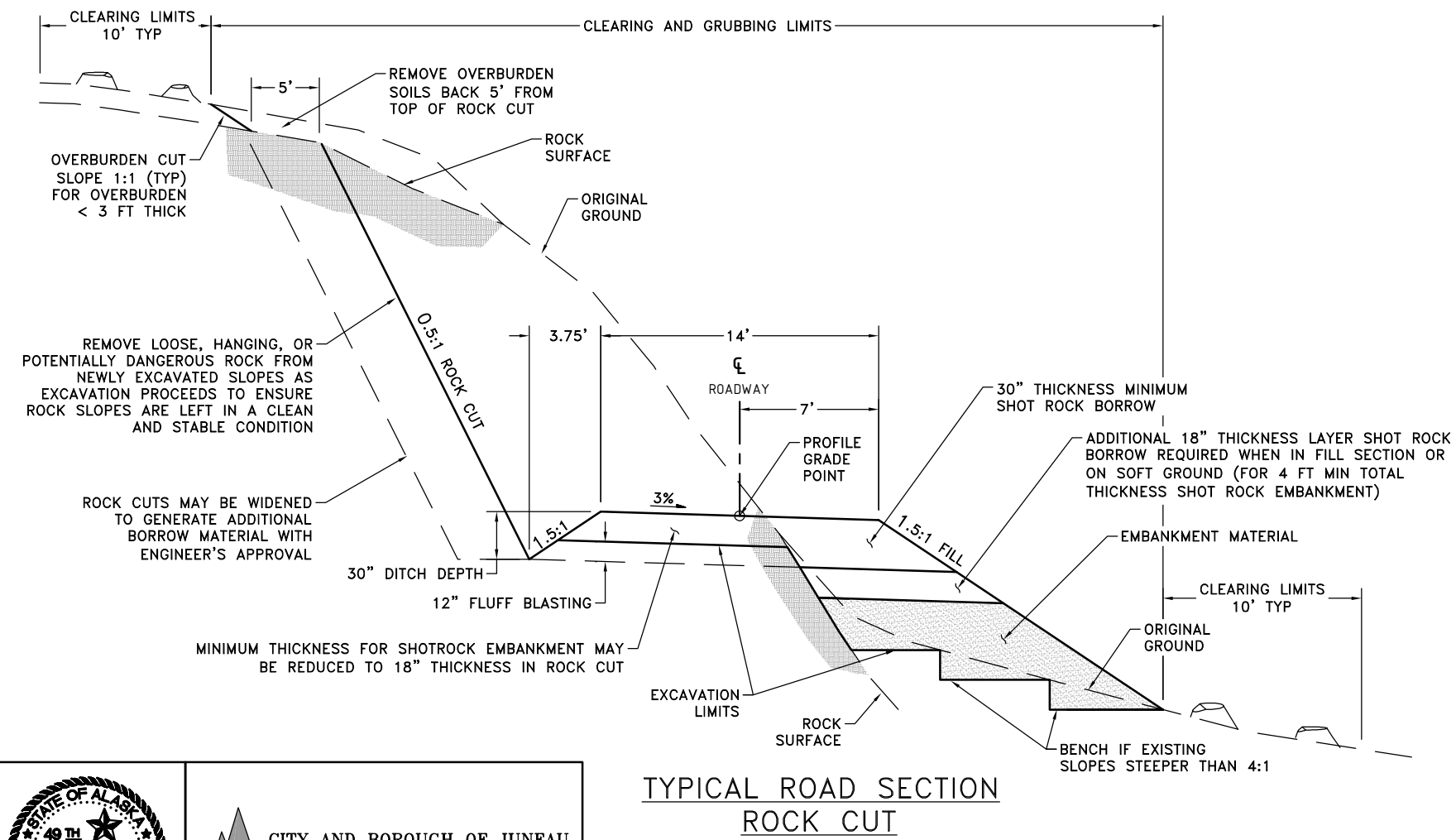


GENERAL NOTES

- CLEARING LIMITS SHALL BE FLAGGED OR OTHERWISE MARKED BY THE ENGINEER. DEVIATION FROM MARKED CLEARING LIMITS REQUIRES ENGINEER'S APPROVAL. CUT AND DISPOSE OF ALL TREES, DOWN TIMBER, HIGH STUMPS, BRUSH, BUSHES, AND DEBRIS FROM AREA DESIGNATED TO BE CLEARED. FELL TREES INWARDS TOWARDS CENTER OF AREA TO BE CLEARED IN ORDER TO MINIMIZE DAMAGE TO TREES THAT ARE TO BE LEFT STANDING. REMOVE AND DISPOSE OF TREES UNAVOIDABLY FALLING OUTSIDE CLEARING LIMITS. TREES AND BRUSH NOT GRUBBED SHALL BE CUT TO A HEIGHT OF NOT MORE THAN 6 INCHES ABOVE SURROUNDING GROUND.
- GRUBBING: REMOVE AND DISPOSE OF ALL STUMPS, ROOTS, MOSS, GRASS, TURF, DEBRIS OR OTHER OBJECTIONABLE MATERIAL WITHIN EXCAVATION LIMITS AND WITHIN FILL LIMITS WHERE THE EMBANKMENTS ARE TO BE MADE TO A DEPTH LESS THAN 4 FT BELOW PROFILE GRADE.
- THE HORIZONTAL ALIGNMENT AND GRADE MAY BE ADJUSTED WITHIN THE CLEARING LIMITS TO BETTER FIT THE TOPOGRAPHY AND SUBSURFACE CONDITIONS ENCOUNTERED.
- ADJUSTMENTS OF ALIGNMENT OR GRADE WITHIN DELINEATED WETLAND AREAS OR WATERS OF THE US REQUIRES THE ENGINEER'S APPROVAL, AND IS CONTINGENT UPON NO ADDITIONAL LOSS OF PERMITTED WETLAND AREA.
- ADJUSTMENTS TO THE HORIZONTAL AND VERTICAL ALIGNMENT SHALL CONFORM TO THE FOLLOWING STANDARDS:

MINIMUM HORIZONTAL RADIUS OF CURVATURE:	200 FT
MAXIMUM GRADE: FROM BOP TO STA 21+00	12%
FROM STA 21+00 TO EOP	10%
ON FLAT GROUND: ROLL GRADE TO ACHIEVE MINIMUM ±2% ROAD GRADE FOR DRAINAGE	
MINIMUM K VALUE FOR VERTICAL CURVE CREST OR SAG:	10
- ROAD TANGENTS TO BE OUT-SLOPED 3%. ON CURVES, ROAD TO BE SLOPED 3% TO INSIDE OF CURVE, WITH SMOOTH TRANSITIONS TO OUT-SLOPE OR REVERSE CURVE.
- INTERVISIBLE TURNOUTS:

TOP WIDTH	8 FT MINIMUM
LENGTH	30 FT MINIMUM
TRANSITIONS EACH END	15 FT MINIMUM
- TURNOUT LOCATIONS SHOWN ON THE PLAN SHEETS ARE APPROXIMATE AND MAY BE ADJUSTED BY THE ENGINEER FOR VISIBILITY.
- CONSTRUCTION VEHICLE TURNAROUNDS SHALL BE STAKED BY THE CONTRACTOR AND BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. NONE SHALL BE PLACED IN AREAS OF DELINEATED WETLANDS OR WATERS OF THE US.
- 30" MINIMUM THICKNESS SHOT ROCK EMBANKMENT REQUIRED IN TOP LAYER OF ROAD SECTION, EXCEPT WHEN IN ROCK CUT WHERE MINIMUM THICKNESS MAY BE REDUCED TO 18".
- WHEN IN FILLS OR ON SOFT GROUND, 4 FT MINIMUM THICKNESS OF SHOT ROCK EMBANKMENT REQUIRED. IF NECESSARY, PLACE GEOTEXTILE SEPARATION FABRIC WHERE DIRECTED BY THE ENGINEER.
- THE UNDERLYING GROUND SHALL BE PROPERLY PREPARED PRIOR TO PLACING EMBANKMENT MATERIAL. CLEARING, GRUBBING, AND REMOVAL OF UNSUITABLE MATERIAL (ORGANIC OVERBURDEN) MUST BE COMPLETED PRIOR TO EMBANKMENT OPERATIONS.
- BENCHING OF EXISTING SLOPES REQUIRED WHEN PLACING AND COMPACTING EMBANKMENT ON EXISTING SLOPES STEEPER THAN 4:1.
- SHOT ROCK BORROW SHALL BE PLACED WITHIN THE EMBANKMENT IN SINGLE LIFTS OF 24" MAXIMUM THICKNESS. DUMP ROCK ON THE LIFT BEING CONSTRUCTED AND DISTRIBUTE BY BLADING OR DOZING TO FILL VOIDS AND FORM A DENSE, WELL COMPACTED EMBANKMENT. DISTRIBUTE SPALLS AND FINER ROCK FRAGMENTS TO LEVEL AND SMOOTH EACH LIFT.
- ALL ROCK EMBANKMENT SURFACES SHALL BE ROLLED FULL-WIDTH WITH AS MANY PASSES OF A VIBRATORY ROLLER AS REQUIRED TO OBTAIN A SOLID MASS OF INTERLOCKING ROCK FRAGMENTS, PRIOR TO PLACING SUBSEQUENT LAYERS OF MATERIAL.
- THE SURFACE OF THE SHOT ROCK BORROW SHALL BE SEALED WITH FINES FROM SHOT ROCK MATERIALS.
- CLEARED VEGETATION, LOGS, SLASH AND GRUBBED STUMPS TO BE DISPOSED OF BY CONTRACTOR. DISPOSAL METHODS MAY INCLUDE REMOVAL FROM SITE TO APPROVED DISPOSAL AREA, BURNING, OR OTHER APPROVED METHOD. IF BURNING, CONTRACTOR SHALL OBTAIN AND COMPLY WITH ALL NECESSARY PERMITS, AND CLEAN UP AND DISPOSE OF BURN PILE DEBRIS. DISPOSAL BY BURIAL IS NOT ACCEPTABLE WITHIN FILLS OR OVERBURDEN DISPOSAL AREAS WITHIN PROJECT LIMITS.
- ORGANIC OVERBURDEN AND UNSUITABLE EXCAVATION MAY BE DISPOSED OF IN APPROVED UPLAND LOCATIONS SUCH AS BY PLACING IN WINDROWS AT TOE OF FILL OR SPREAD IN DESIGNATED QUARRY AREAS AFTER CONSTRUCTION FOR RECLAMATION AND REVEGETATION. MATERIAL SHALL BE SLOPED TO DRAIN.
- EXCESS EXCAVATION MEETING THE REQUIREMENT OF EMBANKMENT MAY BE DISPOSED OF IN ENGINEER APPROVED UPLAND LOCATIONS, GENERALLY BY WIDENING FILL SLOPES.
- BORROW MATERIAL MAY BE OBTAINED FROM WITHIN THE PROJECT AREA FROM TWO DESIGNATED ON-SITE LOCATIONS SUITABLE FOR DEVELOPMENT AS QUARRIES, AND FROM ROADWAY CUTS WHICH MAY BE WIDENED WITH ENGINEER'S APPROVAL.
- CUT SLOPES IN SOIL AND EMBANKMENTS SLOPES NOT CONSTRUCTED FROM SHOT ROCK SHALL BE STABILIZED BY SEEDING, HYDRAULIC METHOD, OR WITH A SURFACE LAYER OF 3" OR LARGER ROCK, WHERE DIRECTED BY THE ENGINEER.



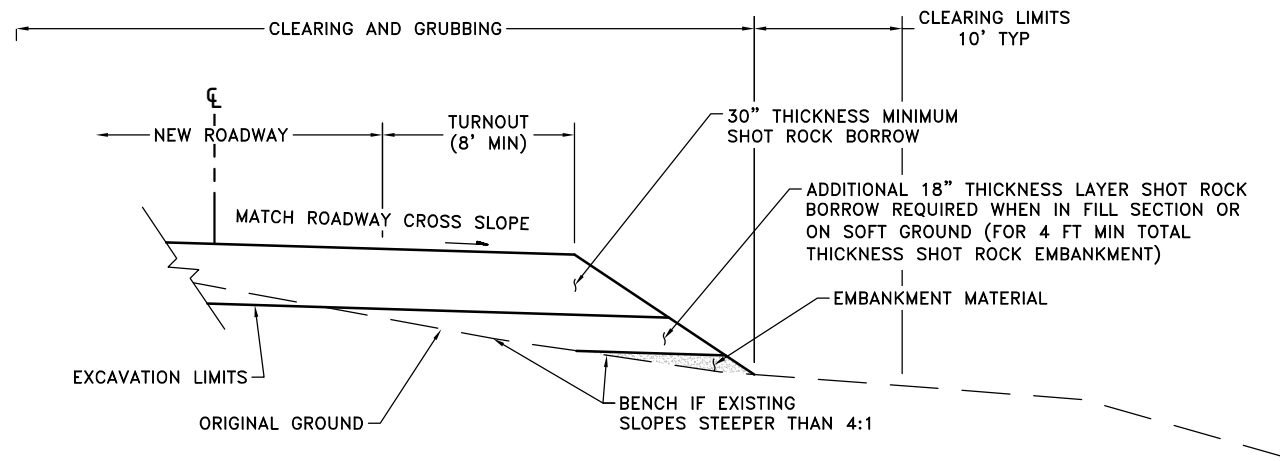
CITY AND BOROUGH OF JUNEAU
 ALASKA'S CAPITAL CITY
 DEPARTMENT OF ENGINEERING

TYPICAL ROAD SECTION ROCK CUT

WEST DOUGLAS PIONEER ROAD
 CBJ CONTRACT BE17-039

ROAD TYPICAL SECTIONS AND NOTES

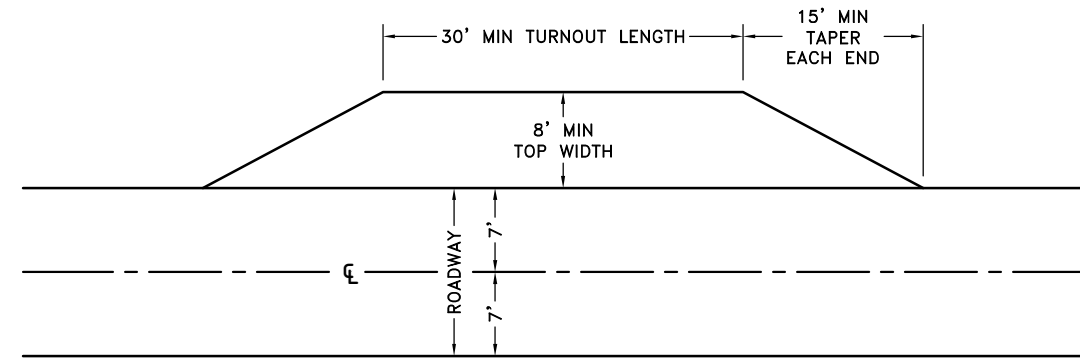
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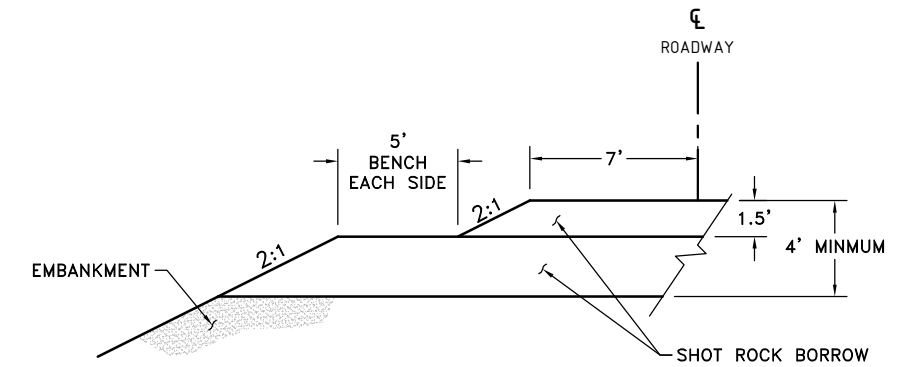
**INTER-VISIBLE TURNOUT
TYPICAL SECTION**

NOTES:

1. EXTEND ROADWAY TYPICAL SECTION AND MATCH ROADWAY CROSS SLOPE THROUGH FULL WIDTH OF TURNOUT.
2. TURNOUT LOCATIONS SHOWN ON THE PLAN SHEETS ARE APPROXIMATE AND MAY BE ADJUSTED BY THE ENGINEER FOR VISIBILITY. MAXIMUM DISTANCE BETWEEN TURNOUTS IS 500 FT OR LESS.
3. AVERAGE DISTANCE BETWEEN TURNOUTS AS SHOWN ON THE PLANS IS 325 FT.



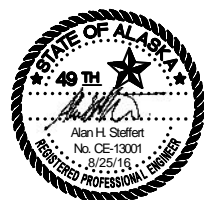
**INTER-VISIBLE TURNOUT
PLAN VIEW**



WIDENED FILL SECTION

NOTES:

1. USE WIDENED FILL SECTION AT MAJOR STREAM CROSSINGS AT STA 29+00, 46+60, AND 59+50.
2. SEE SEPARATE SHEETS FOR DETAILS AT FISH STREAM CROSSINGS.

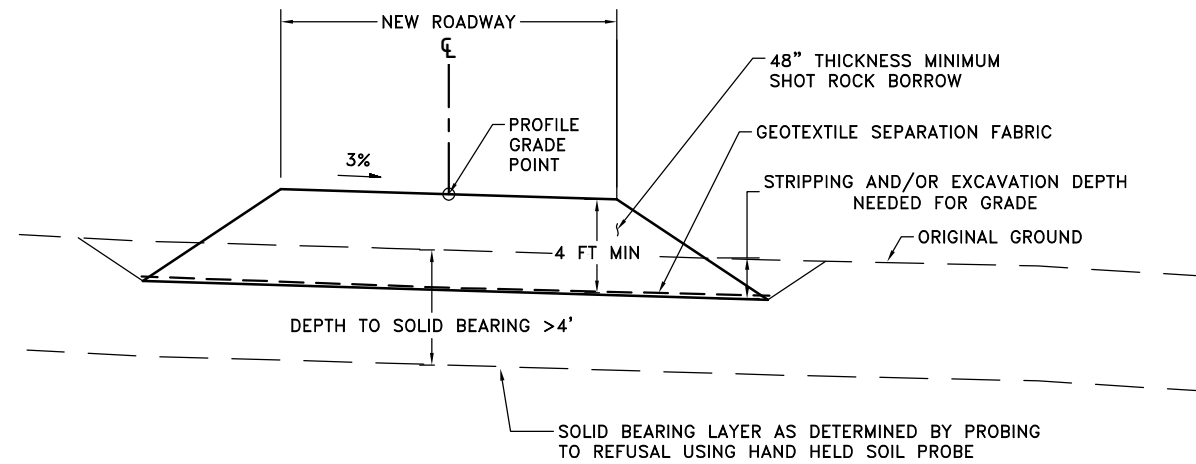


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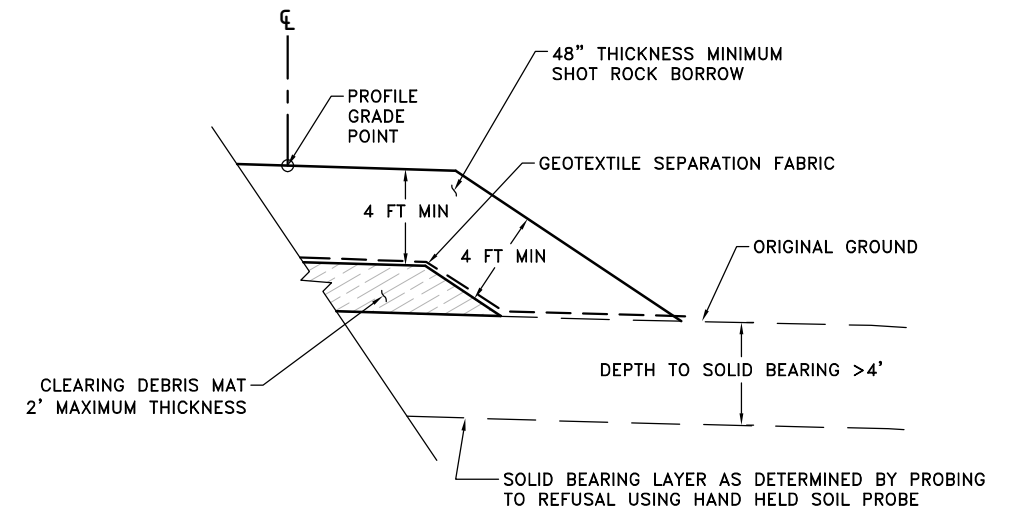
WEST DOUGLAS PIONEER ROAD
 CBJ CONTRACT BE17-039

TURNOUT AND WIDENED FILL DETAILS

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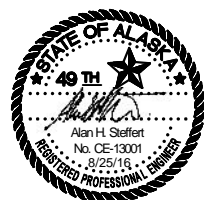
CONSTRUCTION ON SOFT GROUND
TYPICAL SECTION



OVERLAY CONSTRUCTION
ON SOFT GROUND WITH DEBRIS MAT
TYPICAL SECTION

NOTES:

1. IF SOLID BEARING IS 4 FT OR LESS BELOW SURFACE OR PROFILE GRADE POINT, CLEAR, STRIP AND EXCAVATE UNSUITABLE MATERIAL BEFORE PLACING SHOT ROCK EMBANKMENT.
2. IF SOLID BEARING IS GREATER THAN 4 FT BELOW SURFACE OR PROFILE GRADE POINT, PLACE GEOTEXTILE SEPARATION FABRIC FULL SUBGRADE WIDTH AND COVER WITH 4FT MINIMUM THICKNESS SHOT ROCK EMBANKMENT.
3. WITH ENGINEER'S APPROVAL, A CLEARING DEBRIS MAT MAY BE INCORPORATED INTO THE BASE OF EMBANKMENTS CONSTRUCTED ON SOFT GROUND SO LONG AS THE DEBRIS MAT MATERIAL IS LOCATED AT THE BOTTOM OF EMBANKMENTS, DOES NOT EXCEED 24 INCHES OF FILL HEIGHT, IS COVERED BY GEOTEXTILE SEPARATION FABRIC, AND COVERED WITH A MINIMUM OF 4 FEET OF COMPACTED EMBANKMENT INCLUDING COVERAGE ALONG THE FINAL ROADWAY SLOPES. THE DEBRIS MAT MAY CONSIST OF TREE LIMBS, TOPS, CULL LOGS, SPLIT STUMPS, WOOD CHUNKS, AND OTHER DEBRIS TO FORM A MAT UPON WHICH CONSTRUCTION EQUIPMENT IS OPERATED. STUMPS SHALL BE PLACED UPSIDE DOWN, PRESSED INTO THE ORIGINAL GROUND, AND BLENDED INTO THE MAT.
4. ALL TREE STUMPS NOT GRUBBED SHALL BE CUT FLUSH TO SURFACE PRIOR TO PLACEMENT GEOTEXTILE SEPARATION FABRIC AND SHOT ROCK BORROW FILL.



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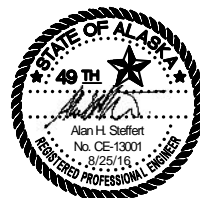
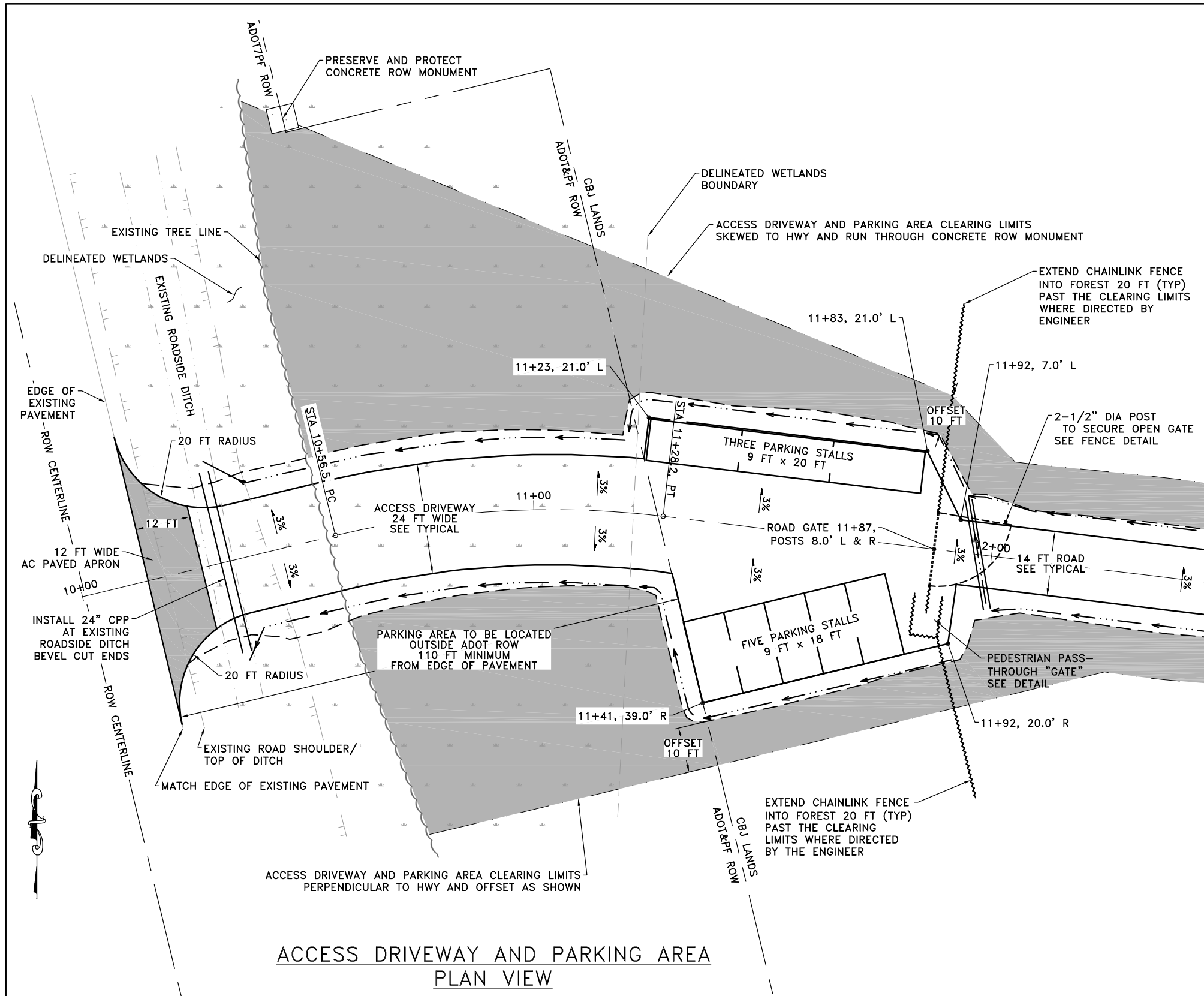
WEST DOUGLAS PIONEER ROAD
 CBJ CONTRACT BE17-039


SOFT GROUND CONSTRUCTION DETAILS

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PARKING AREA AND ACCESS DRIVEWAY NOTES

1. THE ACCESS DRIVEWAY IS LOCATED ON STATE OF ALASKA DOT&PF RIGHT-OF-WAY. THE OWNER HAS SECURED A PERMIT TO CONSTRUCT AND MAINTAIN DRIVEWAYS OR APPROACH ROAD ON HIGHWAY RIGHT-OF-WAY. THE CONTRACTOR'S WORK IN THE STATE ROW SHALL BE IN COMPLIANCE WITH THE CONDITIONS SET FORTH IN THE DRIVEWAY PERMIT.
2. THE CONTRACTOR SHALL PREPARE A TRAFFIC CONTROL PLAN (TCP) IN ACCORDANCE WITH THE CONDITIONS SET FORTH IN THE DRIVEWAY PERMIT AND THE CONTRACTOR'S CONSTRUCTION METHODOLOGY AND SUBMIT THE TCP TO ALASKA DOT&PF RIGHT-OF-WAY SECTION FOR APPROVAL A MINIMUM OF 10 DAYS BEFORE EXPECTED START OF WORK. A COPY OF THE DOT&PF APPROVED TCP SHALL BE SUBMITTED TO THE PROJECT ENGINEER PRIOR TO STARTING WORK.
3. THE GROUND BETWEEN THE SHOULDER OF NORTH DOUGLAS HWY AND ROW BOUNDARY AT START OF PARKING AREA IS DELINEATED WETLANDS. CONSTRUCTION MACHINERY IS TO STAY WITHIN THE FOOTPRINT OF THE ROAD EXCAVATION LIMITS IN DELINEATED WETLANDS. REMOVAL OF DOWNED TREES AND OTHER CLEARING DEBRIS NOT DIRECTLY REACHABLE FROM THE PIONEER ROAD IS TO BE DONE MANUALLY, OR BY WINCHING OR OTHER APPROVED METHOD.
4. UNGRUBBED STUMPS AND BRUSH LEFT IN CLEARED AREAS ARE TO BE LOW-CUT AND LEFT NO HIGHER THAN 6" ABOVE SURROUNDING GROUND.
5. THE ENGINEER SHALL FLAG OR OTHERWISE DELINEATE THE CLEARING LIMITS, THE LOCATION OF THE DRIVEWAY CENTERLINE (BOP) WHERE IT MEETS THE EXISTING PAVEMENT, AND THE EXTENTS OF THE STATE ROW. THE LOCATION AND LAYOUT OF ACCESS DRIVEWAY AND THE PARKING AREA SHOWN IS APPROXIMATE AND MAY BE MODIFIED WITHIN THE CLEARED AREA TO SUIT FIELD CONDITIONS ENCOUNTERED, WITH ENGINEER'S APPROVAL.
6. CONTRACTOR MAY ELECT TO CONSTRUCT A CONSTRUCTION ACCESS TRACK INTO THE DESIGNATED ON-SITE QUARRY AND BACK-BUILD TO THE BOP.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY AND CONTROLLING ACCESS TO THE WORK SITE THROUGHOUT CONSTRUCTION.
8. THE CONTRACTOR SHALL INSTALL THE PROJECT SIGN WHERE DIRECTED BY THE ENGINEER.

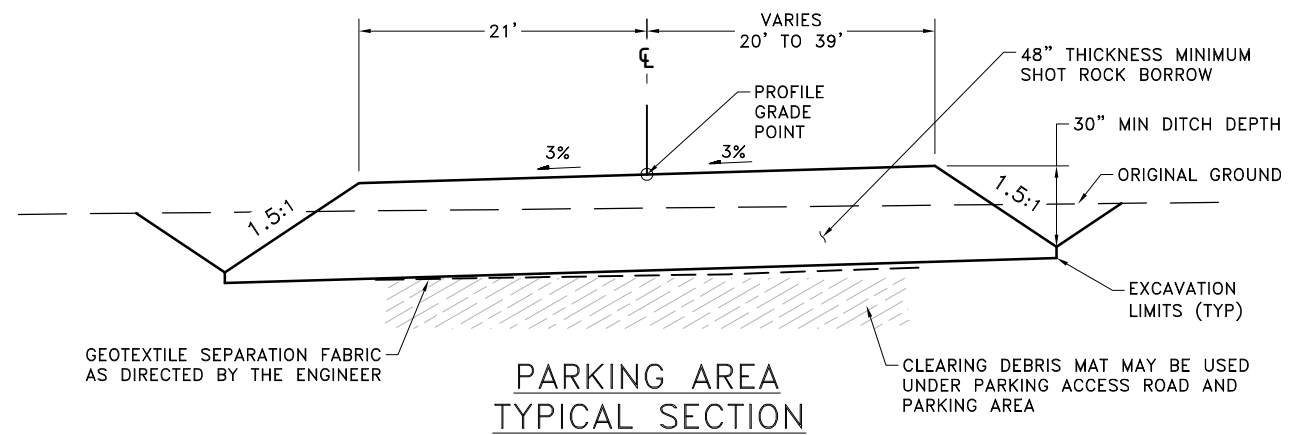



CITY AND BOROUGH OF JUNEAU
 ALASKA'S CAPITAL CITY
 DEPARTMENT OF ENGINEERING

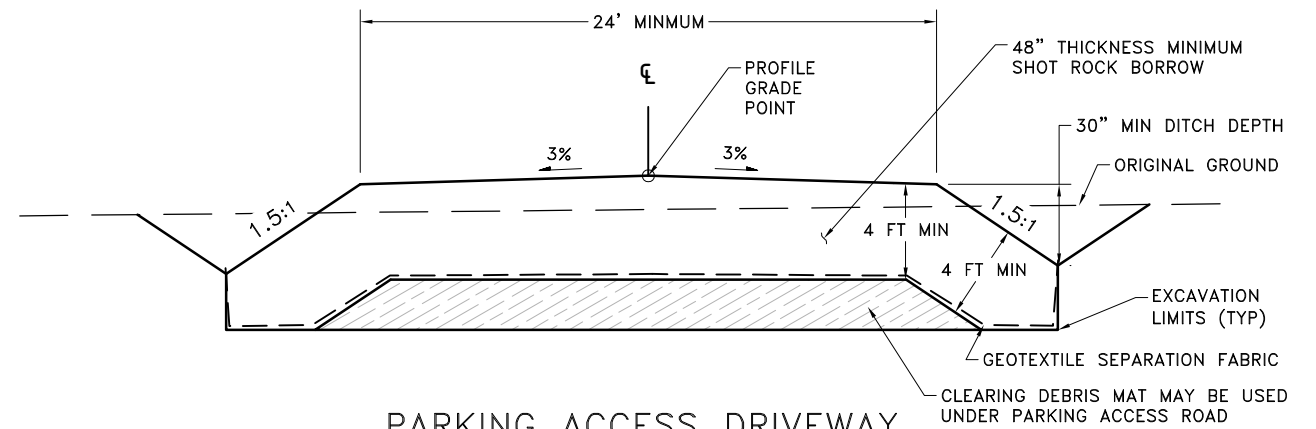
WEST DOUGLAS PIONEER ROAD
 CBJ CONTRACT BE17-039

PARKING AREA & ACCESS DRIVEWAY
 PLAN AND NOTES

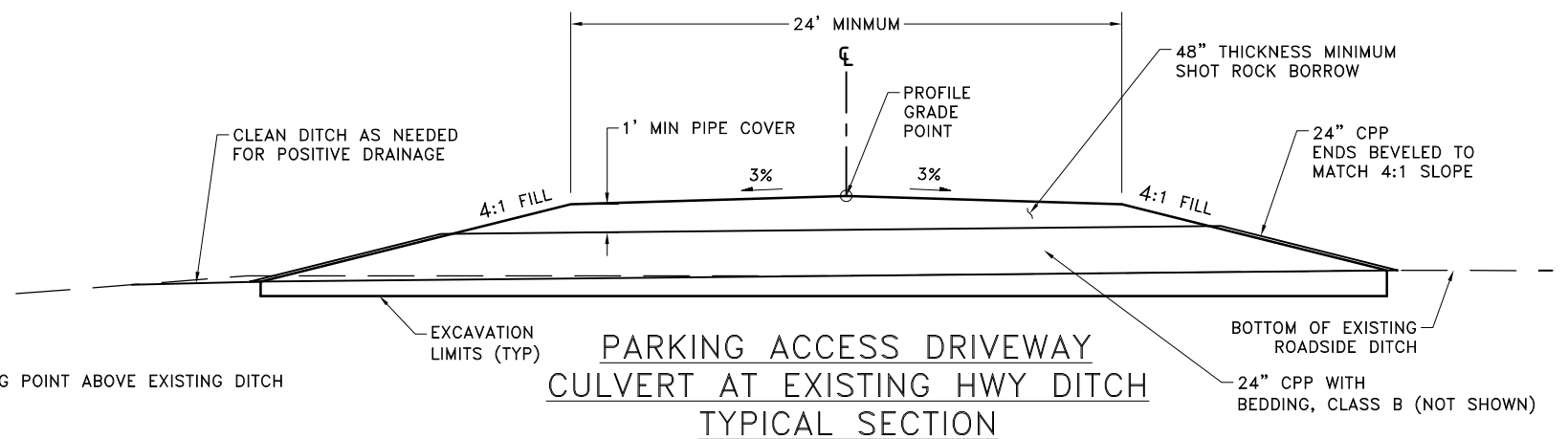
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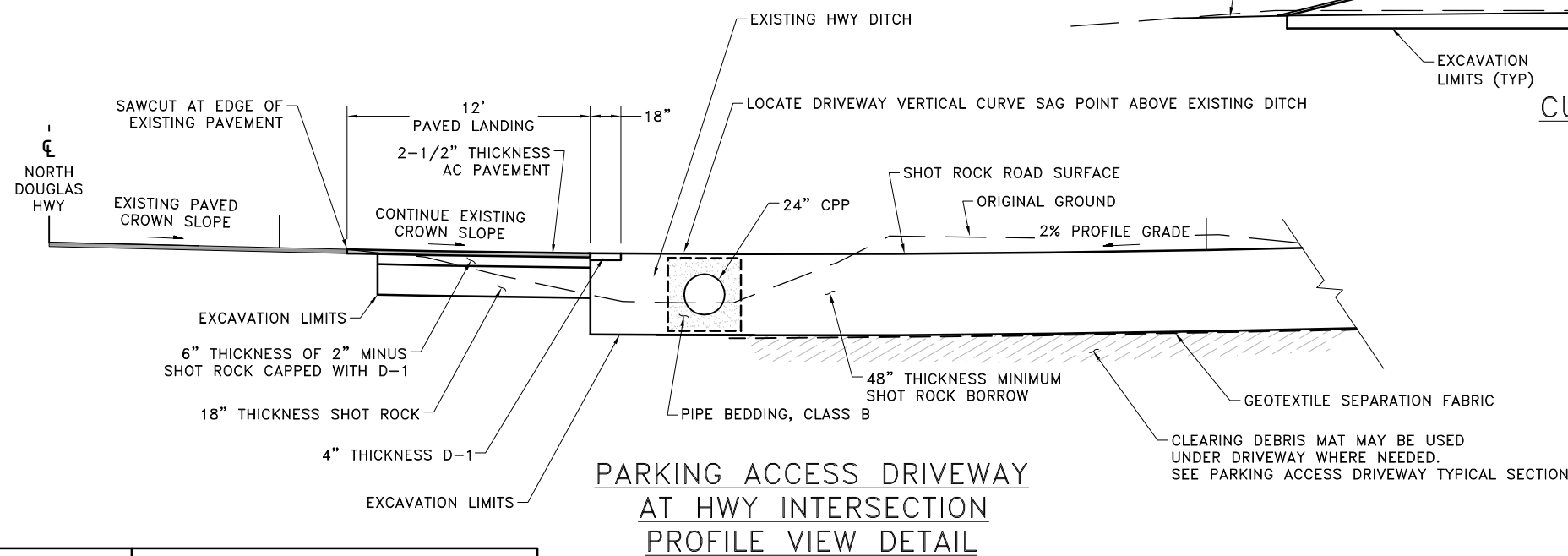
**PARKING AREA
TYPICAL SECTION**



**PARKING ACCESS DRIVEWAY
TYPICAL SECTION**



**PARKING ACCESS DRIVEWAY
CULVERT AT EXISTING HWY DITCH
TYPICAL SECTION**



**PARKING ACCESS DRIVEWAY
AT HWY INTERSECTION
PROFILE VIEW DETAIL**

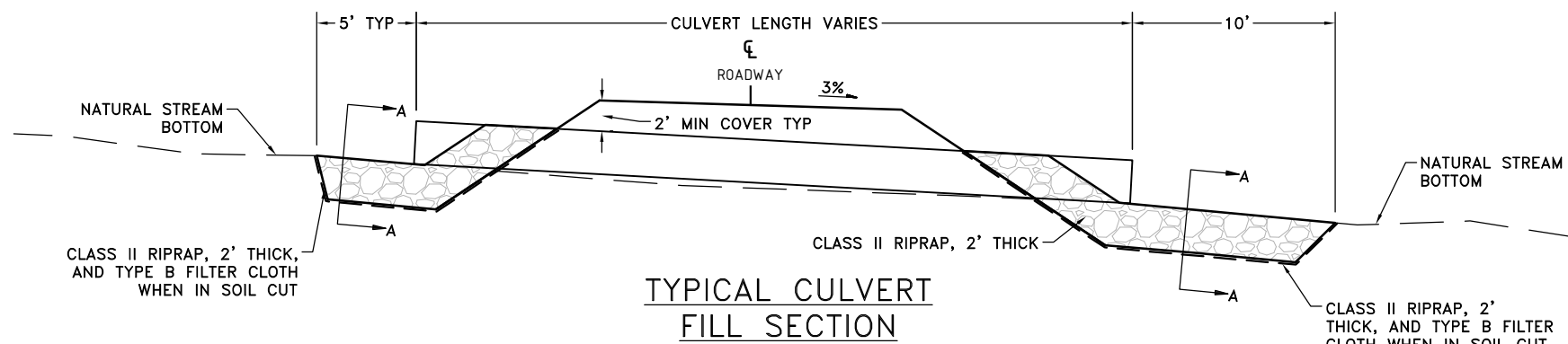


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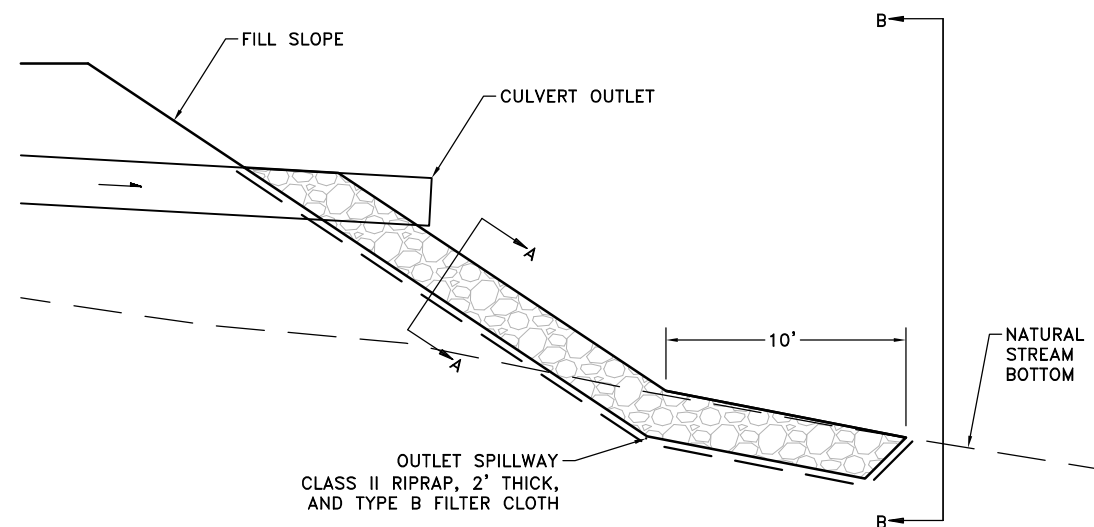
WEST DOUGLAS PIONEER ROAD
 CBJ CONTRACT BE17-039

PARKING AREA & ACCESS DRIVEWAY
 TYPICAL SECTIONS

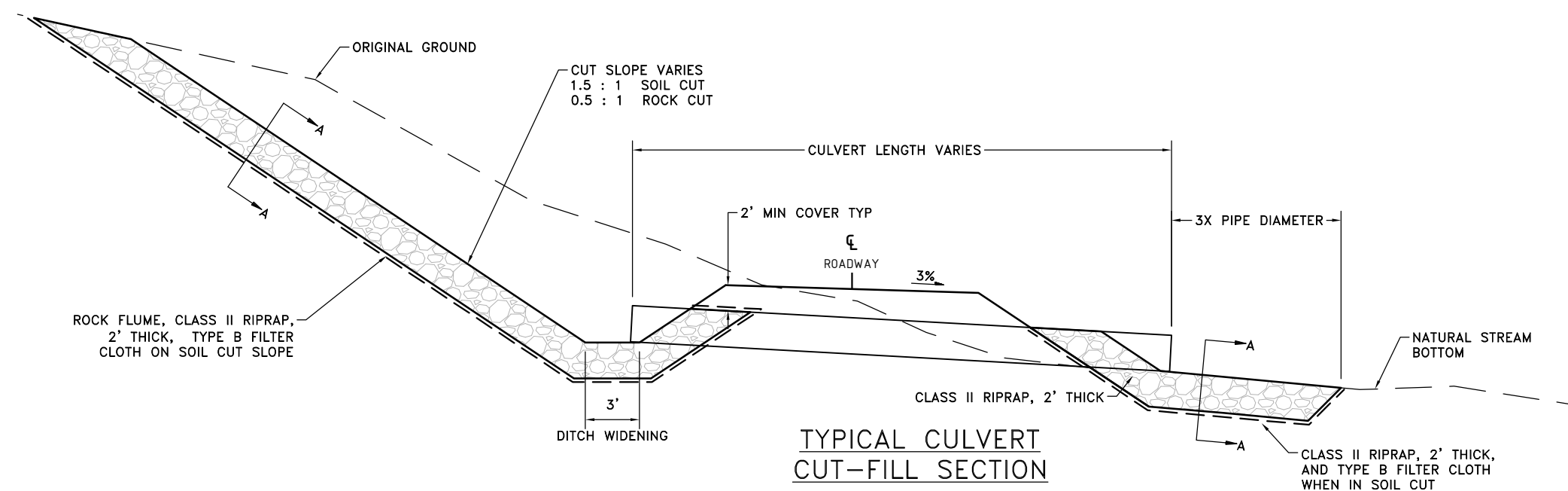
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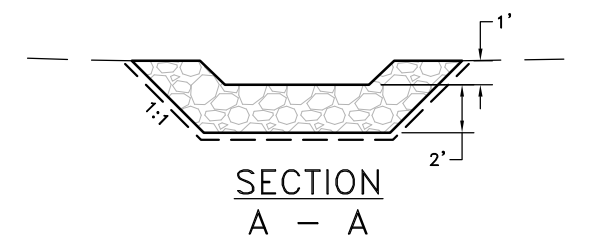
1. ALIGN CULVERT WITH THE NATURAL STREAM CHANNEL AND MATCH STREAM GRADIENT.
2. UNLESS DIRECTED OTHERWISE, WHEN STREAM GRADIENT EXCEEDS 15%, FLATTEN THE CULVERT SLOPE TO 3% AND CONSTRUCT A RIPRAP SPILLWAY AT THE CULVERT OUTLET.
3. BEDDING, CLASS B, ALL CULVERTS.



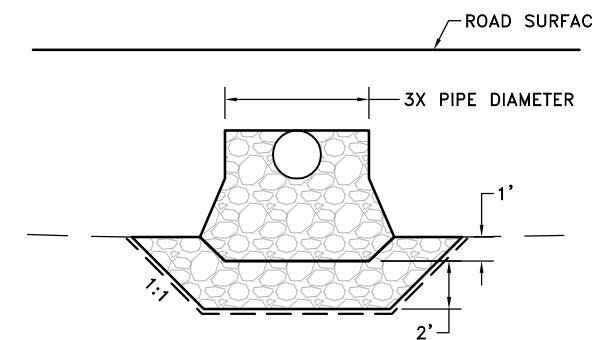
CULVERT OUTLET SPILLWAY DETAIL



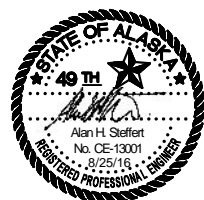
1. ALIGN CULVERT WITH THE NATURAL STREAM CHANNEL
2. UNLESS DIRECTED OTHERWISE, WHEN CULVERT SLOPE EXCEEDS 15%, FLATTEN THE CULVERT SLOPE TO 3% AND CONSTRUCT A RIPRAP SPILLWAY AT THE CULVERT OUTLET.
3. BEDDING, CLASS B, ALL CULVERTS.



SECTION A - A



SECTION B - B

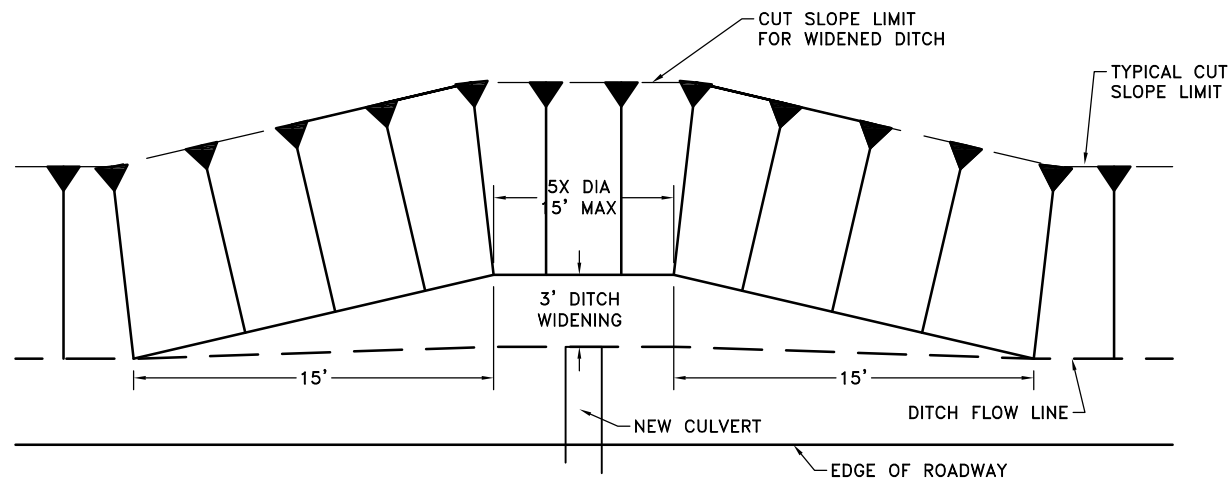


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 ALASKA'S CAPITAL CITY
 DEPARTMENT OF ENGINEERING

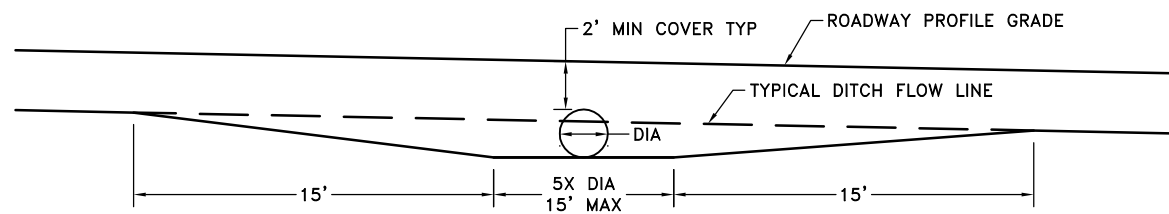
WEST DOUGLAS PIONEER ROAD
 CBJ CONTRACT BE17-039

NON-FISH STREAM CULVERT DETAILS

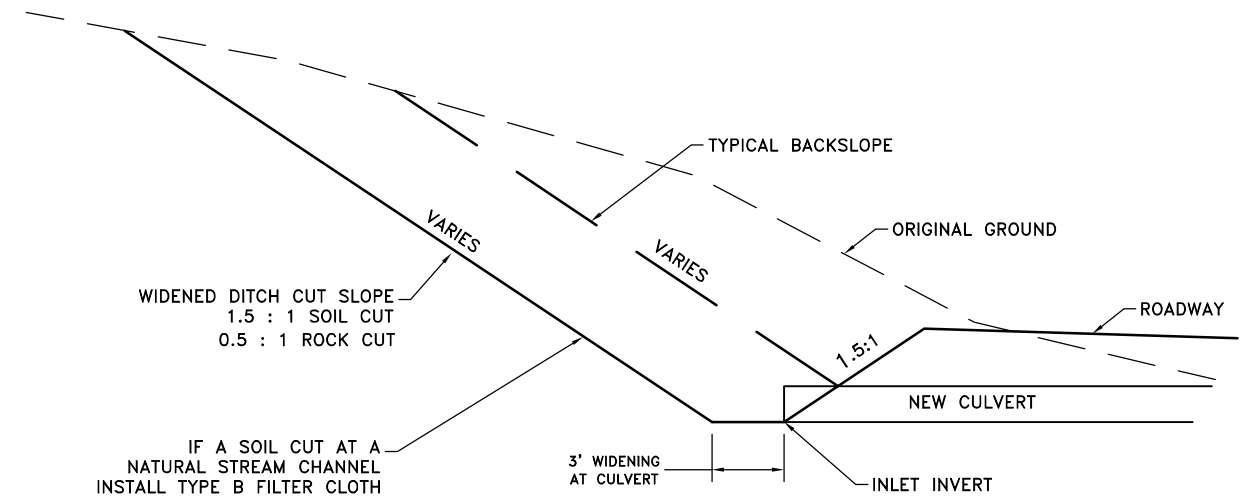
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DITCH WIDENING AT CULVERT
PLAN VIEW



DITCH WIDENING AT CULVERT
ELEVATION VIEW



DITCH WIDENING AT CULVERT
SECTION VIEW

DITCH WIDENING NOTES

1. STANDARD DITCH TRANSITIONS FROM V-BOTTOM TO 3 FT WIDE FLAT BOTTOM DITCH.
2. SMOOTHLY TRANSITION DITCH FLOW LINE FOR DITCH DEPRESSION AT CULVERT INVERT.

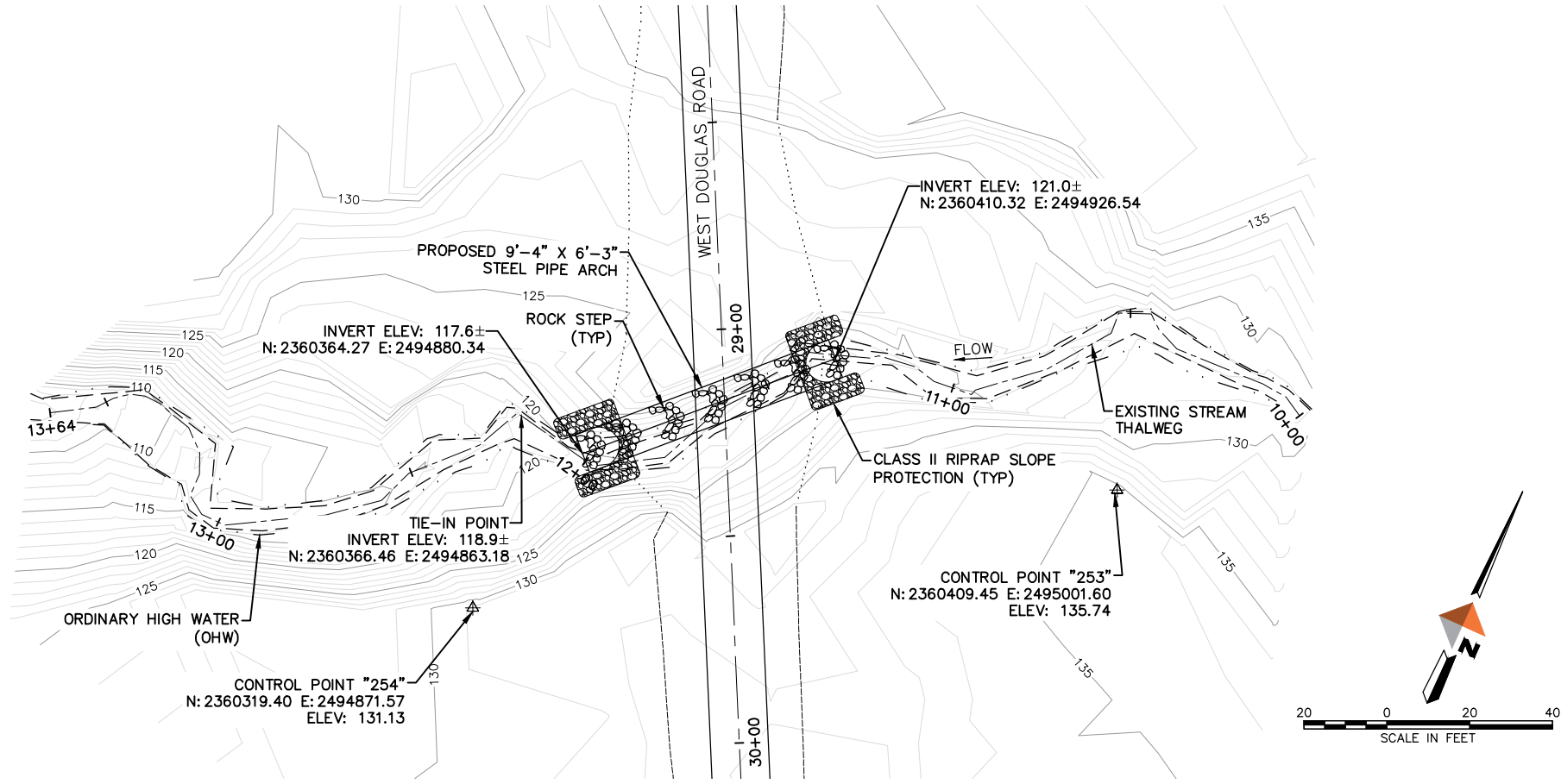


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ALASKA'S CAPITAL CITY
DEPARTMENT OF ENGINEERING

WEST DOUGLAS PIONEER ROAD
CBJ CONTRACT BE17-039

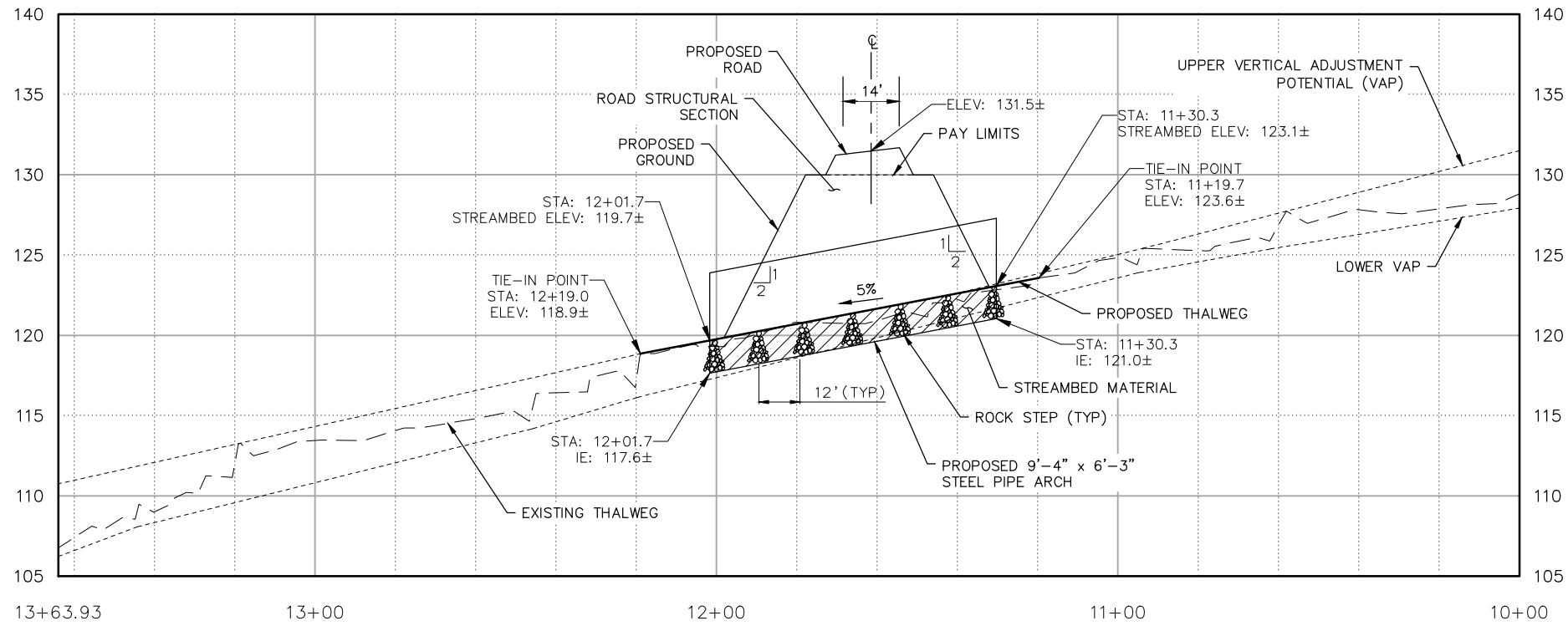
CULVERT DETAILS

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ESTIMATE OF QUANTITIES		
Item	Unit	Quantity
EXCAVATION	CUBIC YARD	163
EMBANKMENT	CUBIC YARD	252
SHOT ROCK BORROW	CUBIC YARD	169
BEDDING, CLASS B	CUBIC YARD	147
STRUCTURAL PLATE PIPE-ARCH, 9'-4\"/>	LINEAR FOOT	66
RIPRAP, CLASS II	CUBIC YARD	61
GEOTEXTILE SEPARATION	SQUARE YARD	47

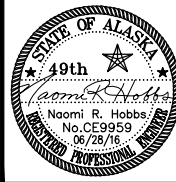
HYDROLOGIC & HYDRAULIC SUMMARY				
EXCEEDANCE PROBABILITY	RETURN PERIOD	DESIGN DISCHARGE	DESIGN HIGH WATER ELEVATION	HW/D
	(YEAR)	(CFS)	(FT)	
2.00%	50	107	126.09	0.65
1.00%	100	119	126.33	0.69
DRAINAGE AREA = 0.20 SQUARE MILES				



CULVERT SUMMARY SCHEDULE	
SIZE	9'-4\"/>
LENGTH	66'
SLOPE	5%
CORRUGATION	3\"/>
MATERIAL	STEEL
GAUGE	12
EMBEDMENT	2'
MINIMUM COVER	1.5'

PERMANENT FILL BELOW OHW		
MATERIAL	VOL (CY)	AREA (SF)
STEEL CULVERT	0.5	616
CLASS II RIPRAP	26	292
BEDDING, CLASS B	117	1764

REVISIONS			
REV	DATE	DESCRIPTION	BY

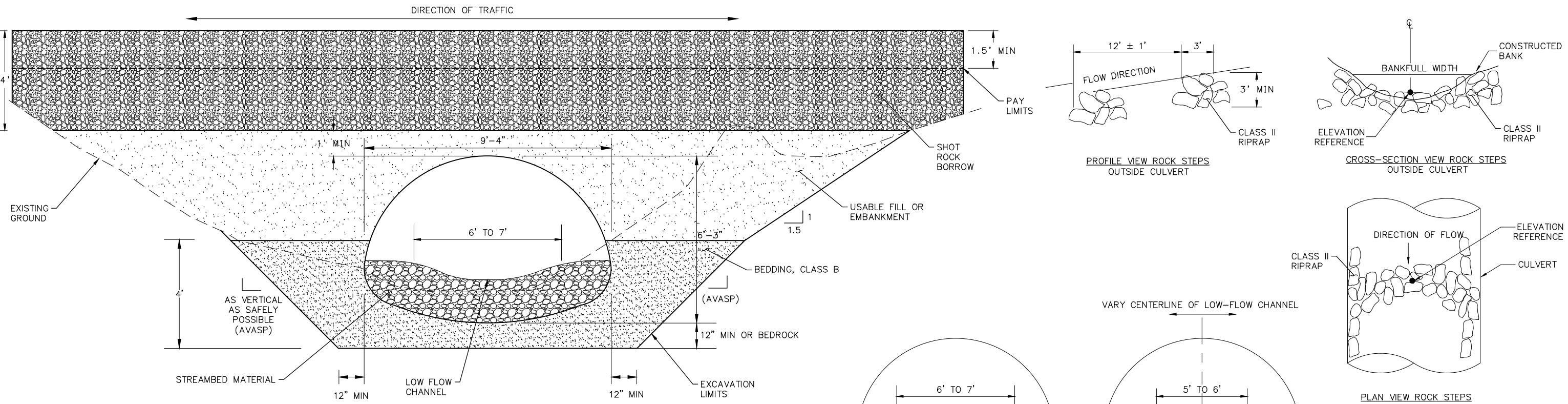


WEST JUNEAU FISH PASSAGE DESIGN
JUNEAU, ALASKA

FISH PASSAGE CULVERT: STA 29+00
STREAM PLAN AND PROFILE

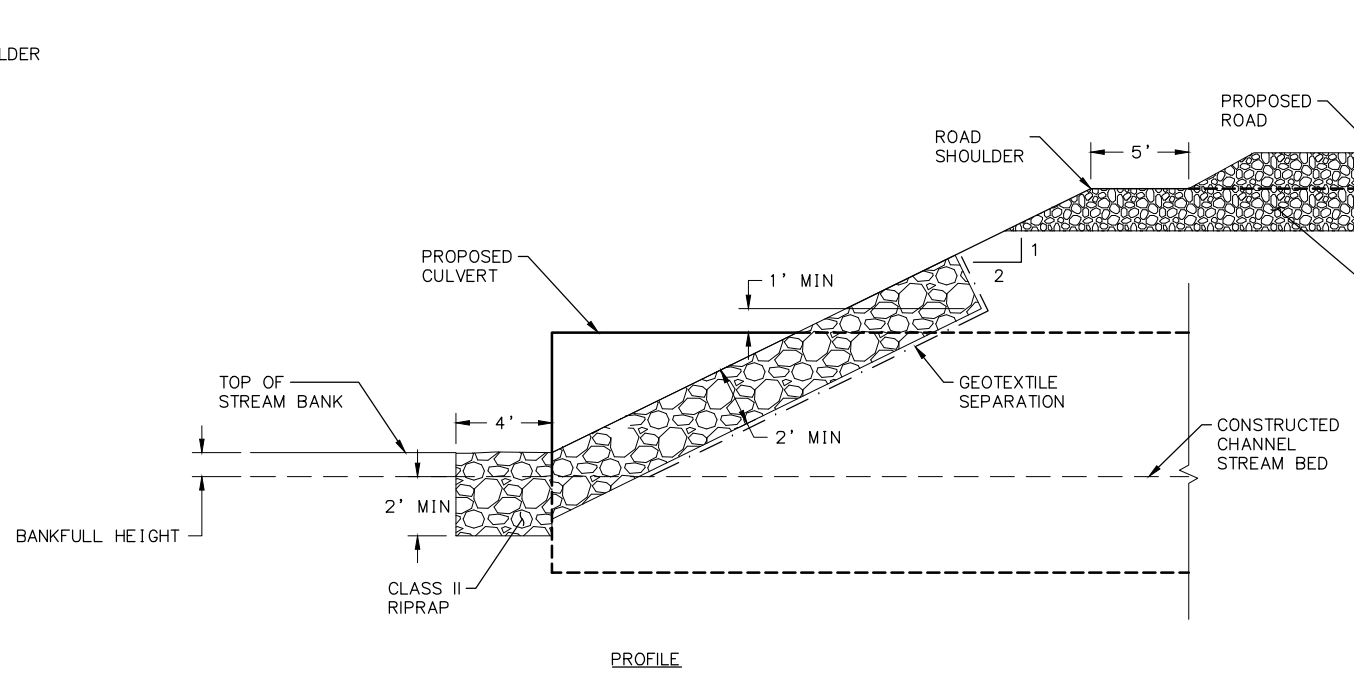
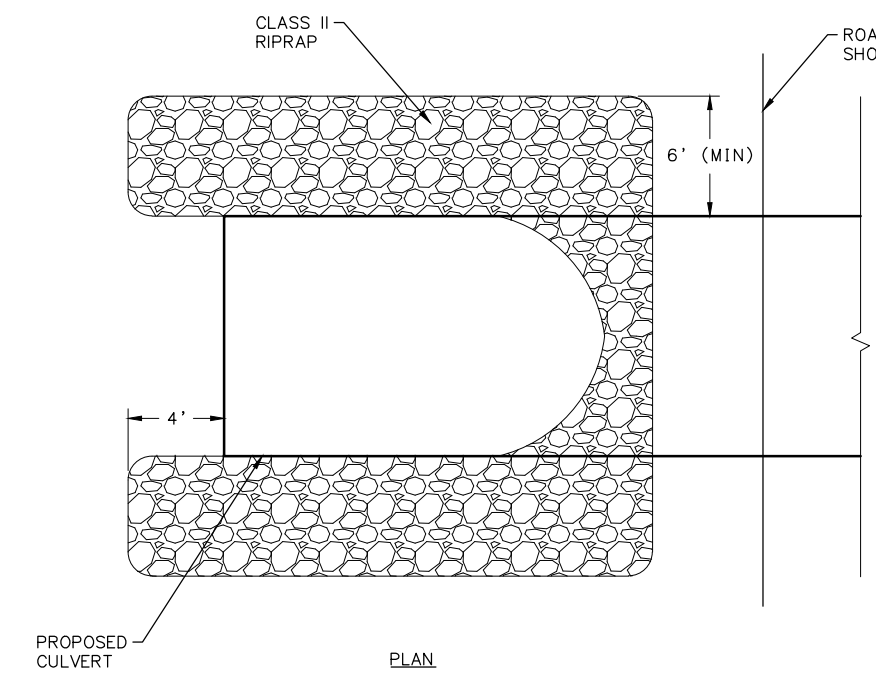
JUNEAU, ALASKA

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1
C3
 TYPICAL CULVERT CROSS-SECTION
 NTS

- NOTES:**
1. PLACE USABLE FILL OR EMBANKMENT MATERIAL FROM CULVERT SPRINGLINE TO MINIMUM OF 1 FOOT ABOVE TOP OF CULVERT.
 2. REMOVE ORGANICS AND OVERBURDEN TO EXPOSE MINERAL SOIL BEFORE PLACING FILL.
 3. EXCAVATE EXISTING GROUND/CHANNEL ONLY TO EXTENT NEEDED TO PROVIDE MINIMUM OF 12" BELOW CULVERT AND TO SIDES OF CULVERT.

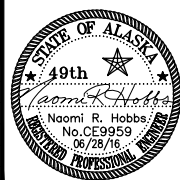


2
C3
 RIPRAP SLOPE PROTECTION, INLET AND OUTLET
 NTS

- RIPRAP SLOPE PROTECTION NOTES:**
1. FILL VOIDS IN RIPRAP WITH USABLE EXCAVATION OR EMBANKMENT MATERIAL.

- STREAMBED MATERIAL NOTES:**
1. SALVAGE AND REUSE EXISTING STREAMBED MATERIAL EXCAVATED DURING CONSTRUCTION.
 2. APPROXIMATE QUANTITY OF STREAMBED MATERIAL REQUIRED IS 60 CY.
 3. IF INSUFFICIENT EXCAVATED STREAMBED MATERIAL ON-SITE, MIX 2 PARTS BY VOLUME OF BEDDING, CLASS B AND 1 PART BY VOLUME CLASS I RIPRAP AND PLACE AS STREAMBED MATERIAL.
 4. CONSTRUCT STREAMBED LEAVING A NON-UNIFORM ROUGH SURFACE.
 5. PLACE STREAMBED MATERIAL OUTSIDE CULVERT ONLY TO DEPTH NECESSARY TO MATCH ELEVATIONS GIVEN AT TIE-IN POINTS.

REVISIONS			
REV	DATE	DESCRIPTION	BY



WEST JUNEAU FISH PASSAGE DESIGN
 JUNEAU, ALASKA

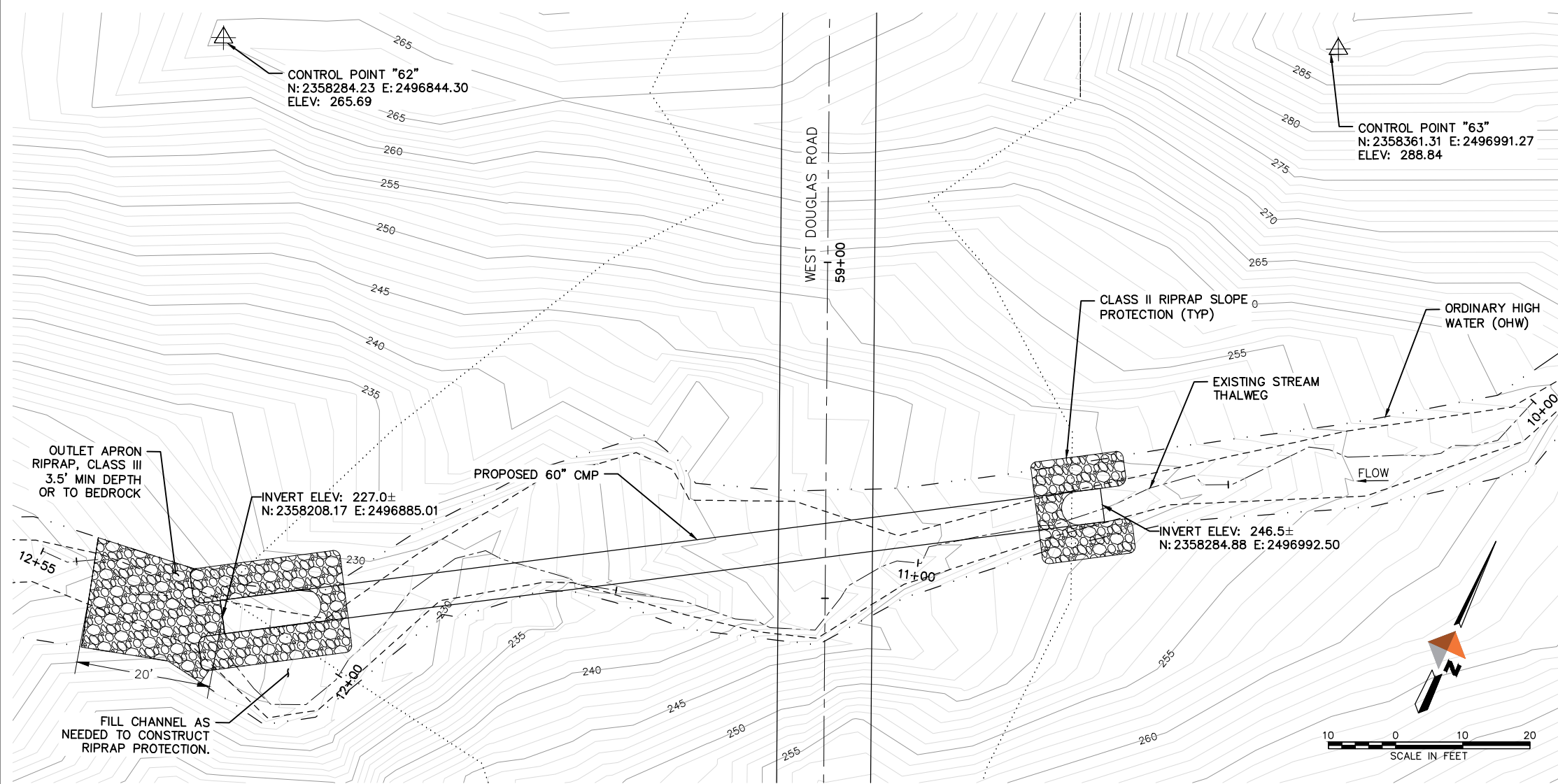
FISH PASSAGE CULVERT: STA 29+00
 SECTIONS AND DETAILS

JUNEAU, ALASKA

PROJECT 70819-01
 DATE 06/28/2016

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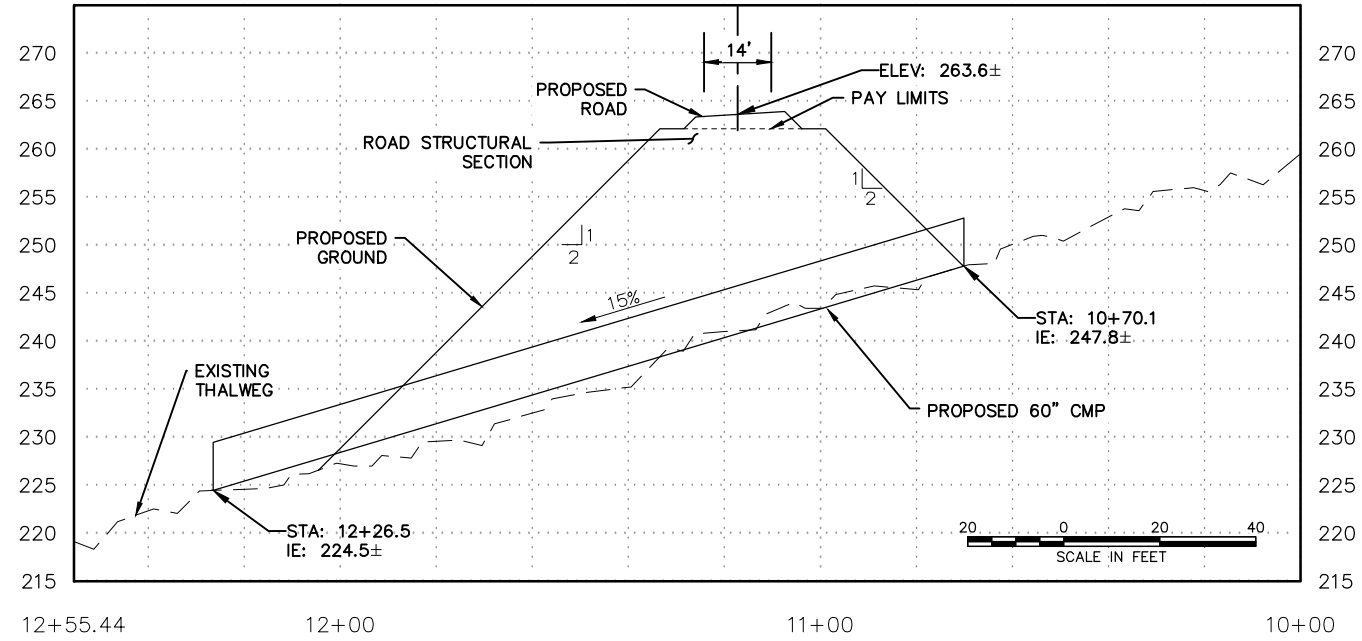
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HYDROLOGIC & HYDRAULIC SUMMARY				
EXCEEDANCE PROBABILITY	RETURN PERIOD (YEAR)	DESIGN DISCHARGE (CFS)	DESIGN HIGH WATER ELEVATION (FT)	HW/D
2.00%	50	133	233.28	0.73
1.00%	100	148	233.85	0.79
DRAINAGE AREA = 0.26 SQUARE MILES				

PERMANENT FILL BELOW OHW		
MATERIAL	VOL (CY)	AREA (SF)
STEEL CULVERT	1	790
CLASS II RIPRAP	22	276
CLASS III RIPRAP	43	300
BEDDING, CLASS B	193	2686
GEOTEXTILE SEPARATION	1	114

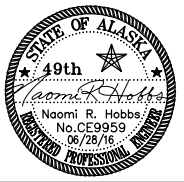
CULVERT SUMMARY SCHEDULE	
SIZE	5'
LENGTH	158'
SLOPE	15%
CORRUGATION	3" X 1"
MATERIAL	STEEL
GAUGE	12
EMBEDMENT	0'
MINIMUM COVER	1'



ESTIMATE OF QUANTITIES		
Item	Unit	Quantity
EXCAVATION	CUBIC YARD	129
EMBANKMENT	CUBIC YARD	1930
SHOT ROCK BORROW	CUBIC YARD	277
BEDDING, CLASS B	CUBIC YARD	212
60 INCH CMP	LINEAR FOOT	158
RIPRAP, CLASS II	CUBIC YARD	48
RIPRAP, CLASS III	CUBIC YARD	43
GEOTEXTILE SEPARATION	SQUARE YARD	61

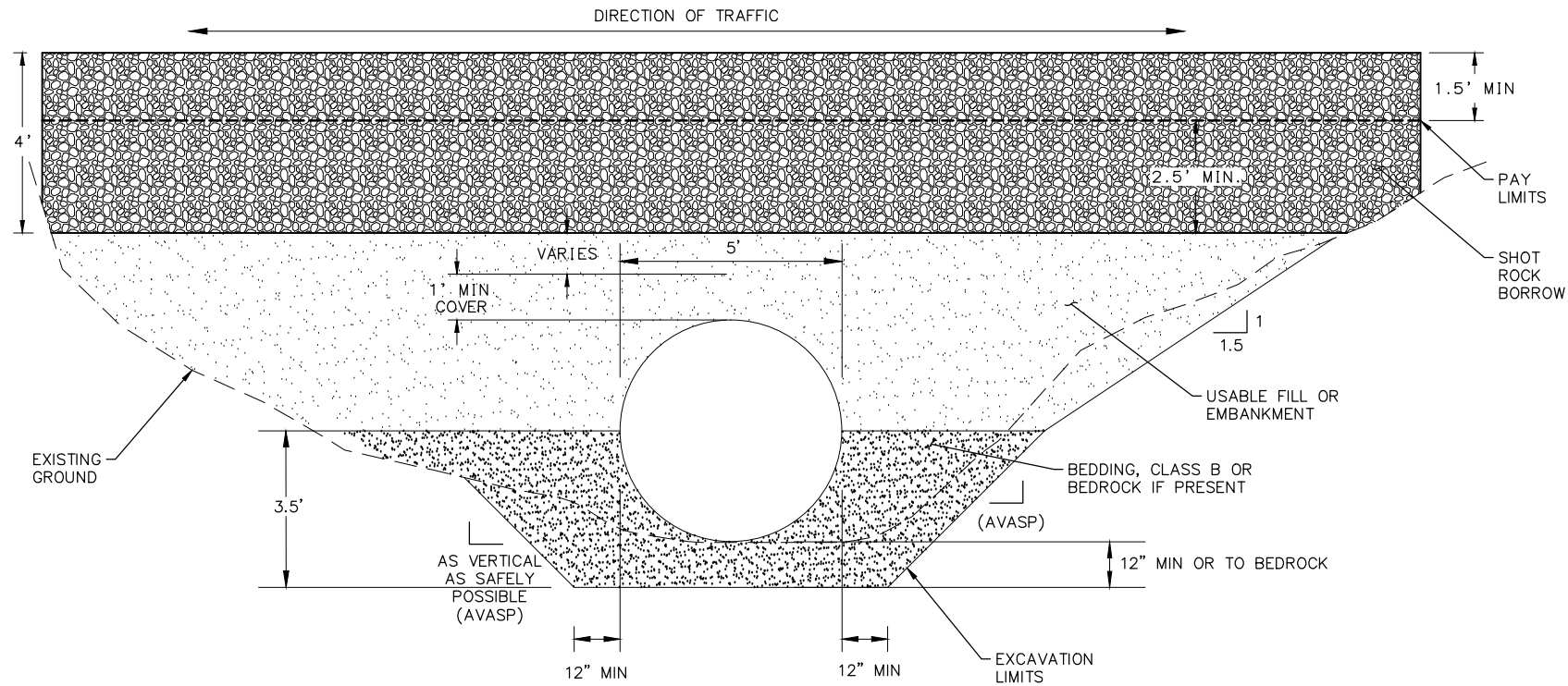
- NOTES:**
1. EXTEND RIPRAP OUTLET APRON TO OHW ON SIDES OF CHANNEL AS DIRECTED BY ENGINEER.
 2. USE RIPRAP, CLASS III AT OUTLET APRON ONLY. SEE PLAN FOR EXTENTS.
 3. IF BEDROCK IS ENCOUNTERED DURING EXCAVATION FOR CULVERT CONTACT ENGINEER IMMEDIATELY FOR DIRECTION.

REVISIONS			
REV	DATE	DESCRIPTION	BY



WEST JUNEAU FISH PASSAGE DESIGN
JUNEAU, ALASKA
 MAJOR STREAM CULVERT: STA 59+50
 STREAM PLAN AND PROFILE
 JUNEAU, ALASKA

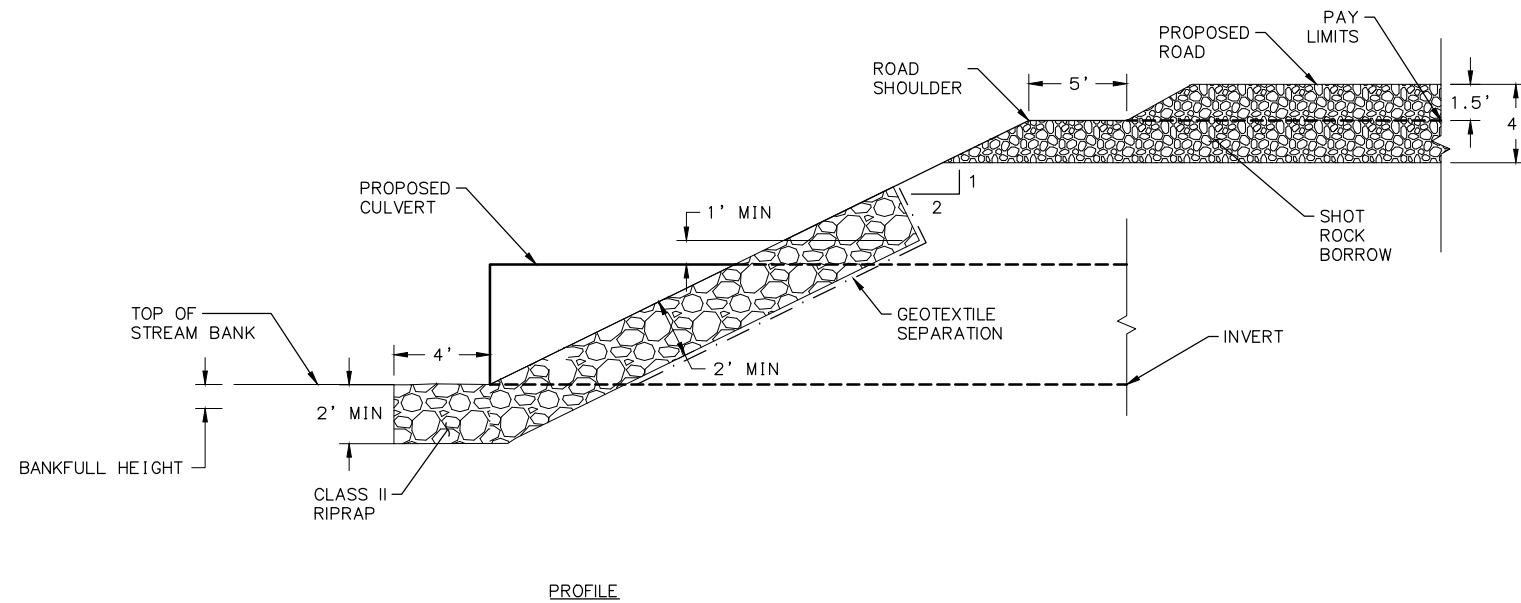
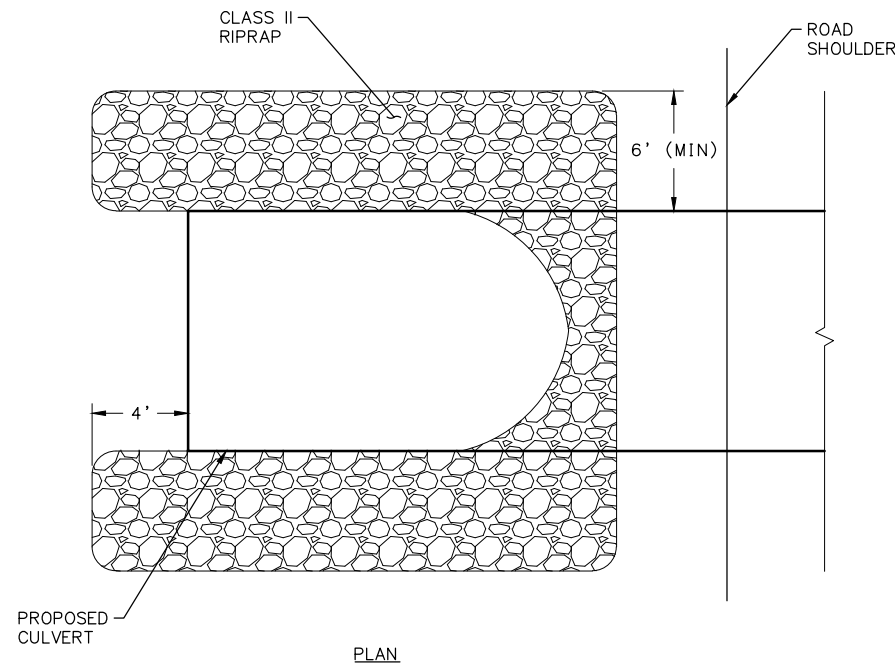
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1
C3 TYPICAL CULVERT CROSS-SECTION
 NTS

NOTES:

1. PLACE USABLE FILL OR EMBANKMENT MATERIAL FROM CULVERT SPRINGLINE TO MINIMUM OF 1 FOOT ABOVE TOP OF CULVERT.
2. REMOVE ORGANICS AND OVERBURDEN TO EXPOSE MINERAL SOIL BEFORE PLACING FILL.
3. EXCAVATE EXISTING GROUND/CHANNEL ONLY TO EXTENT NEEDED TO PROVIDE MINIMUM OF 12" BELOW CULVERT AND TO SIDES OF CULVERT.

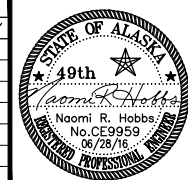


2
C3 RIPRAP SLOPE PROTECTION, INLET AND OUTLET
 NTS

RIPRAP SLOPE PROTECTION NOTES:

1. FILL VOIDS IN RIPRAP WITH USABLE EXCAVATION OR EMBANKMENT MATERIAL.

REVISIONS			
REV	DATE	DESCRIPTION	BY



WEST JUNEAU FISH PASSAGE DESIGN
 JUNEAU, ALASKA

MAJOR STREAM CULVERT: STA 59+50
 SECTIONS AND DETAILS

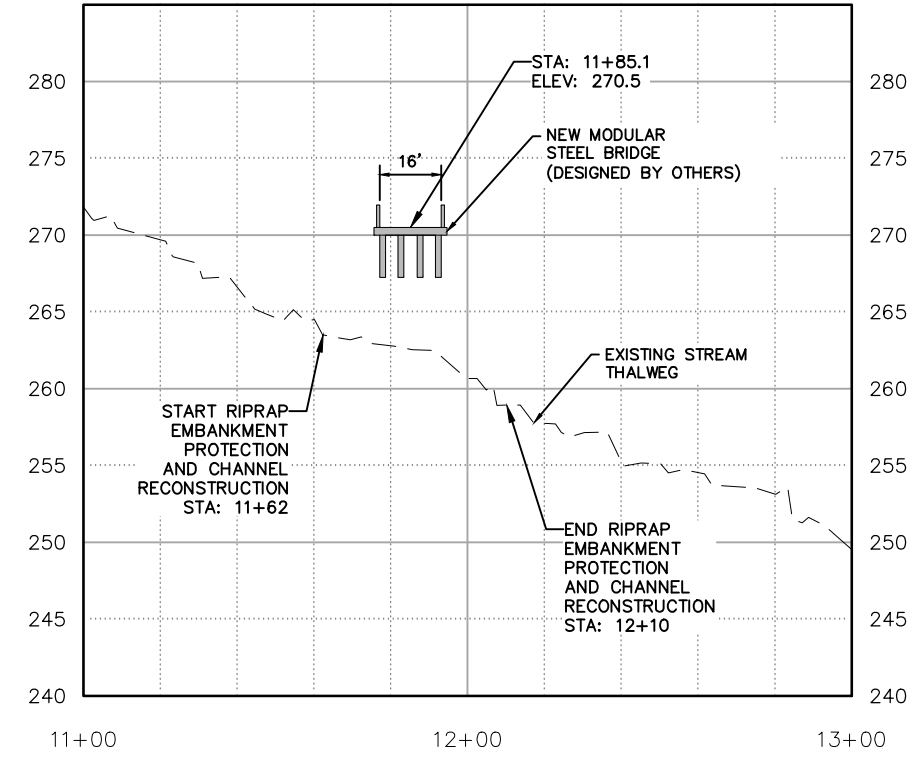
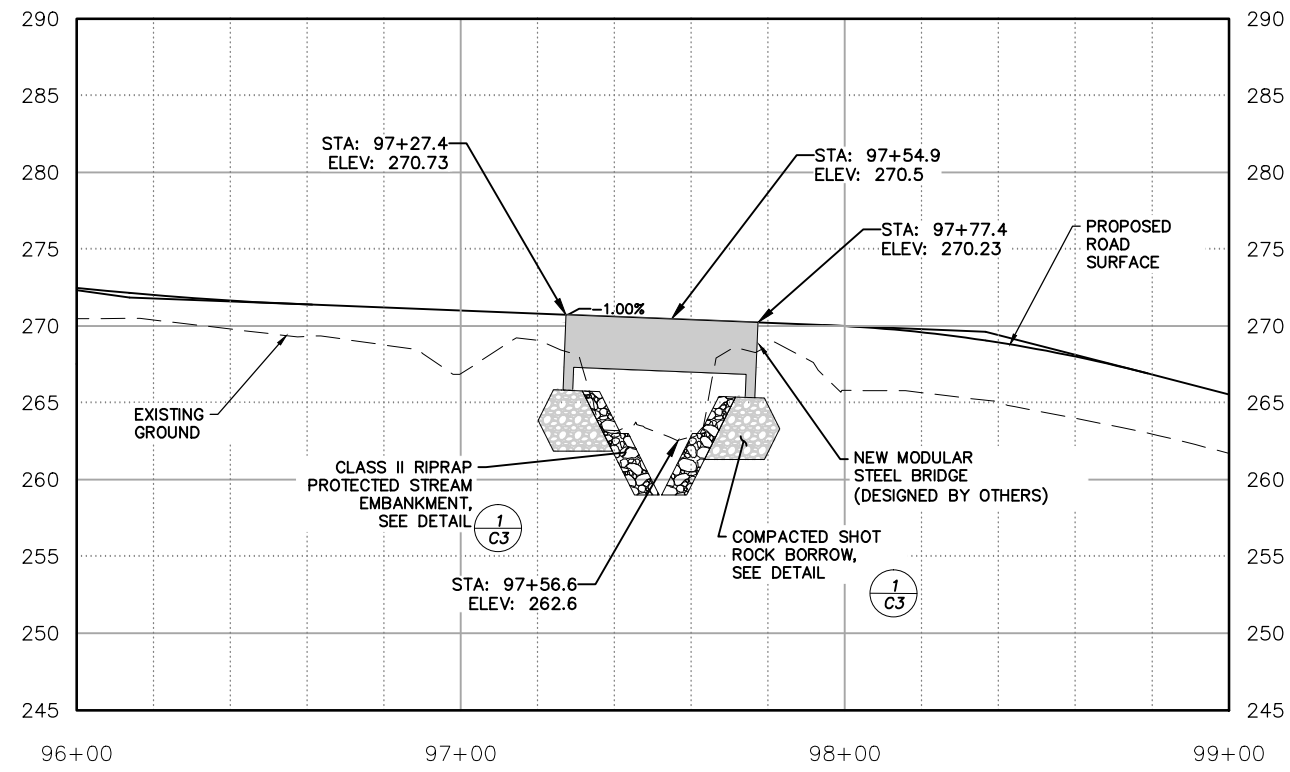
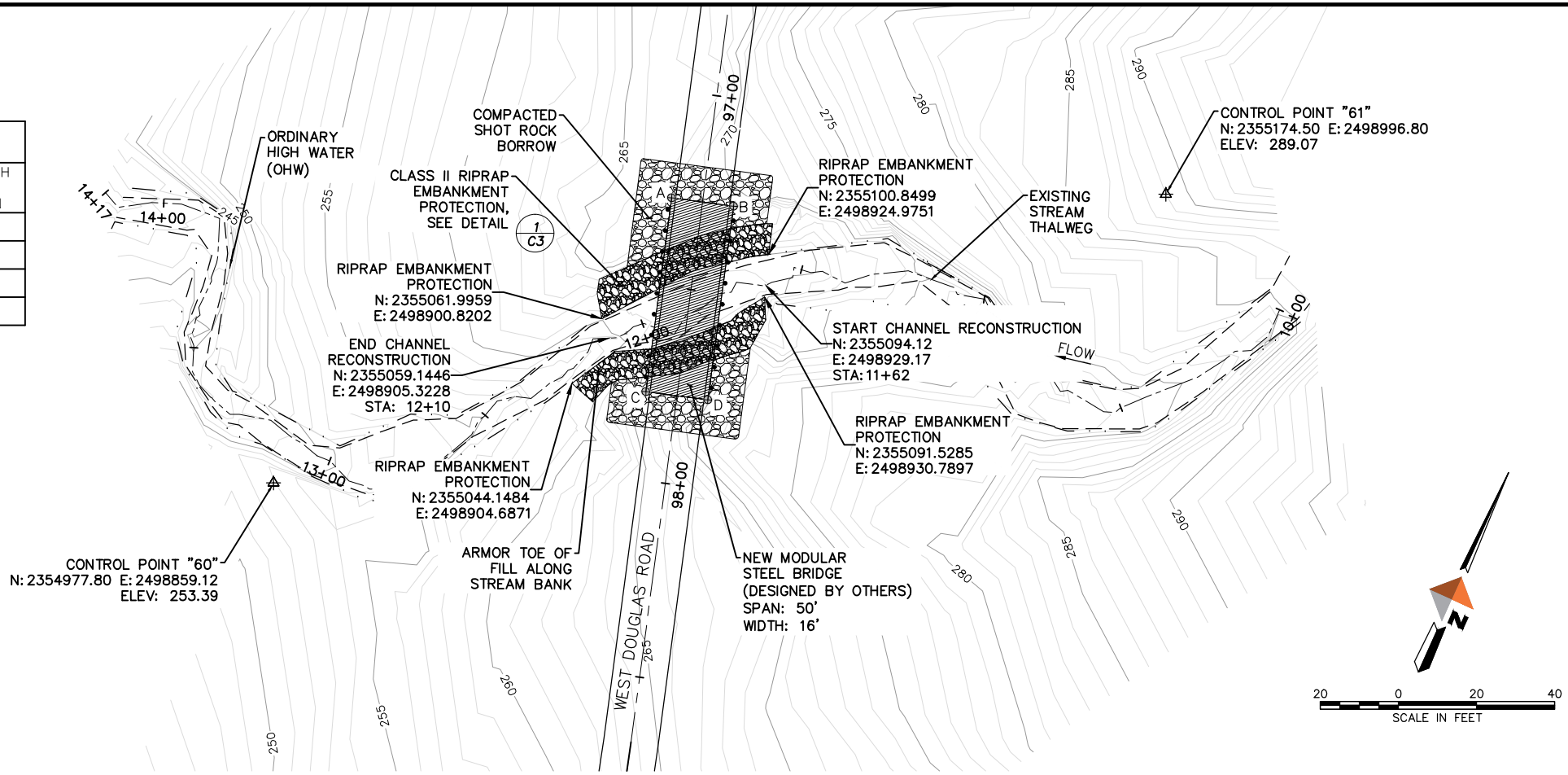
JUNEAU, ALASKA

PROJECT	70819-01
DATE	06/28/2016
SHEET	18 OF 23

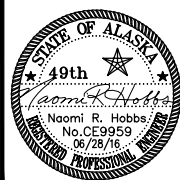
HYDROLOGIC & HYDRAULIC SUMMARY			
EXCEEDANCE PROBABILITY	RETURN PERIOD (YEAR)	DESIGN DISCHARGE (CFS)	DESIGN HIGH WATER ELEVATION (FT)
2.00%	50	110	263.57
1.00%	100	129	263.73

DRAINAGE AREA = 0.22 SQUARE MILES

BRIDGE COORDINATE TABLE			
POINT	NORTHING	EASTING	DECK ELEVATION
A	2355097.41	2498896.46	270.73
B	2355105.30	2498910.38	270.73
C	2355053.91	2498921.12	270.23
D	2355061.80	2498935.04	270.23



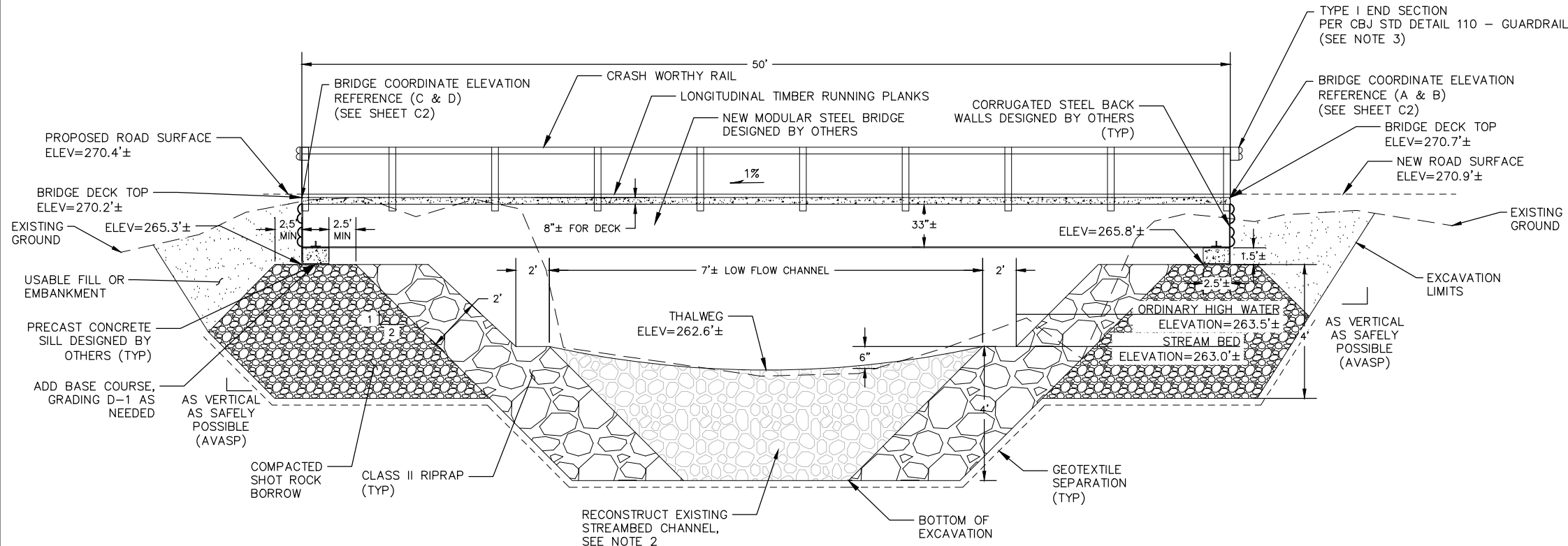
REVISIONS			
REV	DATE	DESCRIPTION	BY



WEST JUNEAU FISH PASSAGE DESIGN
JUNEAU, ALASKA
 BRIDGE CROSSING
 STA 97+00
 STREAM AND ROAD PLAN AND PROFILE
 JUNEAU, ALASKA

PROJECT	70819-01
DATE	06/28/2016
SHEET	19 OF 23

DOWL FILE No: XXX-XX
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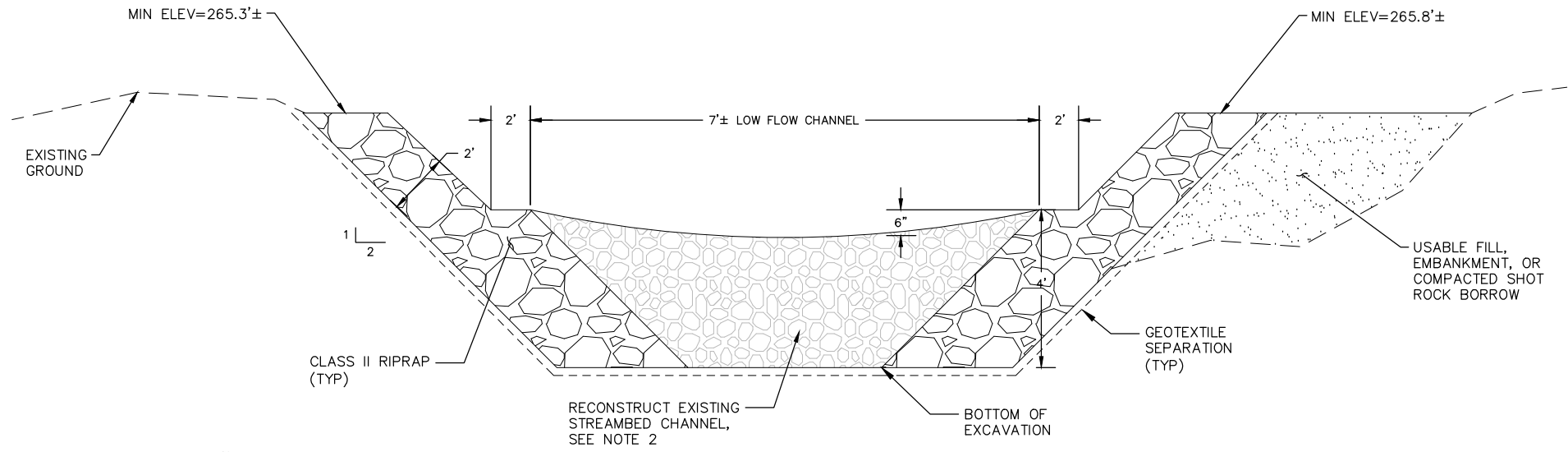


1
C3 TYPICAL CHANNEL CROSS-SECTION AT CENTER OF ROAD
NTS

- NOTES:**
1. MAINTAIN 11-FOOT WIDE CHANNEL SECTION THROUGH EXTENT OF RECONSTRUCTED CHANNEL FROM APPROXIMATE STATION 11+62 TO 12+10.
 2. SALVAGE AND REUSE EXCAVATED STREAMBED MATERIAL FOR RECONSTRUCTED CHANNEL.
 3. THE GUARDRAIL END TREATMENT MAY BE UPDATED AS FUTURE DEVELOPMENT OCCURS.

ESTIMATE OF QUANTITIES		
Item Description	Unit	Quantity
EXCAVATION	CUBIC YARD	626
EMBANKMENT	CUBIC YARD	30
SHOT ROCK BORROW	CUBIC YARD	163
50' X 16' MODULAR STEEL BRIDGE, WOOD WEAR SURFACE, DESIGNED BY OTHERS	LUMP SUM	ALL REQUIRED
PRECAST CONCRETE SILLS	LUMP SUM	ALL REQUIRED
GALVANIZED STEEL BACKWALLS	LUMP SUM	ALL REQUIRED
BRIDGE SHIPPING, ASSEMBLY, AND INSTALLATION	LUMP SUM	ALL REQUIRED
RIPRAP, CLASS II	CUBIC YARD	157
GEOTEXTILE SEPARATION	SQUARE YARD	341

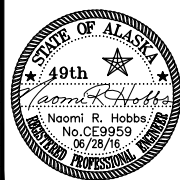
PERMANENT FILL BELOW OHW		
MATERIAL	VOL (CY)	AREA (SF)
RIPRAP, CLASS II	119	1404
GEOTEXTILE SEPARATION	19	3072
SHOT ROCK BORROW	82	1287



2
C3 TYPICAL CHANNEL CROSS-SECTION
NTS

- NOTES:**
1. PLACE EMBANKMENT OR COMPACTED SHOT ROCK BORROW BEHIND RIPRAP AS NECESSARY TO CONSTRUCT ABUTMENT AS SHOWN IN DETAIL 1/C3.

REVISIONS			
REV	DATE	DESCRIPTION	BY



WEST JUNEAU FISH PASSAGE DESIGN
 JUNEAU, ALASKA
 BRIDGE CROSSING: STA 97+00
 STREAM SECTION
 JUNEAU, ALASKA

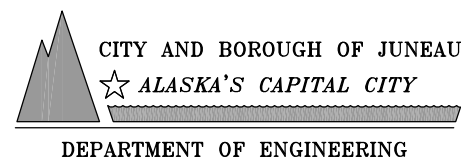
PROJECT 70819-01
 DATE 06/28/2016
 SHEET
 20 OF 23

CULVERT SUMMARY

STATION	LENGTH (FEET)						APPROX. GRADE (%)	COMMENTS
	18" CPP	24" CPP	36" CPP	48" CPP	60" CMP 12 GA	112" x 75" PIPE ARCH 12 GA		
10+32		40					3	MATCH EXISTING DITCH GRADE / BEVEL CUT ENDS
11+97	24						3	
14+57	23						3	
18+80	27						3	
21+90	27						3	
23+96			32				6	MATCH EXISTING CHANNEL GRADE
27+08	25						3	
29+16						66	5	FISH STREAM – SEE FISH HABITAT PERMIT FH16-I-0067 FISH PASSAGE PIPE ARCH – SEE DETAIL SHEET
32+17			42				3	MATCH EXISTING CHANNEL GRADE
36+65	28						3	
38+67		28					3	
41+14			32				6	MATCH EXISTING CHANNEL GRADE
43+19	28						3	
44+83			48				3	ROCK FLUME
46+62				110			13	FISH STREAM – SEE FISH HABITAT PERMIT FH16-I-0068 MATCH EXISTING CHANNEL GRADE, USE WIDENED FILL TYPICAL SECTION
48+74		28					3	
51+10	24						3	
52+29				49			17	MATCH EXISTING CHANNEL GRADE
52+97	26						3	
55+19	25						3	
58+45	27						3	
59+40					134		15	FISH STREAM – SEE FISH HABITAT PERMIT FH16-I-0069 MAJOR STREAM CULVERT – SEE DETAIL SHEETS
64+98	29						3	
66+33		36					3	
69+09	27						3	
71+22					50		12	MATCH EXISTING CHANNEL GRADE, RIPRAP ARMOR STREAMBED AT INLET & OUTLET
72+10	48						3	SPILLWAY & RIPRAP ARMOR TOE OF FILL
73+29							3	SPILLWAY
74+93	26						3	

NOTE:

1. CULVERT LOCATIONS, LENGTHS, AND GRADES ARE APPROXIMATE AND MAY REQUIRE FIELD ADJUSTMENT
2. BEDDING, CLASS B, ALL CULVERTS



WEST DOUGLAS PIONEER ROAD
CBJ CONTRACT BE17-039

CULVERT SUMMARY TABLES

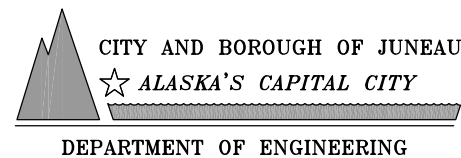
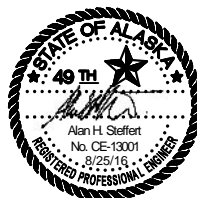
SHEET NO.
21 / 23

CULVERT SUMMARY

STATION	LENGTH (FEET)						APPROX. GRADE (%)	COMMENTS
	18" CPP	24" CPP	36" CPP	48" CPP	60" CMP 12 GA	112" x 75" PIPE ARCH 12 GA		
78+33	28						3	
79+78				54			3	SPILLWAY
85+23							3	MATCH EXISTING CHANNEL GRADE
86+94		30					9	MATCH EXISTING CHANNEL GRADE
87+47	26						3	
88+93	29						3	
91+90		36					7	MATCH EXISTING CHANNEL GRADE
92+40		30					7	MATCH EXISTING CHANNEL GRADE
96+42	28						3	
97+50								FISH STREAM – SEE FISH HABITAT PERMIT FH16-I-0070 MODULAR STEEL BRIDGE – SEE DETAIL SHEETS
99+39			53				3	RIPRAP ARMOR TOE OF FILL
99+82	41						3	SPILLWAY
100+98				40			3	SPILLWAY
102+52		30					3	ROCK FLUME & RIPRAP ARMOR TOE OF FILL
105+29	25						3	
107+85				49			3	SPILLWAY
109+39		29					3	
114+28		28					3	
115+34	25						3	
116+11		30					3	ROCK FLUME & SPILLWAY
119+85				38			5	ROCK FLUME & SPILLWAY
122+55				44			8	ROCK FLUME & SPILLWAY
123+60	29						3	SPILLWAY
124+85		39					12	MATCH EXISTING CHANNEL GRADE
127+09				41			6	FISH STREAM – SEE FISH HABITAT PERMIT FH16-I-0071 MATCH EXISTING CHANNEL GRADE
128+28	28						3	
130+25		35					12	MATCH EXISTING CHANNEL GRADE
131+37	26						3	
132+03	30						3	
136+18		26					3	MATCH EXISTING CHANNEL GRADE

NOTE:

1. CULVERT LOCATIONS, LENGTHS, AND GRADES ARE APPROXIMATE AND MAY REQUIRE FIELD ADJUSTMENT
2. BEDDING, CLASS B, ALL CULVERTS

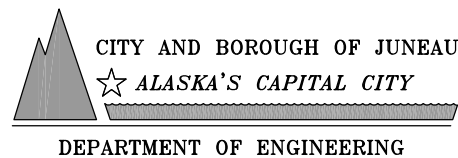


WEST DOUGLAS PIONEER ROAD
CBJ CONTRACT BE17-039

SUMMARY TABLES

SHEET NO.
22 /23

BASIS OF ESTIMATE		
ITEM NO.	DESCRIPTION	ESTIMATING FACTOR
2202.1	PIONEER ROAD CONSTRUCTION CLEARING CLEARING & GRUBBING EXCAVATION (ROCK, COMMON, & MUCK) EMBANKMENT INTERVISIBLE TURNOUTS TURNAROUND PAD CONSTRUCTION TURNOUTS	2.9 ACRES INCLUDES STREAM CROSSINGS AT STA. 29+00, 59+50, 97+00 12.0 ACRES INCLUDES STREAM CROSSINGS AT STA. 29+00, 59+50, 97+00 38.700 CUBIC YARDS 47.600 CUBIC YARDS 38 TURNOUTS 1 PAD AT ROAD END AS NEEDED
2202.2	PARKING ACCESS DRIVEWAY CONSTRUCTION CLEARING CLEARING & GRUBBING EXCAVATION (COMMON, & MUCK) EMBANKMENT	0.16 ACRES 0.11 ACRES 421 CUBIC YARDS 514 CUBIC YARDS
2202.3	PARKING AREA CONSTRUCTION CLEARING CLEARING & GRUBBING EXCAVATION (COMMON, & MUCK) EMBANKMENT	0.05 ACRES 0.11 ACRES 300 CUBIC YARDS 600 CUBIC YARDS
2714.1	GEOTEXTILE, SEPARATION PARKING ACCESS DRIVEWAY PARKING AREA PIONEER ROAD UNDER RIPRAP AT CULVERT FLUMES & SPILLWAYS - NOT INCLUDING FABRIC USED IN 2503.1, 2504.1, 2740.1	329 SQUARE YARDS 243 SQUARE YARDS 400 SQUARE YARDS 275 SQUARE YARDS
2801.1	AC PAVED DRIVEWAY LANDING EXCAVATION SHOT ROCK BORROW 6" THICKNESS OF 2" MINUS SHOTROCK WITH D-1 BASE COURSE D-1 A.C. PAVEMENT	20 CUBIC YARDS 21 CUBIC YARDS 7 CUBIC YARDS 1.2 TONS 8.3 TONS



WEST DOUGLAS PIONEER ROAD
CBJ CONTRACT BE17-039

BASIS OF ESTIMATE

SHEET NO.
23/23