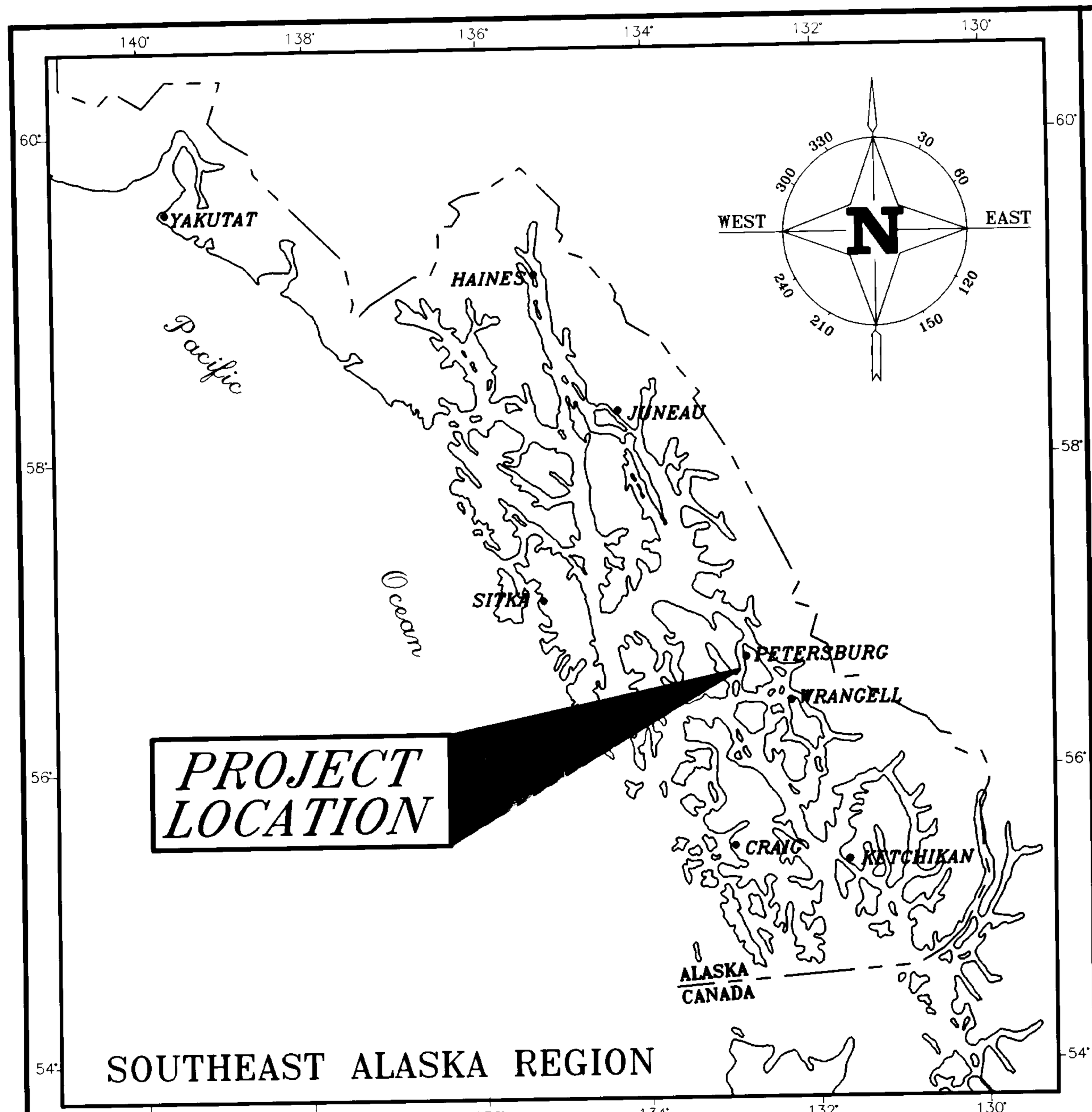


STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES SOUTHEAST REGION DESIGN AND CONSTRUCTION DIVISION

PETERSBURG, ALASKA

TWIN CREEK CULVERT REPLACEMENT

PROJECT NO. STP-0937(26)/71646

BRIDGE, EXCAVATION, PAVING & GUARDRAIL CONNECTIONS

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS OF IMPROVEMENT
3	ESTIMATE OF QUANTITIES
4	BRIDGE RAILING & GUARDRAIL PLAN
5	EROSION AND SEDIMENT CONTROL
6	TRAFFIC CONTROL PLAN – BRIDGE DETOUR PLAN
7	TRAFFIC CONTROL PLAN
8–14	TWIN CREEK BRIDGE PLANS ZEROX COPIES OF THESE 7 SHEETS ARE INCLUDED, ORIGINALS ARE AT HEADQUARTERS\BRIDGE DESIGN.
15–16	TEST HOLE LOGS

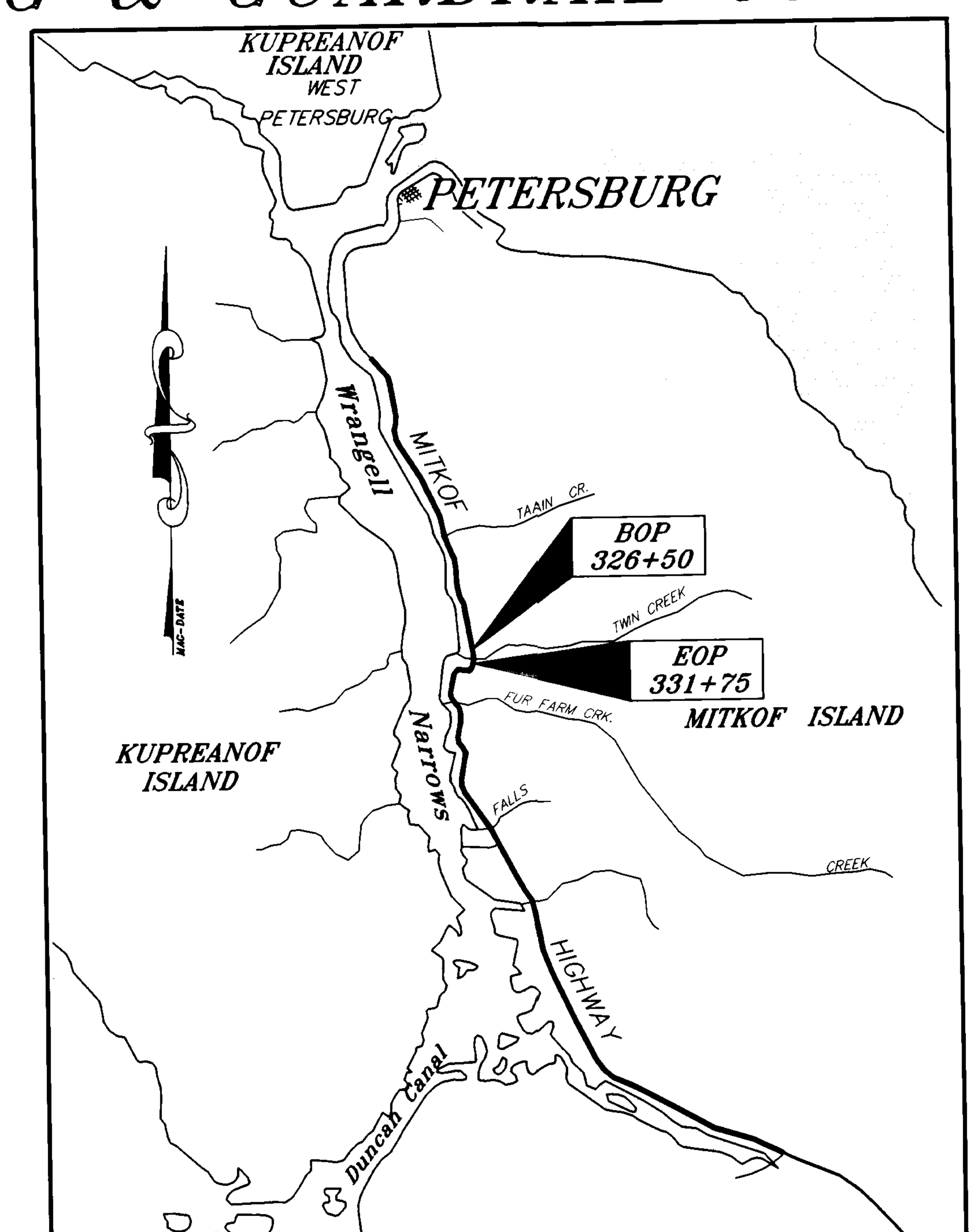
THE FOLLOWING STANDARD DRAWINGS APPLY TO THIS PROJECT:
A-1, C-01.03, C-02.01, G-04.04S, G-04.05W, G-09.01S, G-09.02W, G-14.04S, G-14.04W, G-18.00S, G-18.00W, G-29.01S, G-29.01W, S-05.00, S-20.00, T-20.00

DESIGN DESIGNATION

A.D.T. 1995 580
A.D.T. 2015 640
D.H.V. 13.6% 90
% T 3.3%
V .... 50 M.P.H.
E.A.L. 100,000

DESIGN DESIGNATION

LENGTH OF PROJECT = 135'
LENGTH OF PAVING = 135'
WIDTH OF PAVING = 36' TO 32'



VICINITY MAP

ASBUILT PLANS

CONTRACTOR: ROCK-n-ROAD CONST.
ORIGINAL CONTRACT AMOUNT: $655,980.00
PROJECT ENGR.: THAD HOPPER
START DATE: 6-11-96
END DATE: 9-16-96

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND
PUBLIC FACILITIES
SOUTHEAST REGION DESIGN SECTION

APPROVED ____________ Date 7/17/95
Regional Preconstruction Engineer

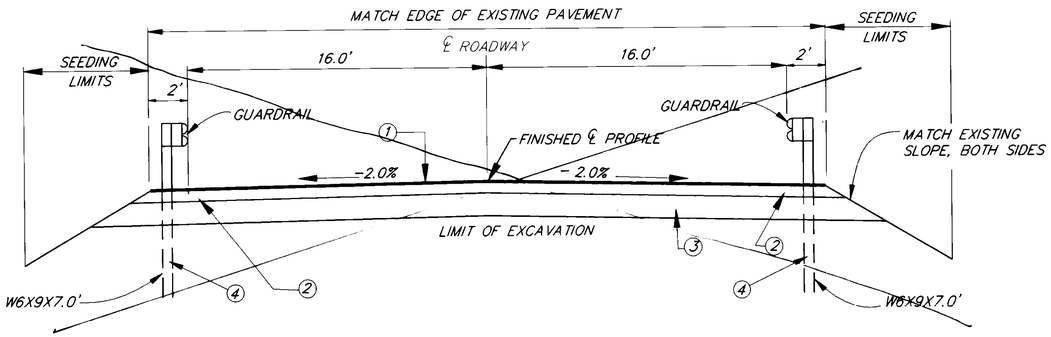
APPROVED ____________ Date 7/17/95
Director, S.E. Region Design & Construction

AS-BUILT
BY: KK DATE: 7/27/99

PROJECT NUMBER: 71646
DATE: 1995
SHEET 1 OF 16

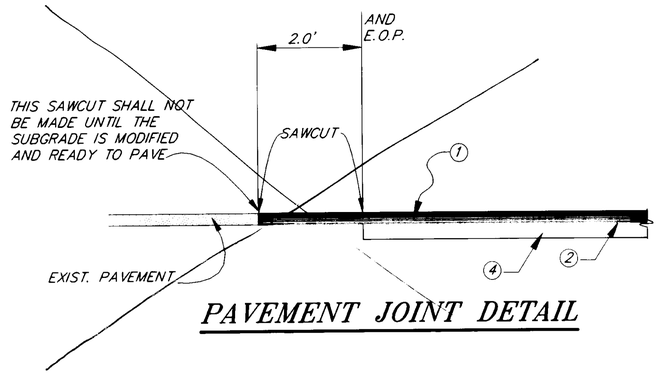
ENGINEER'S SEAL
STATE OF ALASKA 49th ALAN J. STEININGER CE-8307 REGISTERED PROFESSIONAL ENGINEER

6895\PLANSET\$TSHT #1-TSHT 1=1 (1=2 HALF) LT K.K. 7/27/99



TYPICAL RECONSTRUCTION AREA SECTION

STA. "0" 328+50 TO 328+70 & STA. "0" 329+65 TO 329+85



PAVEMENT JOINT DETAIL

THIS SHEET REPLACED BY ATTACHMENT #3, ADDENDUM # 2.

GENERAL NOTES

1. VERTICAL AND HORIZONTAL ALIGNMENTS SHOWN ON THESE PLANS ARE SUBJECT TO MINOR REVISIONS.
2. THE LOCATION OF ALL UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE ONLY, AND SHOULD BE VERIFIED BY CONTRACTOR.
3. ALL WASTE MATERIAL SHALL BE PLACED OUTSIDE THE PROJECT LIMITS AT A LOCATION PROVIDED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.

BASIS OF SURVEY CONTROL

HORIZONTAL CONTROL

THE BASIS OF CONTROL IS THE BEARING BETWEEN DOT/PF HIGHWAY MONUMENTS MH-16 (PROJECT COORDINATES OF N 84117.956, E 210985.685) AND MH-17 (PROJECT COORDINATES OF N 82042.523, E 210940.498) OF S 1° 14' 50" W

MH-16 IS A DOT/PF MONUMENT IN A ALUMINUM CASE SET IN THE LEFT SHOULDER OF MITKOF HIGHWAY AT STATION 318+55, 13.10' LT.

MH-17 IS A DOT/PF MONUMENT IN A ALUMINUM CASE SET IN THE LEFT SHOULDER OF MITKOF HIGHWAY AT STATION 339+30, 13.0' LT.

VERTICAL CONTROL

THE BASIS OF VERTICAL CONTROL IS THE TOP OF THE BRASS CAP IN AN ALUMINUM CASE, DESIGNATED AS MH-16 HAVING AN ELEVATION OF 62.74' M.L.L.W. AS DETERMINED DURING PROJECT 70265 MITKOF HIGHWAY SCOW BAY TO PAPKE'S LANDING.

LABELING INDEX

1	2" ASPHALT PAVEMENT
2	4" CRUSHED AGGREGATE BASE COURSE
3	14" BORROW, TYPE "A"
4	STEEL POST GUARDRAIL

BASIS OF ESTIMATE

ITEM NO.	ESTIMATING FACTOR
203(1)	1.85 TONS/CY.
301(1)	1.96 TONS/CY.
401(1)	116 LBS/YD² IN DEPTH
401(2)	6.0% OF 401(1)
403(1)	0.25 GAL/YD.² 256 GAL/TON

AS-BUILT
BY: KK DATE: 7/27/94

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

PATH: P:\PSG\71646\DR\-TWINTYP PLOTF.PCP(50) OR PLOTH.PCP(100)

BY:	DATE:	DESCRIPTION OF CHANGE:

RECORD OF REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
SOUTHEAST REGION DESIGN & CONSTRUCTION

Petersburg — PSG-Twin Creek Culvert Replacement STP-0937 (26) 71646 — Alaska

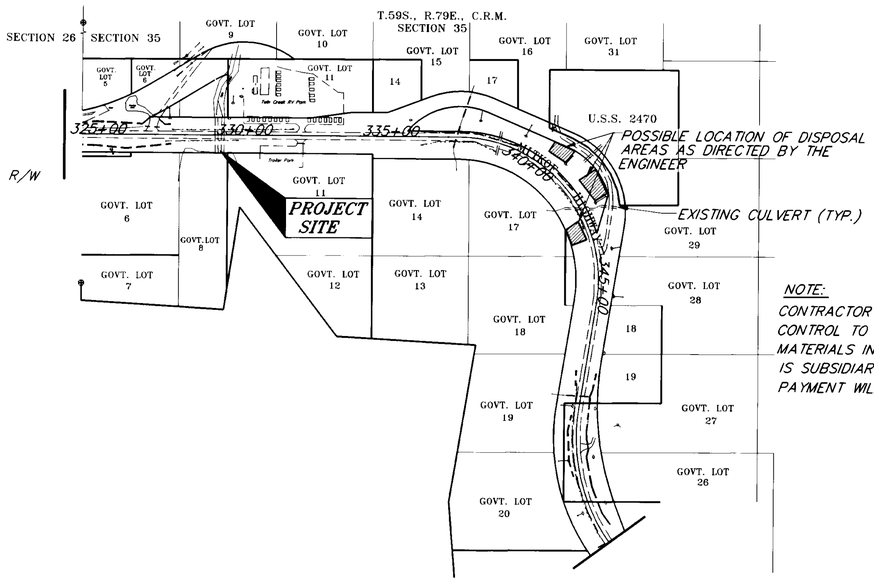
TYPICAL SECTIONS OF IMPROVEMENT

DESIGNED BY: M. SHEELER	PROJECT NO. 71646
DRAWN BY: M. SHEELER	DATE: 1995
CHECKED BY: A.J. STEININGER	SHEET 2 OF 16

STATE OF ALASKA
49th
A.U. STEININGER
CE-6440
REGISTERED PROFESSIONAL ENGINEER

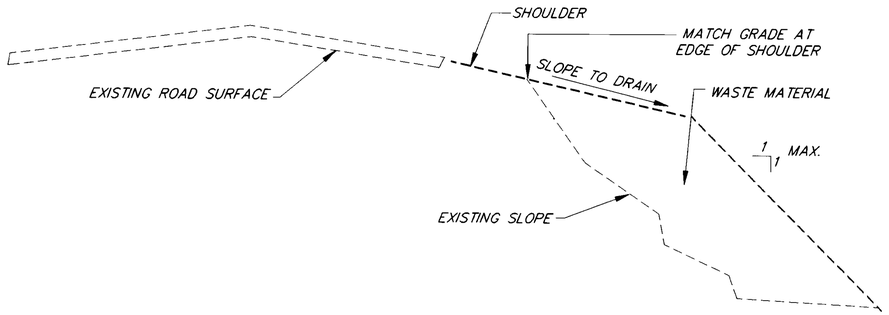
ESTIMATE OF QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
120(1)	DBE ADJUSTMENT	CONTINGENT SUM	ALL REQUIRED
202(12)	REMOVAL OF PAVEMENT (APPROX. 510 S.Y.)	LUMP SUM	ALL REQUIRED
202(13)	REMOVAL OF CULVERT PIPE (APPROX. 234 L.F.)	LUMP SUM	ALL REQUIRED
203(11)	UNCLASSIFIED EXCAVATION (5,000 C.Y.)	LUMP SUM	ALL REQUIRED
301(3)	CRUSHED AGGREGATE BASE COURSE (APPROX. 17 TONS)	LUMP SUM	ALL REQUIRED
401(1)	ASPHALT CONCRETE PAVEMENT (APPROX. 64.2 TONS)	LUMP SUM	ALL REQUIRED
401(2)	ASPHALT CEMENT (APPROX. 3.8 TONS)	LUMP SUM	ALL REQUIRED
501(1)	CLASS A CONCRETE	LUMP SUM	ALL REQUIRED
502(1)	PRESTRESSED CONCRETE STRUCTURAL MEMBERS (93'-2" BULB TEES)	EACH	6
503(1)	REINFORCING STEEL	LUMP SUM	ALL REQUIRED
505(5)	STRUCTURAL STEEL PILES, FURNISHED	LINEAR FOOT	~~432~~ 373.5
505(6)	STRUCTURAL STEEL PILES, DRIVEN	EACH	12
507(1)	METAL BRIDGE RAILING	LINEAR FOOT	190
~~508(1)~~	~~MEMBRANE WATERPROOFING~~	~~LUMP SUM~~	~~ALL REQUIRED~~
606(1)	W-BEAM GUARDRAIL	LINEAR FOOT	~~550~~ 521.85
606(2)	THRIE BEAM GUARDRAIL	LINEAR FOOT	75
606(5)	REMOVAL AND DISPOSAL OF GUARDRAIL	LINEAR FOOT	~~811~~ 690.6
606(6)	END ANCHORAGES	EACH	~~4~~ 1
611(1)	RIPRAP, CLASS II	CUBIC YARD	~~990~~ 862.9
631(2)	GEOTEXTILE EROSION CONTROL, CLASS A	SQUARE YARD	~~1330~~ 1074.8
633(1)	GEOTEXTILE SEDIMENT CONTROL	LINEAR FOOT	~~300~~ 299
640(1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED
641(1)	EROSION & POLLUTION CONTROL ADMINISTRATION	LUMP SUM	ALL REQUIRED
641(2)	EROSION & POLLUTION CONTROL	LUMP SUM	ALL REQUIRED
642(1)	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
643(2)	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED
643(4)	CONSTRUCTION SIGN	EACH PER DAY	~~500~~ 1340
643(6)	TYPE III BARRICADE	EACH PER DAY	~~500~~ 326
643(7)	TRAFFIC CONE	EACH PER DAY	~~3,000~~ 2319
643(8)	DRUM	EACH PER DAY	~~1,000~~ 909
643(15)	FLAGGING	LUMP SUM	ALL REQUIRED
643(30)	BRIDGE DETOUR CROSSING	LUMP SUM	ALL REQUIRED



NOTE:
CONTRACTOR SHALL PROVIDE EROSION AND SEDIMENT CONTROL TO PREVENT POLLUTION AND DEPOSITION OF MATERIALS INTO ADJACENT WATER COURSES. THIS WORK IS SUBSIDIARY TO WASTE DISPOSAL AND NO ADDITIONAL PAYMENT WILL BE MADE.

POSSIBLE WASTE DISPOSAL AREA



TYPICAL SECTION WASTE DISPOSAL AREA

AS-BUILT
BY: KK DATE: 7/27/99

P:\PSG\71646#951\PLANSET\#BEST

PATH: ~~P:\PSG\71646\DR\-EST~~ < PLOTF.PCP(1) OR PLOTH.PCP(2) >

BY:	DATE:	DESCRIPTION OF CHANGE:
KK	7/27/99	AS-BUILT WITH CORRECTIONS

RECORD OF REVISIONS

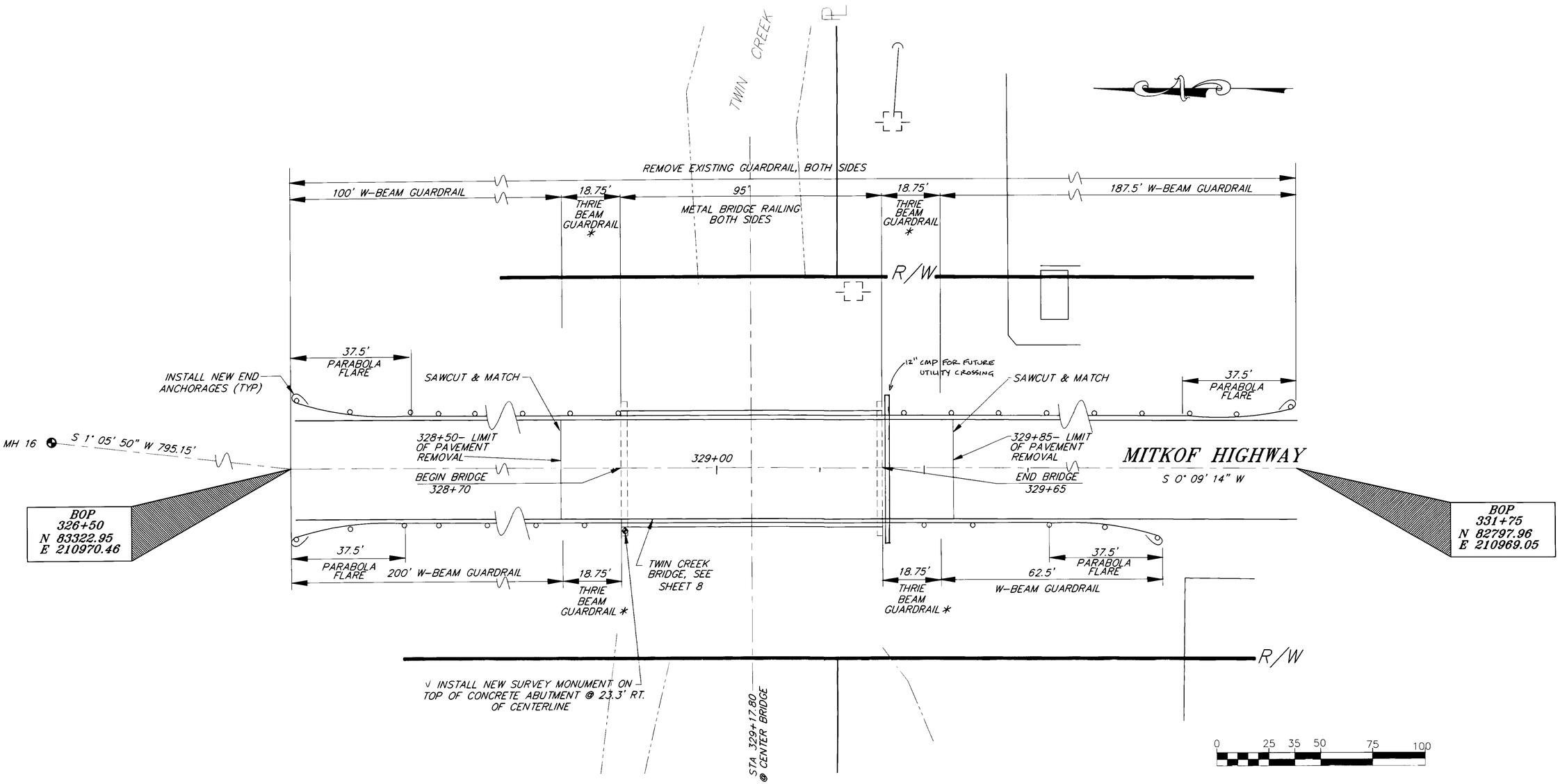
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
SOUTHEAST REGION DESIGN & CONSTRUCTION

PETERSBURG — *PSG- Twin Creek Culvert Replacement* — ALASKA
STP-0937 (26) ~ 71646
ESTIMATE OF QUANTITIES

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

DESIGNED BY: M. SHEELER	PROJECT NO. 71646
DRAWN BY: K. KLEMMETSON	DATE: 1995
CHECKED BY: A.J. STEININGER	SHEET 3 OF 16

STATE OF ALASKA — A.J. STEININGER — CE-6440 — REGISTERED PROFESSIONAL ENGINEER — 19th



* SEE STANDARD DRAWING G-29.01S FOR POST SPACING

BRIDGE RAILING & GUARDRAIL PLAN

AS-BUILT
BY: KK DATE: 7/27/99

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

P:\PSG\71646\$95\PLANSET\$GUARD

PATH: ~~P:\PSG\71646\DRY-GUARD~~ <PLOTF.PCP(1) OR PLOTH.PCP(2)>		
BY:	DATE:	DESCRIPTION OF CHANGE:
KK	7/27/99	AS-BUILT WITH CORRECTIONS

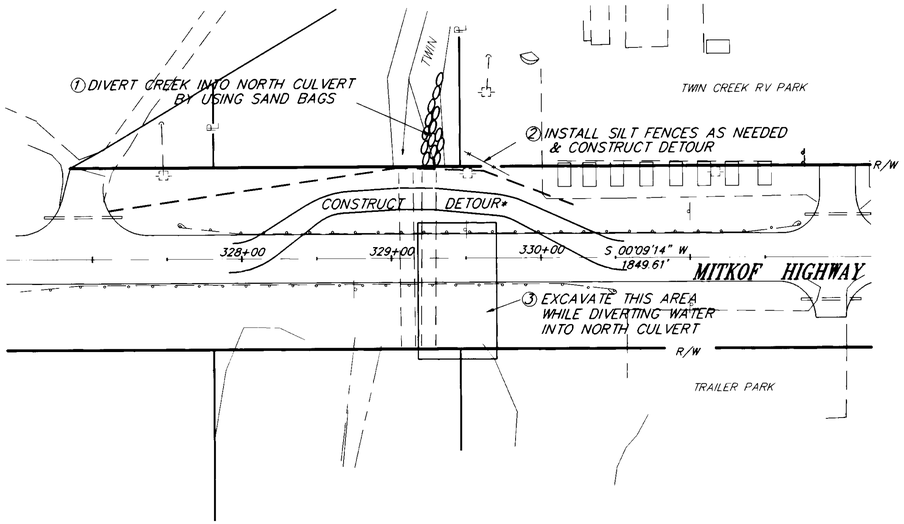
RECORD OF REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
SOUTHEAST REGION DESIGN & CONSTRUCTION

PETERSBURG — *PSG- Twin Creek Culvert Replacement* — ALASKA
STP-0937 (26) ~ 71646
BRIDGE RAILING & GUARDRAIL PLAN

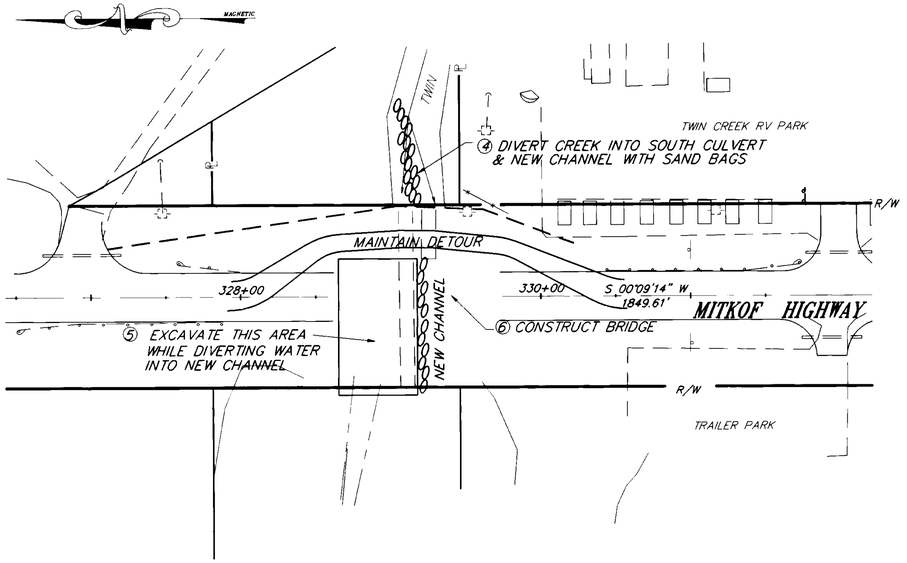
DESIGNED BY: *M. SHEELER*	PROJECT NO. *71646*
DRAWN BY: *K. KLEMMETSON*	DATE: *1995*
CHECKED BY: *A.J. STEININGER*	SHEET *4* OF *16*

STATE OF ALASKA
A.J. STEININGER
CE-6440
REGISTERED PROFESSIONAL ENGINEER



PHASE I EROSION AND SEDIMENT CONTROL PLAN

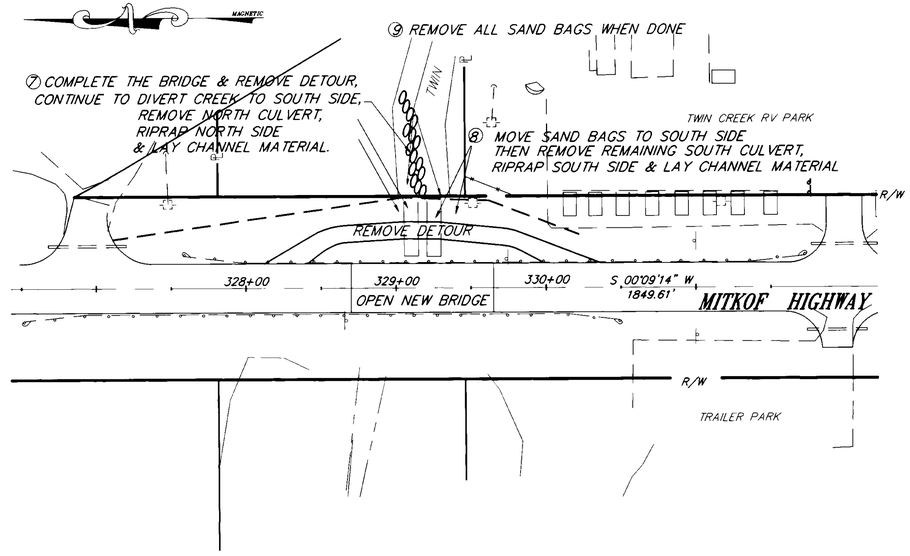
* SEE SHEET 6 FOR BRIDGE DETOUR



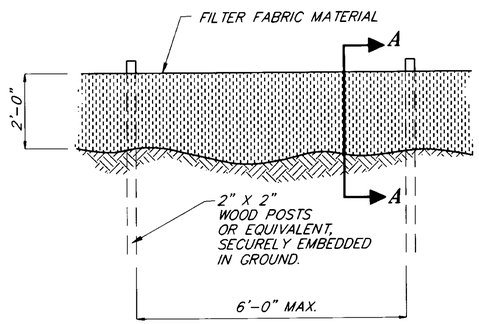
PHASE II EROSION AND SEDIMENT CONTROL PLAN

NOTE:

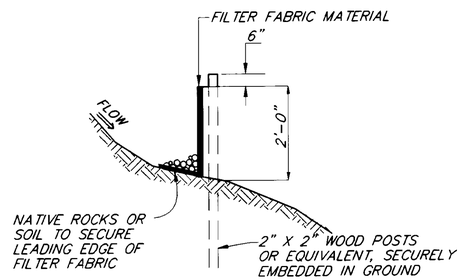
1. IN WATER WORK SHALL BE LIMITED TO THE PERIOD FROM JUNE 15 THRU SEPTEMBER 1.
2. IF IT BECOMES NECESSARY TO REMOVE WATER FROM AN EXCAVATION AREA, OR BEHIND A DAM, WATER SHALL BE PUMPED TO A VEGETATED AREA SITUATED A MINIMUM OF 50' FROM ANY STREAM.
3. REFER TO SECTION 641 OF THE SPECIAL PROVISIONS FOR CONSTRUCTION SEQUENCE.
4. SAND BAGS & SAND BAG MATERIAL SHALL BE INCIDENTAL TO ITEM 641(2)



PHASE III EROSION AND SEDIMENT CONTROL PLAN



ELEVATION



SECTION A–A

SILT FENCE DETAILS

AS-BUILT
BY: KK DATE: 7/27/99

NOTE: DO NOT SCALE FROM THESE PLANS–USE DIMENSIONS

P:\PSG\71646\95\PLANSET\# EROSED

PATH: P:\PSG\71646\DR\-EROSED PLOTF.PCP(50) OR PLOTH.PCP(100)		
BY:	DATE:	DESCRIPTION OF CHANGE:
K.K.	7/27/99	AS-BUILT

RECORD OF REVISIONS

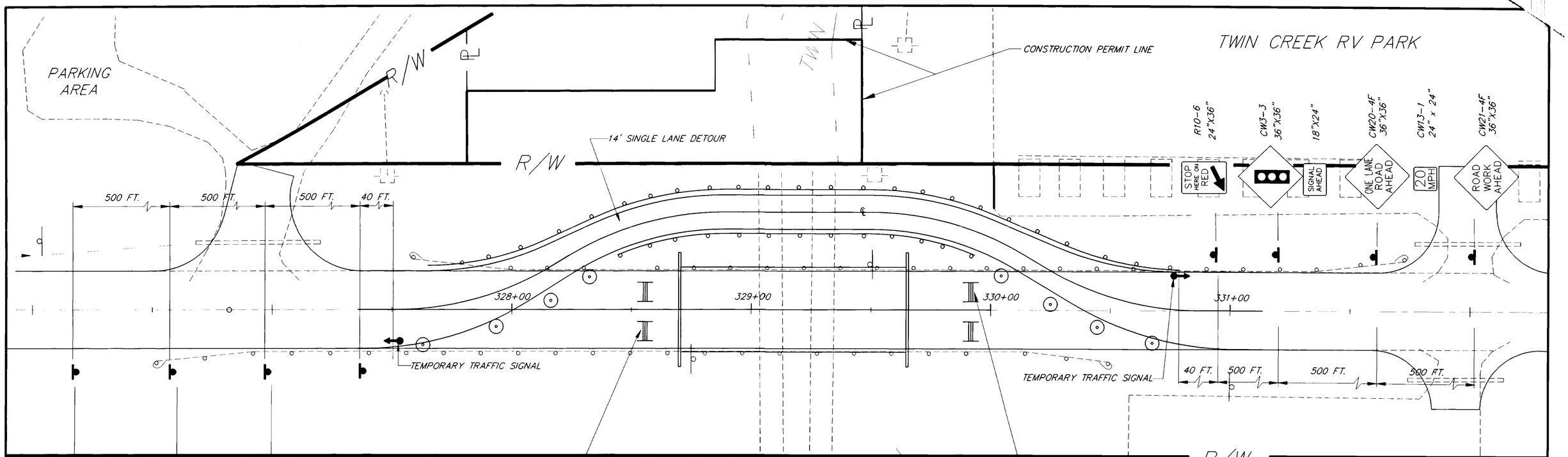
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
SOUTHEAST REGION DESIGN & CONSTRUCTION

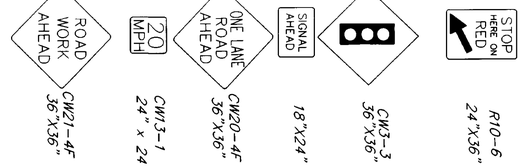
Petersburg — *PSG–Twin Creek Culvert Replacement* STP–0937 (26) 71646 — Alaska

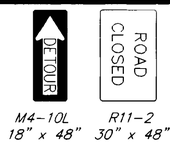
EROSION AND SEDIMENT CONTROL

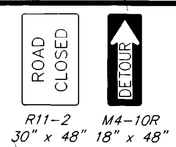
DESIGNED BY: *M. SHEELER*	PROJECT NO. *71646*
DRAWN BY: *K. KLEMMETSON*	DATE: *1995*
CHECKED BY: *A.J. STEININGER*	SHEET *5* OF *16*

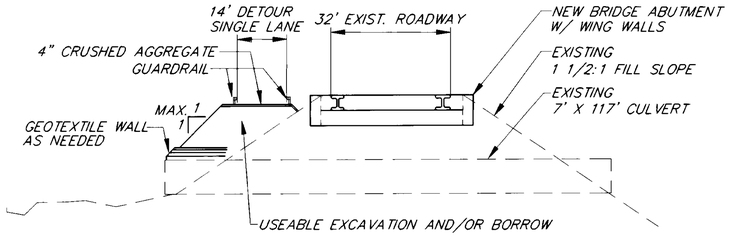
STATE OF ALASKA — A.J. STEININGER — CE-6440 — REGISTERED PROFESSIONAL ENGINEER











TYPICAL DETOUR SECTION

LEGEND

- ..... SIGN
- ..... CONE
- ..... DRUM
- ..... TYPE III BARRICADE
- ..... FLAGGING STATION
- ..... TEMPORARY TRAFFIC SIGNAL

NOTES

1. SEE SECTION 643-3.02 OF THE SPECIAL PROVISIONS FOR DETOUR DESIGN CRITERIA.
2. A MINIMUM OF ONE LANE OF TRAFFIC SHALL BE MAINTAINED THROUGH THE WORK AREA AT ALL TIMES.
3. FLOOD LIGHTS SHALL BE PROVIDED FOR FLAGGER STATIONS DURING NIGHT OPERATIONS.
4. CHANNELIZATION DEVICES IF USED AT NIGHT SHALL BE LIT IN ACCORDANCE WITH THE ALASKA TRAFFIC MANUAL.
5. CONSTRUCTION SIGNS SHALL BE DIAMOND GRADE (SCOTCHLITE ORANGE 3924F OR APPROVED EQUAL).
6. GUARDRAIL FOR THE TEMPORARY DETOUR SHALL TIE BACK INTO EXISTING GUARDRAIL. SALVAGED GUARDRAIL IF UNDAMAGED, MAY BE USED.
7. DRIVEWAYS MAY BE CLOSED DURING ACTUAL WORK ON A GIVEN DRIVEWAY, PROVIDED THAT THE CLOSURE DOES NOT EXCEED 8 HOURS AND THE AFFECTED RESIDENTS HAVE BEEN GIVEN 24 HOURS NOTICE OF THE CLOSURE.
8. IT IS THE INTENT OF THIS TRAFFIC CONTROL PLAN (TCP) TO ILLUSTRATE SOME, NOT ALL, OF THE TRAFFIC CONTROL SETUPS WHICH WILL BE REQUIRED ON THIS PROJECT. PLANS FOR CONFIGURATIONS NOT COVERED BY THE TCP SHALL BE CREATED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR APPROVAL. WHERE APPROPRIATE, THEY SHALL INCORPORATE APPLICABLE PORTIONS OF DETAILS ON THESE SHEETS.

AS-BUILT
BY: KK DATE: 7/27/99

P:\PSG\71646\95\PLANSET\#TCP

PATH: ~~A:\PSG\71646\DR\ TCP~~ < PLOTH.PCP(20) OR PLOTH.PCP(40) >

BY:	DATE:	DESCRIPTION OF CHANGE:
K.K.	7/27/99	AS BUILT

RECORD OF REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
SOUTHEAST REGION DESIGN & CONSTRUCTION

JUNEAU ALASKA

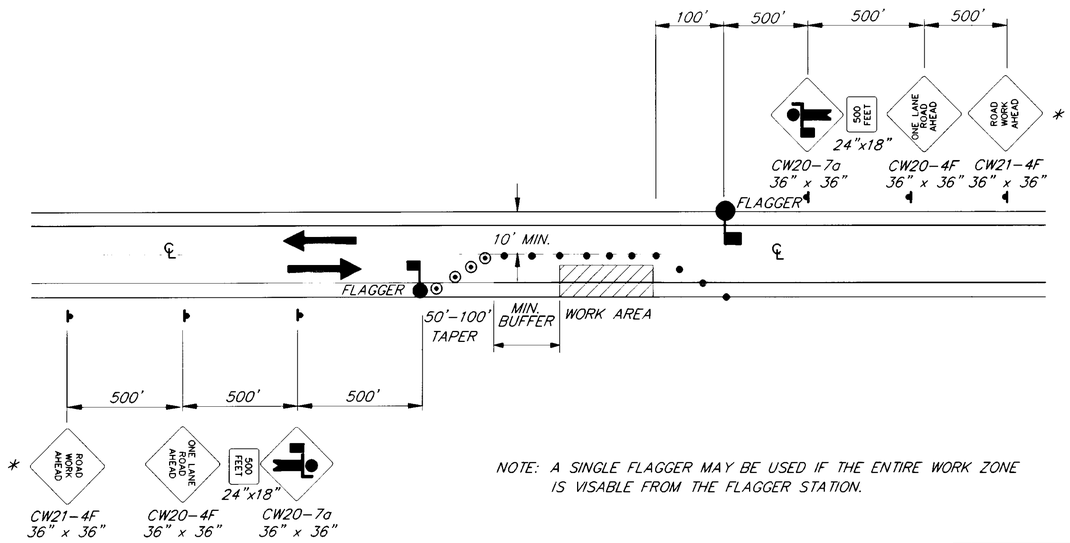
PSG- Twin Creek Culvert Replacement
STP-0937 (26) ~ 71646

TRAFFIC CONTROL PLAN BRIDGE DETOUR

DESIGNED BY: K. MATTSON	PROJECT NO. 71646
DRAWN BY: K. MATTSON	DATE: 1995
CHECKED BY: K. SMITH	SHEET 6 OF 16

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

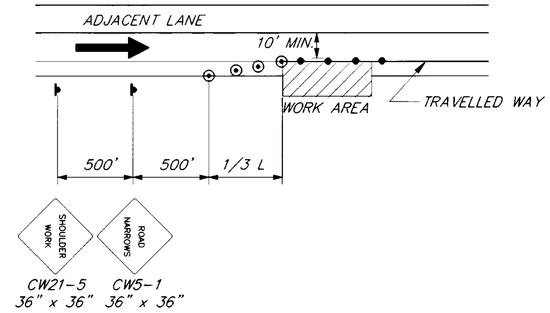
STATE OF ALASKA 7/21/95 49th KURT SMITH CE-7347 REGISTERED PROFESSIONAL ENGINEER



NOTE: A SINGLE FLAGGER MAY BE USED IF THE ENTIRE WORK ZONE IS VISABLE FROM THE FLAGGER STATION.

SINGLE LANE CLOSURE
TWO LANE ROAD

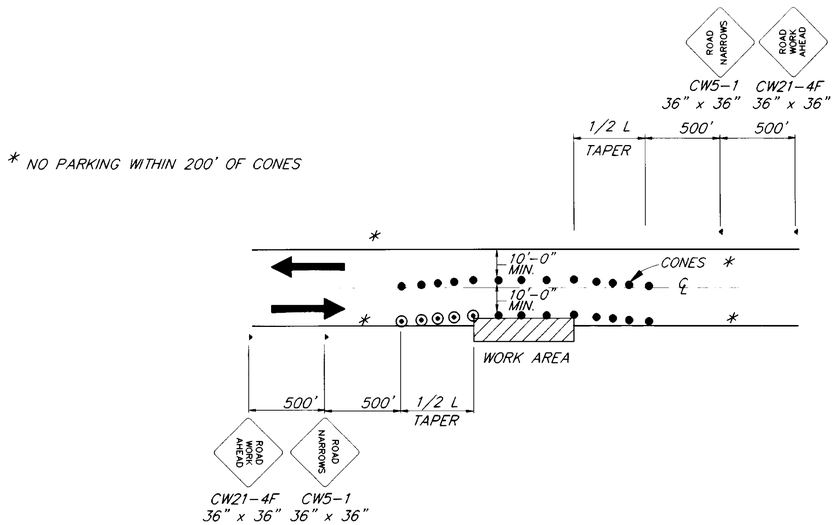
* DENOTES PERMANENT CONSTRUCTION SIGNING ALREADY INSTALLED.



SHOULDER WORK

LEGEND

- ..... SIGN
- ..... CONE
- ..... DRUM
- ..... TYPE III BARRICADE
- ..... FLAGGING STATION



ROADWAY ENCROACHMENT

NOTE: IF ONLY ONE LANE IS EFFECTED BY ROAD WORK (THAT IS, THE CONES ALONG THE WORK AREA ARE NO CLOSER THAN 10' TO CENTERLINE) THE CENTERLINE CONES FOR THE OPPOSING LANE MAY BE DELETED.

FORMULAS FOR L (TAPER LENGTH)

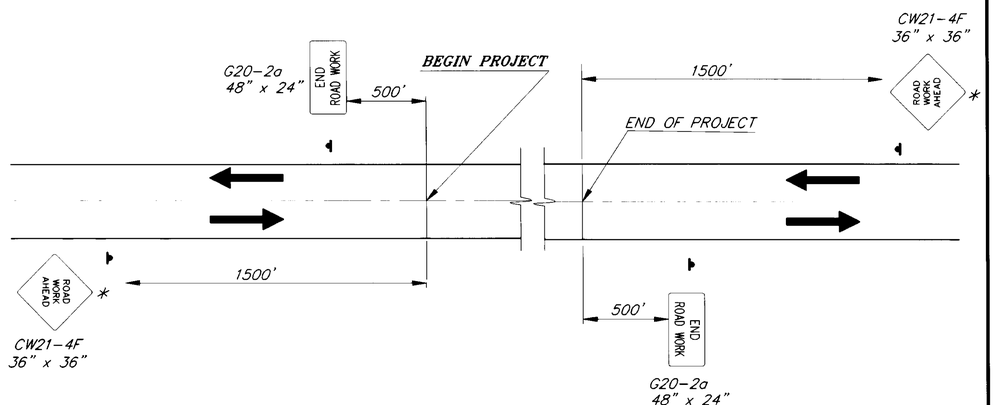
40 MPH OR LESS $L = \frac{WxS^2}{60}$

45 MPH OR GREATER $L = WxS$

WHERE W= WIDTH OF OFFSET
S= POSTED SPEED LIMIT OR ANTICIPATED OPERATING SPEED

DRUM OR CONE SPACING = S (IN FEET)

MIN. BUFFER	
S	LENGTH
20	35
25	55
30	85
35	120
40	170
45	220
50	280
55	335
60	415
65	485



PERMANENT CONSTRUCTION SIGNING

AS-BUILT
BY: KK DATE: 7/27/99

NOTE: DO NOT SCALE FROM THESE PLANS-USE DIMENSIONS

P:\PSG\71646\DRA\Planset\BTCP2

PATH: ~~P:\PSG\71646\DRA\TCP2~~ < PLOTH.PCP(1) OR PLOTH.PCP(2) >		
BY:	DATE:	DESCRIPTION OF CHANGE:
K.K.	7/27/99	AS-BUILT

RECORD OF REVISIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
SOUTHEAST REGION DESIGN & CONSTRUCTION

PETERSBURG — ALASKA

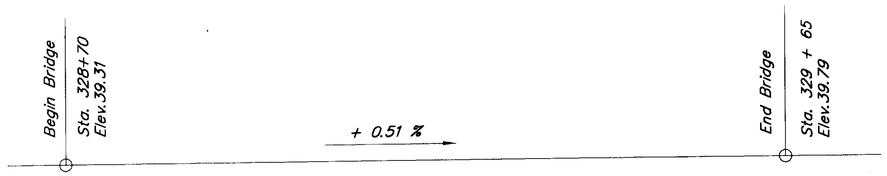
PSG-Twin Creek Culvert Replacement
STP-0937 (26) ~ 71646

TRAFFIC CONTROL PLAN

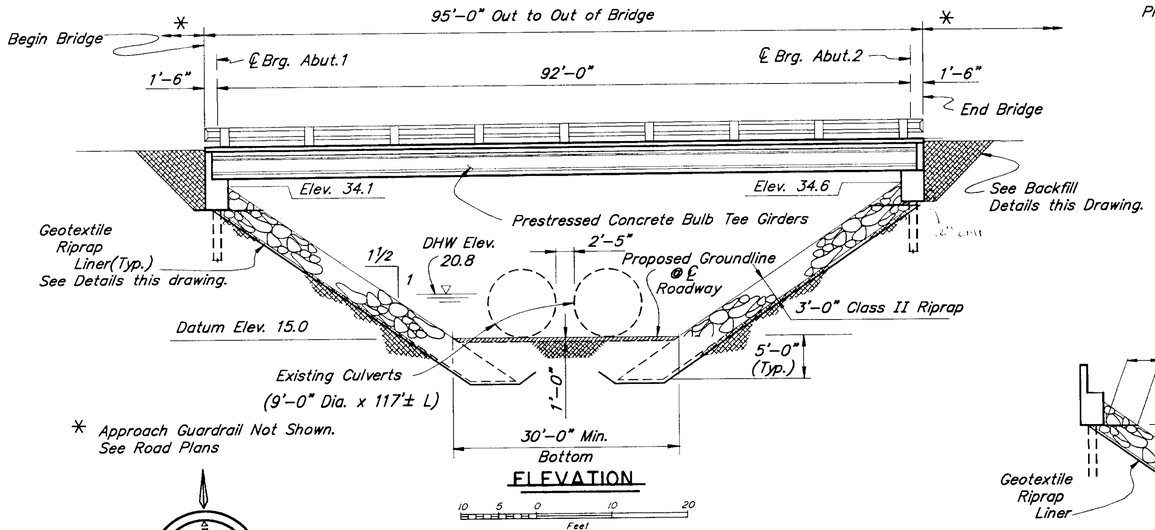
DESIGNED BY: K. MATTSON	PROJECT NO. 71646
DRAWN BY: K. MATTSON	DATE: 1995
CHECKED BY: K.SMITH	SHEET 7 OF 16

STATE OF ALASKA 7/21/99 49th Kurt Smith CE-7347 REGISTERED PROFESSIONAL ENGINEER

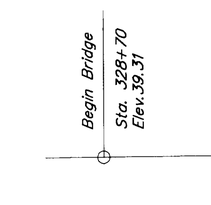
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	STP-0937(26)/71646	1995	8	16

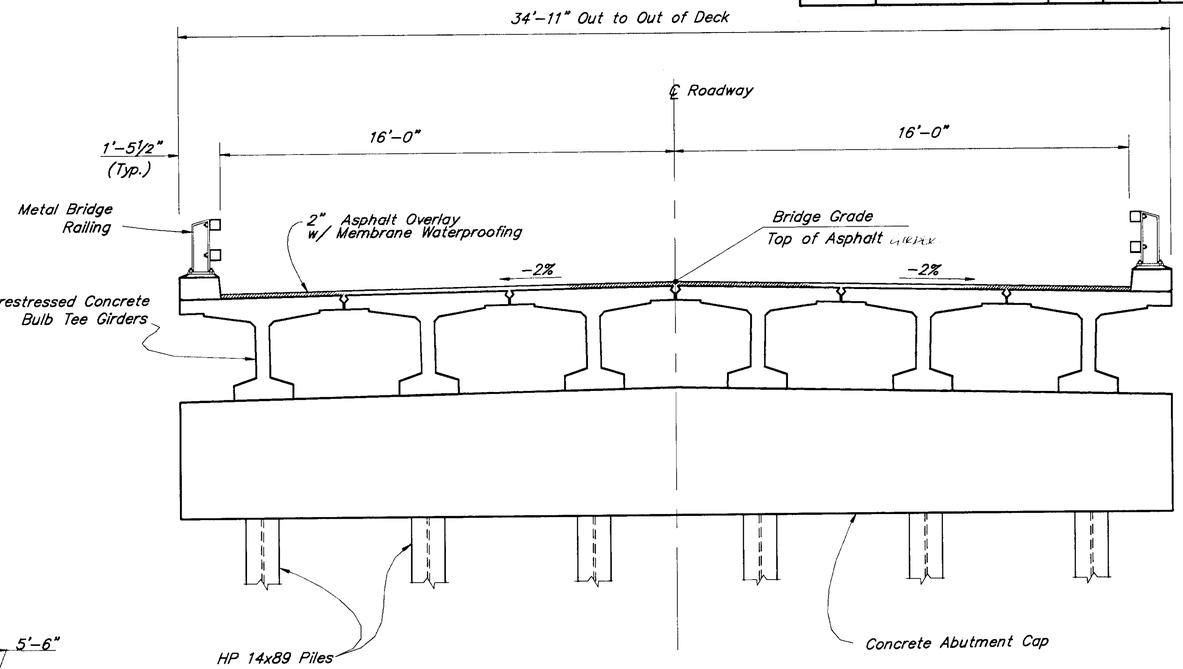


GRADE DATA



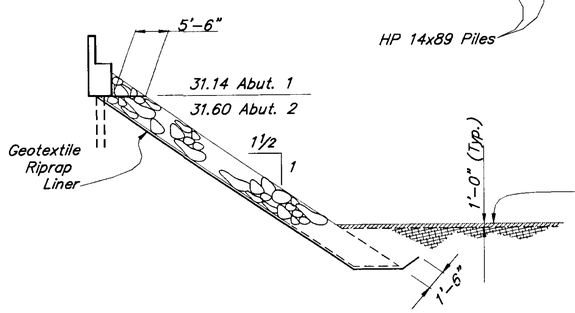
ELEVATION





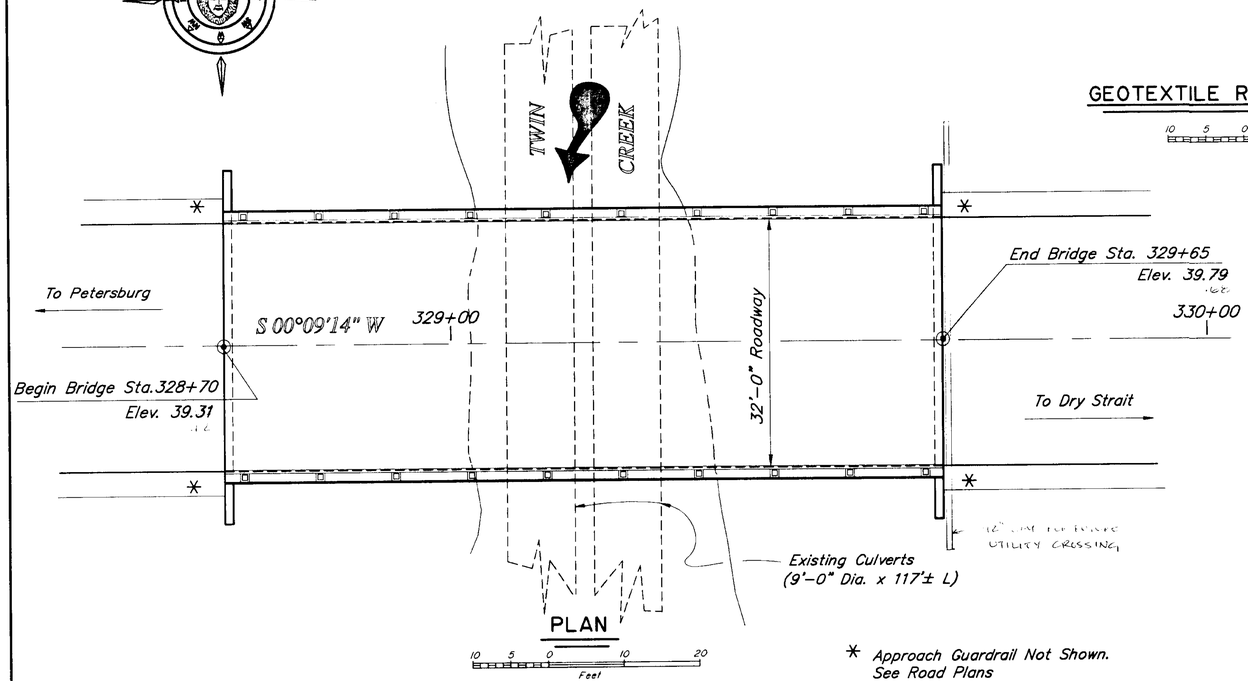
TYPICAL SECTION

12 0 1 2 3 4
In. Feet

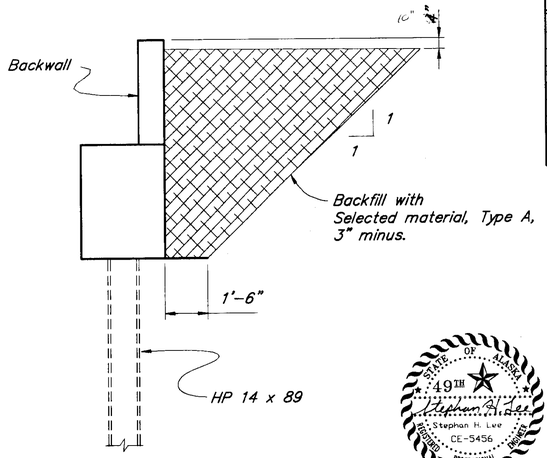


GEOTEXTILE RIPRAP LINER DETAIL

10 5 0 10 20
Feet



PLAN



BACKFILL DETAIL

Typical at Abutments

12 0 1 2 3 4
In. Feet

DRAWING INDEX

TITLE	DWG. NO.
GENERAL LAYOUT	1
SITE PLAN	2
ABUTMENTS	3
TYPICAL SECTION	4
GIRDERS	5
GIRDER DETAILS	6
METAL BRIDGE RAILING	7
TEST HOLE LOGS & LOCATIONS	8 - 9

STATE OF ALASKA 49TH PROFESSIONAL ENGINEER
Stephan H. Lee
CE-5456
7/17/95

Designed By: SHL
Detail Check By: EEM
Design Check By: EEM

P:\960\P:\960\960-1
7/17/1995 8.58
Plot Scale = 20.00
Drawn or Revised By: GJW

TWIN CREEK BRIDGE

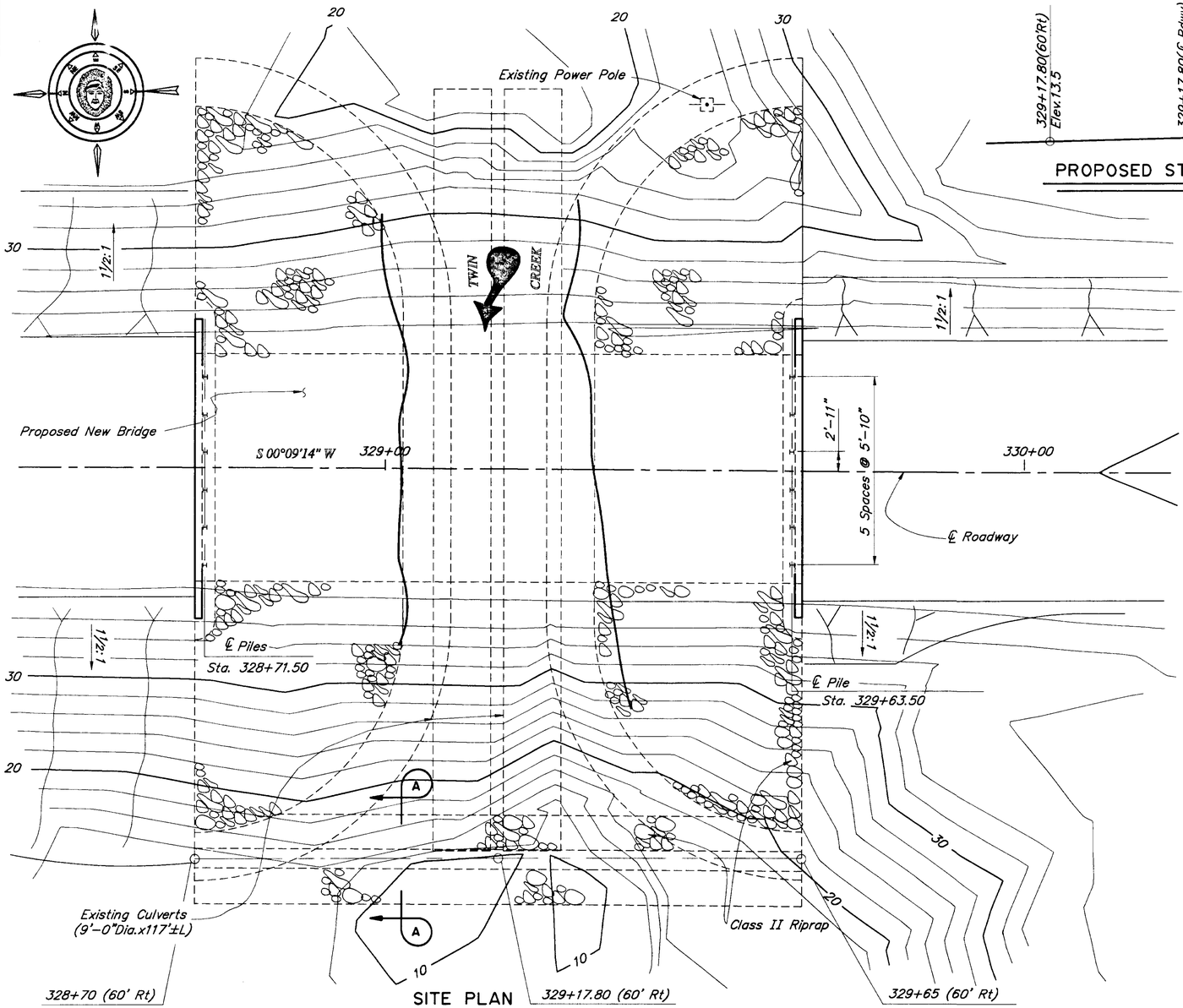
Route No. FAS 937

GENERAL LAYOUT

STATE of ALASKA
DEPARTMENT of TRANSPORTATION and PUBLIC FACILITIES
JUNEAU, ALASKA

BRIDGE NO. 960
DWG. NO. 1

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	STP-0937(26)/71646	1995	9	16



SITE PLAN

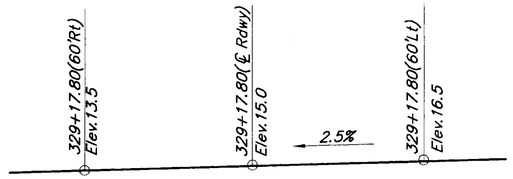
10 5 0 10 20
Feet

SECTION A-A

No Scale

* Backfill Stream Channel with ⅜" Pea Gravel or Selected Material, Type A, ¾" minus washed river gravel.

Note: The water surface elevation of the intertidal pool immediately downstream of the existing culverts was measured on 6/6/95 at approximately 11:00 am. (Low Tide = 2.2 @ 1:26 pm.)



PROPOSED STREAM PROFILE

GENERAL NOTES

SPECIFICATIONS:

Design: AASHTO Standard Specifications for Highway Bridges, 1992 edition with latest Interim Specifications.

Construction: State of Alaska Standard Specifications for Highway Construction 1988, with Standard Modifications and Special Provisions.

Live Load: HS-25

Dead Load: Includes 25 psf for future paving.

DESIGN UNIT STRESSES:

Cast-in-Place Concrete: f'c = 3,000 psi
Fy = 60,000 psi

Prestressed Concrete: See Girder Details.

Structural Steel: A36: Fy = 36,000 psi
Fs = 20,000 psi

STRUCTURAL MATERIALS:

Concrete: All cast-in-place concrete shall be Class A.

Reinforcing Steel: All reinforcing steel shall be ASTM A615, Grade 60.

Structural Steel: All structural steel shall be galvanized A36, unless otherwise noted.

Girder steel shear connectors shall be furnished in black iron finish.

All other structural steel embedded in or attached to concrete girders shall be galvanized.

Piling: All abutment piles shall be HP14x89, ASTM A572, Grade 50. Provide pile tip reinforcing as shown - See Dwg. No. 3.

STANDARD DRAWINGS:

The following standard drawings apply to the bridge: G-04.04S, G-09.01S, G-14.04S, G-18.00S and G-29.01S.

ESTIMATE OF QUANTITIES

ITEM NO.	ITEM	UNIT	SUBST.	SUPERST.	TOTAL
202(4)	Removal of Culvert Pipe	LS/LF	234	———	234
203(3)	Unclassified Excavation	LS/CY	5100	———	5100
203(6)	Borrow	Ton	670	———	670
401(1)	Asphalt Concrete Pavement	LS/Ton	———	39.2	39.2
401(2)	Asphalt Cement	LS/Ton	———	2.4	2.4
501(1)	Class A Concrete	LS/CY	41.8	9.9	51.7
502(1)	Prestressed Concrete Structural Members (93'-2" Bulb Tees)	EA	———	6	6
503(1)	Reinforcing Steel	LS/LBS	3570	3200	6770
505(5)	Structural Steel Piles, Furnished (HP14x89)	LF	432	———	432
505(6)	Structural Steel Piles, Driven (HP14x89)	EA	12	———	12
507(1)	Metal Bridge Railing	LF	———	190	190
508(1)	Membrane Waterproofing	LS	———	———	All Req'd
606(2)	Thrie Beam Guardrail	LF	———	75	75
611(1)	Riprap, Class II	CY	990	———	990
631(2)	Geotextile, Erosion Control, Class A	SY	1330	———	1330
643(30)	Bridge Detour Crossing	LS	———	———	All Req'd

Item numbers are for reference only. Quantities shown are not necessarily the pay quantities nor the total quantity of the particular item. Reinforcing steel lap lengths are not included in the quantity shown.

HYDRAULIC & HYDROLOGIC SUMMARY

Flood Frequency (yr)	50	100	500
Exceedance Probability (%)	2	1	0.2
Design Discharge (cfs)	923	1030	1260
Design High Water (ft)	20.8	21.0	21.5
Anticipated Additional Backwater (ft)	0.0	0.0	
Contraction Scour (ft.)		0	0
Abutment Scour (ft.)		5	5

Drainage Area for this crossing: 3.0 Square Miles.
Additional backwater estimated immediately upstream of existing structure.
Hydraulic Capacity: 11,200 cfs at Low Superstructure Elevation which has an exceedance probability less than .2% (Q500).

Datum: Mean Lower Low Water = 0.0 ft.
Mean High Water = 14.8 ft.

STATE OF ALASKA 49TH — Mark D. Miles No. CE-7558 7/17/95 — REGISTERED PROFESSIONAL ENGINEER

STATE OF ALASKA 49TH — Stephan H. Lee No. CE-5456 — REGISTERED PROFESSIONAL ENGINEER

7/17/95

Designed By: SHL
Detail Check By: EEM
Design Check By: EEM

P:\960\P\960\960-2
7/11/1995 9:46
Plot Scale = 20.00
Drawn or Revised By: GJW

TWIN CREEK BRIDGE

Route No. FAS 937

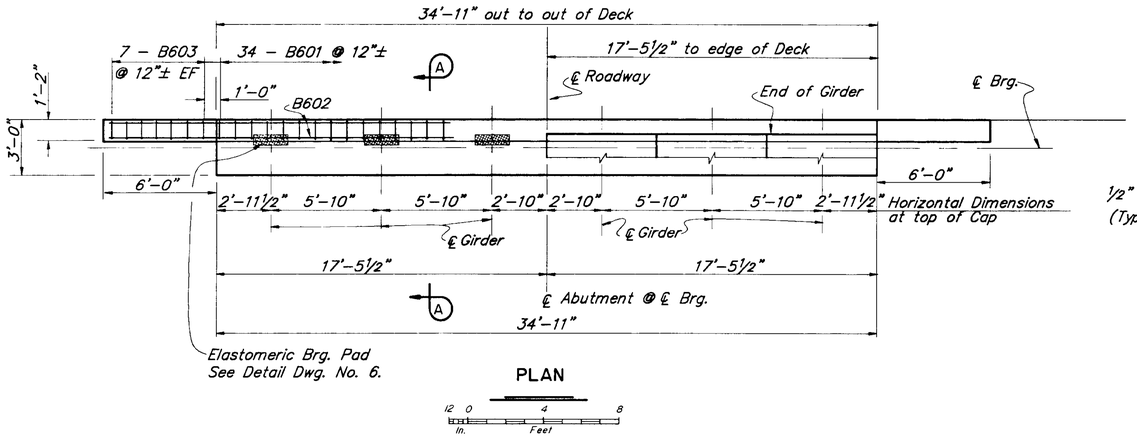
SITE PLAN

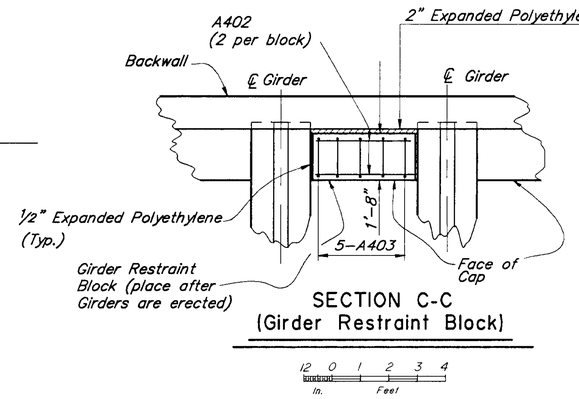
STATE of ALASKA
DEPARTMENT of TRANSPORTATION and PUBLIC FACILITIES
JUNEAU, ALASKA

BRIDGE NO. 960

DWG. NO. 2

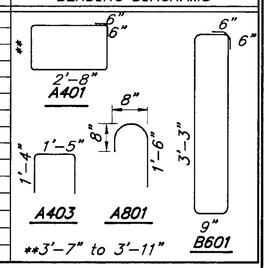
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	STP-0937(26)/71646	1995	10	16





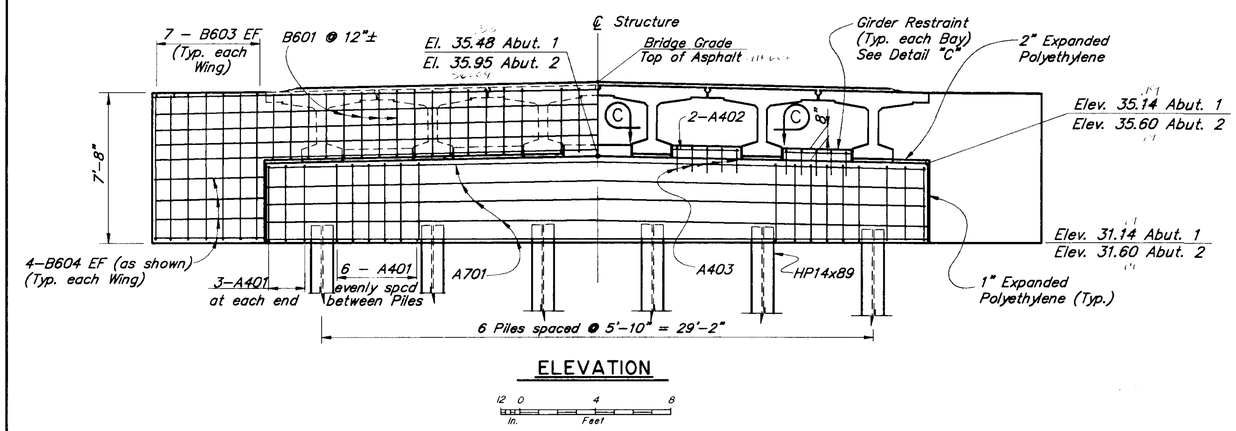
REINFORCING SCHEDULE-EACH ABUTMENT

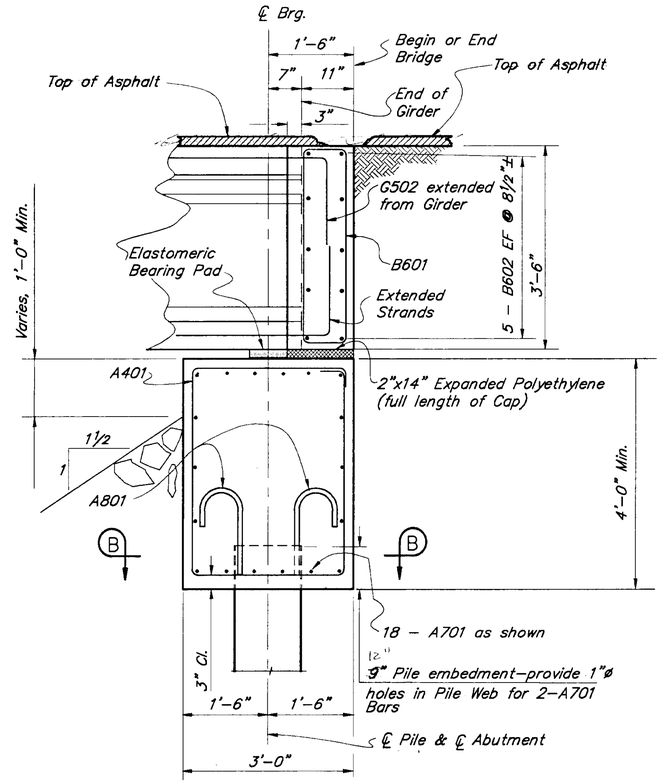
	MARK	SIZE	NO.	LENGTH	TYPE	BENDING DIAGRAMS
	A401	4	36	Varies	Bent	
	A402	4	10	3'-5"	——	
	A403	4	25	4'-1"	Bent	
a	B601	6	34	9'-0"	Bent	
b	B602	6	10	46'-7"	——	
	B603	6	28	7'-3"	——	
	B604	6	16	5'-8"	——	
	A701	7	18	34'-7"	——	
	A801	8	12	2'-9"	Bent	

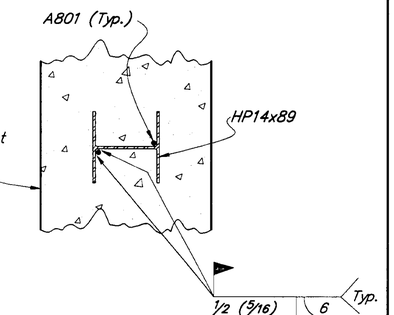


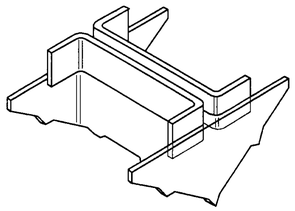
a – Epoxy coated
b – Epoxy coat two top bars.

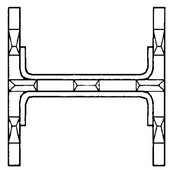
Bar length excludes lap splice length
Lap splice length: B602 = 2'-6", A701 = 3'-0"



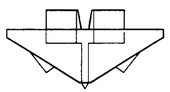








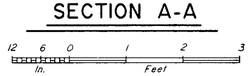
PILE TIP REINFORCEMENT



Alternate pile tip reinforcement designs of standard manufacture may be submitted for approval.

PILE TIP ELEVATIONS & PILE DESIGN LOAD				
	Desirable	Estimated	Design Load	Ult. Brg. Cap
Abut. 1	1.0	-4.0	80 Tons	200 Tons
Abut. 2	1.0	-4.0	80 Tons	200 Tons

GIRDER SEAT ELEVATIONS Top of Abutment Cap @ ℄ Bearing		
	Abut. 1	Abut. 2
Girder A	35.19	35.66
Girder B	35.31	35.78
Girder C	35.43	35.89
Girder D	35.43	35.89
Girder E	35.31	35.78
Girder F	35.19	35.66



Designed By: SHL
Detail Check By: EEM
Design Check By: EEM

P:\960\P\960\960-3
6/8/1995 13:8
Plot Scale = 4.00
Drawn or Revised By: GJW

TWIN CREEK BRIDGE

ROUTE NO. FAS 937

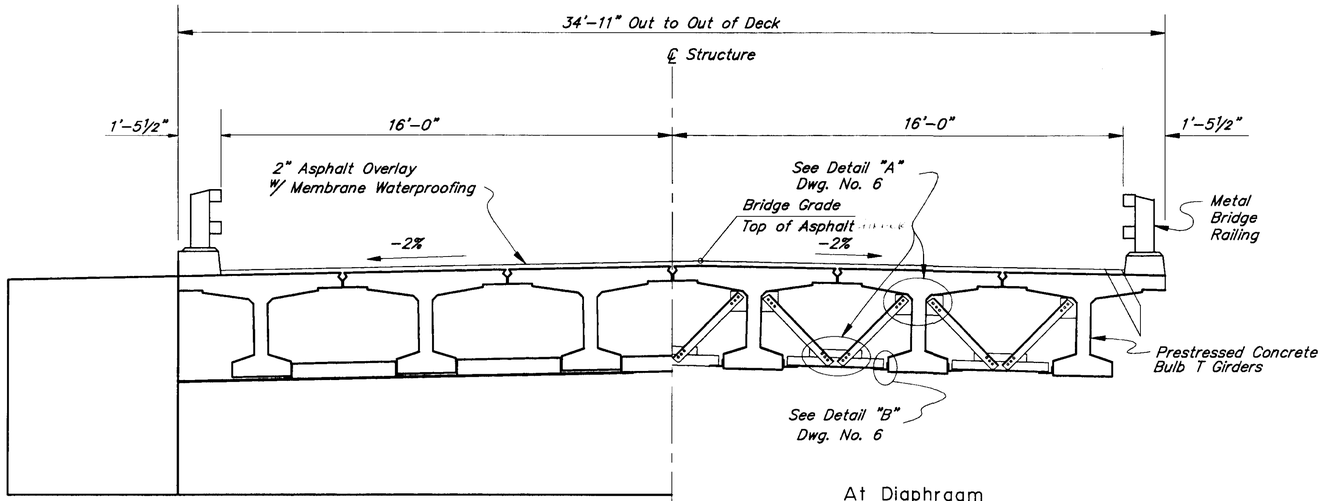
ABUTMENTS

STATE of ALASKA
DEPARTMENT of TRANSPORTATION and PUBLIC FACILITIES
JUNEAU, ALASKA

BRIDGE NO. 960

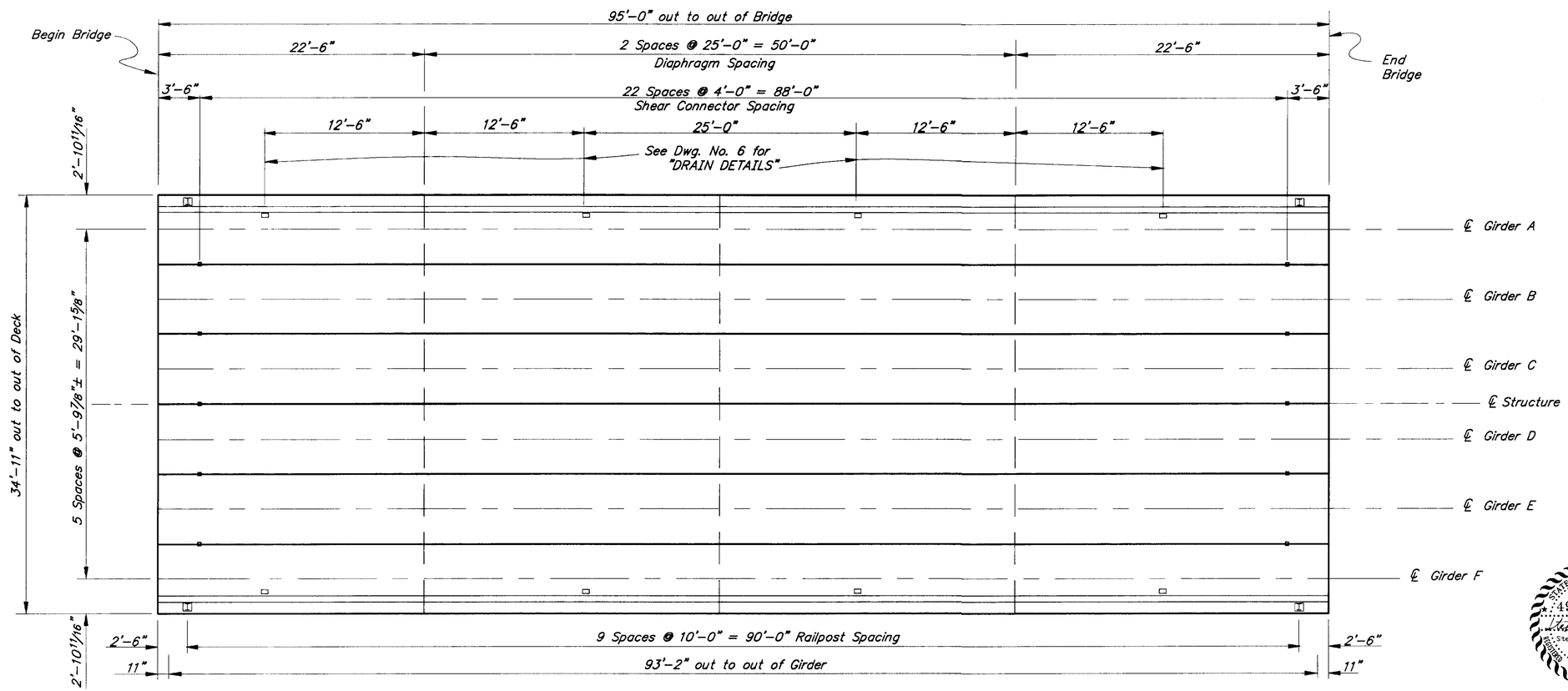
DWG. NO. 3

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	STP-0937(26)/71646	1995	11	16



TYPICAL SECTION

12 0 1 2 3 4
In. Feet



FRAMING PLAN

No Scale

STATE OF ALASKA 49TH
Stephan H. Lee
CE-5456
REGISTERED PROFESSIONAL ENGINEER
7/17/95

Designed By: SHL
Detail Check By: EEM
Design Check By: EEM

P:\960\P\960\960-4
5/25/1995 8:20
Plot Scale = 2.67
Drawn or Revised By: GJM

TWIN CREEK BRIDGE

ROUTE NO. FAS 937

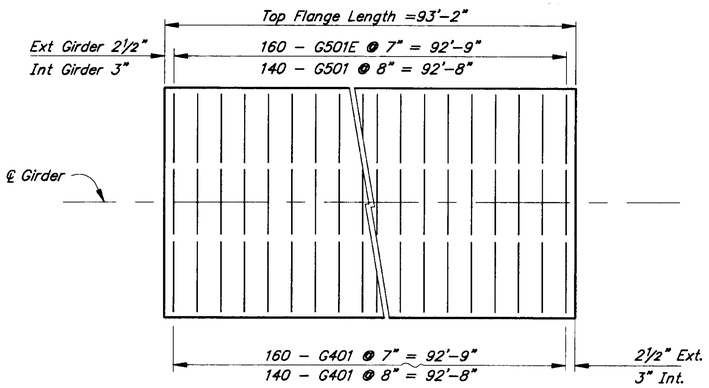
TYPICAL SECTION

STATE of ALASKA
DEPARTMENT of TRANSPORTATION
and PUBLIC FACILITIES
JUNEAU, ALASKA

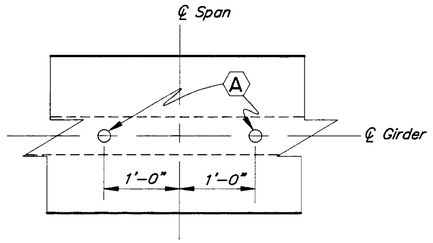
BRIDGE NO. 960

DWG. NO. 4

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	STP-0937(26)/71646	1995	12	16



PLAN

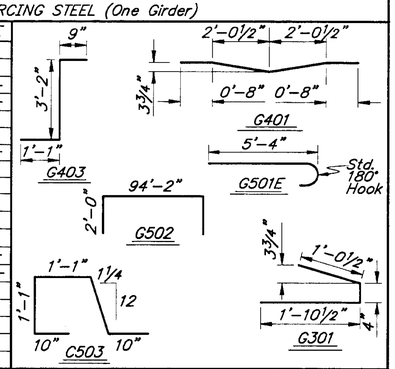


COIL ANCHOR LAYOUT

No Scale

a REINFORCING STEEL (One Girder)

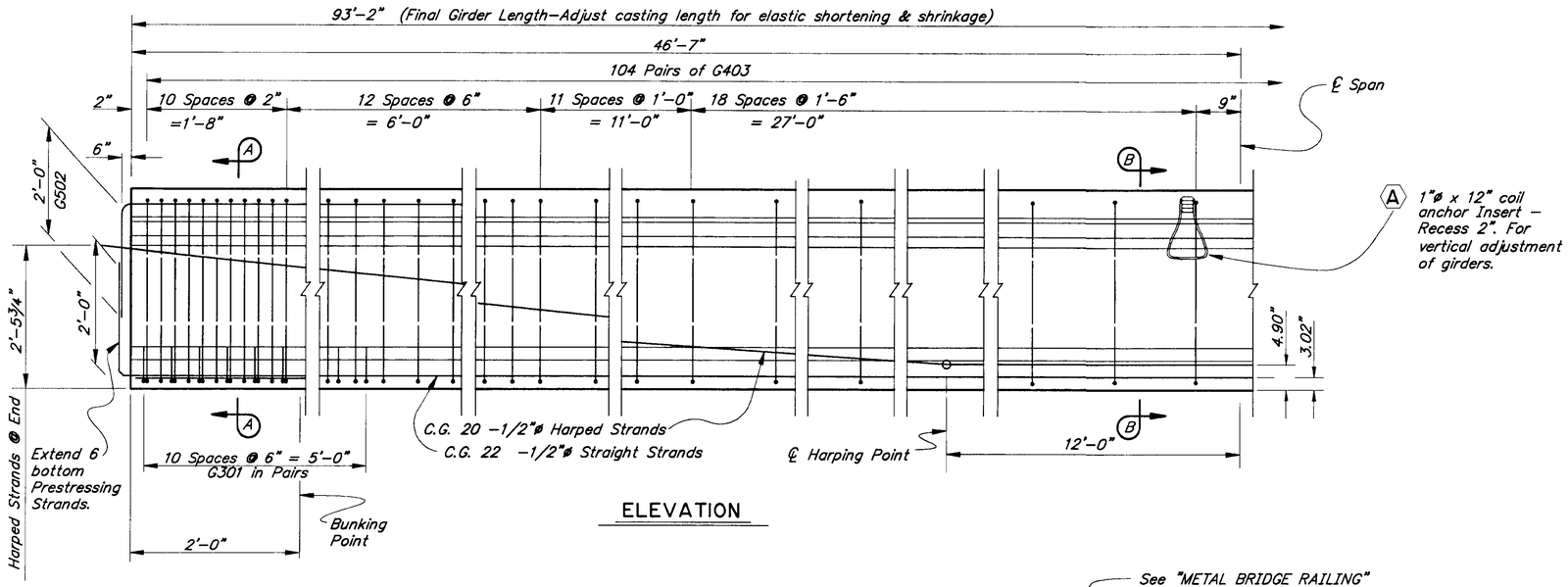
	MARK	SIZE	NO.	LENGTH	TYPE
	G401	4	140	5'-5"	Bent
c	G401	4	160	5'-5"	Bent
b	G402	4	8	92'-10"	——
b,c	G402	4	8	92'-10"	——
	G403	4	208	5'-0"	Bent
	G501	5	140	5'-4"	——
c	G501E	5	160	5'-11"	Bent
b	G502	5	8	98'-2"	Bent
b,c	G502	5	8	98'-2"	Bent
b,c,d,e	C501	5	2	94'-8"	——
c,d,e	C502	5	20	3'-6"	——
c,e	C503	5	134	4'-11"	Bent
	G301	3	44	3'-3"	Bent



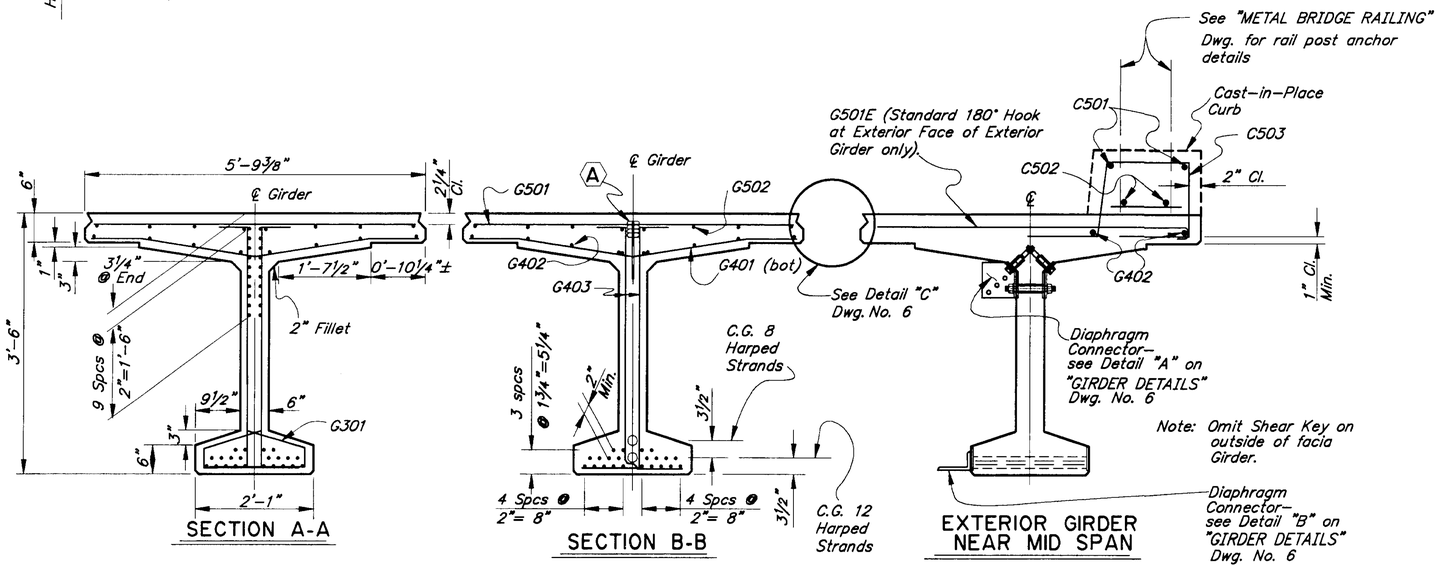
DECK REINFORCING REQUIRED
(Including Contractor Proposed Alternate)

	BAR	GIRDER WIDTH ≤ 6.0'	6.0–6.5	6.5–7.0	7.0–7.5	7.5–8.0	8.0–8.5
Interior	G401 Spaced at	8"	7"	6½"	6"	5 ¾"	5½"
	G402 No. of bars	8	10	10	10	12	14
	G501 Spaced at	8"	7"	6½"	6"	5 ¾"	5½"
	G502 No. of bars	8	10	10	10	12	14
Exterior	G401 Spaced at	7"	6"	5½"	5"	4½"	4"
	G402 No. of bars	8	10	12	14	16	16
	G501 Spaced at	7"	6"	5½"	5"	4½"	4"
	G502 No. of bars	8	10	12	14	16	16

a – Epoxy coat all girder reinforcing.
b – Length does not include splices. Minimum lap length for splices shall be 1'-3" for No. 4 bars and 1'-5" for No. 5 bars.
c – Exterior Girder Only
d – Ship loose.
e – One curb



ELEVATION



Note:
Girder manufacturer to furnish & install all diaphragm connector brackets for detail 'A' before shipping girder.

GIRDER NOTES:

Alternative designs are allowed per Section 502 of the Specifications.

Concrete for girders shall be normal weight having the following strengths: At Stress Transfer f'_{ci} = 6000 psi; At 28 Days f'_c = 7000 psi

All prestressing shall be ½" round low relaxation strands having an ultimate strength of 270 ksi, and an area of 0.153 sq. in.

Design is based on the following Steel Stresses:
Pretensioning – Jacking Stress 189 ksi
After Losses 149 ksi

One inch clear on all reinforcing except as noted.

All structural steel embedded in girders shall be A36, unless otherwise noted. All structural steel except shear connectors shall be galvanized after fabrication.

Approximate girder weight = 92.4 kips.

Deflect forms to match grade & compensate for camber – see Specifications. The roadway surface of precast members shall have a wood or magnesium float finish. Surface under railing curbs shall be roughened.

Girder pay items shall include the cost of epoxy coated reinforcing steel and all structural steel required.

All girders shall have recessed coil anchor inserts as shown for field leveling girders during installation.

STATE OF ALASKA 49TH
Stephan H. Lee
Stephan H. Lee CE-5456
REGISTERED PROFESSIONAL ENGINEER
7/17/95

TWIN CREEK BRIDGE

ROUTE NO. FAS 937

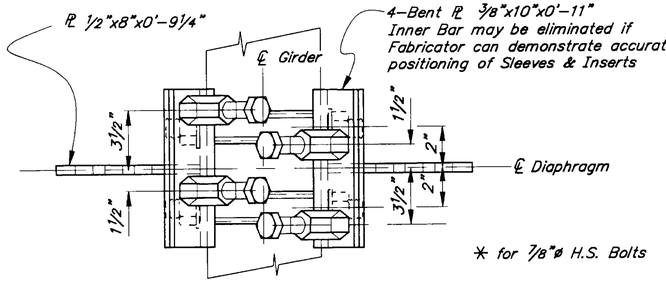
GIRDERS

STATE of ALASKA
DEPARTMENT of TRANSPORTATION and PUBLIC FACILITIES
JUNEAU, ALASKA

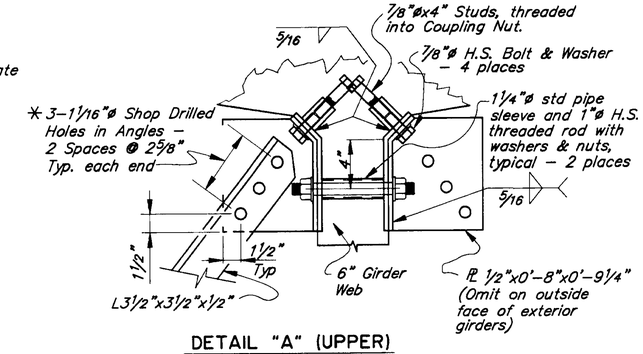
BRIDGE NO. 960
DWG. NO. 5

Designed By: SHL
Detail Check By: EEM
Design Check By: EEM
P:\960\P\960\960-5
6/6/1995 13:17
Plot Scale = 1.00

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	STP-0937(26)/71646	1995	13	16

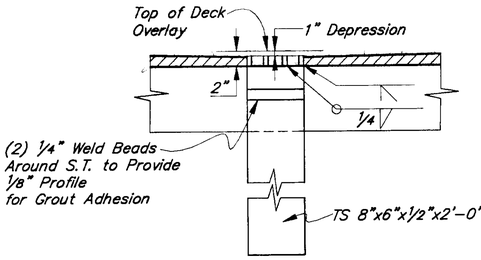


PLAN VIEW DETAIL "A"



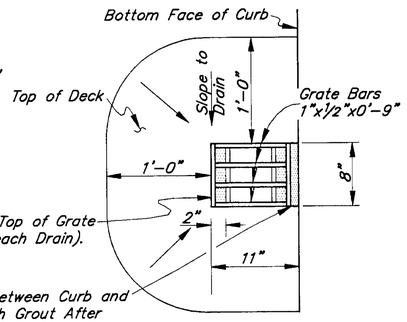
DETAIL "A" (UPPER)

No Scale



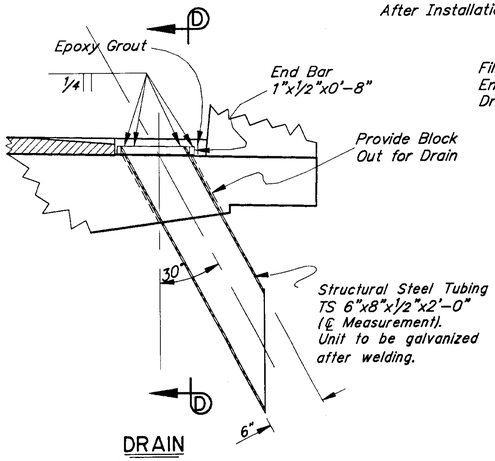
SECTION D-D

NO SCALE



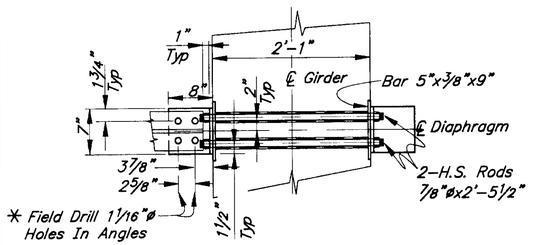
DECK DRAIN PLAN

NO SCALE

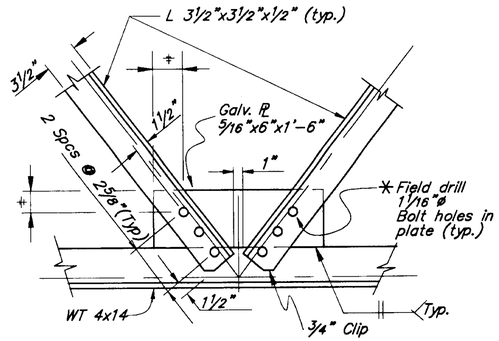


DRAIN

NO SCALE



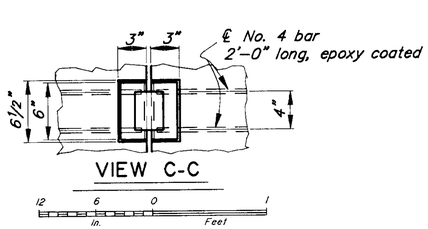
PLAN VIEW DETAIL "B"



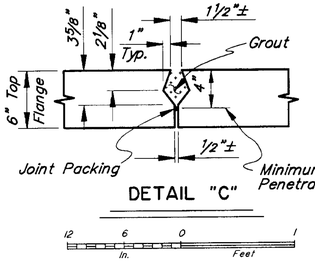
DETAIL "A" (LOWER)

No Scale

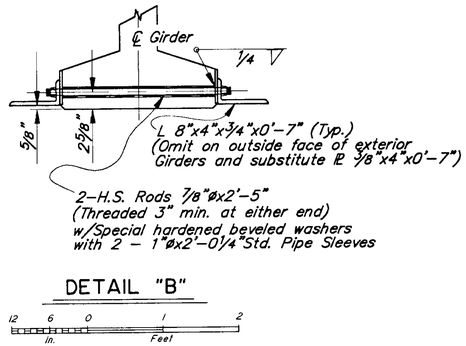
+ 1½" Minimum Edge Distance (typ.)



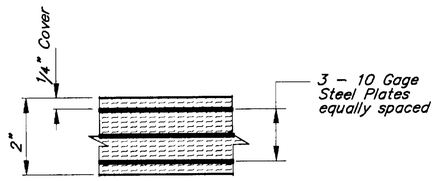
VIEW C-C



DETAIL "C"



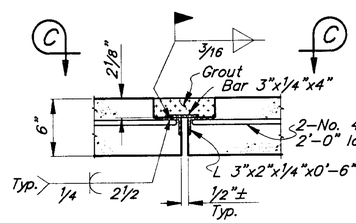
DETAIL "B"



12 ea. – 2"x 8"x 2'-1"
50 Durometer Hardness

ELASTOMERIC PAD DETAIL

NO SCALE



SHEAR CONNECTOR DETAIL

STATE of ALASKA
49TH
Stephan H. Lee
CE-5456
PROFESSIONAL ENGINEER
7/17/95

TWIN CREEK BRIDGE

ROUTE NO. FAS 937

GIRDER DETAILS

STATE of ALASKA
DEPARTMENT of TRANSPORTATION and PUBLIC FACILITIES
JUNEAU, ALASKA

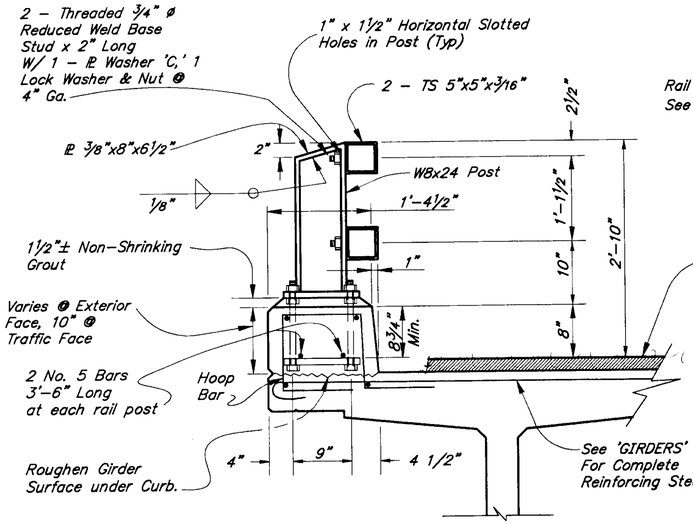
BRIDGE NO. 960

DWG. NO. 6

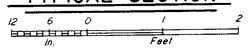
Designed By: SHL
Detail Check By: EEM
Design Check By: EEM

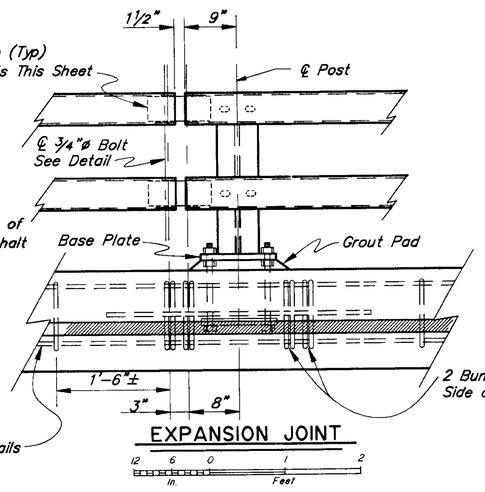
P:\960\P:\960\960-6
6/8/1995 13:24
Plot Scale = 1.00
Drawn or Revised By: GJW

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	STP-0937(26)/71646	1995	14	16

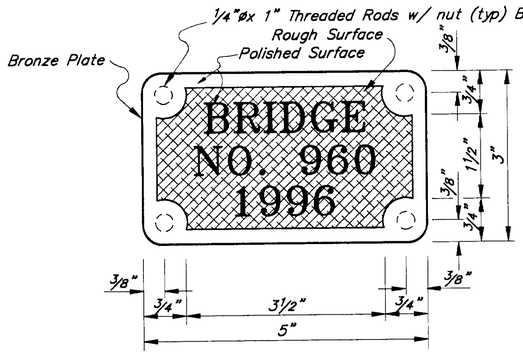


TYPICAL SECTION



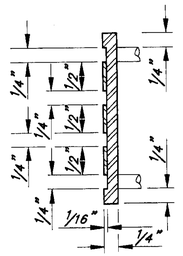


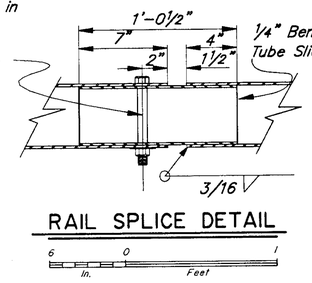
EXPANSION JOINT



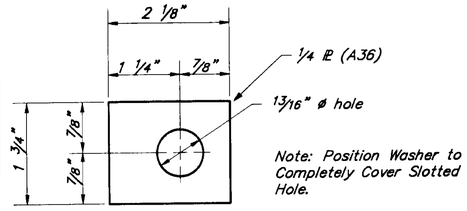
BRONZE BRIDGE NO. PLATE

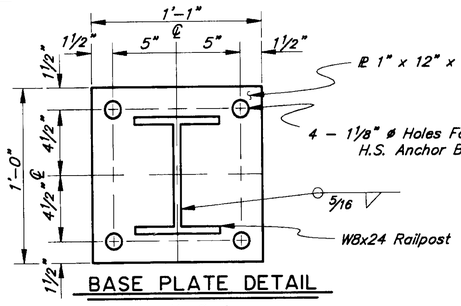
No Scale





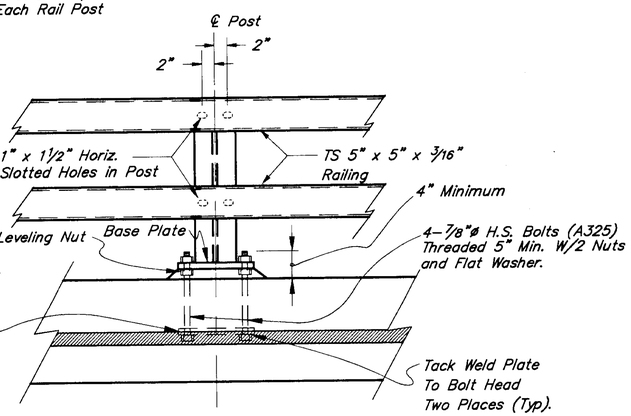
RAIL SPLICE DETAIL



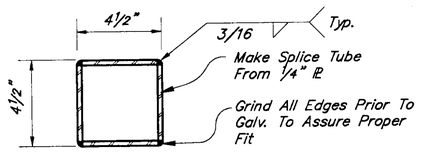


BASE PLATE DETAIL

No Scale



TYPICAL POST ELEVATION



SPLICE TUBE

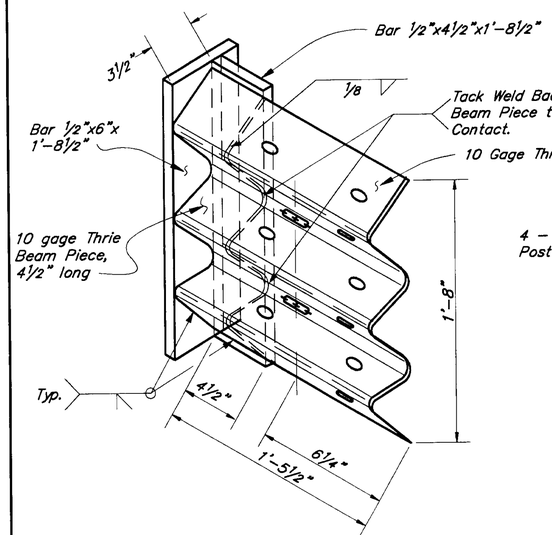
No Scale

NOTES

1. Locate bridge number plates on right hand side of approaching traffic at each end as shown (2 Total).
2. Bridge number plates to be furnished by the contractor. Bronze shall conform to A.S.T.M. B98–90 Alloy "A" or "B". Lettering shall conform to "Century" type style. Studs and nuts shall conform to UNS C65100 or C65500. Stud to be bronze 1/4"ø threaded rod brazed to back of plate with nut. – 4 required.
3. All machine bolts shall have locking nuts or lock washers.
4. Railing expansion joints must be provided at 50' maximum intervals throughout the railing. Railing shall be continuous over 2 posts minimum.
5. Posts shall be adjusted to a plumb position.
6. Curb concrete and associated reinforcing shall be incidental to metal bridge railing.
7. Thrie beam guardrail transition "NESTED" sections shall be installed one section on each side of transition bracket, typical either end of bridge. Ref. Std. Dwg. G–29.015.
8. Grout for railposts shall have a minimum 24 hr. f'c of 3,000 psi.
9. See Typical Section Drawing for railpost spacing.

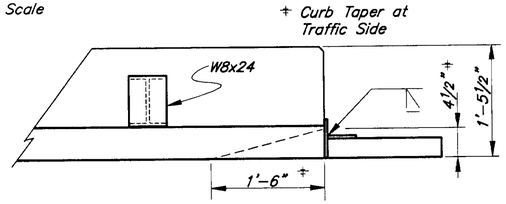
PLATE WASHER 'C'

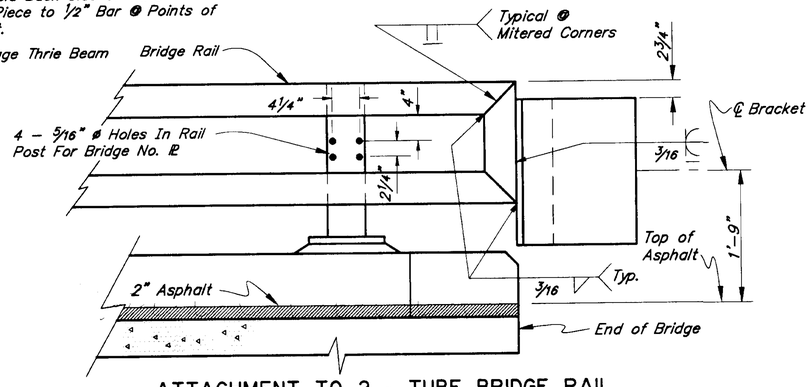
No Scale



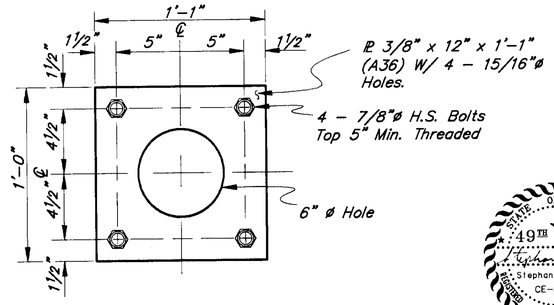
THRIE BEAM TRANSITION BRACKET

No Scale





ATTACHMENT TO 2 - TUBE BRIDGE RAIL WITH END TUBE



ANCHOR PLATE DETAIL

No Scale

7/17/95

Designed By: SHL
Detail Check By: EEM
Design Check By: EEM

P:\960\P:\960\960–7
6/8/1995 13:34
Plot Scale = 1.00
Drawn or Revised By: GJW

TWIN CREEK BRIDGE

ROUTE NO. FAS 937

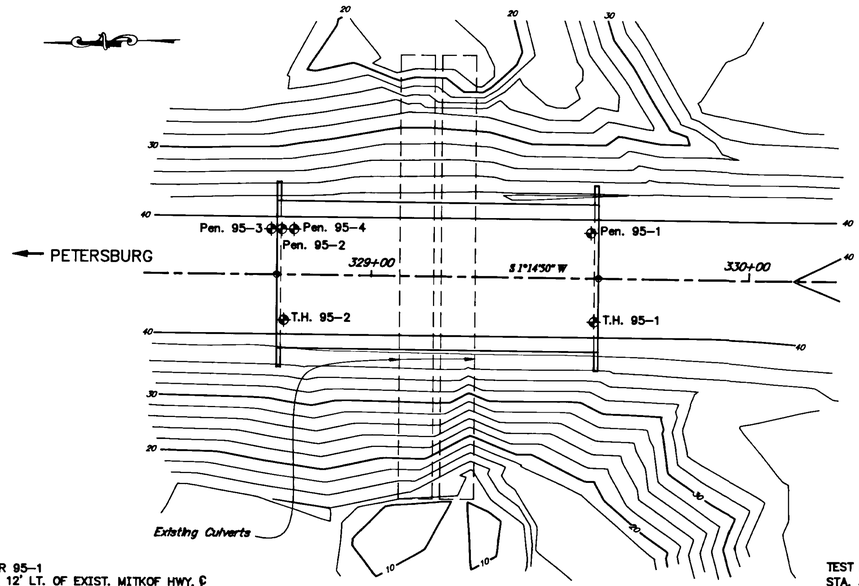
METAL BRIDGE RAILING

STATE of ALASKA
DEPARTMENT of TRANSPORTATION and PUBLIC FACILITIES
JUNEAU, ALASKA

BRIDGE NO. 960

DWG. NO. 7

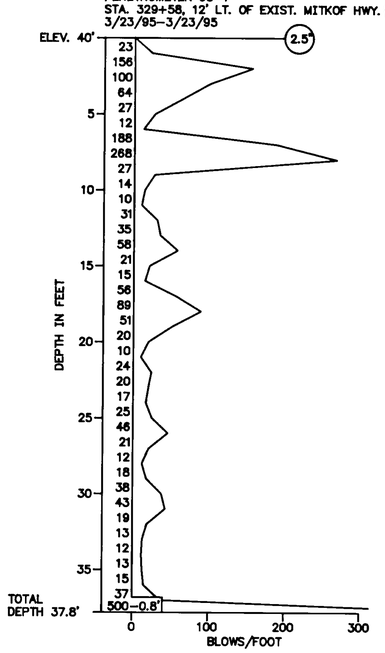
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	71646	1995	15	16



SCALE

10 5 0 10 20
Feet

PENETROMETER 95–1
STA. 329+58, 12' LT. OF EXIST. MITKOF HWY. ℄
3/23/95–3/23/95



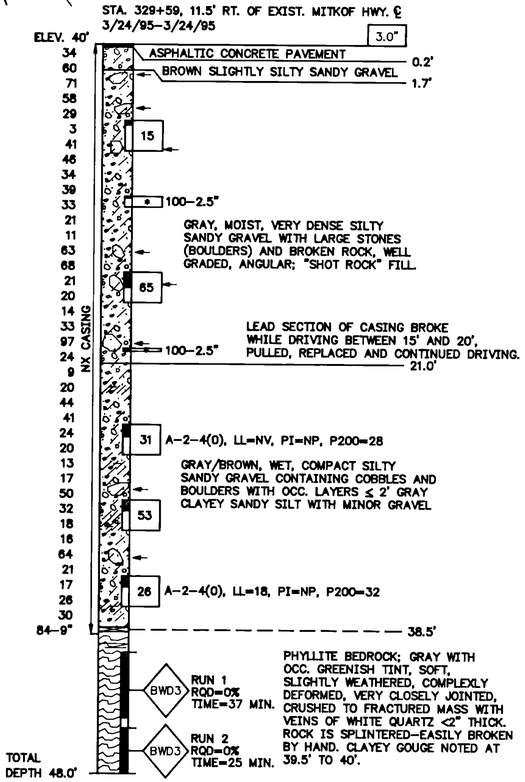
PEN. 95–1 NOTE:

PULLOUT BREAK FORCE IMMEDIATELY AFTER DRIVING WAS 17,000 LBS.

NOTE:

DURING THE FIELD INVESTIGATION IT WAS REPORTED BY LOCAL PERSONS THAT BOULDERS AS LARGE AS THE DRILL WERE OBSERVED BEING PLACED IN THE FILL "ONE ROCK IN A EUC."

TEST HOLE 95–1
STA. 329+59, 11.5' RT. OF EXIST. MITKOF HWY. ℄
3/24/95–3/24/95



BASIC MATERIALS SYMBOLS

- Organic
- Silt
- Cobbles/Boulders
- Clay
- Gravel
- Bedrock
- Sand

NOTE: SIGNIFICANT SOIL MIXTURES ARE SHOWN BY COMBINING SOIL SYMBOLS.

TYPICAL TEST HOLE SYMBOLS

Plan View
- Location of any hole

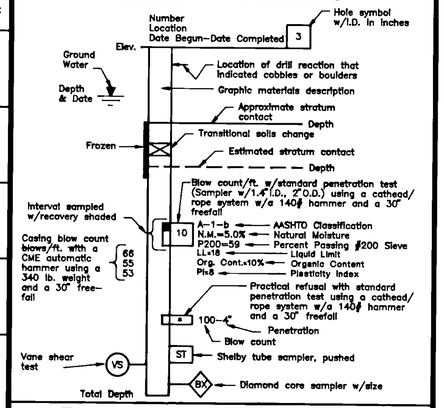
Section View
- Rotary
- Auger
- Diamond Core
- Penetrometer

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

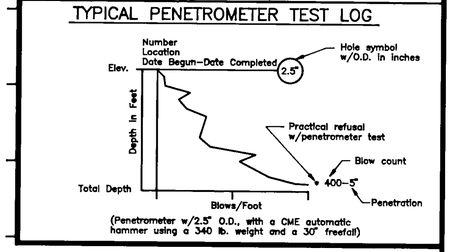
Based on Standard Penetration Test

GRANULAR		COHESIVE	
Blows/ft.	Rel. Density	Blows/ft.	Consistency
0–5	Very Loose	2	Very Soft
6–10	Loose	2–4	Soft
11–20	Firm	5–8	Medium
21–35	Compact	9–15	Stiff
36–50	Dense	16–30	Very Stiff
51–70	Very Dense	31–60	Hard
71+	V. Very Dense	61+	Very Hard

TYPICAL TEST HOLE LOG



TYPICAL PENETROMETER TEST LOG



(Penetrometer w/2.5" O.D., with a CME automatic hammer using a 340 lb. weight and a 30" freefall)

TEST HOLE LOGS & LOCATIONS

PETERSBURG– TWIN CREEK BRIDGE (CULVERT REPLACEMENT)

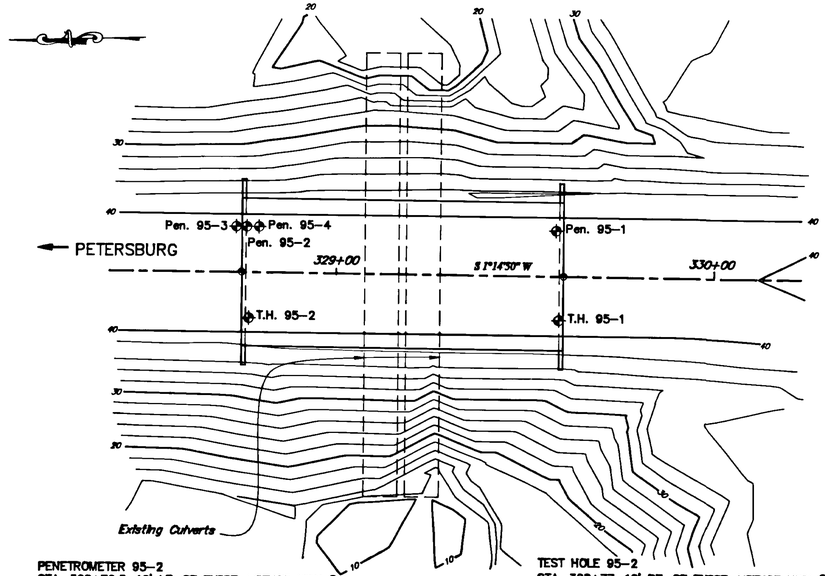
GENERAL NOTES:

1. THE TEST HOLE(S) DEPICTED ARE A COMBINATION OF THE ORIGINAL FIELD
4. FIELD MOISTURE DESCRIPTIONS (DRY, MOIST, AND WET) ARE BASED ON THE FOLLOWING FIELD OBSERVATIONS:
5. SOIL SAMPLES WERE TAKEN WITH A 1.4" I.D. THEREFORE PARTICLE SIZES LARGER THAN 1.4" ARE NOT REFLECTED IN

SOIL GRAIN SIZE DEFINITIONS

State of Alaska
DEPARTMENT of TRANSPORTATION

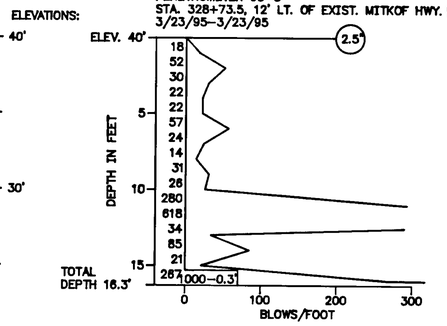
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	71646	1995	16	16



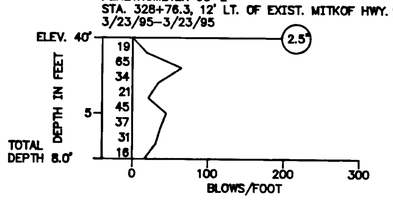
SCALE

10 5 0 10 20
Feet

PENETROMETER 95-3
STA. 328+73.5, 12' LT. OF EXIST. MITKOF HWY. ℄
3/23/95–3/23/95



PENETROMETER 95-2
STA. 328+76.3, 12' LT. OF EXIST. MITKOF HWY. ℄
3/23/95–3/23/95



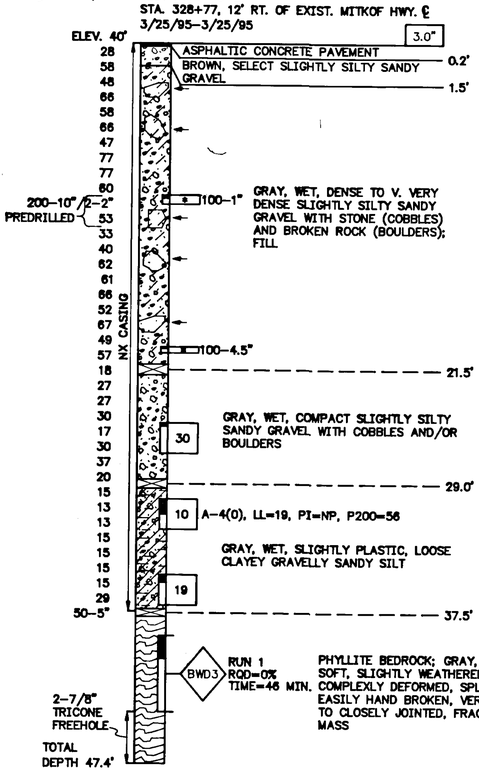
PEN. 95-2 NOTE:

SHOT ROCK FILL FORCED THE PENETROMETER ROD TOO FAR OUT OF ALIGNMENT AND IT WAS NOT POSSIBLE TO CONTINUE DRIVING BELOW 8'.

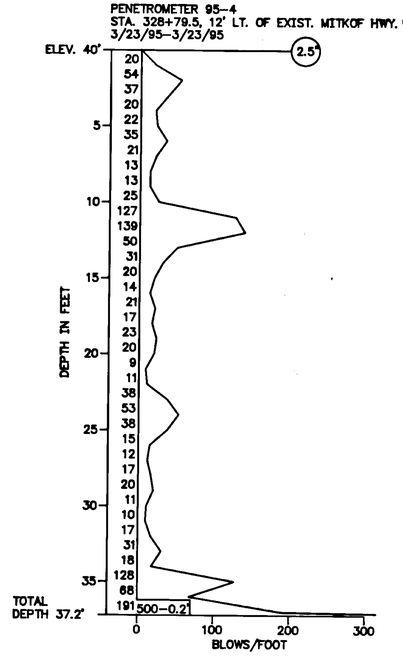
NOTE:

DURING THE FIELD INVESTIGATION IT WAS REPORTED BY LOCAL PERSONS THAT BOULDERS AS LARGE AS THE DRILL WERE OBSERVED BEING PLACED IN THE FILL "ONE ROCK IN A EUC."

TEST HOLE 95-2
STA. 328+77, 12' RT. OF EXIST. MITKOF HWY. ℄
3/25/95–3/25/95



PENETROMETER 95-4
STA. 328+79.5, 12' LT. OF EXIST. MITKOF HWY. ℄
3/23/95–3/23/95



BASIC MATERIALS SYMBOLS

Organic
Silt
Cobbles/Boulders
Clay
Gravel
Bedrock
Sand

NOTE: SIGNIFICANT SOIL MIXTURES ARE SHOWN BY COMBINING SOIL SYMBOLS.

TYPICAL TEST HOLE SYMBOLS

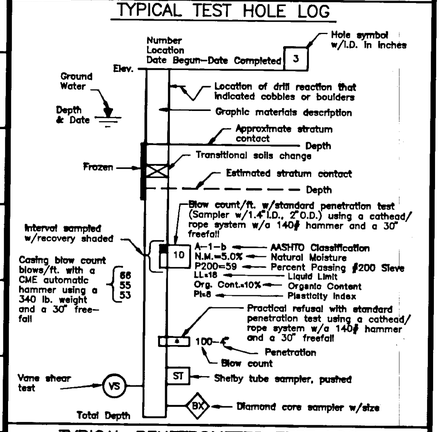
Plan View
Location of any hole
Section View
Rotary
Auger
Diamond Core
Penetrometer

RELATIVE DENSITY AND CONSISTENCY CLASSIFICATION

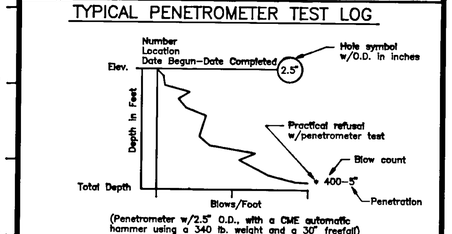
Based on Standard Penetration Test

GRANULAR		COHESIVE	
Blows/ft.	Rel. Density	Blows/ft.	Consistency
0–5	Very Loose	2	Very Soft
6–10	Loose	2–4	Soft
11–20	Firm	5–8	Medium
21–35	Compact	9–15	Stiff
36–50	Dense	16–30	Very Stiff
51–70	Very Dense	31–60	Hard
71+	V. Very Dense	61+	Very Hard

TYPICAL TEST HOLE LOG



TYPICAL PENETROMETER TEST LOG



(Penetrometer w/2.5" O.D., with a CME automatic hammer using a 340 lb. weight and a 30" freefall)

TEST HOLE LOGS & LOCATIONS

PETERSBURG– TWIN CREEK BRIDGE (CULVERT REPLACEMENT)

GENERAL NOTES:

1. THE TEST HOLE(S) DEPICTED ARE A COMBINATION OF THE ORIGINAL FIELD
4. FIELD MOISTURE DESCRIPTIONS (DRY, MOIST, AND WET) ARE BASED ON THE FOLLOWING FIELD OBSERVATIONS:
5. SOIL SAMPLES WERE TAKEN WITH A 1.4" I.D. THEREFORE PARTICLE SIZES LARGER THAN 1.4" ARE NOT REFLECTED IN

SOIL GRAIN SIZE DEFINITIONS

State of Alaska
DEPARTMENT OF TRANSPORTATION