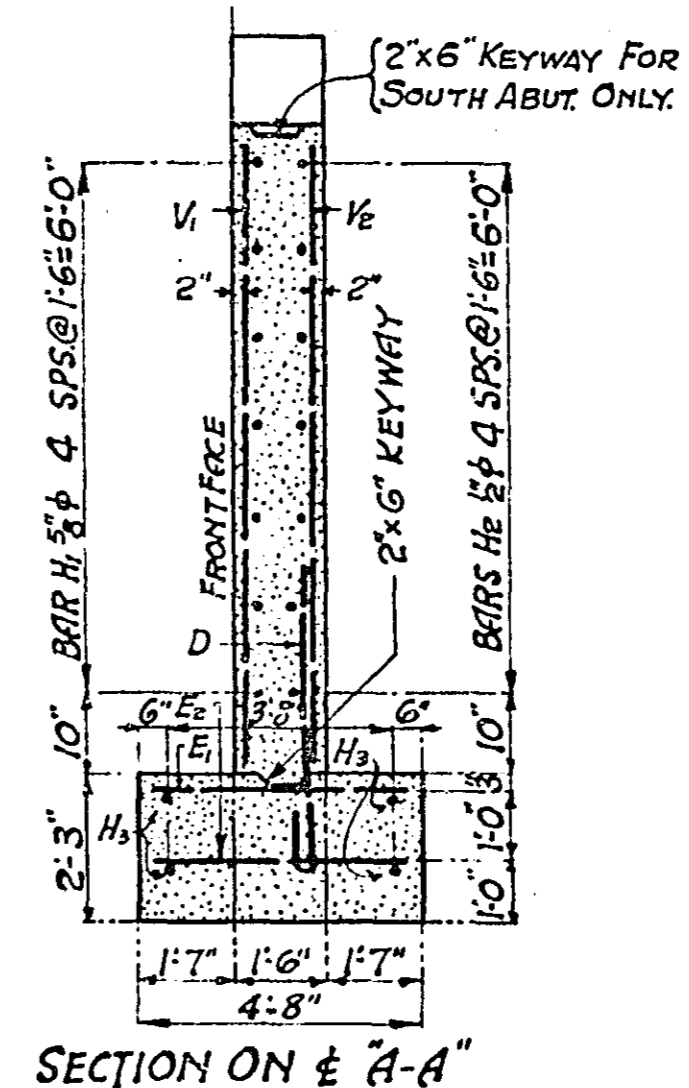


HALF FRONT ELEVATION

HALF ELEVATION SHOWING REINFORCEMENT

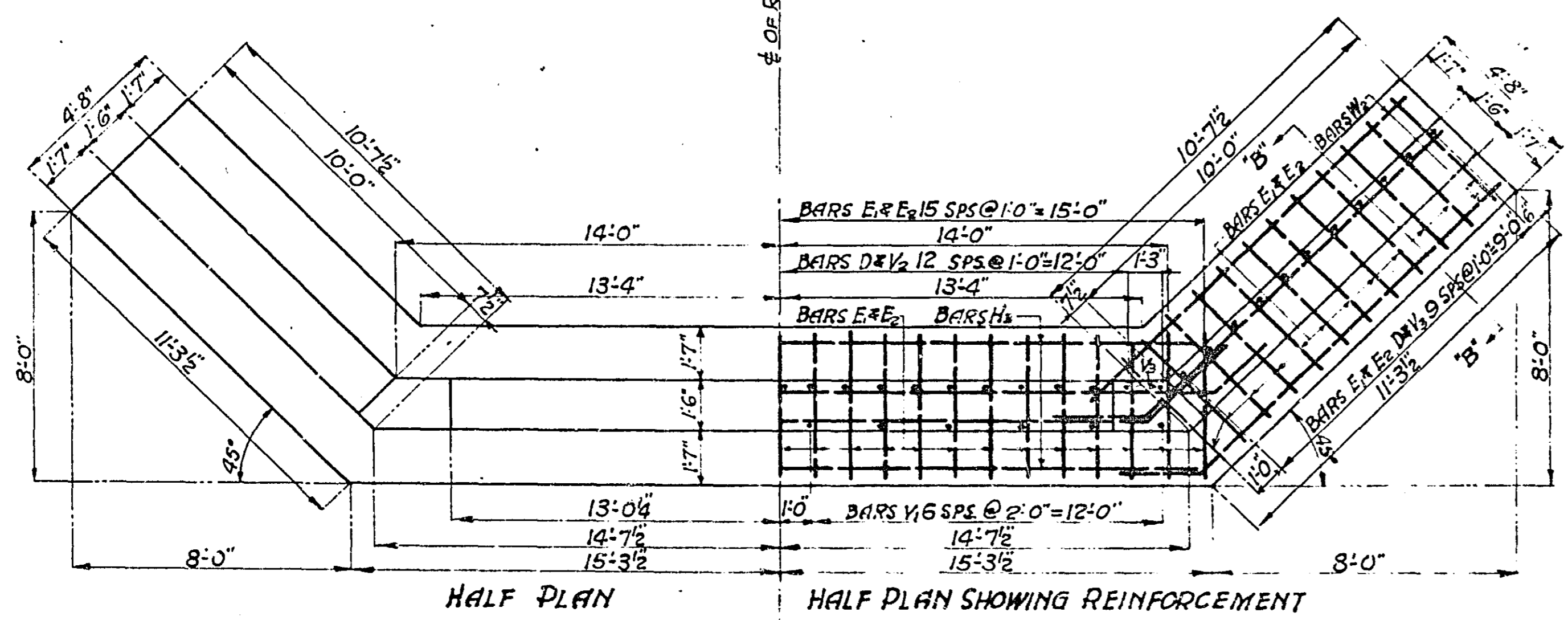


SECTION ON A-A

| BAR NO. | SIZE | LENGTH | SHAPE | LOCATION |
|---------|-------|--------|-------|-------------------------|
| D | 9/16" | 6'-0" | HOOK | DOWELS - FOOTING |
| E1 | 1/2" | 4'-6" | STRT. | ABUT. WING WALL FTGS. |
| E2 | 1/2" | 4'-6" | " | " |
| H1 | 10/8" | 34'-0" | BENT | ABUT. WALL FRONT HORIZ. |
| H2 | 10/8" | 34'-0" | " | " BACK " |
| H3 | 8/8" | 30'-6" | STRT. | " " FTG. LONG. |
| V1 | 28/8" | 7'-0" | " | " " FRONT VERT. |
| V2 | 50/8" | 7'-0" | " | " " BACK " |
| V3 | 22/8" | 18'-6" | " | ABUT. WING BACK VERT. |
| W1 | 28/8" | 13'-0" | BENT | WING WALL BACK HORIZ. |
| W2 | 16/8" | 14'-0" | " | " " FTG. LONG. |

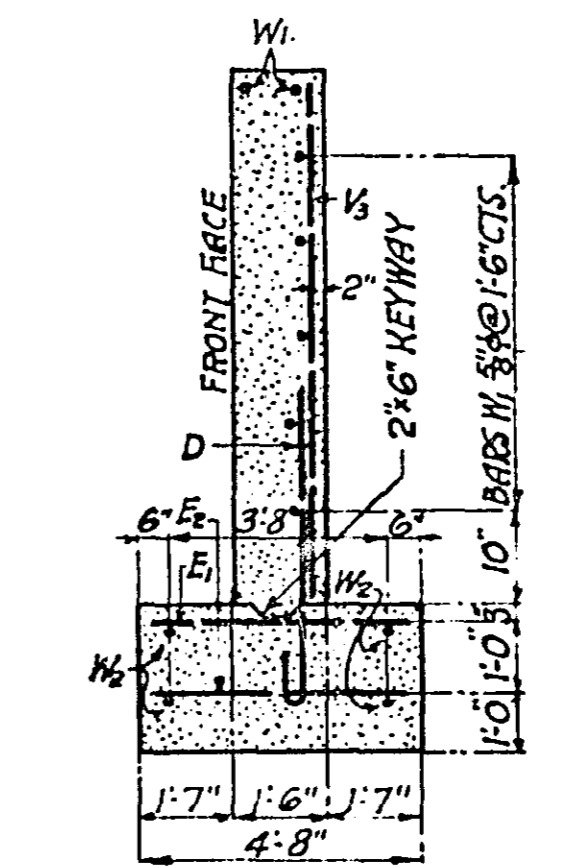
| | | |
|-------------------------|------|-------------------|
| TOTAL REINFORCING STEEL | 3570 | LBS. FOR 2 ABUTS. |
| TOTAL CONCRETE | 83.8 | C.Y. " 2 " |
| TOTAL PILING | 1160 | LIN. FT. " 2 " |

CONSTRUCTION NOTES.
 * Reinforcing Bars: Two bars to be cut from each bar V₃ as billed above. One long and one short.
 Exposed edges to be beveled by 3/8" V Strips
 Concrete Mix: Class "A" concrete.
 Use screened materials mixed 1:2:4 using 57 sacks of cement per cubic yard of concrete.

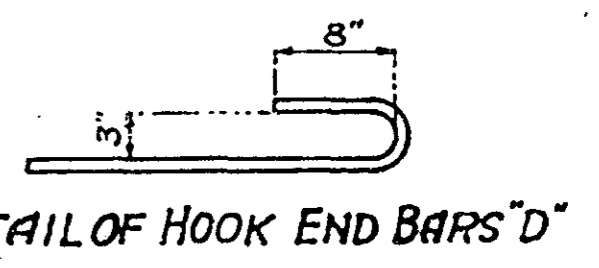


HALF PLAN

HALF PLAN SHOWING REINFORCEMENT



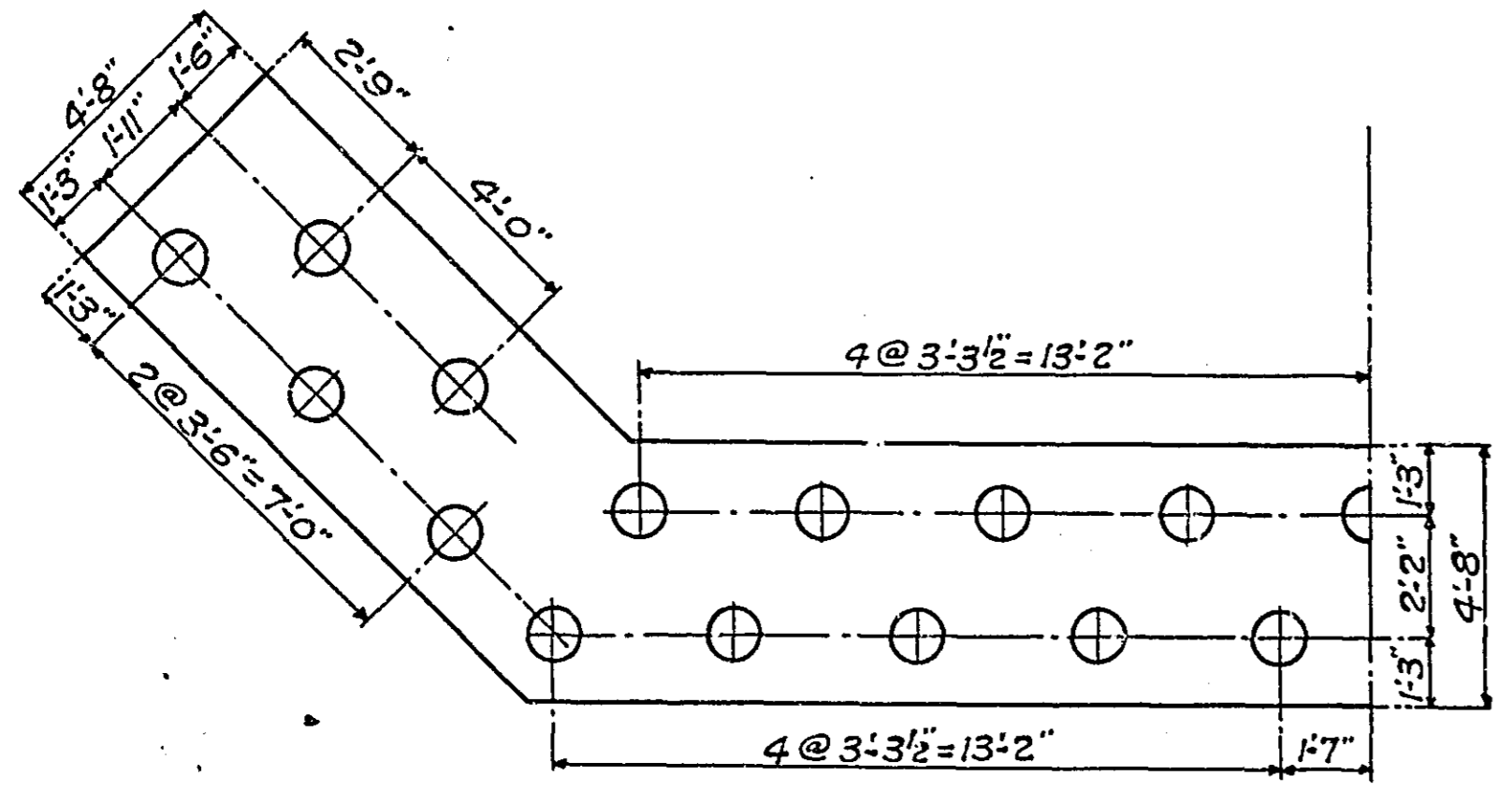
SECTION "B-B" THRU WING



DETAIL OF HOOK END BARS "D"

B.M. ELEV. 868.9!
 SPIKE IN 12" OAK TREE 40 FT. LEFT OF STA. 113+75.

MAKE TWO ABUTMENTS THUS



58 PILES REQUIRED FOR TWO ABUTS.
 EST. LENGTH OF PILES 20 FT.
 EST. MINIMUM PENETRATION 15 FT.
 MINIMUM WEIGHT OF HAMMER 1600 LBS.
 MINIMUM BEARING FOR ALL PILES 10 TONS EACH.

STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS
STANDARD REINF'D CONCRETE ABUTMENTS.
 FOR 45 FT. REINF'D CONCRETE DECK GIRDER, 24 FT. ROADWAY.
BRIDGE NO. 4513
 SEC. 18 T. 30 N. R. 23 W.
 MOUNDS VIEW TWP. RAMSEY COUNTY
 APPROVED: DEC. 30, 1925.

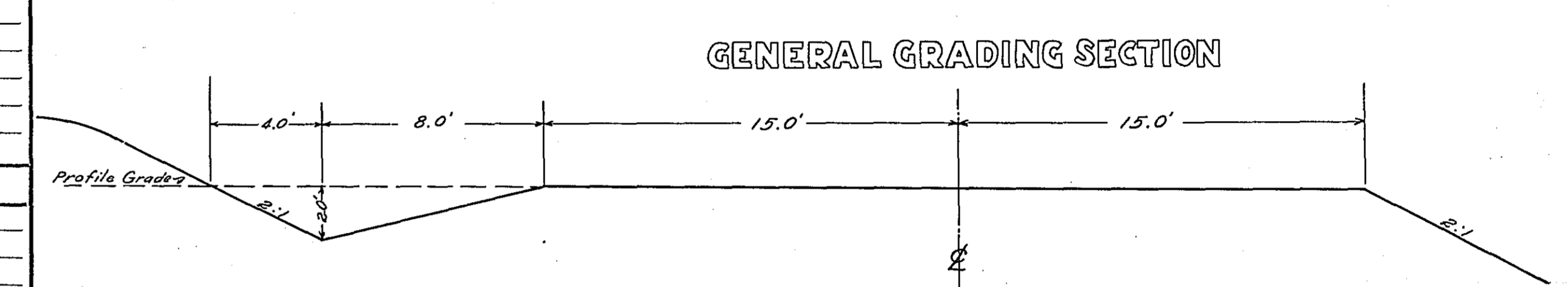
M. Hoffmann
 BRIDGE ENGR.
Carl Babcock
 COMM'R OF HIGHWAYS

STATEMENT OF ESTIMATED QUANTITIES AND COSTS.

| ITEM | UNIT | MILE | | | | | | | | | | | | | | TOTAL ESTIMATED QUANTITIES | ESTIMATED UNIT PRICES | AMOUNTS | TOTALS |
|--|---|----------------------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------------------|-----------------------|---------|--------|
| | | Sta. 102+00 to Sta. 108+00 | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | Sta. to Sta. | | | | |
| 1 | Clearing | Acre | | | | | | | | | | | | | | | | | |
| 2 | Clearing | Tree | 18 | | | | | | | | | | | | | | | | |
| 3 | Grubbing | Acre | | | | | | | | | | | | | | | | | |
| 4 | Grubbing | Tree | 18 | | | | | | | | | | | | | | | | |
| 5 | Excavation - Earth | Cu. Yd. | 1970 | | | | | | | | | | | | | | | | |
| 6 | Excavation - Loose Rock | Cu. Yd. | 50 | | | | | | | | | | | | | | | | |
| 7 | Excavation - Solid Rock | Cu. Yd. | 20 | | | | | | | | | | | | | | | | |
| 8 | Excavation - Overhaul | Cu. Yd. | 87 | | | | | | | | | | | | | | | | |
| 9 | Special Excavation | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 10 | Hand Ditching | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 11 | Tile Drain | in. Lin. Ft. | | | | | | | | | | | | | | | | | |
| 12 | Tile Drain | in. Lin. Ft. | | | | | | | | | | | | | | | | | |
| 13 | Tile Drain | in. Lin. Ft. | | | | | | | | | | | | | | | | | |
| 14 | Porous Back Fill Material | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 15 | Stone Rip-Rap | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 16 | Wearing Rip-Rap or Stone Drain Material | Cu. Yd. mile | | | | | | | | | | | | | | | | | |
| 17 | Install 15" C.M. | Lin. Ft. | 48 | | | | | | | | | | | | | | | | |
| 18 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 19 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 20 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 21 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 22 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 23 | Install | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 24 | Install 18" P ₂ | Lin. Ft. | 42 | | | | | | | | | | | | | | | | |
| 25 | Install 24" P ₃ | Lin. Ft. | 60 | | | | | | | | | | | | | | | | |
| 26 | Install 30" P ₃ | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 27 | Install 36" P ₃ | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 28 | P ₂ Culvert Haul | Ton Mile | | | | | | | | | | | | | | | | | |
| 29 | P ₃ Culvert Haul | Ton Mile | 13.20 | | | | | | | | | | | | | | | | |
| 30 | Remove old culv. | Lin. Ft. | 170 | | | | | | | | | | | | | | | | |
| 31 | | | | | | | | | | | | | | | | | | | |
| 32 | | | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF GRADING (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | \$ 908 44 | | |
| 33 | C.M. Culv. Material 15" | Lin. Ft. | 48 | | | | | | | | | | | | | | | | |
| 34 | Culv. Material | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 35 | Culv. Material | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 36 | Culv. Material | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 37 | Culv. Material | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 38 | P ₂ Culv. Material 18" | Lin. Ft. | 42 | | | | | | | | | | | | | | | | |
| 39 | P ₃ Culv. Material 24" | Lin. Ft. | 60 | | | | | | | | | | | | | | | | |
| 40 | P ₃ Culv. Material 30" | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 41 | P ₃ Culv. Material 36" | Lin. Ft. | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF PORTABLE CULVERT MATERIAL (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | \$ 313 44 | | |
| 42 | Gravel Pit Stripping | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 43 | Screening | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 44 | Loading | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 45 | Hauling | Cu. Yd. Mile | | | | | | | | | | | | | | | | | |
| 46 | Shaping & Compacting | Man Hour | | | | | | | | | | | | | | | | | |
| 47 | Shaping & Compacting | Man & Team Hour | | | | | | | | | | | | | | | | | |
| 48 | | | | | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | | | | | |
| 50 | | | | | | | | | | | | | | | | | | | |
| 51 | | | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF GRAVEL HAUL (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |
| 52 | Gravel Material F. O. B. Pit | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 53 | Freight (If any) | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 54 | Unloading from Cars | Cu. Yd. | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF GRAVEL MATERIAL (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |
| 55 | Fine Grading - Exc. & Emb. | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 56 | Shoulders - Earth | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 57 | | | | | | | | | | | | | | | | | | | |
| 58 | | | | | | | | | | | | | | | | | | | |
| 59 | Pavement | Sq. Yd. | | | | | | | | | | | | | | | | | |
| 60 | Integral Curb (One Course Concrete) | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 61 | Sloping Curb | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 62 | Surface Drain | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 63 | Surface Drain Basins | Basin | | | | | | | | | | | | | | | | | |
| 64 | Bridge Approach Slabs (Square) | Slab | | | | | | | | | | | | | | | | | |
| 65 | Bridge Approach Slabs (Rect) | Slab | | | | | | | | | | | | | | | | | |
| 66 | | | | | | | | | | | | | | | | | | | |
| 67 | | | | | | | | | | | | | | | | | | | |
| 68 | | | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF PAVEMENT CONSTRUCTION (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | | | |
| 69 | Concrete | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 70 | Reinforcing Steel | Lb. | | | | | | | | | | | | | | | | | |
| 71 | Excavation - Earth | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 72 | Excavation - Loose Rock | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 73 | Excavation - Solid Rock | Cu. Yd. | | | | | | | | | | | | | | | | | |
| 74 | Bridge - 45' Span - Deck | * Bridge No. | Br. No. 4-513 | Br. No. | | Br. No. | | Br. No. | | Br. No. | | Br. No. | | Br. No. | | Br. No. | | Br. No. | |
| 75 | Gulch - reinf. conc. - 24' roadway | Station | 114 + 06.5 | | | | | | | | | | | | | | | | |
| 76 | Concrete | Cu. Yd. | 175.3 | | | | | | | | | | | | | | | | |
| 77 | Reinforcing Steel | Lb. | 1793.5 | | | | | | | | | | | | | | | | |
| 78 | Structural Steel | Lb. | | | | | | | | | | | | | | | | | |
| 79 | Piling | Lin. Ft. | 1160 | | | | | | | | | | | | | | | | |
| 80 | Temporary Crossing | Lump Sum | 1 | | | | | | | | | | | | | | | | |
| 81 | Removing old Bridge | Lump Sum | 1 - 50' span | | | | | | | | | | | | | | | | |
| 82 | Bituminous Surface | Sq. Yd. | | | | | | | | | | | | | | | | | |
| 83 | Exc. wet and common | Cu. Yd. | 188 | | | | | | | | | | | | | | | | |
| 84 | | | | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF STRUCTURES (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | \$ 6435 35 | | |
| 85 | Guard Rail - cable | Lin. Ft. | 430 | | | | | | | | | | | | | | | | |
| 86 | Gutter | Lin. Ft. | | | | | | | | | | | | | | | | | |
| 87 | Guard Rail Anchor Blocks | Complete | 8 | | | | | | | | | | | | | | | | |
| TOTAL ESTIMATED COST OF MISCELLANEOUS ITEMS (IN 'TOTALS' COLUMN) | | | | | | | | | | | | | | | | | \$ 108 00 | | |
| GRAND TOTAL | | | | | | | | | | | | | | | | | \$ 7765 23 | | |

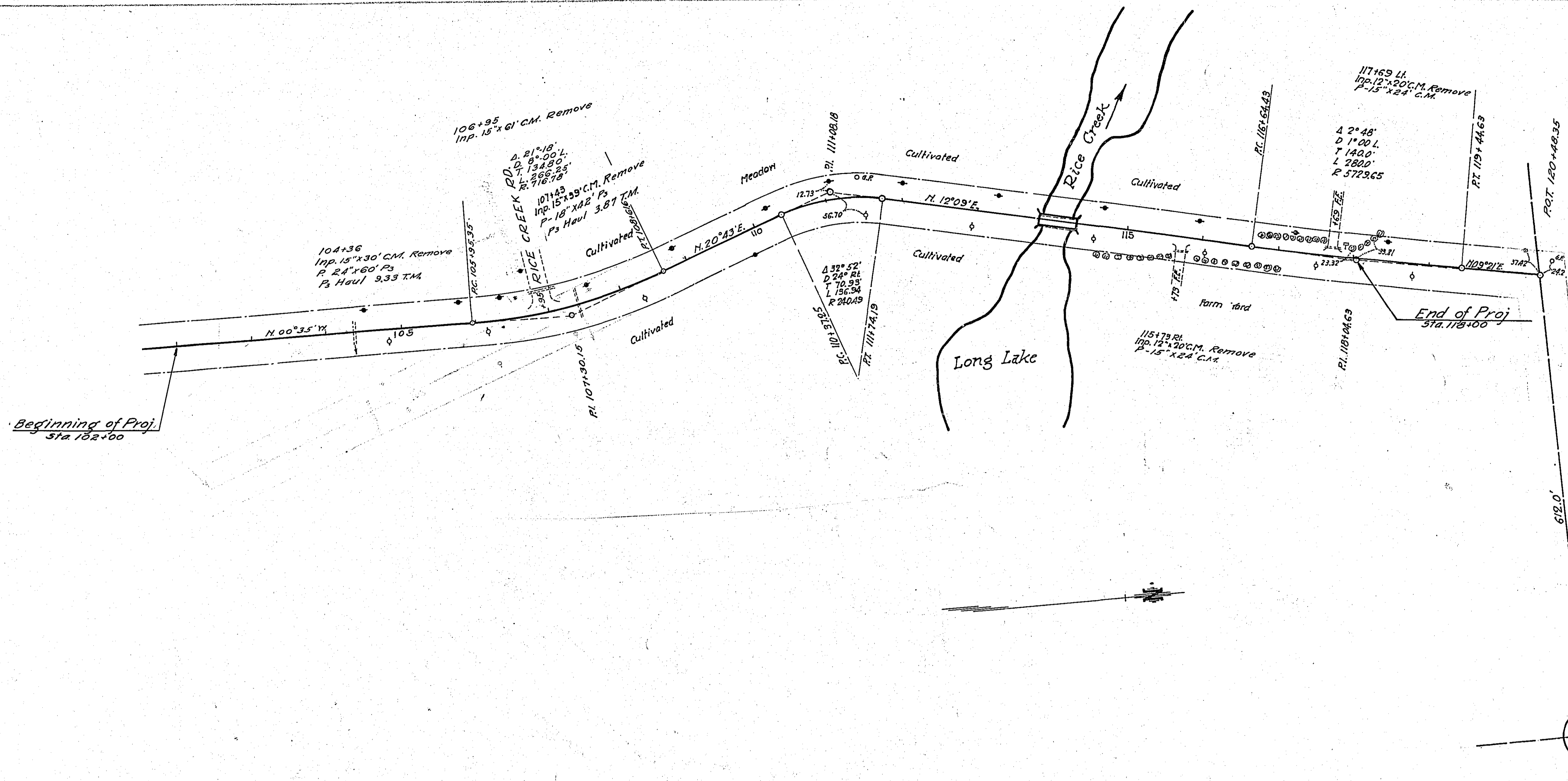
TYPICAL CROSS SECTIONS AND DETAILS

| FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SEC. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|-------|--------------------|------|-------------|-----------|--------------|
| 4 | MINN. | | | | | |

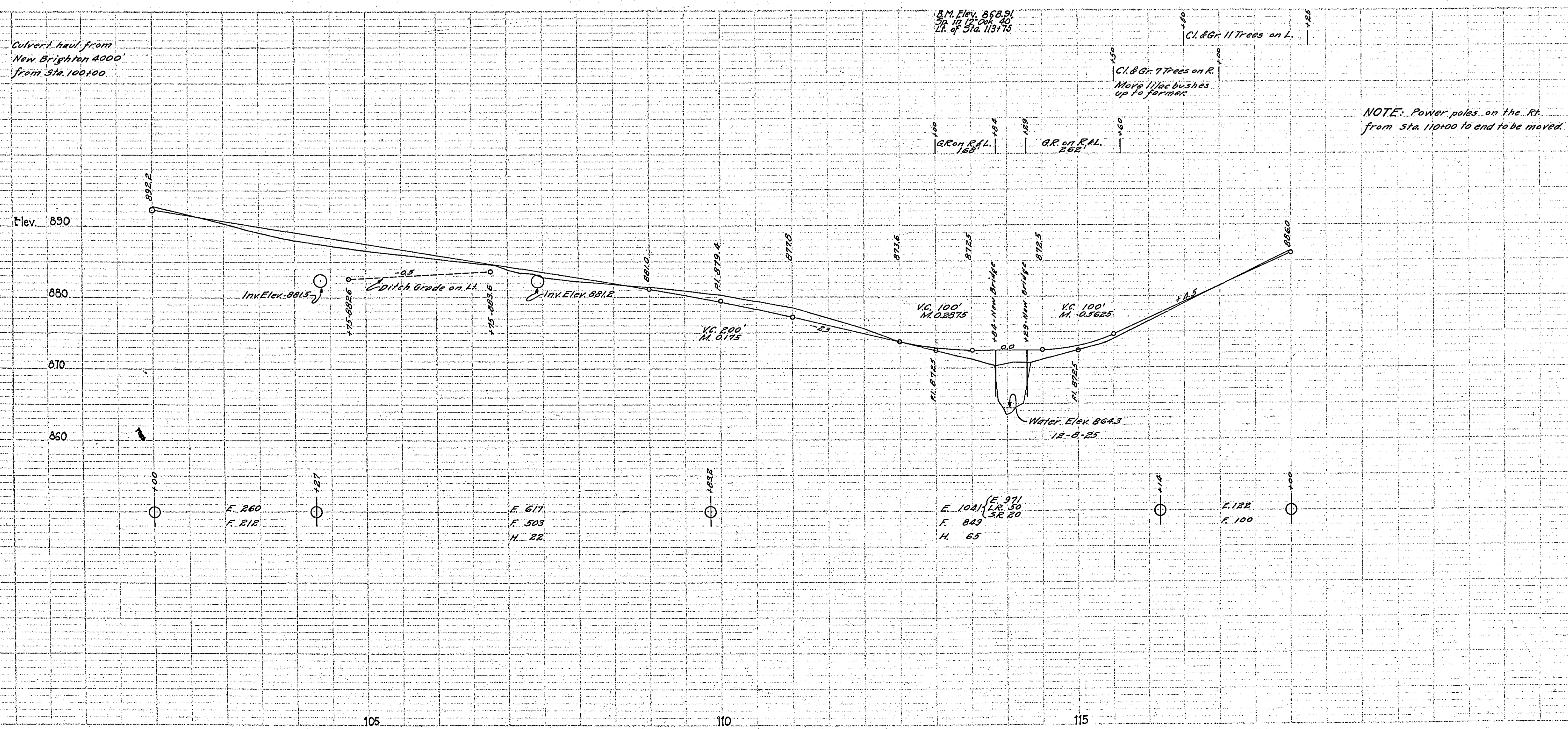


* NOTE: BRIDGE ITEMS LISTED UNDER BRIDGE NUMBERS IN MILE COLUMNS REGARDLESS OF LOCATION

| | |
|-----------------------|------|
| PLAN | DATE |
| BY | |
| REVISIONS | |
| 1. PLOTTED & CHECKED | |
| 2. NOTE BOOK | |
| 3. RT. OF WAY CHECKED | |
| NO. | |



| | |
|----------------------------|------|
| PROFILE | DATE |
| BY | |
| REVISIONS | |
| 1. PLOTTED & CHECKED | |
| 2. NOTE BOOK | |
| 3. STRUCTURE NOTATION CHD. | |
| NO. | |



NOTE: Power poles on the Rt. from Sta. 110+00 to end to be moved.

ESTIMATED QUANTITIES
Sta. 102+00 to Sta. 118+00

| | | |
|-----------------------------------|-------|-------|
| Clearing | Trees | 18 |
| Grubbing | Trees | 18 |
| Excavation-earth | C.Y. | 1970 |
| - loose rock | C.Y. | 50 |
| - solid rock | C.Y. | 20 |
| - overhaul | C.Y. | 87 |
| Install - curb 15" CM | L.F. | 48 |
| " 18" P. | L.F. | 42 |
| " 24" P. | L.F. | 60 |
| P. Curb Haul | T.M. | 13.20 |
| Remove old curb | L.F. | 170 |
| Guard Rail - Cable | L.F. | 430 |
| Bridge - 45' Deck Girder Complete | | 1 |
| Guard Rail Anchor blocks Complete | | 8 |

CONVENTIONAL SIGNS & ABBREVIATIONS

| | | | | |
|-----------------------------|-------|----------------------------|-------|--------|
| STATE LINE | ----- | EXCAVATION | ----- | F |
| COUNTY LINE | ----- | EMBANKMENT | ----- | F |
| TOWNSHIP LINE | ----- | OVERHAUL | ----- | H |
| SECTION LINE | ----- | SURFACING | ----- | S |
| CITY, VILLAGE, OR BOROUGH | ----- | GUARD RAIL | ----- | GR |
| FENCE LINE | ----- | INTERSECTION ANGLE | ----- | A |
| RIGHT-OF-WAY LINE | ----- | RADIUS | ----- | R |
| TRAVELLED WAY | ----- | ELEVATION | ----- | EI |
| RAILROADS | ----- | VERTICAL CURVE | ----- | VC |
| RETAINING WALL | ----- | BEKCH MARK | ----- | B.M. |
| BASE OR SURVEY LINE | ----- | SECTIONAL CONCRETE CULVERT | ----- | P.C. |
| LEVEE | ----- | CORRUGATED METAL CULVERT | ----- | C.M. |
| GRAVEL PIT | ----- | CULVERT HAUL | ----- | P.H. |
| SAND PIT | ----- | TON MILES | ----- | T.M. |
| CLAY PIT | ----- | PLACE | ----- | P |
| ROCK QUARRY | ----- | IN PLACE | ----- | INP |
| CULVERTS | ----- | REPLACE | ----- | REP |
| PLAIN | ----- | RIGHT | ----- | R |
| WITH FACEWALLS | ----- | LEFT | ----- | L |
| WITH WINGWALLS | ----- | HAND DITCHING | ----- | H.D. |
| DROP INLET | ----- | POINT OF CURVE | ----- | P.C. |
| POWER POLE LINE | ----- | POINT OF TANGENT | ----- | P.T. |
| TELEPHONE OR TELEGRAPH LINE | ----- | POINT OF INTERSECTION | ----- | P.I. |
| MARSH | ----- | SPECIAL EXCAVATION | ----- | SP |
| HEDGE, BRUSH, OR TIMBER | ----- | SPECIAL FLOWING | ----- | S.F. |
| GROUND ELEVATION | ----- | TELEPHONE POLE | ----- | Tel.P. |
| GRADE ELEVATION | ----- | | | |

STATE HIGHWAY DEPARTMENT
OF MINNESOTA
Plan and Profile of State Road No. 12

COUNTY OF RAMSEY

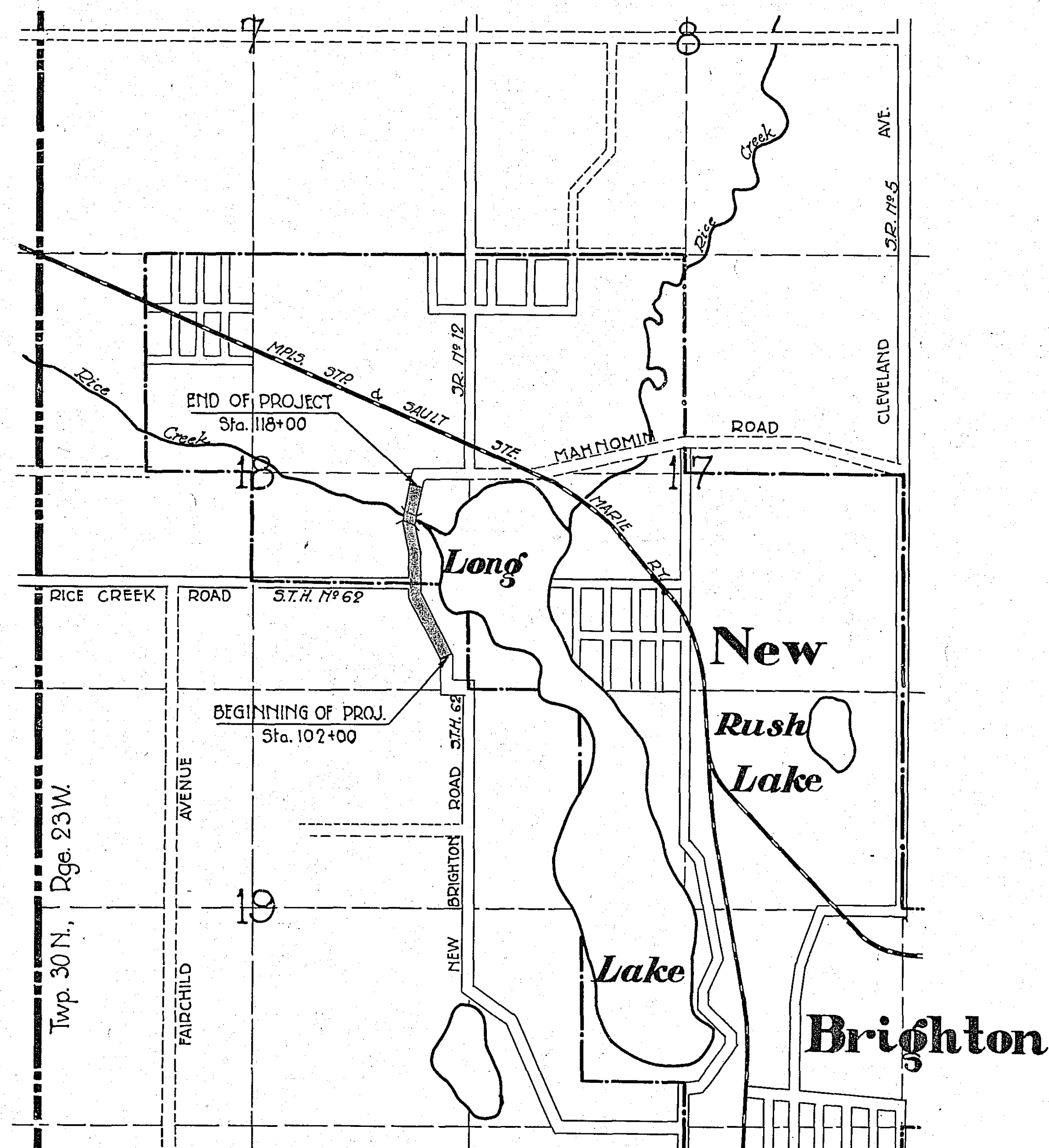
From a point 1787'6" So. & 4730' W. of E 1/4 Cor. Sec. 18 To a point 2567' So. & 6517' W. of E 1/4 Cor. Sec. 18, T30N-R23W.

GROSS LENGTH 1600 FEET 0.303 MILES
LENGTH OF EXCEPTIONS FEET MILES
NET LENGTH 1600 FEET 0.303 MILES
PLAN, 1 Inch = 100 Feet
PROFILE, Horz. 1 Inch = 100 Feet. Vert. 1 Inch = 10 Feet
WORKING PLANS { Horz. 1 Inch = 100 Feet
Vert. 1 Inch = 10 Feet
Cross-Sections, 1 Inch = 10 Feet

LAYOUT
SCALE, 1 Inch = 1920 Feet

INDEX OF SHEETS

Sheet No. 1. Title Sheet and Layout Map
" No. 2. Typical Cross-Sections and Statement
" No. 3. Plan and Profile, Sta. 102+00 to Sta. 118+00
" No. 4. Cross sections " 102+00 to " 118+00
" No. 5. Bridge Survey
" No. 6. Bridge Detail



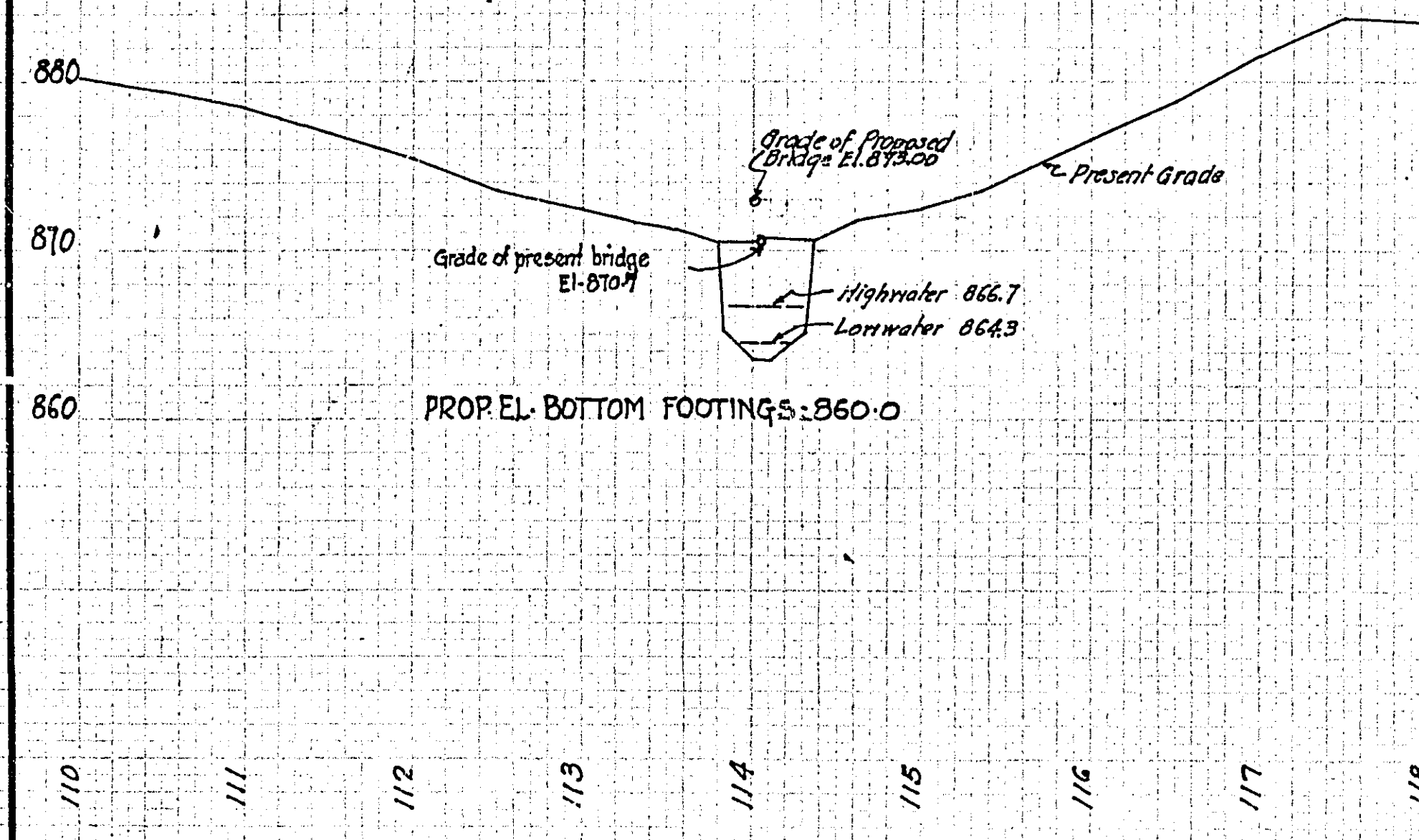
4/5/26
"B"

Planned by R. J. Wolfenbarger
Acting HIGHWAY ENGINEER FOR Ramsey COUNTY.
Recommended for Approval W. T. Carlson DIVISION ENGINEER
Recommended for Approval O. L. Kipp CONSTRUCTION ENGINEER
Approved 3-20-1926 J. M. Bevin CHIEF ENGINEER & DEPUTY COMMISSIONER

CONTRACTED PROFILE

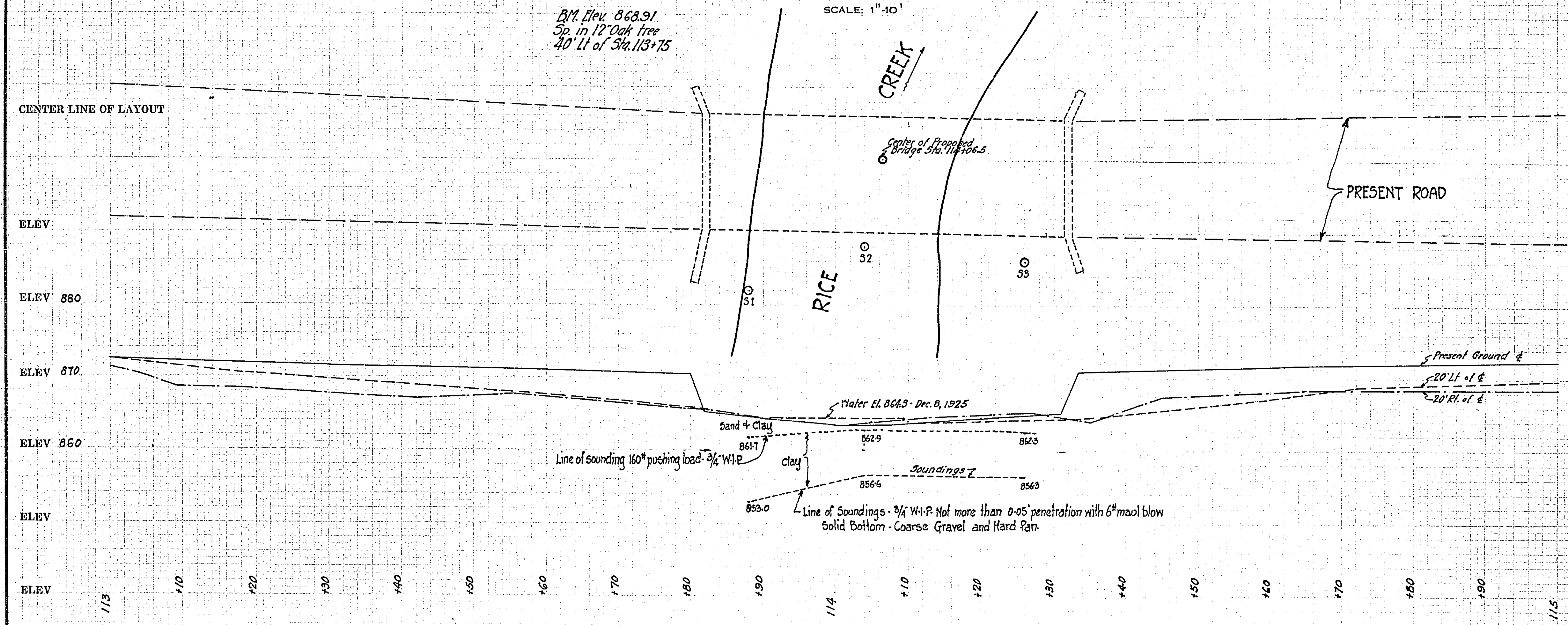
SCALE: HOR. 1"=100', VERT. 1"=10'

Survey Dec. 8, 1925
 El. 861.65 200' Up stream
 - 862.15 100' "
 - 863.70 1/2 of Bridge
 - 863.35 100' Down stream
 - 863.15 200' "
 - 865.7 Highwater



PLAN AND PROFILE

SCALE: 1"=10'

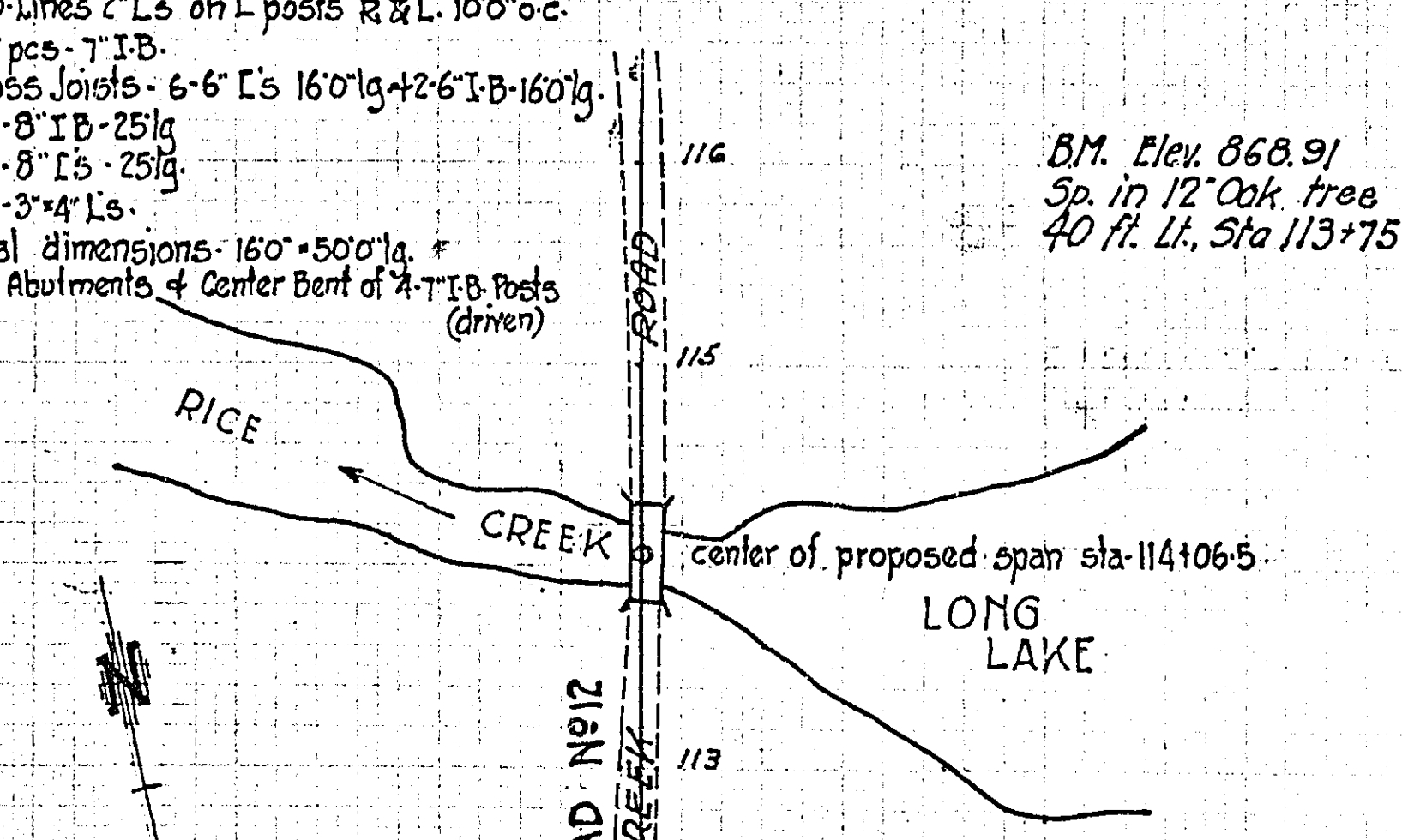


DESCRIPTION OF PRESENT BRIDGE

Floor - 50 pcs 2"x12" plank - 160'
 Wheel Guards - 4"x6" R.R.L.
 Railing - 3-lines 2" L's on L posts R & L 10' o.c.
 Posts - 12 pcs 7" I.B.
 Caps + Cross Joists - 6"x6" L's 16' o.l.g. + 2"x6" I.B. - 160'
 Joists - 10"x8" I.B. - 25'l.g.
 Braces - 8"x4" L's
 Total dimensions - 160' x 50' o.l.g.
 Stone Abutments + Center Bent of 7" I.B. Posts (given)

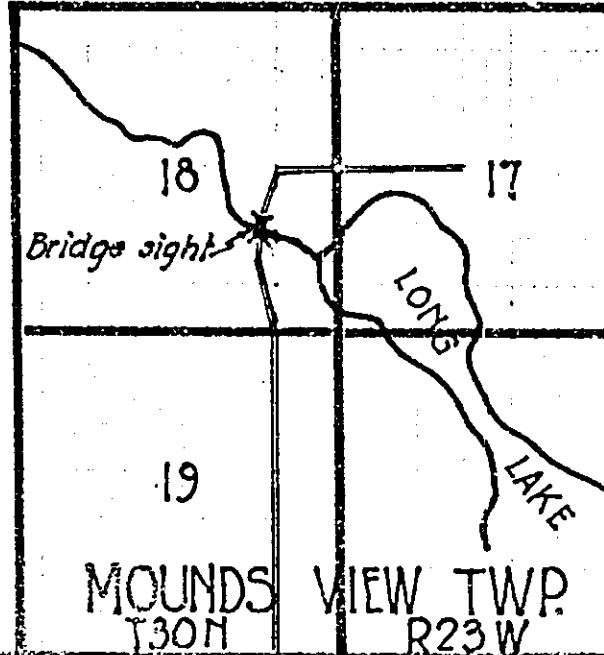
PLAT

SCALE: 1"=100'



B.M. Elev. 868.91
 Sp. in 12" Oak tree
 40' N. of Sta. 113+75

INDEX MAP



SHOW ON CONTRACTED PROFILE

- ✓ a. Present and proposed grades of roadway for a sufficient distance from each end of bridge to show present and proposed spillways, if any, grades of steep approaches, and where material will be taken for fills, also approximate profile of natural surface of ground.
- ✓ b. Present and proposed grades of bridge floor.
- ✓ c. High and low water stages.
- ✓ d. Kind of material for proposed fill.
- ✓ e. Proposed elevation of bottom of footings.
- ✓ f. Elevation of water surface taken at edge of water, at bridge site, and 100 ft. and 200 ft., both above and below bridge site, also at any sudden drops or waterfalls.

DATA

1. General Recommendations of Purchasers: Style, dimensions and materials Reinf. Conc. 45 ft. span by 24ft roadway
2. Recommendations of Engineer:
 - a. Span and Type of Superstructure 45 FT. DECK GIRDER
 - b. Types of abutments, length of wings and their angle with face of abutment Reinf. Conc. Abutments 12 ft. wings at 45° D.
 - c. If a skew span is used, the angle of skew should be _____
 - d. Type of pier NONE
 - e. Penetrations necessary for wood piling, ~~use~~ 15 FT.
3. Special Features: Waterfalls, dams, exceptional floods, ice, driftwood, sliding earth, logging, etc. _____
4. Changes: In height or length from that of old bridge, and reasons why RAISE GRADE 2 FT. SHORTEN 5 FT. PROPOSED FUTURE DAM AND SPILLWAY (to be located Near Bridge)
5. Other bridges over same stream.
 - a. Location, length, height above water, and estimated age NONE
 - b. Spillways and flood conditions NONE
 - c. Reason why these bridges are, or are not, fair indications of what length the proposed bridge should be _____
6. Purchase of Right of Way: For change in channel or road NONE
7. Information and evidence in regard to the high water stage was obtained as follows: MARKS OF RUST ON OLD BRIDGE
8. Must contractor provide for traffic during construction of proposed bridge; YES if so, by what means? TEMPORARY BRIDGE AND ROADWAY

SHOW ON LARGE PROFILE

- ✓ a. Cross-section of stream on center line of proposed bridge (full black line), cross sections parallel to, and 20 feet on each side of the center line (dashed and dotted black lines).
- ✓ b. A layout showing stationing, and distance out from proposed center line, to all soundings and permanent pipes driven as reference marks for final location of bridge.
- ✓ c. Number the soundings, S1, S2, S3, etc., and show plainly what materials are encountered in each sounding and at what elevations the various materials are encountered.
- ✓ d. Number the reference pipes P1, P2, P3, etc., show number of blows required for the driving of each foot of pipe and final elevation of top and bottom of each pipe.
- ✓ e. Location, elevation and description of a permanent bench mark.

MATERIAL

Nearest or most convenient shipping point for steel, cement and other material is New Brighton which is about 1.7 miles from bridge site, condition of the road is Good

Local Gravel:

- a. Location of pit J.L. Shiely - Como and Snelling - St Paul
 - b. Length of haul from pit to bridge site is 9.5 miles.
 - c. Condition of the road from pit to bridge is Good
 - d. Probable price of gravel in pit \$1.10 - F.O.B. Trucks
 - e. Number of parts of sand screened from ten (10) parts of pit run, using a 1/4-inch screen (Washed & Graded) Average of several samples taken.
- Imported Gravel:
- a. Can be shipped from _____
 - b. Probable price of same F. O. B. to nearest station is _____ per C. Y.

SHOW ON PLAT

- ✓ a. North upward. (Show by arrow).
- ✓ b. Course of stream 250 feet or more above and below bridge site.
- ✓ c. Direction of flow.
- ✓ d. Location of existing and proposed roads, clear widths, of same and the stationing.
- ✓ e. Location of present bridge with general dimensions and description of same.
- ✓ f. Location of proposed bridge giving station of proposed center of main span.
- ✓ g. Location of points where flood waters are likely to scour the banks and bed of stream and description of any pools which may have formed near bridge site.
- ✓ h. Recommended change of channel.
- ✓ i. Small sketch of four sections showing approximate course of stream and road, also location of proposed bridge.
- ✓ j. Location, elevation and description of a permanent bench mark.
- ✓ k. Show name of road, and if a state road, give number.
- ✓ l. Show name of stream, state whether it is a River, Creek, Drainage Ditch, Ravine or Dry Run, etc.

MINNESOTA HIGHWAY DEPARTMENT

REPORT OF BRIDGE SURVEY

SEC. 18 T. 30 N. R. 23 W.

MOUNDS VIEW TOWNSHIP

RAMSEY COUNTY

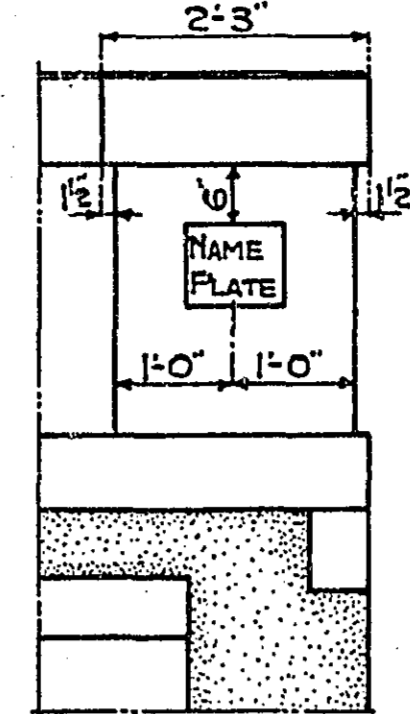
SURVEY MADE BY P.J. Crane 12-8 1925

CHECKED BY P.R. Canfield - Des. Hwy. Eng.

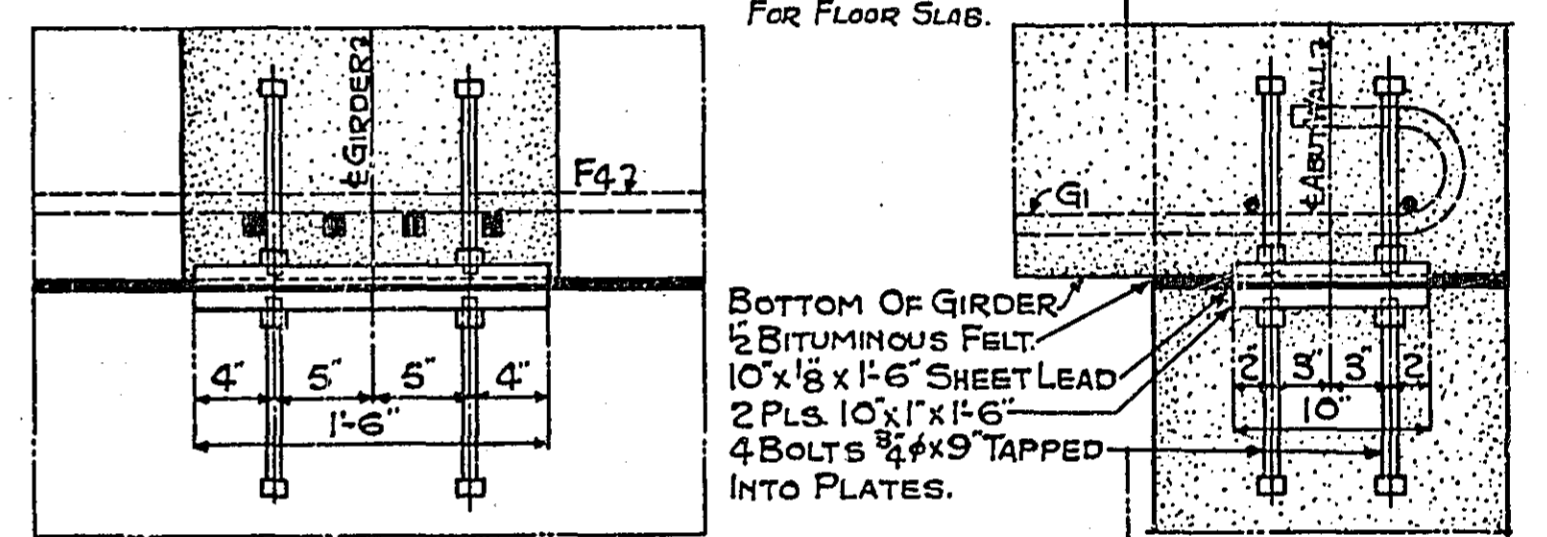
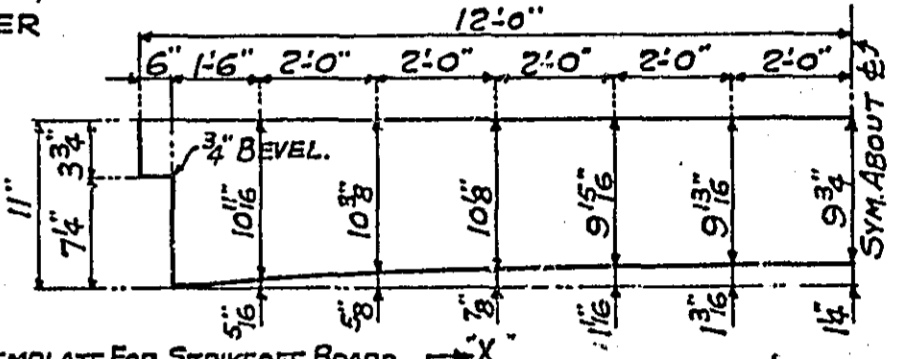
Drawn by Hyan Krevelen - Asst. Engr.

P.N. Coates - CO. ENGR. BRIDGE NO. 4513

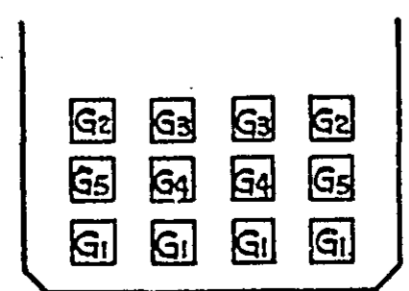
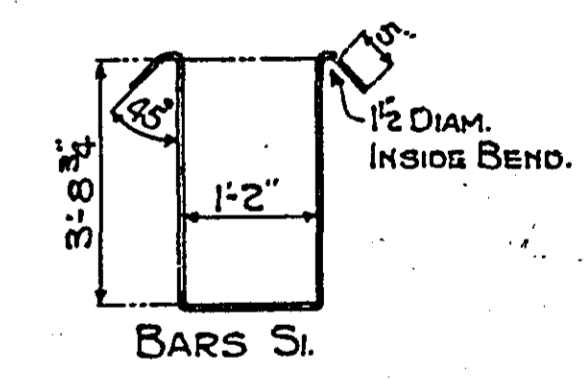
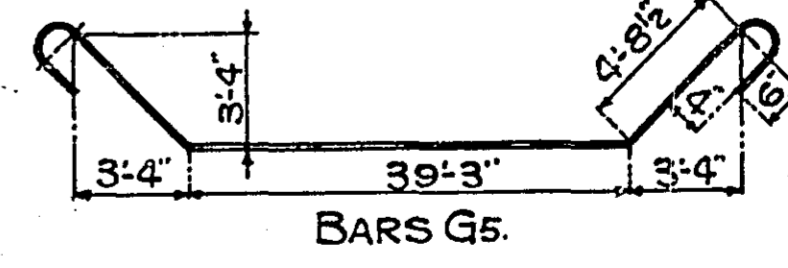
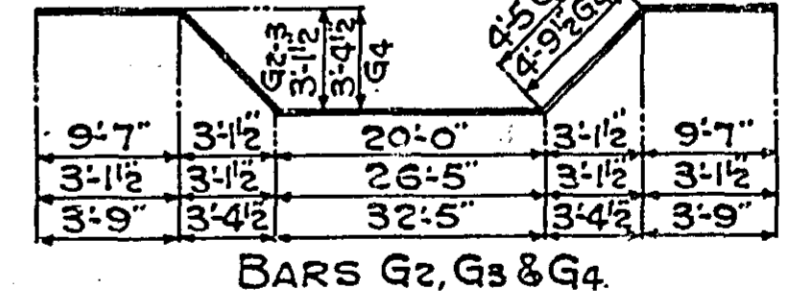
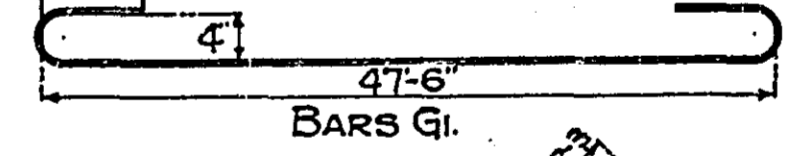
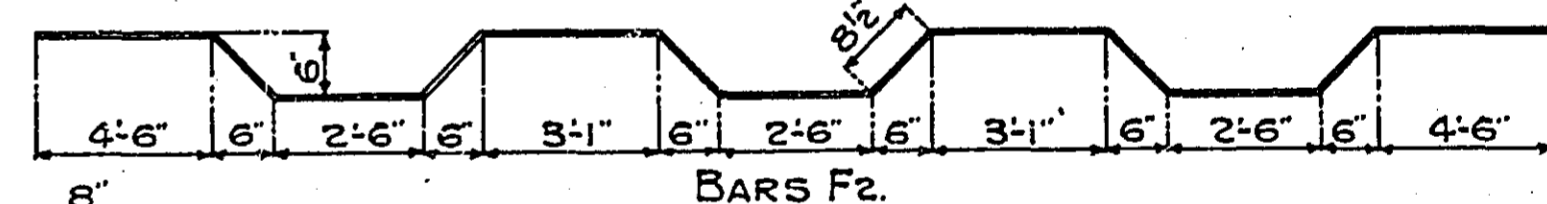
| BILL OF MATERIAL FOR ONE SPAN. | | | | |
|--|------|---------|--------|--------------|
| BAR No. | SIZE | LENGTH | SHAPE | LOCATION. |
| G1 | 16 | 49'-6" | HOOKED | GIRDERS. |
| G2 | 8 | 48'-0" | BENT. | " |
| G3 | 8 | 41'-6" | " | " |
| G4 | 8 | 49'-6" | " | " |
| G5 | 8 | 51'-0" | " | " |
| F1 | 94 | 25'-9" | STRT. | SLAB TRANSV. |
| F2 | 45 | 26'-11" | BENT. | " |
| F3 | 50 | 24'-6" | STRT. | LONGIT. |
| F4 | 4 | 25'-6" | " | WEB |
| R1 | 96 | 4'-0" | " | RAIL VERT. |
| R2 | 12 | 24'-6" | " | HORIZ. |
| S | 168 | 9'-9" | BENT. | STIRRUPS. |
| TOTAL REINFG STEEL FOR 1 SPAN. 14,365 LBS. | | | | |
| TOTAL CONCRETE " " " 91.5 CU YDS. | | | | |
| 16 Pcs. 3" W.I. PIPE 9' LONG FOR DRAINS. | | | | |
| 2 STD. NAME PLATES * 2 DATED 1926 BR. NO. 4513 | | | | |
| 8 PLATES & 32 BOLTS. 480 LBS. | | | | |
| 4 Pcs. SHEET LEAD 10' x 8' x 1/8" 37 LBS. | | | | |
| 4 Pcs. BITUM. FELT 18' x 12' x 4'-8" | | | | |
| 2 " " " 9' x 4' x 3'-0" | | | | |
| 1 " " " 18' x 12' x 26'-0" | | | | |



CONSTRUCTION NOTES:-
 ALL REINFG BARS TO BE OF SPECIFIED LENGTH.
 GIRDER FORMS TO BE BUILT WITH 2 1/4 INCHES OF CAMBER.
 ALL EXPOSED EDGES OF CONCRETE TO BE BEVELED 3/4 INCH, EXCEPT AS SHOWN.
 CONSTRUCTION JOINTS BETWEEN ANY TWO GIRDERS AND BETWEEN CURB AND RAILING, CLASS 'A' CONCRETE, SCREENED MATERIALS, MIXED 1:2:4 USING 5.7 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
 TOP OF FLOOR SLAB TO BE FINISHED ACCORDING TO PAVING SPECIFICATIONS.
 BARS F3 LAP 2 FT. AT SPLICES.



PART ELEVATION - SECTION AT X-X' BEARING PLATES FOR EXPANSION END. SECTION THRU WEB AND ABUT.

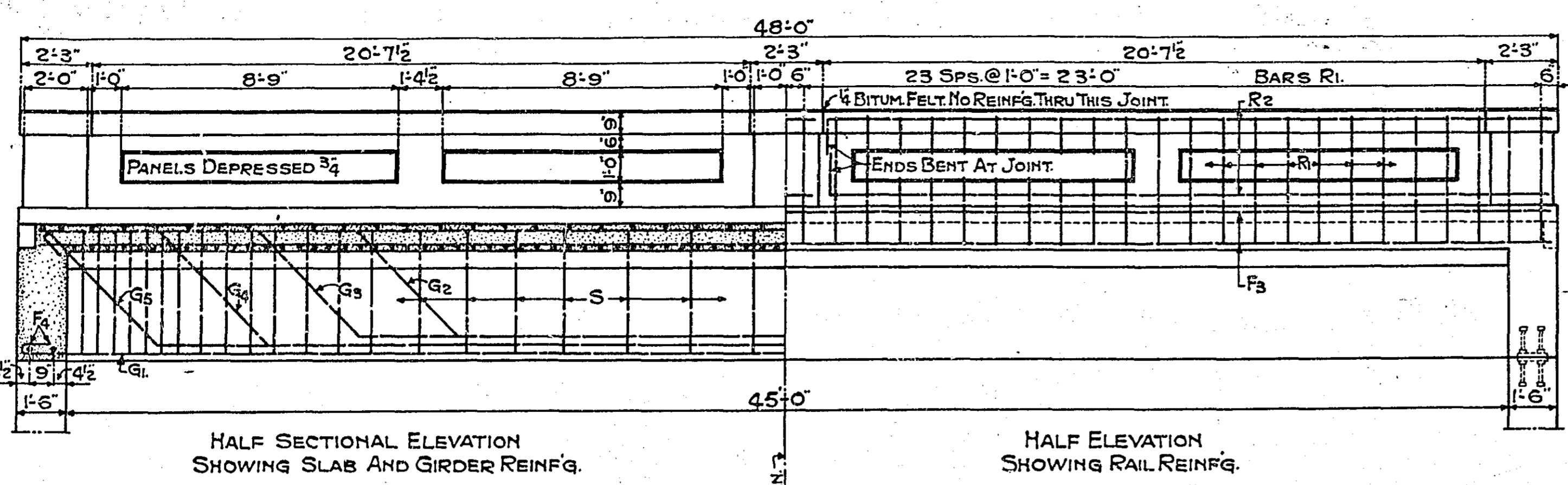


PLACING DIAGRAM GIRDER REINFG.

MICROFILMED

MINNESOTA HIGHWAY DEPARTMENT.
 STANDARD REINFD CONCRETE DECK GIRDER.
 45 FT. CLEAR SPAN - 24 FT. ROADWAY.
 BRIDGE No. 4513.
 SEC. 18 T. 30 N. R. 23 W.
 MOUNDS VIEW, TWP. RAMSEY COUNTY.
 APPROVED - DEC. 30, 1925.

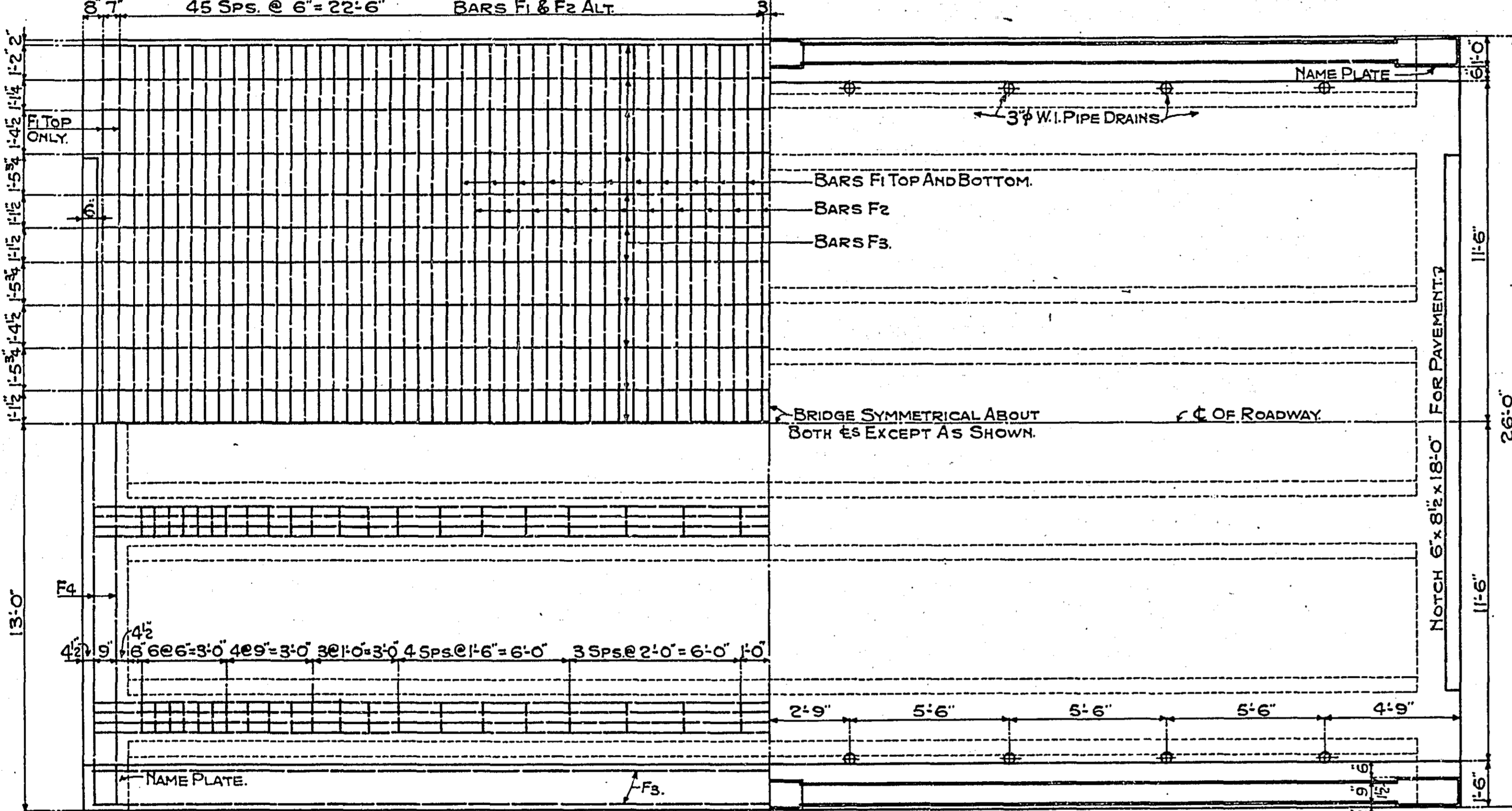
Wm. Hoffmann BRIDGE ENGR.
Carl Barasch COMM. OF HIGHWAYS.



HALF SECTIONAL ELEVATION SHOWING SLAB AND GIRDER REINFG.

HALF ELEVATION SHOWING RAIL REINFG.

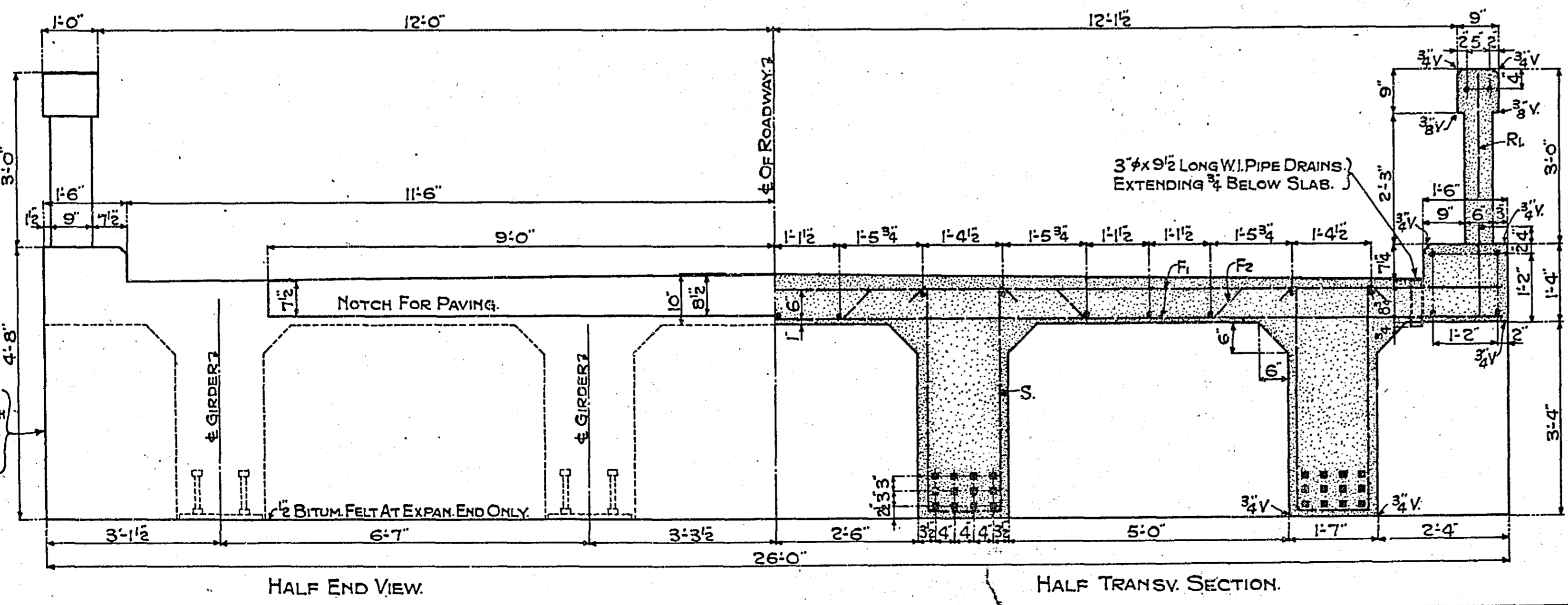
QUARTER PLAN SHOWING SLAB REINFG.



QUARTER PLAN SHOWING GIRDER REINFG.

HALF PLAN.

BRIDGE SYMMETRICAL ABOUT BOTH ES EXCEPT AS SHOWN.



HALF END VIEW.

HALF TRANSV. SECTION.

1/2 BITUM. FELT AT SIDES ONLY BOTH ENDS OF SPAN. SEE SEC. 11-5 STD. SPECIF.