

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/NDRER00895	2024	A1	19
			CDS ROUTE:	167500	MILEPOINT:	61.180 TO	79.395

STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
&  
PUBLIC FACILITIES

PROPOSED HIGHWAY PROJECT  
733519 / NDRER00895

NOME KOUGAROK ROAD MP 61.5, 66.5, AND 79.5 PERMANENT  
REPAIRS

GRADING & DRAINAGE

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
A1	TITLE SHEET
A2	LEGEND & ABBREVIATIONS
A3	SURVEY CONTROL SHEET
B1-B3	TYPICAL SECTIONS
C1	ESTIMATE OF QUANTITIES & GENERAL NOTES
D1	DETAILS
E1-E2	CULVERT/DRAINAGE DETAILS & SUMMARY
F1	PLAN & PROFILE
Q1-Q3	EROSION SEDIMENT CONTROL PLANS
V1-V2	STANDARD PLANS

THE FOLLOWING STANDARD PLANS APPLY TO THIS PROJECT:  
D-01.02, D-04.22

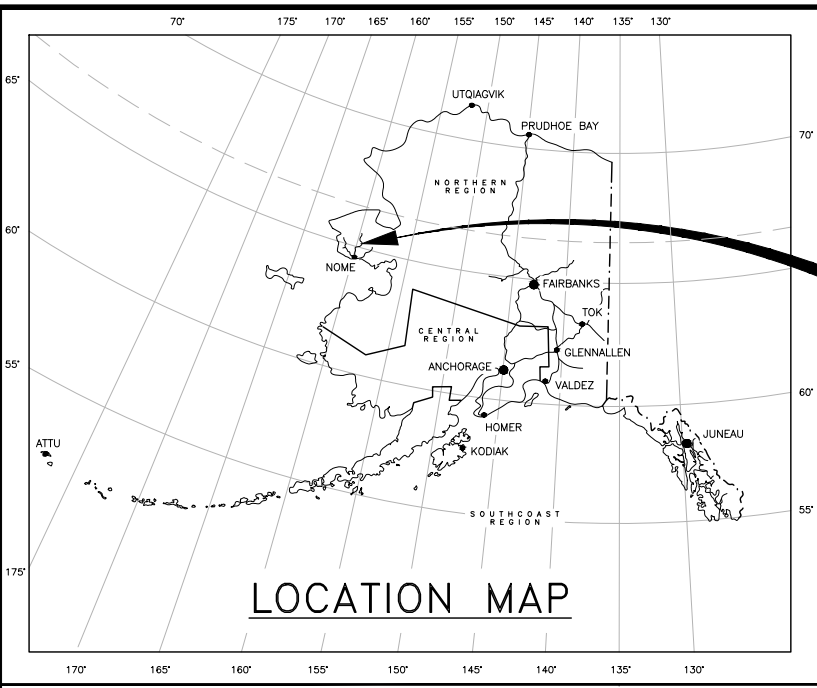
PROJECT SUMMARY (MP 61.5)	
WIDTH OF GRAVEL	24FT
LENGTH OF GRADING	582FT
MILEPOINT	61.65 TO 61.76
LENGTH OF PROJECT	582FT

PROJECT SUMMARY (MP 66.5)	
WIDTH OF GRAVEL	30FT
LENGTH OF GRADING	125FT
MILEPOINT	66.58 TO 66.60
LENGTH OF PROJECT	125FT

PROJECT SUMMARY (MP 79.5)	
WIDTH OF GRAVEL	40FT
LENGTH OF GRADING	457FT
MILEPOINT	79.28 TO 79.35
LENGTH OF PROJECT	457FT

Christopher Johnston, P.E., PROJECT MANAGER  
Lindsey Webb, P.E., DESIGN ENGINEER  
Ryan Parks, DESIGNER

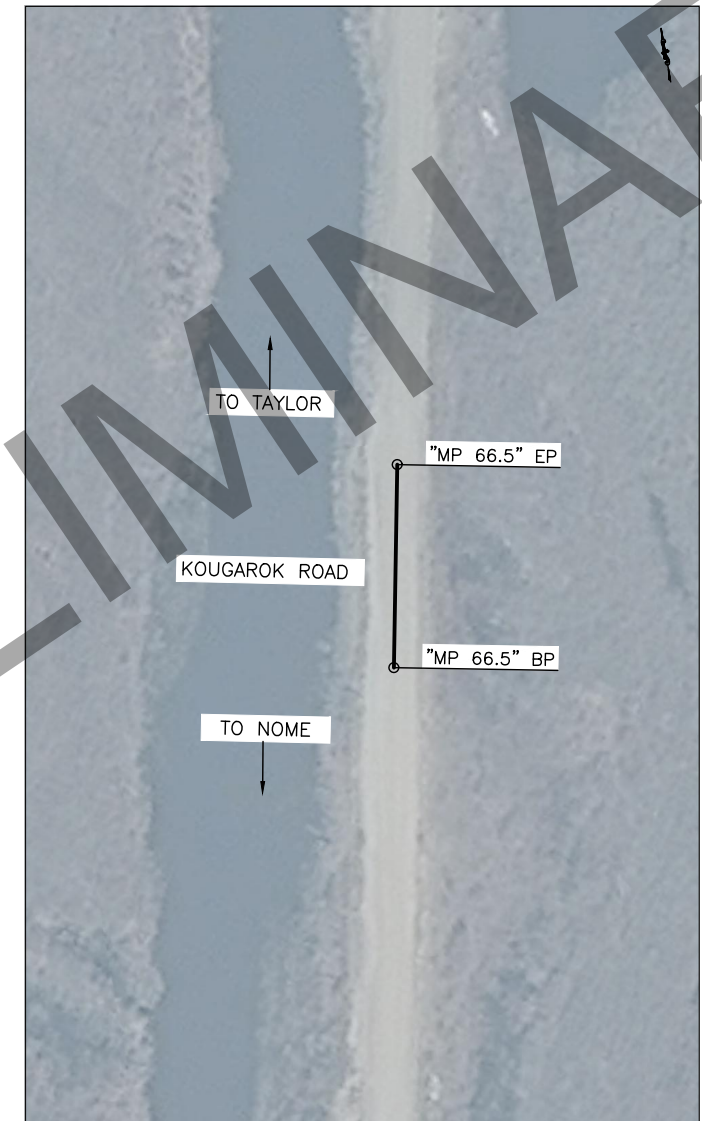
STATE OF ALASKA  
DEPARTMENT OF TRANSPORTATION  
&  
PUBLIC FACILITIES  
APPROVED BY: \_\_\_\_\_ DATE \_\_\_\_\_  
Lauren Little, P.E.  
Preconstruction Engineer, Northern Region  
ACCEPTED FOR CONSTRUCTION: \_\_\_\_\_ DATE \_\_\_\_\_  
Joseph P. Kemp, P.E.  
Regional Director, Northern Region



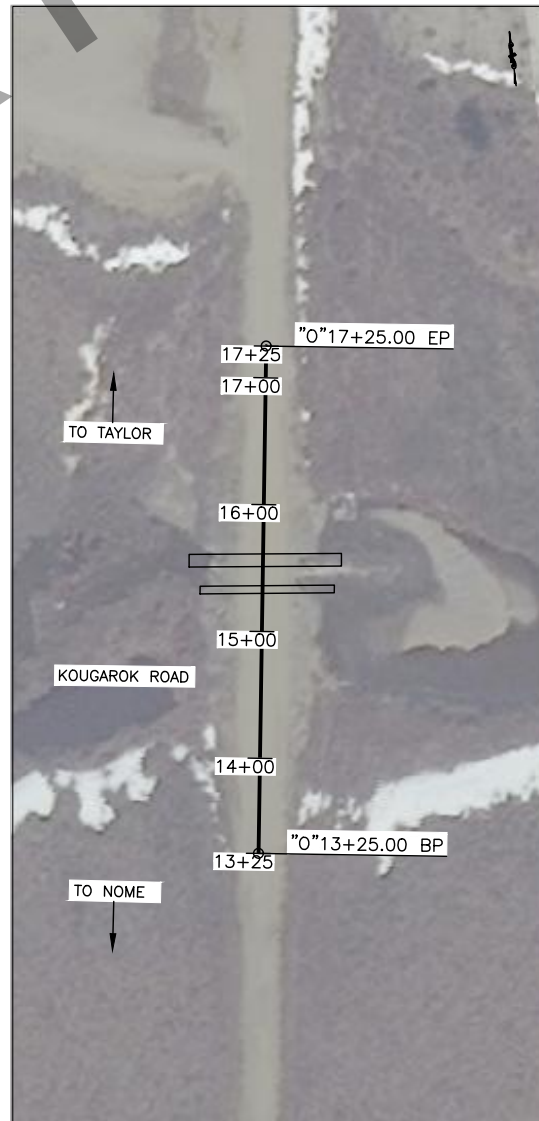
MP 61.5



MP 66.5



MP 79.5



HWYS TITLE SHEET  
H:\Projects\Communities\Nome\00895\_Nome\_Kougarok\_79.5\04 PS&E\04 Plans\A1 Title--A1 Title\_Thu\_Mar/07/24 03:27pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733915/NDRER00895	2024	A2	A2

	RECOVERED	SET
BLM MONUMENT		
GLO MONUMENT		
USC&GS MONUMENT		
PRIMARY MONUMENT		
CENTERLINE MONUMENT IN CASING		
PRIMARY R.O.W. MONUMENT		
BEARING OBJECT		
MISCELLANEOUS MONUMENT		
LINE OF SIGHT MONUMENT		
CONCRETE R.O.W. MONUMENT		
BENCHMARK		
REBAR AND CAP		
REBAR		
IRON PIPE		
PK NAIL		
SPIKE		
HUB AND TACK		
CONSTRUCTION CENTERLINE		
MISCELLANEOUS CENTERLINE		
STATION EQUATION		
PROJECT RIGHT-OF-WAY LINE		
EXISTING RIGHT-OF-WAY LINE		
EXISTING PROPERTY LINE		
CONTROLLED ACCESS LINE		
UTILITY EASEMENT LINE		
TEMPORARY EASEMENT LINE (TCP OR TCE)		
ACCESS OR SECTION LINE EASEMENT		
PROPOSED CUT SLOPE LIMIT		
PROPOSED FILL SLOPE LIMIT		
SECTION LINE		
1/4 SECTION LINE		
1/16 SECTION LINE		
TOWNSHIP & RANGE LINE		

	EXISTING	PROPOSED
SANITARY SEWER (FLOW DIRECTION →)		
FUEL LINE		
GAS LINE		
WATER LINE		
METER, VALVE, FIRE HYDRANT		
EXISTING STORM DRAIN (FLOW DIRECTION →)		
PROPOSED STORM DRAIN		
FIBER OPTIC LINE		
DIRECT BURIAL TELEPHONE CABLE		
DIRECT BURIAL ELECTRIC CABLE		
ELECTRIC LINE (OVERHEAD)		
POWER POLE LINE		
JOINT USE POWER & TELEPHONE		
TELEPHONE POLE LINE		
POLE ANCHOR		
STUB POLE (POWER OR TELEPHONE)		
TELEPHONE DUCT		
TELEPHONE PEDESTAL		
BURIED CABLE MARKER		
PIPELINE MARKER OR VALVE		
CATCH BASIN OR DROP INLET		
MANHOLE		
SANITARY SEWER CLEAN OUT		

	EXISTING	PROPOSED
ROADWAY/PAVEMENT EDGE		
FENCE		
CURB AND GUTTER		
DETECTABLE WARNINGS		
GUARDRAIL		
CULVERT PIPE		
SIGN		
MAILBOX		
RAILROAD TRACKS		
RAILROAD DEVICES		
TREE LINE		
WATER BOUNDARY		
ORDINARY HIGH WATER LINE		
FLOW CENTERLINE		
FLOW DIRECTION		
WETLANDS		
EXISTING BUILDINGS		
POST OR BOLLARD		
WELL OR MONITORING WELL		
SEPTIC PIPE		
FUEL TANK FILL PIPE/VENT		
SATELLITE DISH		
TEST HOLE		
CONIFER TREE		
DECIDUOUS TREE		
GRAVE		
THERMOSIPHON		
PARKING METER		
VEHICLE PLUG-IN		
DELINEATOR/GUIDE MARKER		

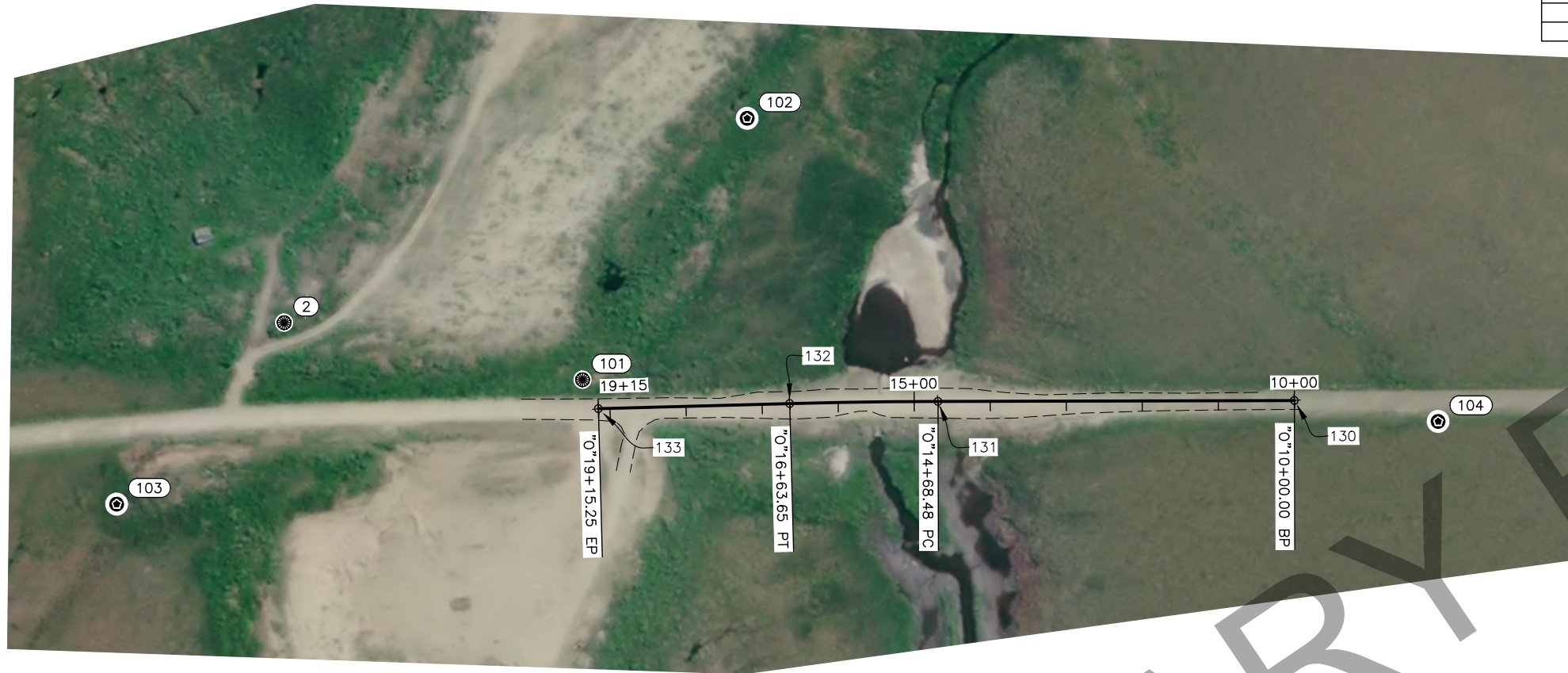
**ABBREVIATIONS:**

AKOSH	ALASKA OCCUPATIONAL SAFETY AND HEALTH	S	SOUTH
APPROX	APPROXIMATELY	SQ. FT.	SQUARE FOOT
Q	CENTERLINE	SQ. MI.	SQUARE MILE
CFS	CUBIC FEET PER SECOND	SSPA	STRUCTURAL PLATE PIPE ARCH STATION
CMP	CORRUGATED METAL PIPE	STA	STATION
CY	CUBIC YARD	T	TANGENT
E	EAST, EASTING	TCE	TEMPORARY CONSTRUCTION EASEMENT
ELE, ELEV	ELEVATION	TS	TUBE STEEL
FT. '	FOOT, FEET	TYP	TYPICAL
H	HORIZONTAL	V	VERTICAL
HW/D	HEADWATER TO DIAMETER RATIO	VPC	VERTICAL POINT OF CURVATURE
IE	INVERT ELEVATION	VPI	VERTICAL POINT OF INTERSECTION
IN, "	INCH, INCHES	VPT	VERTICAL POINT OF TANGENCY
L	LENGTH OF CURVE	W	WEST
L.C.L	LEFT OF CENTERLINE	WWR	WELDED WIRE REINFORCEMENT
LT	LEFT	Ø	DIAMETER
LVC	LENGTH OF VERTICAL CURVE		
MAX	MAXIMUM		
MIN	MINIMUM		
N	NORTH, NORTHING		
NO.	NUMBER		
NTS	NOT TO SCALE		
O.C.	ON CENTER		
PC	POINT OF CURVATURE		
POT	POINT ON TANGENT		
PST	PERFORATED STEEL TUBE		
PT	POINT OF TANGENCY		
PVI	POINT OF VERTICAL INTERSECTION		
R	RADIUS		
R.C.L	RIGHT OF CENTERLINE		
RT	RIGHT		

**LEGEND & ABBREVIATIONS**



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733915/NDRER00895	2024	A3	A3



**GENERAL NOTES**

1. VERIFY HORIZONTAL AND VERTICAL CONTROL PRIOR TO USE. ON MULTI YEAR PROJECTS, VERIFY ALL CONTROL ON A SEASONAL BASIS.
2. BACKGROUND MAPPING IS SHOWN FOR ORIENTATION PURPOSES ONLY. THIS SHEET DOES NOT PURPORT TO DEPICT RIGHT OF WAY.
3. ALL DISTANCES SHOWN ARE GRID DISTANCES, IN U.S. SURVEY FEET.
4. THIS PROJECT IS LOCATED ENTIRELY WITHIN STATE PLANE ZONE 8.
5. THE BASIS OF COORDINATES IS THE NAD83(2011)(EPOCH:2010.0000) OPUS AVERAGED POSITION OF IRON PIPE "CP2", POINT #2.
6. BASIS OF BEARING IS STATE PLANE ZONE 8.
7. THE BASIS OF ELEVATIONS IS THE OPUS AVERAGED GEOID12A (NAVD88) ELEVATION OF 255.61 FT AT POINT #2.
8. THE PROJECT IS LOCATED ABOUT 80 MILES OUTSIDE OF NOME ON KOUGAROK ROAD.



**LEGEND**

- ⊙ REBAR AND CAP SET
- ⊙ IRON PIPE

**CONTROL MONUMENTS**

POINT NO.	NORTHING	EASTING	ELEVATION	LATITUDE	LONGITUDE	DESCRIPTION
2	4153050.33	1843040.49	255.61	N65° 21' 28.4846"	W164° 40' 22.2920"	IP CP2
101	4152668.48	1842922.94	207.76	N65° 21' 24.7516"	W164° 40' 25.2523"	IP
102	4152415.67	1843240.55	199.98	N65° 21' 22.1982"	W164° 40' 17.8915"	REBAR CAP SET CP 102
103	4153295.28	1842827.62	264.00	N65° 21' 30.9388"	W164° 40' 27.1881"	REBAR CAP SET CP 103
104	4151556.30	1842745.15	224.20	N65° 21' 13.8450"	W164° 40' 29.9939"	REBAR CAP SET CP 104

**CONTROL ALIGNMENT**

POINT NO.	NORTHING	EASTING	ELEVATION	LATITUDE	LONGITUDE	DESCRIPTION	STATION
130	4151741.18	1842793.29	215.73	N65° 21' 15.6541"	W164° 40' 28.7679"	Start	10+00.00
131	4152206.97	1842843.47	191.56	N65° 21' 20.2270"	W164° 40' 27.3543"	PC	14+68.48
132	4152401.25	1842862.00	196.96	N65° 21' 22.1348"	W164° 40' 26.8211"	PT	16+63.65
133	4152651.98	1842882.84	216.52	N65° 21' 24.5976"	W164° 40' 26.2056"	End	19+15.25

SURVEY CONTROL

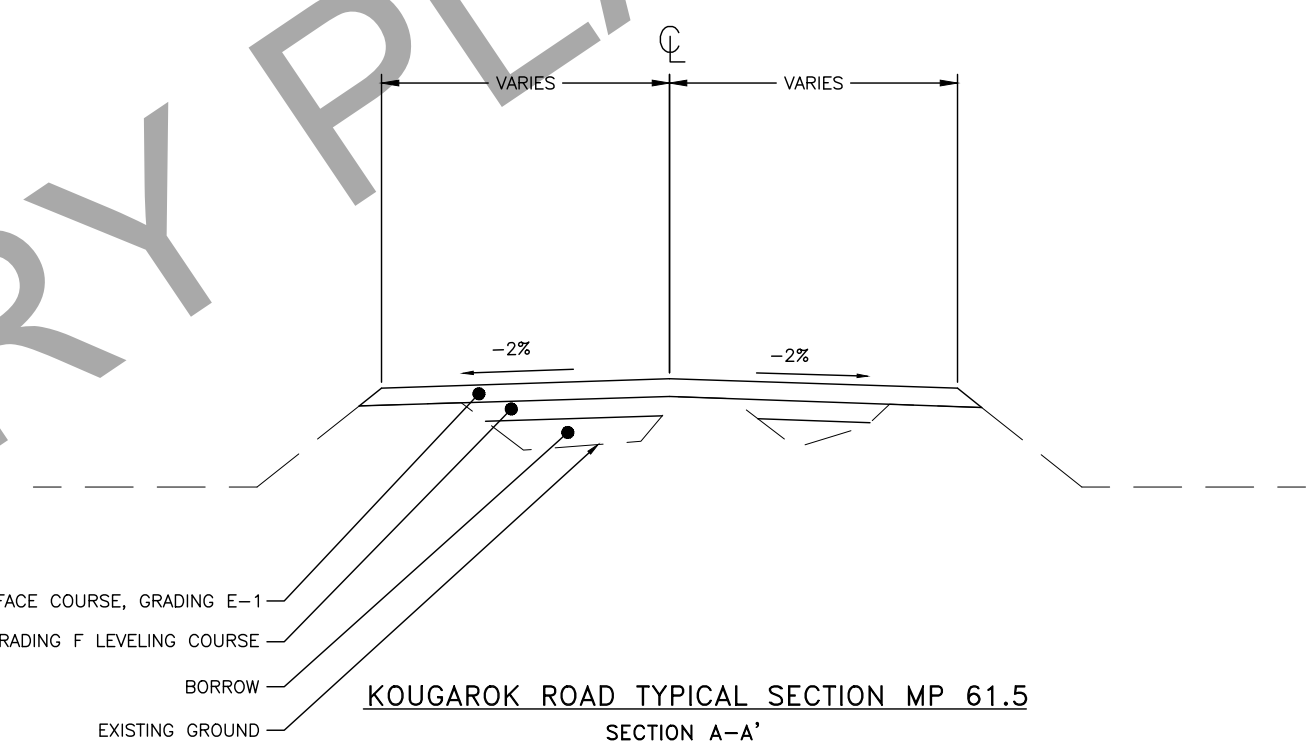
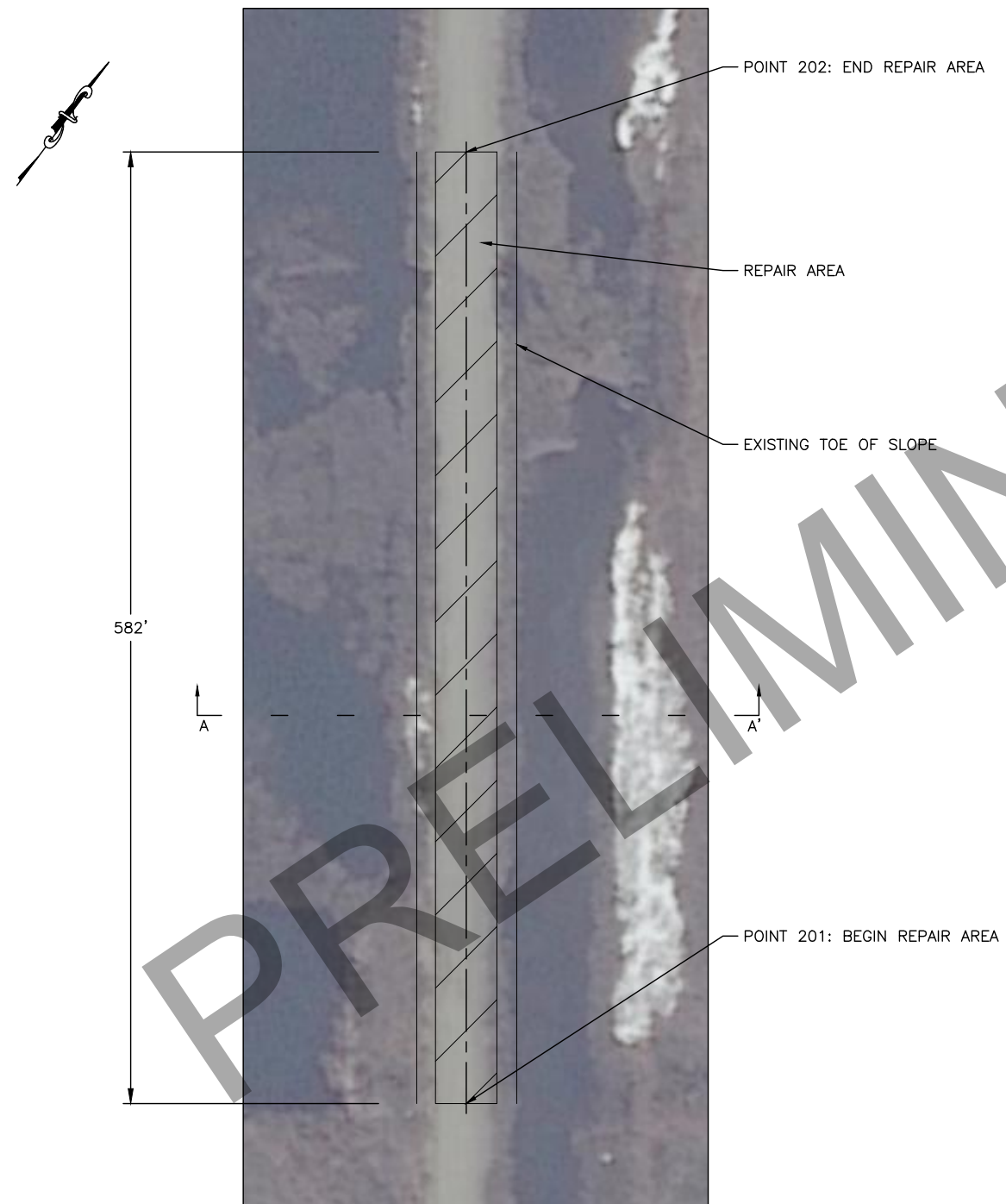


PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200  
 H:\Projects\Communities\Nome\_Kougarok\_79.5.04 PS&E\04 Plans\A3 Survey Control\_A3 Survey Control\_Thu, Mar/07/24 03:27pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/NDRER00895	2024	B1	B3

COORDINATES		
POINT	LATITUDE	LONGITUDE
201	N65° 8' 5.1432"	W164° 44' 39.5268"
202	N65° 8' 9.8448"	W164° 44' 47.67"

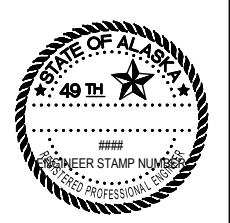
MATERIALS & QUANTITIES		
SITE	DESCRIPTION	AMOUNT
MP 61.5	SURFACE COURSE, E-1	130 CY
MP 61.5	SUBBASE, GRADING F	66 CY
MP 61.5	BORROW	50 CY



**TYPICAL SECTION NOTES:**

1. PLACE BORROW AS A LEVELING COURSE AS DIRECTED BY THE ENGINEER AND COMPACT PER SUBSECTION 203-3.05 PRIOR TO PLACING SUBBASE.
2. PLACE SUBBASE AS A LEVELING COURSE AS DIRECTED BY THE ENGINEER AND COMPACT MATERIAL PER SUBSECTION 304-3.01 AND 203-3.05 PRIOR TO PLACING CRUSHED AGGREGATE SURFACE COURSE.
3. PLACE CRUSHED AGGREGATE SURFACE COURSE, GRADING E-1 WITHIN THE REPAIR AREA TO CREATE A SMOOTH FINISHED PROFILE.
4. MATERIAL SHALL BE PLACED ENTIRELY WITHIN THE ROADWAY EMBANKMENT. DO NOT PLACE MATERIAL OUTSIDE OF THE EXISTING TOE OF SLOPE.

TYPICAL SECTION MP 61.5

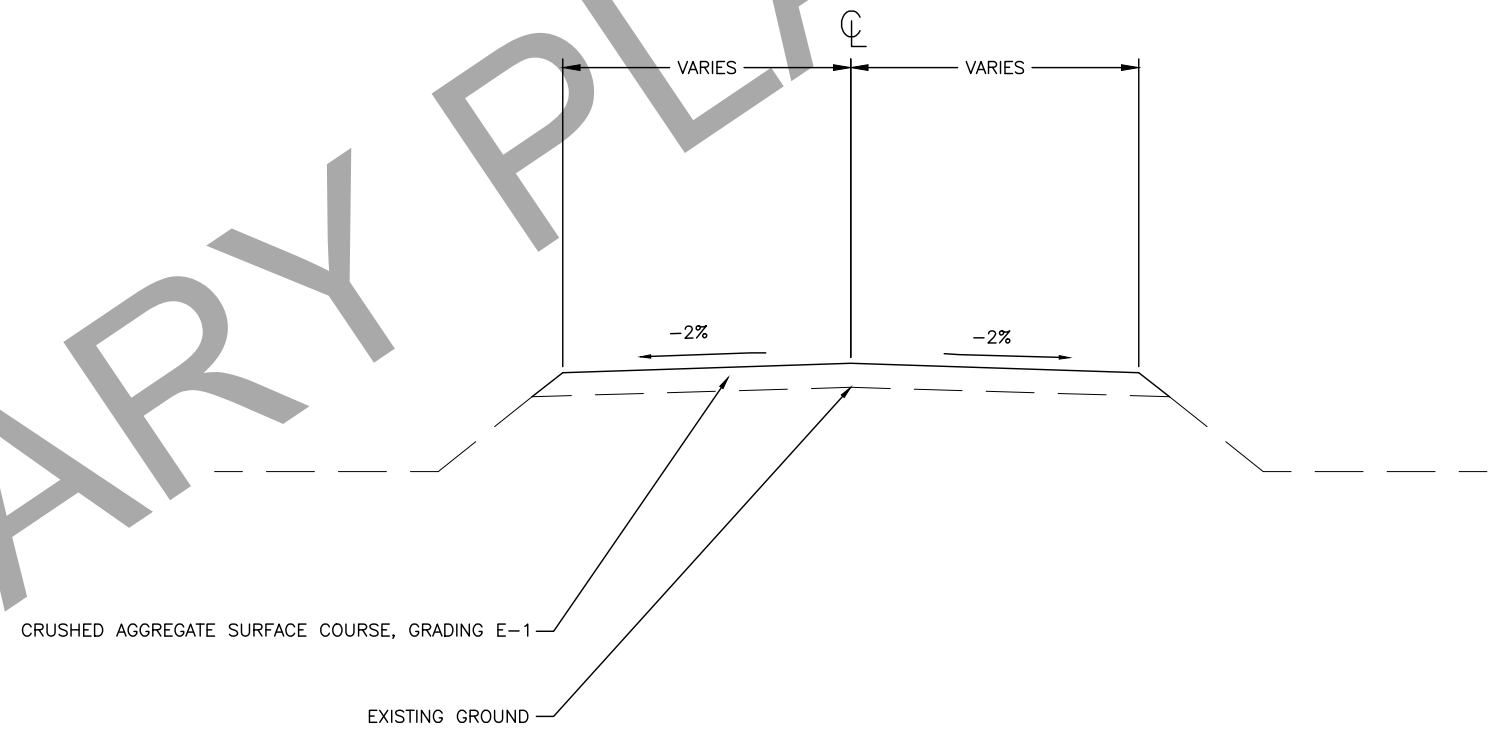
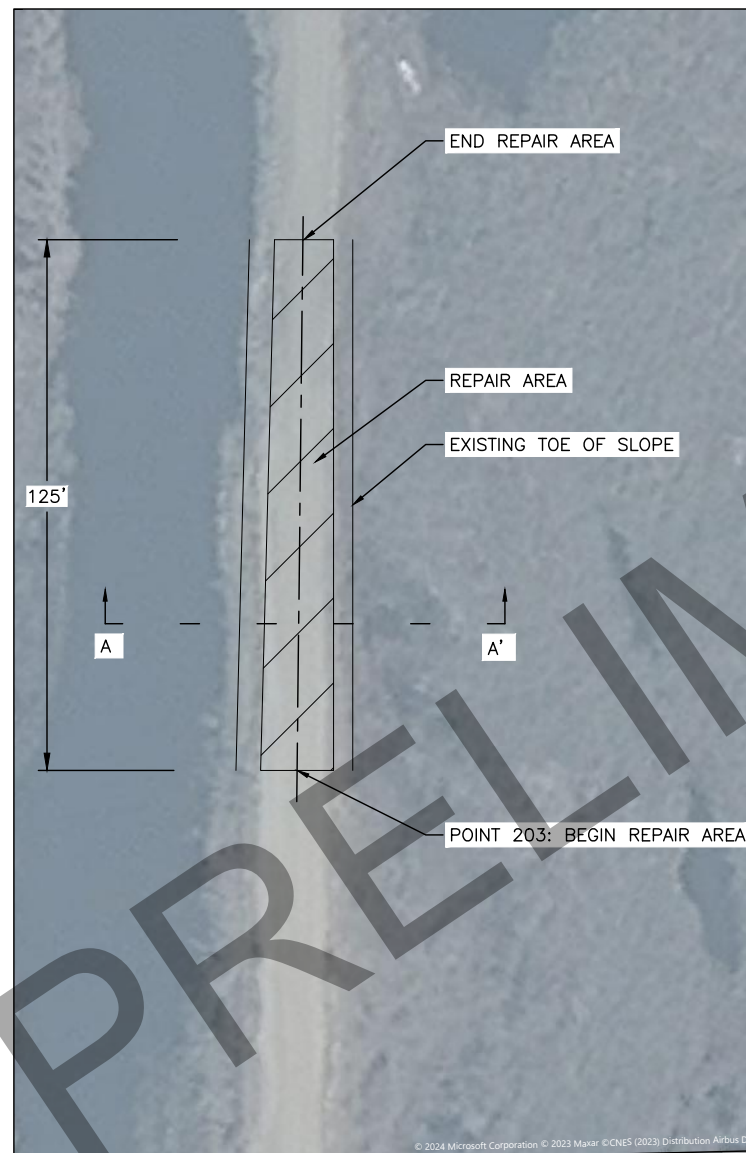


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 H:\Projects\Communities\Nome\00895\_Nome\_Kougarok\_79.5\04 PS&E\04 Plans\B1 Typical Section MP 61.5-B1 Typical Section MP 61.5 Thu, Mar/07/24 03:27pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/NDRER00895	2024	B2	B3

COORDINATES		
POINT	LATITUDE	LONGITUDE
203	N65° 12' 15.5088"	W164° 49' 47.2728"

MATERIALS & QUANTITIES		
SITE	DESCRIPTION	AMOUNT
66.5	SURFACE COURSE, E-1	35 CY

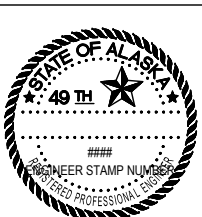


KOUGAROK ROAD TYPICAL SECTION MP 66.5  
SECTION A-A'

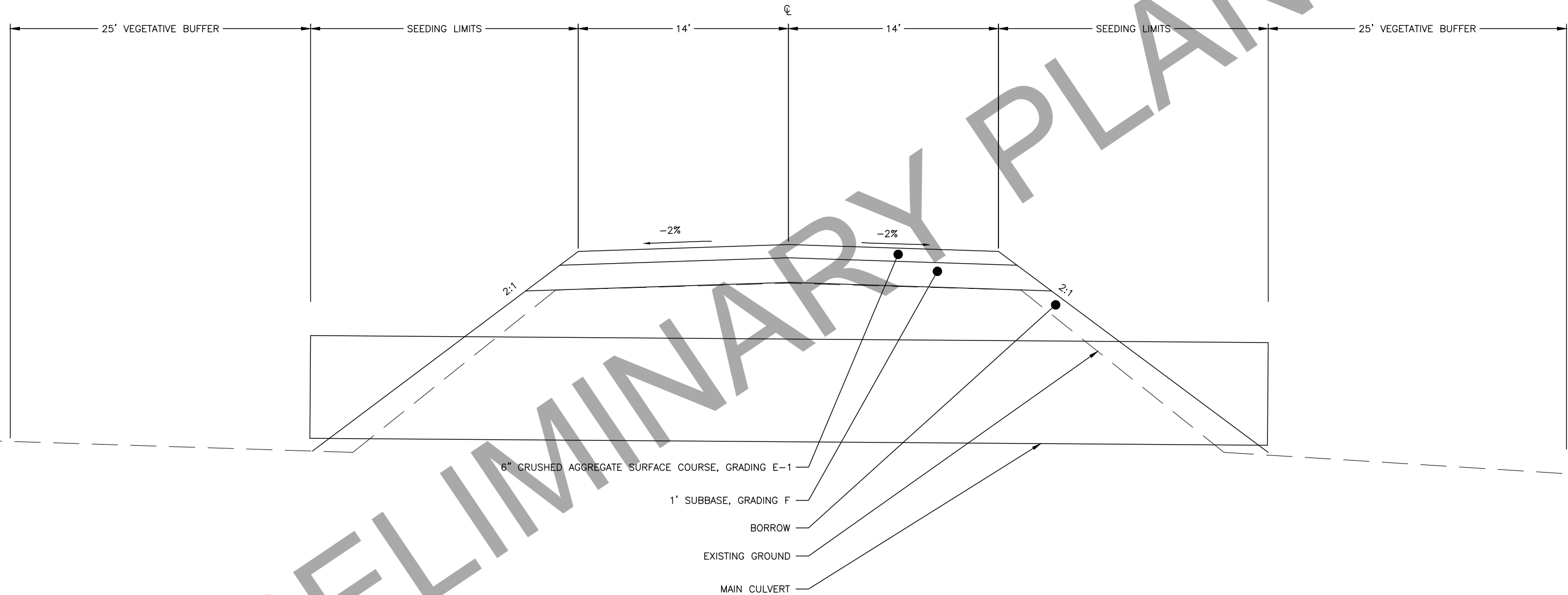
TYPICAL SECTION NOTES:

1. PLACE SURFACE COURSE, GRADING E-1 AS DIRECTED BY THE ENGINEER WITHIN THE REPAIR AREA TO CREATE A SMOOTH FINISHED PROFILE.
2. MATERIAL SHALL BE PLACED ENTIRELY WITHIN THE ROADWAY EMBANKMENT. DO NOT PLACE MATERIAL OUTSIDE OF THE EXISTING TOE OF SLOPE.
3. PRIOR TO PLACING SURFACE COURSE PREPARE THE EMBANKMENT PER SUBSECTION 203-3.03.

TYPICAL SECTION MP 66.5



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/NDRER00895	2024	B3	B3



**TYPICAL SECTION NOTES:**

- SEE CULVERT SHEETS E1 AND E2 FOR CULVERT DETAILS
- EXCAVATION OF EXISTING EMBANKMENT MAY BE REQUIRED TO PLACE TYPICAL SECTION MATERIALS. IN CUT CONDITIONS, GRADE SIDESLOPES AT 10:1, OR AS DIRECTED BY ENGINEER, TO PROVIDE POSITIVE DRAINAGE.

**KOUGAROK ROAD TYPICAL SECTION MP 79.5**

"0" 13+25 TO 17+25

TYPICAL SECTION MP 79.5





NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/NDRER00895	2024	C1	C1

### ESTIMATE OF QUANTITIES

ITEM NO.	PAY ITEM	PAY UNIT	QUANTITY
203.0019.0000	UNCLASSIFIED EXCAVATION	LS	ALL REQUIRED
203.0005.0000	BORROW	CY	452
203.0020.0000	BORROW	LS	ALL REQUIRED
301.2003.00E1	AGGREGATE SURFACE COURSE, GRADING E-1	LS	ALL REQUIRED
304.0002.000F	SUBBASE, GRADING F	CY	480
304.2003.000F	SUBBASE, GRADING F	LS	ALL REQUIRED
602.0002.0000	STRUCTURAL PLATE PIPE ARCH 15'10" SPAN X 10'9" RISE, 8 GAUGE	LF	90
603.0001.0072	CSP 72 INCH	LF	80
611.0001.0002	RIPRAP, CLASS II	CY	630
613.0002.0000	CULVERT MARKER POST	EACH	4
618.0005.0000	SEEDING	LS	ALL REQUIRED
628.2000.0000	FISH PASSAGE SUBSTRATE	LS	ALL REQUIRED
630.0003.0001	GEOTEXTILE, EROSION CONTROL, CLASS 1	SY	400
640.0001.0000	MOBILIZATION AND DEMOBILIZATION	LS	ALL REQUIRED
640.0004.0000	WORKER MEALS AND LODGING, OR PER DIEM	LS	ALL REQUIRED
641.0001.0000	EROSION, SEDIMENT AND POLLUTION CONTROL ADMINISTRATION	LS	ALL REQUIRED
641.0003.0000	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LS	ALL REQUIRED
641.0004.0000	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL ADDITIVES	CS	ALL REQUIRED
641.0006.0000	WITHOLDING	CS	ALL REQUIRED
641.0007.0000	SWPPP MANAGER	LS	ALL REQUIRED
642.0001.0000	CONSTRUCTION SURVEYING	LS	ALL REQUIRED
642.0013.0000	THREE PERSON SURVEY PARTY	CS	ALL REQUIRED
643.0002.0000	TRAFFIC MAINTENANCE	LS	ALL REQUIRED
643.0025.0000	TRAFFIC CONTROL	CS	ALL REQUIRED
644.0001.0000	FIELD OFFICE	LS	ALL REQUIRED
644.0006.0000	VEHICLE	LS	ALL REQUIRED
644.0015.0000	NUCLEAR TESTING EQUIPMENT STORAGE SHED	EACH	1

### TABLE OF LUMP SUM ESTIMATED QUANTITIES

ITEM NO.	DESCRIPTION	MP 61.5	MP 66.5	MP 79.5	TOTAL
203.0019.0000	UNCLASSIFIED EXCAVATION	N/A	N/A	3082 CY	3082 CY
203.0005.0000	BORROW	50 CY	N/A	N/A	50 CY
301.2003.00E1	AGGREGATE SURFACE COURSE, GRADING E-1	130 CY	35 CY	220 CY	385 CY
301.2003.000F	SUBBASE, GRADING F	66 CY	N/A	N/A	66 CY
618.0005.0000	SEEDING	N/A	N/A	35 LB	35 LB
628.2000.0000	FISH PASSAGE SUBSTRATE	N/A	N/A	170 CY	170 CY

### ESTIMATING FACTORS

DESCRIPTION	VALUE
BORROW	2 TON/CY
AGGREGATE SURFACE COURSE, GRADING E-1	2 TON/CY
SUBBASE, GRADING F	2 TON/CY

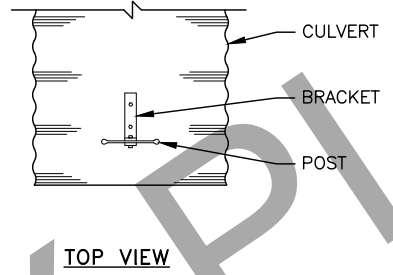
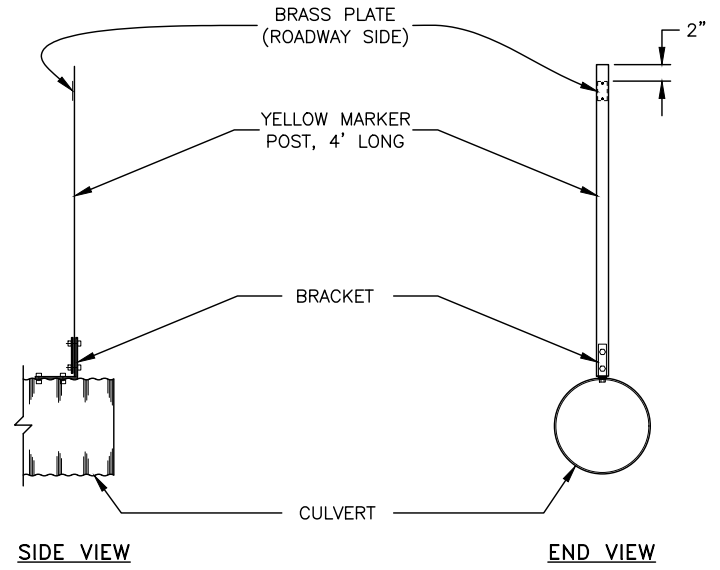
#### GENERAL NOTES:

- MECHANIZED LAND VEGETATION CLEARING AND GRUBBING IS PROHIBITED DURING THE MIGRATORY BIRD NESTING SEASON (MAY 1 - JULY 15).
- EXCAVATION SLOPES SHALL COMPLY WITH AKOSH REQUIREMENTS PER SUBSECTION 107-1.06.
- REMOVAL OF EXISTING FOUR CULVERTS AT MP 79.5, IS SUBSIDIARY TO 602 AND 603 PAY ITEMS. SALVAGE THE TWO EXISTING STRUCTURAL PLATE PIPES AND DELIVER TO (WILL BE COMPLETED FOR FINAL). THE TWO CORRUGATED METAL PIPES SHALL BE DISPOSED OF PER SECTION 201.
- WORK AND MATERIAL FOR CULVERT BEDDING IS SUBSIDIARY TO 602 AND 603 PAY ITEMS.
- SURVEYING NECESSARY TO CONFIRM QUANTITY OF MATERIALS PAID FOR UNDER LUMP SUM PAY ITEMS IS SUBSIDIARY TO PAY ITEM 642.0001.0000 CONSTRUCTION SURVEYING.

ESTIMATE OF QUANTITIES



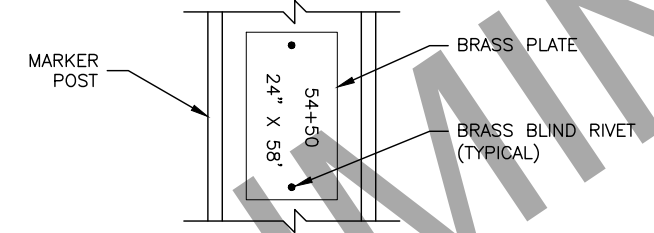
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/ NDRER00895	2024	D1	D1



CULVERT MARKER POST DETAIL

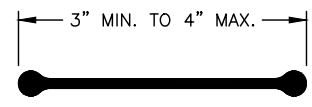
**CULVERT MARKER POSTS NOTES:**

1. MARKER POSTS ARE TO BE INSTALLED ON CROSS CULVERTS ONLY.
2. IF CULVERTS ARE CLOSELY SPACED, MARK ONLY THE FIRST AND LAST CULVERT IN SERIES AS APPROVED BY THE ENGINEER.
3. DRILL ALL BOLT HOLES. COAT HOLES WITH ZINC RICH PAINT. FLAME CUTTING SHALL NOT BE PERMITTED.
4. GASKET MATERIAL SHALL BE PLACED BETWEEN DISSIMILAR METALS. GASKET MATERIAL SHALL BE APPROVED PRIOR TO INSTALLATION.
5. HOT DIP GALVANIZE FLAT STEEL TO MEET AASHTO M 232. GALVANIZE AFTER BENDING.

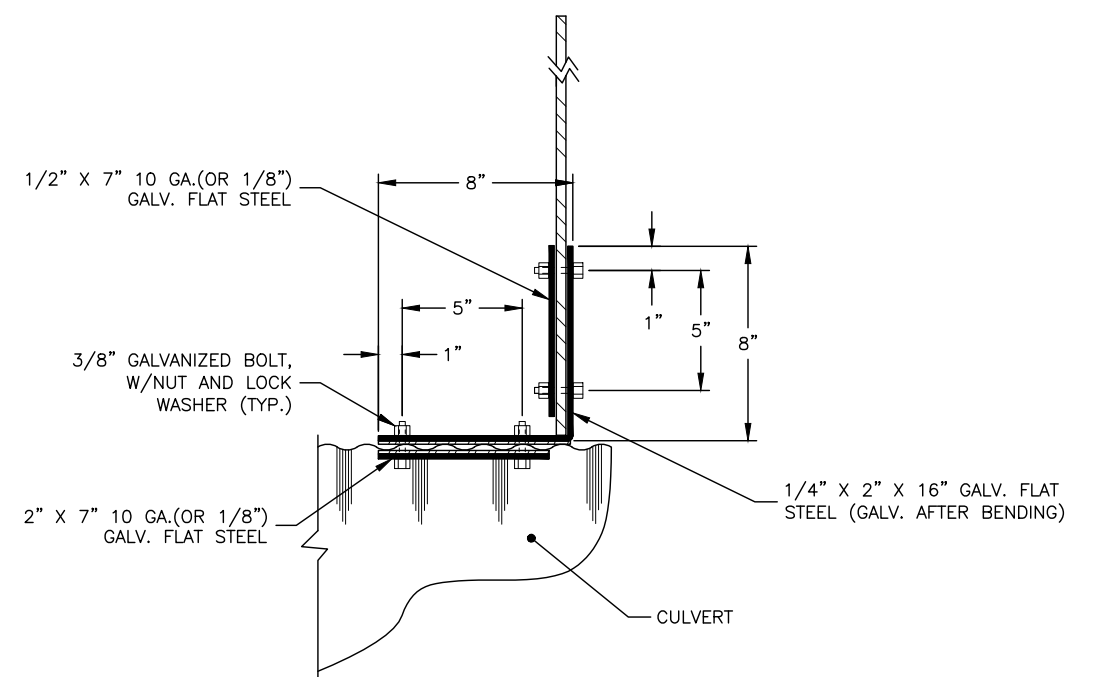


STAMP STATION AND PIPE SIZE, USING 3/8" HIGH MINIMUM LETTERS INTO A 2"X4"X 0.064" THICK BRASS PLATE. FASTEN PLATE TO THE SIDE FACING THE ROADWAY WITH TWO 1/8" BRASS BLIND RIVETS.

BRASS PLATE DETAIL



POST DETAIL CROSS-SECTIONAL VIEW



BRACKET DETAIL

CULVERT MARKER POST DETAILS

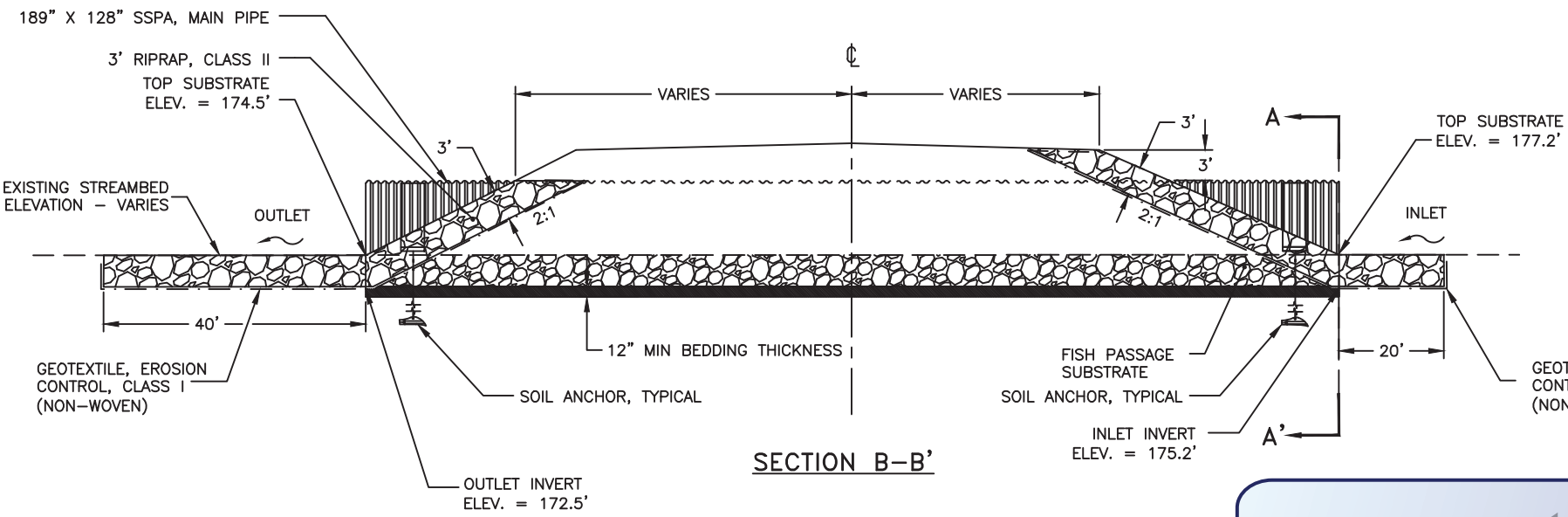
DETAILS



PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200  
H:\Projects\Communities\Nome\00895\_Nome\_Kougarok\_79.5\04\_PS&E\04\_Plans\D1\_Details-Details Thu, Mar/07/24 03:28pm



NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/NDRER00895	2024	E1	E2



**NOTES:**

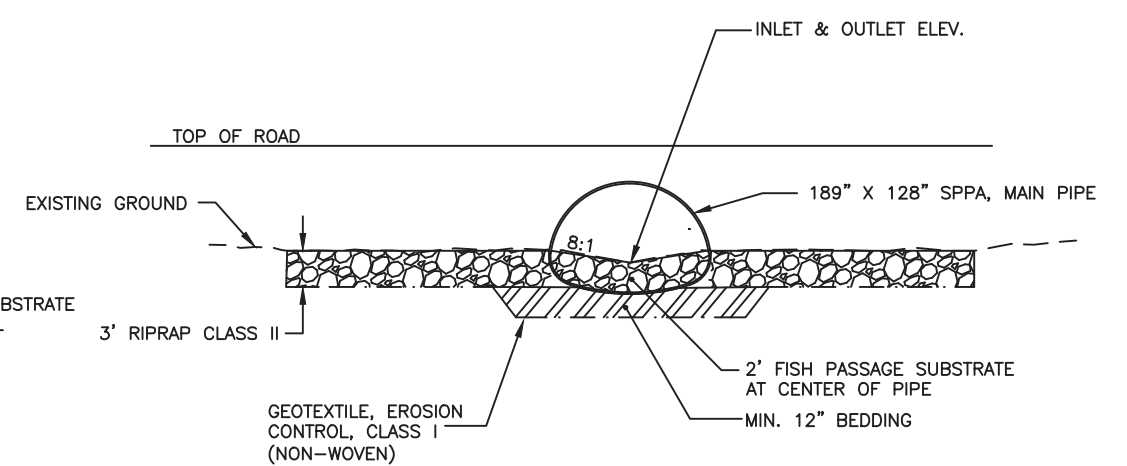
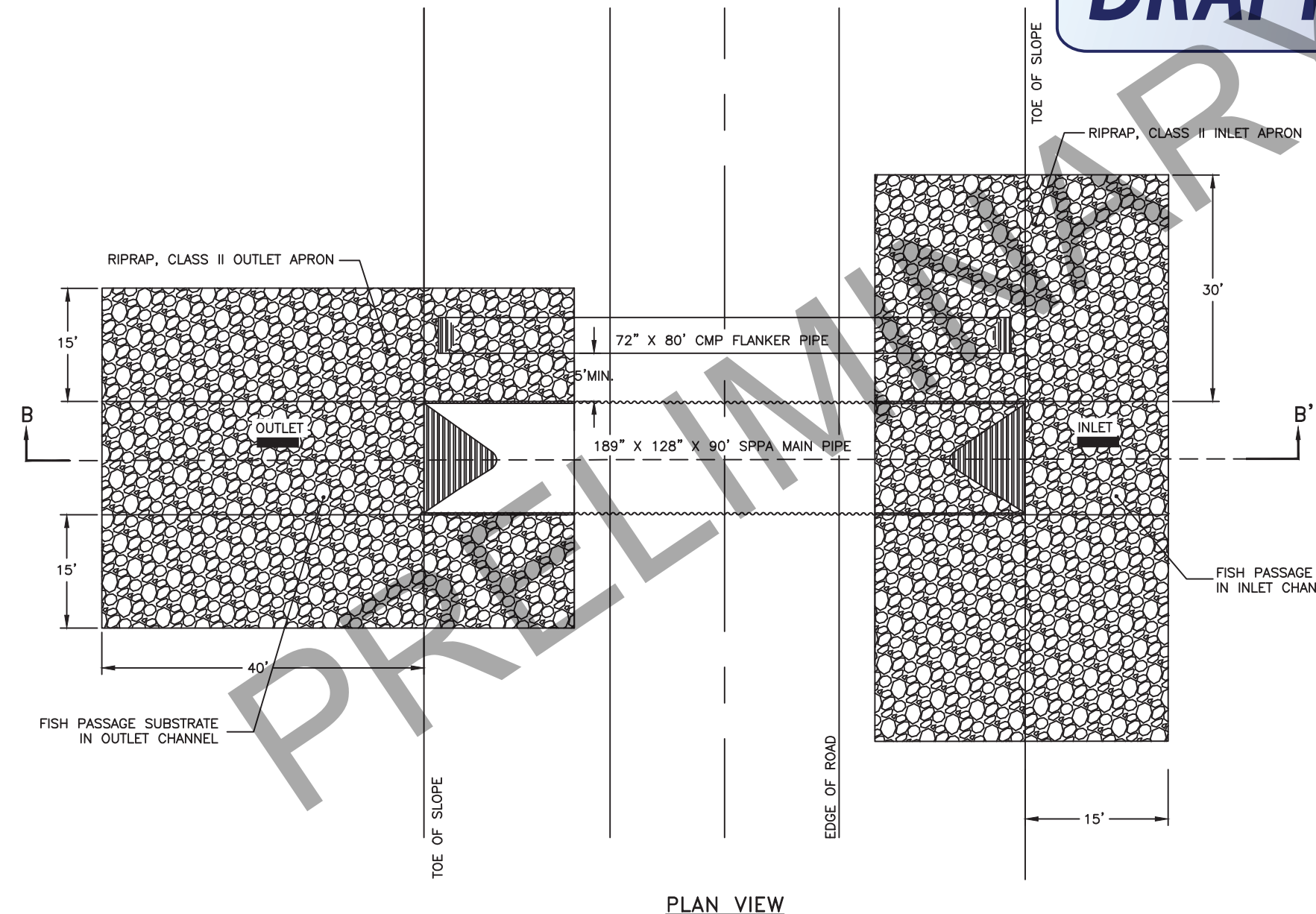
1. THIS CULVERT WAS DESIGNED TO PROVIDE FISH PASSAGE.
2. INSTALL A 189" X 128" STRUCTURAL PLATE PIPE ARCH EMBEDDED 2.0 FEET INTO THE CHANNEL BOTTOM.
3. EXTEND FORESLOPE PROTECTION 3 FEET ABOVE THE PIPE ON THE INLET SIDE, AND TO THE TOP OF THE PIPE ON THE OUTLET SIDE. PROTECTION SHALL BE INSET INTO THE ROADWAY TYPICAL PRISM.
4. FISH PASS SUBSTRATE WILL HAVE VOIDS FILLED WITH FILLER MATERIAL AS SPECIFIED IN SPECIAL PROVISION 628.

**CULVERT INSTALLATION DETAILS, KOUGAROK RD MILE 79.5**

DESCRIPTION	LOCATION	DIAMETER OR SPAN X RISE (IN)	LENGTH (FT)	SKEW	ELEVATIONS (FT)	
					INLET INVERT	OUTLET INVERT
MAIN PIPE 8 GAGE SPP	15+45	189 X 128	90	0 DEG	175.2	172.5
6' FLANKER	15+30	72	80	0 DEG	180.0	177.0

**DRAFT**

HYDROLOGIC & HYDRAULIC SUMMARY					
KOUGAROK ROAD, MILE 79.5 - QUARTZ CREEK - STATION 15+45					
BASIN AREA (SQ. MI)	QFISH (CFS)	Q2 (CFS)	Q5 (CFS)	Q50 (CFS)	Q100 (CFS)
30	97.1	276	468	975	1140
HEADWATER ELEVATION @Q50 IS 185.5 FT, HEADWATER ELEVATION @Q100 IS 186.5 FT					
ROAD OVERTOPS AT APPROXIMATELY 1935.3 CFS, $H_w/D @ 1 = 1050$ CFS					
CULVERT PURPOSE: CROSS DRAINAGE/FISH PASSAGE					



QUARTZ CREEK  
KOUGAROK ROAD MP 79.5

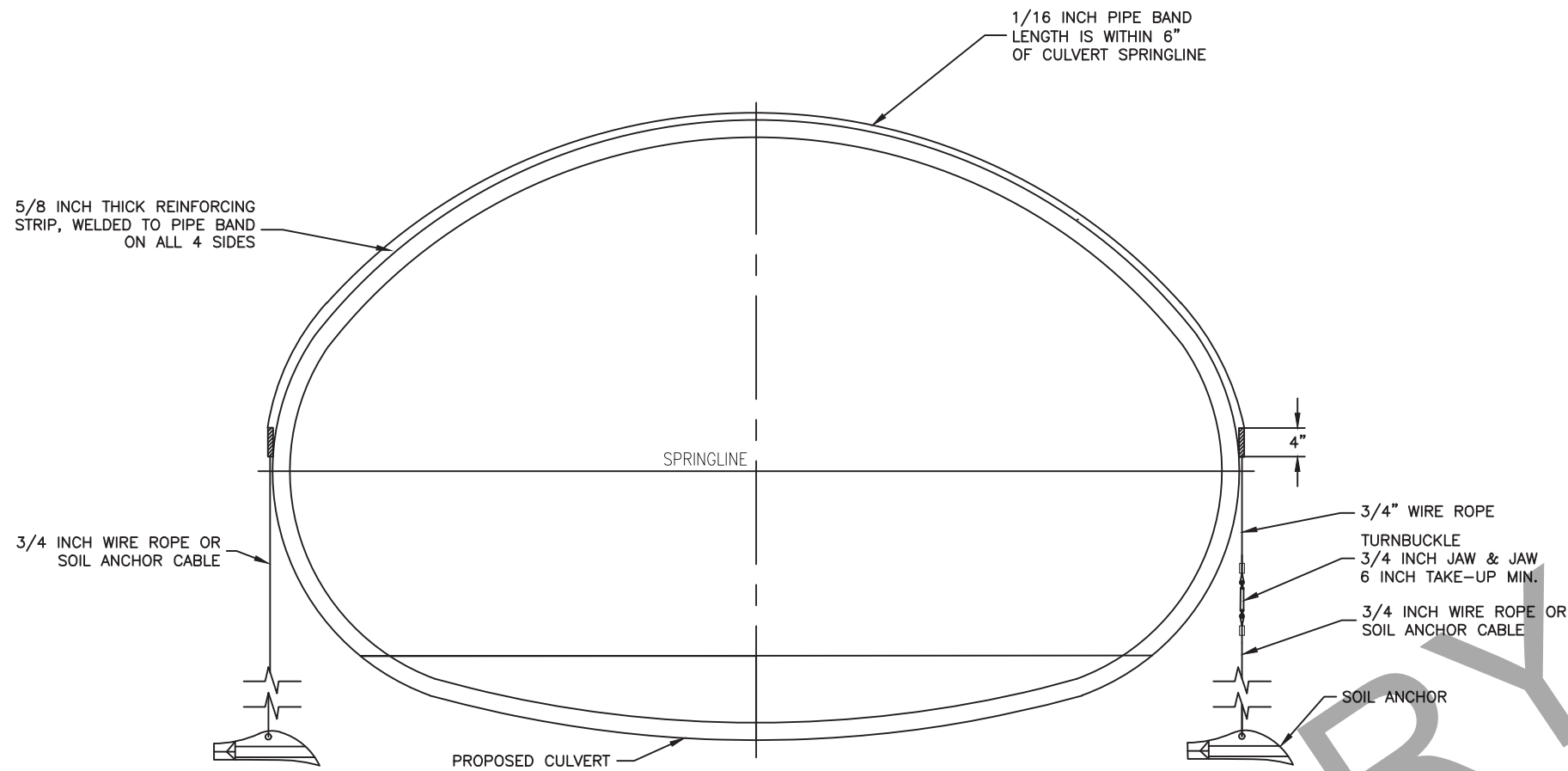


PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200

\\dot.soa.alaska.gov\shared\NR\preconstruction\Support\_Hydraulics\Working\_Restricted\Projects\_M&C\Nome-MP 79.6 Kougarok Road\Soil Anchor-Kougarok Rd MP 79.6-ANCHOR DETAILS

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	733519/NDRER00895	2024	E2	E2

MINIMUM HARDWARE SIZE				
CULVERT DIA./SPAN (FT)	WIRE ROPE DIA. (IN)	TURNBUCKLE DIA. (IN)	MINIMUM WIRE ROPE TURNBACK/SPLICE (IN)	U-BOLT NUT TORQUE (FT-LB)
2.00 TO 6.00	5/16	7/8	5 1/2	30
6.01 TO 10.00	3/8	1	6 1/4	45
10.01 TO 16.00	7/16	1 1/4	7	65
16.01 TO 19.99	1/2	1 1/2	11	65

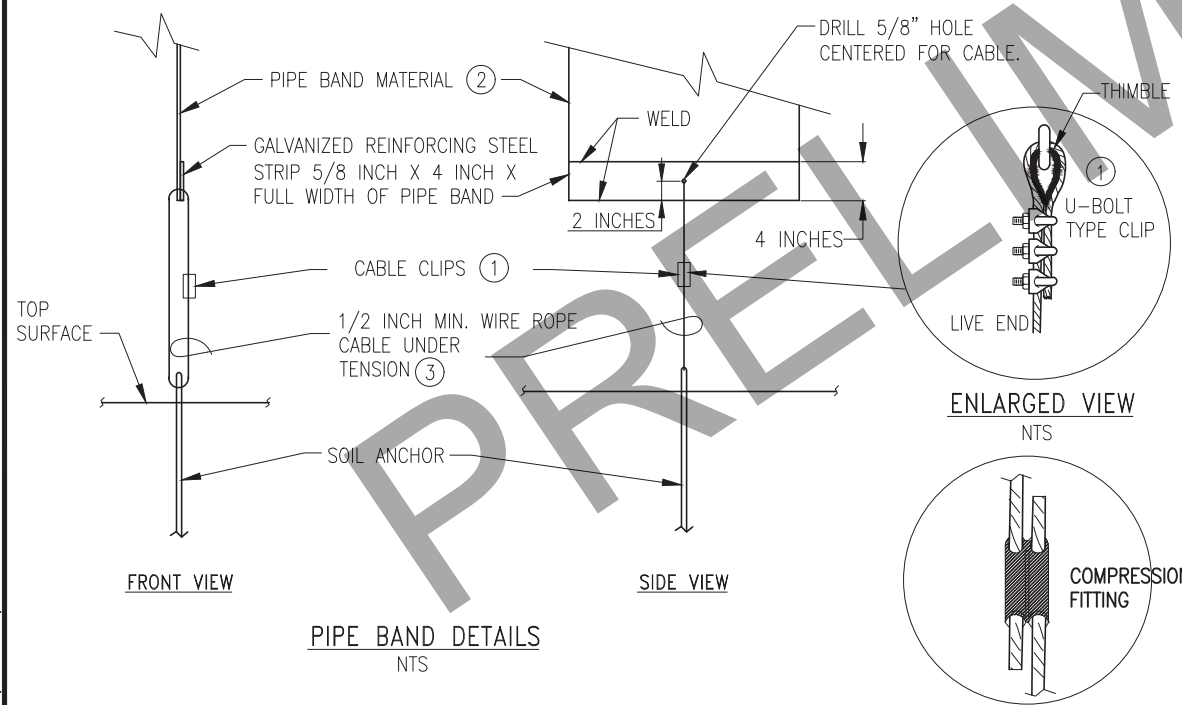


**END RESTRAINT DETAIL**  
NOT TO SCALE

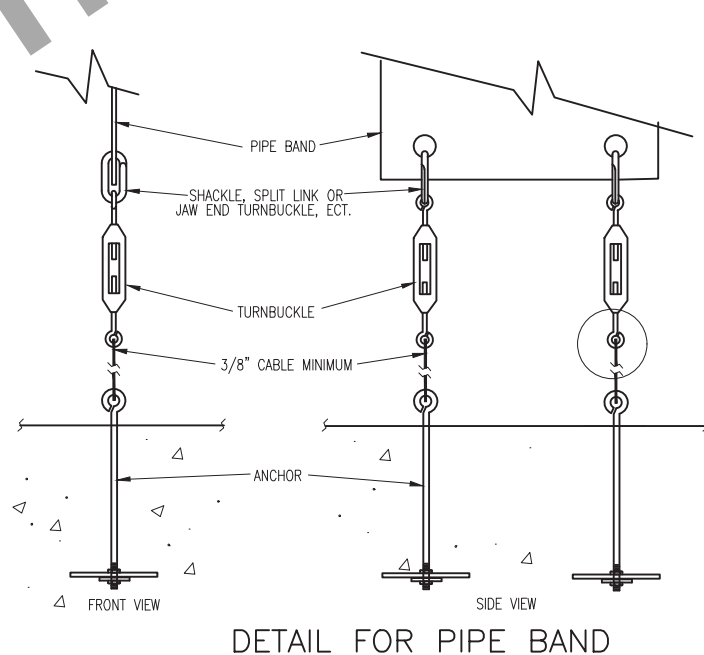
**DRAFT**

**NOTES:**

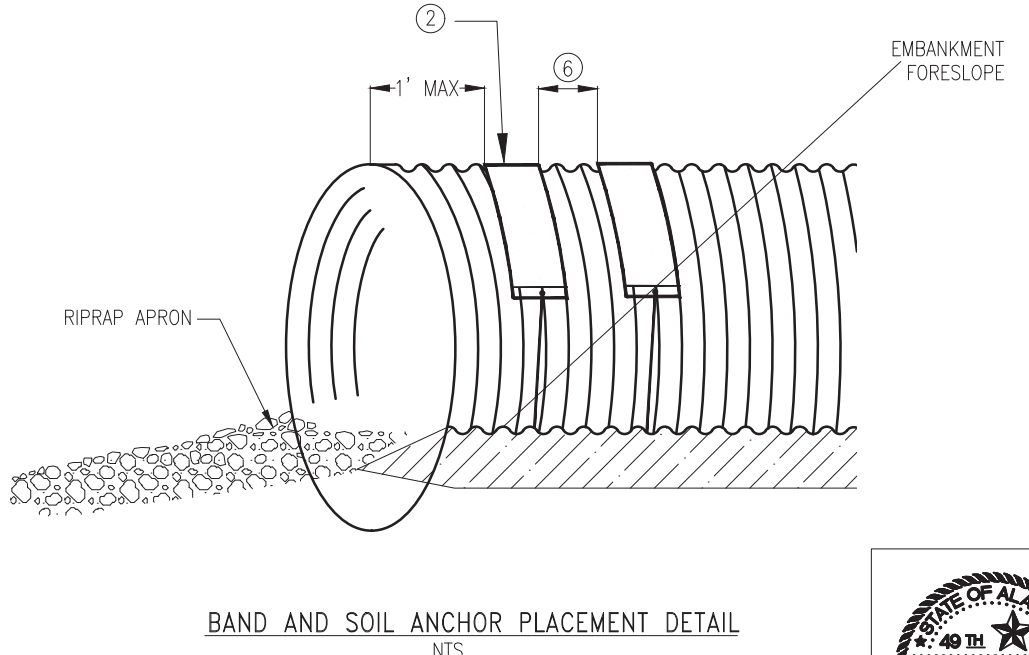
- IF DROP FORGED U-BOLT TYPE CLIPS ARE USED, THEY SHOULD BE INSTALLED USING THE FOLLOWING:
  - AMOUNT WIRE ROPE TO TURN BACK OR SPLICE: SEE TABLE.
  - TORQUE REQUIRED TO REACH HOLDING POWER: SEE TABLE.
  - SPACING: DIAMETER OF THE ROPE (INCHES) TIMES 6. THE BASE OF THE CLAMPS AND NUTS MUST BE ON THE LIVE END OF THE WIRE. INSTALL THIMBLE.
- THE LENGTH OF THE PIPE BANDS SHALL BE A MINIMUM OF HALF THE CIRCUMFERENCE OF THE ROUND CULVERT OR SHALL EXTEND TO WITHIN 6" OF THE SPRINGLINE ON PIPE ARCH CULVERT. THE PIPE BANDS SHALL BE A MINIMUM THICKNESS OF 1/16" GALVANIZED ASTM A1011 SS GRADE 36 OR MINIMUM THICKNESS 0.109" GALVANIZED AASHTO M218. THE REINFORCING STRIP SHALL BE GALVANIZED ASTM A36.
- WIRE ROPE SHALL BE 6X19 IWRC, EIPS & GAVANIZED AND MEET AASHTO M30 TYPE II REQUIREMENTS OR APPROVED EQUAL.
- ALL HARDWARE SHALL BE GALVANIZED TO MEET AASHTO M232.
- ALL WORK AND MATERIALS REQUIRED FOR THE CONSTRUCTION AND INSTALLATION OF THE SOIL ANCHOR ASSEMBLIES SHALL BE PAID UNDER 602 PAY ITEMS .
- IF MORE THAN ONE ASSEMBLY IS SPECIFIED, MINIMUM DISTANCE BETWEEN BANDS SHALL BE TWICE THE MANUFACTURER'S RECOMMENDED INSTALLATION DEPTH OF SOIL ANCHOR.
- INSTALL 2 ANCHOR ASSEMBLIES (2 BANDS + 4 SOIL ANCHORS) AT THE INLET AND OUTLET OF THE MAIN CULVERT.



**PIPE BAND DETAILS**  
NTS



**DETAIL FOR PIPE BAND**



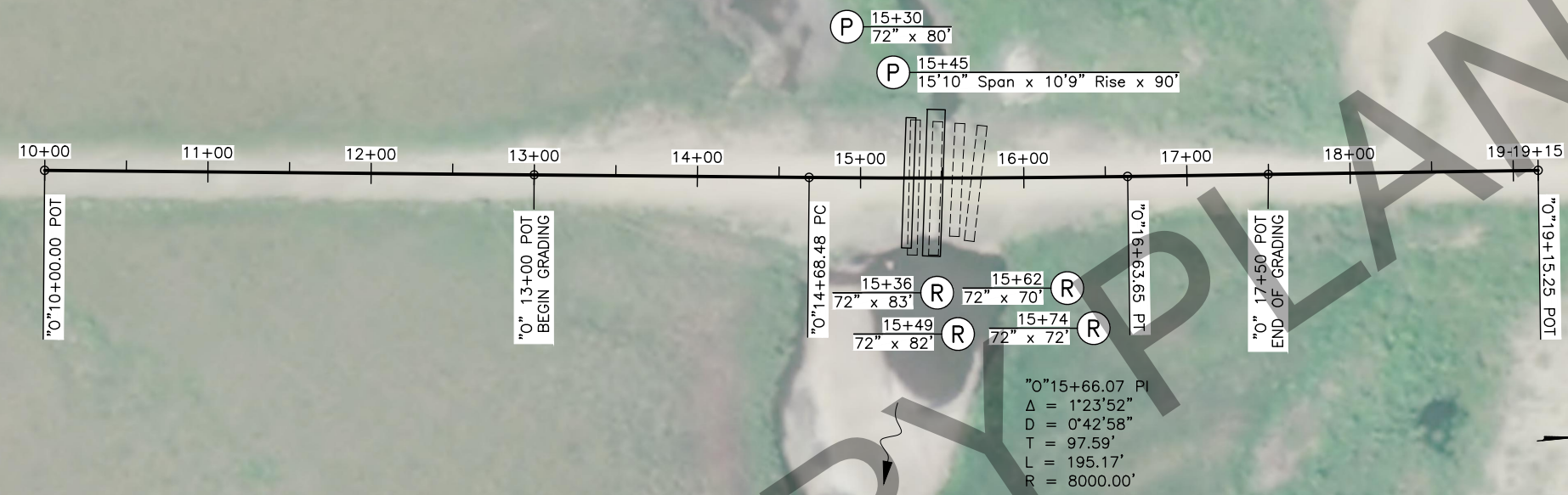
**BAND AND SOIL ANCHOR PLACEMENT DETAIL**  
NTS

**CULVERT ANCHOR DETAILS**





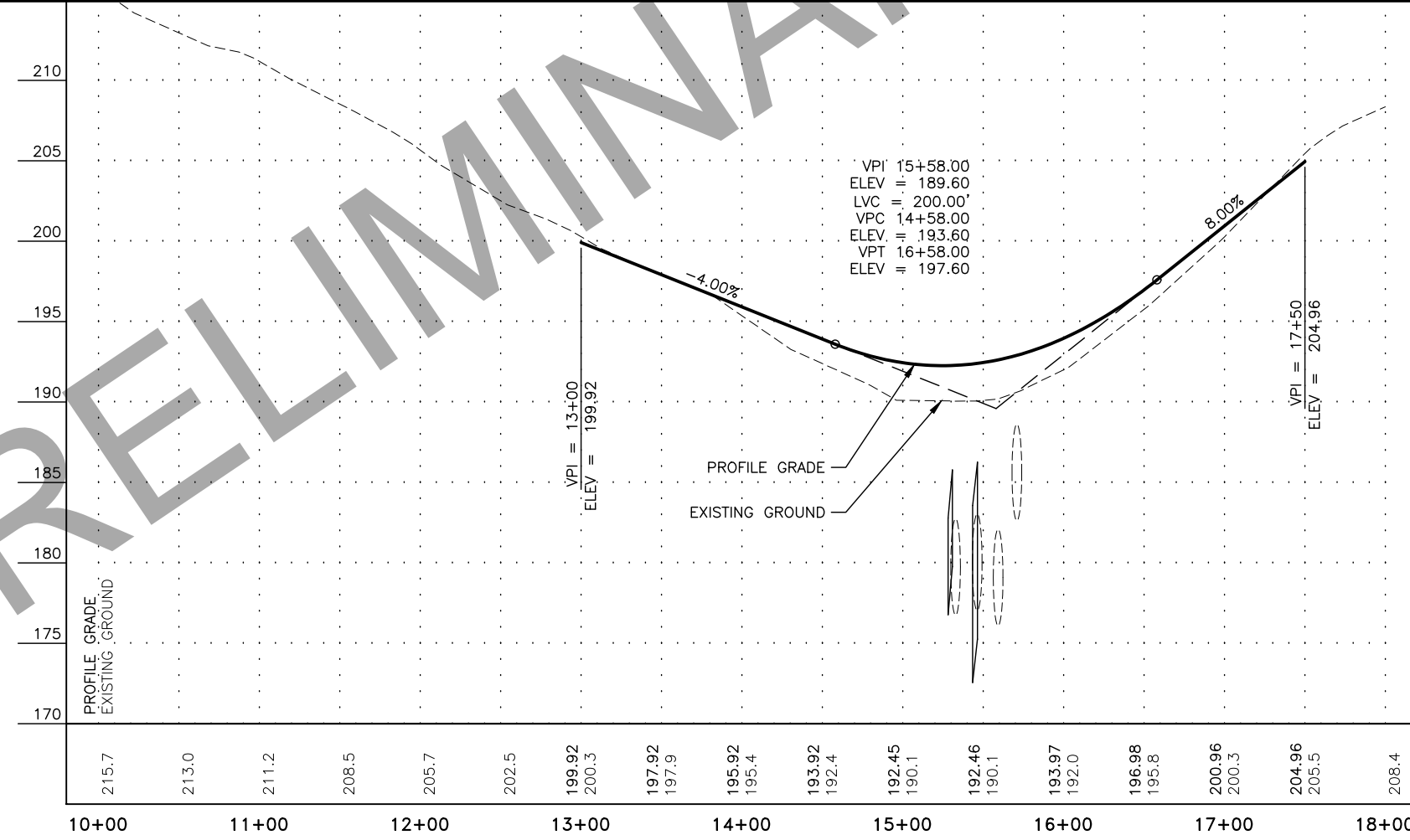
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/ NDRER00895	2024	F1	F1



**PLAN VIEW KEY**

**(P)** STATION  
DIAMETER X LENGTH  
INSTALL CULVERT PIPE

**(R)** STATION  
DIAMETER X LENGTH  
REMOVE CULVERT PIPE



**TRANSITION DETAIL**  
NTS

**GENERAL NOTES:**

- TRANSITION TO MATCH EXISTING GRADE AT BEGINNING AND END OF THE REPAIR AREA PER TRANSITION DETAIL OR AS APPROVED BY THE ENGINEER. THE TRANSITION SHALL BE COMPLETED WITHIN THE REPAIR AREA.
- PROFILE GRADE MAY BE ADJUSTED AS APPROVED BY THE ENGINEER TO PROVIDE A BETTER FIT INTO EXISTING GROUND

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NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/ NDRER00895	2024	Q1	Q3

**GENERAL SITE INFORMATION:**

SITE FUNCTION: ROAD

1. AVERAGE ANNUAL PRECIPITATION = 16.06 INCHES. (SOURCE: WESTERN REGIONAL CLIMATE CENTER WEBSITE, NOME MUNI AP, ALASKA 506496 WEATHER STATION)
2. 2 YEAR, 24 HOUR PRECIPITATION = 0.935 INCHES (SOURCE: NOAA NATIONAL WEATHER SERVICE PRECIPITATION FREQUENCY DATA SERVER (PFDS) MAP, QUARTZ CREEK, 80-1980 STATION)

PROJECT AREA (ACRE)	1.5 ACRE
RECLAIMED PAVEMENT AREA (ACRE)	0.00
PRE-CONSTRUCTION RUNOFF COEFFICIENT	0.372
POST-CONSTRUCTION RUNOFF COEFFICIENT	0.372

**ENVIRONMENTAL INFORMATION:**

1. RECIEVEING WATER BODIES: QUARTZ CREEK, PILGRIM RIVER, AND KUZITRIN RIVER.
2. IMPAIRED WATER BODIES: NONE.
3. TOTAL MAXIMUM DAILY LOAD (TDML): NONE.
4. THREATENED AND ENDANGERED SPECIES: NONE.
5. HISTORIC AND CULTURAL RESOURCE PRESENCE: NONE.
6. FISH AND WILDLIFE ESSENTIAL HABITAT: NONE.
7. WETLANDS: DRAWN ON SHEET Q2.
8. PERMITS: ADF&G FISH HABITAT PERMIT AND USCACE NATIONWIDE PERMIT.
9. CONTACT THE PROJECT ENGINEER WITH QUESTIONS/CONCERNS REGARDING ENVIRONMENTAL ISSUES OR PERMIT INFORMATION.

**ESCP NOTES:**

GENERAL:

1. A SWPPP IS REQUIRED FOR THIS PROJECT
2. READ AND COMPLY WITH THE CONSTRUCTION GENERAL PERMIT (CGP) AND SECTION 641 OF THE PROJECT SPECIFICATIONS.
3. INITIATE EROSION AND SEDIMENT CONTROLS PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
4. STOCKPILE AND STAGING AREAS SHALL BE RECLAIMED TO THEIR ORIGINAL CONDITION AS APPROVED BY THE ENGINEER.
5. TEMPORARY BMP'S, IF REQUIRED, ARE SUBSIDIARY TO OTHER ITEMS.

CULVERTS:

6. PROVIDE TEMPORARY INLET AND OUTLET PROTECTION FOR PROPOSED CULVERTS IN THE AREA OF DISTURBANCE PRIOR TO MAKING OPERATIONAL OR BEGINNING EARTH DISTURBING ACTIVITIES.
7. PERMANENT CULVERT INLET AND OUTLET PROTECTION IS RIPRAP AND ESTABLISHED VEGETATION.

PERIMETER CONTROL:

8. A 25' VEGETATIVE BUFFER IS THE PREFERRED PERIMETER PROTECTION FOR THIS PROJECT.

HAULING:

9. ENSURE LOADS ARE STABLE OR COVERED SO THAT NO MATERIAL ESCAPEMENT OCCURS DURING HAULING ACTIVITIES.

STOCKPILE PROTECTION:

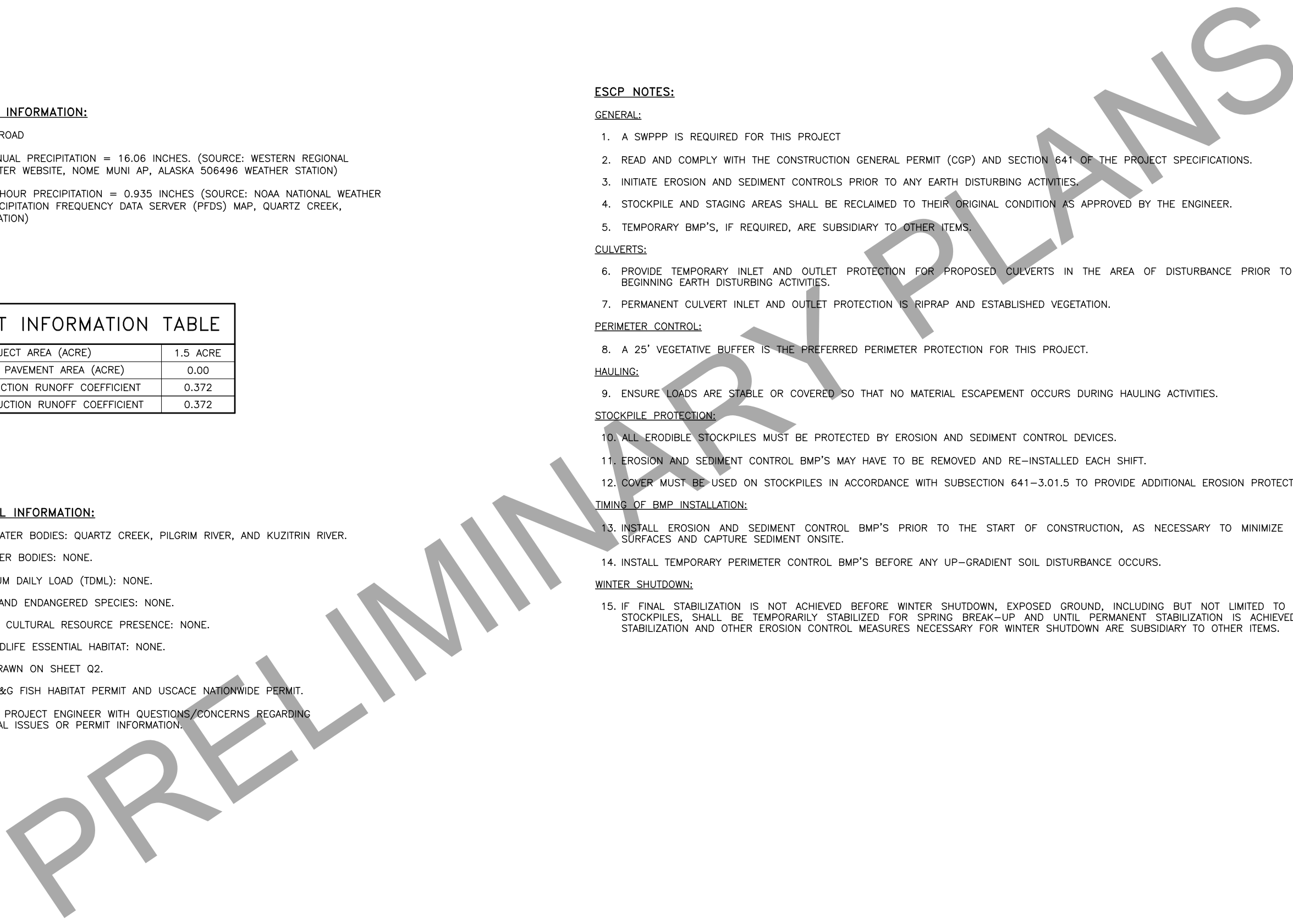
10. ALL ERODIBLE STOCKPILES MUST BE PROTECTED BY EROSION AND SEDIMENT CONTROL DEVICES.
11. EROSION AND SEDIMENT CONTROL BMP'S MAY HAVE TO BE REMOVED AND RE-INSTALLED EACH SHIFT.
12. COVER MUST BE USED ON STOCKPILES IN ACCORDANCE WITH SUBSECTION 641-3.01.5 TO PROVIDE ADDITIONAL EROSION PROTECTION.

TIMING OF BMP INSTALLATION:

13. INSTALL EROSION AND SEDIMENT CONTROL BMP'S PRIOR TO THE START OF CONSTRUCTION, AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ONSITE.
14. INSTALL TEMPORARY PERIMETER CONTROL BMP'S BEFORE ANY UP-GRADIENT SOIL DISTURBANCE OCCURS.

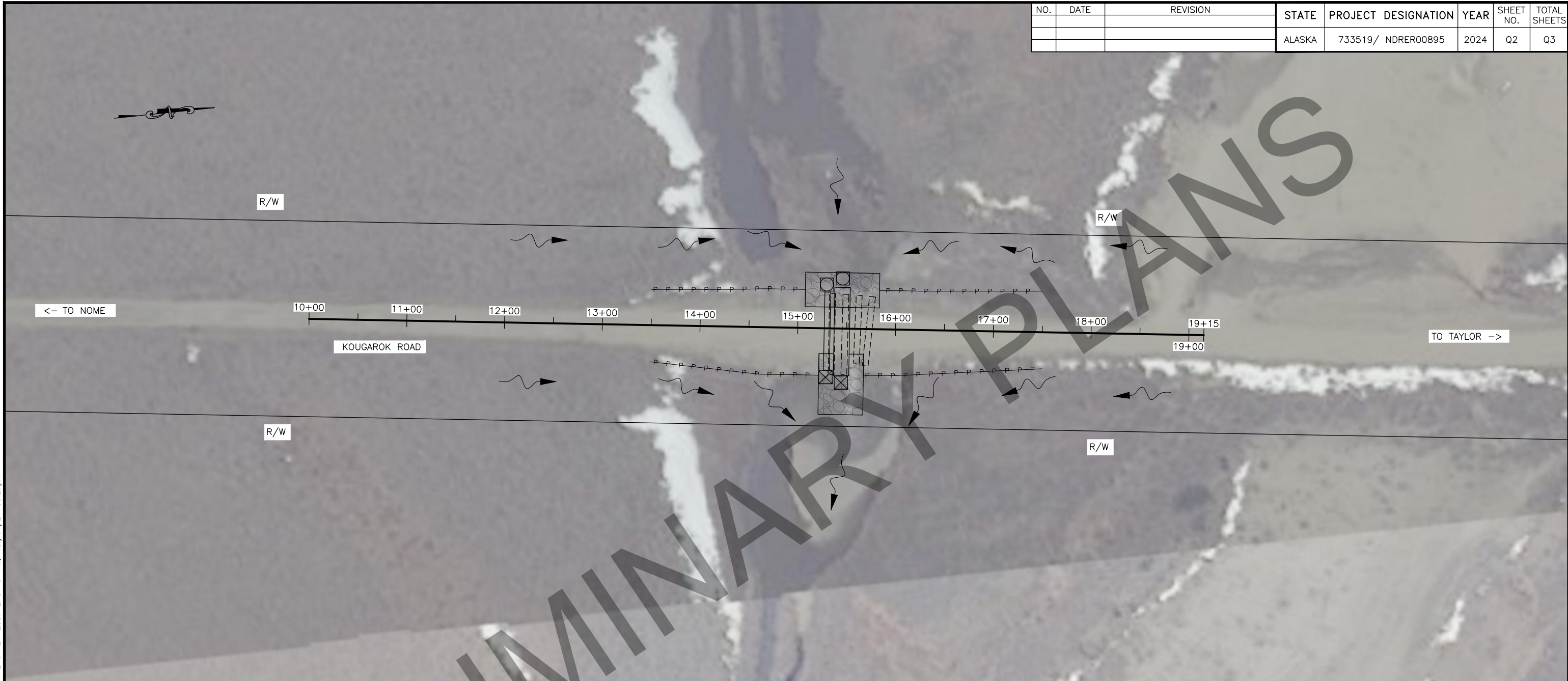
WINTER SHUTDOWN:

15. IF FINAL STABILIZATION IS NOT ACHIEVED BEFORE WINTER SHUTDOWN, EXPOSED GROUND, INCLUDING BUT NOT LIMITED TO EMBANKMENT SLOPES AND STOCKPILES, SHALL BE TEMPORARILY STABILIZED FOR SPRING BREAK-UP AND UNTIL PERMANENT STABILIZATION IS ACHIEVED THE NEXT SEASON. ALL STABILIZATION AND OTHER EROSION CONTROL MEASURES NECESSARY FOR WINTER SHUTDOWN ARE SUBSIDIARY TO OTHER ITEMS.





NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/ NDRER00895	2024	Q2	Q3



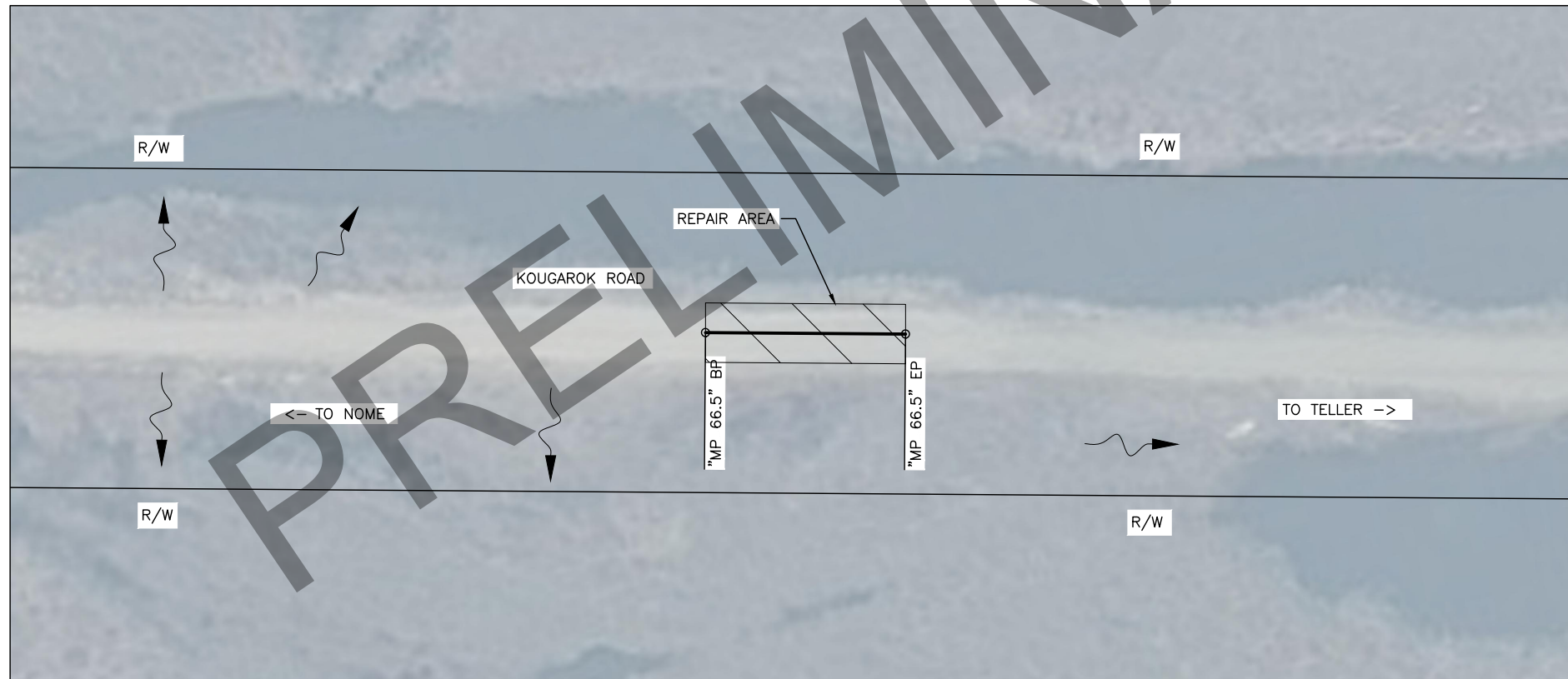
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200  
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**ESCP GENERAL NOTES:**

1. THIS ESCP IS A GENERAL PLAN FOR GUIDING THE DEVELOPMENT OF THE CONTRACTOR'S SWPPP. THE CONTRACTOR IS EXPECTED TO PROVIDE ADDITIONAL DETAILS AND BMPS BASED ON THE CONTRACTORS ACTUAL SCHEDULE AND CONSTRUCTION METHODS, AS REQUIRED TO COMPLY WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 641 OF THE PROJECT SPECIFICATIONS.
2. CONSTRUCTION ENTRANCE/EXIT MUST BE ESTABLISHED TO MINIMIZE OFF-SITE IMPACTS.
3. INSTALL PERIMETER CONTROL BMP WHEN WORKING WITHIN 25 FEET OF SURFACE WATERS AND ALONG WETLANDS WHERE A 25 FOOT VEGETATIVE BUFFER IS NOT RETAINED.
4. ALL IN-WATER WORK MUST BE ISOLATED FROM WATERS OF THE U.S. USING APPROPRIATE BMPS. ISOLATION METHODS MAY INCLUDE:
  - 4.1. SILT CURTAINS
  - 4.2. COFFERDAMS
  - 4.3. DIVERSIONS
  - 4.4. OTHER METHODS APPROVED BY THE ENGINEER
5. INLET / OUTLET PROTECTION REQUIRED FOR ALL CULVERTS, CROSSING CULVERT PROTECTION IS SHOWN ON THE ESCP SHEETS, DRIVEWAY CULVERTS ARE NOT SHOWN FOR VISUAL CLARIFICATION.
6. AREAS OF DISTURBANCE, TEMPORARY AND PERMANENT STABILIZATION, WILL BE MARKED AS WORK PROCEEDS AND ADDED TO THE LEGEND.
7. REFER TO APPENDIX A OF THE CONTRACT FOR ENVIRONMENTAL PERMIT INFORMATION.
8. REFER TO APPENDIX C OF THE CONTRACT FOR THE ESCP TEMPLATE.

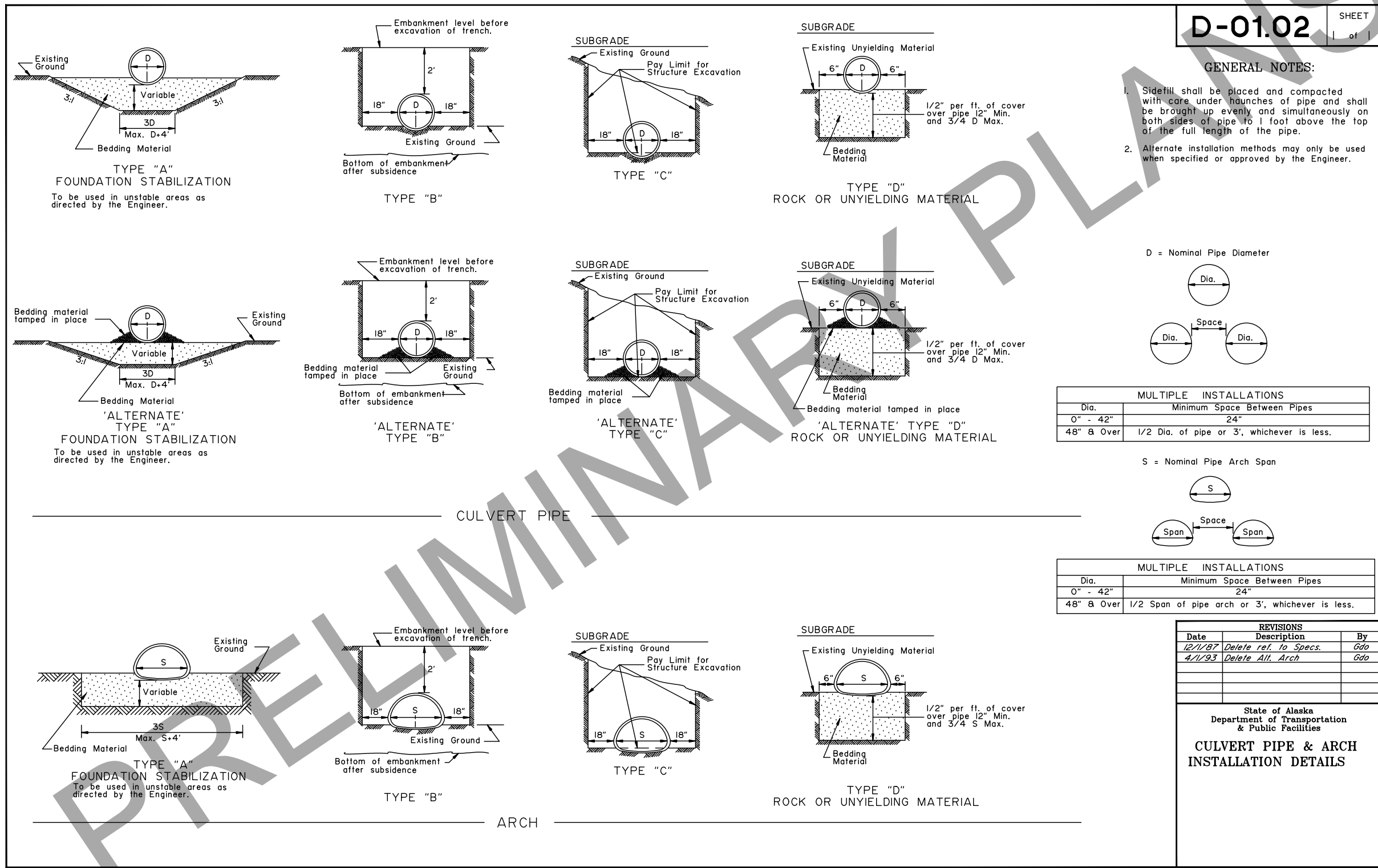
ESCP LEGEND:	
WETLANDS	
EXISTING CULVERT	
NEW CULVERT	
RIPRAP	
REVEGETATIVE EFFORT	
PERIMETER CONTROL	
INLET PROTECTION	
OUTLET PROTECTION	
EXISTING SURFACE FLOW DIRECTION	
CHECK DAMS OR OTHER VELOCITY CONTROL BMPS	
CONSTRUCTION ENTRANCE AND EXIT	

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	733519/ NDRER00895	2024	Q3	Q3



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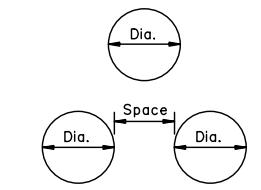
**D-01.02** SHEET of



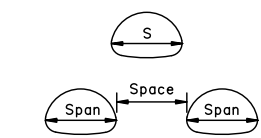
**GENERAL NOTES:**

- Sidfill shall be placed and compacted with care under haunches of pipe and shall be brought up evenly and simultaneously on both sides of pipe to 1 foot above the top of the full length of the pipe.
- Alternate installation methods may only be used when specified or approved by the Engineer.

D = Nominal Pipe Diameter



S = Nominal Pipe Arch Span



**NOTE TO DESIGNERS:**  
 INCLUDE THIS SHEET IN THE PLANS WITHOUT ANY MODIFICATIONS. FOR CONSISTENCY THIS IS PREFERRED, BUT IF MODIFICATIONS ARE NECESSARY IT IS NO LONGER A "STANDARD PLAN" AND MUST BE INCLUDED AS DETAILS ELSEWHERE IN THE PLANS.

D-01.02



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# D-04.21

## GENERAL NOTES:

- All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
- The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
- No more than one type of pipe may be used on any single installation or installation grouping.
- All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
- See Standard Plan "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
- Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflecton.
- These tables have been developed for an H-20 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section 12 of the 2000 AASHTO "LRFD Bridge Design Specifications".

GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
12	12	100+	12	100+	12	100+	12	100+	12	100+
15	12	94	12	100+	12	100+	12	100+	12	100+
18	12	75	12	94	12	100+	12	100+	12	100+
21	12	65	12	82	12	100+	12	100+	12	100+
24	12	56	12	71	12	99	12	100+	12	100+
27	12	48	12	63	12	89	12	100+	12	100+
30			12	56	12	79	12	100+	12	100+
36			12	47	12	66	12	85	12	100+
42			12	55	12	56	12	73	12	100+
48			12	47	12	49	12	63	12	78
54					15	43	15	56	15	69
60							15	50	15	62
66							18	44	18	56
72									18	45

GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
30	12	52	12	65						
36	12	43	12	54	12	100+	12	100+	12	100+
42	12	36	12	46	12	65	12	100+	12	100+
48	12	32	12	40	12	57	12	73	12	100+
54	15	28	15	35	15	50	12	65	12	100+
60	15	25	15	32	15	45	15	58	15	72
66	18	23	18	28	18	41	18	53	18	65
72	18	21	18	26	18	37	18	48	18	59
78			21	24	21	34	21	44	21	55
84					21	31	21	41	21	57
90					24	29	24	38	24	47
96					24	27	24	36	24	44
102							24	33	24	41
108							24	31	24	39
114									24	37
120									24	35

GAGE	0.100"		0.125"		0.150"		0.175"		0.200"		0.225"		0.250"	
	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
60	12	29	12	38	12	49	12	58	12	58	12	58	12	58
66	12	26	12	35	12	44	12	53	12	53	12	53	12	53
72	13	24	12	32	12	41	12	48	12	48	12	48	12	48
78	14	22	12	29	12	37	12	45	12	45	12	45	12	45
84	15	20	13	27	12	35	12	41	12	41	12	41	12	41
90	16	19	14	25	13	32	12	39	12	39	12	39	12	39
96	17	18	15	24	14	30	13	36	12	36	12	36	12	36
102	18	17	16	22	15	29	14	34	13	34	13	34	13	34
108	19	16	17	21	16	27	14	32	14	32	14	32	14	32
114	20	15	18	20	16	25	15	30	15	30	15	30	15	30
120	21	14	19	19	17	24	16	29	15	29	15	29	15	29
126	22	13	20	18	18	23	17	27	16	27	16	27	16	27
132	23	13	21	17	19	22	18	26	17	26	17	26	17	26
138	24	12	22	16	20	21	18	25	18	25	18	25	18	25
144	25	12	22	16	21	20	19	24	18	24	18	24	18	24
150			23	15	21	20	20	23	19	23	19	23	19	23
156			24	14	22	18	21	22	20	22	20	22	20	22
162						23	18	22	21	21	21	21	21	21
168						24	17	22	20	21	20	21	20	21
174						25	17	23	20	22	20	22	20	22
180								24	19	23	19	23	19	23

\*Longitudinal seams use (5 1/3) 3/4" dia. bolts per foot.

58  
100+  
Upper figure for pipe with aluminum bolts.  
(FOR TABLE ABOVE ONLY.)  
Lower figure for pipe with galvanized steel bolts.

CORRUGATED CIRCULAR ALUMINUM PIPE

CORRUGATED ALUMINUM PIPE-ARCH

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft)	
				2 Tons Corner Bearing Pressure	3 Tons Corner Bearing Pressure
17 x 13	3	0.060	12	13	20
21 x 15	3	0.060	12	12	19
24 x 18	3	0.060	12	11	16
28 x 20	3	0.075	12	10	16
35 x 24	3	0.075	12	9	14
42 x 29	3 1/2	0.105	12	7	13
49 x 33	4	0.105	15	6	12
57 x 38	5	0.135	15	6	12
64 x 43	6	0.135	18	6	12
71 x 47	7	0.164	18	6	12

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft)	
				2 Tons Corner Bearing Pressure	3 Tons Corner Bearing Pressure
40 x 31	5	0.075	30	8	12
46 x 36	6	0.075	24	8	13
53 x 41	7	0.075	24	8	13
60 x 46	8	0.075	24	13	20
66 x 51	9	0.075	18	13	20
73 x 55	12	0.075	18	16	24
81 x 59	14	0.105	18	14	22
87 x 63	14	0.105	18	13	20
95 x 67	16	0.105	18	12	18
103 x 71	16	0.135	24	11	17
112 x 75	18	0.164	24	10	16
117 x 79	18	0.164	24	10	15

Span x Rise (Ft-In x Ft-In)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (Ft)	Max. Cover in Feet For Soil Bearing Capacity of:	
				2 Tons/ft <sup>2</sup>	3 Tons/ft <sup>2</sup>
5 - 11 x 5 - 5	31.8	0.100	2	24**	24**
6 - 11 x 5 - 9	31.8	0.100	2	22**	22**
7 - 3 x 5 - 11	31.8	0.100	2	20**	20**
7 - 9 x 6 - 0	31.8	0.100	2	28**	18**
8 - 5 x 6 - 3	31.8	0.100	2	17**	17**
9 - 3 x 6 - 5	31.8	0.100	2	15**	15**
10 - 3 x 6 - 9	31.8	0.100	2	14**	14**
10 - 9 x 6 - 10	31.8	0.100	2	13**	13**
11 - 5 x 7 - 1	31.8	0.100	2	12**	12**
12 - 7 x 7 - 5	31.8	0.125	2	14	16**
12 - 11 x 7 - 6	31.8	0.150	2	13	14**
13 - 1 x 8 - 2	31.8	0.150	2	13	18**
13 - 11 x 8 - 5	31.8	0.150	2	12	17**
14 - 8 x 9 - 8	31.8	0.175	2	12	18
15 - 4 x 10 - 0	31.8	0.175	2	11	17
16 - 1 x 10 - 4	31.8	0.200	2	10	16
16 - 9 x 10 - 8	31.8	0.200	2.17	10	15
17 - 3 x 11 - 0	31.8	0.225	2.25	10	15
18 - 0 x 11 - 4	31.8	0.255	2.25	9	14
18 - 8 x 11 - 8	31.8	0.250	2.33	9	14

\*Longitudinal seams use (5 1/3) 3/4" dia. bolts per foot.

\*\*F<sub>ll</sub> limited by the seam strength of the bolts. 3/4" dia. bolts per foot.

ALUMINUM	GAGE NO. (For Info Only)
0.060	16
0.075	14
0.105	12
0.135	10
0.164	8

This column shall not be used unless specified on the plans or approved by the Regional Geotechnical Engineer.

Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	Pipe Table Updates & New Sheet 4	LRG

Sheet 1 of 4

State of Alaska  
Department of Transportation & Public Facilities

PIPE AND ARCH TABLES

NOTE TO DESIGNERS:  
INCLUDE THIS SHEET IN THE PLANS WITHOUT ANY MODIFICATIONS. FOR CONSISTENCY THIS IS PREFERRED, BUT IF MODIFICATIONS ARE NECESSARY IT IS NO LONGER A "STANDARD PLAN" AND MUST BE INCLUDED AS DETAILS ELSEWHERE IN THE PLANS.

D-04.21A



D-04.21





STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	TBD/ NDRER00826	2024	V4	V5

**D-04.21**

Maximum Cover for Type S Corrugated Polyethelene Pipe	
Size (in.)	Max. Cover (ft.)
12	30.0
15	30.0
18	30.0
24	30.0
30	30.0
36	30.0
40	20.0
48	20.0

**GENERAL NOTES**

- All materials and workmanship shall be in accordance with the State of Alaska Standard Specifications for Highway Construction.
- For foundation and structural backfill details see Standard Plan "Culvert Pipe & Arch Installation Details".
- Pipe cover height is measured from top of the pipe to top of rigid pavement, or to the top of subgrade for flexible pavement. In all cases the minimum cover shall be no less than 2 ft. Where loads traverse the culvert during construction minimum cover shall be no less than 4 ft.

REVISIONS		
Date	Description	By
10/31/03	New Sheet 4.	LRG

Sheet 3 of 4

State of Alaska  
Department of Transportation  
& Public Facilities

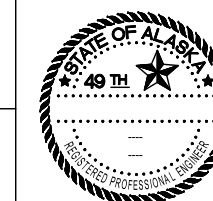
PIPE AND ARCH TABLES

D-04.20

**NOTE TO DESIGNERS:**

INCLUDE THIS SHEET IN THE PLANS WITHOUT ANY MODIFICATIONS. FOR CONSISTENCY THIS IS PREFERRED, BUT IF MODIFICATIONS ARE NECESSARY IT IS NO LONGER A "STANDARD PLAN" AND MUST BE INCLUDED AS DETAILS ELSEWHERE IN THE PLANS.

D-04.21C



PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200  
H:\Projects\Communities\Norme\_00895\_Norme\_Kougarok\_79.5\04 PS&E\04 Plans\04 D-04.22c-V4 D-04.22c-V4 D-04.22c Thu, Mar/07/24 03:29pm

# D-04.21

## GENERAL NOTES

- All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
- The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
- No more than one type of pipe may be used on any single installation or installation grouping.
- All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
- See Standard Plan "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
- Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflection.
- These tables have been developed for an H-20 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section 12 of the 2000 AASHTO "LRFD Bridge Design Specifications".

GAGE	0.060"		0.075"		0.105"		0.135"	
	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
12	24	35	24	50				
18	24	34	24	49				
24	24	25	24	36	24	63	24	82
30	24	19	24	28	24	50	24	65
36	24	15	24	24	24	41	24	54
42			24	19	24	35	24	46
48			24	17	24	30	24	40
54			24	14	24	27	24	35
60			24	12	24	24	24	30

\* $\frac{3}{4}$  x  $\frac{3}{4}$  x  $\frac{7}{8}$  in. or  $\frac{3}{4}$  x 1 x  $\frac{1}{2}$  in. Corrugations

Span x Rise (In. x In.)	Min. Cover (In.)	Soil Corner Bearing Capacity of 2 Tons/ s.f.		
		0.060"	0.075"	0.105"
		Max. Cover (ft.)	Max. Cover (ft.)	Max. Cover (ft.)
20 x 16	12	13		
23 x 19	12	14		
27 x 21	12	13		
33 x 26	12	13		
40 x 31	12	13		
46 x 36	12	14		
53 x 41	18		13	
60 x 46	18		20	
66 x 51	18		21	
73 x 55	18			21
81 x 59	18			17
87 x 63	18			17
95 x 67	18			17

\* $\frac{3}{4}$  x  $\frac{3}{4}$  x  $\frac{7}{8}$  in. or  $\frac{3}{4}$  x 1 x  $\frac{1}{2}$  in. Corrugations

ALUMINUM SPIRAL RIB PIPE

STEEL SPIRAL RIB PIPE

GAGE	0.064"		0.079"		0.109"		0.138"	
	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
18	12							
24	12	51	12	72	12	121		
30	12	41	12	58	12	97		
36	12	34	12	48	12	81		
42	12	29	12	41	12	69		
48	12	26	12	36	12	61		
54	18	23	18	32	18	54		
60	18	21	18	29	18	49	18	73
66	18	19	18	26	18	44	18	65
72			18	24	18	40	18	59
78			24	22	24	37	24	55
84			24	21	24	35	24	52
90					24	32	24	47
96					24	30	24	44
102					30	29	30	43
108					30	27	30	41

\* $\frac{3}{4}$  x  $\frac{3}{4}$  x  $\frac{7}{8}$  in. or  $\frac{3}{4}$  x 1 x  $\frac{1}{2}$  in. Corrugations  
 \*\* $\frac{3}{4}$  x  $\frac{3}{4}$  x  $\frac{7}{8}$  in. Corrugations Only.

Span x Rise (In. x In.)	Min. Cover (In.)	Soil Corner Bearing Capacity of 2 Tons/ s.f.		
		0.064"	0.079"	0.109"
		Max. Cover (ft.)	Max. Cover (ft.)	Max. Cover (ft.)
20 x 16	12	13		
23 x 19	12	14		
27 x 21	12	13		
33 x 26	12	13		
40 x 31	12	13		
46 x 36	12	14		
53 x 41	18		13	
60 x 46	18		20	
66 x 51	18		21	
73 x 55	18			21
81 x 59	18			17
87 x 63	18			17
95 x 67	18			17

\* $\frac{3}{4}$  x  $\frac{3}{4}$  x  $\frac{7}{8}$  in. or  $\frac{3}{4}$  x 1 x  $\frac{1}{2}$  in. Corrugations

Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	New Sheet 4.	LRG

Sheet 4 of 4

State of Alaska  
 Department of Transportation  
 & Public Facilities

PIPE AND ARCH TABLES

D-04.21

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D-04.21D

