

ADDENDUM #1

SUBJECT: Copper River Watershed EVOS Habitat Enhancement Project
 Sites COP 20, 22, 25
 Pre-Bid Meeting Questions and Addendum #1

DATE: January 21, 2021

Questions

Number	Asked by	Question	Answer
1	John Baenon – Wilson	How can we generate / source the waterway bed fill and the rounded river rock materials?	We have removed rounded river rock from the bid documents and replaced with a mixture of riprap, class 1 and porous backfill material for the waterway bed fill material. Rounded river rock for banks and point bars have been replaced with Riprap, Class I and II.
2	John Baenon – Wilson	Section 203: Unclassified excavation—CY measurement: How are we to obtain it? Required to have surveyor on site?	DOWL will have inspector on site the entire time who will work with the contractor on take-offs and quantity. Will review quantities as they are submitted for payment. Can do some computations on site to determine what's being taken out. Up to contractor to work with DOWL to justify ahead of time and make sure we know what you're taking out and what's going back in so you can be paid appropriately.
3	John Baenon – Wilson	Section 201: States clearing and grubbing to happen before May 15, however we have only done clearing, and saved grubbing to coincide with stabilization. Clarify just clearing before May 1?	Updated specification Section 201 to clarify that <u>clearing</u> only to occur before May 1.

4	John Baenon – Wilson	Section 703-2.03: If deleting table, does E-1 does not have gradation specification any longer?	Section 703-2.03 has been deleted and the standard DOT&PF E-1 specification will be retained.
5	John Baenon – Wilson	How much land will be disturbed? Is it more or less than 1 acre with all 3 projects combined?	A lot of disturbance has to do with diversion methods. Recommendations have been made, but final diversion plan and construction up to contractor. We've calculated less than 1 acre of disturbance.
6	John Baenon – Wilson	Section 618: Mulch: In talking with Anchorage Mill and Feed, learned Arctic Mulch (what is listed in spec) is a seed and it's bluejoint reedgrass- which is also part of seed mix. Is the intent to double-apply this seed? Or does "mulch" mean straw?	Section 619 has been updated to replace Arctic Mulch with Wood Cellulose Fiber or Natural Wood Fiber Mulch.
7	Michael Blank - Contech	Section 602 clarification-who is designing the structure? Pg. 20 is putting it back on contractor/supplier/engineer. In the past, the suppliers/contractors have been doing the structural design checks, but not the hydraulic and geotechnical checks.	The design for the sizing of the culvert based on the flow measurements was done by DOWL. As for the design requirements in Section 602-2.03, it is on the contractor to pull from geotech and hydrology design what is needed to meet the structural design requirements.
8	Michael Blank - Contech	IDC: Is it the intent to have multiple checks for their design?	Yes, ADOT roadway so following ADOT specs.

Contract Provisions and Specifications

Page Numbers	Total Pages	Section	Action	Explanation of Correction
4	1	Scope of Work Material Submittal Table	Deleted Rounded River Rock from table	Question 1 – replacing rounded river rock with riprap, class I and riprap, class II
13	1	Section 201 Clearing and Grubbing	Deleted Grubbing from 201-3.01 second paragraph	Question 3 – only clearing required prior to May 1
27	1	Section 619 Soil Stabilization	Replaced Arctic Mulch with Wood Cellulose	Question 6 – updating mulch

			Fiber or Natural Wood Fiber mulch, added rate	
40-44	4	Section 690 Waterway	Added Riprap to 690-2.01 Materials, removed Rounded River Rock description and gradation, replaced Waterway Bed Fill gradation, updated Waterway Bed Fill mix material from Rounded River Rock to Riprap, Class I, removed Pay Item 690 (13) Rounded River Rock	Question 1 – replacing rounded river rock with riprap, class I and riprap, class II
45	1	Section 703 Aggregates	Deleted 703-2.03	Question 4 – DOT&PF E-1 specification will be retained
51	1	Materials Certification List	Deleted Rounded River Rock Material Analysis	Question 1 – replacing rounded river rock with riprap, class I and riprap, class II
69	1	Bid Schedule A – COP 22	Updated Item 611(1B) Riprap, Class II quantity, deleted Item 690(13) Rounded River Rock	Question 1 – replacing rounded river rock with riprap, class II
70	1	Bid Schedule B – COP 25	Updated Item 611(1B) Riprap, Class II quantity, deleted Item 690(13) Rounded River Rock	Question 1 – replacing rounded river rock with riprap, class II
71	1	Bid Schedule C – COP 20	Updated Item 611(1A) Riprap, Class I quantity, deleted Item 690(13) Rounded River Rock	Question 1 – replacing rounded river rock with riprap, class I

Plan Sheets

Crossing	Page Numbers	Action	Explanation of Correction
COP 20	C2	<ul style="list-style-type: none"> • Updated Item 611(1A) Riprap, Class I quantity • Deleted Item 690(13) Rounded River Rock • Updated Table 3 Waterway Bed Fill • Deleted Table 4 Rounded River Rock • Deleted Rounded River Rock from Legend 	Question 1
COP 20	C7	Updated labels on Detail 2/C7 from Rounded River Rock to Riprap, Class I	Question 1
COP 20	C8	Updated label on Details 1/C8 and 2/C8 from Rounded River Rock to Riprap, Class I	Question 1
COP 20	C10	Deleted Rounded River Rock from Site Revegetation Legend	Question 1
COP 22	C2	<ul style="list-style-type: none"> • Updated Item 611(1B) Riprap, Class II quantity • Deleted Item 690(13) Rounded River Rock • Updated Table 3 Waterway Bed Fill • Deleted Table 4 Rounded River Rock • Deleted Rounded River Rock from Legend 	Question 1
COP 22	C7	<ul style="list-style-type: none"> • Updated labels on Detail 2/C7 from Rounded River Rock to Riprap, Class II 	Question 1
COP 22	C8	<ul style="list-style-type: none"> • Updated label on Details 1/C8 and 2/C8 from Rounded River Rock to Riprap, Class II 	Question 1
COP 22	C10	<ul style="list-style-type: none"> • Deleted Rounded River Rock from Site Revegetation Legend 	Question 1
COP 25	C2	<ul style="list-style-type: none"> • Updated Item 611(1B) Riprap, Class II quantity • Deleted Item 690(13) Rounded River Rock • Updated Table 3 Waterway Bed Fill • Deleted Table 4 Rounded River Rock • Deleted Rounded River Rock from Legend 	Question 1
COP 25	C8	Updated labels on Detail 2/C7 from Rounded River Rock to Riprap, Class II	Question 1

COP 25	C9	Updated label on Details 1/C8 and 2/C8 from Rounded River Rock to Riprap, Class II	Question 1
COP 25	C11	Deleted Rounded River Rock from Site Revegetation Legend	Question 1

Deleted	
Waterway Bed Fill	Gradation – see table in Section 690-2.01 of Specifications

Contractor is responsible for providing a nuclear testing equipment storage shed in accordance with Section 644.

Other Requirements

Contractor must wash all trucks and equipment in accordance with Section 203 prior to mobilization to or from the City of Cordova to ensure that the spread of invasive species is prevented.

Work Zone speed limit: Limit speed of vehicles associated with the construction to 25 mph within project limits.

Park within the public right-of-way. Do not block private property.

Contractor shall notify ADF&G and the Engineer a minimum of 72 business hours prior to the following construction milestones, and obtain the approval of the Engineer:

- The initial excavation at the start of the project.
- Diverting stream flows into the diversion channel/culvert.
- Placement of new culverts to allow for inspection of bedding materials and finish grade.
- Backfill of culvert above the spring line (to verify the invert elevations).
- Placement of Waterway Bed Fill prior to placement of materials within the constructed culvert and channel to allow for inspection of materials.
- Rewatering of the installed culvert and stream bed (diverting stream flows back into the constructed channel and culvert).

The Contractor is responsible for relocating trapped fish in accordance with the permits. The Engineer and agency personnel (e.g., ADF&G, USFS, USFWS, etc), at their discretion, may elect to be onsite during stream diversion and rewatering of the installed culvert to relocate trapped fish.

SECTION 201

CLEARING AND GRUBBING

Special Provisions

201-1.01 DESCRIPTION. Add the following:

Selectively cut and remove trees as needed to complete the work. The Contractor shall give the Engineer 72-hour notice and cut only the trees approved for removal.

Salvage and stockpile native organic soils and vegetative mat.

201-3.01 GENERAL. Add the following:

The Contractor shall perform the work necessary to preserve and/or restore land monuments and property corners from damage. A land monument or property corner that is disturbed shall be restored according to Section 642 at the Contractor's expense. An undisturbed area five feet in diameter may be left around existing monuments and property corners.

Clearing *****Deleted***** is not permitted within the migratory bird window of May 1 to July 15; except as permitted by Federal, State and local laws when approved by the Engineer. The Contractor is responsible for completing clearing *****Deleted***** prior to May 1 as necessary to complete the in-stream (below Ordinary High Water) work within the work window permitted by the ADF&G Fish Habitat Permit.

Vegetative Mat. Salvage vegetative mats in the vicinity of the project from areas that will be disturbed for other work or areas specified by the Engineer and a USFS representative. Take care not to damage vegetative mats to be salvaged during clearing and grubbing. Remove the mat in at least 12-inch thick sections and preserve intact as possible. If necessary, additional vegetative mats will be made available offsite. The Contractor shall harvest and transport vegetation from an approved offsite location. The Contractor shall notify the Engineer 72 hours in advance of vegetative mat placement, so arrangements can be made for offsite harvest. The Contractor shall place vegetative mats within 1 day of harvesting from the locations (within 5 miles from the project site) approved by Engineer.

Stockpile organic soils removed during grubbing. Place stockpiled organic soils on finished slopes as topsoil prior to seeding in accordance with Section 618.

201-5.01 BASIS OF PAYMENT. Add the following:

The work required to preserve and restore land monuments and property corners is subsidiary to pay item 642(1) Construction Surveying.

SECTION 619

SOIL STABILIZATION

Special Provisions

619-3.02 APPLICATION. *Add the following:*

*****Deleted*** Apply Wood Cellulose Fiber or Natural Wood Fiber mulch meeting the requirements of Subsection 727-2.01 Mulch over all disturbed areas as part of work specified in Section 618 Seeding.** Mulch can be placed concurrently with seed if the Hydraulic Method is used for seeding as specified in Subsection 618-3.03 Application.

Apply mulch at 40 pounds/1,000 square feet.

Delete Subsections 619-4.01 and 619-5.01 in their entirety, and add the following new subsections:

619-4.01 METHOD OF MEASUREMENT.

No measurement will be made for mulch, application, water, maintenance, or repair.

619-5.01 BASIS OF PAYMENT.

Mulch, application, water, maintenance, and repair are subsidiary to pay item 618(2) Seeding.

Special Provision

Add the following Section:

SECTION 690

WATERWAY

690-1.01 DESCRIPTION. Construct a waterway bed (stream bed, river bed, creek bed, and or similar), and waterway bank (protection and revegetation), at the locations shown on the Plans.

Provide a plan and schedule for the waterway bed and waterway bank construction meeting the requirements of the Contract documents (Section 107 Legal Relations and Responsibility to Public - Permits, Section 643 Traffic Maintenance- Construction Phasing Plan and similar).

690-1.02 REFERENCES.

1. Stream Bank Revegetation and Protection: A Guide for Alaska; published by Alaska Department of Fish and Game; printed copy available from the Department, and electronic copy available on the internet.

690-2.01 MATERIALS.

Clearing and Grubbing (salvage vegetative mat)	Section 201
Excavation and Embankment (waterway bed and bank)	Section 203 & 703
Riprap	Section 611
Seeding	Section 201, 618 & 724
Topsoil	Section 620 & 726
Block Sodding (vegetative mat)	Section 623
Erosion, Sediment, and Pollution Control	Section 641
Selected Material	Section 703

Deleted

Waterway Bed Fill: Salvaged existing stream bed material or fill material meeting the following gradation:

Deleted

Waterway Bed Fill	
Size (inch)	Percent Passing
12 in	100%

10 in	95%
8 in	73%
5 in	56%
3 in	51%
1 in	29%
0.75 in	23%
#4	11%
#10 Sand	7%

Mixing the following proportions of material by volume is a recommended starting point for providing the Waterway Bed Fill gradation:

Deleted

- **45% Porous Backfill, and**
- **55% Riprap, Class I**

The Contractor is responsible for verifying the final mix meets the gradation requirements for waterway bed fill, whether obtained from salvaged material or produced from mixing other materials. Adjust the waterway bed fill material onsite as directed by the Engineer to meet the required gradation.

Waterway Bank Fill: Native material or Selected Material, Type C mixed with 6-inch to 12-inch bone rock, riprap, or similar stone pieces. Mix two parts of native material or Selected Material, Type C with one part of rock fill by volume. Mix material before placing in stream banks.

Salvaged Organic Soil: Salvaged topsoil, overburden material, or useable excavation high in organics and fines.

Hauling, stockpiling, and disposal of unsuitable and surplus material are subsidiary to Section 690 pay items.

Seeding is paid under Section 618.

Water diversion is paid under Section 672.

Payment will be made under:

Pay Item	Pay Unit
690(10) Waterway Bed Fill	Linear Foot
690(12) Waterway Bank Revegetation and Protection	Lump Sum
Deleted	

SECTION 703

AGGREGATES

Special Provisions

*****Deleted*****

703-2.09 SUBBASE. *Add the following:*

Subbase, Grading F. Aggregate containing no muck, frozen material, roots, sod or other deleterious matter and with a plasticity index not greater than 6 as tested by ATM 204 and ATM 205. Meet the following gradation as tested by ATM 304:

SIEVE	PERCENT PASSING BY WEIGHT
2 in	100
No. 4	15 – 65
No. 200	0 – 6

Vegetated Mat Salvage and Replanting, Work Plan			
640 MOBILIZATION AND DEMOBILIZATION			
Record As-Built Drawings			
641 EROSION SEDIMENT AND POLLUTION CONTROL			
Storm Water Pollution Prevention Plan (SWPPP)			
eNOI			
eNOT and Final SWPPP			
SWPPP Inspection Reports			
642 CONSTRUCTION SURVEYING AND MONUMENTS			
Survey Personnel Qualifications & Equipment List			
Grade Checker Personnel Qualifications and Equipment List			
Survey Field Notes			
643 TRAFFIC MAINTENANCE			
Traffic Control Plan			
Construction Phasing Plan			
Traffic Control Supervisor and Flagger Certifications			
646 CMP SCHEDULING			
Project Schedule			
672 STREAM DIVERSION AND DEWATERING			
Stream Diversion and Dewatering Plan			
690 WATERWAY			
Waterway Bed Fill Material Analysis			
Deleted			
703 AGGREGATES			
Select Material Type A Analysis			
Select Material Type E1 Analysis			
Subbase, Grading F Material Analysis			
724 SEED			
Seed Mix Certification			
726 TOPSOIL			
Topsoil Certification			
729 GEOSYNTHETICS			
Geotextile, Reinforcement - Type 2			
Geotextile, Erosion Control, Class 1			

NOTE: The above materials certification list is not all inclusive. In addition to the above, the Contractor is required to comply with all submittal requirements as required or identified in the plans, specifications, ADOT&PF Standard Specifications for Highway Construction (SSHC) 2020 Edition, or as directed by the Engineer.

BASE BID - SCHEDULE A: Cordova 18 Mile Fish Passage Project – COP 22					
Item No.	Work Description	Pay Unit	Unit price	Quantity	Amount
201(9)	CLEARING AND GRUBBING	LUMP SUM		ALL REQ'D	
202(4)	REMOVAL OF CULVERT PIPE	LINEAR FOOT		61	
203(3)	UNCLASSIFIED EXCAVATION	CUBIC YARD		1463	
203(5A)	BORROW, SELECTED MATERIAL, TYPE A	CUBIC YARD		1287	
203(5B)	SUBBASE, GRADING F	CUBIC YARD		528	
301(4)	AGGREGATE SURFACE COURSE, GRADING E-1	CUBIC YARD		55	
602(2)	STRUCTURAL PLATE ALUMINUM PIPE ARCH, 64" SPAN, 43" RISE	LINEAR FOOT		83	
602(4)	STRUCTURAL PLATE ALUMINUM BOX CULVERT, 19'-10" SPAN, 7'-8" RISE	LINEAR FOOT		90	
611(1A)	RIPRAP, CLASS I	CUBIC YARD		121	
611(1B)	RIPRAP, CLASS II	CUBIC YARD		110	
613(2)	CULVERT MARKER POST	EACH		4	
618(2)	SEEDING	POUND		3	
620(1)	TOPSOIL (4")	SQUARE YARD		240	
630(3B)	GEOTEXTILE, REINFORCEMENT, TYPE 2	SQUARE YARD		977	
631(2)	GEOTEXTILE, EROSION CONTROL, CLASS 1	SQUARE YARD		84	
640(1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM		ALL REQ'D	
641(3)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM		ALL REQ'D	
642(1)	CONSTRUCTION SURVEYING	LUMP SUM		ALL REQ'D	
642(14)	AS-BUILT PLANS	LUMP SUM		ALL REQ'D	
643(2)	TRAFFIC MAINTENANCE	LUMP SUM		ALL REQ'D	
644(15)	NUCLEAR TESTING EQUIPMENT STORAGE SHED	LUMP SUM		ALL REQ'D	
672(1)	STREAM DIVERSION & DEWATERING	LUMP SUM		ALL REQ'D	
690(10)	WATERWAY BED FILL	LINEAR FOOT		189	
690(12)	WATERWAY BANK REVEGETATION AND PROTECTION	LUMP SUM		ALL REQ'D	
	DELETED				

Total Base Bid - Schedule A:

Date: _____

Contractor Name: _____

BASE BID - SCHEDULE B: Cordova 18 Mile Fish Passage Project – COP 25					
Item No.	Work Description	Pay Unit	Unit price	Quantity	Amount
201(9)	CLEARING AND GRUBBING	LUMP SUM		ALL REQ'D	
202(4)	REMOVAL OF CULVERT PIPE	LINEAR FOOT		121	
203(3)	UNCLASSIFIED EXCAVATION	CUBIC YARD		1254	
203(5A)	BORROW, SELECTED MATERIAL, TYPE A	CUBIC YARD		1331	
203(5B)	SUBBASE, GRADING F	CUBIC YARD		583	
301(4)	AGGREGATE SURFACE COURSE, GRADING E-1	CUBIC YARD		55	
602(2)	STRUCTURAL PLATE ALUMINUM PIPE ARCH, 71" SPAN, 47" RISE	LINEAR FOOT		70	
602(4)	STRUCTURAL PLATE ALUMINUM BOX CULVERT, 29'-0" SPAN, 8'-3" RISE	LINEAR FOOT		76	
611(1A)	RIPRAP, CLASS I	CUBIC YARD		143	
611(1B)	RIPRAP, CLASS II	CUBIC YARD		154	
613(2)	CULVERT MARKER POST	EACH		4	
618(2)	SEEDING	POUND		2	
620(1)	TOPSOIL (4")	SQUARE YARD		220	
630(3B)	GEOTEXTILE, REINFORCEMENT, TYPE 2	SQUARE YARD		1080	
631(2)	GEOTEXTILE, EROSION CONTROL, CLASS 1	SQUARE YARD		117	
640(1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM		ALL REQ'D	
641(3)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM		ALL REQ'D	
642(1)	CONSTRUCTION SURVEYING	LUMP SUM		ALL REQ'D	
642(14)	AS-BUILT PLANS	LUMP SUM		ALL REQ'D	
643(2)	TRAFFIC MAINTENANCE	LUMP SUM		ALL REQ'D	
644(15)	NUCLEAR TESTING EQUIPMENT STORAGE SHED	LUMP SUM		ALL REQ'D	
672(1)	STREAM DIVERSION & DEWATERING	LUMP SUM		ALL REQ'D	
690(10)	WATERWAY BED FILL	LINEAR FOOT		125	
690(12)	WATERWAY BANK REVEGETATION AND PROTECTION	LUMP SUM		ALL REQ'D	
	DELETED				

Total Base Bid - Schedule B: _____

Date:

Contractor Name: _____

ADDITIVE ALTERNATE - SCHEDULE C: Cordova 18 Mile Fish Passage Project – COP 20					
Item No.	Work Description	Pay Unit	Unit price	Quantity	Amount
201(9)	CLEARING AND GRUBBING	LUMP SUM		ALL REQ'D	
202(4)	REMOVAL OF CULVERT PIPE	LINEAR FOOT		57	
203(3)	UNCLASSIFIED EXCAVATION	CUBIC YARD		1100	
203(5A)	BORROW, SELECTED MATERIAL, TYPE A	CUBIC YARD		869	
203(5B)	SUBBASE, GRADING F	CUBIC YARD		374	
301(4)	AGGREGATE SURFACE COURSE, GRADING E-1	CUBIC YARD		44	
602(2)	STRUCTURAL PLATE ALUMINUM PIPE ARCH, 57" SPAN, 38" RISE	LINEAR FOOT		66	
602(4)	STRUCTURAL PLATE ALUMINUM BOX CULVERT, 15'-6" SPAN, 7'-3" RISE	LINEAR FOOT		75	
611(1A)	RIPRAP, CLASS I	CUBIC YARD		198	
613(2)	CULVERT MARKER POST	EACH		4	
618(2)	SEEDING	POUND		2	
620(1)	TOPSOIL (4")	SQUARE YARD		180	
630(3B)	GEOTEXTILE, REINFORCEMENT, TYPE 2	SQUARE YARD		681	
631(2)	GEOTEXTILE, EROSION CONTROL, CLASS 1	SQUARE YARD		70	
640(1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM		ALL REQ'D	
641(3)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM		ALL REQ'D	
642(1)	CONSTRUCTION SURVEYING	LUMP SUM		ALL REQ'D	
642(14)	AS-BUILT PLANS	LUMP SUM		ALL REQ'D	
643(2)	TRAFFIC MAINTENANCE	LUMP SUM		ALL REQ'D	
644(15)	NUCLEAR TESTING EQUIPMENT STORAGE SHED	LUMP SUM		ALL REQ'D	
672(1)	STREAM DIVERSION & DEWATERING	LUMP SUM		ALL REQ'D	
690(10)	WATERWAY BED FILL	LINEAR FOOT		117	
690(12)	WATERWAY BANK REVEGETATION AND PROTECTION	LUMP SUM		ALL REQ'D	
	DELETED				

Total Additive Alternate - Schedule C: _____

Date: _____ Contractor Name: _____:

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ESTIMATE OF QUANTITIES

ITEM NO.	ITEM DESCRIPTION	PAY UNIT	QUANTITY
201(9)	CLEARING AND GRUBBING	LUMP SUM	ALL REQUIRED
202(4)	REMOVAL OF CULVERT PIPE	LINEAR FOOT	61
203(3)	UNCLASSIFIED EXCAVATION	CUBIC YARD	1463
203(5A)	BORROW, SELECTED MATERIAL, TYPE A	CUBIC YARD	1287
203(5B)	SUBBASE, GRADING F	CUBIC YARD	528
301(4)	AGGREGATE SURFACE COURSE, GRADING E-1	CUBIC YARD	55
602(2)	STRUCTURAL PLATE ALUMINUM PIPE ARCH, 64" SPAN, 43" RISE	LINEAR FOOT	83
602(4)	STRUCTURAL PLATE ALUMINUM BOX CULVERT, 19"-10" SPAN, 7"-8" RISE	LINEAR FOOT	90
611(1A)	RIPRAP, CLASS I	CUBIC YARD	121
611(1B)	RIPRAP, CLASS II	CUBIC YARD	110
613(2)	CULVERT MARKER POST	EACH	4
618(2)	SEEDING	POUND	3
620(1)	TOPSOIL (4")	SQUARE YARD	240
630(3B)	GEOTEXTILE, REINFORCEMENT, TYPE 2	SQUARE YARD	977
631(2)	GEOTEXTILE, EROSION CONTROL, CLASS 1	SQUARE YARD	84
640(1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED
641(3)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM	ALL REQUIRED
642(1)	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
642(14)	AS-BUILT PLANS	LUMP SUM	ALL REQUIRED
643(2)	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED
644(15)	NUCLEAR TESTING EQUIPMENT STORAGE SHED	LUMP SUM	ALL REQUIRED
672(1)	STREAM DIVERSION & DEWATERING	LUMP SUM	ALL REQUIRED
690(10)	WATERWAY BED FILL	LINEAR FOOT	189
690(12)	WATERWAY BANK REVEGETATION AND PROTECTION	LUMP SUM	ALL REQUIRED
690(13)	ROUNDED RIVER ROCK	CUBIC YARD	66

LEGEND

DESCRIPTION	
APPROXIMATE RIGHT-OF-WAY	---
CONTROL POINT	⊙
ORDINARY HIGH WATER	—
EXISTING CULVERT	—
EDGE OF PAVEMENT	—
EDGE OF GRAVEL/SHOULDER	—
EDGE OF VEGETATION	—
EXISTING THALWEG	—
TOP OF BANK	—
TOE OF SLOPE	—
PROPOSED CULVERT	—
WATERWAY BED FILL	—
WATERWAY BANK REVEGETATION AND PROTECTION	—
RIPRAP	—
ROUNDED RIVER ROCK	—
AGGREGATE SURFACE COURSE, E-1	—
SELECTED MATERIAL, TYPE A	—
SUBBASE, GRADING F	—
SEED	—
BULK BAG COFFERDAM	—

ABBREVIATIONS

ALCAP	ALUMINUM CAP
AVASP	AS VERTICAL AS SAFELY POSSIBLE
BFW	BANKFULL WIDTH
BOF	BOTTOM OF FOOTING
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CRH	COPPER RIVER HIGHWAY
ELEV	ELEVATION
ESCP	EROSION AND SEDIMENT CONTROL PLAN
HW/D	HEADWATER TO DEPTH RATIO
INV	INVERT ELEVATION
MIN	MINIMUM
MP	MILEPOST
NTS	NOT TO SCALE
OHW	ORDINARY HIGH WATER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
Q	FLOW
ROW	RIGHT-OF-WAY
STA	STATION
TYP	TYPICAL
VAP	VERTICAL ADJUSTMENT POTENTIAL

TABLE 1

COARSE MATERIAL: RIPRAP, CLASS I

APPROX. SIZE	MASS (LBS)	% PASSING
10"	50	100
8"	25	50

TABLE 2

FINE MATERIAL: POROUS BACKFILL

SIZE/SIEVE	% PASSING
3"	100
1"	65
0.75"	50
#4	25
#10	15

GENERAL NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL SITE FEATURES. IF THE CONTRACTOR DISCOVERS CONDITIONS OTHER THAN THOSE SHOWN ON THE PLANS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE.
- COORDINATE CONSTRUCTION STAGING AND MOBILIZATION AREAS AND ACTIVITIES WITH OWNER'S REPRESENTATIVE.
- COORDINATE WITH OTHER CONTRACTORS WHO MAY BE PRESENT.
- EXERCISE CAUTION AND COMPLY WITH ALL APPLICABLE OSHA REQUIREMENTS FOR WORKING IN CONFINED AREAS.
- STATIONING IS ALONG CENTERLINE OF STREAM OR ROADWAY.
- VERIFY ELEVATIONS OF ALL PROPOSED STRUCTURES PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
- CULVERT DESIGN LOAD: AASHTO LOADING HL-93, MINIMUM SOIL BEARING CAPACITY: 3,900 PSF.
- EXCAVATION AND COMPACTION:
 - REMOVE AND DISPOSE OF ALL ORGANIC OR OVER SATURATED SOFT MATERIAL, WHICH CANNOT BE COMPACTED.
 - BACKFILL SHALL BE PLACED AND COMPACTED WITH CARE AND SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY ON BOTH SIDES OF PIPE. MATERIAL TO BE COMPACTED TO 95% MAXIMUM DENSITY.
- CULVERT INSTALLATION:
 - CULVERT JOINTS SHALL NOT LEAK.
 - CULVERT INFILL MATERIAL SHALL BE INSTALLED IN PIPE ACCORDING TO PLANS. MANUAL INSTALLATION IS REQUIRED.
- ALL VEGETATION IN THE AREAS NOT AFFECTED BY WORK SHALL BE PRESERVED AND PROTECTED BY THE CONTRACTOR. RESEED ALL DISTURBED AREAS.
- TWO CULVERT MARKERS WILL BE INSTALLED AT EACH CULVERT PER STD D-09.00.

TABLE 3

WATERWAY BED FILL

SIZE/SIEVE	% PASSING
12"	100
10"	95
8"	73
5"	56
3"	51
1"	29
0.75"	23
#4	11
#10	7

TABLE 4

ROUNDED RIVER ROCK

SIZE/SIEVE	% PASSING
12"	100
9"	75
6"	30
3"	15
1"	10
0.75"	5
#4	0
#10	0

THE FOLLOWING DOT&PF STANDARD DRAWING APPLIES TO THIS PROJECT:
D-09.00 CULVERT MARKER POST

REV	DATE	DESCRIPTION	BY
1	1/21/21	ADDENDUM #1	

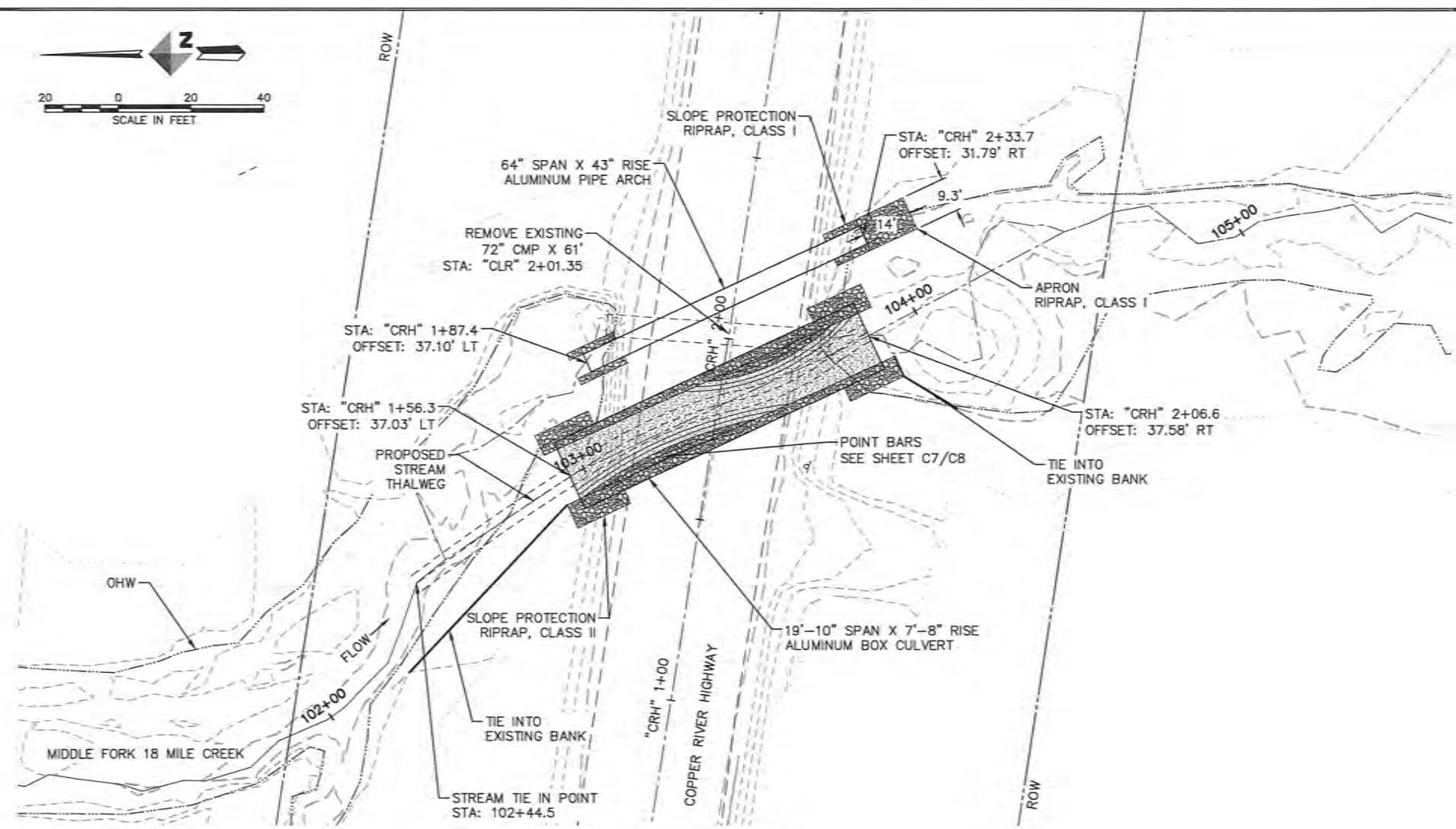
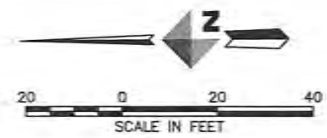


CORDOVA FISH PASSAGE IMPROVEMENTS
MIDDLE FORK 18 MILE CREEK - COP 22
GENERAL NOTES AND QUANTITIES
CORDOVA, ALASKA

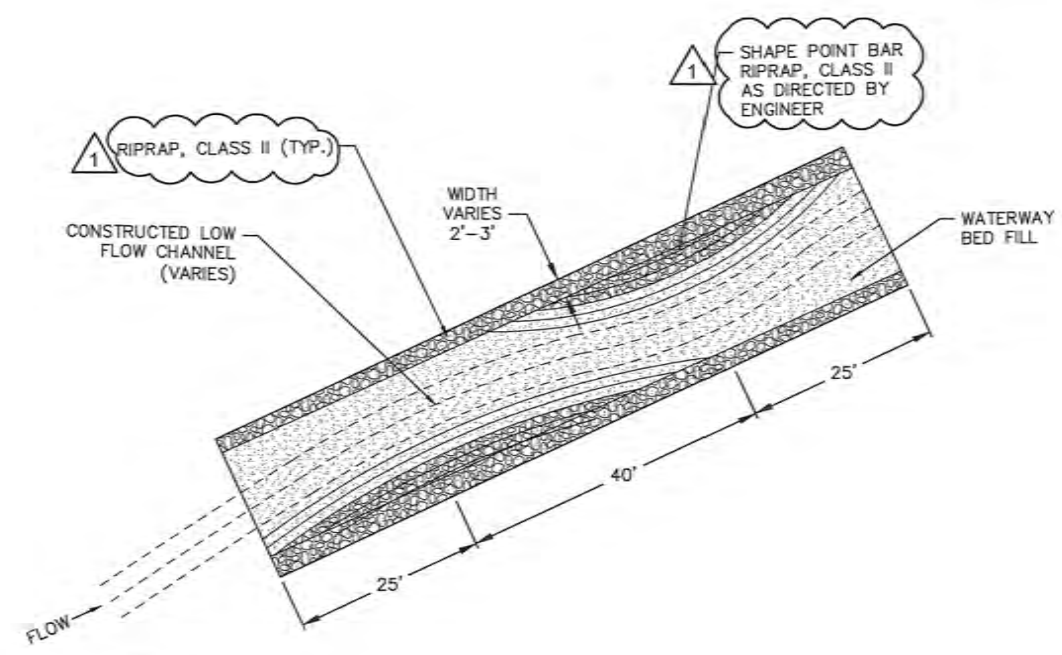
PROJECT 1136.63087.01
DATE DECEMBER 2020

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C2 OF C10



1
C7 STREAM SIMULATION DETAIL - PLAN VIEW



2
C7 CULVERT STREAM DETAIL
NTS

C:\Civil_3D\Projects_2018\2018\36\63087-01\Hydrology\SC18-CH-DR-63087-COP-22.dwg PLOT DATE 2021-1-21 10:31 SAVED DATE 2021-01-21 10:30 USER: hrbuck

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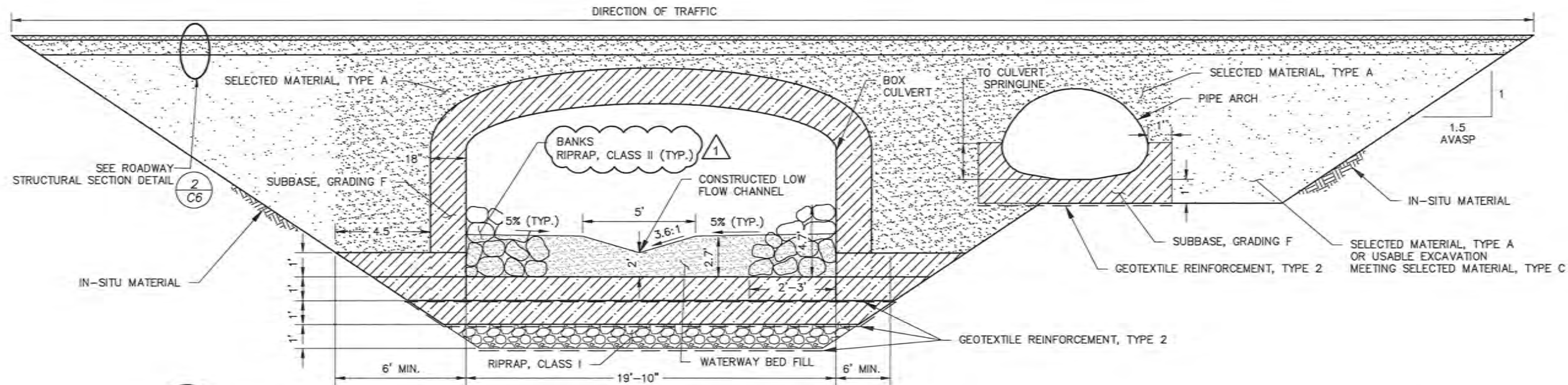


CORDOVA FISH PASSAGE IMPROVEMENTS
 MIDDLE FORK 18 MILE CREEK - COP 22
 STREAM DESIGN DETAILS
 CORDOVA, ALASKA

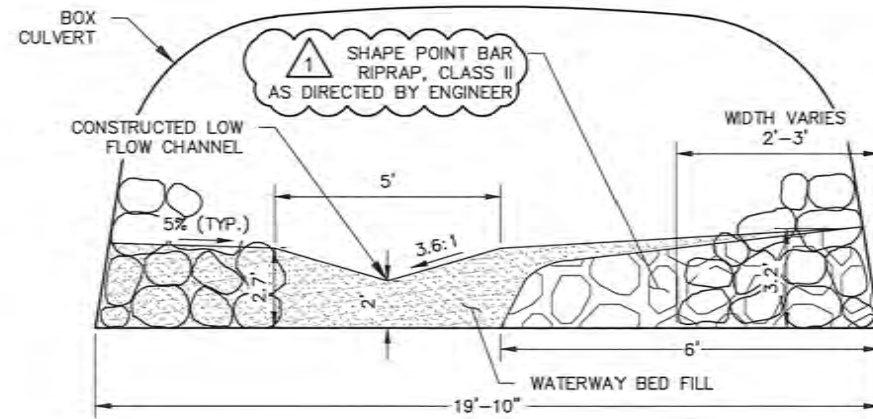
PROJECT 1136.63087.01
DATE DECEMBER 2020

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C7 OF C10



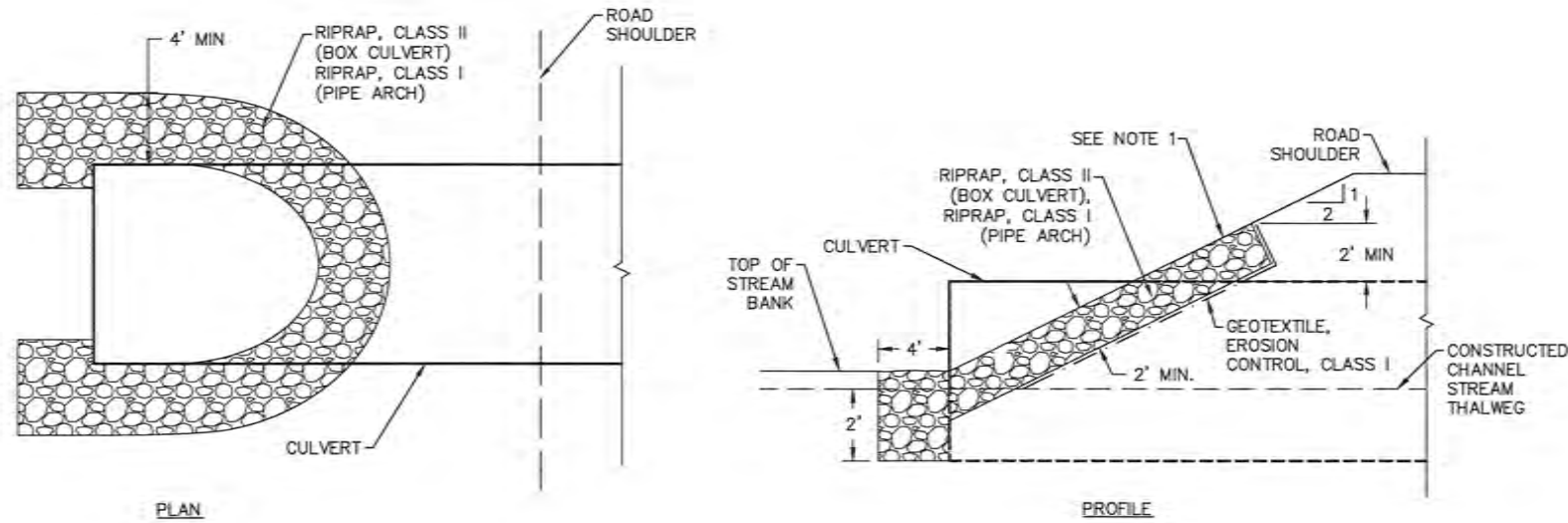
1
C8
TYPICAL CULVERT SECTION
NTS



2
C8
TYPICAL CULVERT SECTION AT ROCK CLUSTERS
NTS

NOTES:

1. GEOTEXTILE REINFORCEMENT, TYPE 2 SHALL BE PLACED BETWEEN IN-SITU MATERIAL AND RIPRAP, CLASS I, PLACED BETWEEN RIPRAP, CLASS I AND SUBBASE, GRADING F, AND PLACED BETWEEN EACH ONE-FOOT LAYER OF SUBBASE, GRADING F.
2. FILL VOIDS IN RIPRAP. MIX RIPRAP WITH FINES PRIOR TO PLACEMENT AND WASH FINES IN AFTER PLACEMENT.



3
C8
RIPRAP SLOPE PROTECTION SECTION
NTS

NOTES:

1. FILL VOIDS IN RIPRAP WITH SELECTED MATERIAL, TYPE A OR USABLE EXCAVATION MEETING SELECTED MATERIAL, TYPE C AND PLACE SALVAGED ORGANIC TOPSOIL AND SEED.

REV	DATE	DESCRIPTION	BY
1	11/21/21	ADDENDUM #1	



CORDOVA FISH PASSAGE IMPROVEMENTS
MIDDLE FORK 18 MILE CREEK - COP 22
STREAM SECTIONS AND DETAILS
CORDOVA, ALASKA

PROJECT 1136.63087.01
DATE DECEMBER 2020

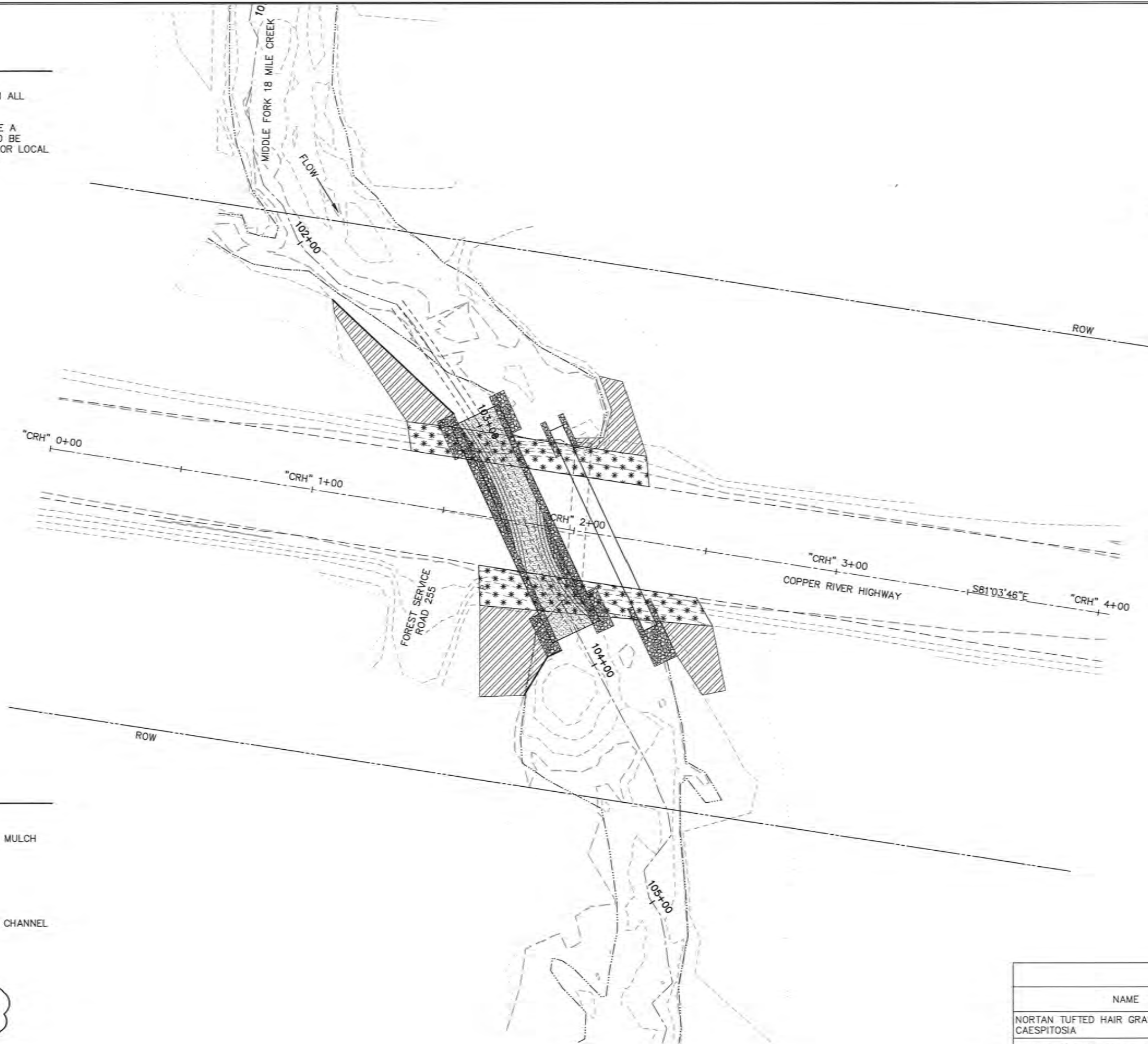
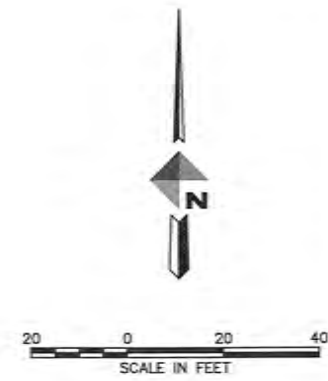
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C8 OF C10

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NOTES:

1. VEGETATIVE MAT SHALL BE PLACED ON ALL DISTURBED AREAS OUTSIDE OF THE EMBANKMENT SLOPES.
2. SALVAGED VEGETATIVE MAT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND BE SOURCED FROM THE DISTURBED AREA OR LOCAL AREA AS DIRECTED BY THE ENGINEER.



SITE REVEGETATION

- SEED, FERTILIZER, AND MULCH
- VEGETATIVE MAT
- CONSTRUCTED STREAM CHANNEL WATERWAY BED FILL
- RIPRAP
- ROUNDED RIVER ROCK

1 REVEGETATION PLAN
C10

SEED	
NAME	PROPORTION BY WEIGHT
NORTAN TUFTED HAIR GRASS, DESCHAMPISA CAESPITOSIA	20%
ARCTARED [®] RED FESCUE, FESTUCA RUBRA	60%
CALAMANGROTIS CANADENSIS	20%

REV	DATE	DESCRIPTION	BY
1	11/21/21	ADDENDUM #1	



CORDOVA FISH PASSAGE IMPROVEMENTS
MIDDLE FORK 18 MILE CREEK - COP 22
REVEGETATION PLAN
CORDOVA, ALASKA

PROJECT 1136.63087.01
DATE DECEMBER 2020

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C10 OF C10

C:\Civil_3D\Projects\2018\2018\36\63087-01\Hydrology\SC18-CH-DR-63087-COP-25.dwg PLOT DATE: 2021-11-21 10:49 SAVED DATE: 2021-01-21 10:41 USER: hrobuck

ESTIMATE OF QUANTITIES

ITEM NO.	ITEM DESCRIPTION	PAY UNIT	QUANTITY
201(9)	CLEARING AND GRUBBING	LUMP SUM	ALL REQUIRED
202(4)	REMOVAL OF CULVERT PIPE	LINEAR FOOT	121
203(3)	UNCLASSIFIED EXCAVATION	CUBIC YARD	1254
203(5A)	BORROW, SELECTED MATERIAL, TYPE A	CUBIC YARD	1331
203(5B)	SUBBASE, GRADING F	CUBIC YARD	583
301(4)	AGGREGATE SURFACE COURSE, GRADING E-1	CUBIC YARD	55
602(2)	STRUCTURAL PLATE ALUMINUM PIPE ARCH, 71" SPAN, 47" RISE	LINEAR FOOT	70
602(4)	STRUCTURAL PLATE ALUMINUM BOX CULVERT, 29'-0" SPAN, 8'-3" RISE	LINEAR FOOT	76
611(1A)	RIPRAP, CLASS I	CUBIC YARD	143
611(1B)	RIPRAP, CLASS II	CUBIC YARD	154
613(2)	CULVERT MARKER POST	EACH	4
618(2)	SEEDING	POUND	2
620(1)	TOPSOIL (4")	SQUARE YARD	220
630(3B)	GEOTEXTILE, REINFORCEMENT, TYPE 2	SQUARE YARD	1080
631(2)	GEOTEXTILE, EROSION CONTROL, CLASS 1	SQUARE YARD	117
640(1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED
641(3)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM	ALL REQUIRED
642(1)	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
642(14)	AS-BUILT PLANS	LUMP SUM	ALL REQUIRED
643(2)	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED
644(15)	NUCLEAR TESTING EQUIPMENT STORAGE SHED	LUMP SUM	ALL REQUIRED
672(1)	STREAM DIVERSION & DEWATERING	LUMP SUM	ALL REQUIRED
690(10)	WATERWAY BED FILL	LINEAR FOOT	125
690(12)	WATERWAY BANK REVEGETATION AND PROTECTION	LUMP SUM	ALL REQUIRED
690(13)	ROUNDED RIVER ROCK	CUBIC YARD	99

LEGEND

DESCRIPTION	
APPROXIMATE RIGHT-OF-WAY	---
CONTROL POINT	⊙
ORDINARY HIGH WATER	-----
EXISTING CULVERT	-----
EDGE OF PAVEMENT	====
EDGE OF GRAVEL/SHOULDER	====
EDGE OF VEGETATION	~~~~
EXISTING THALWEG	-----
TOP OF BANK	-----
TOE OF SLOPE	-----
PROPOSED CULVERT	-----
WATERWAY BED FILL	-----
WATERWAY BANK REVEGETATION AND PROTECTION	-----
RIPRAP	-----
ROUNDED RIVER ROCK	-----
AGGREGATE SURFACE COURSE, E-1	-----
SELECTED MATERIAL, TYPE A	-----
SUBBASE, GRADING F	-----
SEED	-----
BULK BAG COFFERDAM	-----

ABBREVIATIONS

ALCAP	ALUMINUM CAP
AVASP	AS VERTICAL AS SAFELY POSSIBLE
BFW	BANKFULL WIDTH
BOF	BOTTOM OF FOOTING
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CRH	COPPER RIVER HIGHWAY
ELEV	ELEVATION
ESCP	EROSION AND SEDIMENT CONTROL PLAN
HW/D	HEADWATER TO DEPTH RATIO
INV	INVERT ELEVATION
MIN	MINIMUM
MP	MILEPOST
NTS	NOT TO SCALE
OHW	ORDINARY HIGH WATER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
Q	FLOW
ROW	RIGHT-OF-WAY
STA	STATION
TYP	TYPICAL
VAP	VERTICAL ADJUSTMENT POTENTIAL

GENERAL NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL SITE FEATURES. IF THE CONTRACTOR DISCOVERS CONDITIONS OTHER THAN THOSE SHOWN ON THE PLANS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE.
- COORDINATE CONSTRUCTION STAGING AND MOBILIZATION AREAS AND ACTIVITIES WITH OWNER'S REPRESENTATIVE.
- COORDINATE WITH OTHER CONTRACTORS WHO MAY BE PRESENT.
- EXERCISE CAUTION AND COMPLY WITH ALL APPLICABLE OSHA REQUIREMENTS FOR WORKING IN CONFINED AREAS.
- STATIONING IS ALONG CENTERLINE OF STREAM OR ROADWAY.
- VERIFY ELEVATIONS OF ALL PROPOSED STRUCTURES PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
- CULVERT DESIGN LOAD: AASHTO LOADING HL-93, MINIMUM SOIL BEARING CAPACITY: 3,900 PSF.
- EXCAVATION AND COMPACTION:
 - REMOVE AND DISPOSE OF ALL ORGANIC OR OVER SATURATED SOFT MATERIAL, WHICH CANNOT BE COMPACTED.
 - BACKFILL SHALL BE PLACED AND COMPACTED WITH CARE AND SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY ON BOTH SIDES OF PIPE. MATERIAL TO BE COMPACTED TO 95% MAXIMUM DENSITY.
- CULVERT INSTALLATION:
 - CULVERT JOINTS SHALL NOT LEAK.
 - CULVERT INFILL MATERIAL SHALL BE INSTALLED IN PIPE ACCORDING TO PLANS. MANUAL INSTALLATION IS REQUIRED.
- ALL VEGETATION IN THE AREAS NOT AFFECTED BY WORK SHALL BE PRESERVED AND PROTECTED BY THE CONTRACTOR. RESEED ALL DISTURBED AREAS.
- TWO CULVERT MARKERS WILL BE INSTALLED AT EACH CULVERT PER STD D-09.00.

TABLE 1

COARSE MATERIAL: RIPRAP, CLASS I		
APPROX. SIZE	MASS (LBS)	% PASSING
10"	50	100
8"	25	50

TABLE 2

FINE MATERIAL: POROUS BACKFILL	
SIZE/SIEVE	% PASSING
3"	100
1"	65
0.75"	50
#4	25
#10	15

TABLE 3

WATERWAY BED FILL	
SIZE/SIEVE	% PASSING
12"	100
10"	95
8"	73
5"	56
3"	51
1"	29
0.75"	23
#4	11
#10	7

TABLE 4

ROUNDED RIVER ROCK	
SIZE/SIEVE	% PASSING
12"	100
9"	75
6"	30
3"	15
1"	10
0.75"	5
#4	0
#10	0

THE FOLLOWING DOT&PF STANDARD DRAWING APPLIES TO THIS PROJECT:
D-09.00 CULVERT MARKER POST

REVISIONS

REV	DATE	DESCRIPTION
1	1/21/21	ADDENDUM #1

STATE OF ALASKA
49th
Department of Transportation
1/21/21

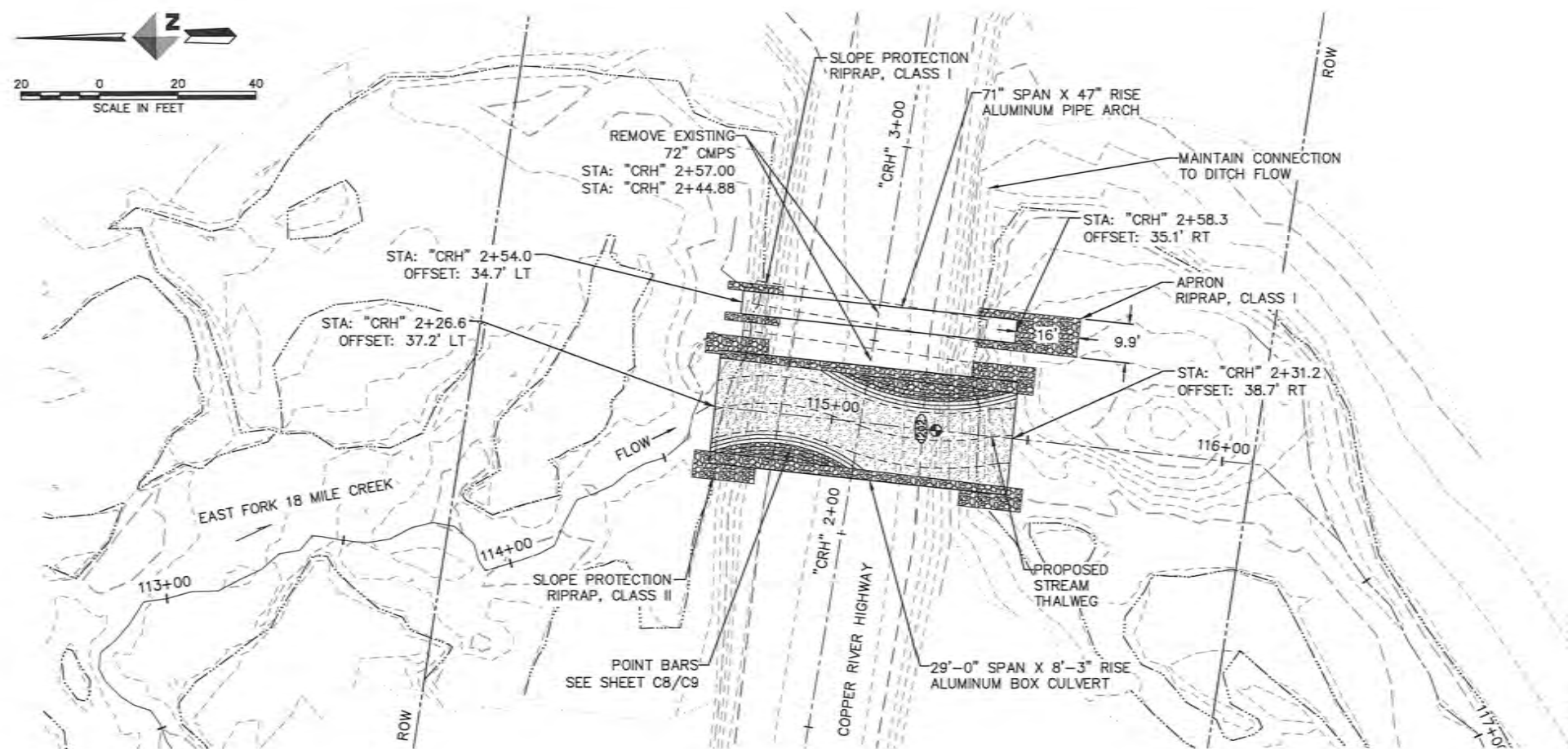
DOWL
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CORDOVA FISH PASSAGE IMPROVEMENTS
EAST FORK 18 MILE CREEK - COP 25
GENERAL NOTES AND QUANTITIES
CORDOVA, ALASKA

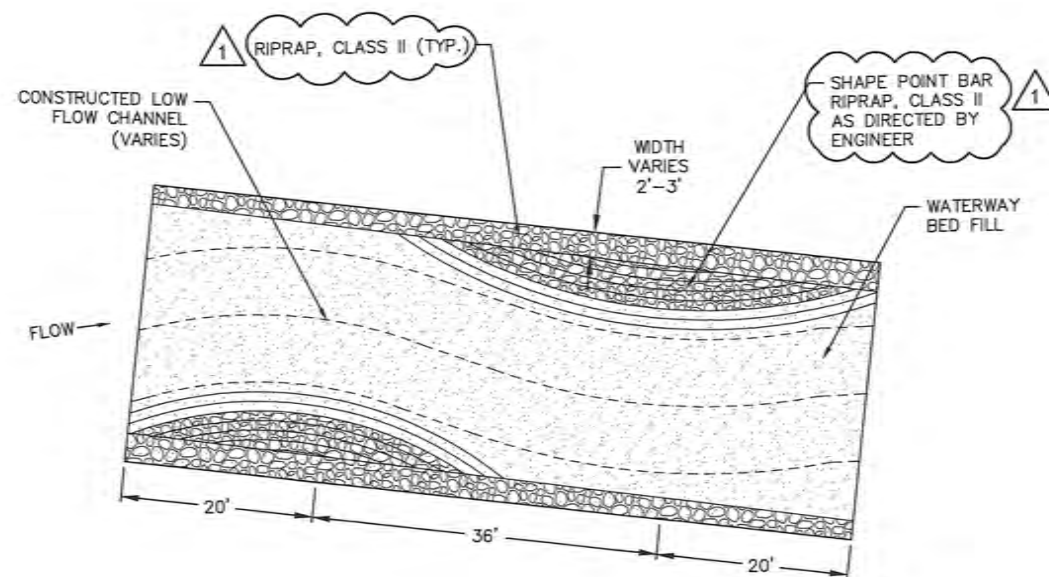
PROJECT 1136.63087.01
DATE DECEMBER 2020

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C2 OF C11

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1
C8
STREAM SIMULATION DETAIL - PLAN VIEW



2
C8
CULVERT STREAM DETAIL

REV	DATE	DESCRIPTION	BY
1	1/21/21	ADDENDUM #1	



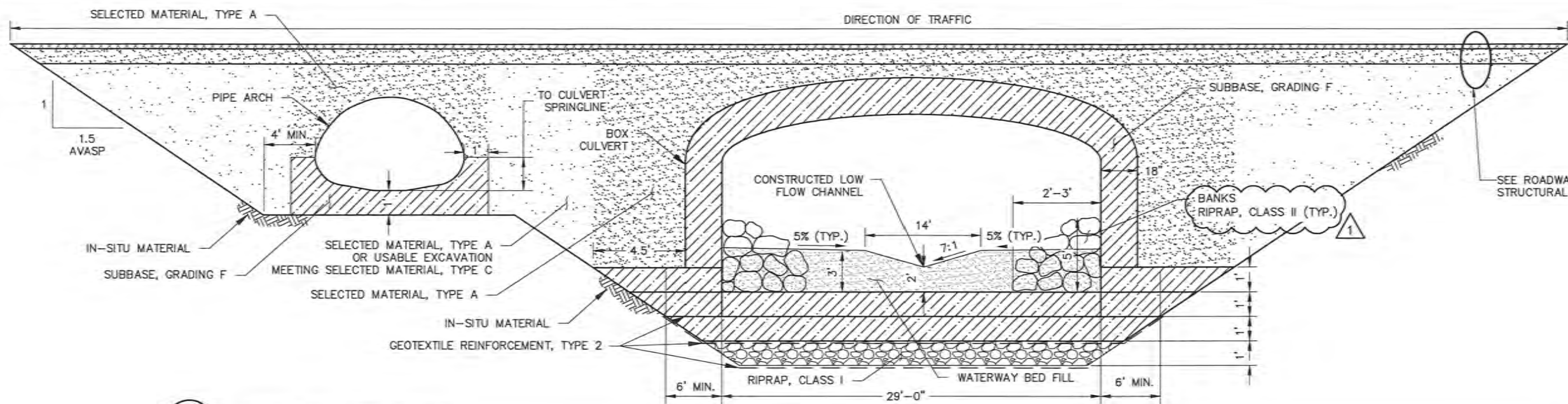
CORDOVA FISH PASSAGE IMPROVEMENTS
EAST FORK 18 MILE CREEK - COP 25
STREAM DESIGN DETAILS

PROJECT 1136.63087.01
DATE DECEMBER 2020

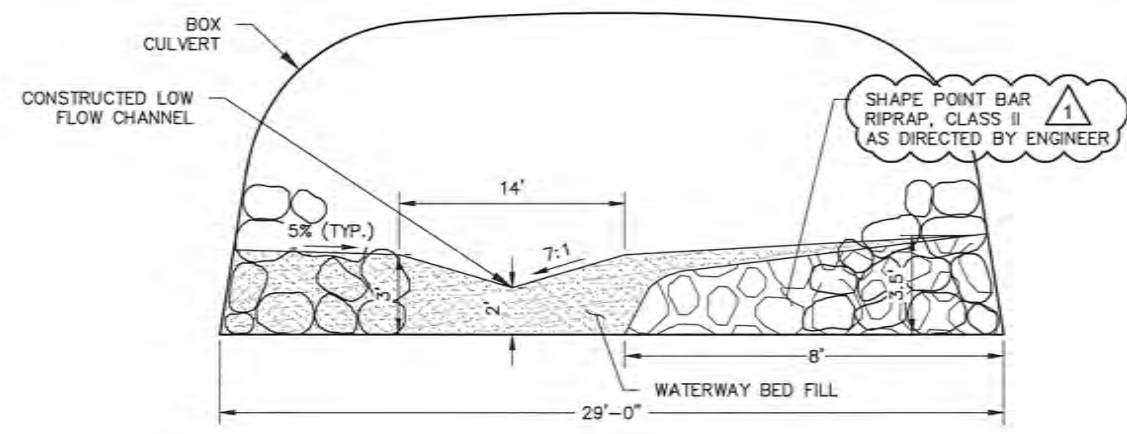
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C8 OF C11

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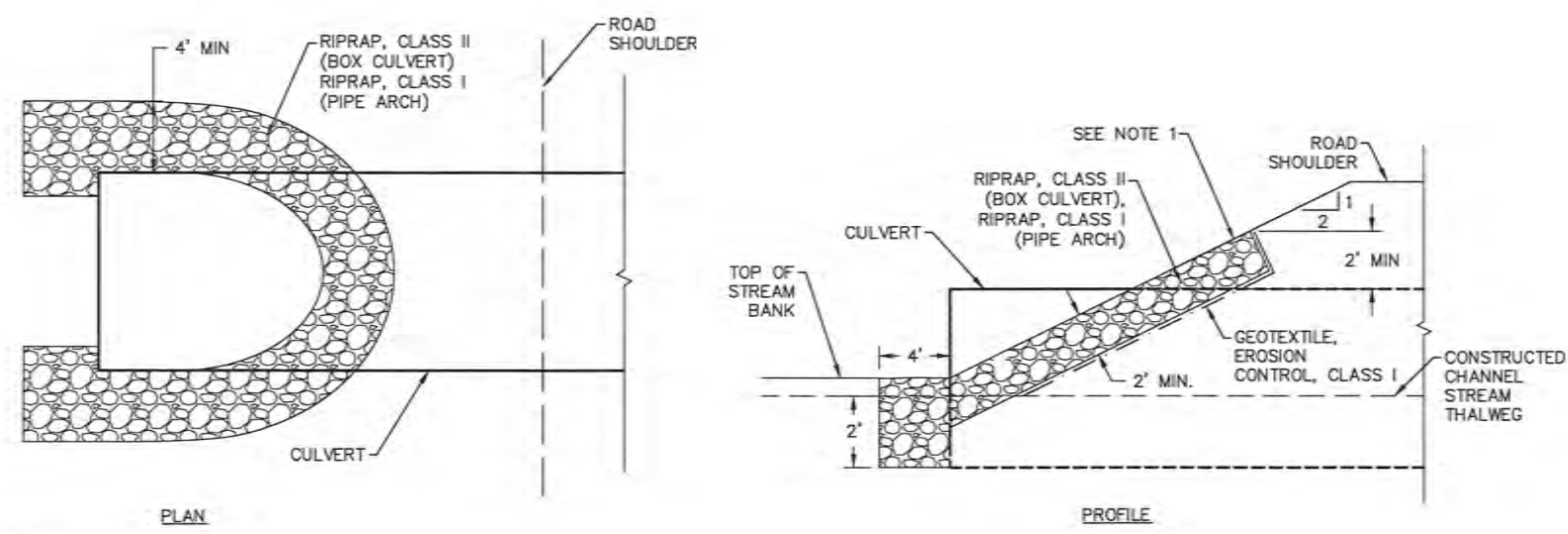


1
C9
TYPICAL CULVERT SECTION
NTS



2
C9
CULVERT SECTION AT ROCK CLUSTER
NTS

- NOTES:
1. GEOTEXTILE REINFORCEMENT, TYPE 2 SHALL BE PLACED BETWEEN IN-SITU MATERIAL AND RIPRAP, CLASS I, PLACED BETWEEN RIPRAP, CLASS I AND SUBBASE, GRADING F, AND PLACED BETWEEN EACH ONE-FOOT LAYER OF SUBBASE, GRADING F.
 2. FILL VOIDS IN RIPRAP. MIX RIPRAP WITH FINES PRIOR TO PLACEMENT AND WASH FINES IN AFTER PLACEMENT.



3
C9
RIPRAP SLOPE PROTECTION SECTION
NTS

- NOTES:
1. FILL VOIDS IN RIPRAP WITH SELECTED MATERIAL, TYPE A OR USABLE EXCAVATION MEETING SELECTED MATERIAL, TYPE C AND PLACE SALVAGED ORGANIC TOPSOIL AND SEED.

REV	DATE	DESCRIPTION
1	1/21/21	ADDENDUM #1



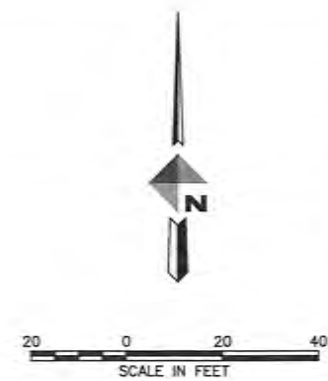
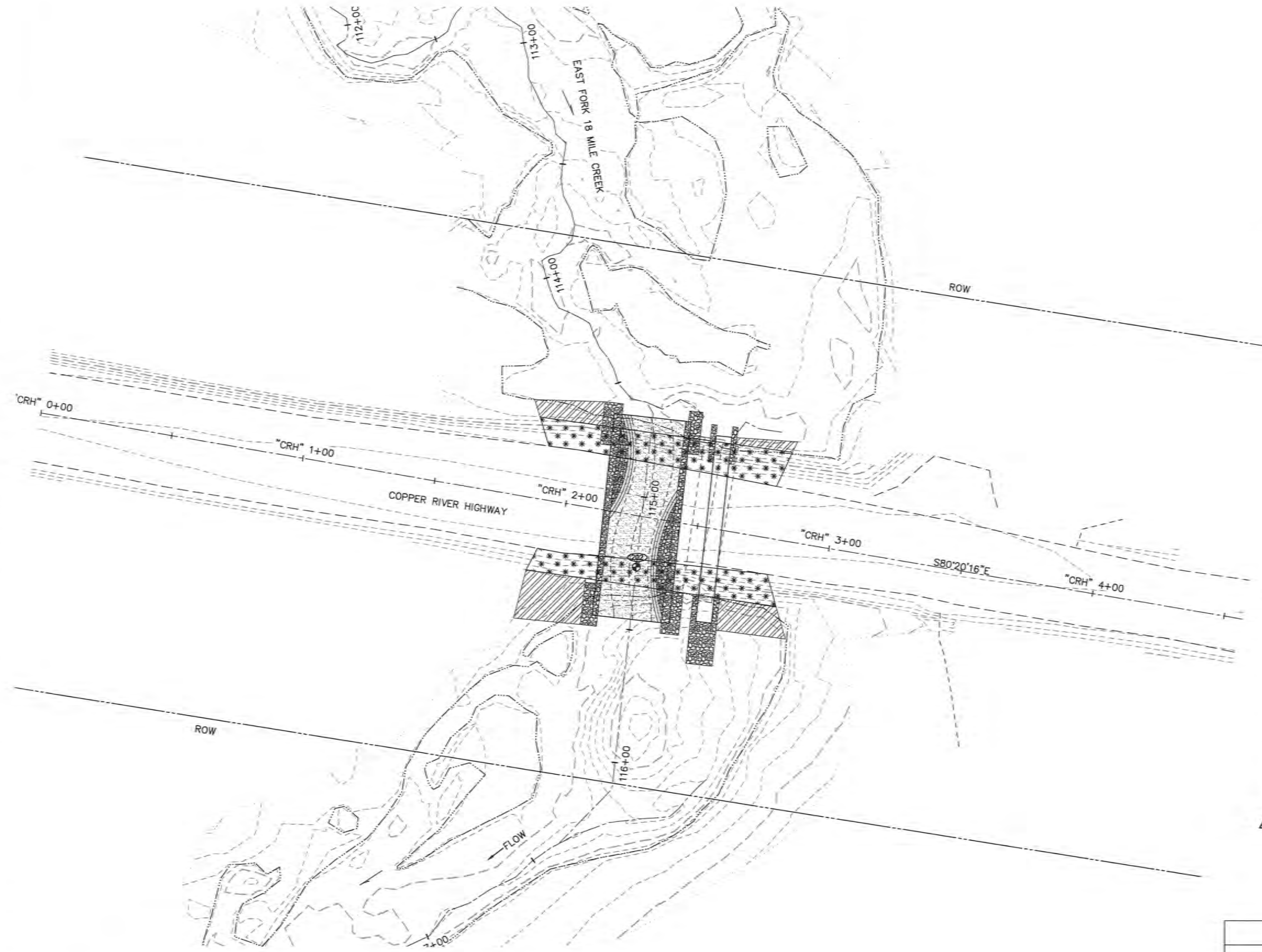
CORDOVA FISH PASSAGE IMPROVEMENTS
EAST FORK 18 MILE CREEK - COP 25
STREAM SECTIONS AND DETAILS
CORDOVA, ALASKA

PROJECT 1136.63087.01
DATE DECEMBER 2020

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C9 OF C11

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- NOTES:
1. VEGETATIVE MAT SHALL BE PLACED ON ALL DISTURBED AREAS OUTSIDE OF THE EMBANKMENT SLOPES.
 2. SALVAGED VEGETATIVE MAT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND BE SOURCED FROM THE DISTURBED AREA OR LOCAL AREA AS DIRECTED BY THE ENGINEER.

SITE REVEGETATION

- SEED, FERTILIZER, AND MULCH
- VEGETATIVE MAT
- CONSTRUCTED STREAM CHANNEL WATERWAY BED FILL
- RIPRAP
- ~~ROUNDED RIVER ROCK~~

SEED	
NAME	PROPORTION BY WEIGHT
NORTAN TUFTED HAIR GRASS, DESCHAMPISA CAESPITOSIA	20%
ARCTARED' RED FESCUE, FESTUCA RUBRA	60%
CALAMANGROTIS CANADENSIS	20%

1 REVEGETATION PLAN
C11

REV	DATE	DESCRIPTION	BY
1	1/21/21	ADDENDUM #1	



CORDOVA FISH PASSAGE IMPROVEMENTS
EAST FORK 18 MILE CREEK - COP 25
REVEGETATION PLAN
CORDOVA, ALASKA

PROJECT 1136.63087.01
DATE DECEMBER 2020

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C11 OF C11

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ESTIMATE OF QUANTITIES

ITEM NO.	ITEM DESCRIPTION	PAY UNIT	QUANTITY
201(9)	CLEARING AND GRUBBING	LUMP SUM	ALL REQUIRED
202(4)	REMOVAL OF CULVERT PIPE	LINEAR FOOT	57
203(3)	UNCLASSIFIED EXCAVATION	CUBIC YARD	1100
203(5A)	BORROW, SELECTED MATERIAL, TYPE A	CUBIC YARD	869
203(5B)	SUBBASE, GRADING F	CUBIC YARD	374
301(4)	AGGREGATE SURFACE COURSE, GRADING E-1	CUBIC YARD	44
602(2)	STRUCTURAL PLATE ALUMINUM PIPE ARCH, 57" SPAN, 38" RISE	LINEAR FOOT	66
602(4)	STRUCTURAL PLATE ALUMINUM BOX CULVERT, 15'-6" SPAN, 7'-3" RISE	LINEAR FOOT	75
611(1A)	RIPRAP, CLASS 1	CUBIC YARD	198
613(2)	CULVERT MARKER POST	EACH	4
618(2)	SEEDING	POUND	2
620(1)	TOPSOIL (4")	SQUARE YARD	180
630(3B)	GEOTEXTILE, REINFORCEMENT, TYPE 2	SQUARE YARD	681
631(2)	GEOTEXTILE, EROSION CONTROL, CLASS 1	SQUARE YARD	70
640(1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED
641(3)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM	ALL REQUIRED
642(1)	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
642(14)	AS-BUILT PLANS	LUMP SUM	ALL REQUIRED
643(2)	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED
644(15)	NUCLEAR TESTING EQUIPMENT STORAGE SHED	LUMP SUM	ALL REQUIRED
672(1)	STREAM DIVERSION & DEWATERING	LUMP SUM	ALL REQUIRED
690(10)	WATERWAY BED FILL	LINEAR FOOT	117
690(12)	WATERWAY BANK REVEGETATION AND PROTECTION	LUMP SUM	ALL REQUIRED
690(13)	ROUNDED RIVER ROCK	CUBIC YARD	66

LEGEND

DESCRIPTION
APPROXIMATE RIGHT-OF-WAY
CONTROL POINT
ORDINARY HIGH WATER
EXISTING CULVERT
EDGE OF PAVEMENT
EDGE OF GRAVEL/SHOULDER
EDGE OF VEGETATION
EXISTING THALWEG
TOP OF BANK
TOE OF SLOPE
PROPOSED CULVERT
WATERWAY BED FILL
WATERWAY BANK REVEGETATION AND PROTECTION
RIPRAP
ROUNDED RIVER ROCK
AGGREGATE SURFACE COURSE, E-1
SELECTED MATERIAL, TYPE A
SUBBASE, GRADING F
SEED
BULK BAG COFFERDAM

ABBREVIATIONS

ALCAP	ALUMINUM CAP
AVASP	AS VERTICAL AS SAFELY POSSIBLE
BFW	BANKFULL WIDTH
BOF	BOTTOM OF FOOTING
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CRH	COPPER RIVER HIGHWAY
ELEV	ELEVATION
ESCP	EROSION AND SEDIMENT CONTROL PLAN
HW/D	HEADWATER TO DEPTH RATIO
INV	INVERT ELEVATION
MIN	MINIMUM
MP	MILEPOST
NTS	NOT TO SCALE
OHW	ORDINARY HIGH WATER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
Q	FLOW
ROW	RIGHT-OF-WAY
STA	STATION
TYP	TYPICAL
VAP	VERTICAL ADJUSTMENT POTENTIAL

TABLE 1

COARSE MATERIAL: RIPRAP, CLASS 1

APPROX. SIZE	MASS (LBS)	% PASSING
10"	50	100
6"	25	50

TABLE 2

FINE MATERIAL: POROUS BACKFILL

SIZE/SIEVE	% PASSING
3"	100
1"	65
0.75"	50
#4	25
#10	15

TABLE 3

WATERWAY BED FILL

SIZE/SIEVE	% PASSING
12"	100
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8"	73
5"	56
3"	51
1"	29
0.75"	23
#4	11
#10	7

TABLE 4

ROUNDED RIVER ROCK

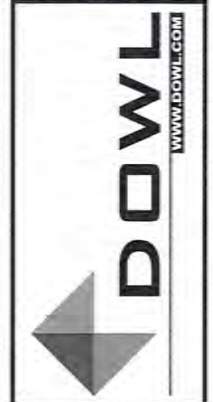
SIZE/SIEVE	% PASSING
12"	100
9"	75
6"	30
3"	15
1"	10
0.75"	5
#4	0
#10	0

THE FOLLOWING DOT&PF STANDARD DRAWING APPLIES TO THIS PROJECT:
D-09.00 CULVERT MARKER POST

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL SITE FEATURES. IF THE CONTRACTOR DISCOVERS CONDITIONS OTHER THAN THOSE SHOWN ON THE PLANS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE.
2. COORDINATE CONSTRUCTION STAGING AND MOBILIZATION AREAS AND ACTIVITIES WITH OWNER'S REPRESENTATIVE.
3. COORDINATE WITH OTHER CONTRACTORS WHO MAY BE PRESENT.
4. EXERCISE CAUTION AND COMPLY WITH ALL APPLICABLE OSHA REQUIREMENTS FOR WORKING IN CONFINED AREAS.
5. STATIONING IS ALONG CENTERLINE OF STREAM OR ROADWAY.
6. VERIFY ELEVATIONS OF ALL PROPOSED STRUCTURES PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
7. CULVERT DESIGN LOAD: AASHTO LOADING HL-93, MINIMUM SOIL BEARING CAPACITY: 3,900 PSF.
8. EXCAVATION AND COMPACTION:
 - A. REMOVE AND DISPOSE OF ALL ORGANIC OR OVER SATURATED SOFT MATERIAL, WHICH CANNOT BE COMPACTED.
 - B. BACKFILL SHALL BE PLACED AND COMPACTED WITH CARE AND SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY ON BOTH SIDES OF PIPE. MATERIAL TO BE COMPACTED TO 95% MAXIMUM DENSITY.
9. CULVERT INSTALLATION:
 - A. CULVERT JOINTS SHALL NOT LEAK.
 - B. CULVERT INFILL MATERIAL SHALL BE INSTALLED IN PIPE ACCORDING TO PLANS. MANUAL INSTALLATION IS REQUIRED.
10. ALL VEGETATION IN THE AREAS NOT AFFECTED BY WORK SHALL BE PRESERVED AND PROTECTED BY THE CONTRACTOR. RESEED ALL DISTURBED AREAS.
11. TWO CULVERT MARKERS WILL BE INSTALLED AT EACH CULVERT PER STD D-09.00.

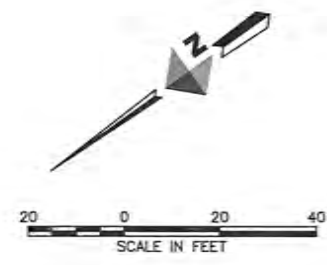
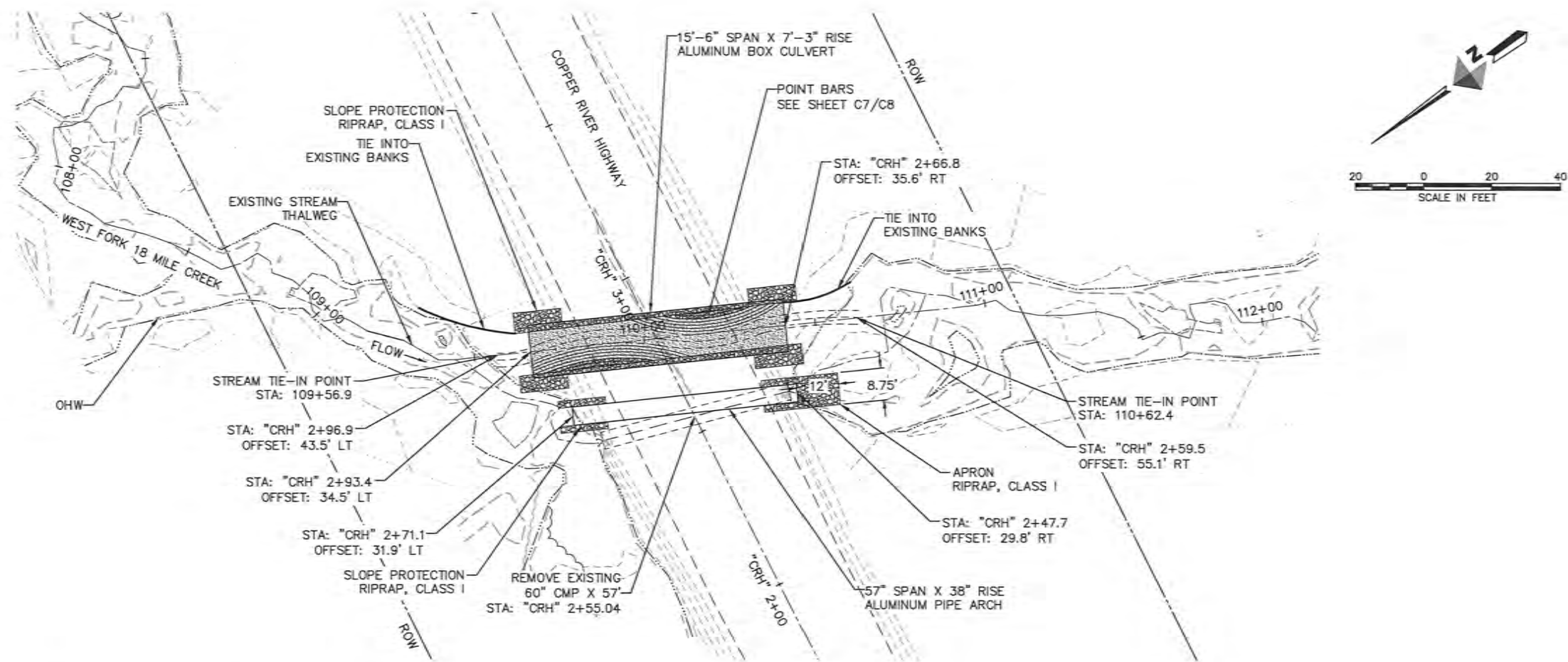
REV	DATE	DESCRIPTION	BY
1	1/21/21	ADDENDUM #1	



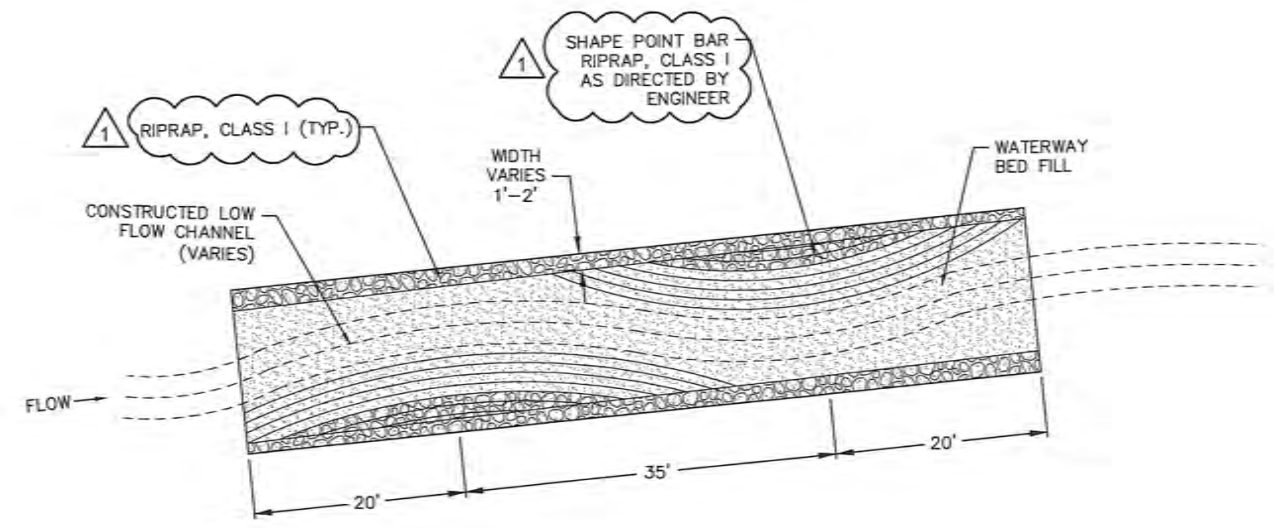
CORDOVA FISH PASSAGE IMPROVEMENTS
WEST FORK 18 MILE CREEK - COP 20
GENERAL NOTES AND QUANTITIES
CORDOVA, ALASKA

PROJECT	1136.63087.01
DATE	DECEMBER 2020
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C2 OF C10	

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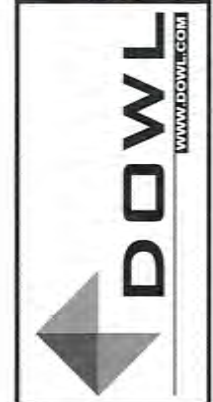


1
C7
STREAM SIMULATION DETAIL - PLAN VIEW



2
C7
CULVERT STREAM DETAIL
NTS

REV	DATE	DESCRIPTION	BY
1	1/21/21	ADDENDUM #1	



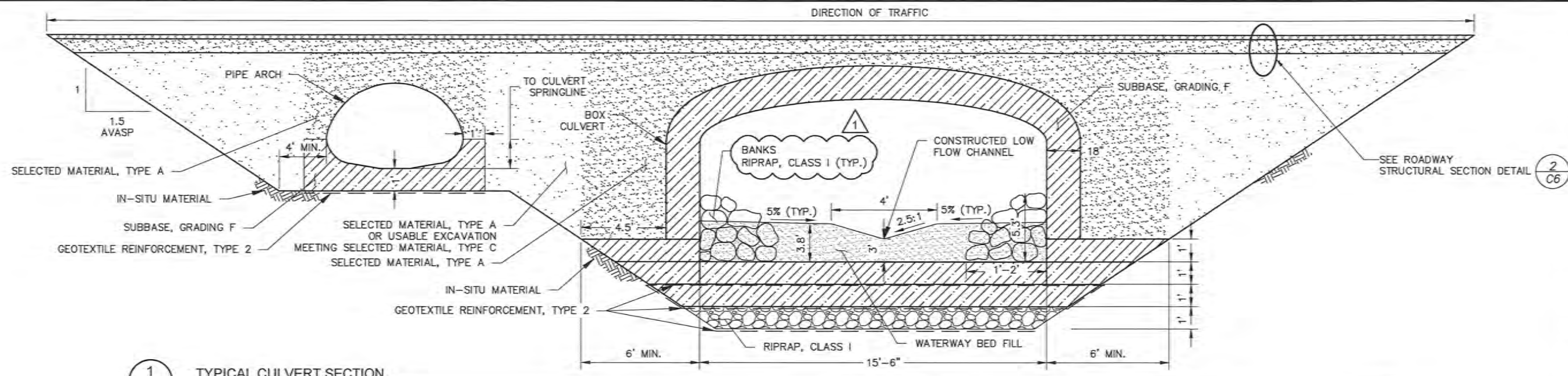
CORDOVA FISH PASSAGE IMPROVEMENTS
WEST FORK 18 MILE CREEK - COP 20
STREAM DESIGN DETAILS

PROJECT 1136.63087.01
DATE DECEMBER 2020

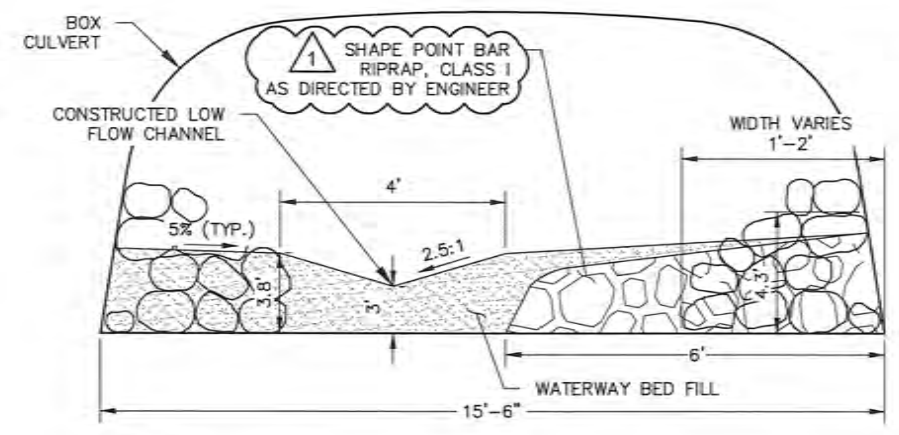
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C7 OF C10

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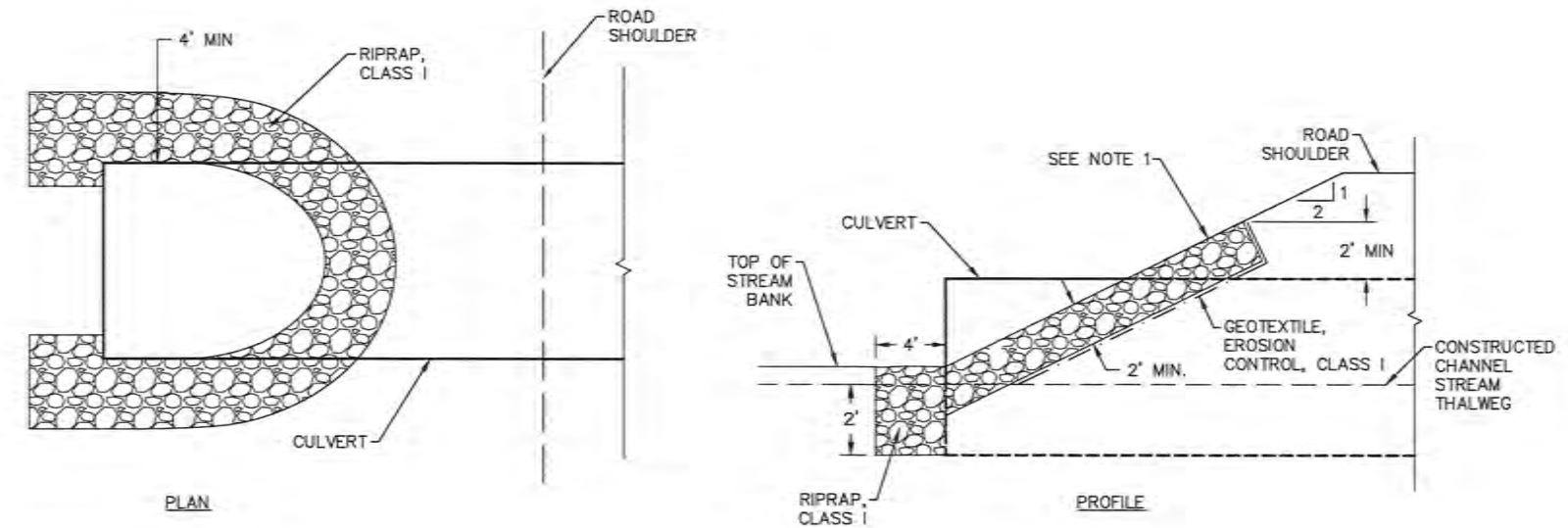
1 TYPICAL CULVERT SECTION
C8 NTS



2 TYPICAL CULVERT SECTION AT ROCK CLUSTERS
C8 NTS

NOTES:

1. GEOTEXTILE REINFORCEMENT, TYPE 2 SHALL BE PLACED BETWEEN IN-SITU MATERIAL AND RIPRAP, CLASS I, PLACED BETWEEN RIPRAP, CLASS I AND SUBBASE, GRADING F, AND PLACED BETWEEN EACH ONE-FOOT LAYER OF SUBBASE, GRADING F.
2. FILL VOIDS IN RIPRAP. MIX RIPRAP WITH FINES PRIOR TO PLACEMENT AND WASH FINES IN AFTER PLACEMENT.



3 RIPRAP SLOPE PROTECTION SECTION
C8 NTS

NOTES:

1. FILL VOIDS IN RIPRAP WITH SELECTED MATERIAL, TYPE A OR USABLE EXCAVATION MEETING SELECTED MATERIAL, TYPE C AND PLACE SALVAGED ORGANIC TOPSOIL AND SEED.

REV	DATE	DESCRIPTION	BY
1	1/21/21	ADDENDUM #1	



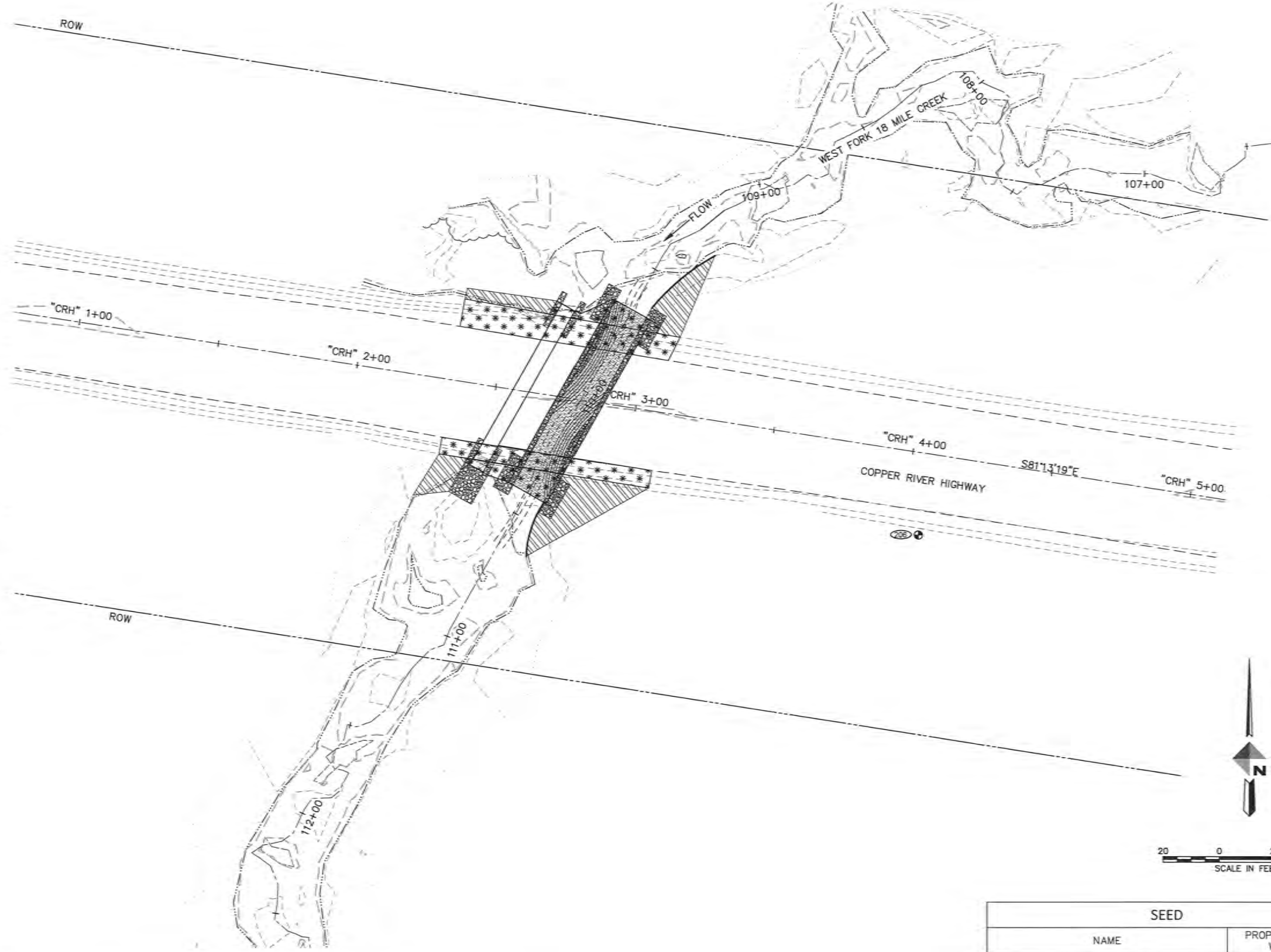
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WEST FORK 18 MILE CREEK - COP 20
STREAM SECTIONS AND DETAILS

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NOTES:

1. VEGETATIVE MAT SHALL BE PLACED ON ALL DISTURBED AREAS OUTSIDE OF THE EMBANKMENT SLOPES.
2. SALVAGED VEGETATIVE MAT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND BE SOURCED FROM THE DISTURBED AREA OR LOCAL AREA AS DIRECTED BY THE ENGINEER.

SITE REVEGETATION

	SEED, FERTILIZER, AND MULCH
	VEGETATIVE MAT
	CONSTRUCTED STREAM CHANNEL WATERWAY BED FILL
	RIPRAP
	ROUNDED RIVER ROCK

SEED	
NAME	PROPORTION BY WEIGHT
NORTAN TUFTED HAIR GRASS, DESCHAMPISA CAESPITOSIA	20%
ARCTARED [®] RED FESCUE, FESTUCA RUBRA	60%
CALAMANGROTIS CANADENSIS	20%

1 REVEGETATION PLAN
C10

REV	DATE	DESCRIPTION	BY
1	1/21/21	ADDENDUM #1	



CORDOVA FISH PASSAGE IMPROVEMENTS
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REVEGETATION PLAN
CORDOVA, ALASKA

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