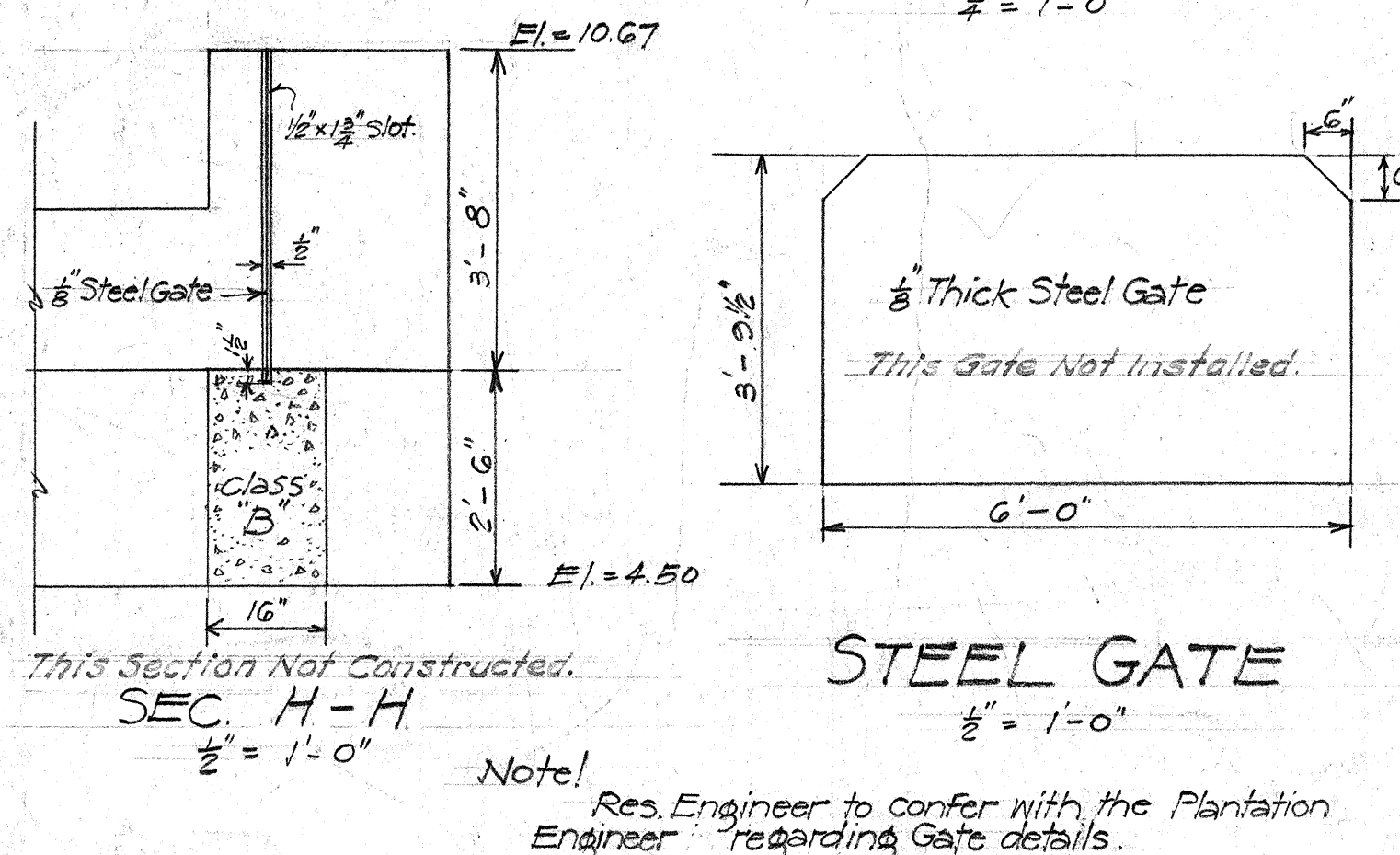
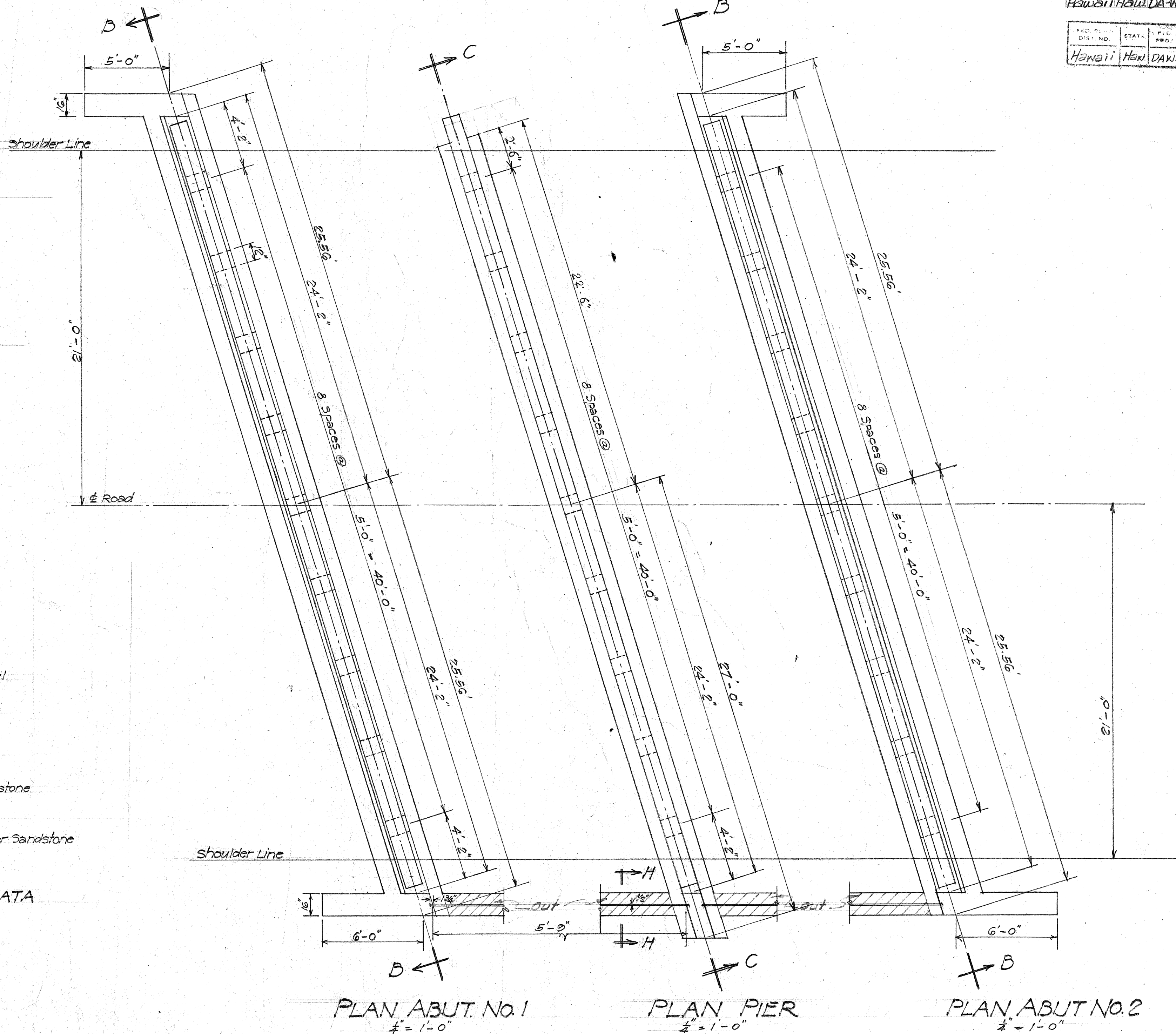
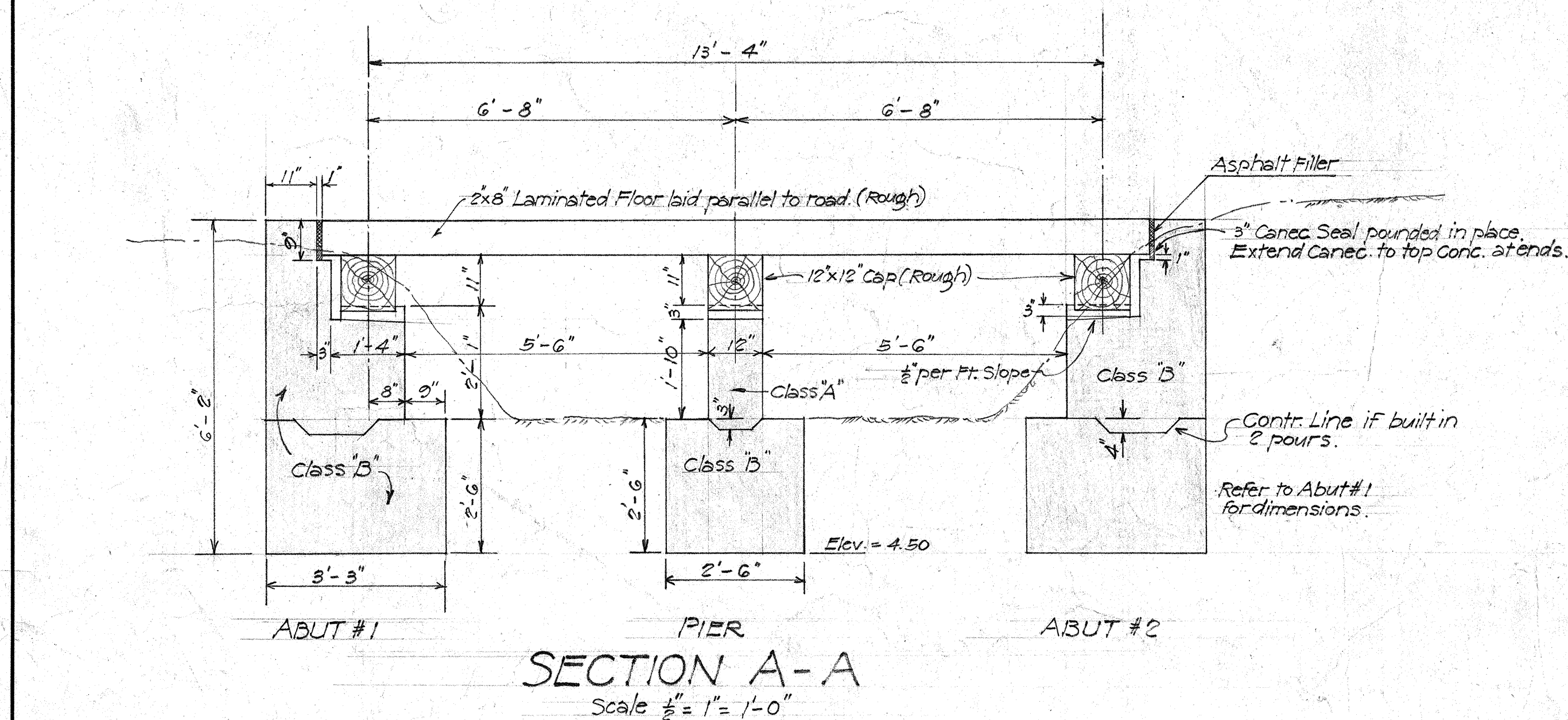
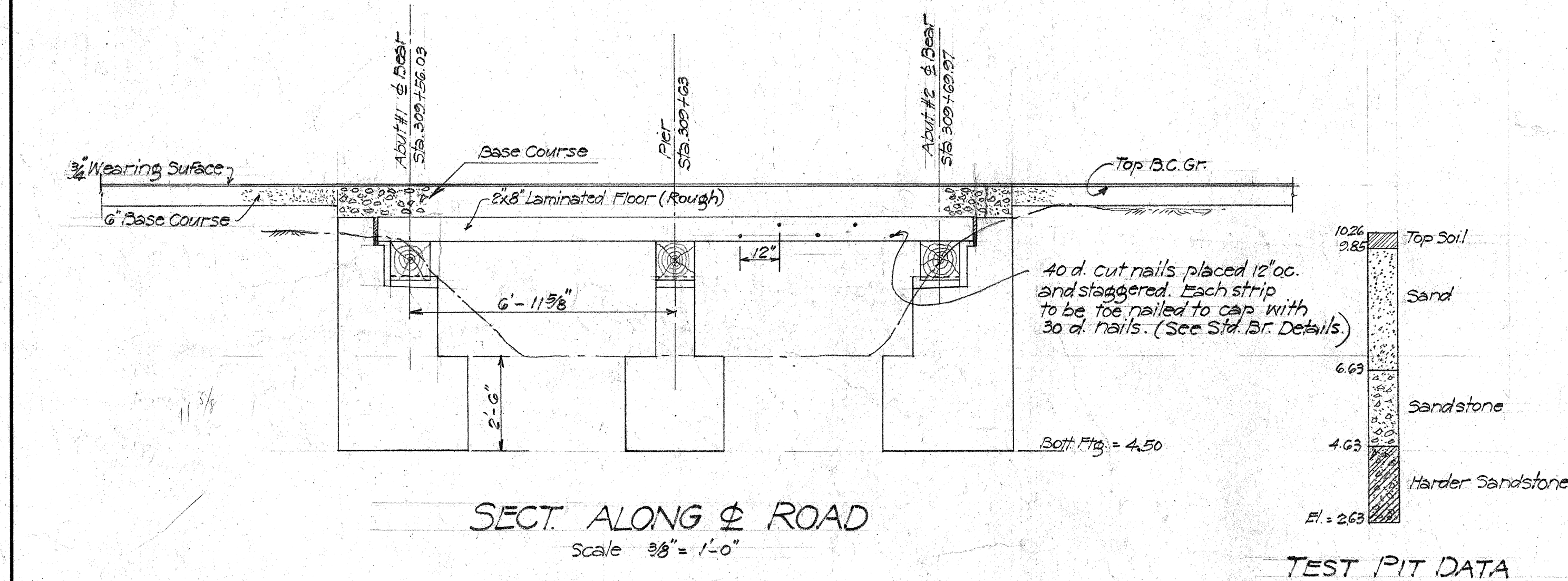
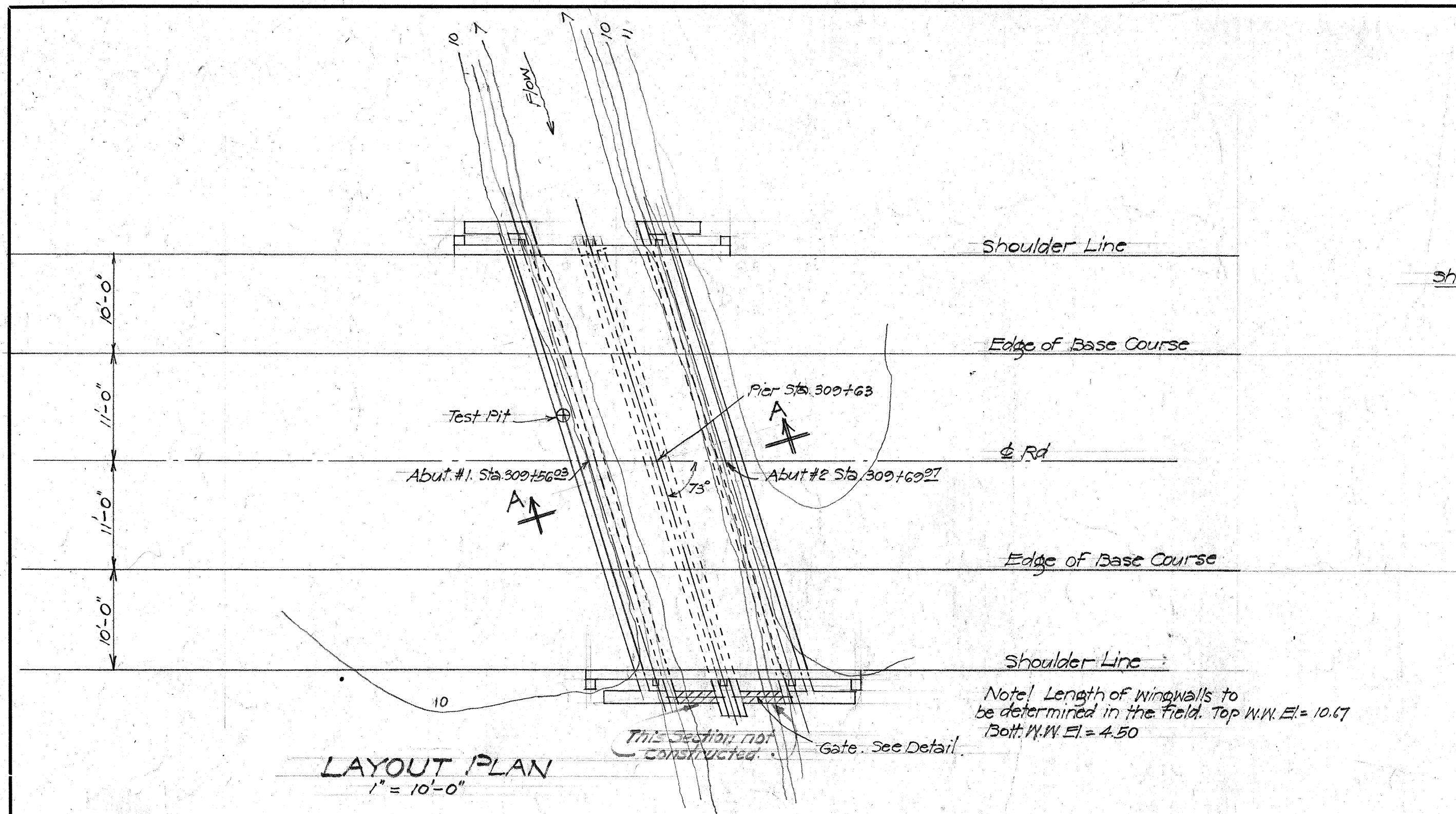


| FED. ROAD DIST. NO. | STATE  | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|---------------------|--------|--------------------|-------------|-----------|--------------|
| HAWAII              | HAWAII | DA-WR-1            | 1942        | 24        | 72           |

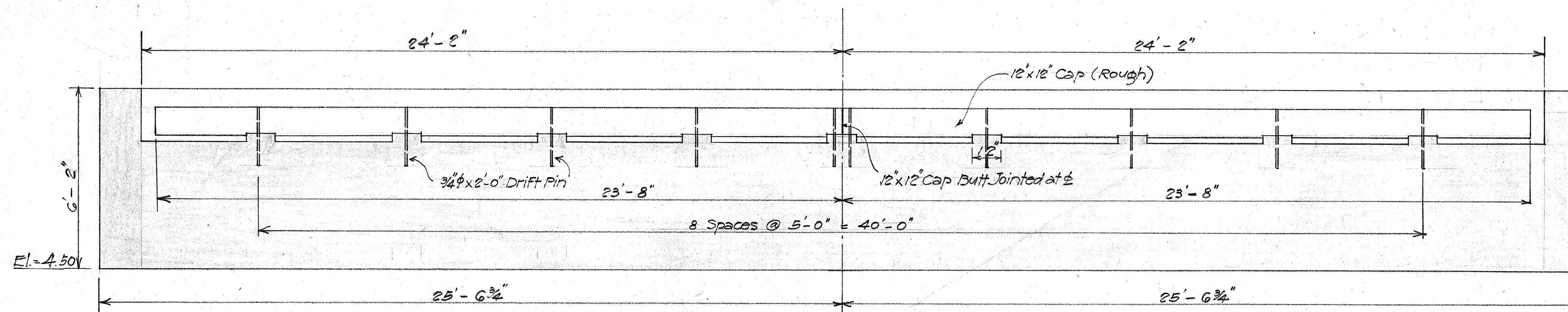
  

| FED. DIST. NO. | STATE  | FED. AID PROJ. NO. | FISCAL YEAR | SHEET NO. | TOTAL SHEETS |
|----------------|--------|--------------------|-------------|-----------|--------------|
| HAWAII         | HAWAII | DA-WR-1            | 1943        | 24        |              |

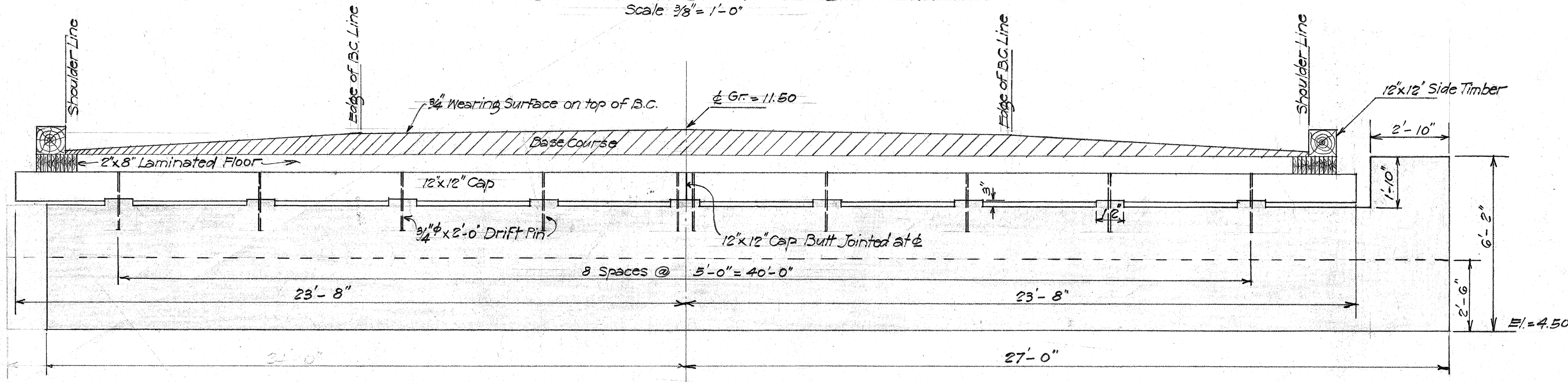


TERRITORIAL HIGHWAY DEPARTMENT  
TERRITORY OF HAWAII  
CULVERT  
STA. 309+63  
MANA-KEKAHA ACCESS RD. DA-WR-1  
Oct 1942  
SHEET NO. 1 OF 2 SHEETS

5100.20A 5100.24



ABUTMENT SECT. B-B see Sheet 1  
Scale 3/8" = 1'-0"



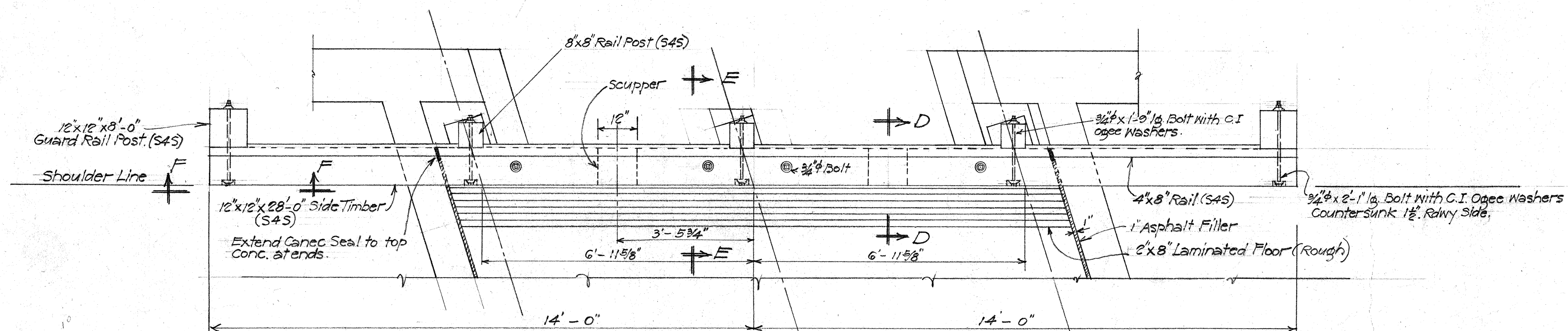
PIER SECTION C-C see Sh. 1  
Scale 3/8" = 1'-0"

TIMBER BILL OF MATERIAL  
DOUGLAS FIR COAST REGION

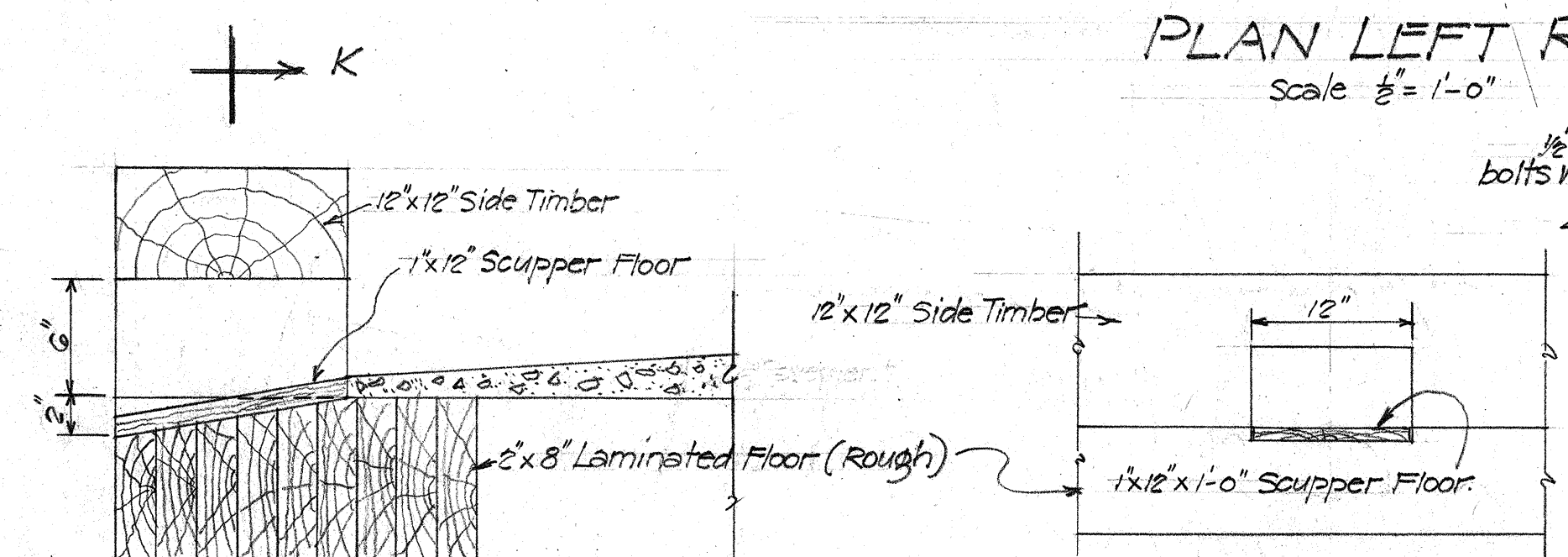
| MEMBER          | No. REQD. | SIZE & LENGTH | KIND OF LUMBER                 | MILLWORK | Ft. B.M. |
|-----------------|-----------|---------------|--------------------------------|----------|----------|
| Cap             | 6         | 12x12x24'-0"  | Select Struct. Post & Timbers  | Rough    | 1728     |
| Laminated Floor | 264       | 2x8x16'-0"    | " " Joist & Plank              | Rough    | 5632     |
| Side Timber     | 2         | 12x12x28'-0"  | No. 1 Timbers, Posts & Timbers | S4S      | 672      |
| Rail            | 2         | 4x8x28'-0"    | Select Struct. Joist & Plank   | S4S      | 140      |
| Guard Rail Post | 4         | 12x12x8'-0"   | " " Posts & Timbers            | "        | 384      |
| Rail Post       | 6         | 8x8x4'-0"     | " " " "                        | "        | 128      |
| Scupper Floor   | 4         | 1x12x1'-0"    | No. 1 Dimension Joist & Plank  | Rough    | 4        |
|                 |           |               |                                | Total    | 8697     |

ESTIMATED QUANTITIES

| ITEM             | QUANTITY      |
|------------------|---------------|
| Class A Conc.    | 4.0 C.Y.      |
| Class B Conc.    | 72.7 C.Y.     |
| Str. Exc.        | 114.0 C.Y.    |
| Untreated Timber | 8697 Ft. B.M. |
| Steel Gate       | 2 p.c.        |

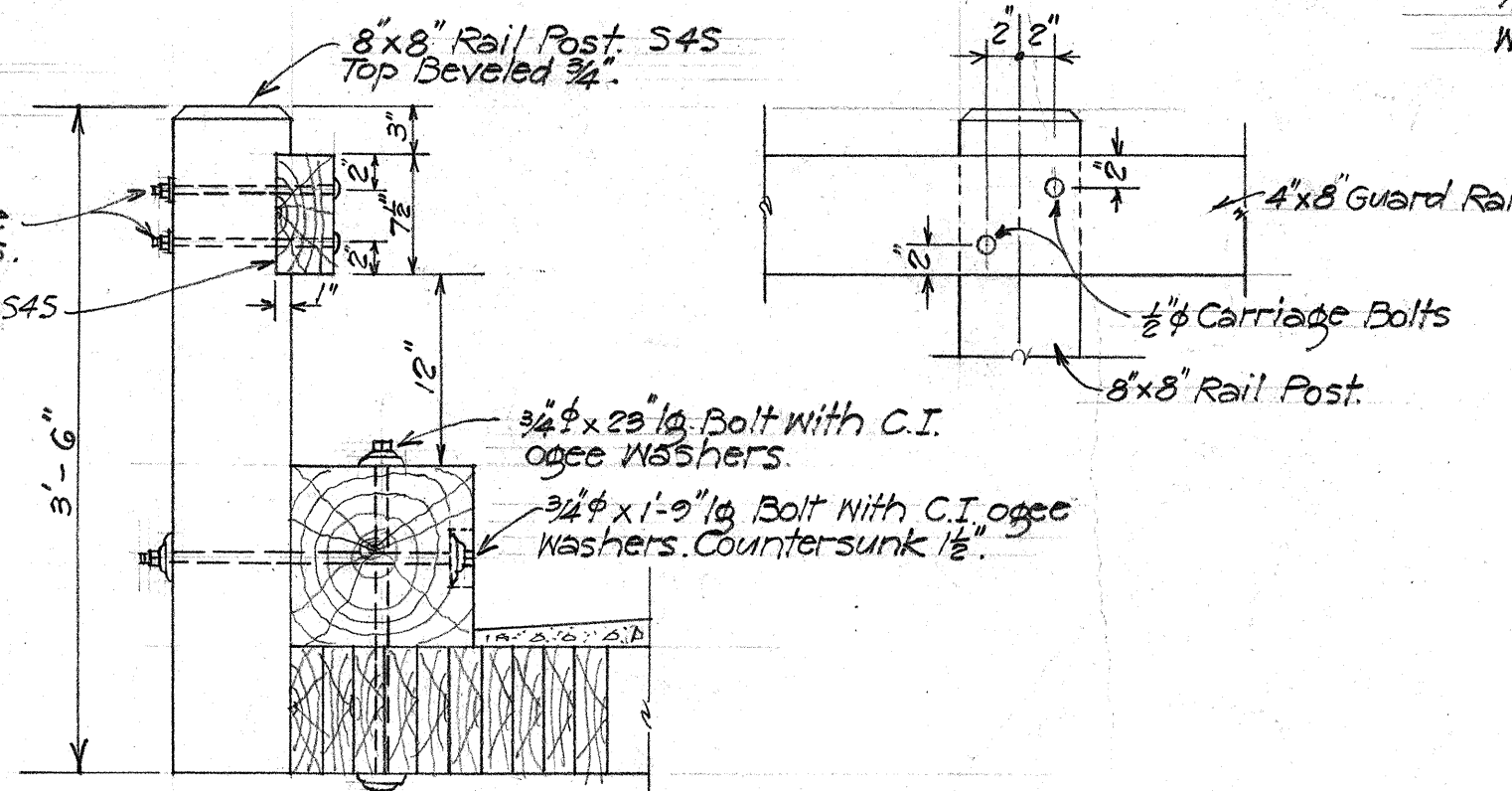


PLAN LEFT RAILING  
Scale 1/2" = 1'-0"

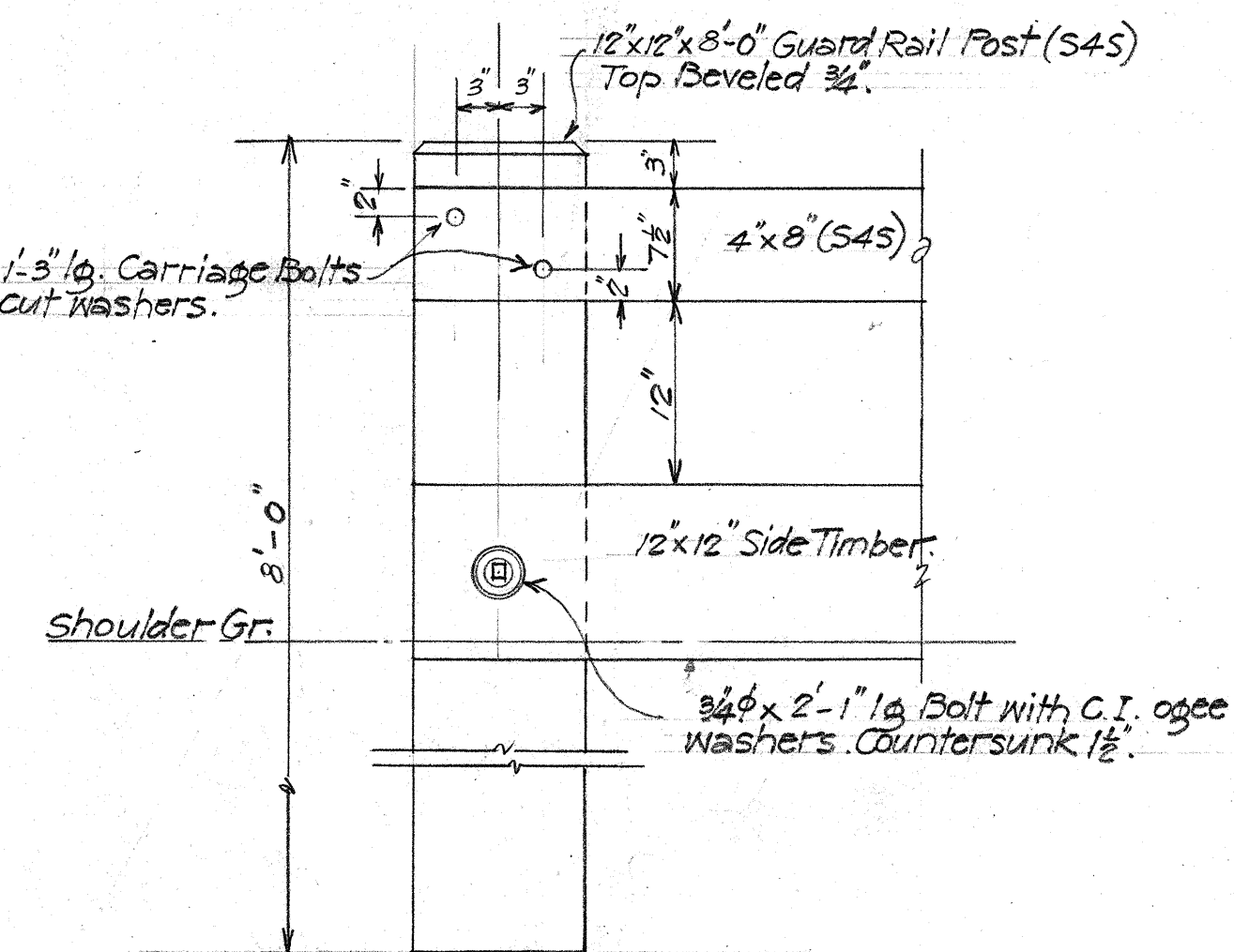


SCUPPER DETAIL SEC. D-D  
Scale 1/2" = 1'-0"

SECT. K-K  
1" = 1'-0"



SECTION E-E  
Scale 1" = 1'-0"



ELEVATION F-F  
1" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT  
TERRITORY OF HAWAII

CULVERT  
STA. 309+63

MANA-KEKAHA ACCESS RD. DA-WR-1  
Oct. 1942

SHEET No. 2 OF 2 SHEETS

5100.21A 5100.25