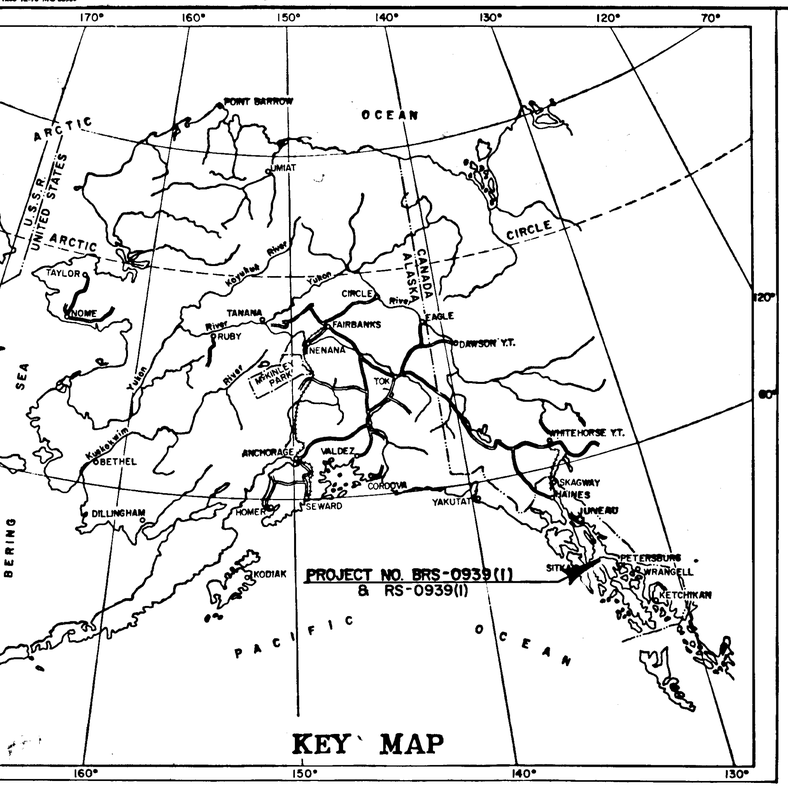
| STATE | PROJECT | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| ALASKA | BRS-0939(1) & RS-0939(1) | 1 | 16 |

# STATE OF ALASKA
# DEPARTMENT OF TRANSPORTATION
# &
# PUBLIC FACILITIES

# PLAN AND PROFILE
# PROPOSED HIGHWAY PROJECT
# BRS-0939(1)
# GUNNUK CREEK BRIDGE
# AND APPROACHES
# &
# RS-0939(1)
# KEKU ROAD




## DESIGN DESIGNATION

| | | |
|---|---|---|
| ADT 1979 | = | 100 |
| ADT 2000 | = | 149 |
| DHV 20% | = | 30 |
| D | = | 60-40 |
| T | = | 2% |

## BRS-0939(1) PROJECT SUMMARY

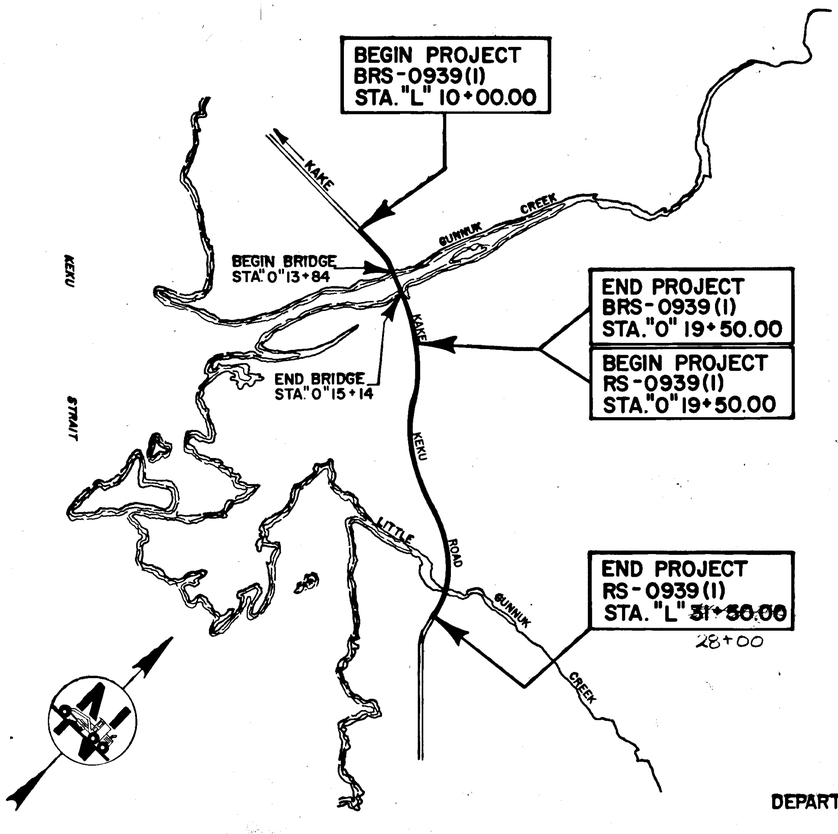
WIDTH OF SUBBASE = 28'
LENGTH OF GRADING = 820' = .16 mi.
LENGTH OF BRIDGE = 130' = .02 mi.
LENGTH OF PROJECT = 950' = .18 mi.

## RS-0939(1) PROJECT SUMMARY

WIDTH OF SUBBASE = 28'
LENGTH OF PROJECT = ~~1,190.78'~~ 850.0 = ~~.23~~ .16 mi.

| INDEX OF SHEETS | |
|---|---|
| 1 | TITLE SHEET |
| 2 | TYPICAL SECTION & SUMMARIES |
| 3-6 | PLAN & PROFILE |
| 7 | HEADWALL DETAILS |
| 8 | PIPE ARCH DETAILS |
| 9-15 | BRIDGE DETAILS |
| 16 | BORING LOGS |
| | |
| | |

THE FOLLOWING STANDARD DRAWINGS SHALL APPLY TO THESE PROJECTS: A-1, C-00.04, C-10.03, C-11.03, D-01.00, D-04.00, D-05.00, G-04.15, G-04.34, G-13.15, G-14.07, G-18.12, G-24.00, G-24.10, G-45.00, I-40.21, I-80.00, M-16.03, S-00.11, S-05.00, S-20.10, S-30.12, & U-03.00




"AS BUILT PLAN"
BUNO CONSTRUCTION
P.E. PAUL JONES
BEGIN CONSTRUCTION: APRIL 4, 1981
END CONSTRUCTION: AUGUST 19, 1981

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

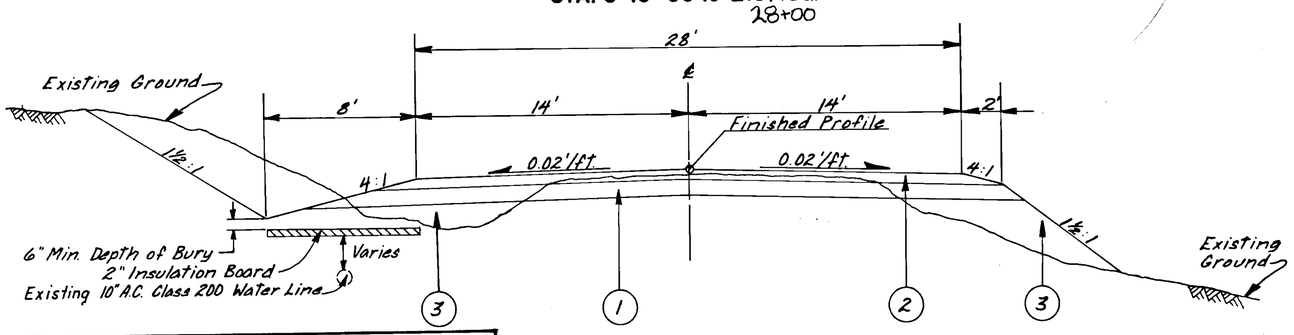
APPROVED
Wallace K. Wilson DATE 8-2-81
SOUTHEAST REGION DESIGN/CONSTRUCTION ENG.

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

APPROVED
Date 8/4/81
DIRECTOR, HIGHWAY DESIGN/CONSTRUCTION

| STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOT SHE |
|---|---|---|---|---|
| ALASKA | BRS-0939(1) & RS-0939(1) | 1981 | 2 | 16 |

## TYPICAL SECTION
## STA. "0" 10+00 to "L" ~~31+50~~ 28+00




## LABELING INDEX

| | |
|---|---|
| (1) | 9" Select Material |
| (2) | 6" Subbase, Grading B |
| (3) | Embankment |
| | |
| | |

## MONUMENT SUMMARY

| STATION | MON. | CASE | POINT | REMARKS |
|---|---|---|---|---|
| 10+00.00 | X | X | B.O.P. | |
| "L" 12+18.82 Bk.; "0" 12+18.82 Ahd. | X | X | P.O.T. Bk.; P.C. Ahd. | |
| "0" 13+41.40 | X | X | P.T. | |
| "0" 16+07.54 | X | X | P.C. | |
| "0" 18+28.45 | X | X | P.T. | |
| "0" 20+25.03 | X | X | P.C. | |
| "0" 22+24.92 Bk.; "0" 22+35.08 Ahd. | X | X | P.T. | |
| "0" 24+56.07 | X | X | P.C. | |
| "0" 27+11.52 | X | X | P.T. | |
| ~~"0" 28+63.47~~ | ~~X~~ | ~~X~~ | ~~P.C.~~ | Deleted EWO #2 |
| ~~"0" 29+89.93 Bk.; "L" 31+07.98 Ahd.~~ | ~~X~~ | ~~X~~ | ~~P.T. Bk.; P.O.T. Ahd.~~ | Deleted EWO#2 |
| ~~"L" 31+50.00~~ | ~~X~~ | ~~X~~ | ~~E.O.P.~~ | Deleted EWO#2 |

## REMOVAL OF STRUCTURES & OBSTRUCTIONS SUMMARY

| Station to Station | Offset | Remarks |
|---|---|---|
| "0" 13+86 "0" 15+14 | 21' Lt. | Gunnuk Crk. Bridge |
| "0" 15+32 "0" 15+67 | ℄ | 10'x35' Existing Wood Bridge Deck |
| "0" 26+90 "0" 27+06 | ℄ | Little Gunnuk Crk. Wood Crib Wall & Box Culvert |

## INSULATION BOARD SUMMARY

| STATION | OFFSET | REMARKS |
|---|---|---|
| "0" 22+50 | 17' LT. | Begin |
| "0" 26+00 | 17.5' Lt. | End |
| "0" 27+50 | 22' Lt. | Begin |
| "0" 29+00 | 11.5' Lt. | End |

NOTE: Approx. quantity required 8 M.B.M.

## FENCE RECONSTRUCTION SUMMARY

| STATION TO STATION | OFFSET | REMARKS |
|---|---|---|
| "0" 15+38 To "0" 16+43 | RT. | Relocate Exist. fence behind R.O.W. |
| | | |

## MANHOLE SUMMARY

| STATION | OFFSET | REMARKS |
|---|---|---|
| ~~"L" 11+68~~ | ~~3' Rt.~~ | ~~Reconstruct Exist. M.H.~~ |
| Deleted | Co# 1 | |
| | | |
| | | |
| | | |

## CULVERT INSTALL. SUMMARY

| STATION | LENGTH | DIA. | OFFSET LT. | OFFSET RT. | REMARKS |
|---|---|---|---|---|---|
| "L" 10+44 | 22' | 18" | 16' | | |
| "L" 11+71 | 22' | 18" | 22' | | |
| "0" 18+47 | 48' | 24" | | | ℄ |
| ~~"0" 22+15~~ | ~~42'~~ | ~~24"~~ | Deleted EWO# 2 | | |
| ~~"0" 29+50~~ | ~~46'~~ | ~~24"~~ | Deleted EWO# 2 | | |
| | | | | | |
| "0" 26+97.30 | 13'-10" 2 11"-7½" ARCH PIPE SKEW 5° RT. AHEAD | | | | STATE FURNISHED |
| "0" 17+16 | 22' | 18" | 22' | | |
| "0" 18+30 | 22' | 18" | 22' | | |

## FIRE HYDRANT SUMMARY

| STATION | OFFSET | REMARKS |
|---|---|---|
| "0" 11+18.5 | 26' Lt. | Relocation |
| "0" 19+91 | 32' Lt. | Relocation |
| | | |
| | | |
| | | |

## APPROACH SUMMARY

| STATION | WIDTH LEFT | WIDTH RIGHT |
|---|---|---|
| "L" 10+44 | 18' | |
| "L" 11+71 | 14' | |
| "L" 11+76 | | 14' |
| "0" 12+36 | | 52'* |
| "0" 13+33 | | 14' |
| "0" 16+18 | 14' | |
| "0" 16+72 | | 17' |
| "0" 17+16 | 14' | |
| "0" 18+30 | 14' | |
| "0" 20+72 | | 24' |
| "0" 22+86 | | 74'* |
| "0" 23+75 | | 24' |
| "0" 29+22 | 24' | |
| | | |
| | | |

NOTE: * Denotes a parking area.

## SIGNING SCHEDULE

| NO. | STATION | OFFSET LT. | OFFSET RT. | CODE NO. | LEGEND | SIZE | AREA | NO. of POSTS | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 1 | "L" 12+00 | 17' | | W5-1 | Road Narrows | 30"x30" | 6.25 | 1 | |
| 2 | "0" 13+47 | | 24' | R1-1 | Stop | 30"x30" | 6.25 | 1 | |
| 3 | "0" 13+80 | | 16' | I-3 | Gunnuk Creek | 24"x48" | 8.0 | 2 | |
| 4 | "0" 15+19 | 16' | | I-3 | Gunnuk Creek | 24"x48" | 8.0 | 2 | |
| 5 | "0" 26+90 | | 17' | I-3 | Little Gunnuk Creek | 36"x48" | 12.0 | 2 | |
| 6 | "0" 27+10 | 17' | | I-3 | Little Gunnuk Creek | 36"x48" | 12.0 | 2 | |
| 7 | "0" 29+75 | | 17' | W5-1 | Road Narrows | 30"x30" | 6.25 | 1 | |
| | "0" 26+00 | | | | | | | | |

### SIGNING NOTES

1. Sign locations & post lengths are approximate only & are subject to minor revisions.
2. All sign posts shall be telescoping, perforated, & galvanized steel posts; the 2" size shall be used above ground & the 2¼" size shall be used below ground for the sleeve.
3. All posts shall be installed with the sleeve type embedment in accordance with Standard Drawing S-30.12, except that the 2¼" size shall be used for the entire embedment depth.
4. All signs shall be unframed.
5. All signs shall be .063" thick.

## ESTIMATE OF ROADWAY QUANTITIES

| ITEM NO. | ITEM | UNIT | QUANTITY BRS-0939(1) | QUANTITY RS-0939(1) | TOTAL QUANTITY |
|---|---|---|---|---|---|
| 1 | Furnish & Maintain Engineering Facilities | L.S. | Lump Sum | Lump Sum | All Required |
| 109(1) | Petroleum Escalation | C.S. | " " | " " | " " |
| 110(1) | Mobilization | L.S. | " " | " " | " " |
| 111(1) | Temporary Erosion & Pollution Control | C.S. | " " | " " | " " |
| 114(1) | Construction Engineering by the Contractor | L.S. | " " | " " | " " |
| 115(1) | Traffic Maintenance | L.S. | " " | " " | " " |
| 202(1) | Removal of Structures & Obstructions | L.S. | Lump Sum | Lump Sum | All Required |
| 203(3) | Unclassified Excavation | C.Y. | 1,055 | ~~3,281~~ 2686 | ~~4,256~~ 3741 |
| 203(5D) | Embankment | C.Y. | 2,623 | ~~4,968~~ 1635 | ~~5,978~~ 4258 |
| 304(2) | Subbase, Grading "B" | C.Y. | 556 | 749 | 1,305 |
| 502(1) | Prestressed Concrete Structural Members (128'-8" Bulb Tees) | EA. | 5 | | 5 |
| 507(1) | Metal Bridge Railing | L.F. | 260 | | 260 |
| 602(4) | STRUCTURAL PLATE PIPE ARCH (STATE FURNISHED) SPAN: 13'-10" RISE: 11'-7" | L.S. | | Lump Sum | All Required |
| 603(22E) | 18" Pipe Conduit | L.F. | 88 | | 88 |
| 603(22G) | 24" Pipe Conduit | L.F. | ~~136~~ 48 | Deleted EWO#2 ~~94~~ 0 | ~~136~~ 48 |
| 604(3) | Reconstruct Existing Manholes | EA. | X | | Deleted Co# 1 X |
| 606(1) | Beam Type Guardrail, Type I Post | L.F. | 225 | 175 | 400 |
| 607(4) | Reconstructed Fence | L.F. | ~~130~~ 118 | | ~~130~~ 118 |
| 611(1) | Riprap, Class I | C.Y. | 550 | | 550 |
| 614(1) | Survey Monument & Case | EA. | 5 | EWO#2 X 4 | ~~12~~ 9 |
| 615(1) | Standard Signs | S.F. | 28.5 | 30.25 | 58.75 |
| 628(2A) | Ductile Iron Water Conduit | L.F. | ~~285~~ 233 | | ~~285~~ 233 |
| 628(7) | Fire Hydrant Relocation | EA. | 1 | 1 | 2 |
| 635(1) | Insulation Board | L.S. | | Lump Sum | All Required |
| | ALTERNATE "A" | | | | |
| 110(1) | Mobilization | L.S. | Lump Sum | Lump Sum | All Required |
| 501(5) | Precast Abutment | EA. | 2 | | 2 |
| 505(3A) | STRUCTURAL STEEL PILING, PRECAST ABUTMENT (FURNISHED & DRIVEN) | L.F. | 490 | | 490 |
| | ALTERNATE "B" | | | | |
| ~~110(1)~~ | ~~Mobilization~~ | ~~L.S.~~ | ~~Lump Sum~~ | ~~Lump Sum~~ | ~~All Required~~ |
| ~~501(1)~~ | ~~Class "A" Concrete~~ | ~~L.S.~~ | ~~"~~ | ~~"~~ | ~~"~~ |
| ~~503(1)~~ | ~~Reinforcing Steel~~ | ~~L.S.~~ | ~~Lump Sum~~ | | ~~All Required~~ |
| ~~505(3)~~ | ~~Structural Steel Piles (Furnished & Driven)~~ | ~~L.F.~~ | ~~362~~ | | ~~362~~ |

## GUARD RAIL INSTALLATION SUMMARY

| BEGIN | END | LENGTH | LT. | RT. | REMARKS |
|---|---|---|---|---|---|
| "0" 13+47 | "0" 13+84 | 50' | | Rt. | 25' Radius |
| "0" 13+34 | "0" 13+84 | 50' | Lt. | | |
| "0" 15+15 | "0" 15+89 | 75' | Lt. | | |
| "0" 15+15 | "0" 15+64 | 50' | | Rt. | |
| "0" 26+22.30 | "0" 27+22.30 | 100' | | Rt. | |
| "0" 26+72.30 | "0" 27+47.30 | 75' | Lt. | | |
| | | | | | |
| | | | | | |

### GENERAL NOTES

1. Alignment shown on these plans is subject to minor revisions.
2. Grades shown on these plans are subject to minor revisions.
3. Culvert lengths & locations are approx. only & are subject to minor revisions.
4. The locations of all utilities shown on the plans are approx. only & should be field verified with the utility.
5. All existing signs shall be removed by the contractor & returned to the State of Alaska, Dept. of Transportation Maintenance Yard, as directed by the engineer. This work shall be considered incidental to other items of work & no separate payment shall be made therefor.
6. Protection of existing underground utilities shall be considered incidental to Item 203(3) Unclassified Excavation. No measurement for payment shall be made for this required protective work.
7. Disposal of waste material shall be in a disposal area to be provided by the contractor & approved by the engineer.
8. Instream activity shall be limited to the period May 1 through July 15. However, bridge piling may be removed outside this time restriction with prior approval of the Dept. of Fish & Game.
9. Removal & disposal of existing culvert pipe shall be considered incidental to other items of work

| STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| ALASKA | BRS-0939(1) & RS-0939(1) | 1981 | 3 | 16 |

Horizontal Control: Based on a bearing of S.31°39'12"W. from brass cap monument at U.S.S. 3851 MC-1 To Alaska Tidelands Survey 1091 RM-3.

"L" 10+74 Lt. Remove & Dispose Existing 8" Pipe Conduit Install 18"x22' Pipe Conduit

"L" 11+71 Lt. Remove & Dispose Existing 8" Pipe Conduit Install 18"x22' Pipe Conduit

"L" 12+13.82 P.O.T. = "O" 12+13.82 P.C.

"O" 13+41.40 P.T.

Pole To be removed by others

Pole to be Installed by others

R/W

Begin Bridge Sta. "O" 13+84

End Bridge Sta. "O" 15+14

8" D.I.

Deleted Curve

S. 89°10'11"E.

Pole to remain

Pole to be removed by others

Installed by others

8" D.I. (Insulated)

S. 70°40'11"E. ~ 256.80'

Proposed Water Line

Gumnuk Creek

Flood

Ebb

Match Line "O" 14+00.00

Chain Link fence to be relocated ~~behind~~ R.O.W. on the

"O"
Δ = 18°30'00"
D = 14°30'
T = 64.35'
L = 127.59'
R = 395.14'
S = .055

BEGIN PROJECT
BRS-0939(1)
STA. "L" 10+00.00

"L" 11+40 V.P.I.
80' V.C. Elev. 34.26

-2.60%

Match Existing Grade

"O" 12+40 V.P.I.
200' V.C. Elev. 27.28

-5.33%
-4.653%

Finished Profile

0.00%

Existing Ground

Begin Bridge "O" 13+84

End Bridge "O" 15+14

EMBANKMENT = 1985 Cu. Yds. (Includes 454 Cu Yds. Select. Mat'l.)
UNCLASSIFIED EXCAVATION = 462 Cu. Yds.

Vertical Control: Based on TBM K-1, Elev. 20.37, a spike in a 30" spruce tree 1' above the ground 73' Lt. of Station 13+88.

30 25 20 15 10 5

10~ 11~ 12~ 13~ 14~ 15~ 16~

| STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| ALASKA | BRS-0939(1) & RS-0939(1) | 1981 | 4 | 16 |

"Water Main

2400 V, 3/0 Electrical U.G. To Dam Site

"0" 16+07.54 P.C.

R/W

Pole to be Installed by others

"0" 17+16 Lt. Insta 18"x22' Pipe Conduit.

"0" 18+30 Lt. Install 18"x22' Pipe Conduit.

Exist. sign to be removed by others prior to construction.

"0" 18+47 & Remove & Dispose Existing 18" Pipe Conduit Install 24"x48" Pipe Conduit

"0" 18+28.45 P.T.

Pole To be removed by others

10" A.C. (Class 200)

17~ 18~ 19~ 20~ 21~ 22~

2½" R.S. Conduit, abandon in place

Match Line 16+00.00

R/W

Pole to remain

"0"
Δ = 32°01'55"
D = 14°30'
T = 113.42'
L = 220.909'
R = 395.143'
S = .055

"0"
Δ = 29°16'27"
D = 14°30'
T = 103.20'
L = 201.89'
R = 395.143'
S = .055

"0" 20+85.03 P.C.

S. 38°38'16" E. ~196.58'

"0" 22+15 & Remove & Dispose Existing 18" Pipe Conduit 24"x42" Pipe Installed Conduit

DELETED EWO #2

"0" 22+10.00 Match Line

"0" 22+26.92 P.T. Bk. = "0" 22+33.08 Ahd.

END PROJECT
BRS-0939(1)
STA. "0" 19+50

BEGIN PROJECT
RS-0939(1)
STA. "0" 19+50

EMBANKMENT = 1054 Cu. Yds (Includes 636 Cu. Yds. Select. Mat'l.)
UNCLASSIFIED EXCAVATION 1403 Cu. Yds

"0" 16+50.00 V.P.I.
150' V.C. Elev. 27.28

"0" 18+00 V.P.I.
150' V.C. Elev. 23.00

"0" 20+00 V.P.I.
No V.C. Elev. 22.60

"0" 22+00 V.P.I.
No V.C. Elev. 21.00

0.00%

-2.85%

-0.20%

-0.80%

+0.45%

Finished Profile

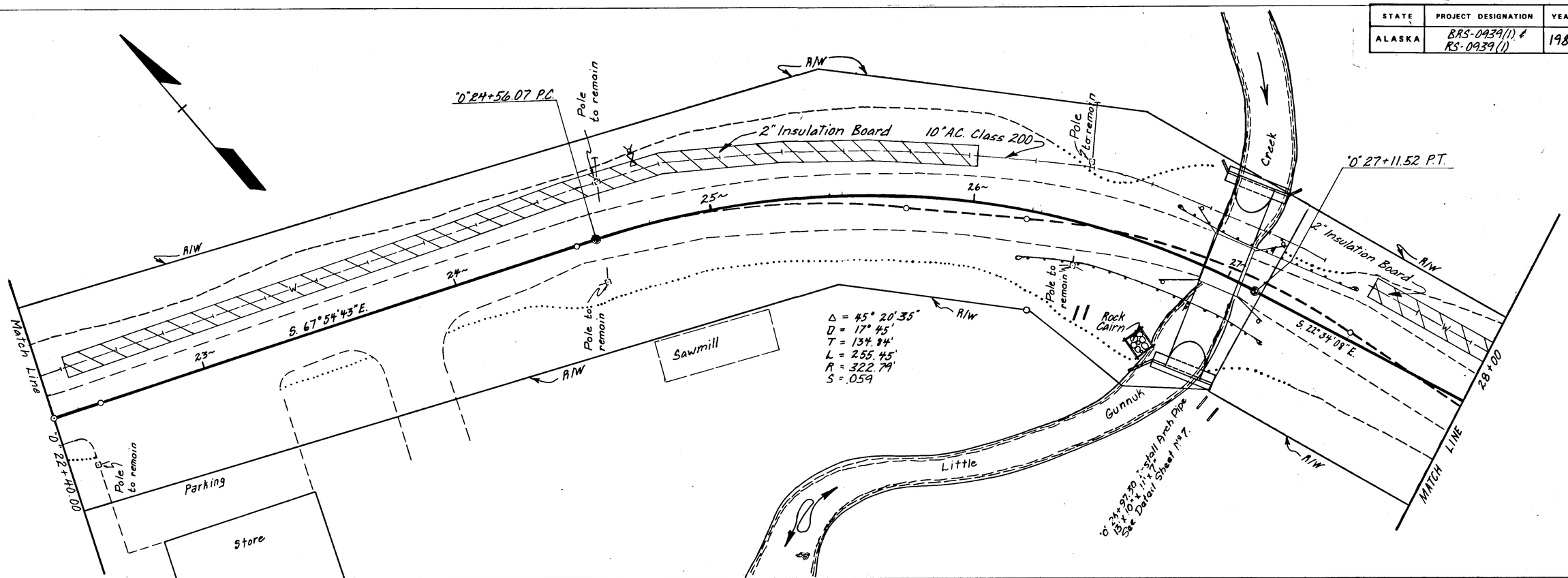
Existing Ground

"0" 22+26.92 P.T. Bk. = "0" 22+33.08 Ahd.

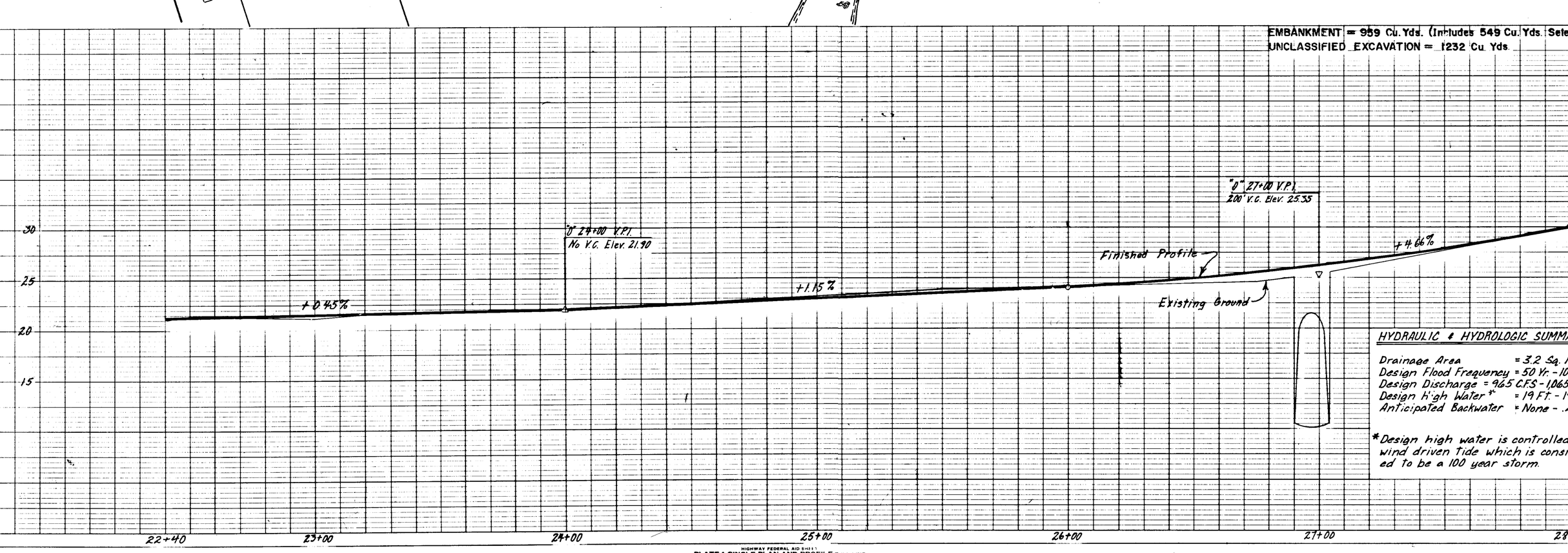
30 25 20

16~ 17~ 18~ 19~ 20~ 21~ 22~

| STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| ALASKA | BRS-0939(1) & RS-0939(1) | 1981 | 5 | 16 |




EMBANKMENT = 959 Cu. Yds. (Includes 549 Cu. Yds. Select Mat'l.)
UNCLASSIFIED EXCAVATION = 1232 Cu. Yds.




HYDRAULIC & HYDROLOGIC SUMMARY

| | |
|---|---|
| Drainage Area | = 3.2 Sq. Mi. |
| Design Flood Frequency | = 50 Yr. - 100 Yr. |
| Design Discharge | = 965 C.F.S. - 1,065 C.F.S. |
| Design High Water* | = 19 Ft. - 19 Ft. |
| Anticipated Backwater | = None - .2 Ft. |

*Design high water is controlled by wind driven tide which is considered to be a 100 year storm.

HIGHWAY FEDERAL AID SHEET
PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE
TELEDYNE
PRINTED IN U.S.A.

| STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| ALASKA | BRS-0939(1) & RS-0939(1) | 1981 | 6 | 16 |

Delete this sheet
E.W.O. #2

Delete this sheet
E.W.O. #2

"0" 28+00.00

2" Insulation Board

S.22°34'08"E.

"0" 28+63.47 P.C.

"0"
Δ = 22°16'09"
D = 17°45'
T = 63.53'
L = 125.46'
R = 322.79'
S = .059

"0" 29+88.93 P.T. Bk. =
"L" 29+91.99 Ahd.

10" A.C. (Class 200)

S.44°50'17"E.

Match Line

Pole to remain

"0" 29+37 & Remove & Dispose Existing 18" Pipe Conduit

"0" 29+50 & Install 24'+46' Pipe Conduit

"0" 30+36 Rt. Removed & relocate stairs to facilitate construction. This work shall be considered incidental to other items & no separate payment shall be made therefore.

Pole to remain

END PROJECT
RS-0939(1)
STA. "L" ~~31+50.00~~
28+00

"0" 29+50 V.P.I.
200' V.C. Elev. 37.00

+2.0%

+4.66%

Existing Ground

Finished Profile

Match Existing Grade

"0" 29+88.93 P.T. Bk. =
"L" 29+91.99 Ahd.

EMBANKMENT = 594 Cu. Yds (Includes 356 Cu. Yds Select. Mat'l.)
Unclassified Excavation = 1159 Cu. Yds.

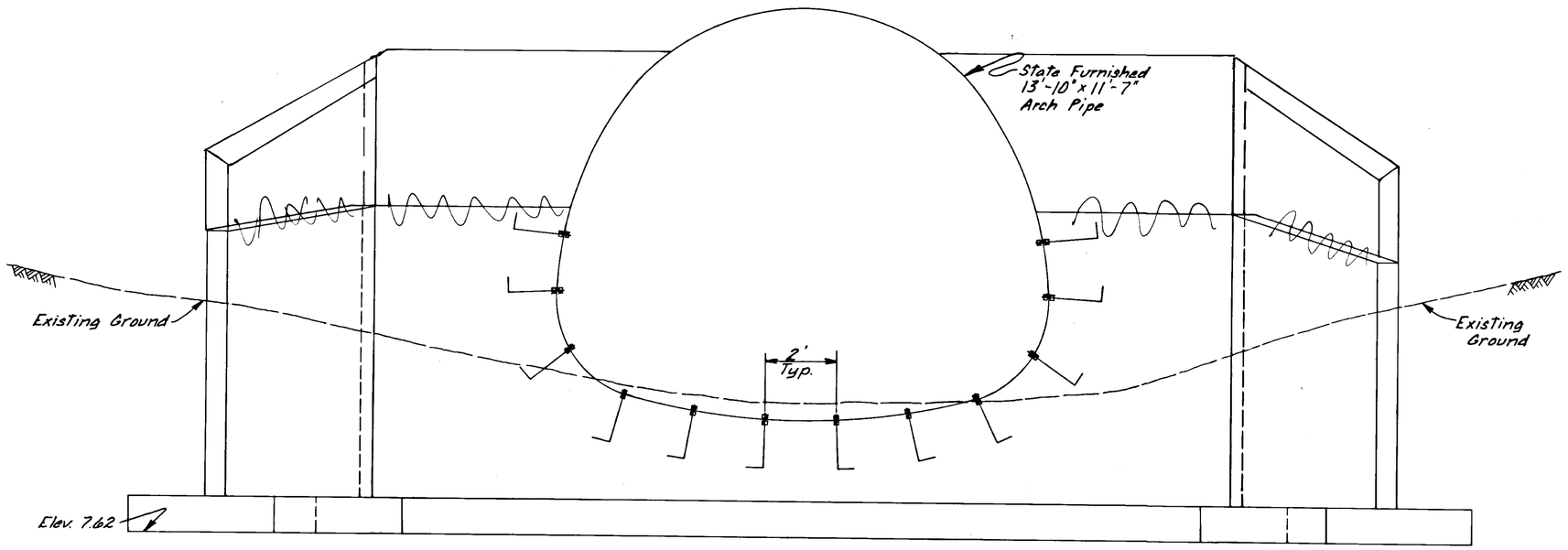
40
35
30
25

28~ 29~ 30~ 31~ 32~

HIGHWAY FEDERAL AID SHEET
PLATE 1-SINGLE PLAN AND PROFILE-FULL LINE
TELEDYNE
PRINTED IN U.S.A.

| STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| ALASKA | BRS-0939(1) & RS-0939(1) | 1981 | 7 | 16 |

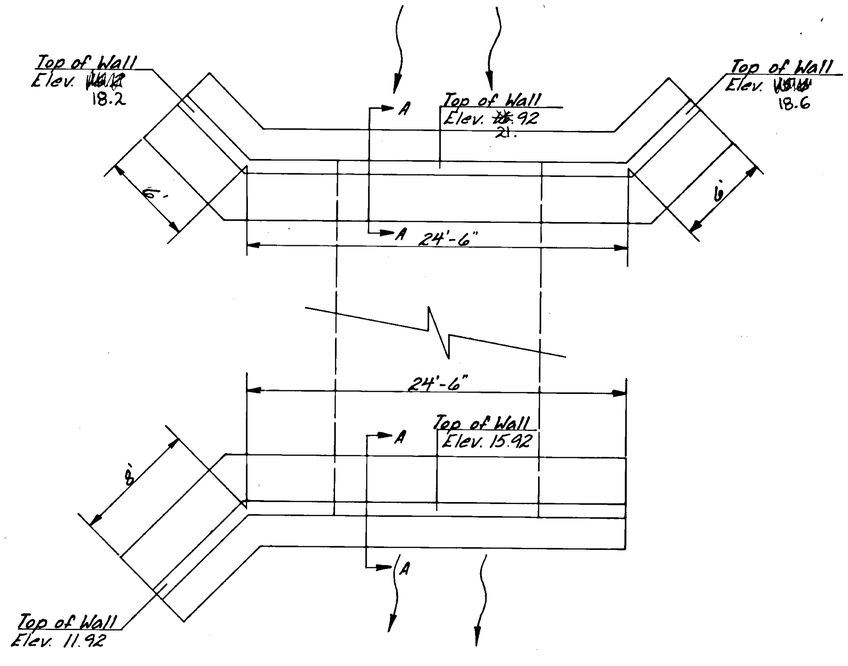
# HEADWALL DETAILS
## NO SCALE



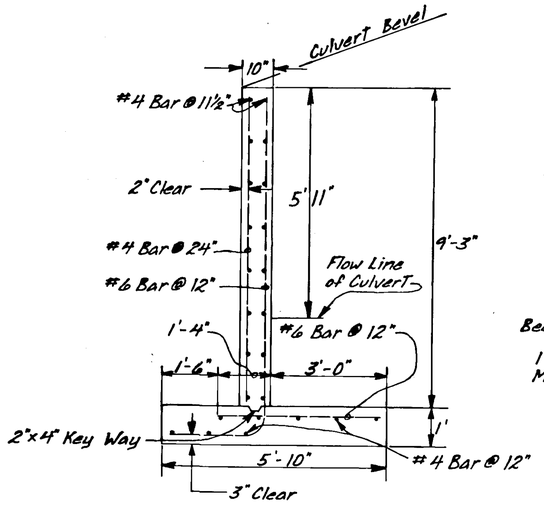

**ELEVATION**
Looking Down Stream

NOTES
1. Furnishing & installing hookbolts in place shall be considered incidental to Item 602(4) Structural Plate Pipe Arch (State Furnished) Span: 13'-10" - Rise 11'-7".
2. All hookbolts & culvert nuts shall be aluminum.
3. All exposed concrete corners shall be chamfered 3/4".
4. Class "A" concrete shall be used on headwalls.
5. Reinforcement shall be placed 2" clear from surface of concrete unless otherwise noted.
6. Reinforcement steel shall conform to ASTM A615.
7. All instream work shall be accomplished between the period from May 1 To July 15.

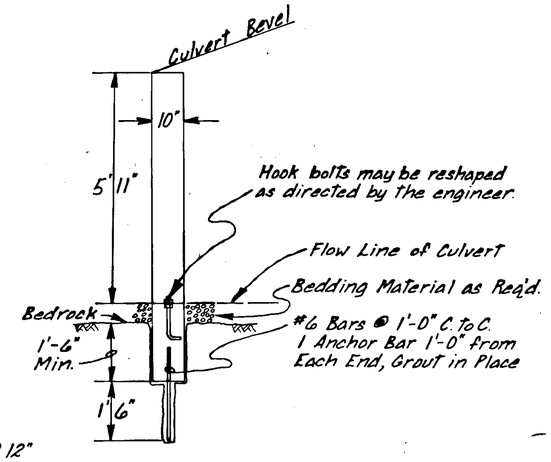
| ESTIMATE OF QUANTITIES (HEADWALLS) |
|---|
| INLET |
| 14.9 Cu. Yd. Class "A" Concrete |
| 1,323 Lbs. Reinforcing Steel |
| OUTLET |
| 12.6 Cu. Yd. Class "A" Concrete |
| 1,113 Lbs. Reinforcing Steel |



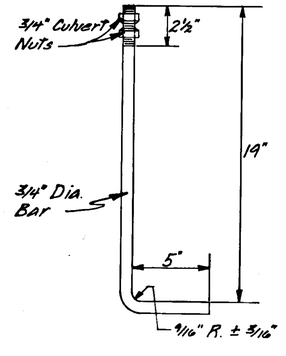

**TOP VIEW**




**SECTION A-A**



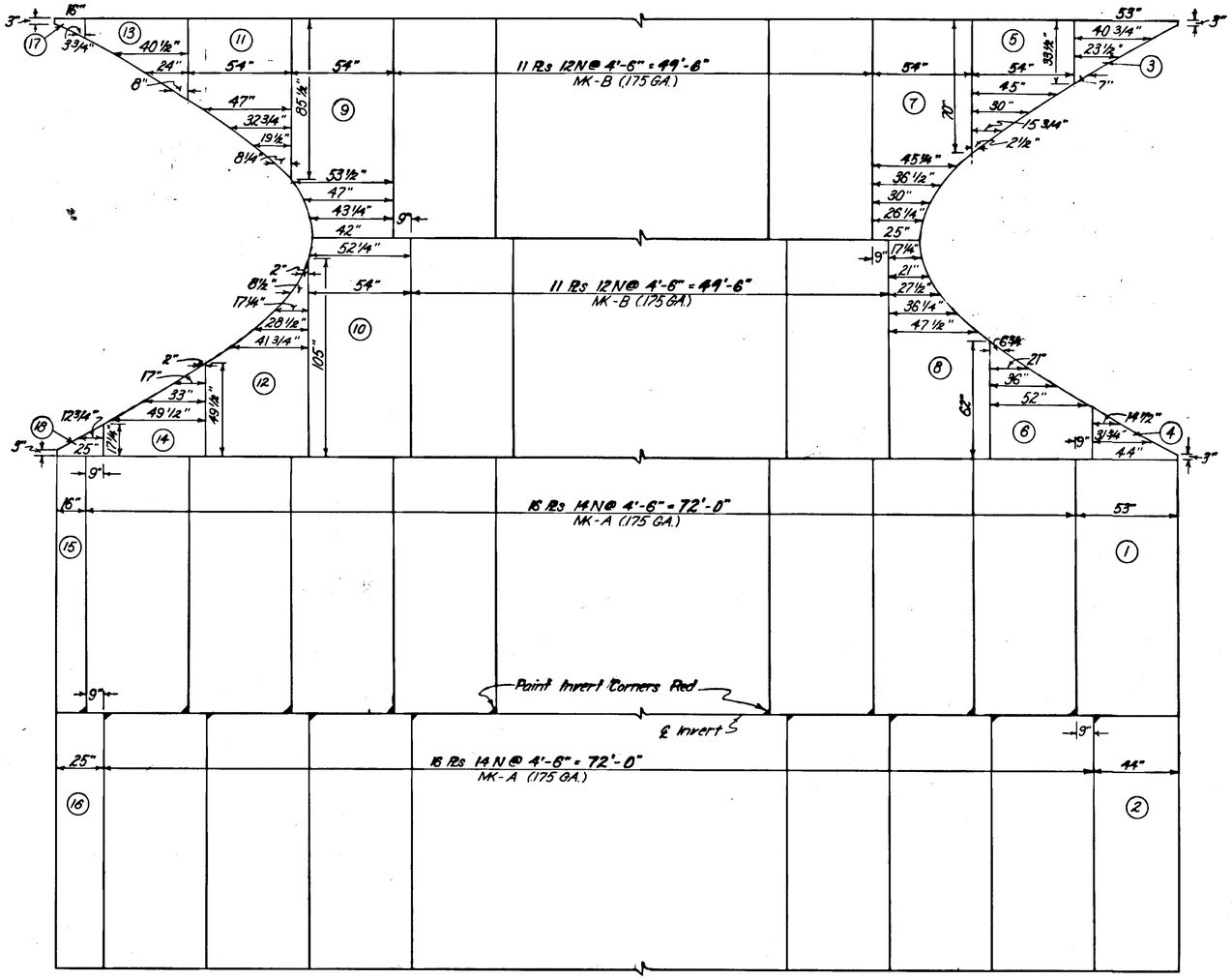

ALTERNATE METHOD OF ANCHORING HEAD & WING WALLS IF BEDROCK IS ENCOUNTERED.




HOOK BOLT DETAIL

| STATE | PROJECT DESIGNATION | YEAR | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|---|
| ALASKA | BRS-0939(1) & RS-0939(1) | 1981 | 8 | 16 |

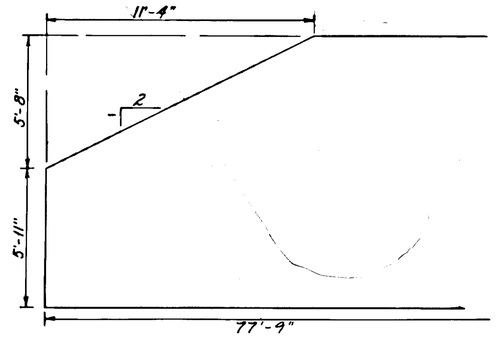
# PIPE ARCH DETAIL



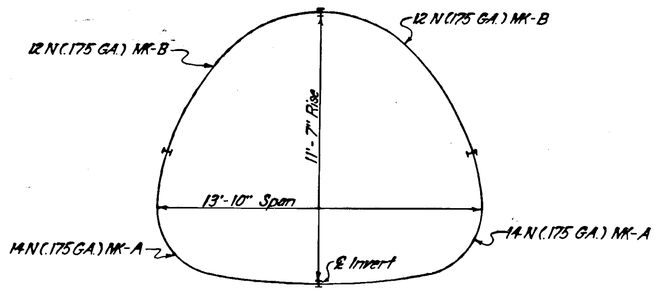

DEVELOPED PLAN

13'-10" x 11'-7" ARCH PIPE

INSIDE SURFACE SHOWN




SIDE VIEW




END VIEW

General Notes:

1. The width of trench shall be sufficient to allow tamping of earth backfill against every plate.
2. The pipe shall be bedded on a earth foundation of uniform density shaped to fit lower plates and at proper grade.
3. Water shall be diverted untill such time when structure is completely assembled and in place.
4. Invert of pipe shall be approximatly 1' below existing streambed elevation.
5. Instream activity shall be limited To the period between May 1 - July 15.
6. Torque all fastners 100-150 ft-lbs.