production Piles: 8  
 No. Test Piles: 0



**BILL OF MATERIAL**

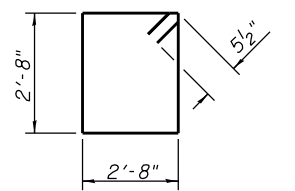
| Bar                                       | No. | Size | Length  | Shape |
|---|-----|------|---------|-------|
| p2(E)                                     | 12  | #8   | 16'-1"  | —     |
| p3(E)                                     | 12  | #8   | 19'-7"  | —     |
| s3(E)                                     | 41  | #5   | 11'-7"  | □     |
| u1(E)                                     | 8   | #6   | 11'-8"  | U     |
| Concrete Structures                       |     |      | Cu. Yd. | 12.8  |
| Reinforcement Bars, Epoxy Coated          |     |      | Pound   | 1780  |
| Furnishing Metal Shell Piles 14" x 0.312" |     |      | Foot    | 536   |
| Driving Piles                             |     |      | Foot    | 536   |
| Pile Shoes                                |     |      | Each    | 8     |
| Concrete Encasement                       |     |      | Cu. Yd. | 18.2  |

Notes:  
 Space reinforcement in cap to miss anchor bolts.  
 Pour steps monolithically with cap.  
 For details of Bar Splicers, see sheet 23 of 26.  
 For details of Piles see sheet 22 of 26.

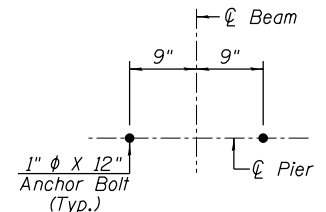


**TOP PLAN**

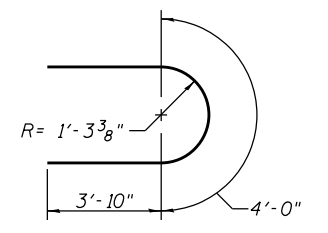
**PILE DATA**  
 Type: Metal Shell 14" x 0.312" (with Metal Shoes)  
 Nominal Required Bearing: 458 kips  
 Allowable Resistance Available: 248 kips  
 Est. Length: 54 ft.  
 No. Production Piles: 8  
 No. Test Piles: 0



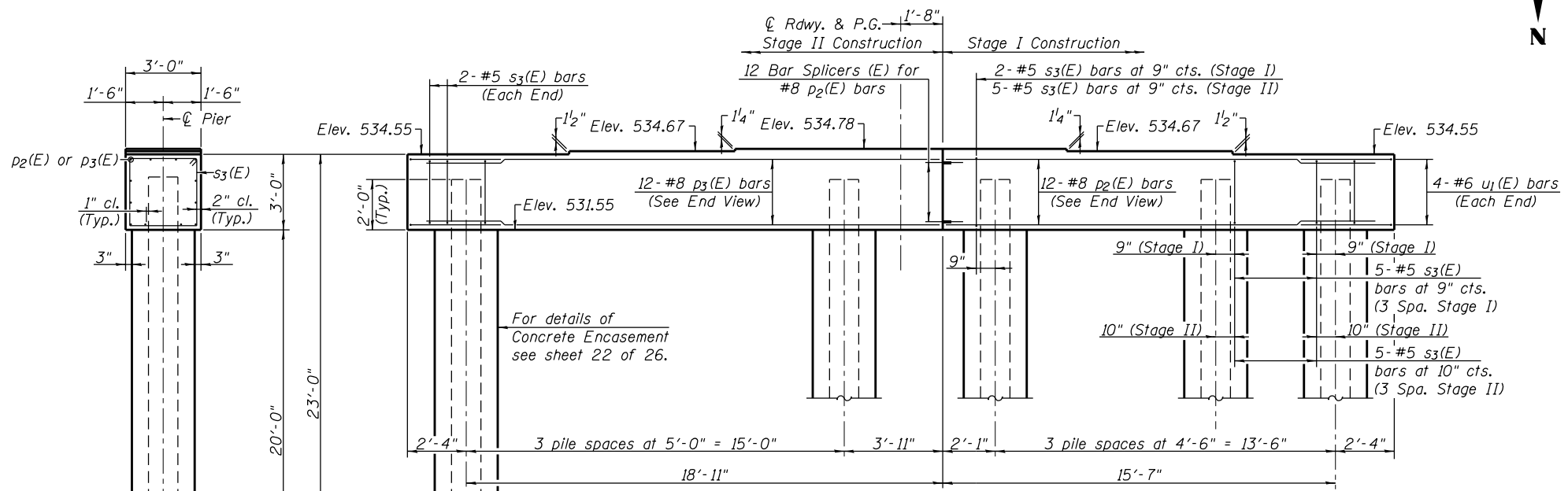
**BAR s3(E)**



**DETAIL A**



**BAR u1(E)**



**ELEVATION**  
(Looking South)

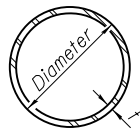
**BILL OF MATERIAL**

| Bar                                       | No. | Size | Length  | Shape |
|---|-----|------|---------|-------|
| p <sub>2</sub> (E)                        | 12  | #8   | 16'-1"  | —     |
| p <sub>3</sub> (E)                        | 12  | #8   | 19'-7"  | —     |
| s <sub>3</sub> (E)                        | 41  | #5   | 11'-7"  | □     |
| u <sub>1</sub> (E)                        | 8   | #6   | 11'-8"  | U     |
| Concrete Structures                       |     |      | Cu. Yd. | 12.8  |
| Reinforcement Bars, Epoxy Coated          |     |      | Pound   | 1780  |
| Furnishing Metal Shell Piles 14" x 0.312" |     |      | Foot    | 432   |
| Driving Piles                             |     |      | Foot    | 432   |
| Pile Shoes                                |     |      | Each    | 8     |
| Concrete Encasement                       |     |      | Cu. Yd. | 22.8  |

Notes:  
 Space reinforcement in cap to miss anchor bolts. Pour steps monolithically with cap.  
 For details of Bar Splicers, see sheet 23 of 26.  
 For details of Piles see sheet 22 of 26.

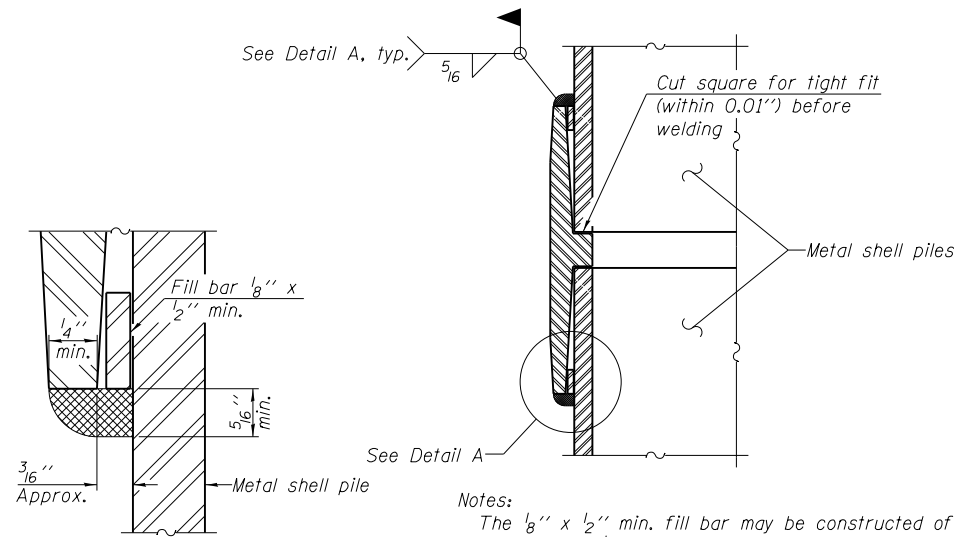
**END VIEW**





**METAL SHELL PILE TABLE**

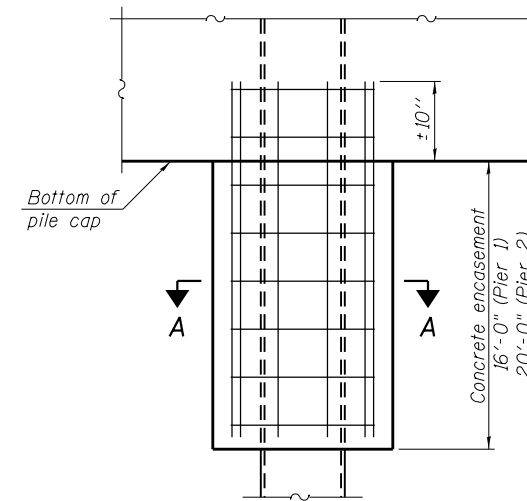
| Designation and outside diameter | Wall thickness t | Weight per foot (Lbs./ft.) | Inside volume (yd. <sup>3</sup> /ft.) |
|----------------------------------|------------------|----------------------------|---------------------------------------|
| PP12                             | 0.179"           | 22.60                      | 0.0274                                |
| PP12                             | 0.250"           | 31.37                      | 0.0267                                |
| PP14                             | 0.250"           | 36.71                      | 0.0368                                |
| PP14                             | 0.312"           | 45.61                      | 0.0361                                |



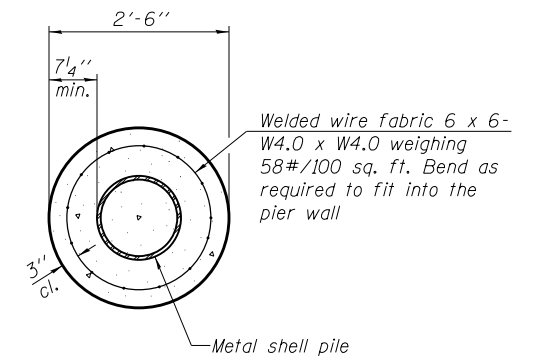
**DETAIL A**

Notes:  
 The  $\frac{1}{8}$ " x  $\frac{1}{2}$ " min. fill bar may be constructed of 2 bars with a  $\frac{1}{8}$ " max. gap between them.  
 Pile segments shall be driven to solid contact with splicer before welding.

**WELDED COMMERCIAL SPLICE**



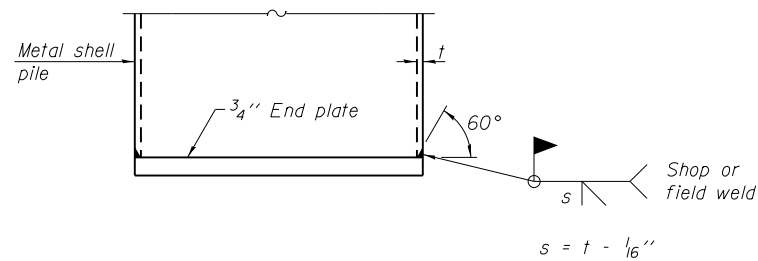
**ELEVATION**



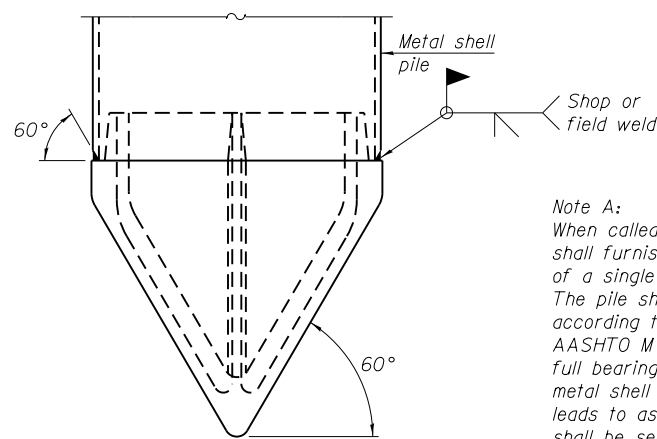
**SECTION A-A**

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

**CONCRETE ENCASEMENT AT PIERS**



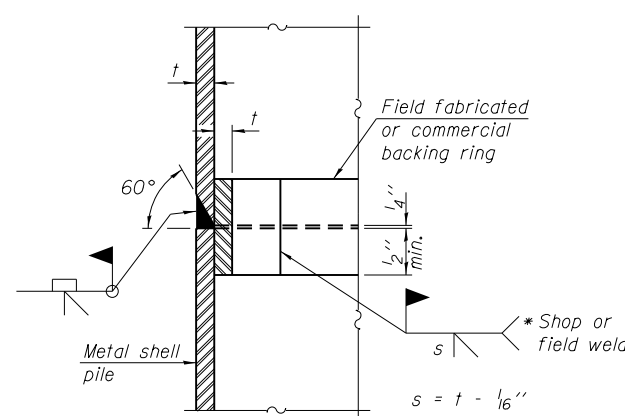
**END PLATE ATTACHMENT**



Note A:  
 When called for on the plans, the Contractor shall furnish metal shell pile shoes consisting of a single piece conical pile point as shown. The pile shoes shall be cast in one piece steel according to either ASTM A 148 Grade 90-60 or AASHTO M 103 Grade 65-35 and shall provide full bearing over the full circumference of the metal shell pile. The pile shoe shall have tapered leads to assure proper alignment and fitting and shall be secured to the pile with a circumferential weld.

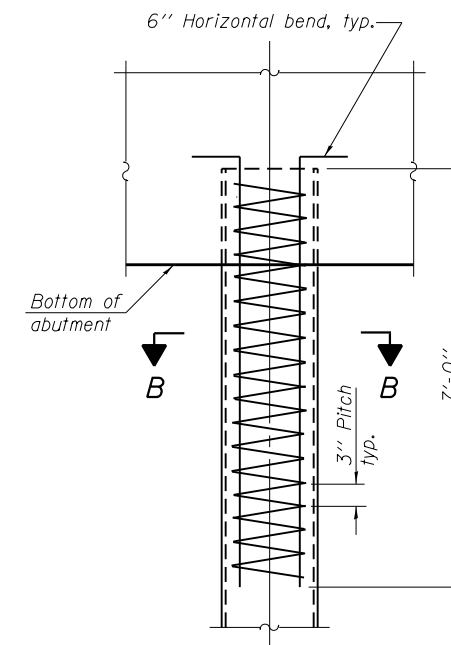
**METAL SHELL PILE SHOE ATTACHMENT**

(See Note A)



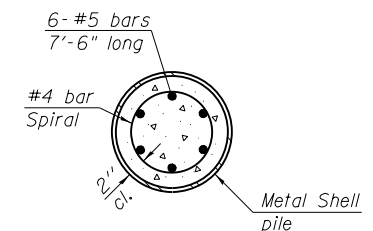
**COMPLETE PENETRATION WELD SPLICE**

\* Field fabricated backing ring may be made from pile shell by removing segment to allow reducing circumference and vertically rejoin with partial joint penetration weld.



**ELEVATION**

**METAL SHELL REINFORCEMENT AT ABUTMENTS**



**SECTION B-B**

Note:  
 The metal shell piles shall be according to ASTM A 252 Grade 3.

F-MS 1-27-12

|             |              |            |           |
|-------------|--------------|------------|-----------|
| FILE NAME = | USER NAME =  | DESIGNED - | REVISED - |
|             |              | CHECKED -  | REVISED - |
|             | PLOT SCALE = | DRAWN -    | REVISED - |
|             | PLOT DATE =  | CHECKED -  | REVISED - |

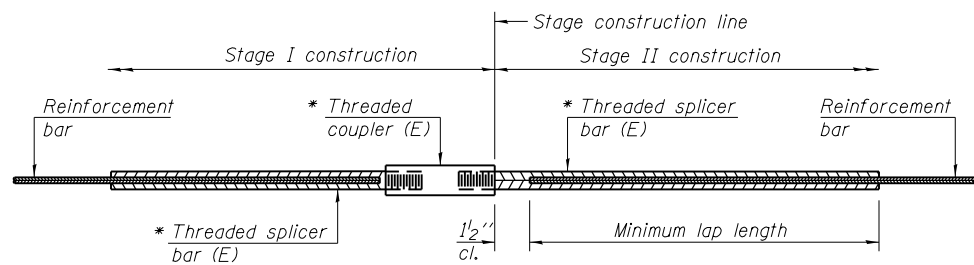


Allen Henderson & Associates, Inc.  
 Civil and Structural Engineers Springfield, IL.  
 62703 Phone: (217)544-8033 IL Design Firm  
 No. 184-001907

**METAL SHELL PILE DETAILS**  
**STRUCTURE NO. 036-0073**

SHEET NO. 22 OF 26 SHEETS

| F.A.P. R.T.E.             | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|---------------------------|---------|-----------|--------------|-----------|
| 522                       | (14B)BR | HENDERSON | 73           | 45        |
| CONTRACT NO. 68899        |         |           |              |           |
| ILLINOIS FED. AID PROJECT |         |           |              |           |



**STANDARD BAR SPLICER ASSEMBLY**

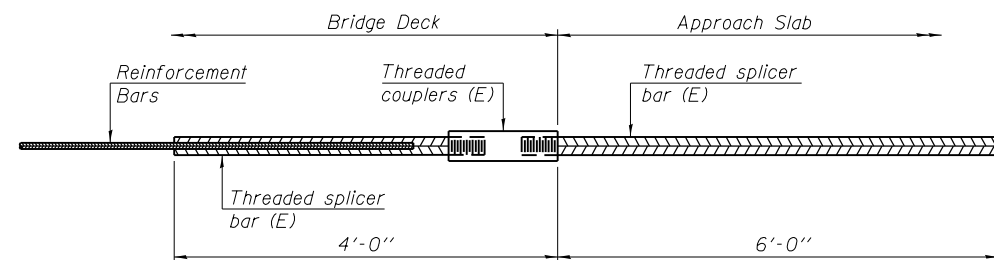
| Bar size to be spliced | Minimum Lap Lengths |         |         |         |         |         |
|------------------------|---------------------|---------|---------|---------|---------|---------|
|                        | Table 1             | Table 2 | Table 3 | Table 4 | Table 5 | Table 6 |
| 3,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

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

Threaded splicer bar length = min. lap length + 1 1/2" + thread length

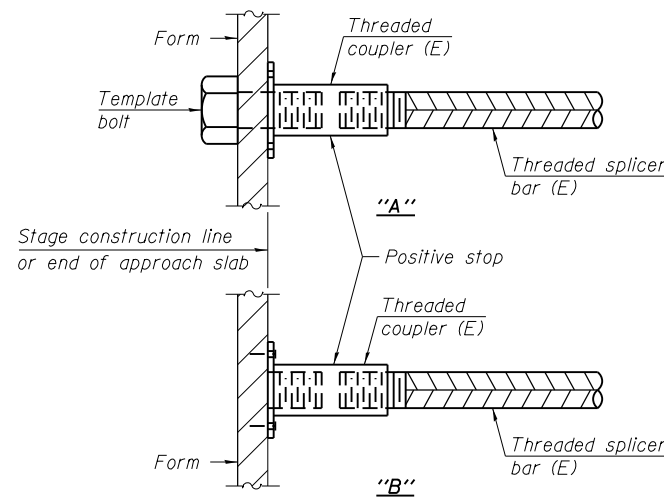
\* Epoxy not required on Bar Splicer Assembly components used in conjunction with black bars.

| Location               | Bar size | No. assemblies required | Table for minimum lap length |
|------------------------|----------|-------------------------|------------------------------|
| Top of Slab            | #5       | 369                     | 4                            |
| Bottom of Slab         | #5       | 240                     | 3                            |
| N. Abut. Diaphragm     | #6       | 5                       | 4                            |
| S. Abut. Diaphragm     | #6       | 5                       | 4                            |
| Top of Appr. Slab      | #4       | 50                      | 4                            |
| Bott. of Appr. Slab    | #5       | 92                      | 3                            |
| Top of Appr. Footing   | #5       | 40                      | 4                            |
| Bott. of Appr. Footing | #5       | 40                      | 3                            |
| N. Abut. Cap           | #7       | 12                      | 4                            |
| S. Abut. Cap           | #7       | 12                      | 4                            |
| Pier 1 Cap             | #8       | 12                      | 4                            |
| Pier 2 Cap             | #8       | 12                      | 4                            |



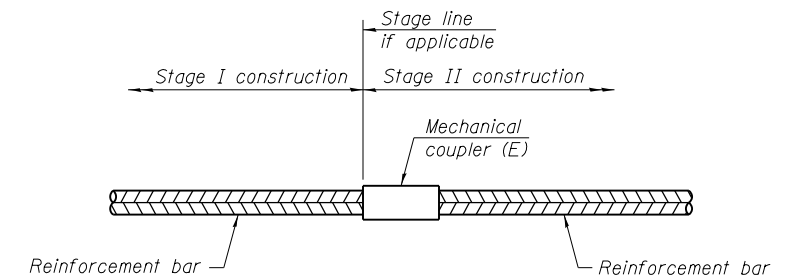
**BAR SPLICER ASSEMBLY FOR #5 BAR ON INTEGRAL OR SEMI-INTEGRAL ABUTMENTS**

No. required = 72



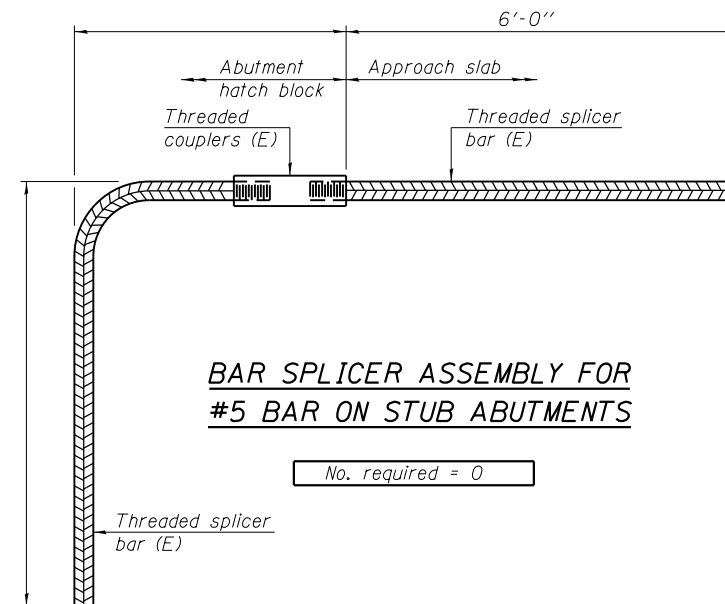
**INSTALLATION AND SETTING METHODS**

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



**STANDARD MECHANICAL SPLICER**

| Location           | Bar size | No. assemblies required |
|--------------------|----------|-------------------------|
| N. Abut. Diaphragm | #6       | 3                       |
| S. Abut. Diaphragm | #6       | 3                       |
|                    |          |                         |
|                    |          |                         |



**BAR SPLICER ASSEMBLY FOR #5 BAR ON STUB ABUTMENTS**

No. required = 0

**NOTES**

Splicer bars shall be deformed with threaded ends and have a minimum 60 ksi yield strength.  
 All reinforcement shall be lapped and tied to the splicer bars.  
 Bar splicer assemblies shall be epoxy coated according to the requirements for reinforcement bars. See Section 508 of the Standard Specifications.  
 See approved list of bar splicer assemblies and mechanical splicers for alternatives.

BSD-1

1-27-12

|             |              |            |           |  |   |                           |         |           |              |           |
|-------------|--------------|------------|-----------|--|---|---------------------------|---------|-----------|--------------|-----------|
| FILE NAME = | USER NAME =  | DESIGNED - | REVISED - | Allen Henderson & Associates, Inc.<br>Civil and Structural Engineers Springfield, IL.<br>62703 Phone: (217)544-8033 IL Design Firm<br>No. 184-001907 | <b>BAR SPLICER ASSEMBLY AND MECHANICAL SPLICER DETAILS</b><br><b>STRUCTURE NO. 036-0073</b> | F.A.P. RTE.               | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|             | PLOT SCALE = | CHECKED -  | REVISED - |  |   | 522                       | (14B)BR | HENDERSON | 73           | 46        |
|             | PLOT DATE =  | DRAWN -    | REVISED - |  |   | CONTRACT NO. 68899        |         |           |              |           |
|             |              | CHECKED -  | REVISED - |  |   | ILLINOIS FED. AID PROJECT |         |           |              |           |



**SOIL BORING LOG**

ROUTE 522 DESCRIPTION Structure Boring - Bridge Replacement LOGGED BY KEG  
 SECTION (14B)BR LOCATION Carman Road over Ellison Creek, SEC. 15, TWP. 9N, RNG. 6W, 3<sup>rd</sup> PM  
 COUNTY Henderson DRILLING METHOD CME 55 w/HSA & mud rotary HAMMER TYPE Automatic

STRUCT. NO. (Exist.) 036-3001 (Prop.) 036-0073  
 Station \_\_\_\_\_  
 BORING NO. SB-1  
 Station 158+7.2  
 Offset 21.0 ft LT  
 Ground Surface Elev. 538.0 ft (ft) (ft) (tsf) (%)

| DEPTH (ft) | SOIL DESCRIPTION   | UCS (tsf) | Failure Mode |
|------------|--|-----------|--------------|
| 0          | Surface Water Elev. _____  |           |              |
| 0          | Stream Bed Elev. _____   |           |              |
| 0          | Groundwater Elev.: _____   |           |              |
| 0          | First Encounter _____  | 515.0     | HS Qu T      |
| 0          | Upon Completion _____  |           |              |
| 0          | After _____ Hrs. _____   |           |              |
| 0          | SAND: Brown, fine (A-3) (continued)  |           |              |
| 0          | Becomes fine to medium   |           |              |
| 3          |  |           |              |
| 4          |  |           | 9            |
| 5          |  |           |              |
| 539.0      | FILL: Brown sandy clay (A-6)   |           |              |
| 3          |  |           |              |
| 3          |  | 1.4       | 17           |
| 533.0      | FILL: Brown sand, fine to medium, trace silt, clay, rock, and organics (A-3) |           |              |
| 3          |  |           |              |
| 7          |  |           | 10           |
| 530.5      | SANDY LOAM: Brown and gray (A-2)   |           |              |
| 2          |  |           |              |
| 2          |  |           | 12           |
| -10        |  |           |              |
| 527.5      | SAND: Brown, fine to medium (A-3)  |           |              |
| 1          |  |           |              |
| 528.0      | SANDY LOAM: Dark brown, trace organics (A-2)                                 |           |              |
| 1          |  |           |              |
| 1          |  | 0.4       | 17           |
| -16        |  |           |              |
| 522.5      | SAND: Brown, fine to medium (A-3)  |           |              |
| WOH        |  |           |              |
| WOH        |  |           | 22           |
| WOH        |  |           |              |
| 520.5      | SANDY CLAY LOAM: Brown (A-6)   |           |              |
| 3          |  |           |              |
| 5          |  |           |              |
| -19.1      |  |           | 18           |
| 498.0      |  |           |              |

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



**SOIL BORING LOG**

ROUTE 522 DESCRIPTION Structure Boring - Bridge Replacement LOGGED BY KEG  
 SECTION (14B)BR LOCATION Carman Road over Ellison Creek, SEC. 15, TWP. 9N, RNG. 6W, 3<sup>rd</sup> PM  
 COUNTY Henderson DRILLING METHOD CME 55 w/HSA & mud rotary HAMMER TYPE Automatic

STRUCT. NO. (Exist.) 036-3001 (Prop.) 036-0073  
 Station \_\_\_\_\_  
 BORING NO. SB-1  
 Station 158+7.2  
 Offset 21.0 ft LT  
 Ground Surface Elev. 538.0 ft (ft) (ft) (tsf) (%)

| DEPTH (ft) | SOIL DESCRIPTION  | UCS (tsf) | Failure Mode |
|------------|---|-----------|--------------|
| 0          | Surface Water Elev. _____   |           |              |
| 0          | Stream Bed Elev. _____  |           |              |
| 0          | Groundwater Elev.: _____  |           |              |
| 0          | First Encounter _____   | 515.0     | HS Qu T      |
| 0          | Upon Completion _____   |           |              |
| 0          | After _____ Hrs. _____  |           |              |
| 0          | SAND: Gray, fine to coarse, with gravel (A-3)                     |           |              |
| 0          | Becomes medium to coarse  |           |              |
| 6          |   |           |              |
| 7          |   |           | 16           |
| 9          |   |           |              |
| 10         |   |           |              |
| 14         |   |           |              |
| 16         |   |           |              |
| 488.0      | CLAYEY GRAVEL: Gray, coarse (A-1)                                 |           |              |
| 10         |   |           |              |
| 14         |   |           |              |
| 16         |   |           |              |
| 20         |   |           |              |
| 17         |   | 5.2       | 11           |
| 22         |   |           |              |
| 489.0      | SAND: Gray, fine to coarse, with gravel (A-3)                     |           |              |
| 3          |   |           |              |
| 5          |   |           |              |
| 7          |   |           | 18           |
| 481.0      | CLAY: Gray, with fine to coarse sand, trace shale fragments (A-7) |           |              |
| 7          |   |           |              |
| 10         |   | 4.3       | 13           |
| 14         |   |           |              |
| 8          |   |           |              |
| 10         |   |           | 10           |
| -80        |   |           |              |

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



**SOIL BORING LOG**

ROUTE 522 DESCRIPTION Structure Boring - Bridge Replacement LOGGED BY KEG  
 SECTION (14B)BR LOCATION Carman Road over Ellison Creek, SEC. 15, TWP. 9N, RNG. 6W, 3<sup>rd</sup> PM  
 COUNTY Henderson DRILLING METHOD CME 55 w/HSA & mud rotary HAMMER TYPE Automatic

STRUCT. NO. (Exist.) 036-3001 (Prop.) 036-0073  
 Station \_\_\_\_\_  
 BORING NO. SB-1  
 Station 158+7.2  
 Offset 21.0 ft LT  
 Ground Surface Elev. 538.0 ft (ft) (ft) (tsf) (%)

| DEPTH (ft) | SOIL DESCRIPTION  | UCS (tsf) | Failure Mode |
|------------|---|-----------|--------------|
| 0          | Surface Water Elev. _____                                 |           |              |
| 0          | Stream Bed Elev. _____                                    |           |              |
| 0          | Groundwater Elev.: _____                                  |           |              |
| 0          | First Encounter _____                                     | 515.0     | HS Qu T      |
| 0          | Upon Completion _____                                     |           |              |
| 0          | After _____ Hrs. _____                                    |           |              |
| 0          | SAND: Gray, fine to coarse, with gravel (A-3) (continued) |           |              |
| 0          | With coarse gravel  |           |              |
| 12         |   |           |              |
| 11         |   |           | 11           |
| 11         |   |           |              |
| 452.0      | CLAY LOAM: Gray, with gravel (A-6)                        |           |              |
| 10         |   |           |              |
| 27         |   |           |              |
| 46         |   |           | 14           |
| 445.5      | Boring terminated at 92.5 ft.                             |           |              |
| -100       |   |           |              |

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



SOIL BORING LOG

Date 8/11/11

ROUTE 522 DESCRIPTION Structure Boring - Bridge Replacement LOGGED BY KEG

SECTION (14B)BR LOCATION Carman Road over Ellison Creek, SEC. 15, TWP. 9N, RNG. 6W, 3rd PM

COUNTY Henderson DRILLING METHOD CME 55 w/HSA & mud rotary HAMMER TYPE Automatic

Table with columns for Depth (ft), Blows (D, L, O, S), Moisture (M, O, I, S), and Soil Description. Includes data for Surface Water Elev., Stream Bed Elev., Groundwater Elev., and various soil layers like FILL, SAND, CLAY, and SILTY CLAY.

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



SOIL BORING LOG

Date 8/11/11

ROUTE 522 DESCRIPTION Structure Boring - Bridge Replacement LOGGED BY KEG

SECTION (14B)BR LOCATION Carman Road over Ellison Creek, SEC. 15, TWP. 9N, RNG. 6W, 3rd PM

COUNTY Henderson DRILLING METHOD CME 55 w/HSA & mud rotary HAMMER TYPE Automatic

Table with columns for Depth (ft), Blows (D, L, O, S), Moisture (M, O, I, S), and Soil Description. Includes data for Surface Water Elev., Stream Bed Elev., Groundwater Elev., and various soil layers like CLAY, SAND, and CLAY LOAM.

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



SOIL BORING LOG

Date 8/11/11

ROUTE 522 DESCRIPTION Structure Boring - Bridge Replacement LOGGED BY KEG

SECTION (14B)BR LOCATION Carman Road over Ellison Creek, SEC. 15, TWP. 9N, RNG. 6W, 3rd PM

COUNTY Henderson DRILLING METHOD CME 55 w/HSA & mud rotary HAMMER TYPE Automatic

Table with columns for Depth (ft), Blows (D, L, O, S), Moisture (M, O, I, S), and Soil Description. Includes data for Surface Water Elev., Stream Bed Elev., Groundwater Elev., and various soil layers like SAND, GRAVEL, and CLAY LOAM.

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



Illinois Department of Transportation  
Division of Highways  
SCI Engineering

SOIL BORING LOG

Page 1 of 3

Date 8/10/11

ROUTE 522 DESCRIPTION Structure Boring - Bridge Replacement LOGGED BY KEG  
SECTION (14B)BR LOCATION Caman Road over Ellison Creek, SEC. 15, TWP. 9N, RNG. 6W, 3<sup>rd</sup> PM  
Latitude Longitude

COUNTY Henderson DRILLING METHOD CME 55 w/HSA & mud rotary HAMMER TYPE Automatic

STRUCT. NO. (Exist.) 036-3001 (Prop.) 036-0073  
BORING NO. SB-3  
Station 160+77  
Offset 21.0 FT  
Ground Surface Elev. 528.2 ft (ft) (ft) (tsf) (%)

| DEPTH (ft) | SOIL DESCRIPTION   | UCS (tsf) | BULGE (in) | SHEAR (tsf) | MOISTURE (%) |
|------------|--|-----------|------------|-------------|--------------|
| 0-4        | TOPSOIL - 4 inches   |           |            |             |              |
| 4-7        | FILL: Dark brown, silty clay (A-6)   |           |            |             |              |
| 7-26       | SILTY CLAY LOAM: Gray, trace organics (A-5)                                  |           |            |             |              |
| 26-38      | SAND: Gray, fine, trace organics (A-3)                                       |           |            |             |              |
| 38-42      | SANDY LOAM: Brown (A-2)  |           |            |             |              |
| 42-51.2    | SAND: Gray and brown, fine to medium, trace clay (A-3)                       |           |            |             |              |
| 51.2-59.2  | Becomes fine to coarse   |           |            |             |              |
| 59.2-68    | Becomes fine   |           |            |             |              |
| 68-73.7    | CLAY: Gray, with fine to coarse sand, trace gravel and shale fragments (A-7) |           |            |             |              |
| 73.7-88.2  | Becomes fine to coarse, trace gravel   |           |            |             |              |

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



Illinois Department of Transportation  
Division of Highways  
SCI Engineering

SOIL BORING LOG

Page 2 of 3

Date 8/10/11

ROUTE 522 DESCRIPTION Structure Boring - Bridge Replacement LOGGED BY KEG  
SECTION (14B)BR LOCATION Caman Road over Ellison Creek, SEC. 15, TWP. 9N, RNG. 6W, 3<sup>rd</sup> PM  
Latitude Longitude

COUNTY Henderson DRILLING METHOD CME 55 w/HSA & mud rotary HAMMER TYPE Automatic

STRUCT. NO. (Exist.) 036-3001 (Prop.) 036-0073  
BORING NO. SB-3  
Station 160+77  
Offset 21.0 FT  
Ground Surface Elev. 528.2 ft (ft) (ft) (tsf) (%)

| DEPTH (ft) | SOIL DESCRIPTION   | UCS (tsf) | BULGE (in) | SHEAR (tsf) | MOISTURE (%) |
|------------|--|-----------|------------|-------------|--------------|
| 88.2-97.2  | CLAY: Gray, with fine to coarse sand, trace gravel and shale fragments (A-7) (continued) |           |            |             |              |
| 97.2-106   | SAND: Gray, fine to coarse, with gravel (A-3)  |           |            |             |              |
| 106-115    | GRAVEL (A-1)   |           |            |             |              |
| 115-124    | CLAY LOAM: Dark gray, trace gravel (A-6)   |           |            |             |              |
| 124-133    | With shale fragments   |           |            |             |              |
| 133-142    | GLACIAL TILL   |           |            |             |              |
| 142-151    | SAND: Gray, fine to medium (A-3)   |           |            |             |              |
| 151-160    | Becomes fine to coarse, with gravel  |           |            |             |              |

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



Illinois Department of Transportation  
Division of Highways  
SCI Engineering

SOIL BORING LOG

Page 3 of 3

Date 8/10/11

ROUTE 522 DESCRIPTION Structure Boring - Bridge Replacement LOGGED BY KEG  
SECTION (14B)BR LOCATION Caman Road over Ellison Creek, SEC. 15, TWP. 9N, RNG. 6W, 3<sup>rd</sup> PM  
Latitude Longitude

COUNTY Henderson DRILLING METHOD CME 55 w/HSA & mud rotary HAMMER TYPE Automatic

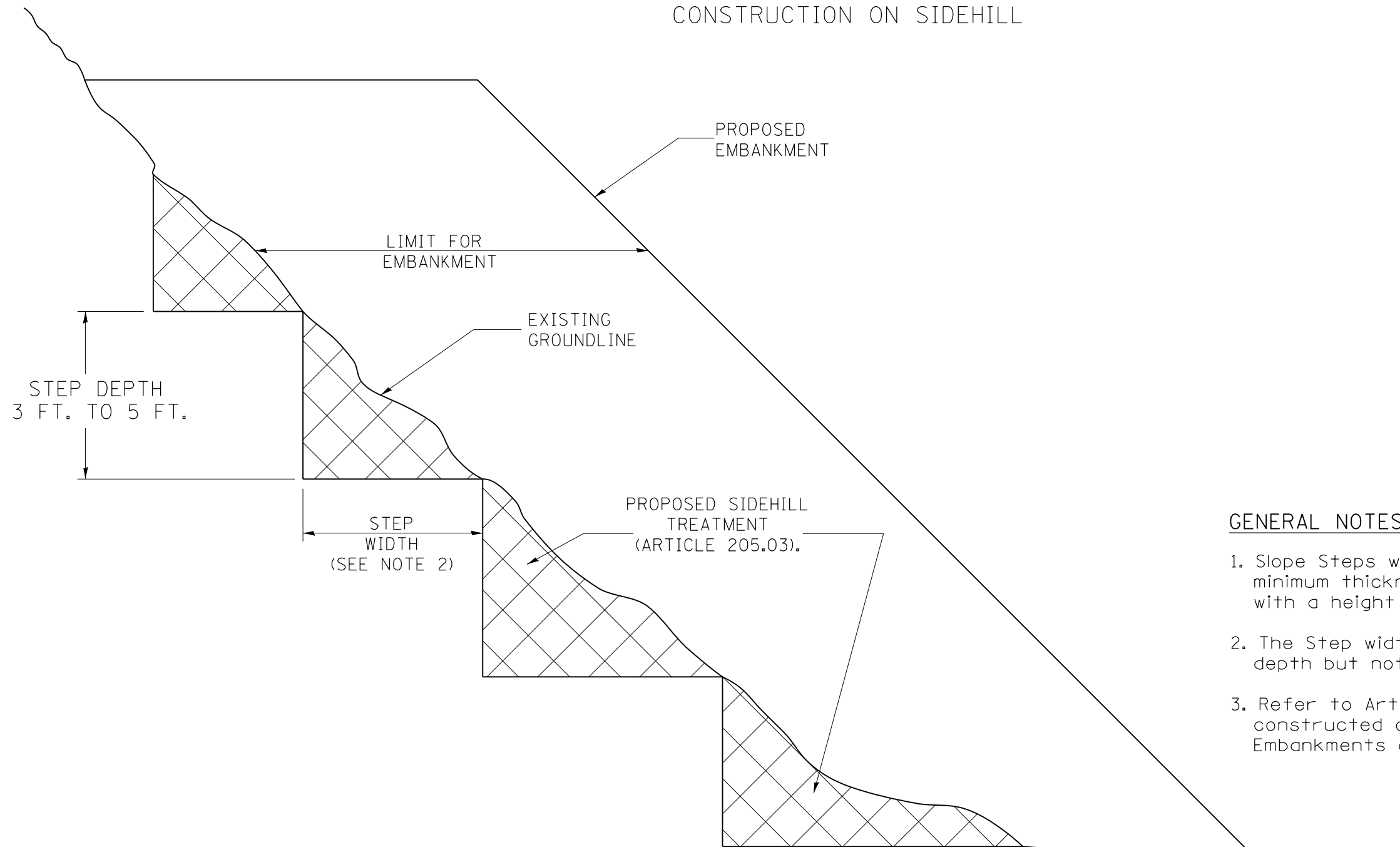
STRUCT. NO. (Exist.) 036-3001 (Prop.) 036-0073  
BORING NO. SB-3  
Station 160+77  
Offset 21.0 FT  
Ground Surface Elev. 528.2 ft (ft) (ft) (tsf) (%)

| DEPTH (ft) | SOIL DESCRIPTION                                     | UCS (tsf) | BULGE (in) | SHEAR (tsf) | MOISTURE (%) |
|------------|--|-----------|------------|-------------|--------------|
| 160-169    | CLAY LOAM: Dark gray, trace gravel (A-6) (continued) |           |            |             |              |
| 169-178    | SAND   |           |            |             |              |
| 178-187    | GRAVEL: Gray, trace clay (A-1)                       |           |            |             |              |
| 187-196    | CLAY LOAM: Dark gray, trace gravel (A-6)             |           |            |             |              |
| 196-205    | With shale fragments                                 |           |            |             |              |
| 205-214    | Probe for rock                                       |           |            |             |              |
| 214-223    | GLACIAL TILL   |           |            |             |              |
| 223-232    | Boring terminated at 110 ft.                         |           |            |             |              |

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

# SLOPE STEPS DETAIL

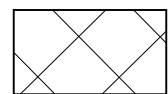
## TYPICAL CROSS-SECTION EMBANKMENT CONSTRUCTION ON SIDEHILL



### GENERAL NOTES:

1. Slope Steps will be required for all 12(300) minimum thickness "silver fills" and on a fills with a height of 10'(3.0m).
2. The Step width shall be twice the Step depth but not less than 6 feet.
3. Refer to Article 205.03 for Embankment to be constructed on Hillside or Slopes, or if existing Embankments are to be widened.

### REPLACEMENT MATERIAL:



STANDARD EMBANKMENT  
(IN ACCORDANCE WITH  
205 OF THE STANDARD SPECIFICATION).

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

|          |  |      |
|----------|--|------|
| 1-1-97   | RENUM. L-5.03, NEW REVISION BOX, REVISED TITLE | T.P. |
|          | BOX, REVISED GENERAL NOTES.                    |      |
| 10-16-06 | REVISED TO 2007 SPEC.                          | M.A. |

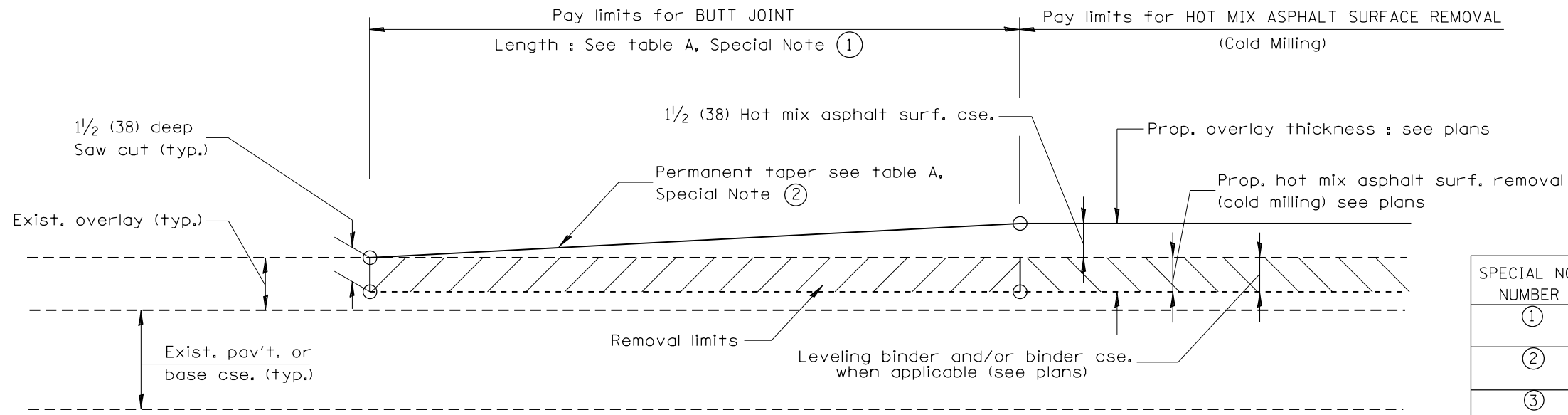
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**SLOPE STEPS DETAIL**

NOT TO SCALE

CADD STD. 205001-D4

| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS       | SHEET NO. |
|---|---------|-----------|--------------------|-----------|
| 522   | (14B)BR | HENDERSON | 73                 | 50        |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           | CONTRACT NO. 68899 |           |



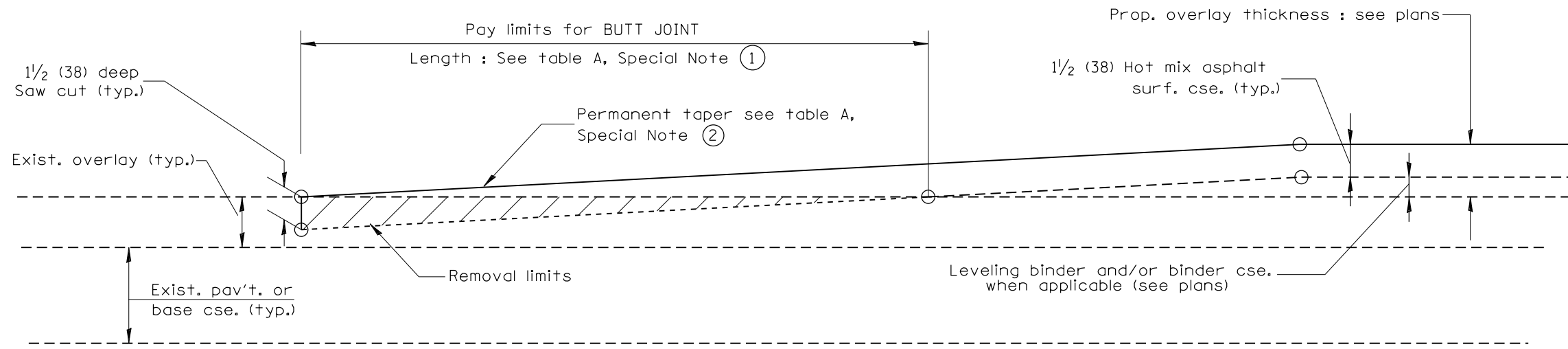
**CASE 1 : WITH HOT MIX ASPHALT SURFACE REMOVAL (COLD MILLING)**

**TABLE A**  
(LENGTHS AND TAPER RATES)

| SPECIAL NOTE NUMBER | ELEMENT                   | MAINLINE INTERSTATES & 4-LANE EXPRESSWAYS | ALL OTHERS |
|---------------------|---------------------------|---|------------|
| ①                   | LENGTH OF BUTT JOINT      | 60'(18.0 m)                               | 30'(9.0 m) |
| ②                   | PERMANENT TAPER RATE      | 1:480                                     | 1:240      |
| ③                   | TEMPORARY RAMP TAPER RATE | 1:80                                      | 1:40       |
| ④                   | TEMPORARY RAMP LENGTH     | 10'(3.0 m)                                | 5'(1.5 m)  |
| ⑤                   | LENGTH OF BUTT JOINT      | 10'(3.0 m)                                | 10'(3.0 m) |

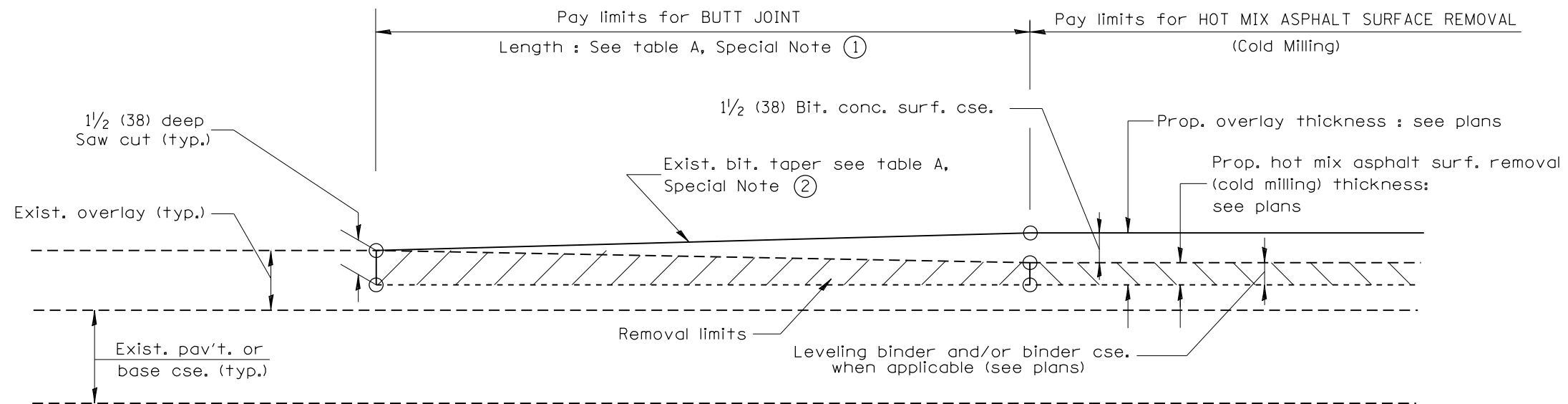
**GENERAL NOTES**

1. The work shall be done in accordance with Article 406.08 and the Special Provision for Butt Joints.
2. The pavement surface to be removed may be either bituminous or P.C. concrete. The work shall be performed in accordance with Article 440.04 and the Special Provisions for Butt Joints.
3. The saw cut joints shall be primed just prior to the placing of bituminous material. The work will be in accordance with the applicable portions of Article 406.05.

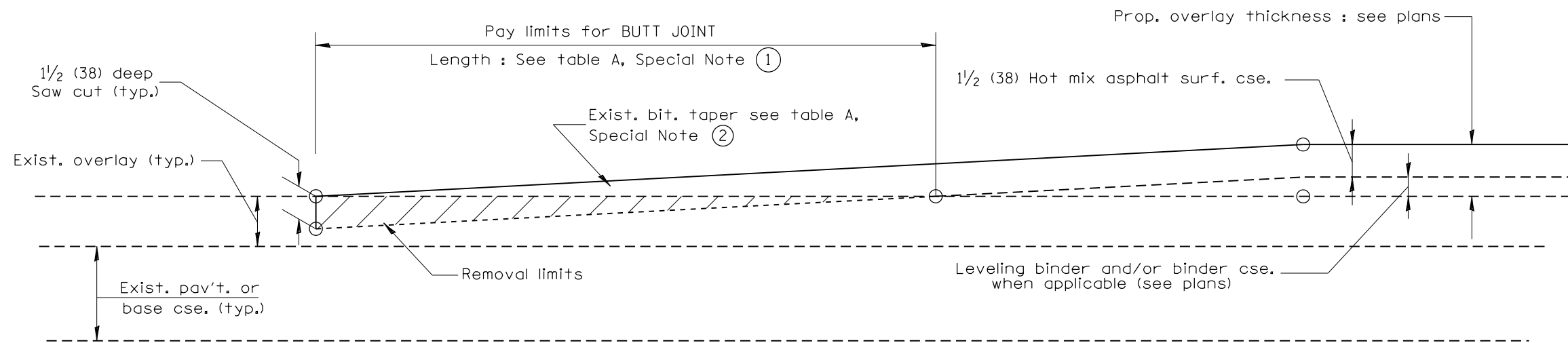


**CASE 2 : NO HOT MIX ASPHALT SURFACE REMOVAL (COLD MILLING)**

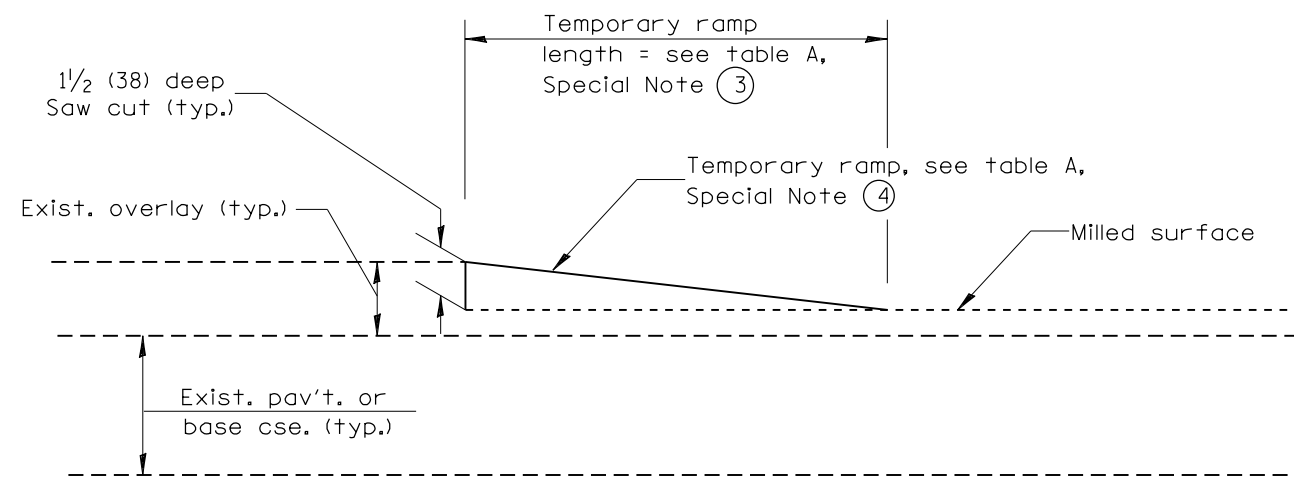
All dimensions are in inches (millimeters) unless otherwise noted.



**CASE 3 : WITH HOT MIX ASPHALT SURFACE REMOVAL (COLD MILLING)  
TIE-IN TO EXISTING BITUMINOUS TAPER**



**CASE 4 : NO HOT MIX ASPHALT SURFACE REMOVAL (COLD MILLING)  
TIE-IN TO EXISTING BITUMINOUS TAPER**



**DETAIL TEMPORARY RAMP**

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

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

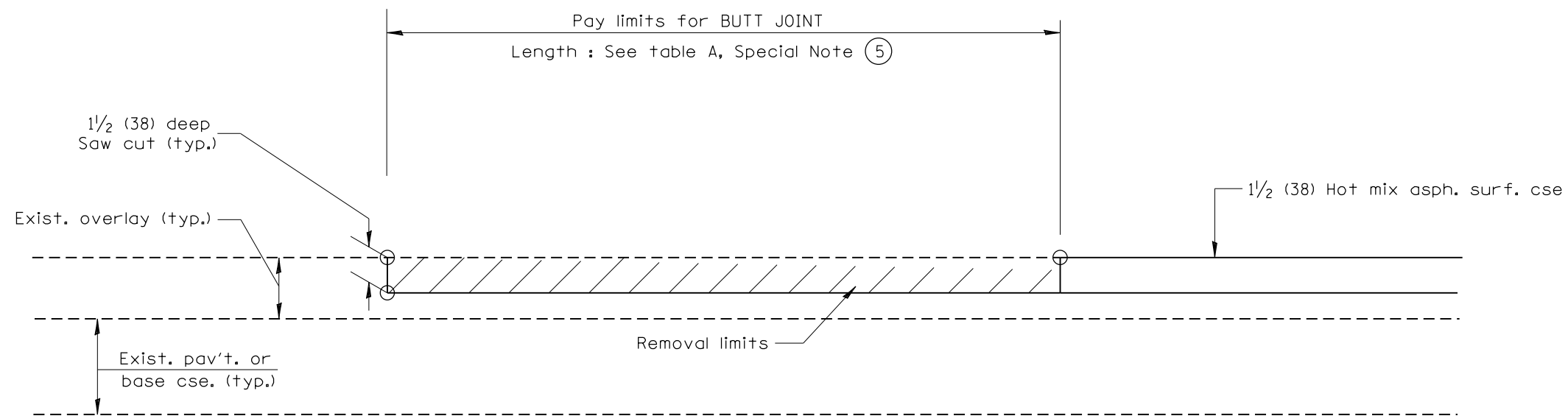
**BUTT JOINTS**

NOT TO SCALE

SHT. 2 OF 3  
CADD STD. 406101-D4

| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS       | SHEET NO. |
|---|---------|-----------|--------------------|-----------|
| 522   | (14B)BR | HENDERSON | 73                 | 52        |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           | CONTRACT NO. 68899 |           |

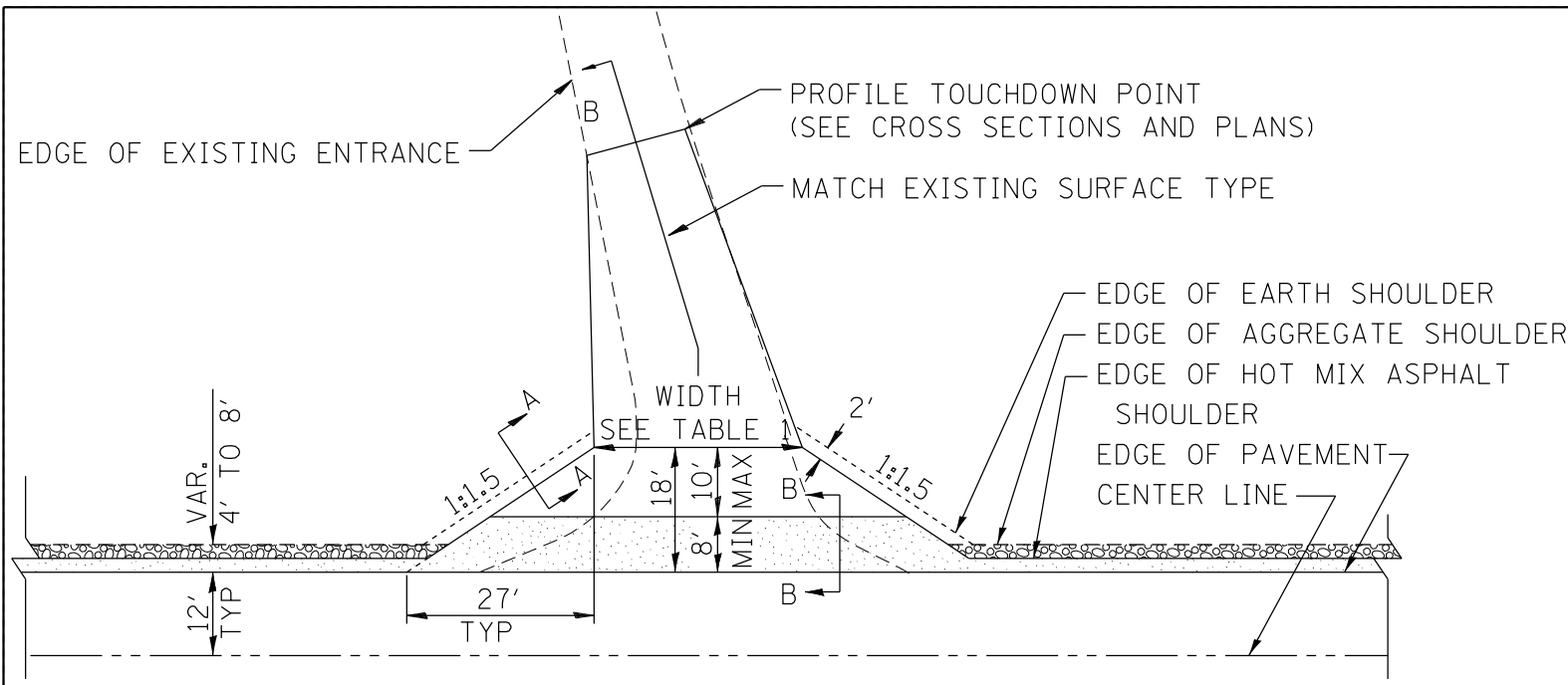




CASE 5 : WITH HOT MIX ASPHALT SURFACE REMOVAL (COLD MILLING)  
TIE-IN TO EXISTING BITUMINOUS TAPER

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

|  |  |   |  |                    |  |                                    |  |                     |  |                 |  |                  |  |                 |  |              |  |                    |  |
|--|--|---|--|--------------------|--|------------------------------------|--|---------------------|--|-----------------|--|------------------|--|-----------------|--|--------------|--|--------------------|--|
|  |  | <b>STATE OF ILLINOIS<br/>DEPARTMENT OF TRANSPORTATION</b> |  | <b>BUTT JOINTS</b> |  | SHT. 3 OF 3<br>CADD STD. 406101-D4 |  | F.A.P. RTE. 522     |  | SECTION (14B)BR |  | COUNTY HENDERSON |  | TOTAL SHEETS 73 |  | SHEET NO. 53 |  | CONTRACT NO. 68899 |  |
|  |  |   |  | NOT TO SCALE       |  |                                    |  | FED. ROAD DIST. NO. |  | ILLINOIS        |  | FED. AID PROJECT |  |                 |  |              |  |                    |  |



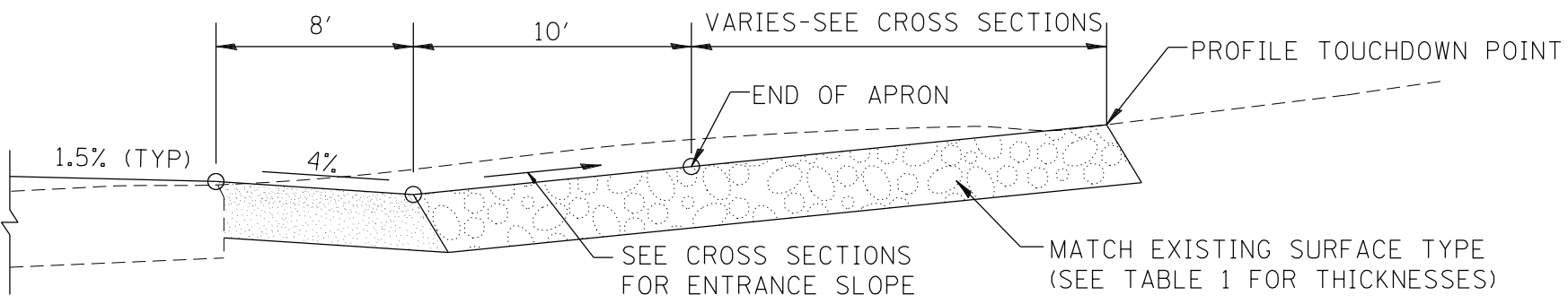
HOT MIX ASPHALT SHOULDER, 8"  
 AGGREGATE SHOULDER, TYPE B, 6"

**PLAN**

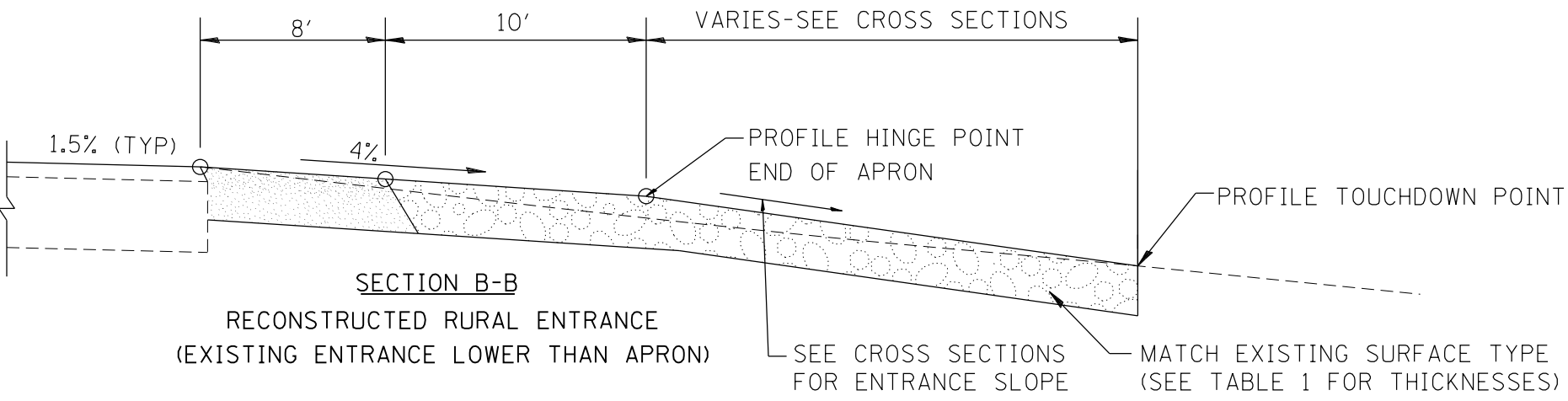
COMMERCIAL / FARM-RELATED ENTRANCE

| TABLE 1               |                |                |   |                |                 |                 |
|-----------------------|----------------|----------------|---|----------------|-----------------|-----------------|
| RURAL ENTRANCE DESIGN |                |                |   |                |                 |                 |
| ELEMENT               | NON-COMMERCIAL |                | NON-COMMERCIAL W/<br>LARGE FARM EQUIPMENT |                | COMMERCIAL      |                 |
|                       |                |                |   |                | 1-WAY OPERATION | 2-WAY OPERATION |
| WIDTH (W)             | 12'(3.6m) Min. | 24'(7.2m) Max. | 20' (6.1m)Max.                            | 30' (9.0m)Max. | 14'(4.3m) Min.  | 24'(7.2m) Max.  |
| FLARE                 |                |                |   |                |                 | 1:1.5           |
| MAX. GRADE (G)        | 12%            |                | 12%                                       |                | 10%             |                 |

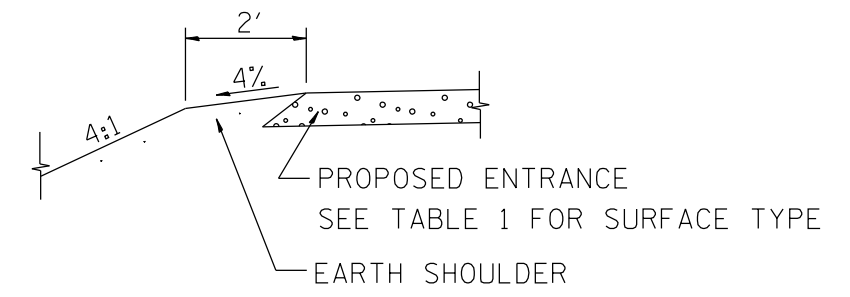
| SURFACE TYPE                         |    |    |    |
|--------------------------------------|----|----|----|
| INCIDENTAL HOT MIX ASPHALT SURFACING | 6" | —  | 8" |
| AGGREGATE SURFACE COURSE             | 6" | 8" | 8" |
| PCC DRIVEWAY PAVEMENT                | 6" | —  | 7" |



SECTION B-B  
RECONSTRUCTED RURAL ENTRANCE  
(EXISTING ENTRANCE HIGHER THAN APRON)



SECTION B-B  
RECONSTRUCTED RURAL ENTRANCE  
(EXISTING ENTRANCE LOWER THAN APRON)

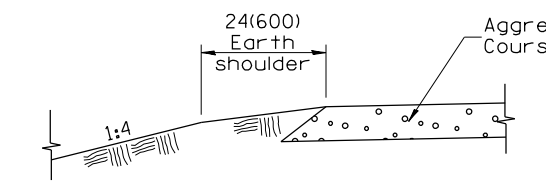


SECTION A-A  
SHOULDER TREATMENT FOR RURAL ENTRANCES

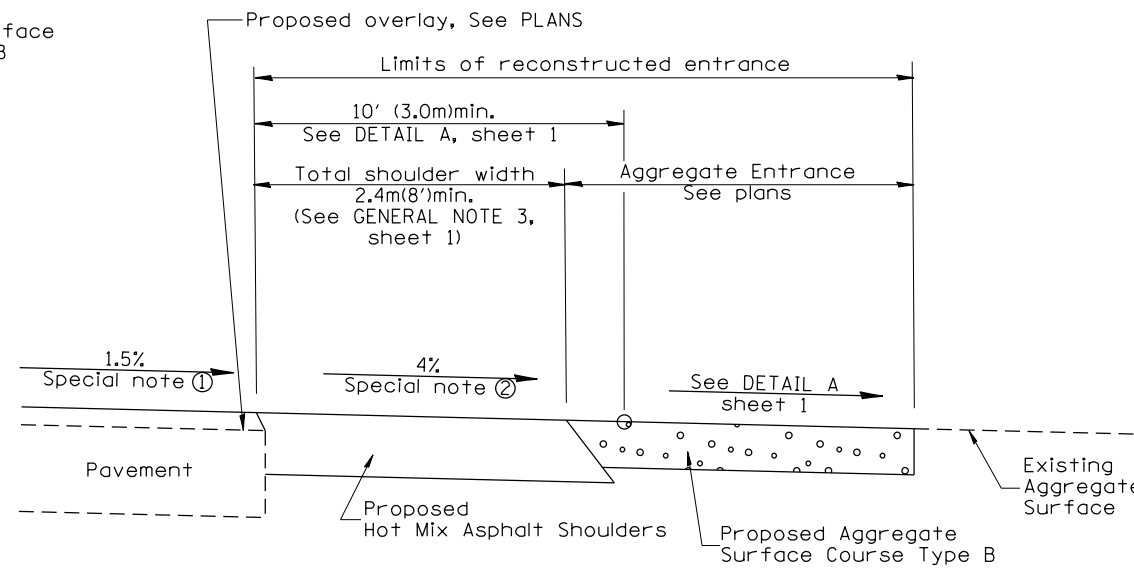
GENERAL NOTES

- ENTRANCES SHALL SLOPE AWAY FROM THE PAVEMENT AT A RATE EQUAL TO THE SHOULDER SLOPE FOR A MINIMUM DISTANCE OF 8'.
- A MINIMUM 8' PAVED SHOULDER SHALL BE CONSTRUCTED BETWEEN LOCATIONS WHERE THE RURAL ENTRANCE IS LESS THAN 50' FROM AN ADJACENT SIDEROAD, ENTRANCE OR MAILBOX TURNOUT.
- A TAPER RATE OF 5:1 IS DESIRABLE WHEN TRANSITING FROM THE RURAL ENTRANCE WIDTH SHOWN IN TABLE 1, TO THE EXISTING ENTRANCE WIDTH.

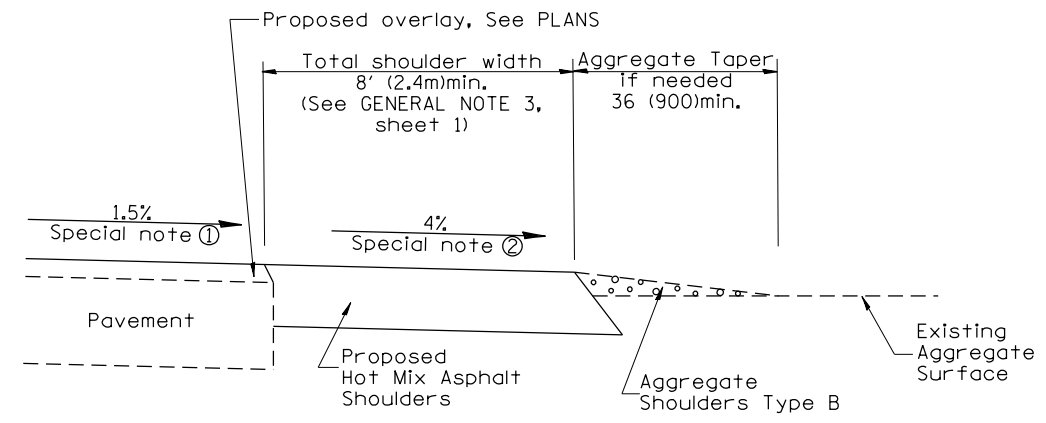
All dimensions are in inches (millimeters) unless otherwise noted.



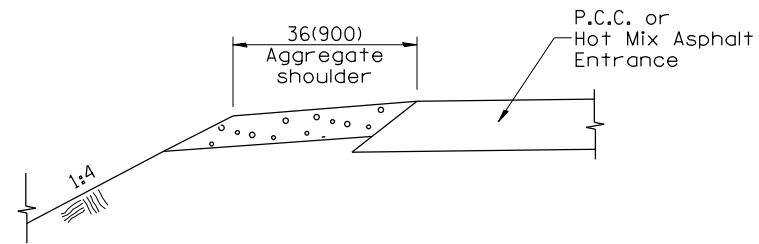
**SECTION A-A**  
SHOULDER TREATMENT FOR AGGREGATE ENTRANCES



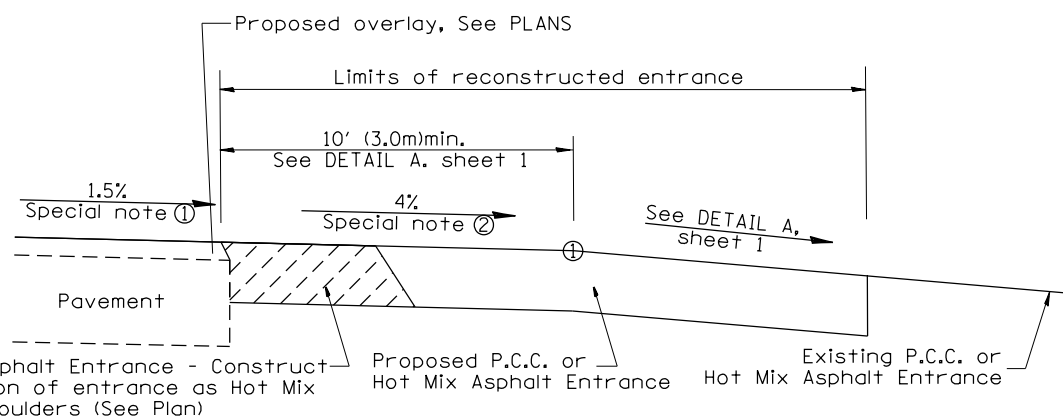
**SECTION B-B**  
RECONSTRUCTED AGGREGATE ENTRANCE



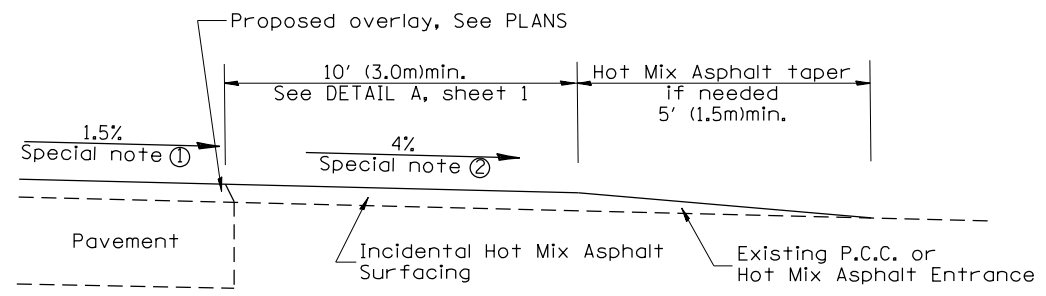
**SECTION B-B**  
EXISTING AGGREGATE ENTRANCE



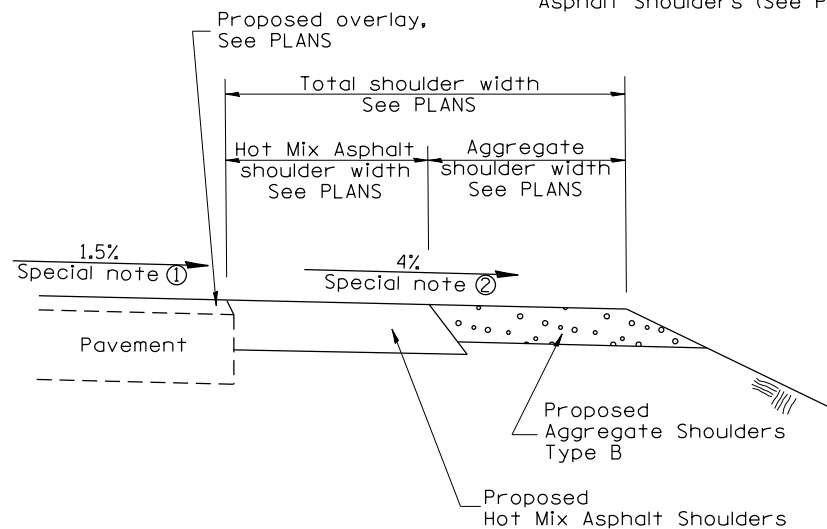
**SECTION C-C**  
SHOULDER TREATMENT FOR P.C.C. OR HOT MIX ASPHALT ENTRANCES



**SECTION D-D**  
RECONSTRUCTED P.C.C. OR HOT MIX ASPHALT ENTRANCE



**SECTION D-D**  
EXISTING P.C.C. OR HOT MIX ASPHALT ENTRANCE



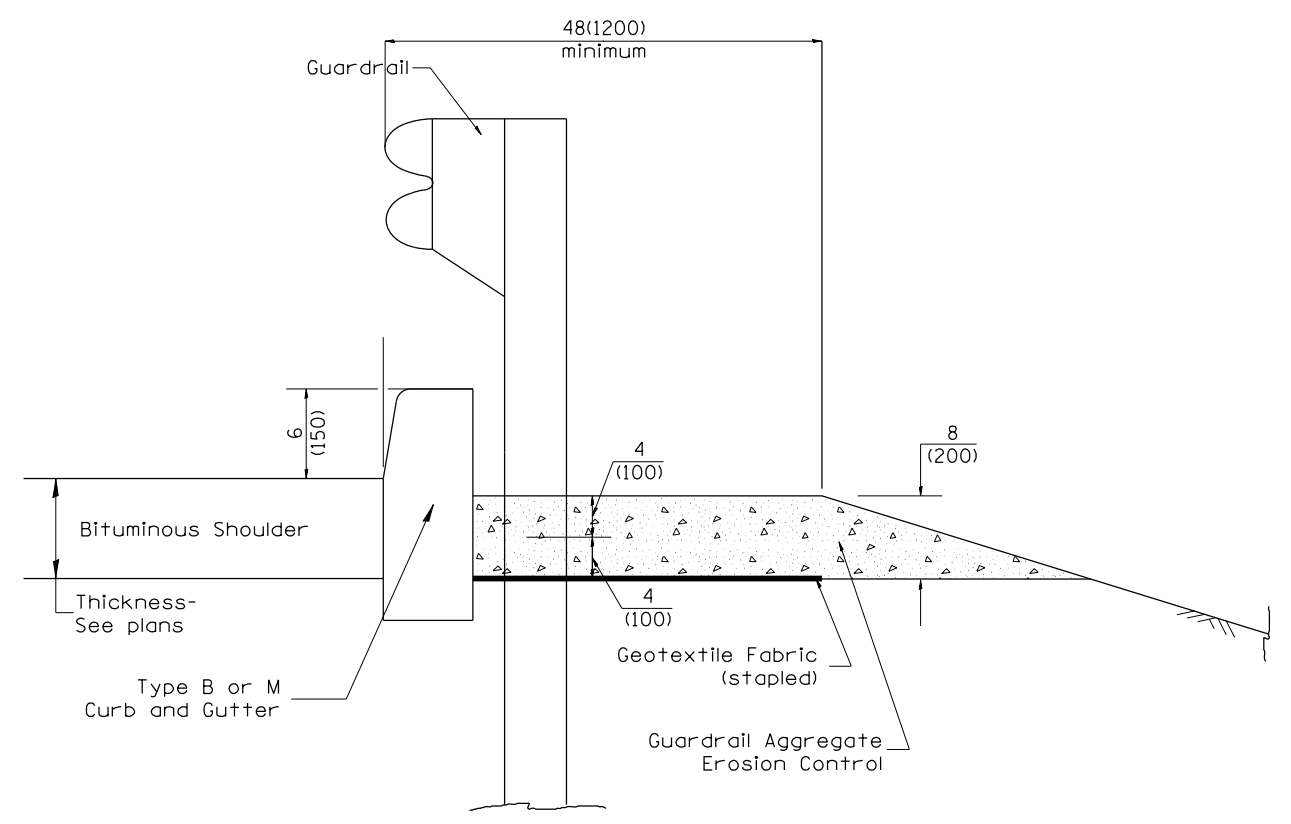
**SECTION E-E**  
MAINLINE SHOULDER TREATMENT

**SPECIAL NOTES**

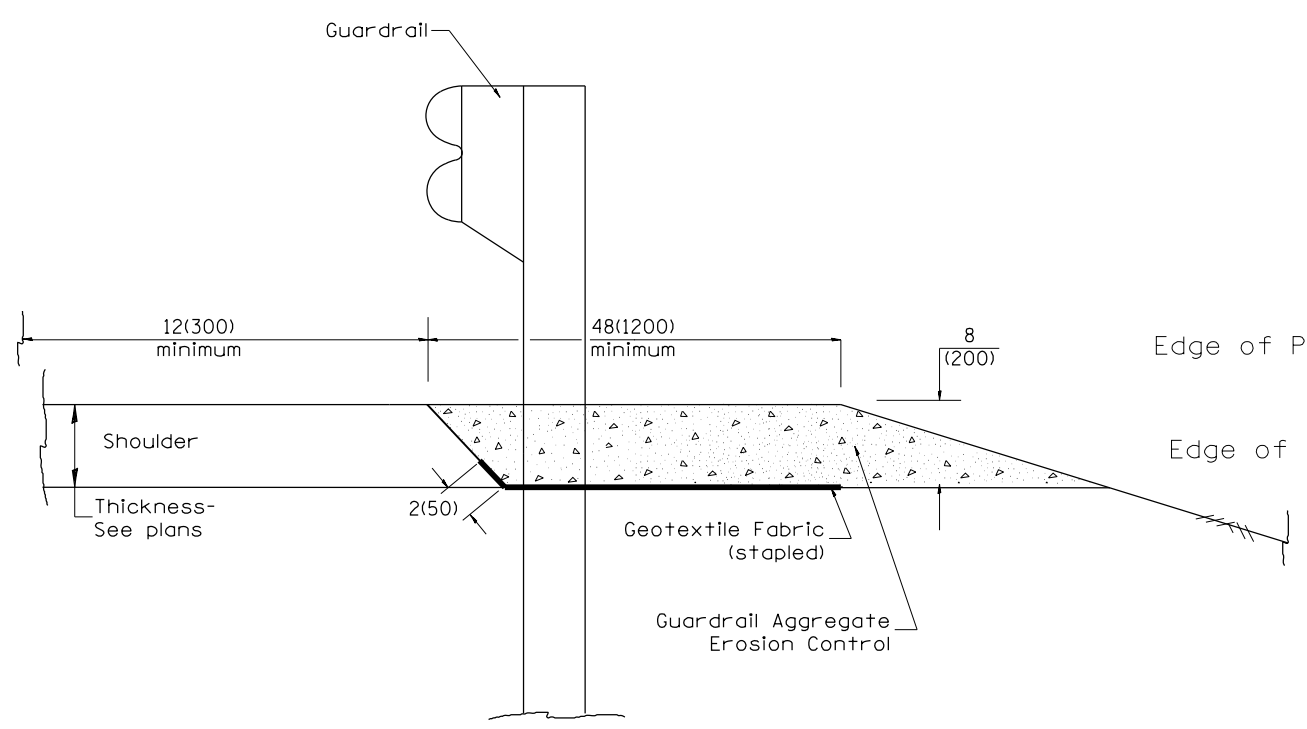
- ① The mainline pavement cross-slope is 1.5% for tangent alignment. See PLANS for cross-slope on super-elevated horizontal curves.
- ② The shoulder slope shall control the entrance profile for a distance of 10' (3.0m) minimum from the pavement edge. The shoulder cross-slope is 4% for tangent alignment. Through super-elevated curves, the maximum pavement-shoulder breakover should not be greater than 10% for shoulders 6' (1.8m) and wider and 12% for shoulders 4' (1.2m) and less. Where 12' (366cm) paved shoulders are provided, the breakover should be at the edge of the paved shoulder rather than at the pavement edge.

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

DESIGNER NOTES:  
 1. Consider using a "B" curb pay item at guardrail installations where grades are equal to or greater than 1% and at inlets. (Include District Special Provision)  
 2. Use GUARDRAIL AGGREGATE EROSION CONTROL at guardrail installations where grades are less than 1%. (Include District Special Provision)  
 3. Include State Standards 609001, 609006 or 610001 if applicable.  
 4. Include the following District Cadd Standards as needed: Slope Drains for Exposed Pipes; Slope Drains for Buried Pipes; Seepage Collars for Buried Pipes; Seepage Collars for Exposed Pipes; Concrete Thrust Blocks and Pipe Elbow.  
 5. Include District Special Provision "Aggregate Quality" for projects located in the Western Area of the District - approx. dividing line is IL 97.



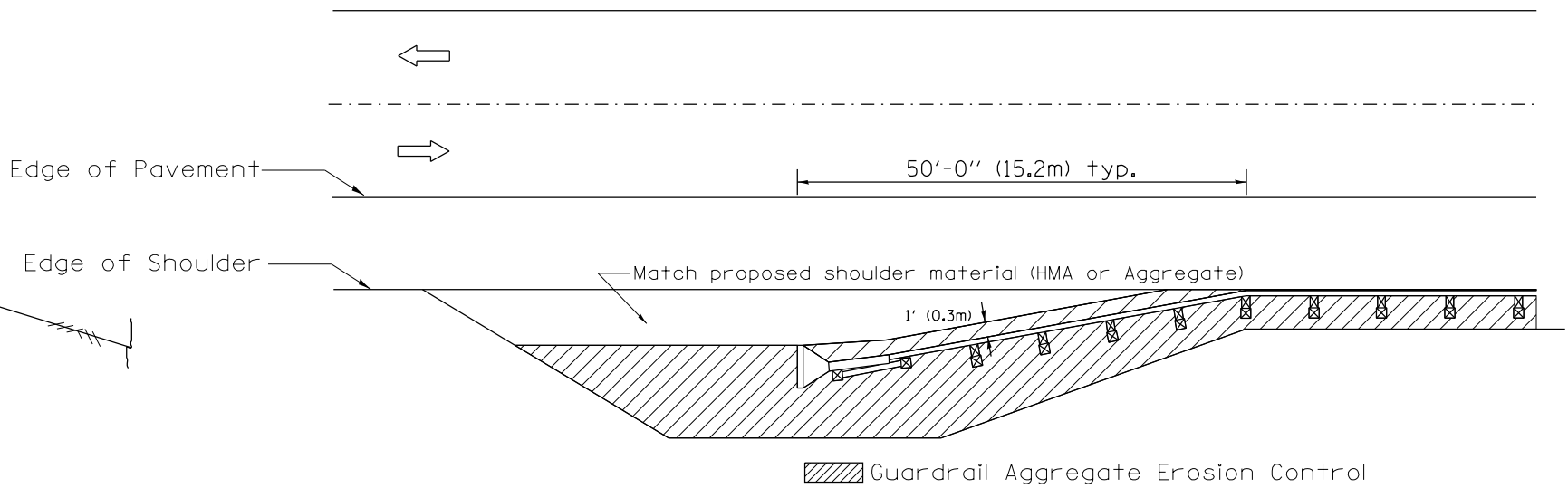
**TYPICAL SECTION WITH EROSION CONTROL CURB**



**TYPICAL SECTION WITHOUT EROSION CONTROL CURB**

**GENERAL NOTES: GUARDRAIL AGGREGATE EROSION CONTROL**

1. This work shall consist of grading as needed, furnishing and installing geotextile fabric and staples, and furnishing, placing and shaping crushed aggregate around and behind Steel Plate Beam Guardrail posts in accordance with Plan Details.
2. Before placing the aggregate and the Geotextile Fabric, weeds and grass shall be removed from the area to be covered.
3. After the area has been prepared, and in a dry condition, the Geotextile fabric shall be placed with a 12(300) minimum overlap. A knife cut for guardrail post installation is necessary.
4. The aggregate shall be deposited, compacted and shaped by either mechanical or hand methods, in a manner reasonably true to line and grade.
5. The Contractor shall have the option of placing the guardrail before or after the Geotextile Fabric and Aggregate are in place. If the guardrail is placed after the Geotextile Fabric and Aggregate, then any voids must be filled and the aggregate returned to line and grade.
6. Materials shall meet the following requirements:
  - A. The crushed aggregate shall be CA1 gradation in accordance with Article 1004.01(c) of the Standard Specifications.
  - B. The Geotextile Fabric shall be nonwoven fabric in accordance with Article 1080.02 of the Standard Specifications.



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

|          |                                     |      |         |                                |      |
|----------|-------------------------------------|------|---------|--------------------------------|------|
| 01-01-97 | RENUM. C-22.01, NEW REVISION BOX    | T.P. | 3-7-11  | Added Detail showing plan view | R.D. |
| 03-01-97 | CORRECT STD. NUMBERS IN NOTES PG. 2 | J.A. | 8-10-12 | Revised curb "B" and aggregate | R.D. |
| 11-03-00 | CORRECTION TO NOTES                 | M.A. |         |                                |      |
| 10-16-06 | REVISED TO 2007 SPEC.               | M.A. |         |                                |      |

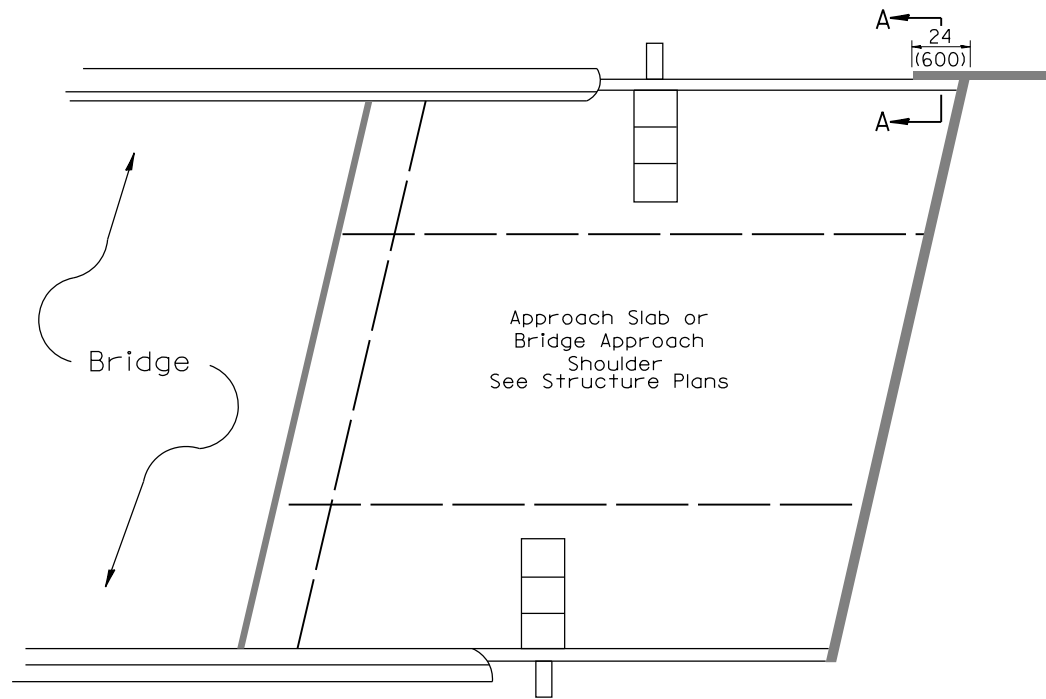
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**GUARDRAIL EROSION CONTROL TREATMENTS**

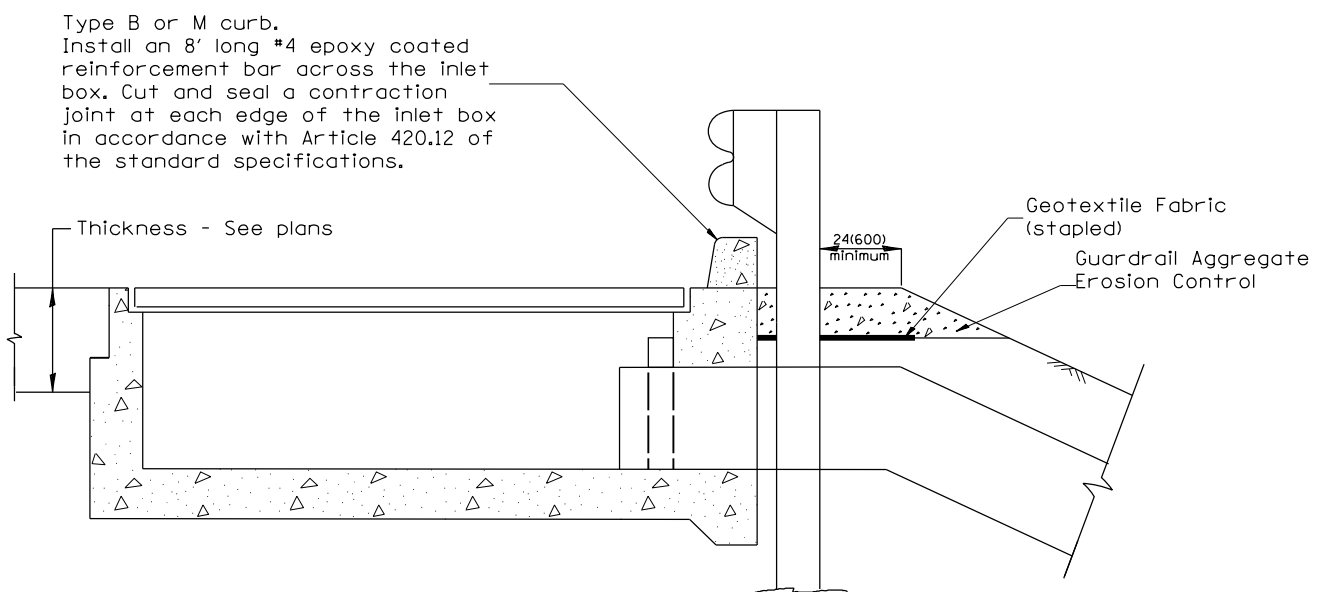
NOT TO SCALE

SHT. 1 OF 2  
CADD STD. 630101-D4

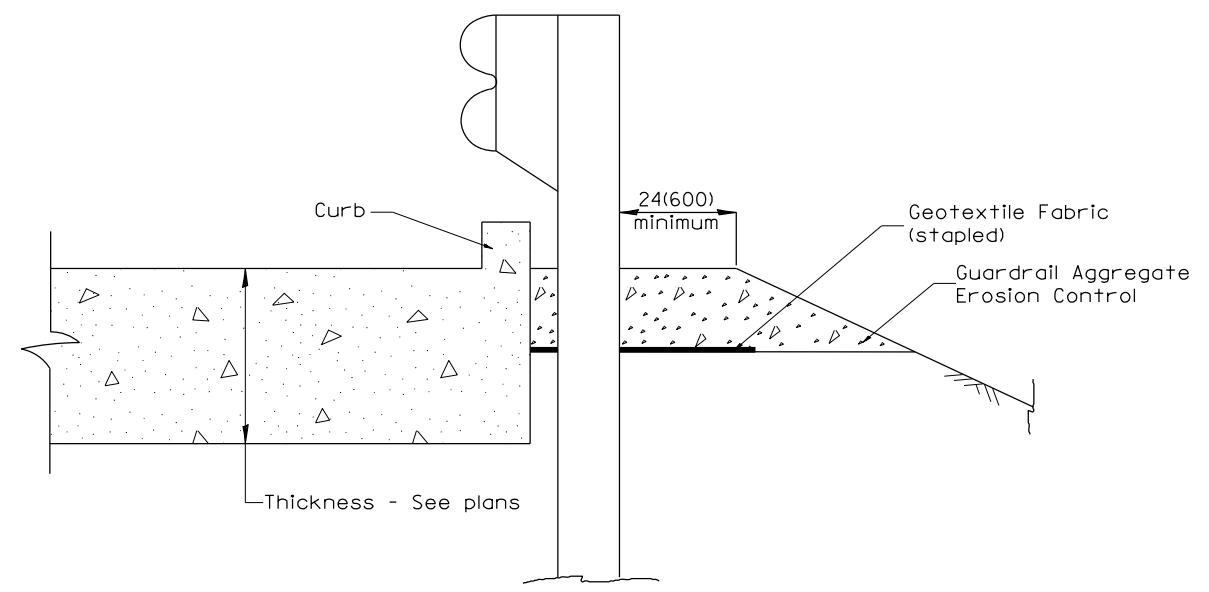
| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS       | SHEET NO. |
|---|---------|-----------|--------------------|-----------|
| 522   | (14B)BR | HENDERSON | 73                 | 56        |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           | CONTRACT NO. 68899 |           |



**PLAN VIEW**  
**APPROACH SLAB OR BRIDGE APPROACH SHOULDER**  
 (STANDARD 609001 or 609006)



**TYPICAL SECTION AT INLETS**  
**TYPE E & F (STANDARD 610001)**



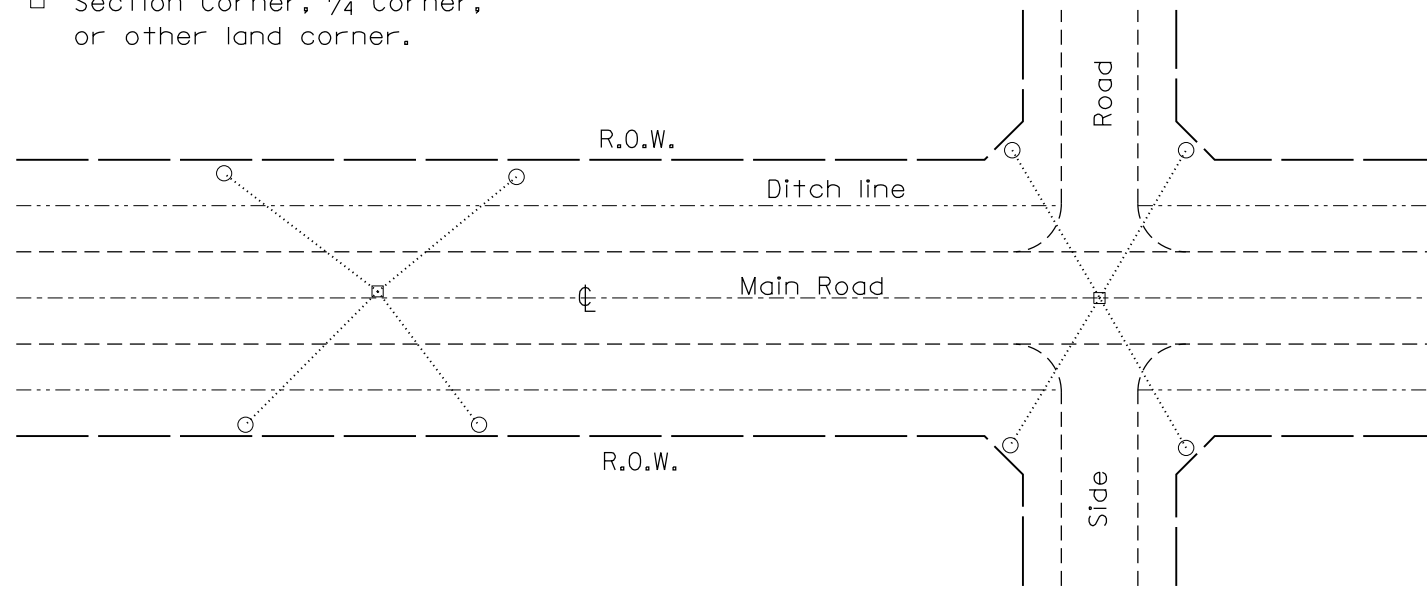
**SECTION A-A**  
**TYPICAL SECTION WITH BRIDGE APPROACH CURB**

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

|  |  |  |  |   |  |   |  |   |         |           |              |           |
|--|--|--|--|---|--|---|--|---|---------|-----------|--------------|-----------|
|  |  |  |  | <b>STATE OF ILLINOIS<br/>DEPARTMENT OF TRANSPORTATION</b> |  | <b>GUARDRAIL EROSION CONTROL TREATMENTS</b> |  | F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|  |  |  |  | NOT TO SCALE  |  | SHT. 2 OF 2<br>CADD STD. 630101-D4          |  | 522   | (14B)BR | HENDERSON | 73           | 57        |
|  |  |  |  |   |  |   |  | CONTRACT NO. 68899                            |         |           |              |           |
|  |  |  |  |   |  |   |  | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |

**PERMANENT SURVEY TIES**

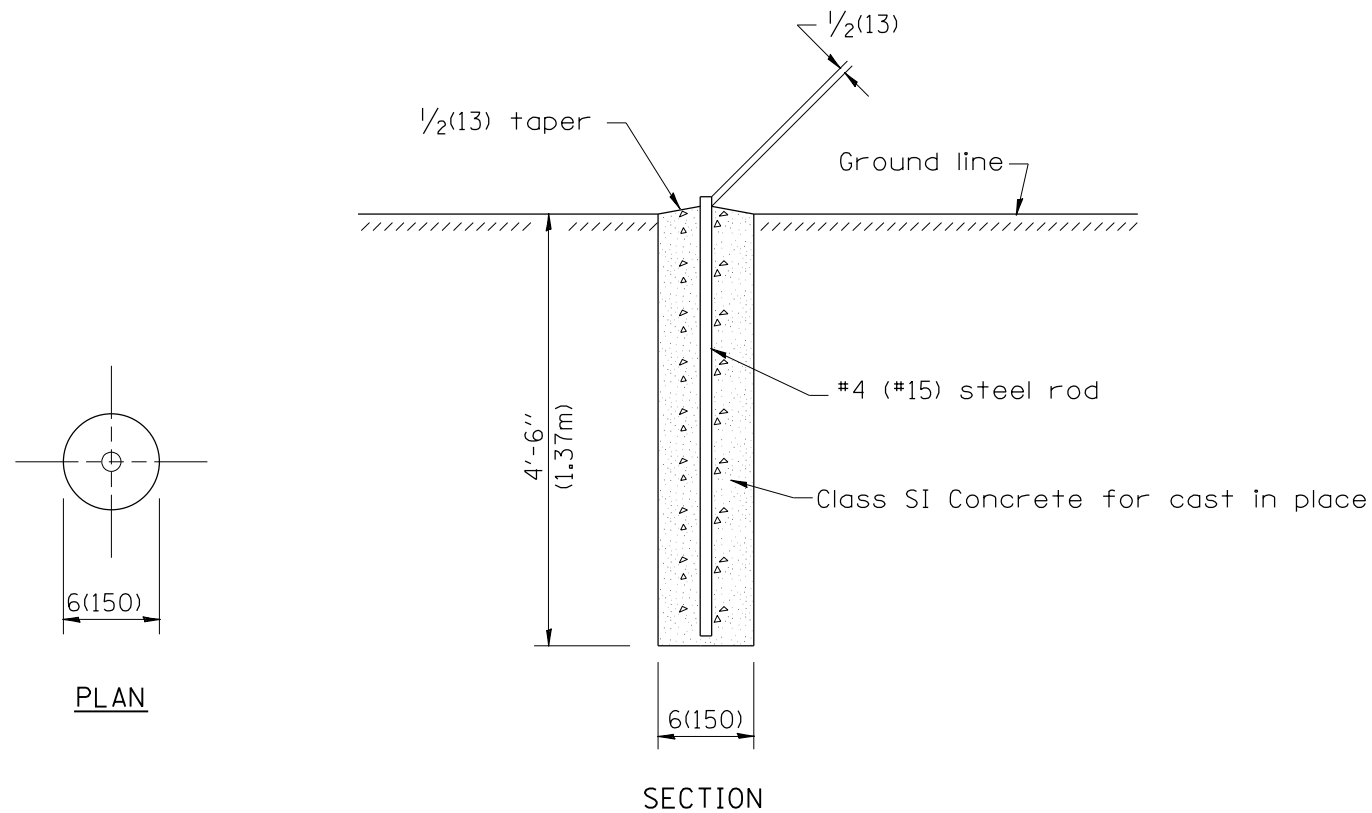
- Permanent Survey Tie
- Section Corner, 1/4 Corner, or other land corner.



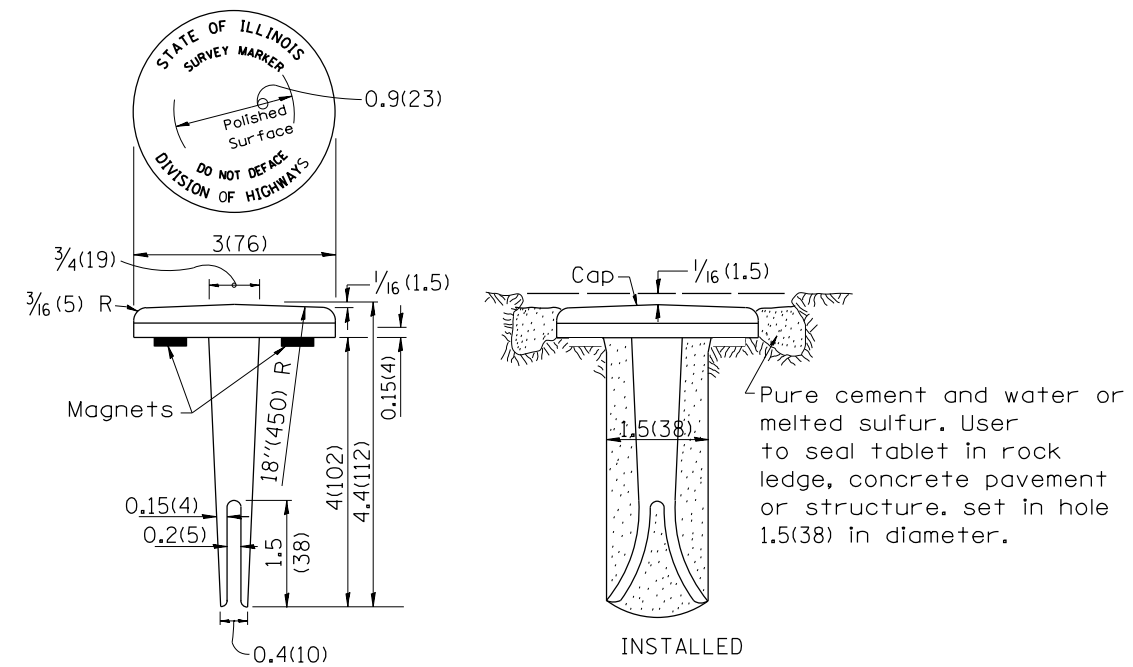
**TYPICAL APPLICATION**

**GENERAL NOTES**

1. The marker shall be cast in place of Class SI Concrete.
2. Tie marker shall be installed after the final seeding has been completed unless otherwise specified by the Engineer.
3. The tie distances to the section corner shall be measured and recorded by the surveyor setting the PSM. All ties shall be turned over to the IDOT Chief of Surveys or Chief of Plats for recordation.
4. All documentation shall be performed by a PLS



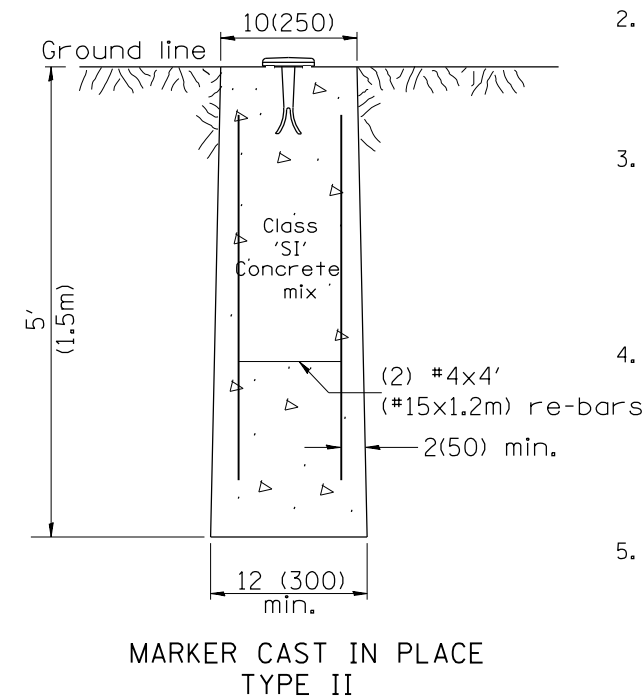
**PERMANENT SURVEY MARKERS**



**TYPE I**

**GENERAL NOTES**

1. All type II markers shall be cast in place, and precast markers will not be allowed.
2. Two permanent magnets, each having a diameter of 3/4 (19) and a thickness of 1/4 (6), or equivalent, shall be attached to the underside of the tablet with an approved epoxy bonding agent.
3. The location of the markers shall be in accordance with the plans in general, the markers will be placed at the P.T.'s, P.C.'s, and P.I.'s located within the R.O.W. of horizontal curves and spaces along the tangents in a way that a minimum of two markers are always inter-visible, and not to exceed 1000' (300m).
4. The markers shall be placed under the direction of the Engineer and shall be installed in a workmanlike manner in order that there will be no further settlement or horizontal shifting. The monuments shall be placed in a way that the survey point will fall within the portion of the plaque provided for that purpose.
5. The project designation, the centerline station, the survey point, and the elevation shall be permanently marked by the use of metal dies after marker has been installed.



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

DESIGNER NOTES:  
 1. ADD DISTRICT SPECIAL PROVISION IF PLACING A TYPE I MARKER ON A STRUCTURE.  
 2. MODIFIES STATE STD 667101. DON'T USE STATE STD IF USING CADD STANDARD  
 3. PERMANENT SURVEY MARKERS SHALL BE PLACED TO PERPETUATE THE SURVEY LINES OF DIVIDED HIGHWAYS AND THE CENTERLINE OF ALL OTHERS WHERE THESE LINES HAVE BEEN ESTABLISHED BY SURVEY.  
 4. PERMANENT SURVEY MARKERS SHALL BE PLACED AT ALL LAND SECTION CORNERS WITHIN THE STATE R.O.W. WHERE THE MONUMENTS HAVE BEEN FOUND OR RELOCATED BY SURVEY.

|          |  |      |          |                         |      |
|----------|--|------|----------|-------------------------|------|
| 01-01-97 | RENUM. D-3.01, NEW REVISION BOX, REVISED | T.P. | 10-16-06 | REVISED TO 2007 SPEC.   | M.A. |
|          | TITLE BOX, ADD DESIGNER NOTE             |      | 01-04-11 | REVISED FOR CORRECTIONS | R.D. |
| 07-07-98 | ADD DESIGNER NOTE                        | J.A. |          |                         |      |
| 05-24-06 | REMOVED GEN. NOTE UNDER TIES             | M.A. |          |                         |      |

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

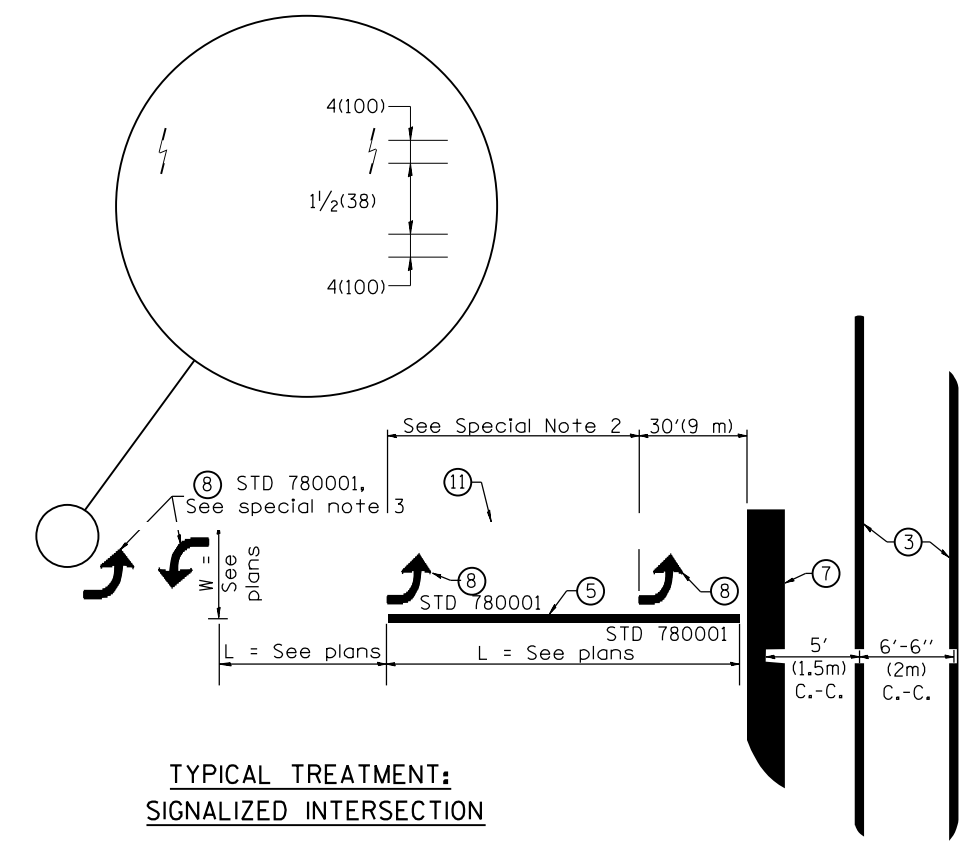
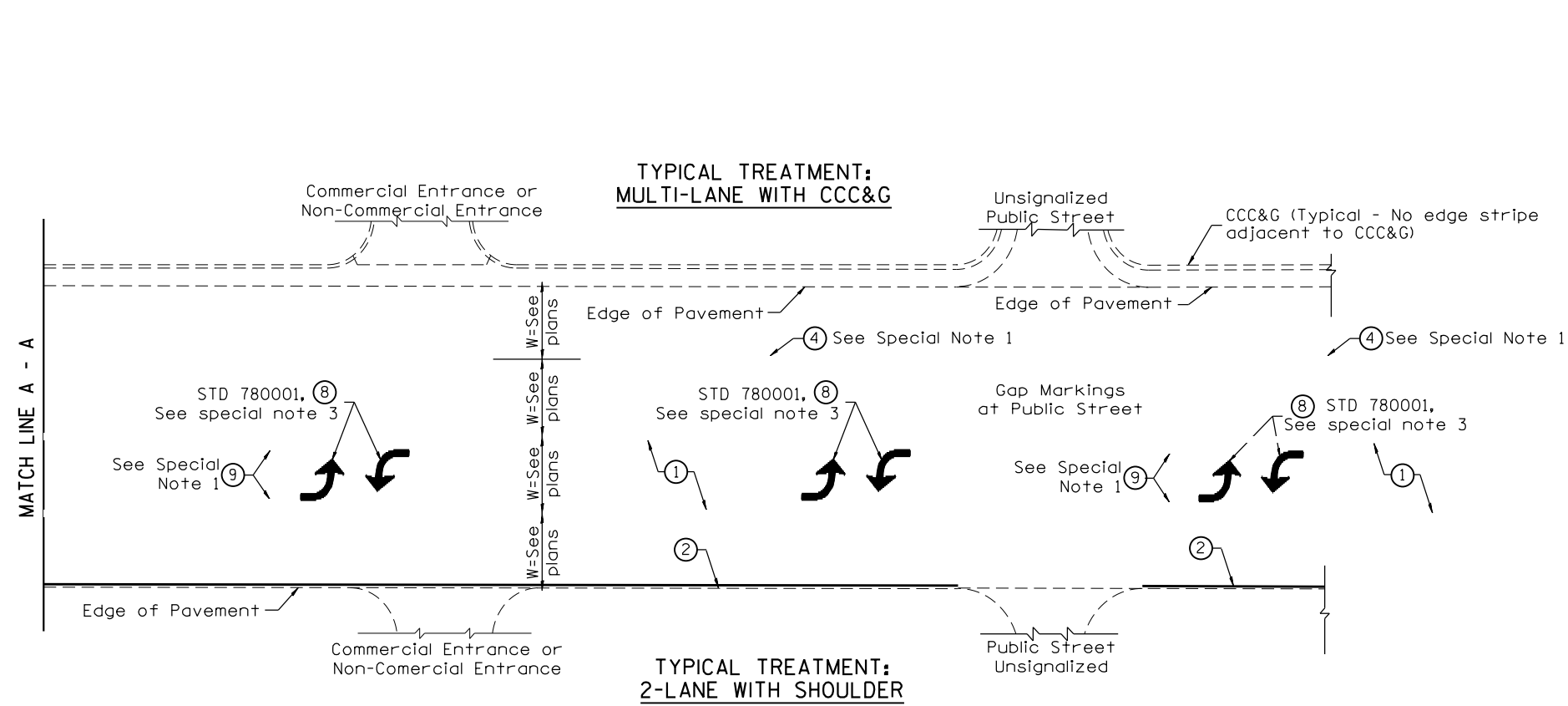
NOT TO SCALE

**PERMANENT SURVEY TIE &  
PERMANENT SURVEY MARKERS TY.I - TY.II**

CADD STD. 667101-D4

| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|---|---------|-----------|--------------|-----------|
| 522   | (14B)BR | HENDERSON | 73           | 58        |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |

DESIGNER NOTES:  
1. Include State Standard 780001 (Typical Pavement Markings)



**FLUSH PAVED MEDIAN: TWO-WAY LEFT TURN LANE WITH ONE-WAY LEFT TURN LANE AT SIGNALIZED INTERSECTION**

**TYPICAL PAVEMENT MARKING LEGEND**  
(Note: This is a District Standard Legend. Some elements may not apply to specific project.)

- ① 4(100) Solid (Yellow)
- ② 4(100) Solid (White)
- ③ 2-6(150) Crosswalk @ 6'-6" (2m)min C.-C. (White)  
2-8(200) Crosswalk @ 6'-6" (2m)min C.-C. (White) (When traffic signals are present.)
- ④ 6(150) Skip-Dash (White) (See Special Note 1)
- ⑤ 8(200) Solid (White)
- ⑥ 12(300) Diagonal (White) (Item ⑥ is shown on Std. 780001)
- ⑦ 24(600) Stop Bar (White)
- ⑧ Letters & Arrows (See Std. 780001 and Special Notes 2 & 3)
- ⑨ 4(100) Skip-Dash (Yellow) (See Special Note 1)
- ⑩ 12(300) Diagonal (Yellow) (See Table A)
- ⑪ 4(100) Double Solid (Yellow) (See Table A)

**SPECIAL NOTES**

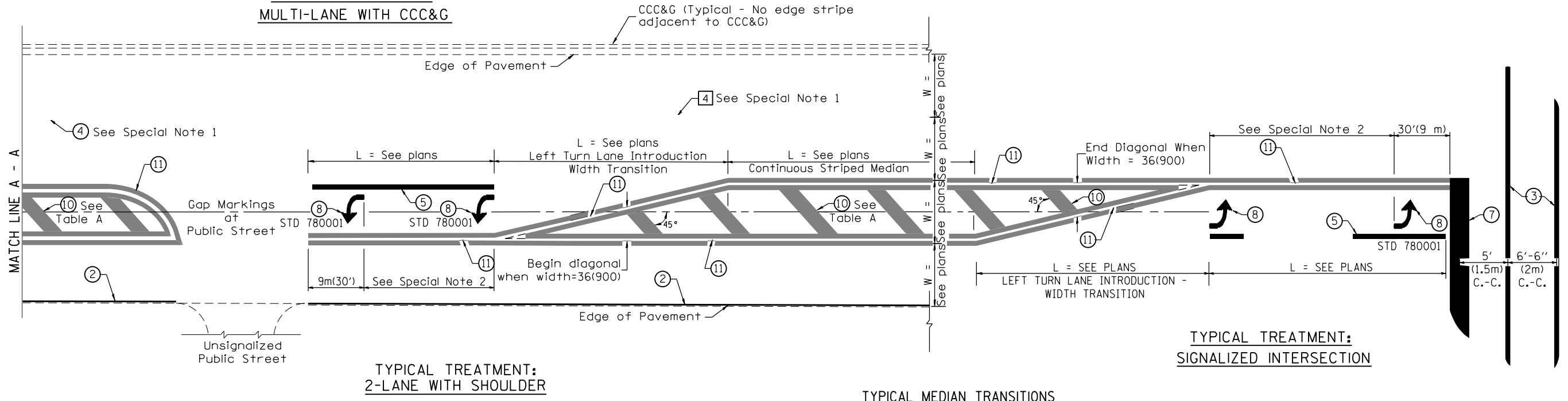
1. Skip-Dash markings will be centered between both ends of city blocks and shall be placed in alignment transversely across the pavement.
2. The following shall apply to arrows located in one-way left turn lanes:
  - A. A minimum of two (2) arrows is required.
  - B. The maximum spacing between arrows is 80' (24 m).
  - C. Arrows shall be evenly spaced if three (3) or more are required.
3. The following shall apply to arrow pairs located in two-way left turn lanes:
  - A. A minimum of two (2) arrow pairs is required.
  - B. The maximum spacing between arrow pairs is 200' (61 m).
  - C. Arrow pairs shall be evenly spaced if three (3) or more are required.
  - D. The spacing between Bi Directional Left Turn Arrows is 33' (10 m).

**GENERAL NOTES**

1. Refer to State Standard 780001 for additional Pavement Markings including letters & arrows.
2. See Plans for Pavement Markings adjacent to curbed islands and medians, and through lane reductions.

|          |                                  |      |          |                       |   |                                  |              |   |         |           |                    |           |
|----------|----------------------------------|------|----------|-----------------------|---|----------------------------------|--------------|---|---------|-----------|--------------------|-----------|
| 01-01-97 | RENUM. F-8.03, NEW REVISION BOX  | T.P. | 10-16-06 | REVISED TO 2007 SPEC. | <b>STATE OF ILLINOIS<br/>DEPARTMENT OF TRANSPORTATION</b> | <b>TYPICAL PAVEMENT MARKINGS</b> | NOT TO SCALE | F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS       | SHEET NO. |
| 02-07-97 | ADD BI DIRECTIONAL DIMENSION     | J.A. |          |                       |   |                                  |              | 522   | (14B)BR | HENDERSON | 73                 | 59        |
| 10-97    | CORRECT BI DIRECTIONAL DIMENSION | J.A. |          |                       |   |                                  |              | SHT. 1 OF 2<br>CADD STD. 780001-D4            |         |           | CONTRACT NO. 68899 |           |
| 08-02    | ADD CROSSWALK DMNS. WITH T.S.    | M.A. |          |                       |   |                                  |              | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |                    |           |

**TYPICAL TREATMENT:  
MULTI-LANE WITH CCC&G**



**TYPICAL TREATMENT:  
2-LANE WITH SHOULDER**

**TYPICAL MEDIAN TRANSITIONS**

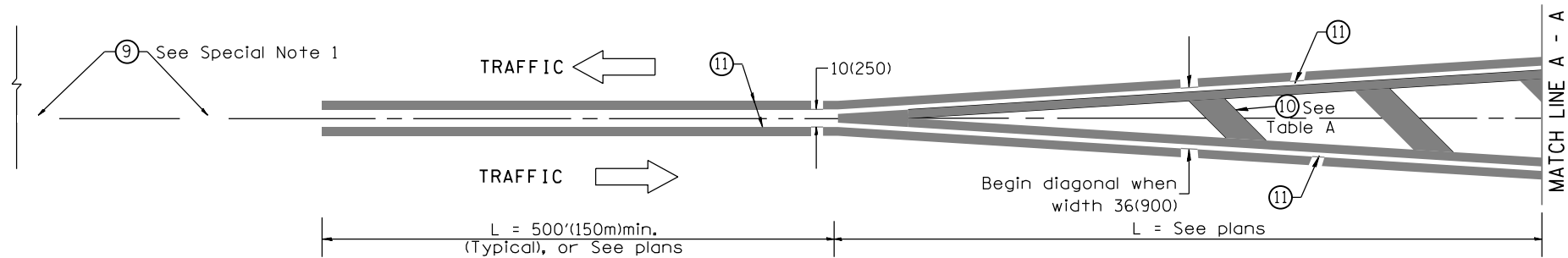
**TYPICAL TREATMENT:  
SIGNALIZED INTERSECTION**

**FLUSH PAVED MEDIAN: RESTRICTED LEFT TURN LANE**

**TABLE A**

**RECOMMENDED SPACING BETWEEN DIAGONAL LINES**

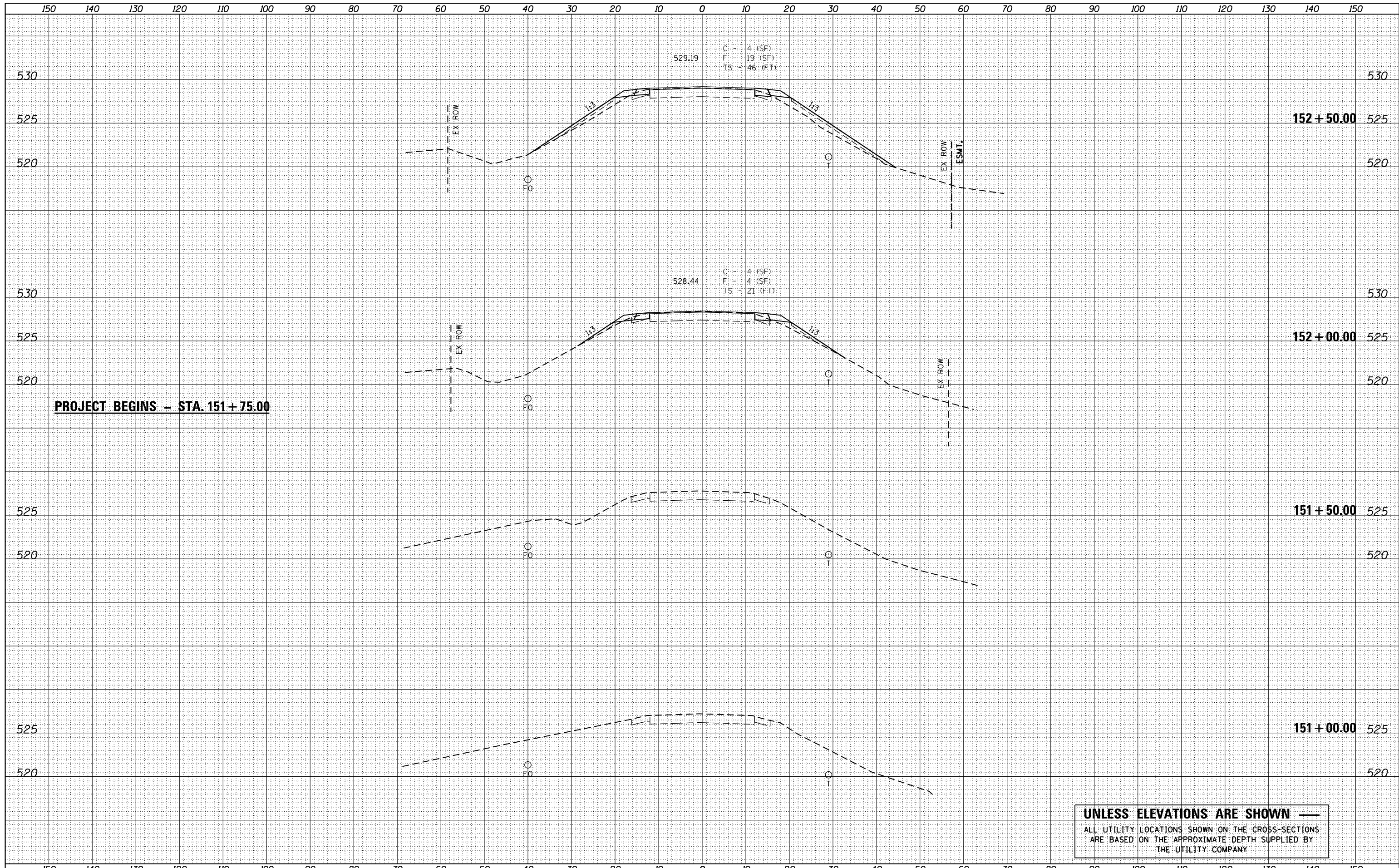
| SPEED LIMIT RANGE          | CONTINUOUS | INTERSECTION CHANNELIZATION  |
|----------------------------|------------|--|
|                            |            | (Includes Width Transitions for Median and Left Turn Lane Introductions) |
| Less Than 30 mph (50 km/h) | 50' (15m)  | 15' (5m)   |
| 30 - 45 mph (50 - 70 km/h) | 75' (23m)  | 20' (6m)   |
| Over 45 mph (70 km/h)      | 150' (46m) | 30' (9m)   |



**MEDIAN INTRODUCTION - WIDTH TRANSITIONS**

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





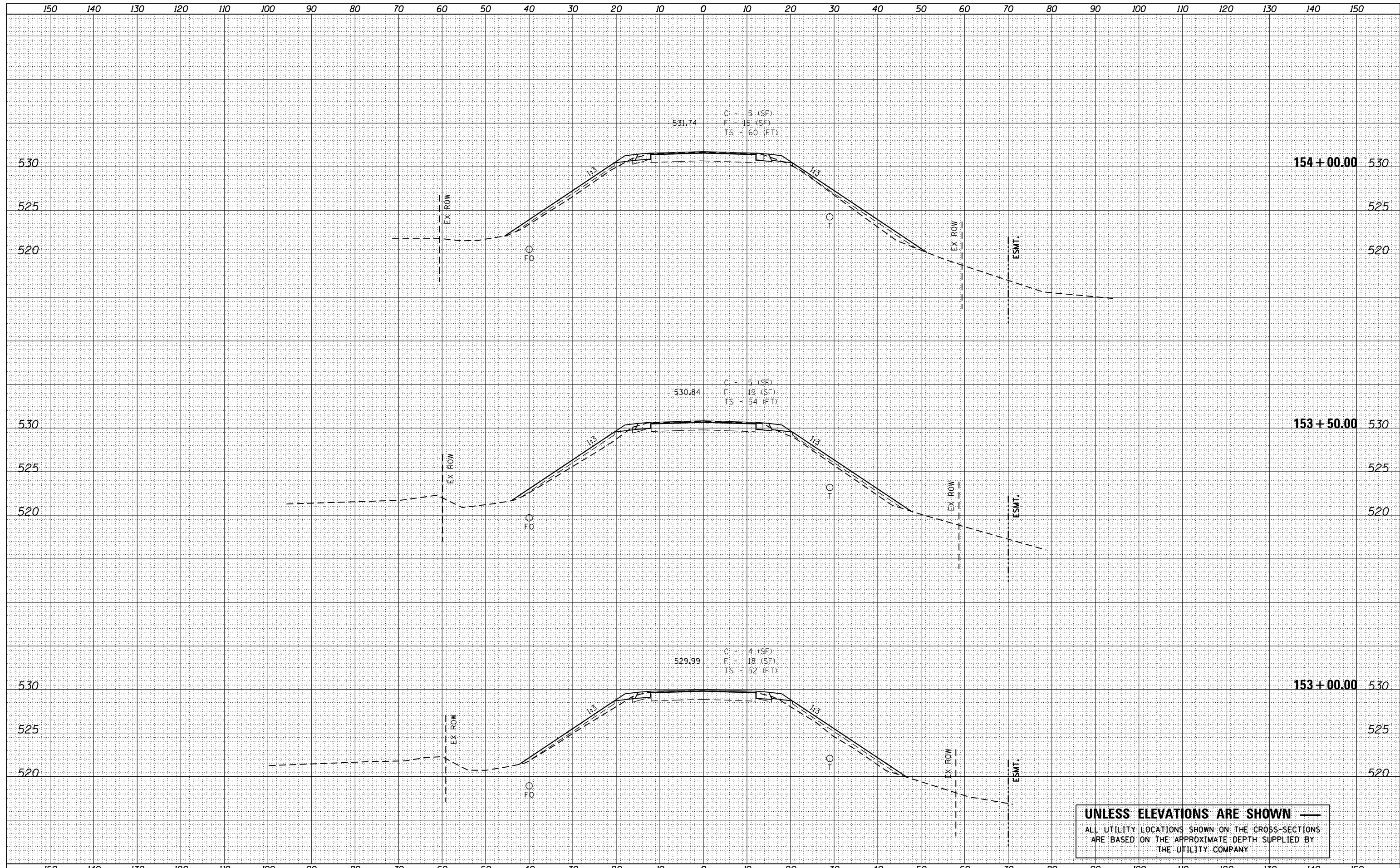
|                  |      |
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| BY               | DATE |
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| AREAS CHECKED    |      |
| FINAL SURVEY NO. |      |
| NOTE BOOK NO.    |      |
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| AREAS CHECKED       |      |
| ORIGINAL SURVEY NO. |      |
| NOTE BOOK NO.       |      |
| AREAS CHECKED       |      |

**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY

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**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
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 THE UTILITY COMPANY

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| USER NAME = keathbr         | DESIGNED - | REVISED - |
|                             | DRAWN -    | REVISED - |
| PLOT SCALE = 20.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DATE -     | REVISED - |



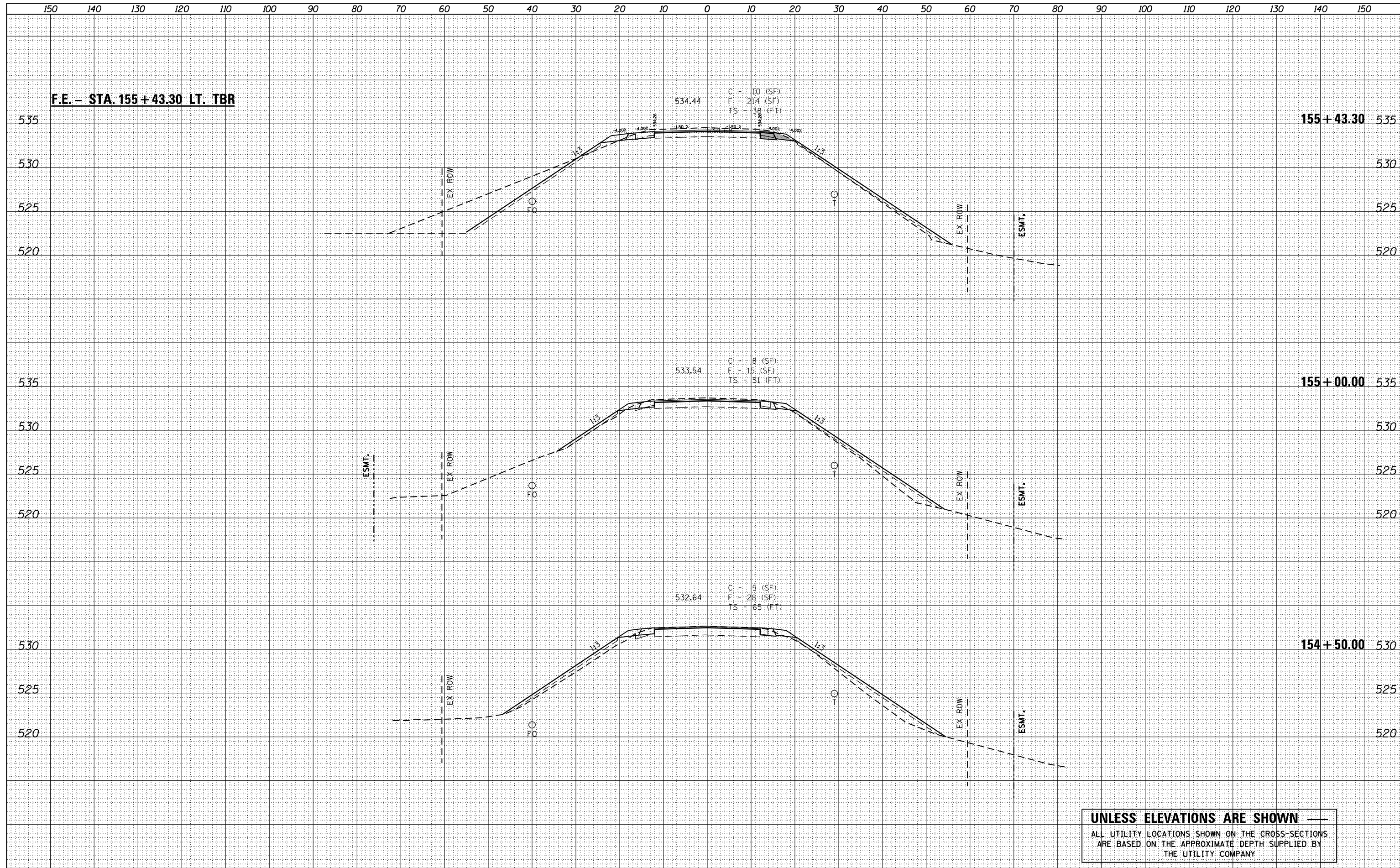
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 Civil and Structural Engineers Springfield, IL  
 62703 Phone: (217)544-8033 IL Design Firm  
 No. 184-001907

**CROSS SECTIONS (FAP 522)**  
 SCALE: 1" = 5' SHEET NO. 2 OF 13 SHEETS STA. 153+00.00 TO STA. 154+00.00

|   |         |           |              |           |
|---|---------|-----------|--------------|-----------|
| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
| 522   | (14B)BR | HENDERSON | 73           | 62        |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |

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| SURVEYED     |  |
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| FINAL SURVEY |  |
| NOTE BOOK    |  |
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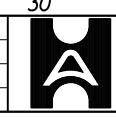
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| NOTE BOOK       |  |
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**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY

USER NAME = keathbr  
 PLOT SCALE = 20.0000' / in.  
 PLOT DATE = 10/17/2014

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| DATE -     | REVISIED - |



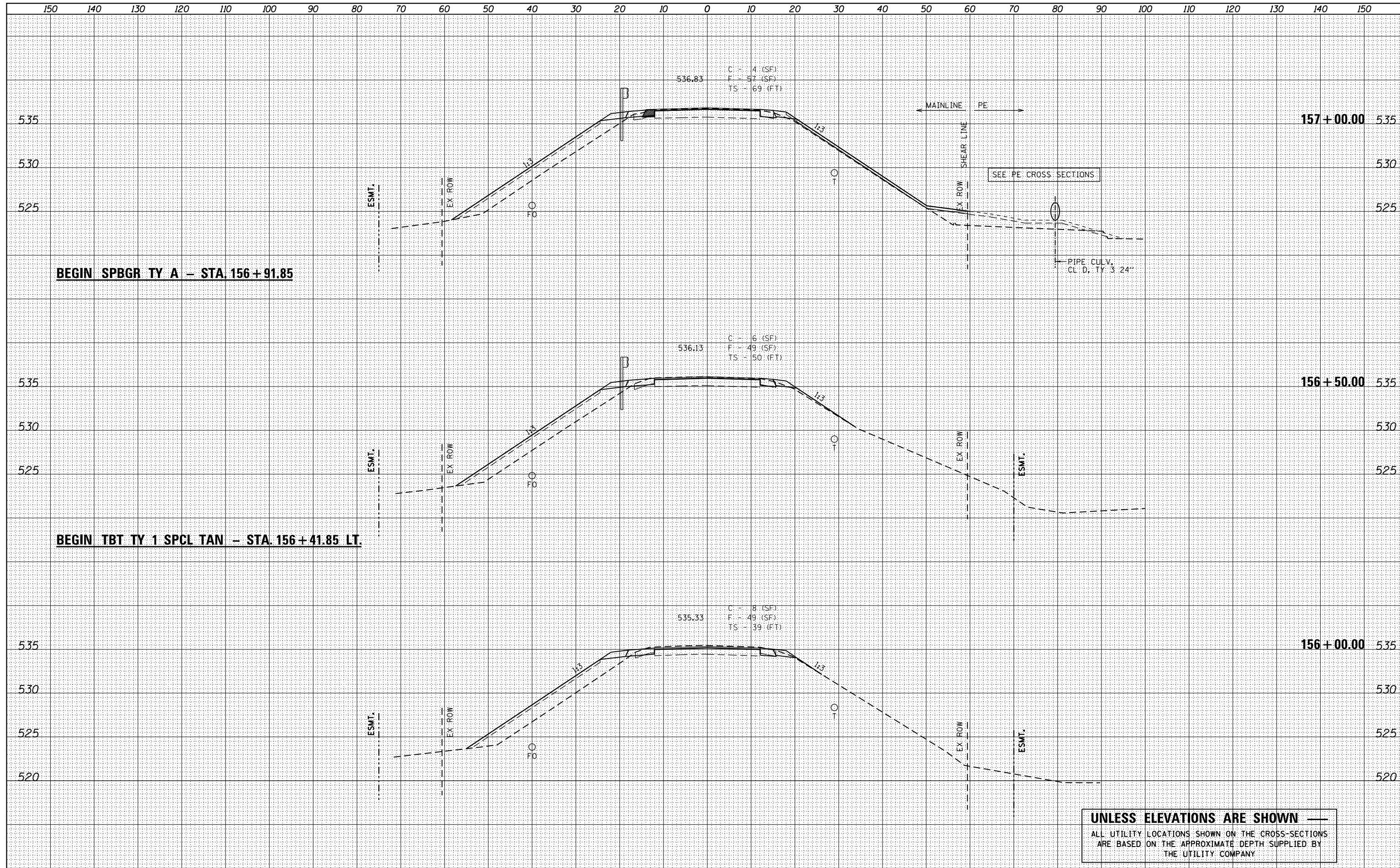
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 Civil and Structural Engineers Springfield, IL  
 62703 Phone: (217)544-8033 IL Design Firm  
 No. 184-001907

**CROSS SECTIONS (FAP 522)**  
 SCALE: 1" = 5'  
 SHEET NO. 3 OF 13 SHEETS  
 STA. 154+50.00 TO STA. 155+50.00

|   |         |           |              |           |
|---|---------|-----------|--------------|-----------|
| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
| 522   | (14B)BR | HENDERSON | 73           | 63        |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |

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**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY

USER NAME = keathbr  
 PLOT SCALE = 20.0000' / in.  
 PLOT DATE = 10/17/2014

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**CROSS SECTIONS (FAP 522)**

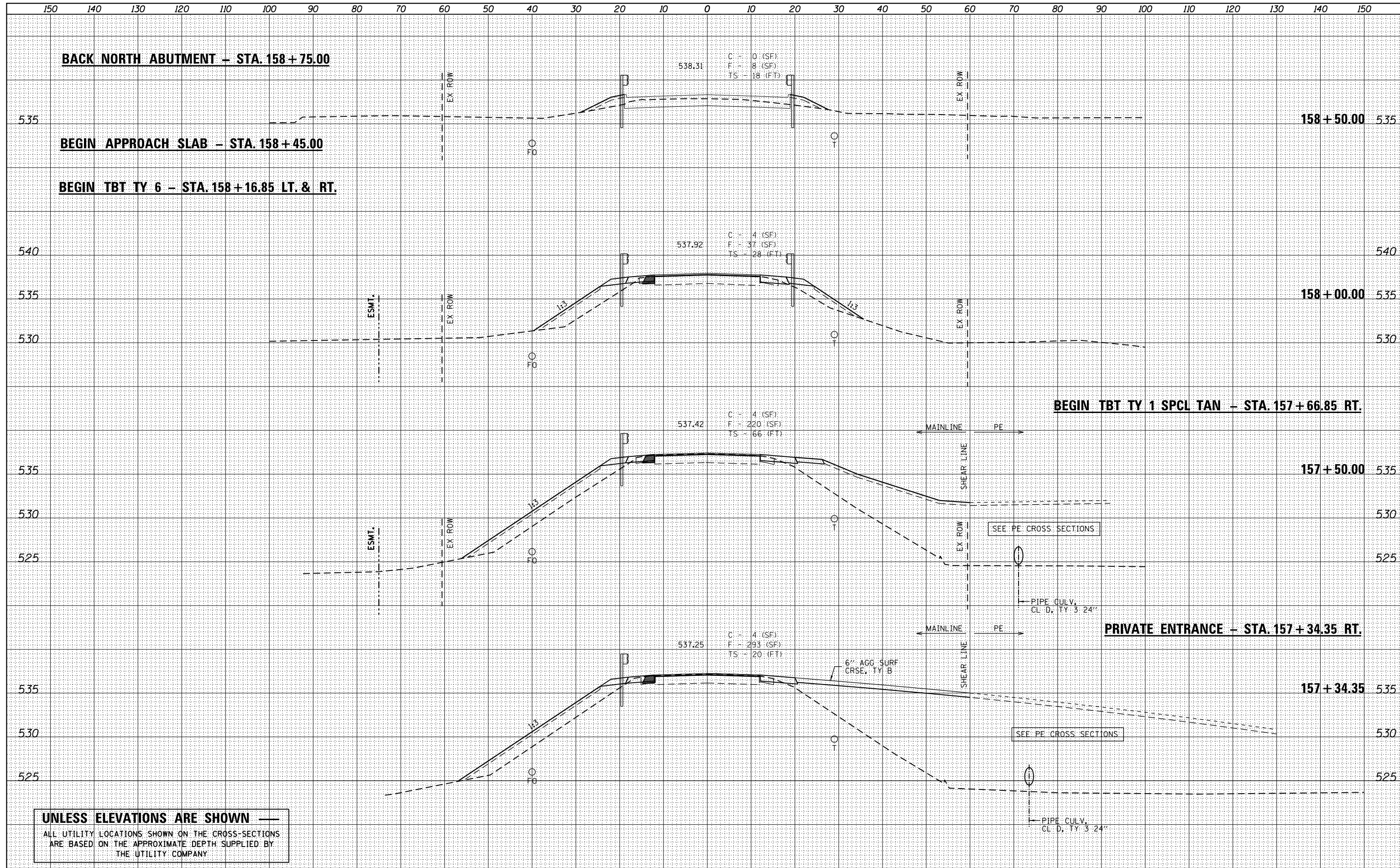
SCALE: 1" = 5' SHEET NO. 4 OF 13 SHEETS STA. 156+00.00 TO STA. 157+00.00

|                     |         |           |                           |           |
|---------------------|---------|-----------|---------------------------|-----------|
| F.A.P. RTE.         | SECTION | COUNTY    | TOTAL SHEETS              | SHEET NO. |
| 522                 | (14B)BR | HENDERSON | 73                        | 64        |
| FED. ROAD DIST. NO. |         |           | ILLINOIS FED. AID PROJECT |           |
|                     |         |           | CONTRACT NO. 68899        |           |



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| TEMPLATE        |  |
| NOTE BOOK       |  |
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| BY              |  |
| ORIGINAL SURVEY |  |
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| TEMPLATE        |  |
| NOTE BOOK       |  |
| AREAS CHECKED   |  |
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**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY.

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| USER NAME = keathbr         |
| PLOT SCALE = 20.0000' / in. |
| PLOT DATE = 10/17/2014      |

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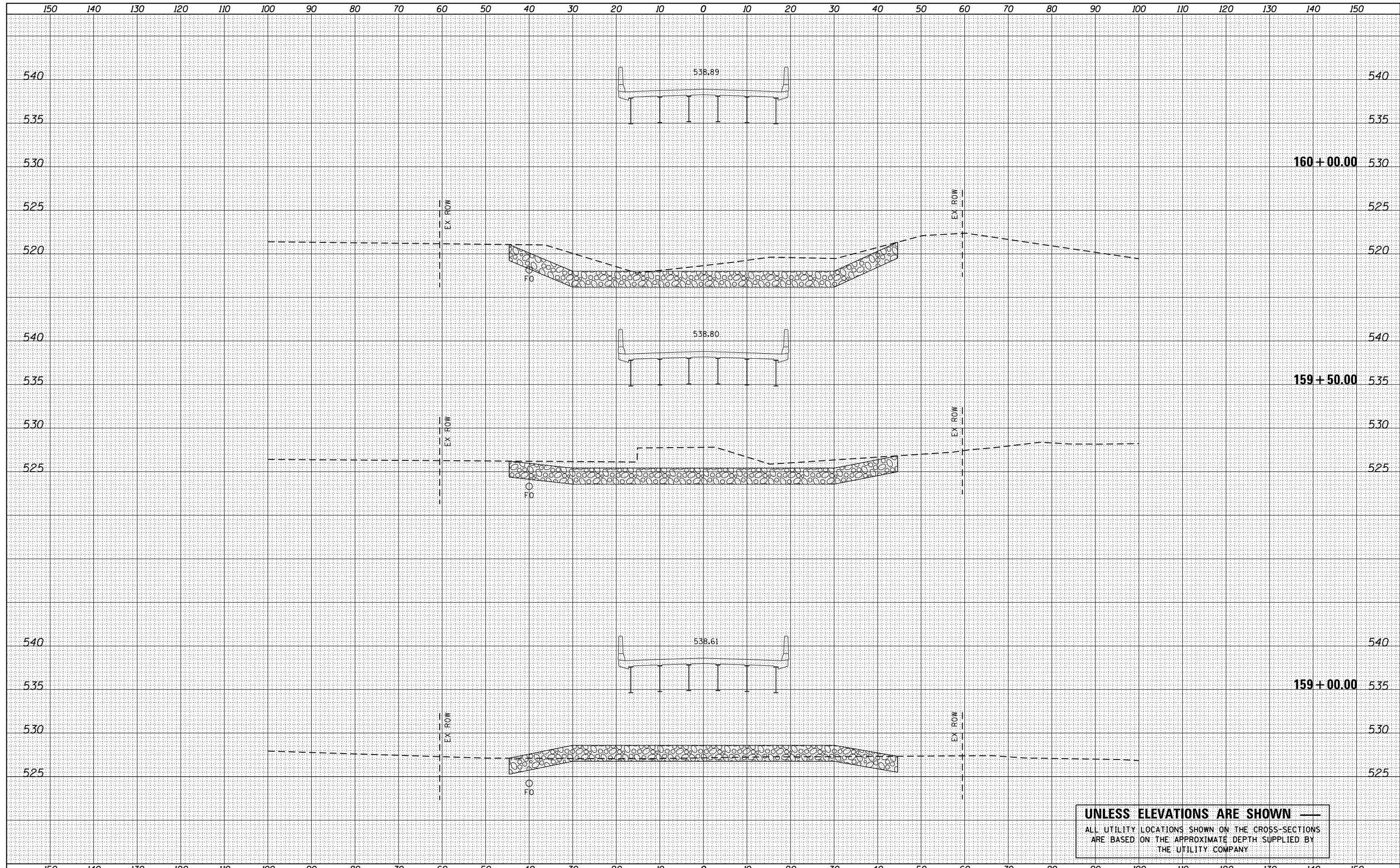
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|                                 |                          |                |                   |
|---------------------------------|--------------------------|----------------|-------------------|
| <b>CROSS SECTIONS (FAP 522)</b> |                          |                |                   |
| SCALE: 1" = 5'                  | SHEET NO. 5 OF 13 SHEETS | STA. 157+50.00 | TO STA. 158+00.00 |

|   |                 |                  |                 |              |
|---|-----------------|------------------|-----------------|--------------|
| F.A.P. RTE. 522                               | SECTION (14B)BR | COUNTY HENDERSON | TOTAL SHEETS 73 | SHEET NO. 65 |
| CONTRACT NO. 68899                            |                 |                  |                 |              |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |                 |                  |                 |              |

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| NOTE BOOK    |  |
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**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY

USER NAME = keathbr  
 PLOT SCALE = 20.0000' / in.  
 PLOT DATE = 10/17/2014

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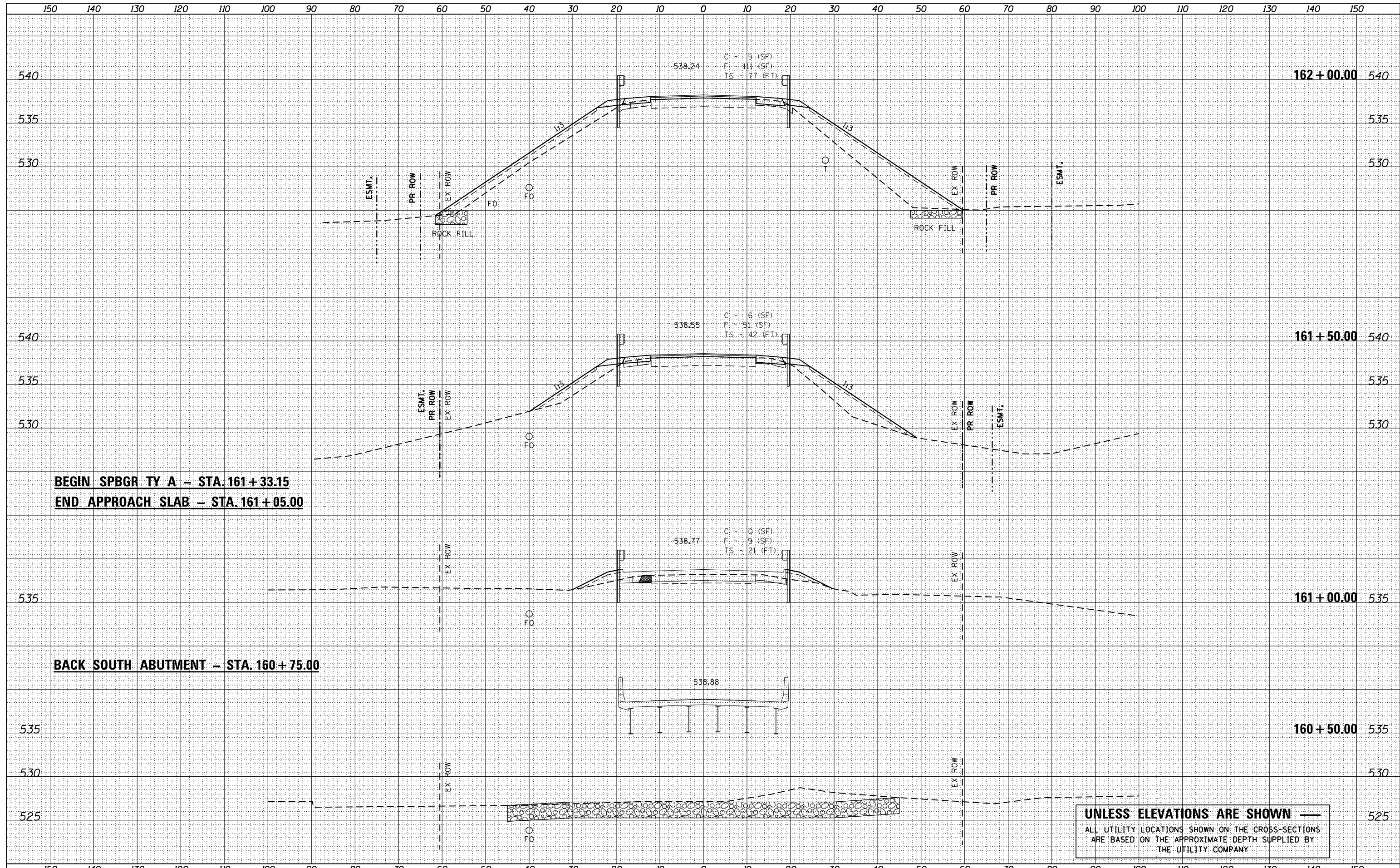
**CROSS SECTIONS (FAP 522)**

SCALE: 1" = 5' SHEET NO. 6 OF 13 SHEETS STA. 158+50.00 TO STA. 160+50.00

| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|---|---------|-----------|--------------|-----------|
| 522   | (14B)BR | HENDERSON | 73           | 66        |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |

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**BEGIN SPBGR TY A - STA. 161+33.15**  
**END APPROACH SLAB - STA. 161+05.00**

**BACK SOUTH ABUTMENT - STA. 160+75.00**

**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY

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| USER NAME = keathbr         |
| PLOT SCALE = 20.0000' / in. |
| PLOT DATE = 10/17/2014      |

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 No. 184-001907

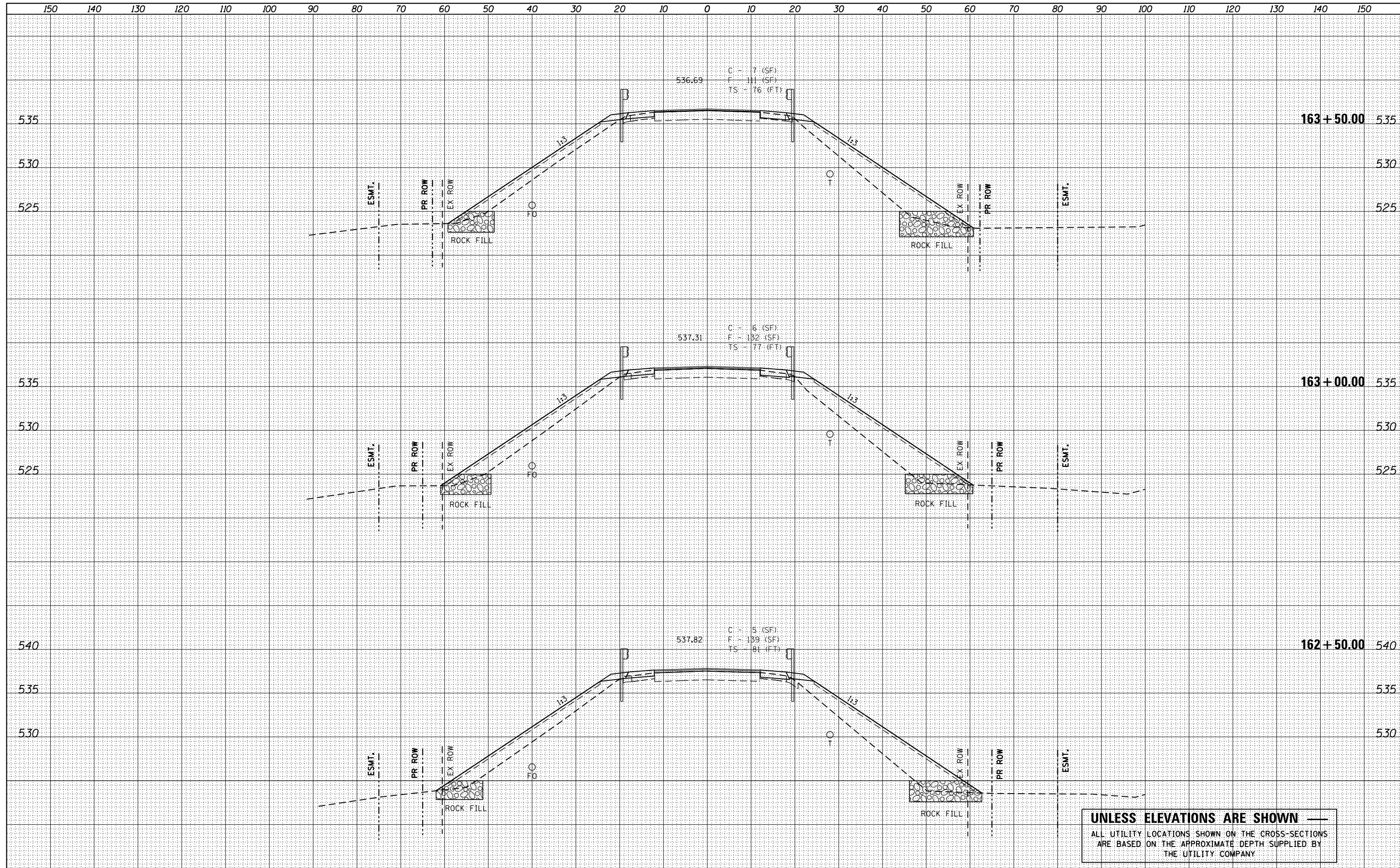
**CROSS SECTIONS (FAP 522)**

SCALE: 1" = 5' SHEET NO. 7 OF 13 SHEETS STA. 161+00.00 TO STA. 162+00.00

|   |                 |                  |                    |              |
|---|-----------------|------------------|--------------------|--------------|
| F.A.P. RTE. 522                               | SECTION (14B)BR | COUNTY HENDERSON | TOTAL SHEETS 73    | SHEET NO. 67 |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |                 |                  | CONTRACT NO. 68899 |              |

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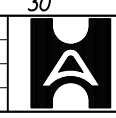
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**UNLESS ELEVATIONS ARE SHOWN**  
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 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY

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| USER NAME = keathbr         |
| PLOT SCALE = 20.0000' / in. |
| PLOT DATE = 10/17/2014      |

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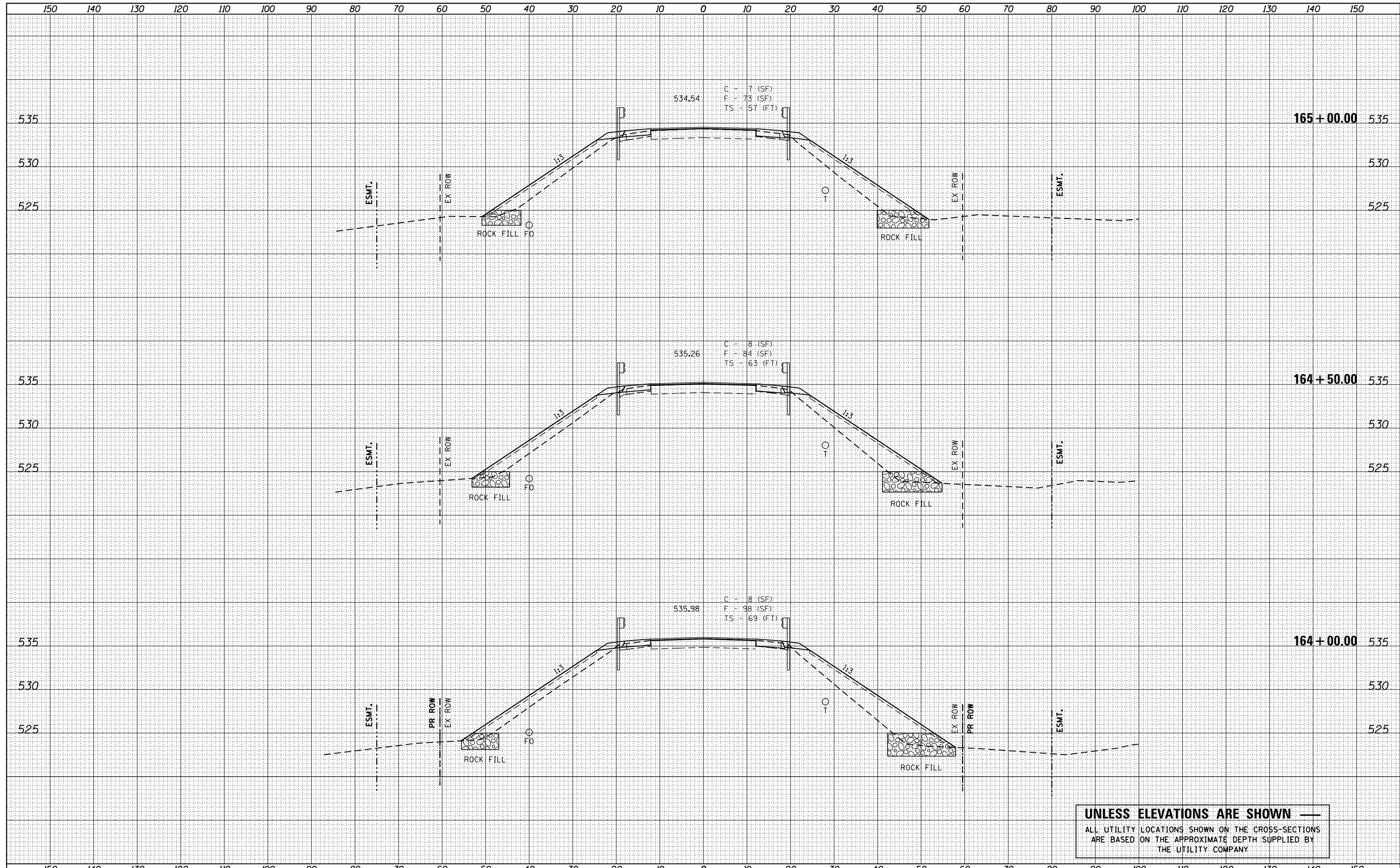
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|---------------------------------|--------------------------|
| <b>CROSS SECTIONS (FAP 522)</b> |                          |
| SCALE: 1" = 5'                  | SHEET NO. 8 OF 13 SHEETS |
| STA. 162+50.00                  | TO STA. 163+50.00        |

|   |                 |                  |                    |              |
|---|-----------------|------------------|--------------------|--------------|
| F.A.P. RTE. 522                               | SECTION (14B)BR | COUNTY HENDERSON | TOTAL SHEETS 73    | SHEET NO. 68 |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |                 |                  | CONTRACT NO. 68899 |              |



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**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY

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| USER NAME = keathbr         | DESIGNED - | REVISED - |
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| PLOT SCALE = 20.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DATE -     | REVISED - |

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 No. 184-001907

**CROSS SECTIONS (FAP 522)**  
 SCALE: 1" = 5' SHEET NO. 9 OF 13 SHEETS STA. 164+00.00 TO STA. 165+00.00

|   |                 |                  |                    |              |
|---|-----------------|------------------|--------------------|--------------|
| F.A.P. RTE. 522                               | SECTION (14B)BR | COUNTY HENDERSON | TOTAL SHEETS 73    | SHEET NO. 69 |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |                 |                  | CONTRACT NO. 68899 |              |

BEGIN TBT TY 1 SPCL TAN -STA. 166+70.65

532.39  
C = 7 (SF)  
F = 50 (SF)  
TS = 44 (FT)

166+50.00 530

533.10  
C = 6 (SF)  
F = 68 (SF)  
TS = 51 (FT)

166+00.00 535

533.82  
C = 16 (SF)  
F = 74 (SF)  
TS = 58 (FT)

165+50.00 535

**UNLESS ELEVATIONS ARE SHOWN**  
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THE UTILITY COMPANY

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| ORIGINAL SURVEY |  |
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| FINISHED SURVEY |  |
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| ORIGINAL SURVEY |  |
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USER NAME = keathbr  
PLOT SCALE = 20.0000' / in.  
PLOT DATE = 10/17/2014

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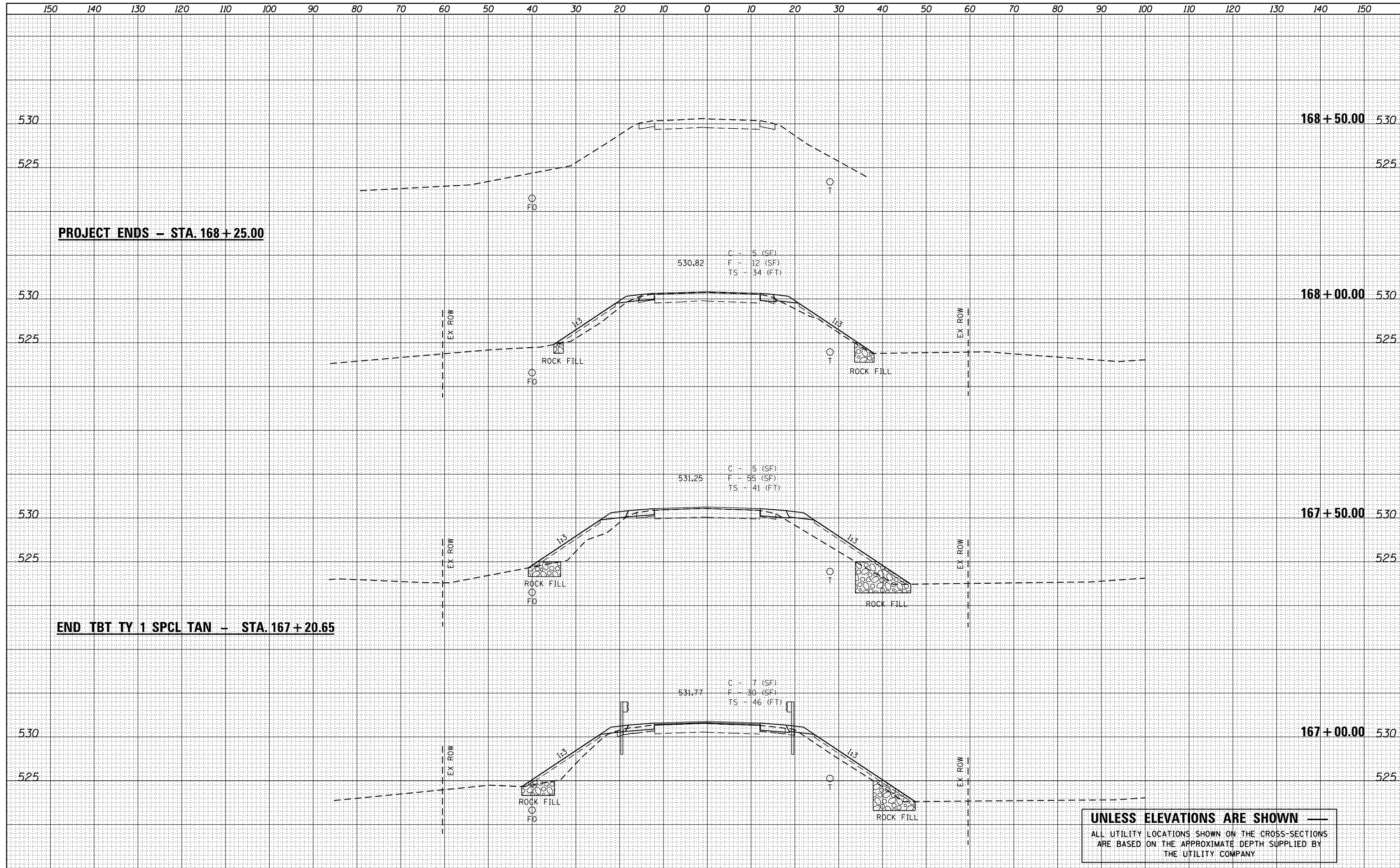
**CROSS SECTIONS (FAP 522)**

SCALE: 1" = 5' SHEET NO. 10 OF 13 SHEETS STA. 165+50.00 TO STA. 166+50.00

| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
|---|---------|-----------|--------------|-----------|
| 522   | (14B)BR | HENDERSON | 73           | 70        |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |

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| DATE         |          |
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| FINAL SURVEY | SURVEYED |
| NOTE BOOK    | PLOTTED  |
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| ORIGINAL SURVEY | SURVEYED |
| NOTE BOOK       | PLOTTED  |
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**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY

|                             |            |           |
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| USER NAME = keathbr         | DESIGNED - | REVISED - |
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| PLOT SCALE = 20.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DATE -     | REVISED - |

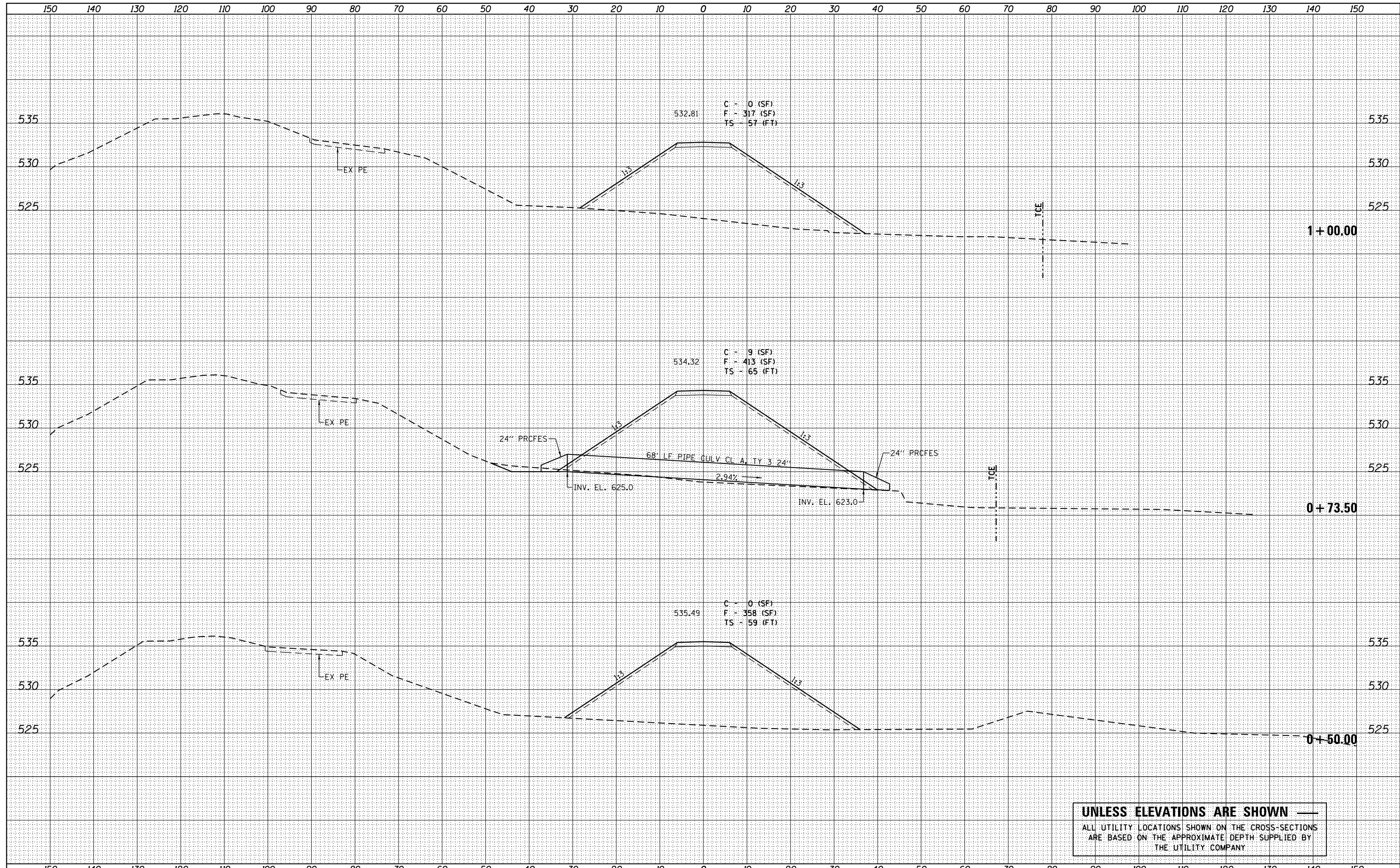
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**CROSS SECTIONS (FAP 522)**  
 SCALE: 1" = 5' SHEET NO. 11 OF 13 SHEETS STA. 167+00.00 TO STA. 168+50.00

|   |         |           |              |           |
|---|---------|-----------|--------------|-----------|
| F.A.P. RTE.                                   | SECTION | COUNTY    | TOTAL SHEETS | SHEET NO. |
| 522   | (14B)BR | HENDERSON | 73           | 71        |
| CONTRACT NO. 68899                            |         |           |              |           |
| FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |         |           |              |           |

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| FINAL SURVEY | SURVEYED      |
| NOTE BOOK    | PLOTTED       |
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| ORIGINAL SURVEY | SURVEYED      |
| NOTE BOOK       | PLOTTED       |
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|                 | AREAS CHECKED |



**UNLESS ELEVATIONS ARE SHOWN**  
 ALL UTILITY LOCATIONS SHOWN ON THE CROSS-SECTIONS  
 ARE BASED ON THE APPROXIMATE DEPTH SUPPLIED BY  
 THE UTILITY COMPANY

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| USER NAME = kesthbr         | DESIGNED - | REVISED - |
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| PLOT SCALE = 20.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DATE -     | REVISED - |

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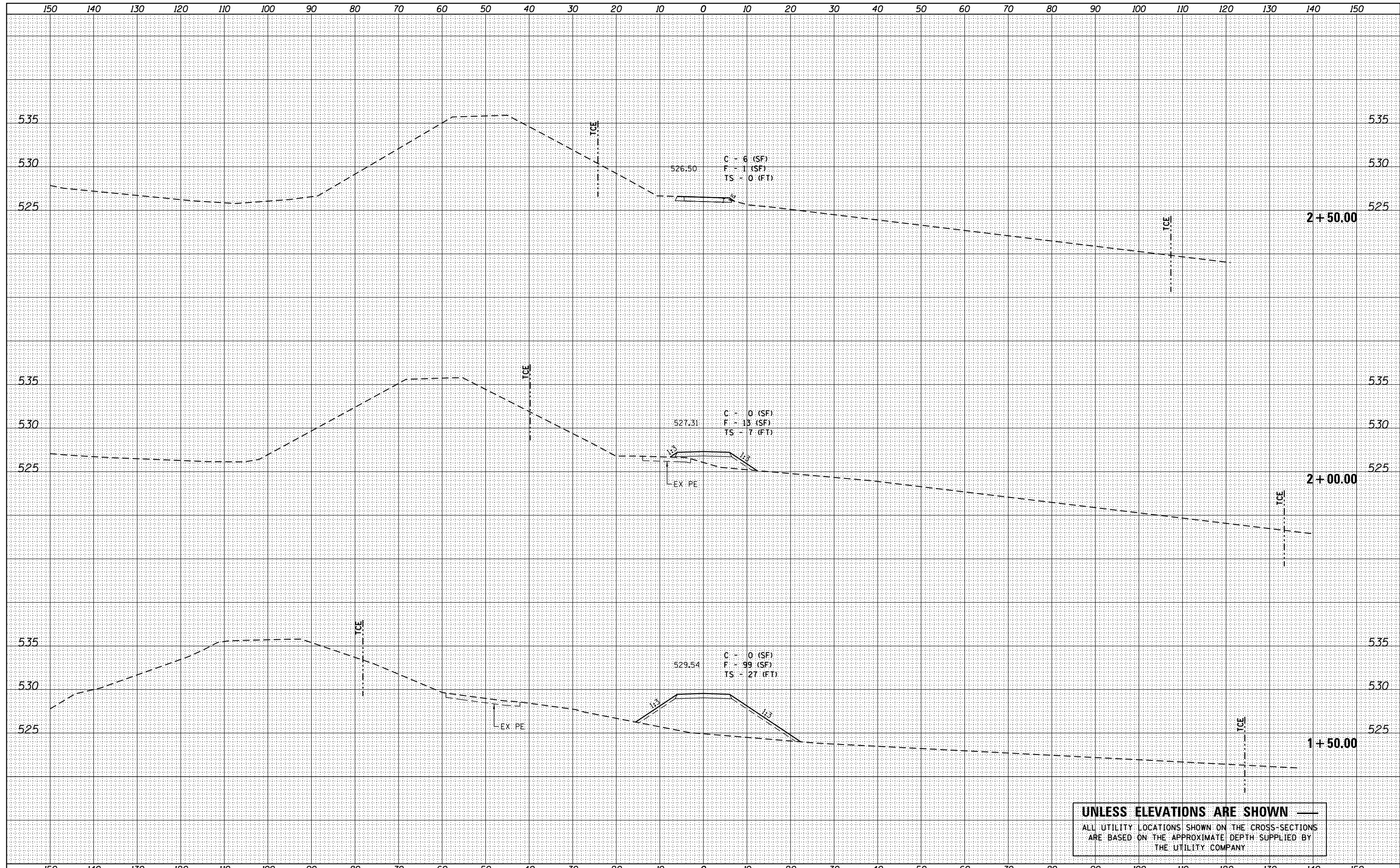
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|----------------------------|---------------------------|-------------|-----------------|
| <b>CROSS SECTIONS (PE)</b> |                           |             |                 |
| SCALE:                     | SHEET NO. 12 OF 13 SHEETS | STA. +50.00 | TO STA. 1+00.00 |

|                     |         |           |                           |           |
|---------------------|---------|-----------|---------------------------|-----------|
| F.A.P. RTE.         | SECTION | COUNTY    | TOTAL SHEETS              | SHEET NO. |
| 522                 | (14B)BR | HENDERSON | 73                        | 72        |
| FED. ROAD DIST. NO. |         |           | ILLINOIS FED. AID PROJECT |           |
|                     |         |           | CONTRACT NO. 68899        |           |



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| FINAL SURVEY | SURVEYED      |
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| ORIGINAL SURVEY | SURVEYED      |
| NOTE BOOK       | PLOTTED       |
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| USER NAME = keathbr         | DESIGNED - | REVISED - |
|                             | DRAWN -    | REVISED - |
| PLOT SCALE = 20.0000' / in. | CHECKED -  | REVISED - |
| PLOT DATE = 10/17/2014      | DATE -     | REVISED - |

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 No. 184-001907

|                            |                           |                              |
|----------------------------|---------------------------|------------------------------|
| <b>CROSS SECTIONS (PE)</b> |                           |                              |
| SCALE:                     | SHEET NO. 13 OF 13 SHEETS | STA. 1+50.00 TO STA. 2+50.00 |

|                    |         |           |   |           |
|--------------------|---------|-----------|---|-----------|
| F.A.P. RTE.        | SECTION | COUNTY    | TOTAL SHEETS                                  | SHEET NO. |
| 522                | (14B)BR | HENDERSON | 73  | 73        |
| CONTRACT NO. 68899 |         |           | FED. ROAD DIST. NO. ILLINOIS FED. AID PROJECT |           |