

COLORADO  
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF ~~PROPOSED~~ AS CONSTRUCTED

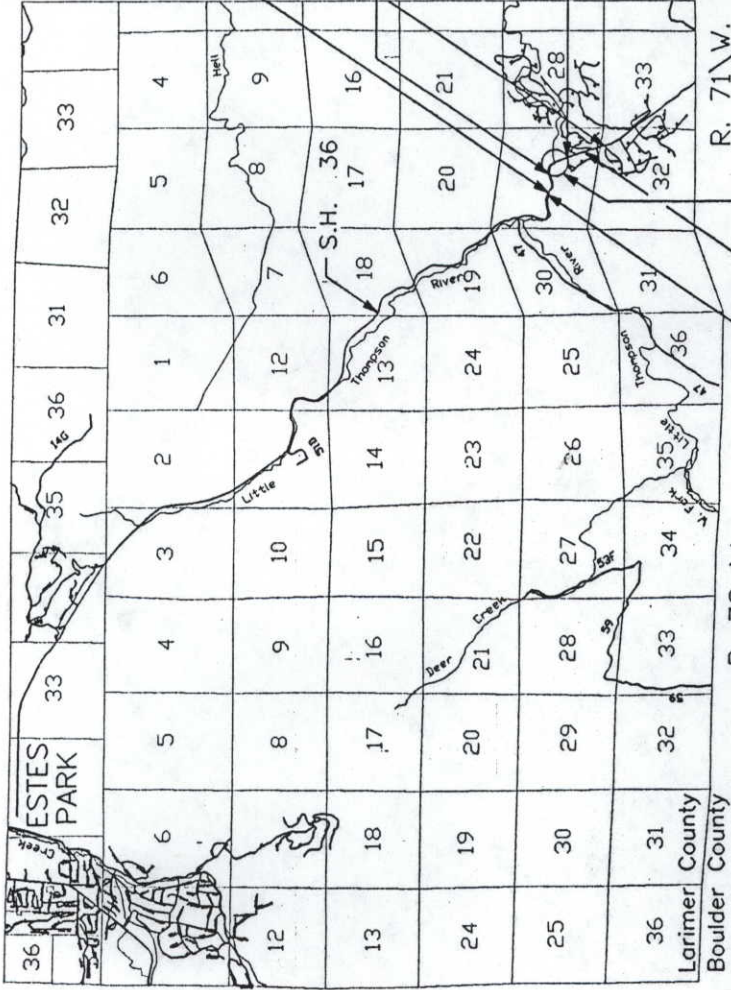
FEDERAL AID PROJECT NO. BRF 036-1(39)

STATE HIGHWAY NO. 36

LARIMER COUNTY

| MILE POST & STATIONING                                                                                                                | LENGTH AND DESIGN DATA |       |            |        |
|---------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------|------------|--------|
|                                                                                                                                       | ROADWAY                |       | WORK AREAS |        |
|                                                                                                                                       | LIN. FT.               | MILES | LIN. FT.   | BRIDGE |
| BEGIN APPROACH TO PROJECT<br>BRF 036-1(39) = STA. 472+42<br>= M.P. 11.676                                                             |                        |       |            |        |
| BEGIN PROJECT BRF 036-1(39) =<br>STA. 473+92.08 = MAJOR STRUCTURE<br>C-15-N = STA. 474+35.92 ON<br>STATE PROJECT #899-A = M.P. 11.648 | 150.08                 | 0.028 |            |        |
| END PROJECT BRF 036-1(39) =<br>STA. 474+35.92 = MAJOR STRUCTURE<br>C-15-N = STA. 474+35.92 ON<br>STATE PROJECT #899-A = M.P. 11.640   | 150.08                 | 0.028 | 43.84      | 0.008  |
| END APPROACH TO PROJECT<br>BRF 036-1(39) = STA. 475+86<br>= M.P. 11.612                                                               |                        |       |            |        |
| ROADWAY NET LENGTH                                                                                                                    | 300.16                 | 0.056 |            |        |
| BRIDGE NET LENGTH                                                                                                                     |                        |       | 43.84      | 0.008  |
| PROJECT GROSS LENGTH                                                                                                                  |                        |       | 43.84      | 0.008  |

2012 DESIGN TRAFFIC VOLUME  
ADT = 5030  
DHV = 1260  
2% TRUCKS  
MDS = 50 MPH



PREVIOUS STATE PROJECT HES 0004(29)

EXISTING STRUCTURE C-15-N

TO LYONS



SCALE IN MILES

90158/D.A.F./REGION 4

| FED. ROAD REGION | DIVISION | FRRQJ. NO.    | SHEET NO. |
|------------------|----------|---------------|-----------|
| VIII             | COLO.    | BRF 036-1(39) | 1         |

| AS CONSTRUCTED  |
|-----------------|
| NO REVISIONS    |
| REVISED 5-26-93 |
| VOID            |

| REVISIONS |
|-----------|
|           |
|           |
|           |

THERE IS NO FHWA OVERSIGHT ON THIS PROJECT

INDEX OF SHEETS

- 1 TITLE SHEET
- 2 STANDARD PLANS LIST
- 3 GENERAL NOTES, AND SEEDING PLAN
- 4 TYPICAL SECTIONS
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- 7 SURFACING PLAN, DELINEATOR TABULATION, AND SUMMARY OF EARTHWORK QUANTITIES
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- 17 SUPERSTRUCTURE DETAILS
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- 20 CONSTRUCTION TRAFFIC CONTROL PLAN
- 21 SHOULDER GROOVING DETAIL, AND TEMPORARY RUMBLE STRIP DETAIL
- 22 SILT FENCE DETAIL
- 23 FLASHING BEACON (PORTABLE) DETAILS

NEW AND REVISED STANDARDS

- M-606-12 GUARD RAIL - TYPE 4 CONCRETE BARRIER (9 SHEETS) (FEBRUARY 18, 1983)
- M-620-2 FIELD LABORATORY CLASS 2 (1 SHEET) (MAY 25, 1988)

AS CONSTRUCTED INFORMATION

CONTRACTOR Duckels Construction Inc.  
Resident Engineer Owen Leonard  
(Project or Resident)  
Project Engineer Ryan Idler  
PROJECT STARTED 2-3-93

PROJECT COMPLETED 5-26-93

AS CONSTRUCTED PLANS

APPROVED

RES. ENGR.

TITLE

7/27/93

DATE

|                      |  |                      |  |          |  |               |  |           |  |
|----------------------|--|----------------------|--|----------|--|---------------|--|-----------|--|
| AS CONSTRUCTED       |  | FED. ROAD REGION NO. |  | DIVISION |  | PROJ. NO.     |  | SHEET NO. |  |
| NO REVISIONS 5-26-93 |  | VIII                 |  | COLO.    |  | BRF 036-1(39) |  | 2         |  |
| REVISED              |  | VOID                 |  |          |  |               |  |           |  |

| Plan No.                                    | Title                                                                           | Page          | Plan No.                                    | Title                                                            | Page          | Plan No.                                     | Title                                                                    | Page           |
|---------------------------------------------|---------------------------------------------------------------------------------|---------------|---------------------------------------------|------------------------------------------------------------------|---------------|----------------------------------------------|--------------------------------------------------------------------------|----------------|
| <input checked="" type="checkbox"/> M-100-1 | STANDARD SYMBOLS.....                                                           | 1             | <input type="checkbox"/> M-607-1            | WIRE FENCES AND GATES.....                                       | (2 SHEETS) 52 | <input checked="" type="checkbox"/> S-612-1  | TYPICAL DELINEATOR INSTALLATIONS....                                     | (4 SHEETS) 75  |
| <input checked="" type="checkbox"/> M-107-1 | TEMPORARY EROSION CONTROL.....                                                  | 2             | <input type="checkbox"/> M-607-2            | CHAIN LINK FENCE.....                                            | (3 SHEETS) 54 | <input checked="" type="checkbox"/> S-614-1  | TYPICAL GROUND SIGN PLACEMENT.....                                       | 79             |
| <input type="checkbox"/> M-203-1            | APPROACH ROADS, FLARING, CUT SLOPE<br>TREATMENT, BRIDGE AND CREST WIDENING..... | 3             | <input type="checkbox"/> M-607-3            | BARRIER FENCE.....                                               | 57            | <input type="checkbox"/> S-614-2             | CLASS I GROUND SIGN INSTALLATIONS.....                                   | 80             |
| <input type="checkbox"/> M-203-2            | DITCH TYPES.....                                                                | 4             | <input type="checkbox"/> M-607-4            | DEER FENCE AND GATE.....                                         | (2 SHEETS) 58 | <input type="checkbox"/> S-614-3             | CLASS II GROUND SIGN INSTALLATIONS.....                                  | 81             |
| <input type="checkbox"/> M-203-10           | SUPERELEVATION OF CURVES - CROWNED<br>HIGHWAYS.....                             | 5             | <input type="checkbox"/> M-607-10           | PICKET SNOW FENCE.....                                           | 60            | <input type="checkbox"/> S-614-4             | CLASS III SIGNS, LAMINATED ALUMINUM<br>PANELS AND POST-SPACING TABLE.... | (2 SHEETS) 82  |
| <input type="checkbox"/> M-203-11           | SUPERELEVATION OF CURVES - DIVIDED<br>HIGHWAYS.....                             | 6             | <input type="checkbox"/> M-608-1            | CURB RAMPS.....                                                  | 61            | <input type="checkbox"/> S-614-5             | BREAK-AWAY SIGN SUPPORT DETAILS<br>FOR GROUND SIGNS.....                 | (2 SHEETS) 84  |
| <input type="checkbox"/> M-203-12           | HIGHWAYS - SHOULDER PIVOT.....                                                  | 7             | <input type="checkbox"/> M-609-1            | CURBS AND GUTTERS.....                                           | 62            | <input type="checkbox"/> S-614-6             | CONCRETE FOOTINGS AND SIGN ISLANDS<br>FOR CLASS III SIGNS.....           | (2 SHEETS) 86  |
| <input type="checkbox"/> M-203-13           | SUPERELEVATION OF CURVES - STREETS.....                                         | 7             | <input checked="" type="checkbox"/> M-611-1 | CATTLE GUARD - WELDED GRILL<br>UNITS - 10' THRU 42' ROADWAYS.... | (2 SHEETS) 63 | <input type="checkbox"/> S-614-10            | TYPICAL MARKER ASSEMBLY INSTALLATIONS.....                               | 88             |
| <input type="checkbox"/> M-206-1            | SUPERELEVATION OF CURVES - DIVIDED<br>HIGHWAYS - CENTER PIVOT.....              | 8             | <input type="checkbox"/> M-613-1            | HIGHWAY LIGHTING.....                                            | (2 SHEETS) 65 | <input type="checkbox"/> S-614-11            | MILEPOST SIGN AND INSTALLATION.....                                      | 89             |
| <input type="checkbox"/> M-206-2            | EXCAVATION AND BACKFILL FOR<br>STRUCTURES.....                                  | (2 SHEETS) 9  | <input type="checkbox"/> M-615-1            | EMBANKMENT PROTECTOR, TYPES 3 AND 4.....                         | 67            | <input checked="" type="checkbox"/> S-614-12 | STRUCTURE NUMBER INSTALLATION<br>(BRIDGE INFORMATION SHEET).....         | 90             |
| <input type="checkbox"/> M-214-1            | PLANTING DETAILS.....                                                           | 12            | <input type="checkbox"/> M-615-2            | EMBANKMENT PROTECTOR, TYPE 5.....                                | 68            | <input type="checkbox"/> S-614-13            | STANDARD RAILROAD CROSSING SIGNS<br>AND MARKINGS.....                    | 91             |
| <input type="checkbox"/> M-412-1            | CONCRETE PAVEMENT JOINTS.....                                                   | 13            | <input type="checkbox"/> M-616-1            | INVERTED SIPHON (ALSO USE<br>M-603 OR M-604 AS REQUIRED).....    | 69            | <input type="checkbox"/> S-614-20            | TYPICAL POLE MOUNT SIGN INSTALLATION.....                                | 92             |
| <input type="checkbox"/> M-504-1            | STEEL CRIBBING.....                                                             | 14            | <input type="checkbox"/> M-620-1            | FIELD LABORATORY - CLASS 1.....                                  | 70            | <input type="checkbox"/> S-614-21            | CONCRETE BARRIER SIGN POST<br>INSTALLATIONS.....                         | 93             |
| <input type="checkbox"/> M-506-1            | GABIONS AND SLOPE MATTRESS.....                                                 | 15            | <input type="checkbox"/> M-620-2            | FIELD LABORATORY - CLASS 2.....                                  | 71            | <input type="checkbox"/> S-614-22            | TYPICAL MULTI-SIGN INSTALLATIONS.....                                    | 94             |
| <input type="checkbox"/> M-510-1            | STRUCTURAL PLATE CULVERT PIPE -<br>H-20 LOADING.....                            | (2 SHEETS) 16 | <input type="checkbox"/> M-620-11           | FIELD OFFICE - CLASS 1.....                                      | 72            | <input type="checkbox"/> S-614-30            | INTERSTATE ROUTE MARKERS.....                                            | 95             |
| <input type="checkbox"/> M-601-1            | SINGLE CONCRETE BOX CULVERT.....                                                | 18            | <input type="checkbox"/> M-620-12           | FIELD OFFICE - CLASS 2.....                                      | 73            | <input type="checkbox"/> S-614-31            | U.S. AND COLORADO ROUTE MARKERS.....                                     | 96             |
| <input type="checkbox"/> M-601-2            | DOUBLE CONCRETE BOX CULVERT.....                                                | 19            |                                             |                                                                  |               | <input type="checkbox"/> S-614-32            | AUXILIARY MARKERS.....                                                   | 97             |
| <input type="checkbox"/> M-601-3            | TRIPLE CONCRETE BOX CULVERT.....                                                | 20            |                                             |                                                                  |               | <input checked="" type="checkbox"/> S-614-40 | TRAFFIC SIGNAL INSTALLATION<br>DETAILS.....                              | (3 SHEETS) 98  |
| <input type="checkbox"/> M-601-10           | HEADWALL FOR PIPE CULVERTS.....                                                 | 21            |                                             |                                                                  |               | <input checked="" type="checkbox"/> S-614-50 | TRAFFIC CONTROLS FOR HIGHWAY<br>CONSTRUCTION.....                        | (4 SHEETS) 101 |
| <input type="checkbox"/> M-601-11           | TYPE "S" SADDLE HEADWALL FOR PIPE<br>CULVERTS.....                              | 22            |                                             |                                                                  |               | <input checked="" type="checkbox"/> S-614-51 | BARRICADES, DRUMS, CONCRETE BARRIER<br>(TEMP) AND VERTICAL PANELS.....   | 105            |
| <input type="checkbox"/> M-601-12           | HEADWALL, INTERCEPTING HEADWALL<br>AND CULVERT OUTLET PAVING.....               | 23            |                                             |                                                                  |               | <input checked="" type="checkbox"/> S-627-1  | TYPICAL PAVEMENT MARKINGS.....                                           | (3 SHEETS) 106 |
| <input type="checkbox"/> M-601-20           | WINGWALLS FOR PIPE OR BOX CULVERTS.....                                         | 24            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-603-1            | METAL CULVERT PIPE - H-20<br>LOADING.....                                       | (2 SHEETS) 25 |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-603-2            | REINFORCED CONCRETE PIPE.....                                                   | 27            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-603-3            | PRECAST CONCRETE BOX CULVERT.....                                               | 28            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-603-10           | CONCRETE AND METAL END SECTIONS.....                                            | 29            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-604-1            | PIPE SEWER IN TRENCH.....                                                       | 30            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-604-10           | INLET, TYPE C.....                                                              | 31            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-604-11           | INLET, TYPE D.....                                                              | 32            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-604-12           | CURB INLET, TYPE R.....                                                         | (2 SHEETS) 33 |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-604-13           | CONCRETE INLET, TYPE 13.....                                                    | 35            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-604-20           | MANHOLES.....                                                                   | 36            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-604-21           | STEPS FOR MANHOLES AND INLETS.....                                              | 37            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input checked="" type="checkbox"/> M-606-1 | GUARD RAIL, TYPE 3, W-BEAM.....                                                 | (8 SHEETS) 38 |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-606-2            | GUARD RAIL, TYPE 3, W-BEAM FOR<br>LOCAL ROADS AND STREETS.....                  | (4 SHEETS) 46 |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-606-10           | GUARD RAIL, TYPE 4, CONCRETE<br>BARRIER, CAST-IN-PLACE.....                     | 50            |                                             |                                                                  |               |                                              |                                                                          |                |
| <input type="checkbox"/> M-606-11           | GUARD RAIL, TYPE 4, CONCRETE<br>BARRIER, PRECAST-PORTABLE.....                  | 51            |                                             |                                                                  |               |                                              |                                                                          |                |

THE STANDARD PLAN SHEETS INDICATED HEREON BY A  
MARKED BOX ARE TO BE USED TO CONSTRUCT THIS  
PROJECT.

COLORADO  
DEPARTMENT OF TRANSPORTATION  
STANDARD PLANS LIST

M & S STANDARDS

JANUARY 1982

SEEDING PLAN

SEEDING (NATIVE): SOIL PREPARATION, SEEDING, AND MULCHING FOR AN ESTIMATED 0.35 ACRES WILL BE REQUIRED WITHIN RIGHT-OF-WAY LIMITS ON ALL DISTURBED AREAS NOT SURFACED. THE FOLLOWING TYPES AND RATES SHALL BE USED:

| COMMON NAME                   | BOTANICAL NAME         | LBS<br>PLS/ACRE |
|-------------------------------|------------------------|-----------------|
| WESTERN WHEATGRASS            | PASCOPYRUM SMITHII     | 6               |
| INDIAN RICEGRASS              | ORYZOPSIS HYMENOIDES   | 3               |
| SLENDER WHEATGRASS            | AGROPYRON TRACHYCAULUM | 3               |
| BLUE GRAMA GRASS V. 'HACHITA' | BOUTELOUA GRACILIS     | 2               |
| NEEDLEGRASS                   | STIPA COMATA           | 2               |
| HARD FESCUE                   | FESTUCA DVINA          | 2               |
| RED CLOVER                    | V. DURISCUOLA          | 1               |
| DATS                          | TRIFOLIUM PRATENSE     | 0.1             |
| TOTAL                         | ACHILLEA MILLEFOLIUM   | 19.1            |

SEEDING APPLICATION: DRILLED TO A DEPTH OF 0.25' TO 0.50' INTO SOIL WHERE POSSIBLE. BROADCAST AND RAKED TO COVER ON STEEPER THAN 2:1 SLOPES WHERE ACCESS IS LIMITED OR UNSAFE FOR EQUIPMENT.

MULCHING REQUIREMENT AND APPLICATION: INSTALL SOIL RETENTION BLANKET (SPECIAL) ON ALL AREAS TO BE SEEDED IN ACCORDANCE WITH SPECIAL PROVISION 216. IT IS ESTIMATED THAT 1,700 SQUARE YARDS OF SOIL RETENTION BLANKET (SPECIAL) WILL BE REQUIRED.

NO FERTILIZER WILL BE USED ON PROJECT:

TEMPORARY EROSION CONTROL:

IT IS ESTIMATED THAT 493 LF OF SILT FENCE WILL BE REQUIRED AND INSTALLED ALONG TOE OF FILL SLOPES IN ACCORDANCE WITH SPECIAL PROVISION 420. THE HEIGHT OF THE SILT FENCE SHALL BE A MINIMUM 24 INCHES FROM SOIL SURFACE TO TOP OF FENCE (SEE SILT FENCE DETAIL SHEET).

|                                  |                |
|----------------------------------|----------------|
| • (FOR INFORMATION ONLY)         |                |
| SEEDING (NATIVE)                 | 7.83 LBS.      |
| SOIL PREPARATION                 | 0.35 ACRES     |
| PROJECT PAY TOTALS               |                |
| SEEDING (NATIVE)                 | 0.25 ACRES     |
| SILT FENCE                       | 1.53 LIN. FT.  |
| SOIL RETENTION BLANKET (SPECIAL) | 1.700 SQ. YDS. |

GENERAL NOTES

FOR PRELIMINARY PLAN QUANTITIES OF PAVEMENT MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED.

TACK COAT EMULSIFIED ASPHALT (SLOW-SETTING) @ 0.10 GALS./SQ.YD.(DILUTED) BITUMINOUS PAVEMENT @ 112 LBS. PER SQ.YD./INCH

DILUTED EMULSIFIED ASPHALT FOR TACK COAT SHALL CONSIST OF 1 PART EMULSIFIED ASPHALT AND 1 PART WATER. RATES OF APPLICATION SHALL BE AS DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.

THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAVER:

A SKI TYPE DEVICE AT LEAST 30 FEET IN LENGTH WILL BE REQUIRED WITH EACH BITUMINOUS PAVER. THIS DEVICE SHALL BE USED ON ALL PASSES AND LIFTS OF BITUMINOUS PAVEMENT PLACED. THE SKI WILL RUN ON A PREVIOUSLY PLACED PASS OR LIFT IF POSSIBLE.

ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.

MOISTURE AND DENSITY CONTROL FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH AASHTO T-99. DEPTH OF MOISTURE-DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS.

FULL DEPTH OF ALL EMBANKMENTS. BASES OF CUTS AND FILLS 0.5 FOOT.

EXCAVATION REQUIRED FOR COMPACTION OF CUTS AND FILLS WILL BE CONSIDERED AS SUBSIDIARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.

FINAL STRIPING WILL BE DONE BY THE CONTRACTOR.

IT IS ESTIMATED THAT 8 GALLONS OF ITEM 627 - PAVEMENT MARKING PAINT WILL BE REQUIRED FOR FINAL STRIPING OF THE ROADWAY (4 GALLONS YELLOW AND 4 GALLONS WHITE).

A CUTTING WHEEL WILL BE REQUIRED TO OBTAIN A VERTICAL CUT APPROXIMATELY 6" FROM THE EDGE OF THE EXISTING PAVEMENT OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO PAINT THE EDGE OF THE CUT PAVEMENT WITH DILUTED EMULSIFIED ASPHALT (SLOW-SETTING) PRIOR TO PAVING. VERTICAL EDGES WILL NOT BE LEFT OVERNIGHT THE COST OF PAVEMENT REMOVAL WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.

IT IS ESTIMATED THAT 54 GALLONS OF ITEM 411 - EMULSIFIED ASPHALT (SLOW-SETTING) WILL BE REQUIRED FOR THIS PROJECT.

IT IS ESTIMATED THAT 824 SQUARE YARDS OF ITEM 202 - REMOVAL OF ASPHALT MAT (PLANING) WILL BE REQUIRED FOR THIS PROJECT. REMOVED ASPHALT MAT MATERIAL MAY NOT BE USED IN THE EMBANKMENT BUT SHALL BECOME THE PROPERTY OF THE CONTRACTOR TO BE DISPOSED OF OFF SITE.

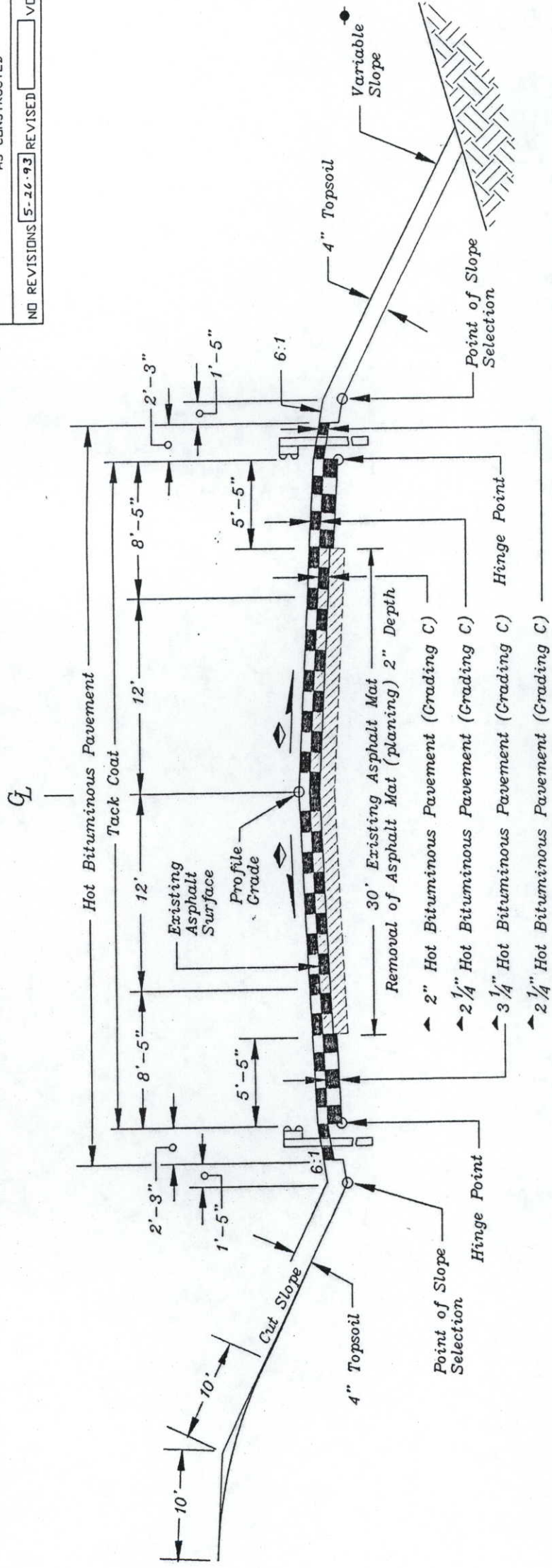
IT IS ESTIMATED THAT 206 CU. YD. OF ITEM 207 - TOPSOIL WILL BE REQUIRED FOR THIS PROJECT.

IT IS ESTIMATED THAT 5 EACH OF ITEM 202 - REMOVAL OF TREE WILL BE REQUIRED FOR THIS PROJECT (APPROXIMATE DIAMETERS OF TREE TRUNKS ARE, 1-12", 1-8", AND 3-6"). IT IS ESTIMATED THAT 3 EACH OF ITEM - 202 TREE TRIMMING WILL BE REQUIRED FOR THIS PROJECT.

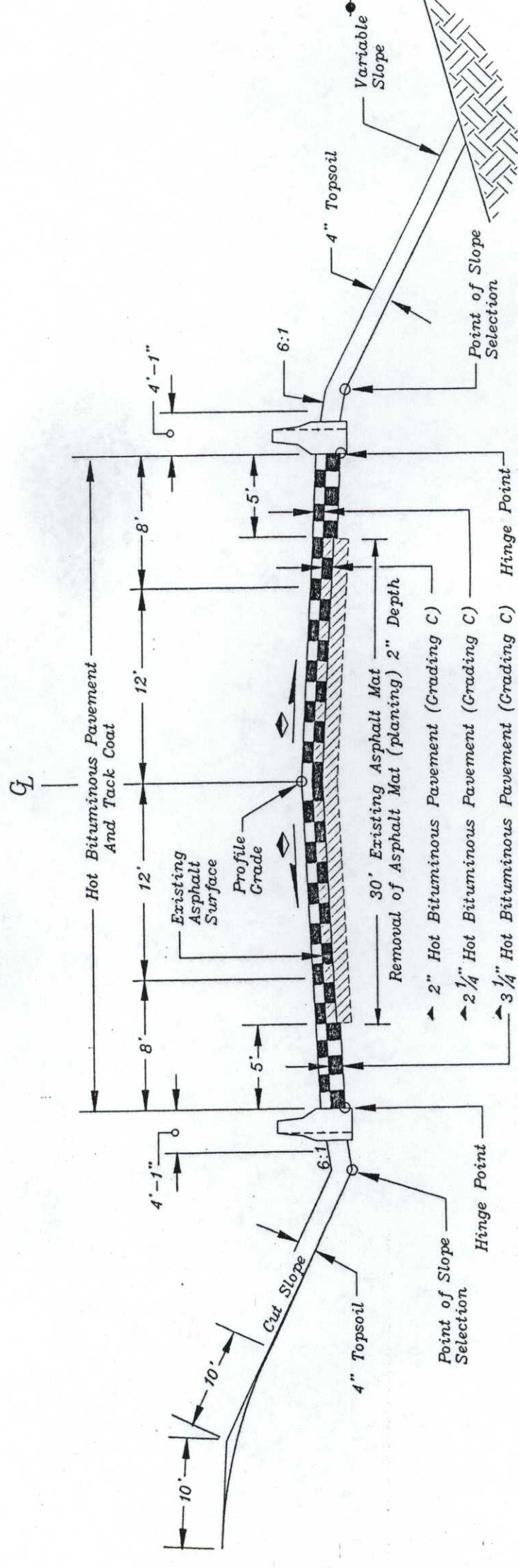
IT IS ESTIMATED THAT 380 SQ. FT. OF ITEM 202 - REMOVAL OF PAVEMENT MARKING WILL BE REQUIRED ON THIS PROJECT. THE COST OF REMOVAL OF PAVEMENT MARKINGS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.

IT IS ESTIMATED THAT 1 EACH OF ITEM 210 - RESET GROUND SIGN WILL BE REQUIRED ON THIS PROJECT.

|                |  |                  |  |          |  |           |  |               |  |
|----------------|--|------------------|--|----------|--|-----------|--|---------------|--|
| AS CONSTRUCTED |  | FED. ROAD REGION |  | DIVISION |  | PROJ. NO. |  | SHEET NO.     |  |
| NO REVISIONS   |  | 5-26-93          |  | REVISED  |  | VOID      |  | COLD.         |  |
|                |  |                  |  |          |  |           |  | BRF 036-1(39) |  |
|                |  |                  |  |          |  |           |  | VIII          |  |
|                |  |                  |  |          |  |           |  | 4             |  |



TYPICAL SECTION A



TYPICAL SECTION B

TRANSITION FROM EXISTING TO SECTION A  
472+42 TO 473+67

SECTION A - 473+67 TO 473+74

SECTION B - 473+74 TO 473+92.08

SECTION B - 474+35.92 TO 474+54

SECTION A - 474+54 TO 474+61

TRANSITION FROM SECTION A TO EXISTING  
474+61 TO 475+86

▲ Approximate Thickness

◆ Match Existing Slope

● Refer To Roadway Cross Sections For Slope Details

FINAL  
SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED

NO REVISIONS

REVISED 5-26-93

VOID

CED. ROAD REGION

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H

DIVISION

COLO.

PROJ. NO.

BRF 036-1(39)

SHEET NO.

5

| INDEX |      | CONTRACT ITEM NO. | CONTRACT ITEM | UNIT                                          | ROADWAY BID ITEMS |           | STRUCTURE C-15-N |           | PROJECT TOTALS |           |
|-------|------|-------------------|---------------|-----------------------------------------------|-------------------|-----------|------------------|-----------|----------------|-----------|
|       |      |                   |               |                                               | PLAN              | AS CONST. | PLAN             | AS CONST. | PLAN           | AS CONST. |
|       | BOOK | PAGE SHEET        |               |                                               |                   |           |                  |           |                |           |
|       |      |                   | 201           | CLEARING AND GRUBBING                         | L S               | 1         | 1                |           | 1              | 1         |
|       |      |                   | 202           | REMOVAL OF TREE                               | EACH              | 5         | 12               |           | 5              | 12        |
|       |      |                   | 202           | TREE TRIMMING                                 | EACH              | 3         | 3                |           | 3              | 3         |
|       |      |                   | 202           | REMOVAL OF DELINEATOR                         | EACH              | 12        | 12               |           | 12             | 12        |
|       |      |                   | 202           | REMOVAL OF ASPHALT MAT (PLANING)              | SY                | 1,001     | 824              |           | 1,001          | 824       |
|       |      |                   | 202           | REMOVAL OF PORTIONS OF PRESENT STRUCTURE      | L S               |           |                  | 1         | 1              | 1         |
|       |      |                   | 202           | REMOVAL OF GUARDRAIL TYPE 3                   | LF                | 72        | 72               |           | 72             | 72        |
|       |      |                   | 203           | EMBANKMENT MATERIAL (COMPLETE IN PLACE)       | CY                | 621       | 621              |           | 621            | 621       |
|       |      |                   | 207           | TOPSOIL                                       | CY                | 206       | 113              |           | 206            | 113       |
|       |      |                   | 210           | RESET GROUND SIGN                             | EACH              | 1         | 1                |           | 1              | 1         |
|       |      |                   | 210           | RESET GUARDRAIL TYPE 3                        | LF                | 548       | 589              |           | 548            | 589       |
|       |      |                   | 212           | SEEDING (NATIVE)                              | ACRE              | 00.35     | 0.2              |           | .35            | 0.2       |
|       |      |                   | 216           | SOIL RETENTION BLANKET (SPECIAL)              | SY                | 1,700     | 993              |           | 1,700          | 993       |
|       |      |                   | 403           | HOT BITUMINOUS PAVEMENT (GRADING C) (ASPHALT) | TON               | 344       | 323.42           | 22.5      | 366.5          | 345.42    |
|       |      |                   | 411           | EMULSIFIED ASPHALT (SLOW-SETTING)             | GAL               | 91        | 51               |           | 91             | 51        |
|       |      |                   | 420           | SILT FENCE                                    | LF                | 493       | 468              |           | 493            | 468       |
|       |      |                   | 509           | STRUCTURAL STEEL                              | LB                |           |                  | 1,162     | 1,162          | 1,162     |
|       |      |                   | 509           | ALTER AND ERECT STRUCTURAL STEEL              | LB                |           |                  | 27,180    | 27,180         | 27,180    |
|       |      |                   | 513           | BRIDGE DRAIN (8 INCH)                         | EACH              |           |                  | 2         | 2              | 2         |
|       |      |                   | 515           | WATERPROOFING (MEMBRANE)                      | SY                |           |                  | 190       | 190            | 195       |
|       |      |                   | 601           | CONCRETE CLASS D (BRIDGE)                     | CY                |           |                  | 83        | 83             | 83        |
|       |      |                   | 602           | REINFORCING STEEL (EPOXY COATED)              | LB                |           |                  | 16,826    | 16,826         | 16,826    |
|       |      |                   | 606           | GUARDRAIL TYPE 4                              | LF                | 40        | 40               |           | 40             | 40        |
|       |      |                   | 606           | BRIDGE RAIL TYPE 4                            | LF                |           |                  | 120       | 120            | 120       |
|       |      |                   | 612           | DELINEATOR (TYPE 1)                           | EACH              | 10        | 10               |           | 10             | 10        |
|       |      |                   | 612           | DELINEATOR (TYPE 111)                         | EACH              | 2         | 2                |           | 2              | 2         |
|       |      |                   | 613           | 2 INCH ELECTRICAL CONDUIT                     | LF                |           |                  | 128       | 128            | 137.5     |
|       |      |                   | 613           | PORTABLE POWER GENERATOR                      | EACH              | 1         | 1                |           | 1              | 1         |
|       |      |                   | 620           | FIELD LABORATORY (CLASS 2)                    | EACH              | 1         | 1                |           | 1              | 1         |
|       |      |                   | 620           | SANITARY FACILITY                             | EACH              | 1         | 1                |           | 1              | 1         |
|       |      |                   | 625           | CONSTRUCTION SURVEYING                        | L S               | 00.5      | 0.5              | 00.5      | 0.5            | 1         |
|       |      |                   | 626           | MOBILIZATION                                  | L S               | 00.4      | 0.4              | 00.6      | 0.6            | 1         |
|       |      |                   | 627           | PAVEMENT MARKING PAINT                        | GAL               | 8         | 5                |           | 8              | 5         |

# SUMMARY OF ~~APPROXIMATE~~ <sup>FINAL</sup> QUANTITIES

|                                                                                    |  |                    |          |               |           |
|------------------------------------------------------------------------------------|--|--------------------|----------|---------------|-----------|
| AS CONSTRUCTED                                                                     |  | C.F.D. ROAD REGION | DIVISION | PROJ. NO.     | SHEET NO. |
| NO REVISIONS <input type="text"/> REVISED <u>5-26-33</u> VOID <input type="text"/> |  | D                  | COLO.    | BRF 036-1(39) | 6         |

[illegible]

SURFACING PLAN, DELINEATOR TABULATION, AND SUMMARY OF EARTHWORK QUANTITIES

| SURFACING PLAN         |            |                          |     |              |                                     |        |
|------------------------|------------|--------------------------|-----|--------------|-------------------------------------|--------|
| STATION TO STATION     | SOURCE     | QUANTITY - TONS          |     |              | TYPICAL SECTION                     |        |
|                        |            | H.B.P. (GR. C) (ASPHALT) |     | BOTTOM LAYER |                                     |        |
|                        |            | TOP LAYER                | 2'  |              |                                     |        |
|                        |            |                          |     |              |                                     | 3 1/4' |
| 472+32 to 472+42       | CONTRACTOR | 8                        | -   | -            | TRANSITION<br>A<br>B<br>-<br>B<br>A |        |
| 472+42 to 473+67       |            | 70                       | 47  | 14           |                                     |        |
| 473+67 to 473+74       |            | 4                        | 3   | 1            |                                     |        |
| 473+74 to 473+92.08    |            | 10                       | 7   | 4            |                                     |        |
| 473+92.08 to 474+35.92 |            | -                        | -   | -            | TRANSITION<br>A<br>B<br>-<br>B<br>A |        |
| 474+35.92 to 474+54    |            | 10                       | 7   | 4            |                                     |        |
| 474+54 to 474+61       |            | 4                        | 3   | 1            |                                     |        |
| 474+61 to 475+86       |            | 70                       | 47  | 14           |                                     |        |
| 475+86 to 475+96       |            | 2                        | -   | -            | -                                   |        |
| SUBTOTAL               |            |                          | 172 | 114          | 38                                  |        |
| IRREGULARITIES         |            |                          | -20 |              |                                     |        |
| TOTAL                  |            |                          | 344 | 323.42       |                                     |        |

⊕ H.B.P. (GR. C) (ASPHALT) QUANTITY FROM STA. 473+92.08 TO STA. 474+35.92 SHOWN ON BRIDGE GENERAL INFORMATION SUMMARY OF QUANTITIES SHEET.

- STABILIZATION BASED ON:
- 1. 10 YR 18K ESLS ..... 95.594
  - 2. RELIABILITY ..... 70.00%
  - 3. PSI LOSS DUE TO TRAFFIC ..... 2.00
  - 4. RSN ..... 2.40
  - 5. RESILIENT MODULUS OF SUBGRADE ..... 4,940 PSI
  - 6. OVERALL DEVIATION ..... 0.44

| DELINEATOR TABULATION  |       |           |                     |                                      |
|------------------------|-------|-----------|---------------------|--------------------------------------|
| ★ STATION TO STATION   | SIDE  | SPACING   | DELINEATOR          |                                      |
|                        |       |           | EACH                |                                      |
|                        |       |           | TYPE I<br>(CRYSTAL) | TYPE III<br>(3 YELLOW HAZARD MARKER) |
| 472+42 TO 473+92.08    | LEFT  | TANGENT   | 1                   |                                      |
| 472+42 TO 473+92.08    | RIGHT | TANGENT   | 4                   |                                      |
| 473+92.08 TO 474+35.92 | LEFT  | STRUCTURE |                     | 1                                    |
| 473+92.08 TO 474+35.92 | RIGHT | STRUCTURE |                     | 1                                    |
| 474+35.92 TO 475+86    | LEFT  | CURVE     | 4                   |                                      |
| 474+35.92 TO 475+86    | RIGHT | CURVE     | 1                   |                                      |
| TOTAL                  |       |           | 10                  | 2                                    |

★ STATIONS ARE APPROXIMATE. SEE STANDARD S-612-1 FOR PLACEMENT.  
IT IS ESTIMATED THAT 12 OF ITEM 202 - REMOVAL OF DELINEATOR IS REQUIRED ON THIS PROJECT.

REFLECTORS: 6 YELLOW  
10 CRYSTAL

AS CONSTRUCTED

NO REVISIONS

REVISED 5-26-93

VOID

FED. ROAD REGION

VIII

DIVISION

COLO.

PROJ. NO.

BRF 036-1(39)

SHEET NO.

7

| SUMMARY OF EARTHWORK QUANTITIES         |      |          |                |         |         |
|-----------------------------------------|------|----------|----------------|---------|---------|
| INDEX                                   |      |          | PROJECT TOTALS |         |         |
| BOOK                                    | PAGE | SHEET    | CU. YD.        | CU. YD. | CU. YD. |
| 266                                     | 1    | 305 Item | 621            | 621     | 621     |
| EMBANKMENT MATERIAL (COMPLETE IN PLACE) |      |          |                |         |         |
| Ø ROADWAY (FROM COMPUTER)               |      |          | 621            |         |         |
| TOTAL                                   |      |          | 621            |         | 621     |
| FOR INFORMATION ONLY                    |      |          |                |         |         |
| UNCLASSIFIED EXCAVATION                 |      |          |                |         |         |
| ROADWAY (FROM COMPUTER)                 |      |          | 180            |         |         |
| TOTAL                                   |      |          | 180            |         |         |
| COMPACTION (AASHTO T-99)                |      |          |                |         |         |
| EMBANKMENT (NET) (ROADWAY)              |      |          | 621            |         |         |
| BASE COMPACTION (ROADWAY)               |      |          | 340            |         |         |
| TOTAL                                   |      |          | 961            |         |         |
| ROADWAY QUANTITIES BALANCE              |      |          |                |         |         |
| EXCAVATION                              |      |          |                |         |         |
| UNCLASSIFIED (FROM COMPUTER)            |      |          | 180            |         |         |
| BORROW (CONTRACTOR SOURCE)              |      |          | 627            |         |         |
| TOTAL                                   |      |          | 807            |         |         |
| EMBANKMENT NET                          |      |          |                |         |         |
| ROADWAY (FROM COMPUTER)                 |      |          | 621            |         |         |
| TOTAL                                   |      |          | 621            |         |         |
| EMBANKMENT X FACTOR (1.3)               |      |          |                |         |         |
| ROADWAY (FROM COMPUTER)                 |      |          | 807            |         |         |
| TOTAL                                   |      |          | 807            |         |         |

Ø MINIMUM "R" VALUE OF 20.

PLAN AND PROFILE SHEET

AS CONSTRUCTED

NO REVISIONS 5-26-93

REVISED

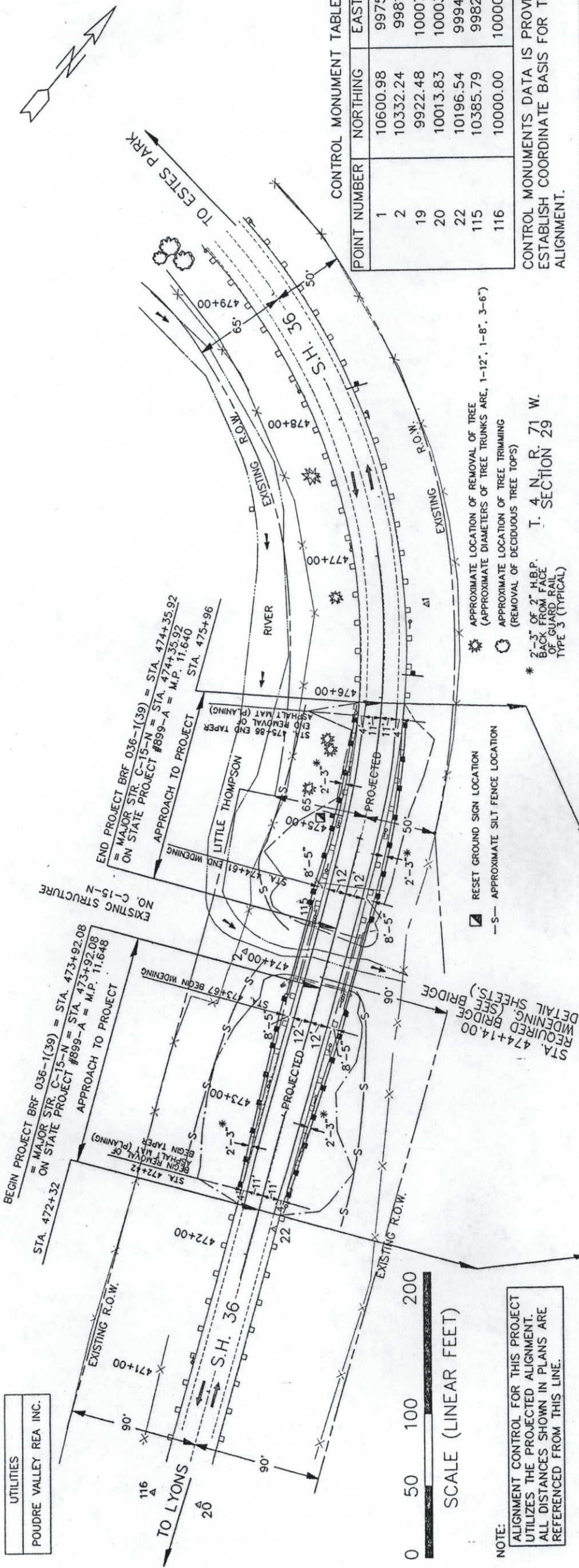
VOID

FEDERAL ROAD DISTRICT NO. VIII

DIVISION COLORADO

PROJECT NO. BRF 036-1(39)

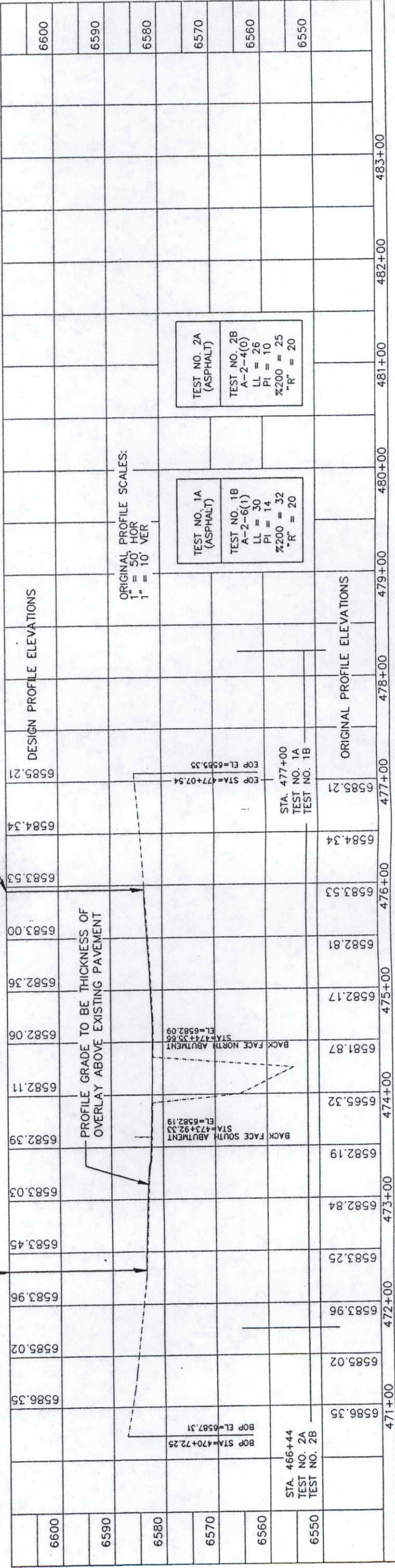
SHEET NO. 8



CONTROL MONUMENT TABLE A

| POINT NUMBER | NORTHING | EASTING   | ELEVATION |
|--------------|----------|-----------|-----------|
| 1            | 10600.98 | 99754.25  | 6601.63   |
| 2            | 10332.24 | 99810.32  | 6553.04   |
| 19           | 9922.48  | 100071.73 | 6592.82   |
| 20           | 10013.83 | 100031.06 | 6588.47   |
| 22           | 10196.54 | 99949.71  | 6583.40   |
| 115          | 10385.79 | 99828.24  | 6580.82   |
| 116          | 10000.00 | 100000.00 | 6588.09   |

CONTROL MONUMENTS DATA IS PROVIDED TO ESTABLISH COORDINATE BASIS FOR THE PROJECTED ALIGNMENT.



AS CONSTRUCTED

NO REVISIONS

REVISED 5-26-23

VOID

DISTRICT

FEDERAL ROAD REGION NO.

DIVISION

PROJECT NO.

SHEET NO.

VIII

COLORADO

BRF 036-1(39)

9

REMOVAL OF GUARD RAIL TYPE 3

STA. 472+42 (BOTH SIDES)  
BEGIN RESET GUARD RAIL TYPE 3

STA. 473+78  
BEGIN REMOVAL OF GUARD RAIL TYPE 3

STA. 473+96  
END REMOVAL OF GUARD RAIL TYPE 3

STA. 474+32  
BEGIN REMOVAL OF GUARD RAIL TYPE 3

STA. 474+50  
END REMOVAL OF GUARD RAIL TYPE 3

STA. 475+86 (BOTH SIDES)  
END RESET GUARD RAIL TYPE 3



472+00

473+00

474+00

475+00

476+00

477+00

STA. 473+74 (BOTH SIDES)  
BEGIN GUARD RAIL TYPE 4 10' TRANSITION

STA. 473+78 (BOTH SIDES)  
END RESET GUARD RAIL TYPE 3

STA. 473+84 (BOTH SIDES)  
END GUARD RAIL TYPE 4 10' TRANSITION

474+00

STA. 474+44 (BOTH SIDES)  
BEGIN GUARD RAIL TYPE 4 10' TRANSITION

STA. 474+50 (BOTH SIDES)  
BEGIN RESET GUARD RAIL TYPE 3

STA. 474+54 (BOTH SIDES)  
END GUARD RAIL TYPE 4 10' TRANSITION

RESET GUARD RAIL TYPE 3 AND GUARD RAIL TYPE 4 DETAIL

ROADWAY GUARD RAIL TABULATION

| STATION                                 | RESET<br>GUARD RAIL<br>TYPE 3 | *<br>GUARD RAIL<br>TYPE 4 | REMOVAL OF<br>GUARD RAIL<br>TYPE 3 |    |
|-----------------------------------------|-------------------------------|---------------------------|------------------------------------|----|
|                                         |                               |                           | LINEAR FEET                        |    |
| STA. 472+42 TO STA. 473+78 (BOTH SIDES) | 321<br>272                    |                           | 36                                 | 36 |
| STA. 473+78 TO STA. 473+96 (BOTH SIDES) |                               |                           |                                    |    |
| STA. 474+32 TO STA. 474+50 (BOTH SIDES) | 278<br>272                    |                           |                                    |    |
| STA. 474+50 TO STA. 475+86 (BOTH SIDES) |                               |                           |                                    |    |
| STA. 473+74 TO STA. 473+84 (BOTH SIDES) |                               | 20                        |                                    |    |
| STA. 474+44 TO STA. 474+54 (BOTH SIDES) |                               | 20                        |                                    |    |
| TOTAL                                   | 548                           | 40                        | 72                                 | 72 |

\* GUARD RAIL TYPE 4 - STYLE CA (AS PER STANDARD PLAN # M-606-12)

NOTE:

ALIGNMENT CONTROL FOR THIS PROJECT  
UTILIZES THE PROJECTED ALIGNMENT.  
ALL DISTANCES SHOWN IN PLANS ARE REFERENCED  
FROM THIS LINE.

GENERAL NOTES

STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH STANDARD M-206-2.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.

ALL BOLTS SHALL BE 3/4" DIAMETER, HIGH STRENGTH, UNLESS OTHERWISE NOTED.

GRADE 60 REINFORCING STEEL IS REQUIRED.

ALL REINFORCING STEEL SHALL BE EPOXY COATED UNLESS OTHERWISE NOTED.

THE FOLLOWING TABLE GIVES THE MINIMUM LAP SPlice LENGTH FOR REINFORCING BARS:

| BAR SIZE                           | #4    | #5    | #6     | #7    | #8     | #9    | #10   | #11   |
|------------------------------------|-------|-------|--------|-------|--------|-------|-------|-------|
| SPlice LENGTH FOR CLASS D CONCRETE | 1'-3" | 1'-6" | 1'-10" | 2'-2" | 2'-10" | 3'-7" | 4'-7" | 5'-7" |

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.

~~PERMANENT STEEL BRIDGE DECK FORMS ARE REQUIRED.~~  
*Bridge Deck Forms Will Be Placed As Per Standard Specification 601 (Per CMO-1)*  
STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM THE "AS CONSTRUCTED PLANS". THESE STATIONS, ELEVATIONS, AND DIMENSIONS MAY BE ADJUSTED TO MEET THE EXISTING STRUCTURE. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

FOR STRUCTURE NUMBER INSTALLATION, SEE STANDARD S-614-12

DESIGN DATA

1989 AASHTO SPECIFICATIONS, 14th EDITION.

LIVE LOAD: AASHTO HS-20-44 AND INTERSTATE ALTERNATE DEAD LOAD: ASSUMES 48 LBS. PER SQ. FT. FOR BITUMINOUS PAVEMENT

REINFORCED CONCRETE:

CLASS D CONCRETE:  $f'_c = 4,500$  psi  $f_c = 1800$  psi  
REINFORCING STEEL:  $f_y = 60,000$  psi  $f_s = 24,000$  psi

EXISTING STRUCTURAL STEEL ASTM A7

$f_y = 33,000$  psi  $f_s = 18,000$  psi

SUMMARY OF QUANTITIES

| ITEM NO. | DESCRIPTION                                  | UNIT   | SUPER-STRUCTURE | ABUT. 1 | ABUT. 2 | TOTAL    |
|----------|----------------------------------------------|--------|-----------------|---------|---------|----------|
| 202      | REMOVAL OF PORTIONS OF PRESENT STRUCTURE     | L S    |                 |         |         | 1.0      |
| 206      | STRUCTURE EXCAVATION                         | CU YD  |                 | 38      | 38      | 76       |
| 206      | STRUCTURE BACKFILL (CLASS 1)                 | CU YD  |                 | 26      | 26      | 52       |
| 403      | HOT BITUMINOUS PAVEMENT (GRADING C)(ASPHALT) | TON    | 22 X            |         |         | 22 X     |
| 509      | STRUCTURAL STEEL                             | LB     | 1162            |         |         | 1162     |
| 509      | ALTER AND ERECT STRUCTURAL STEEL             | LB     | 27180           |         |         | 27180    |
| 513      | BRIDGE DRAIN (8 INCH)                        | EA     | 2               |         |         | 2        |
| 515      | WATERPROOFING (MEMBRANE)                     | SQ YD  | 499 / 95        |         |         | 499 / 95 |
| 601      | CONCRETE CLASS D (BRIDGE)                    | CU YD  | 45.8            | 18.5    | 18.7    | 83       |
| 602      | REINFORCING STEEL (EPOXY COATED)             | LB     | 13094           | 1866    | 1866    | 16826    |
| 606      | BRIDGE RAIL TYPE 4                           | LIN FT | 120             |         |         | 120      |
| 613      | 2 INCH ELECTRICAL CONDUIT                    | LIN FT | 428 / 37        |         |         | 428 / 37 |
| 626      | MOBILIZATION                                 | L S    | 0.6             |         |         | 0.6      |
|          |                                              |        |                 |         |         |          |
|          |                                              |        |                 |         |         |          |
|          |                                              |        |                 |         |         |          |

- ① Studs and diaphragm Extenders included.
- ② Reset Girders.
- ③ For information only. To be included in the work.

BRIDGE DESCRIPTION

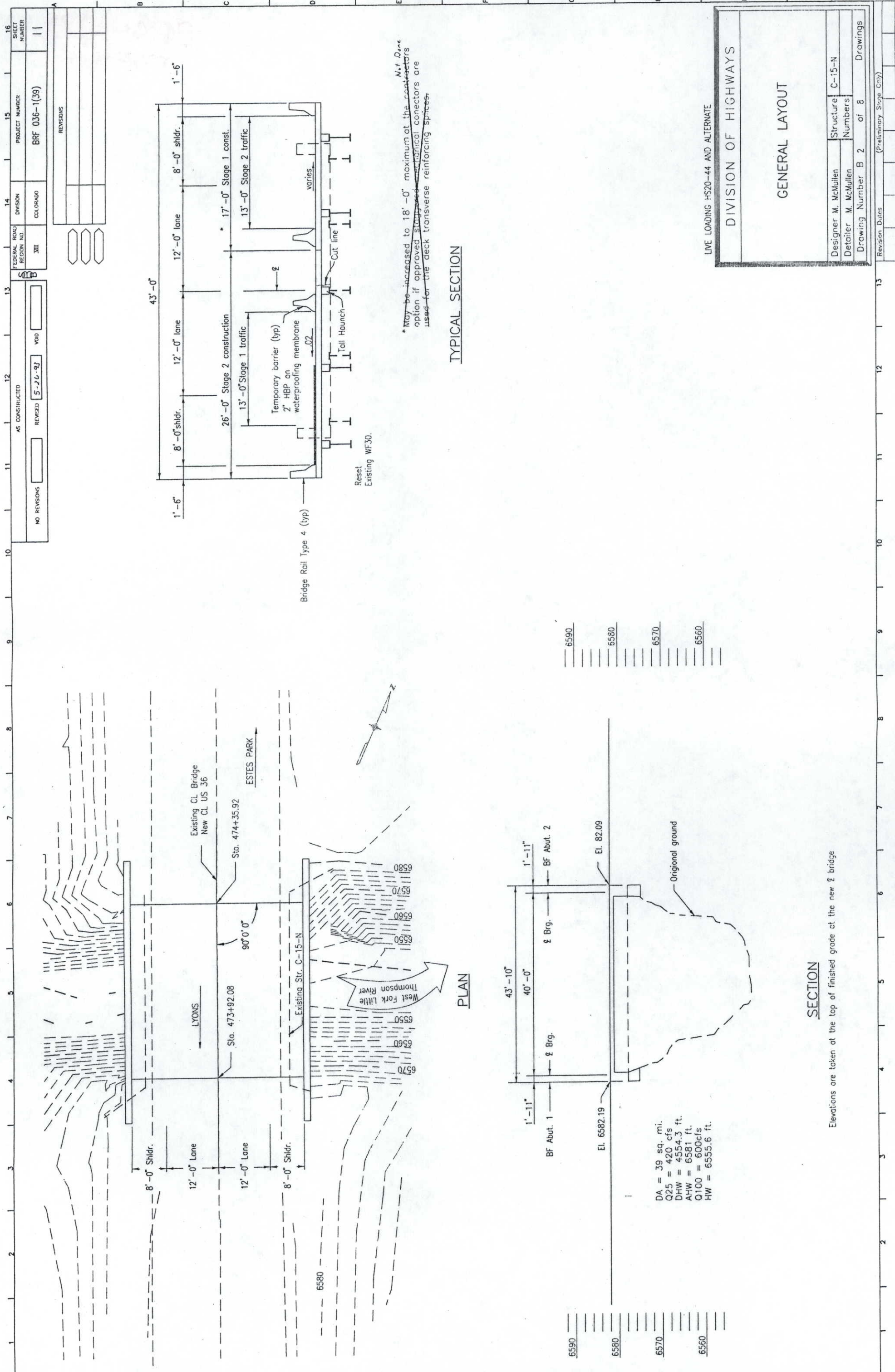
1-SPAN (40' -0") BRIDGE.  
CONCRETE SLAB AND STEEL GIRDER.  
OVER THE WEST FORK OF THE LITTLE THOMPSON RIVER,  
40' -0" ROADWAY CURB TO CURB, 90° 00' 00" SKEW.  
BRIDGE RAIL, TYPE 4.

DIVISION OF HIGHWAYS  
GENERAL INFORMATION  
SUMMARY OF QUANTITIES

|                |            |
|----------------|------------|
| Station        | 473+92.08  |
| Station        | 474+35.92  |
| Near           | LYONS      |
| Designer       | M McMullen |
| Detailer       | T Edwards  |
| Structure      | C-15-N     |
| Numbers        |            |
| Drawing Number | B 1 of 8   |
| Drawings       |            |

Revision Dates (Preliminary Stage Only)

|             |       |            |       |       |
|-------------|-------|------------|-------|-------|
| INITIAL     | DATE  | Checked By | E H H | 05/92 |
| Designed By | M L M | 08/91      |       |       |
| Checked By  | M C   | 05/92      | M L M | 12/91 |
| Delayed By  | M L M | 08/91      |       |       |
|             |       | Checked By | T O E | 06/92 |



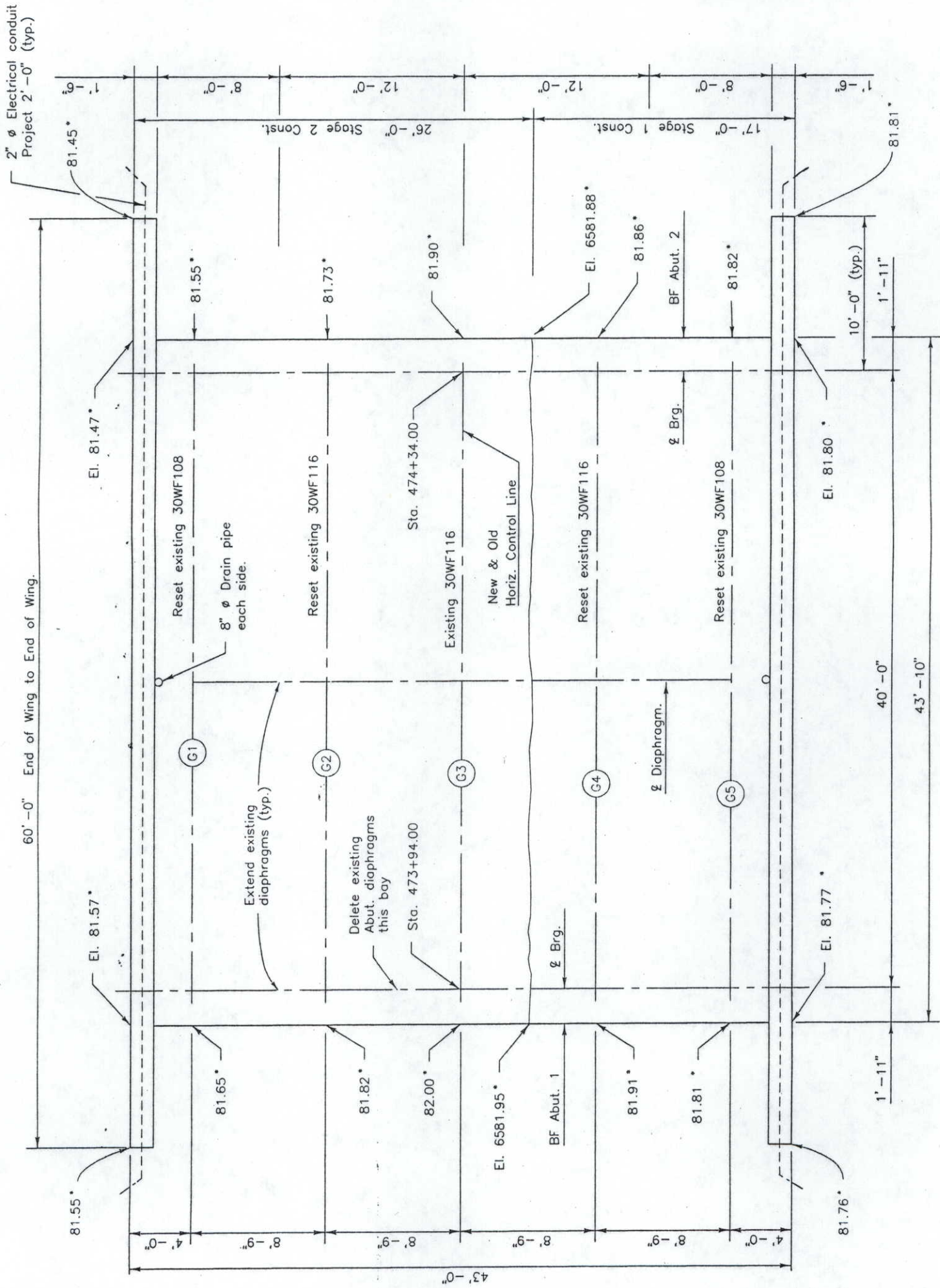
## SECTION

Elevations are taken at the top of finished grade at the new 2 bridge

|               |       |       |
|---------------|-------|-------|
| Designed By   | M L M | 05/91 |
| Checked By    | F H H | 05/92 |
| Initial       | DATE  |       |
| Deleted By    | M C   | 05/92 |
| Checked By    | T O E | 05/91 |
| Quantities By | T O E | 06/92 |
| Checked By    | M L M | 12/91 |

|                               |         |         |      |
|-------------------------------|---------|---------|------|
| NO REVISIONS                  | REVISED | 5-26-93 | VOID |
| FEDERAL ROAD DISTRICT NO. 333 |         |         |      |
| DIVISION COLORADO             |         |         |      |
| PROJECT NUMBER BRF 036-1(39)  |         |         |      |
| SHEET NUMBER 12               |         |         |      |

|           |  |  |  |
|-----------|--|--|--|
| REVISIONS |  |  |  |
|           |  |  |  |
|           |  |  |  |
|           |  |  |  |



\* Elevations at top of the new deck concrete.

CONSTRUCTION LAYOUT

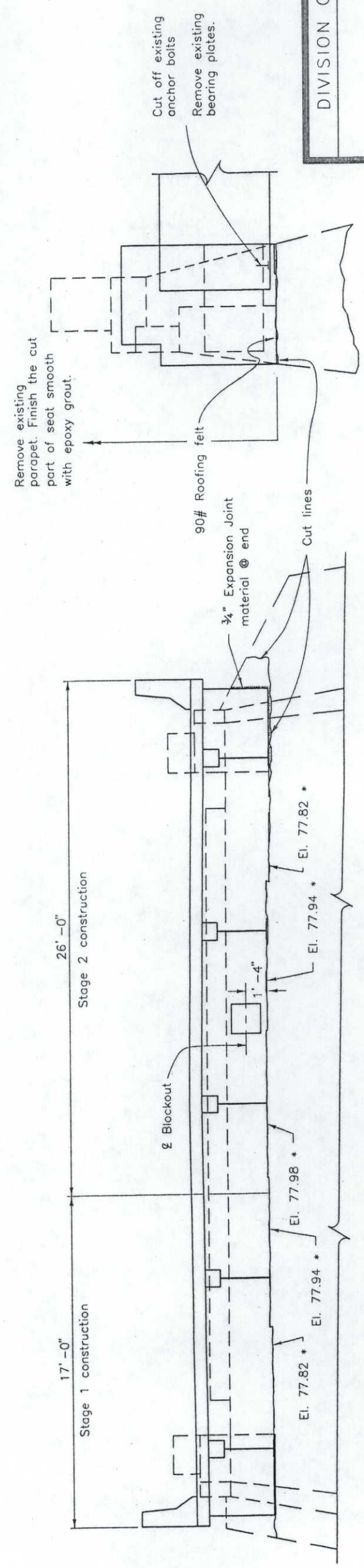
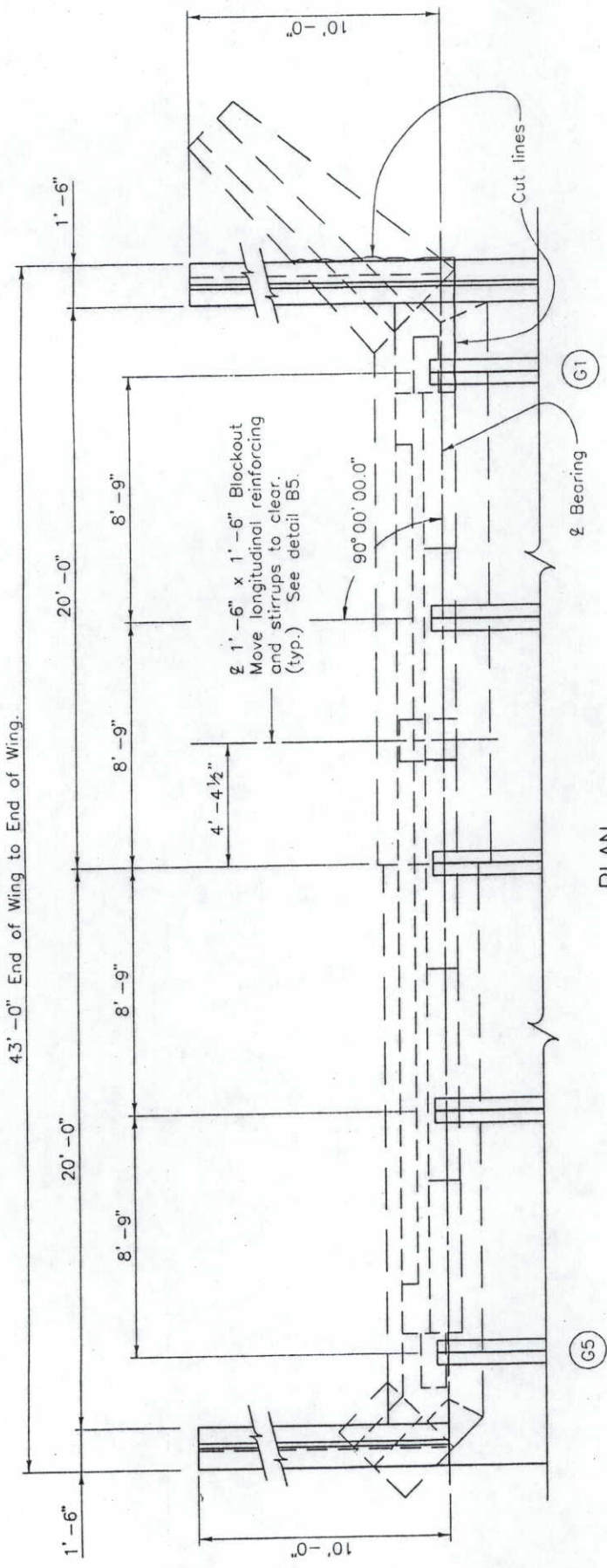
DIVISION OF HIGHWAYS

CONSTRUCTION LAYOUT

|                |             |           |        |
|----------------|-------------|-----------|--------|
| Designer       | M. McMullen | Structure | C-15-N |
| Detailer       | T. Edwards  | Numbers   |        |
| Drawing Number | B 3         | of        | 8      |
| Drawings       |             |           |        |

Revision Dates (Preliminary Stage Only)

|               |       |       |
|---------------|-------|-------|
| Designd By    | M L M | 05/91 |
| Checked By    | E H H | 05/92 |
| Quantities By | M L M | 12/91 |
| Checked By    | T O E | 06/92 |
| Designd By    | M C   | 05/92 |
| Checked By    | T O E | 05/91 |



ELEVATION

\* Approximate Existing seat elevations

|                             |                 |          |                |
|-----------------------------|-----------------|----------|----------------|
| NO REVISIONS                | REVISED 5-26-93 | VOIT     | 13             |
| FEDERAL ROAD DISTRICT NO. 3 |                 | DIVISION | PROJECT NUMBER |
| XIII                        |                 | COLORADO | BRF 036-1(39)  |
| REVISIONS                   |                 |          |                |
|                             |                 |          |                |
|                             |                 |          |                |
|                             |                 |          |                |

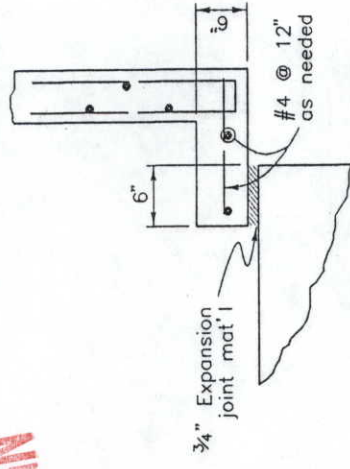
For wingwall details, see Dwg. No. B6.

BEARING DETAILS

|                      |                          |
|----------------------|--------------------------|
| DIVISION OF HIGHWAYS |                          |
| ABUTMENT 1 DETAILS   |                          |
| Designer M. McMullen | Structure Numbers C-15-N |
| Detailer T. Edwards  | Drawings                 |
| Drawing Number B 4   | of 8                     |

Revision Dates (Preliminary Stage Only)

**AS CONSTRUCTED PLANS  
RETURN TO DIST. 4 DESIGN**


$$\underline{A-A}$$

See Abut. 1 for details not shown.

DIVISION OF HIGHWAYS

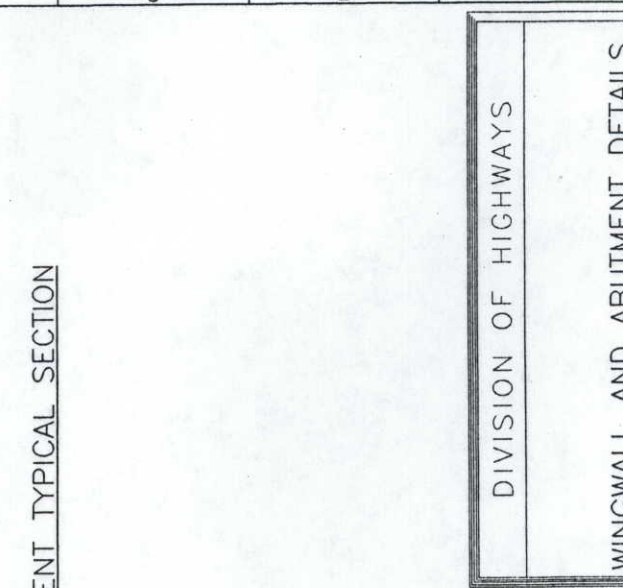
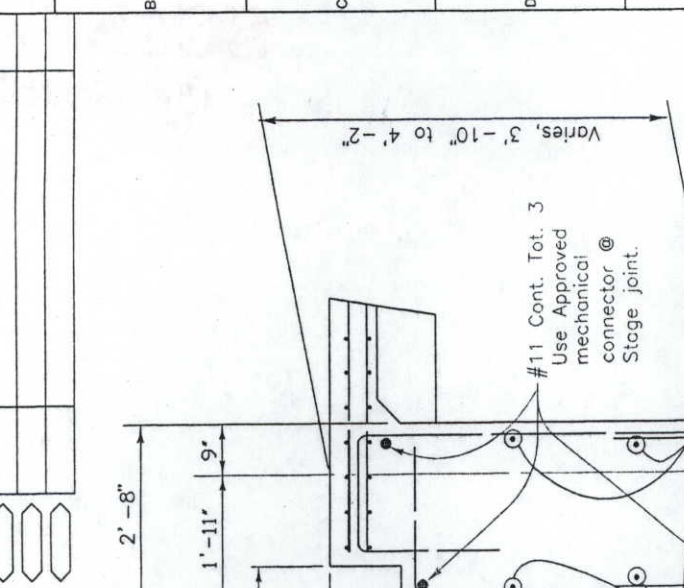
## ELEVATION

\* Approximate Existing seat elevations

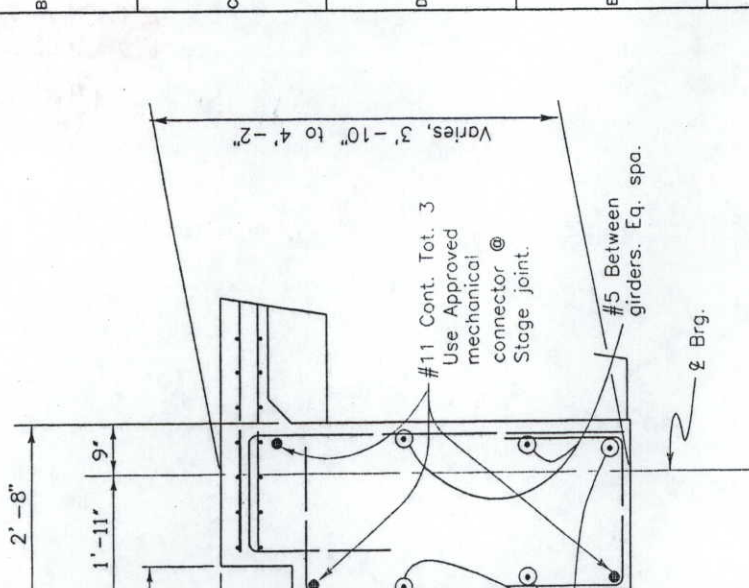
|                                  |             |           |        |
|----------------------------------|-------------|-----------|--------|
| Designer                         | M. McMullen | Structure | C-15-N |
| Detailer                         | T. Edwards  | Numbers   |        |
| Drawing Number B 5 of 8 Drawings |             |           |        |

| Revision Dates | (Preliminary Stage Only) |
|----------------|--------------------------|
|                |                          |

Diagram illustrating a typical section of a stage joint. The diagram shows a cross-section of a stage joint where a girder is connected to a stage joint. The girder is labeled "#5 Between girders. Eq. spa." and the stage joint is labeled "Stage joint." The diagram also shows a "Use Approved mechanical connector @ Stage joint." and a "Varies" dimension. A curved arrow indicates the direction of movement or force.



Journal of Management Inquiry 20(4) 409-424



### ENT TYPICAL SECTION

DIVISION OF HIGHWAYS

## WINGWALL AND ABUTMENT DETAILS

|                                  |             |           |        |
|----------------------------------|-------------|-----------|--------|
| Designer                         | M. McMullen | Structure | C-15-N |
| Detailer                         | T. Edwards  | Numbers   |        |
| Drawing Number B 6 of 8 Drawings |             |           |        |

| Revision Dates | (Preliminary Stage Only) |
|----------------|--------------------------|
|----------------|--------------------------|

|                         |             |           |        |
|-------------------------|-------------|-----------|--------|
| Designer                | M. McMullen | Structure | C-15-N |
| Detailer                | T. Edwards  | Numbers   |        |
| Drawing Number B 7 of 8 |             | Drawings  |        |

| Revision Dates | (Preliminary Stage Only) |
|----------------|--------------------------|
|                |                          |



PROJECTED ALIGNMENT DATA, AND SCHEDULE OF  
CONSTRUCTION TRAFFIC CONTROL DEVICES

| PROJECTED ALIGNMENT DATA |           |           |           |               |          |            |           |       |         |       |
|--------------------------|-----------|-----------|-----------|---------------|----------|------------|-----------|-------|---------|-------|
| PI#                      | NORTHING  | EASTING   | PI STA    | BEARING       | DISTANCE | Δ          | Dc        | T     | R       | L     |
| 2                        | 10142.524 | 99957.963 | 471+69.78 | AZ 336°02'02" | 49.979   | 0°01'41" R | -0-       |       |         |       |
| 3                        | 10188.194 | 99937.662 | 472+19.76 | AZ 336°09'14" | 24.981   | 0°07'12" R | -0-       |       |         |       |
| 4                        | 10211.042 | 99927.562 | 472+44.74 | AZ 335°37'06" | 25.105   | 0°32'09" L | -0-       |       |         |       |
| 5                        | 10233.909 | 99917.198 | 472+69.84 | AZ 336°02'50" | 25.074   | 0°25'45" R | -0-       |       |         |       |
| 6                        | 10256.824 | 99907.019 | 472+94.92 | AZ 336°40'46" | 25.024   | 0°37'56" R | -0-       |       |         |       |
| 7                        | 10279.803 | 99897.112 | 473+19.94 | AZ 335°31'13" | 25.011   | 1°09'33" L | -0-       |       |         |       |
| 8                        | 10302.566 | 99886.749 | 473+44.95 | AZ 336°24'43" | 24.779   | 0°53'30" R | -0-       |       |         |       |
| 9                        | 10325.275 | 99876.833 | 473+69.73 | AZ 335°36'51" | 22.602   | 0°47'52" L | -0-       |       |         |       |
| 10                       | 10345.861 | 99867.501 | 473+92.33 | AZ 335°59'16" | 43.336   | 0°22'25" R | -0-       |       |         |       |
| 11                       | 10385.446 | 99849.866 | 474+35.67 | AZ 335°09'54" | 34.985   | 0°49'22" L | -0-       |       |         |       |
| 12                       | 10417.196 | 99835.172 | 474+70.66 | AZ 335°26'15" | 25.023   | 0°16'22" R | 1°05'30"  | 12.49 | 5248.15 | 24.98 |
| 13                       | 10439.954 | 99824.771 | 474+95.68 | AZ 332°59'26" | 25.135   | 2°26'49" L | 9°45'44"  | 12.53 | 586.91  | 25.07 |
| 14                       | 10462.347 | 99813.356 | 475+20.81 | AZ 332°13'00" | 25.078   | 0°46'26" L | 3°04'14"  | 12.60 | 1865.93 | 25.20 |
| 15                       | 10484.534 | 99801.667 | 475+45.89 | AZ 327°40'26" | 24.778   | 4°32'35" L | 18°12'48" | 12.48 | 314.58  | 24.94 |
| 16                       | 10505.472 | 99788.417 | 475+70.65 | AZ 327°06'21" | 24.595   | 0°34'04" L | 2°18'31"  | 12.30 | 2481.81 | 24.60 |
| 17                       | 10526.123 | 99775.060 | 475+95.25 | AZ 322°00'44" | 24.479   | 5°05'37" L | 20°43'41" | 12.29 | 276.42  | 24.57 |
| 18                       | 10545.416 | 99759.993 | 476+19.71 | AZ 321°39'53" | 25.104   | 0°20'51" L | 1°25'34"  | 12.18 | 4017.49 | 24.37 |
| 19                       | 10565.108 | 99744.422 | 476+44.81 | AZ 318°46'48" | 25.536   | 2°53'06" L | 11°10'00" | 12.92 | 513.09  | 25.83 |

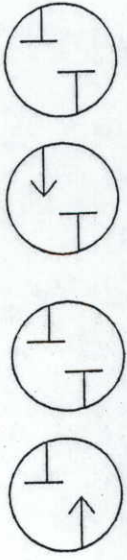
| SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES |                              |          |            |          |  |
|--------------------------------------------------|------------------------------|----------|------------|----------|--|
| SIGNS                                            |                              |          |            |          |  |
| SIGN CODE                                        | LEGEND                       | SIZE     | PANEL SIZE |          |  |
|                                                  |                              |          | EACH       |          |  |
|                                                  |                              |          | A          | B        |  |
| 48W20-1                                          | ROAD/CONSTRUCTION/⟨DISTANCE⟩ | 48"X48"  |            | 4        |  |
| 4820-51a                                         | GIVE 'EM A/BRAKE             | 48"X48"  |            | 2        |  |
| 36R2-1(35)                                       | SPEED/LIMIT/35               | 36"X48"  |            | 2        |  |
| 48W3-3                                           | SIGNAL AHEAD SYMBOL          | 48"X48"  |            | 2        |  |
| 48W20-4                                          | ONE LANE/ROAD/⟨DIST⟩         | 48"X48"  |            | 2        |  |
| 48W20-7a                                         | FLAGGER SYMBOL               | 48"X48"  |            | 2        |  |
| 60G20-2                                          | END/CONSTRUCTION             | 60"X24"  | 2          | 2        |  |
| 24R10-6                                          | Stop Here On Red             | 24"X36"  | 2          |          |  |
| 24R2-1(45)                                       | SPEED/LIMIT/45               | 24"X30"  |            |          |  |
| TOTALS                                           |                              |          | 24         | 16       |  |
| OTHER DEVICES                                    |                              |          | UNITS      | QUANTITY |  |
| TRAFFIC CONE                                     | ⊙ *                          | EACH     |            | 25       |  |
| DRUM CHANNELIZING DEVICE (WITH LIGHT) (FLASHING) | ⊙                            | EACH     |            | 4        |  |
| DRUM CHANNELIZING DEVICE                         | ⊙                            | EACH     |            | 10       |  |
| FLASHING BEACON (PORTABLE)                       |                              | EACH     |            | 2        |  |
| CONCRETE BARRIER (TEMPORARY)                     |                              | LIN. FT. |            | 400      |  |
| TRAFFIC SIGNAL (TEMPORARY)                       |                              | LUMP SUM |            | 1        |  |
| PORTABLE POWER GENERATOR                         |                              | EACH     |            | 1        |  |
| TEMPORARY RUMBLE STRIP                           | ⊕                            | LIN. FT. |            | 288      |  |
| 4 INCH PAVEMENT MARKING TAPE (REMOVABLE)         | ▣                            | LIN. FT. |            | 2850     |  |

- ⊙ INTENDED FOR SET-UP AND TAKEDOWN OF CONCRETE BARRIER (TEMPORARY)
- ▣ FOR INFORMATION ONLY. ITEM 627 - 4 INCH PAVEMENT MARKING TAPE (REMOVABLE) WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF H.B.P. (GR. C) (ASPHALT).
- ⊕ FOR INFORMATION ONLY. TEMPORARY RUMBLE STRIP WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF H.B.P. (GR. C) (ASPHALT).
- \* 36 INCH

|                |                 |                  |          |               |           |
|----------------|-----------------|------------------|----------|---------------|-----------|
| AS CONSTRUCTED |                 | FED. ROAD REGION | DIVISION | PROJ. NO.     | SHEET NO. |
| NO REVISIONS   | REVISED 5-26-93 | VIII             | COLO.    | BRF 036-1(39) | 18        |
| VOID           |                 |                  |          |               |           |

# CONSTRUCTION TRAFFIC CONTROL PLAN

## STAGE 1 CONSTRUCTION (REVERSE DIRECTION FOR STAGE 2 CONSTRUCTION)



PHASE 1 PHASE 2 PHASE 3 PHASE 4  
IT IS ESTIMATED THAT THE CLEARANCE INTERVAL IS 35 SECONDS

TEMPORARY TRAFFIC SIGNAL FACE  
FLAGGER SYMBOL SIGN TO BE USED ONLY DURING FLAGGER CONTROLLED OPERATION.

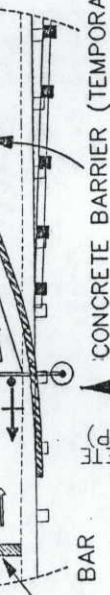
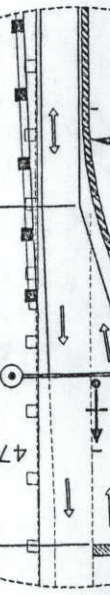
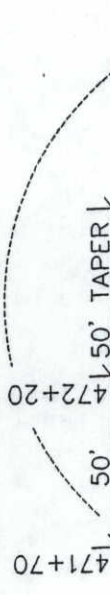
TEMPORARY POWER AND SIGNAL SPAN WIRE POLE (APPROXIMATE LOCATION SHOWN) EXACT LOCATION AS STAKED BY C.D.O.T. ENGINEER.

TEMPORARY POWER AND SIGNAL SPAN WIRE POLE WITH 250 WATT LUMINAIRE (APPROXIMATE LOCATION SHOWN) EXACT LOCATION AS STAKED BY C.D.O.T. ENGINEER.

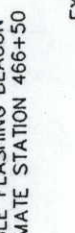
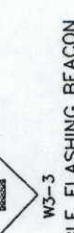
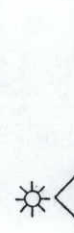
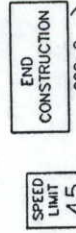
APPROXIMATE CONTROL CABINET AND BACKUP GENERATOR LOCATION.

CONCRETE BARRIER (TEMPORARY) SHALL BE CONNECTED TO THE EXISTING OR RESET GUARD RAIL AS PER STANDARD PLAN M-606-12 IN ORDER TO MAINTAIN THE GUARD RAIL INTEGRITY.

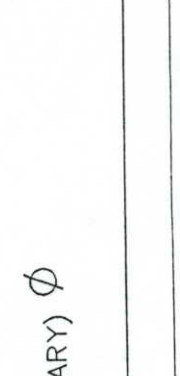
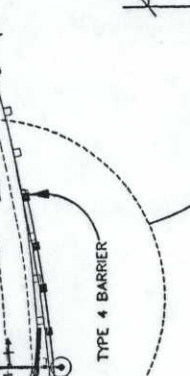
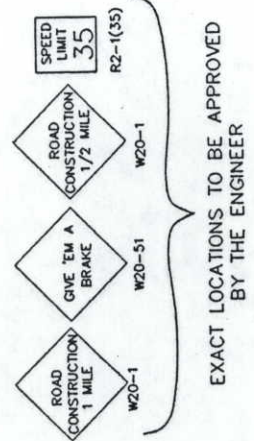
★ INSTALL TEMPORARY RUMBLE STRIPS (SEE DETAIL SHEET) 250' IN ADVANCE OF FLASHING BEACON (PORTABLE) WITH W3-3 SIGN. APPROXIMATE STA. 464+00 (W.B. LANE) AND STA. 485+00 (E.B. LANE). ADJUST STATIONS AS NECESSARY TO PLACE RUMBLE STRIP IN TANGENT.



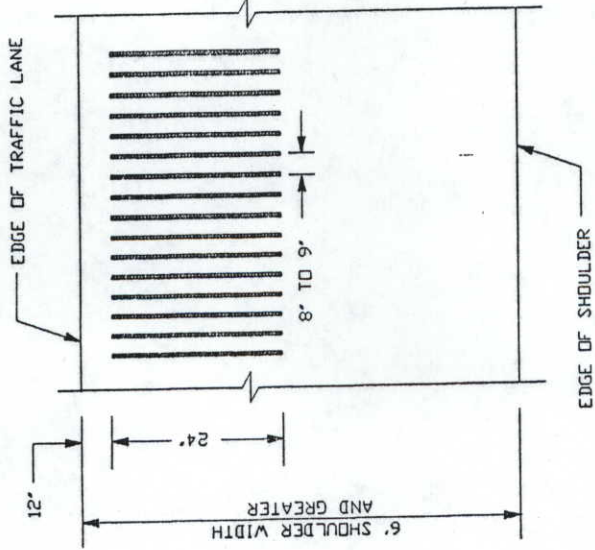
APPROXIMATE LOCATION OF POUDRE VALLEY REA INC. POWER POLE WITH TRANSFORMER AT 40' LEFT OF STA. 468+60



|                 |                |               |           |
|-----------------|----------------|---------------|-----------|
| NO REVISIONS    | AS CONSTRUCTED | PROJECT NO.   | SHEET NO. |
| REVISED 5-26-92 | VOID           | BRF 036-1(39) | 19        |
| VI              | VIII           | COLORADO      |           |



SHOULDER GROOVING DETAIL  
(FOR NEW ASPHALT)



SHOULDER GROOVING

SHOULDER GROOVING SHALL BE APPLIED ON LEFT AND RIGHT SHOULDERS OF RURAL ROADWAYS (INTERSTATE AND OTHER DIVIDED AND UNDIVIDED). SHOULDER GROOVING SHALL BE OMITTED ACROSS PUBLIC ROAD INTERSECTIONS, SPEED CHANGE LANES AND OTHER INTERRUPTIONS AS DIRECTED BY THE ENGINEER.

SHOULDER GROOVING SHALL BE CONSTRUCTED AFTER FINAL ROLLING BY MAKING INDENTATIONS IN THE NEW HOT ASPHALT PAVEMENT. THE INDENTATIONS MAY BE FORMED BY ROLLING THE HOT ASPHALT CONCRETE USING A STEEL DRUM ROLLER WITH ONE-HALF OF A 2" DIA. STEEL PIPE WELDED TO THE DRUM ON 8" TO 9" CENTERS. THE HALF-PIPE SEGMENTS SHALL BE 2' LONG. THE DEPTH OF THE GROOVES AFTER FINAL ROLLING SHALL BE 3/4" TO 1".

PAVEMENT FOR "SHOULDER GROOVING" WILL BE INCLUDED IN THE COST OF ITEM 403 - HOT BITUMINOUS PAVEMENT (GRADING C) (ASPHALT).

TEMPORARY RUMBLE STRIP DETAIL

GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.

MEASUREMENT WILL BE MADE BY THE LINEAR FOOT OF RUMBLE STRIP INSTALLED. PAYMENT WILL BE INCLUDED IN THE COST OF ITEM 403 - HOT BITUMINOUS PAVEMENT (GRADING C) (ASPHALT). A TYPICAL CLUSTER IN A 12 FT. LANE EQUALS 144 LIN. FT.

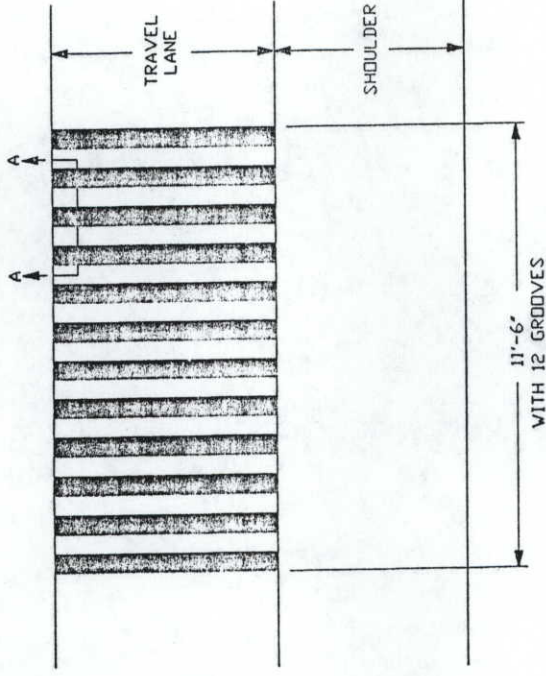
GROOVED RUMBLE STRIP SKEW OR CLUSTER SPACING SHALL BE MODIFIED TO AVOID LOCATING A GROOVE ON A CONCRETE PAVEMENT TRANSVERSE JOINT.

THIS DETAIL DOES NOT DETERMINE WHEN OR WHERE RUMBLE STRIPS ARE TO BE USED. IT PROVIDES INSTALLATION ASSISTANCE FOR RUMBLE STRIPS AS CALLED FOR ELSEWHERE ON THE PLANS.

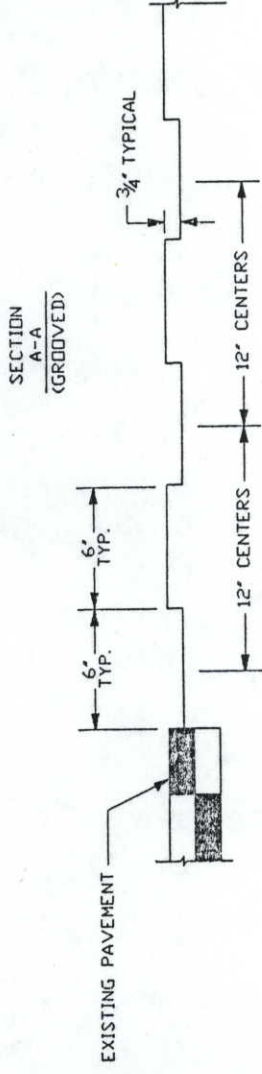
PATCHING OF THE TEMPORARY GROOVED RUMBLE STRIPS UPON COMPLETION OF CONSTRUCTION SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.

RUMBLE STRIPS MAY BE LOCATED ON A 1:6(10'+) RIGHT FORWARD SKEW INSTEAD OF 90° TO THE CENTERLINE AS SHOWN, OR ANOTHER SKEW AS NEEDED TO AVOID SKEWED TRANSVERSE JOINTS. HOWEVER, MEASUREMENT FOR PAYMENT WILL BE THE LANE WIDTH DIMENSION AT 90° TO THE CENTERLINE.

TEMPORARY RUMBLE STRIPS SHALL BE THE GROOVE DESIGN AND SHALL BE CUT IN THE TRAVEL LANE. IN EXISTING OR NEW ASPHALT OR CONCRETE PAVEMENT, THE GROOVES MAY BE CUT BY SAWING, GRINDING OR OTHER METHOD AS APPROVED.



TYPICAL RUMBLE STRIP CLUSTERS



RUMBLE STRIP GROOVES IN ASPHALT OR CONCRETE SURFACE 12 STRIPS PER CLUSTER TYPICAL.

TEMPORARY GROOVED RUMBLE STRIPS

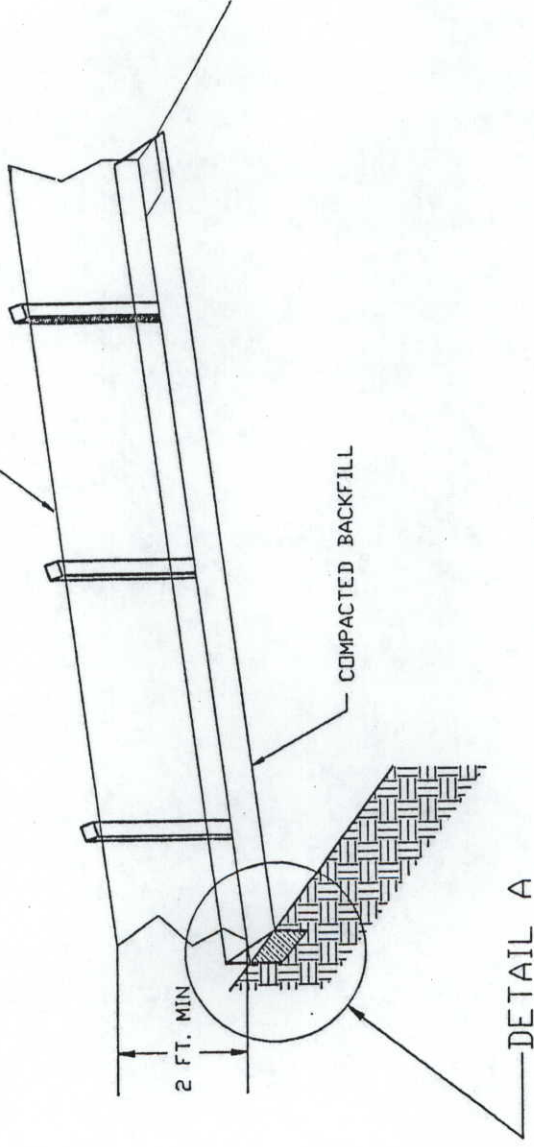
|                |         |                  |      |           |               |           |
|----------------|---------|------------------|------|-----------|---------------|-----------|
| AS CONSTRUCTED |         | DIVISION         |      | PROJ. NO. |               | SHEET NO. |
| NO REVISIONS   | 5-26-93 | REVISED          | VOID | COLO.     | BRF 036-1(39) |           |
|                |         | FED. ROAD REGION |      | VIII      |               | 20        |

|                |              |         |         |      |                  |          |               |           |
|----------------|--------------|---------|---------|------|------------------|----------|---------------|-----------|
| AS CONSTRUCTED | NO REVISIONS | 5-26-93 | REVISED | VOID | FED. ROAD REGION | DIVISION | PROJ. NO.     | SHEET NO. |
|                |              |         |         |      | VIII             | COLO.    | BRF 036-1(39) | 21        |

## SILT FENCE DETAIL

NOT TO SCALE

PREFABRICATED MATERIAL ATTACHED TO STEEL OR WOOD POSTS

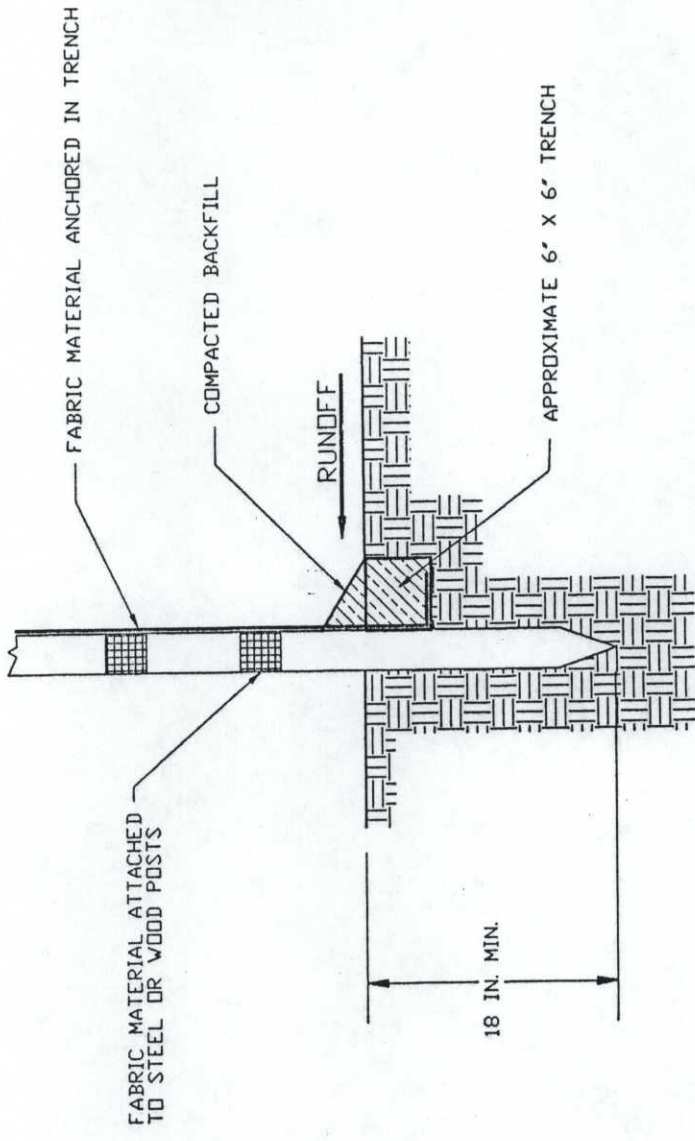


### NOTES:

- SILT FENCE POSTS SHALL BE SPACED AT 10' MAXIMUM CENTERS.
- ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE SHALL BE SECURELY FASTENED TO A COMMON POST.
- THIS DEVICE IS INTENDED TO CONTROL SHEET FLOW ONLY.

## DETAIL A

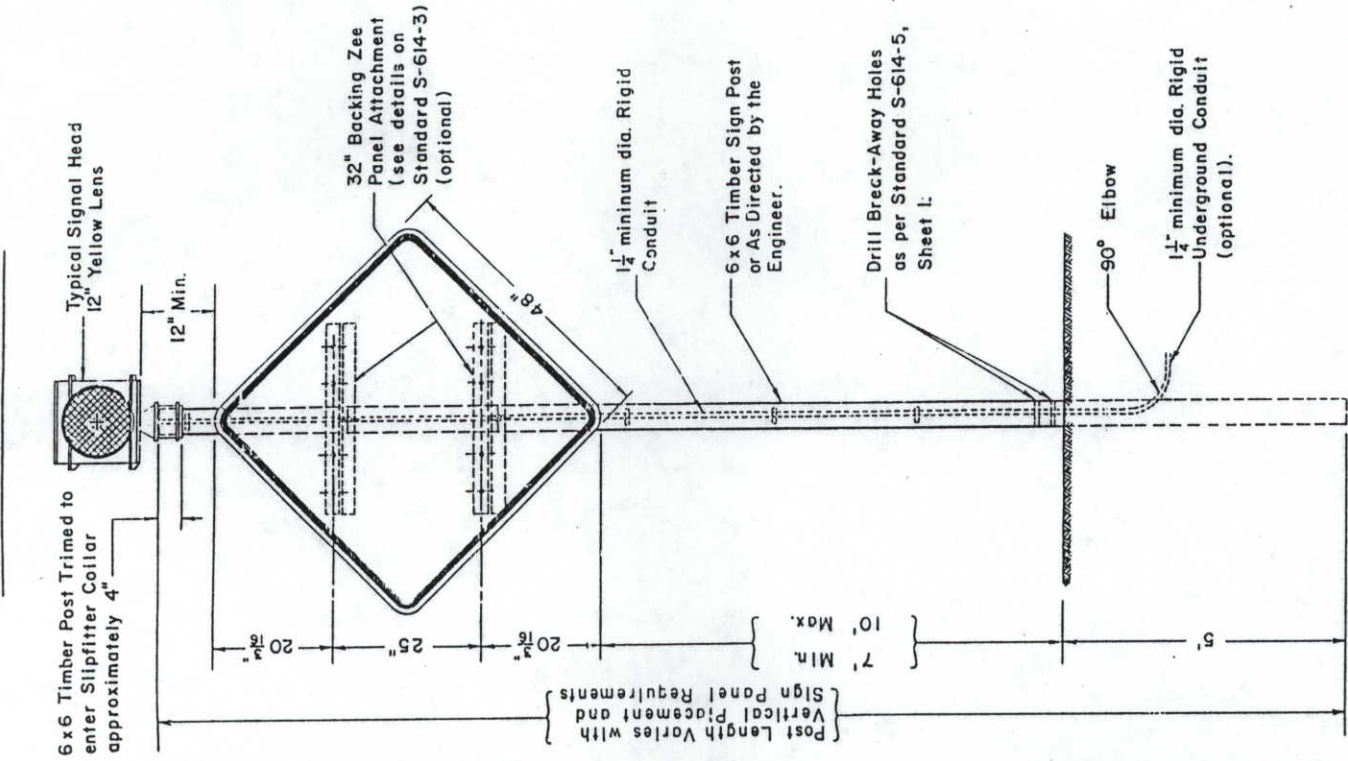
NOT TO SCALE



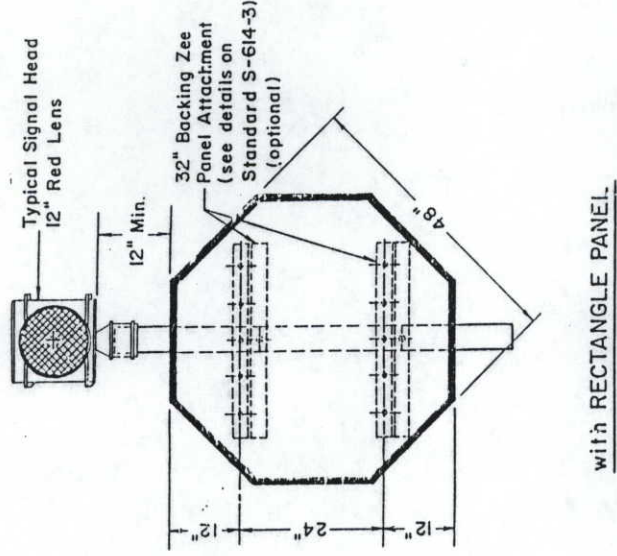
TYPICAL ELEVATION FACING TRAFFIC

FLASHING BEACON (PORTABLE)

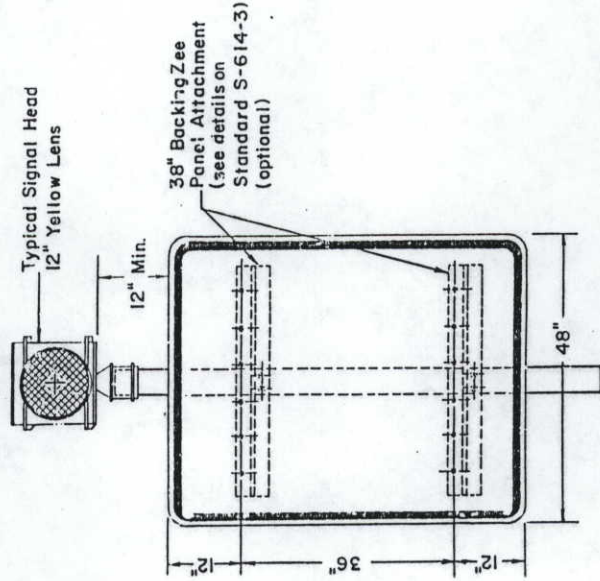
COMPLETE INSTALLATION  
with DIAMOND PANEL



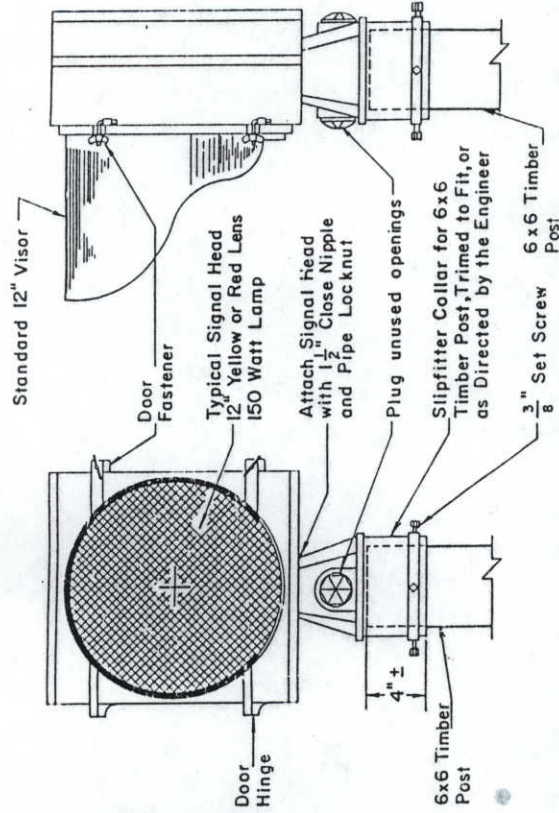
with OCTAGON PANEL



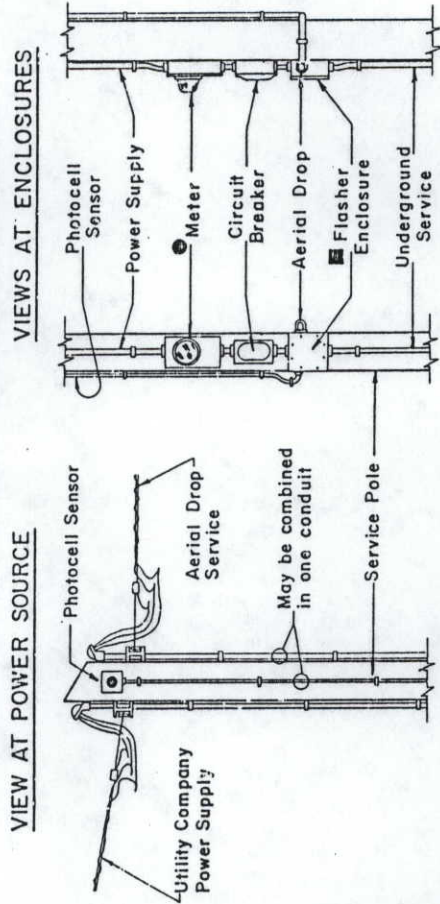
with RECTANGLE PANEL



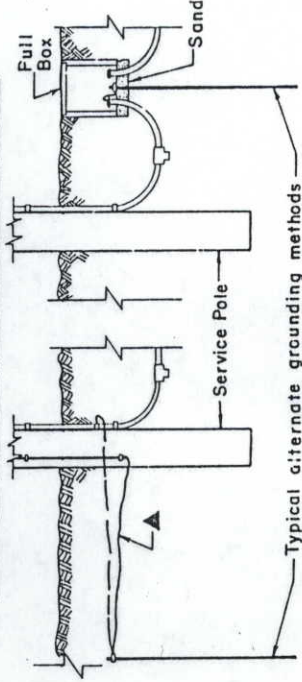
TYPICAL SIGNAL HEAD - 12" LENS



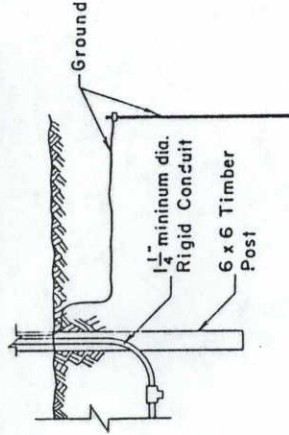
TYPICAL ELECTRICAL SERVICE DETAILS



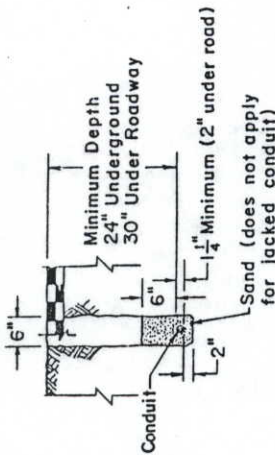
UNDERGROUND VIEWS AT POWER SOURCE



UNDERGROUND VIEW AT BEACON



TRENCHING DETAIL



NOTES

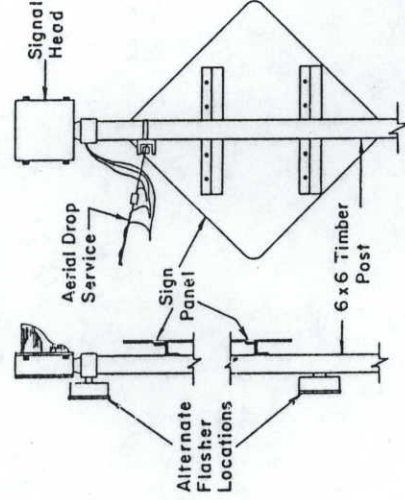
Location and configuration of electrical equipment is diagrammatic only (use any method complying with the General Notes).

▲ Existing ground at service pole; otherwise pull thru conduit or attach to conduit and tap off underground.

■ Provide weep hole with aerial drop service.

● Optional (Per Utility Company Requirements)

VIEWS AT BEACON



1. All electrical materials and workmanship shall conform to the latest requirements of the NEC, NEMA, UL or EIA wherever applicable; any state and local codes or ordinances which may apply; and the following:
  - a. It is the Contractor's responsibility to supply power.
  - b. The Contractor is to provide all necessary wiring within the beacon and from there to the power source. The Utility Company will make the connection with the Contractor's wiring.
  - c. The electrical service between the power source and the flashing beacon shall be as authorized by the Engineer.
  - d. The "flasher" shall be housed in a suitable enclosure on the utility pole at the power source unless the Engineer directs that the enclosure be mounted on the beacon post or that the device may be contained within the signal head itself.
  - e. A suitable enclosure for the flasher shall be in accordance with "a" raintight junction box or can approximately 6" x 8" x 4", surface mount, with a flanged screw attached cover, and fabricated from not less than 16 gage galvanized steel."
  - f. A built-in radio interference suppression device and a photocell sensor type signal lamp dimmer shall be provided for each flashing beacon.
2. Timber posts shall be in accordance with Section 614 of the Standard Specifications as to Size, Alternate Size, Grade, Species, Treatment, and Break-Away Holes.
3. For lateral and vertical placement of flashing beacon (portable), (Regulatory and Warning), see Standard S-614-1.
4. All work shall be done in accordance with the "Standard Specifications" applicable to the project and the "Manual on Uniform Traffic Control Devices for Streets and Highways" (adopted by the Federal Highway Administration) and the "Colorado Supplement" thereto.
5. For Median Barrier Installations See Standard S-614-50, Note No. 26.
6. A Photo Cell or Mechanism approved by the Engineer for turning off the flasher shall be provided as part of this item. Beacons shall be operated only during those hours when the hazard or regulation exists.

DEPARTMENT OF HIGHWAYS  
STATE OF COLORADO  
DIVISION OF HIGHWAYS  
FLASHING BEACON  
(PORTABLE)  
DETAILS

| FEDERAL ROAD DISTRICT NO.                        | DIVISION | PROJ. NO.     | SHEET NO. | TOTAL SHEETS |
|--------------------------------------------------|----------|---------------|-----------|--------------|
| VIII                                             | COLORADO | BRF 036-1(37) | 22        |              |
| NO REVISIONS 5-26-33 AS CONSTRUCTED REVISED VOID |          |               |           |              |