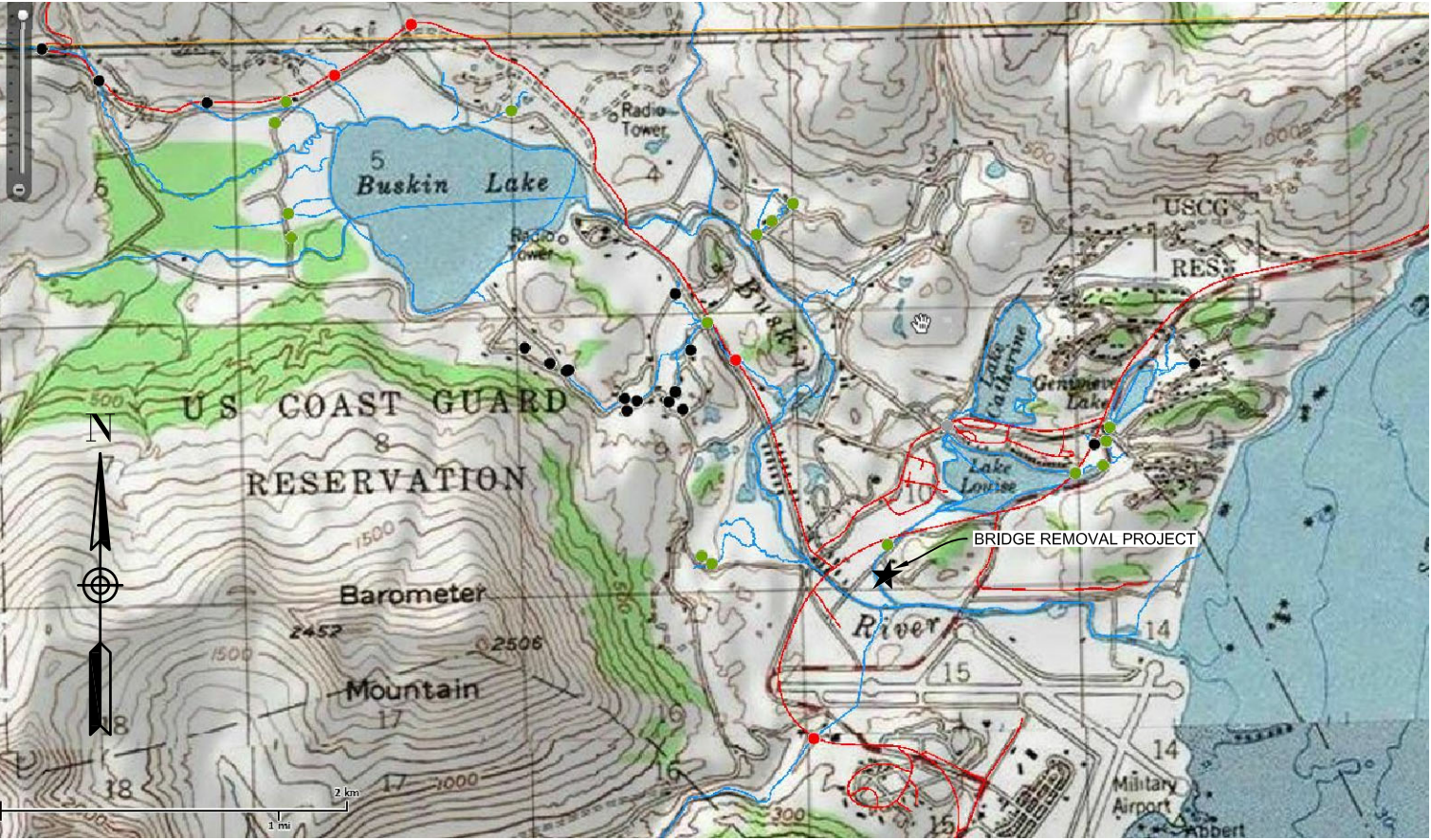




Kodiak Soil and Water Conservation District



VICINITY MAP

KODIAK ISLAND HABITAT ENHANCEMENT PROJECT

DRAWING INDEX

SHEET NO.	TITLE
G-001	COVER SHEET
CD101	BRIDGE REMOVAL SITE PLAN & PHOTOS
CD102	BRIDGE REMOVAL PHOTOS

This project was designed by Region 7 of the US Fish and Wildlife Service. The initials or signatures and registration designations of individuals appear on these project documents within the scope of their employment.



U.S. FISH AND WILDLIFE SERVICE
ANCHORAGE CONSERVATION OFFICE
4700 BLM ROAD
ANCHORAGE, AK 99507
907-271-2888

Revision No.	Description	Date	Designed
			H. HANSON
			Drawn
			H. HANSON
			Checked
			H. HANSON
			Date
			2-27-19



KODIAK ISLAND HABITAT
ENHANCEMENT PROJECT
DEBRIS REMOVAL

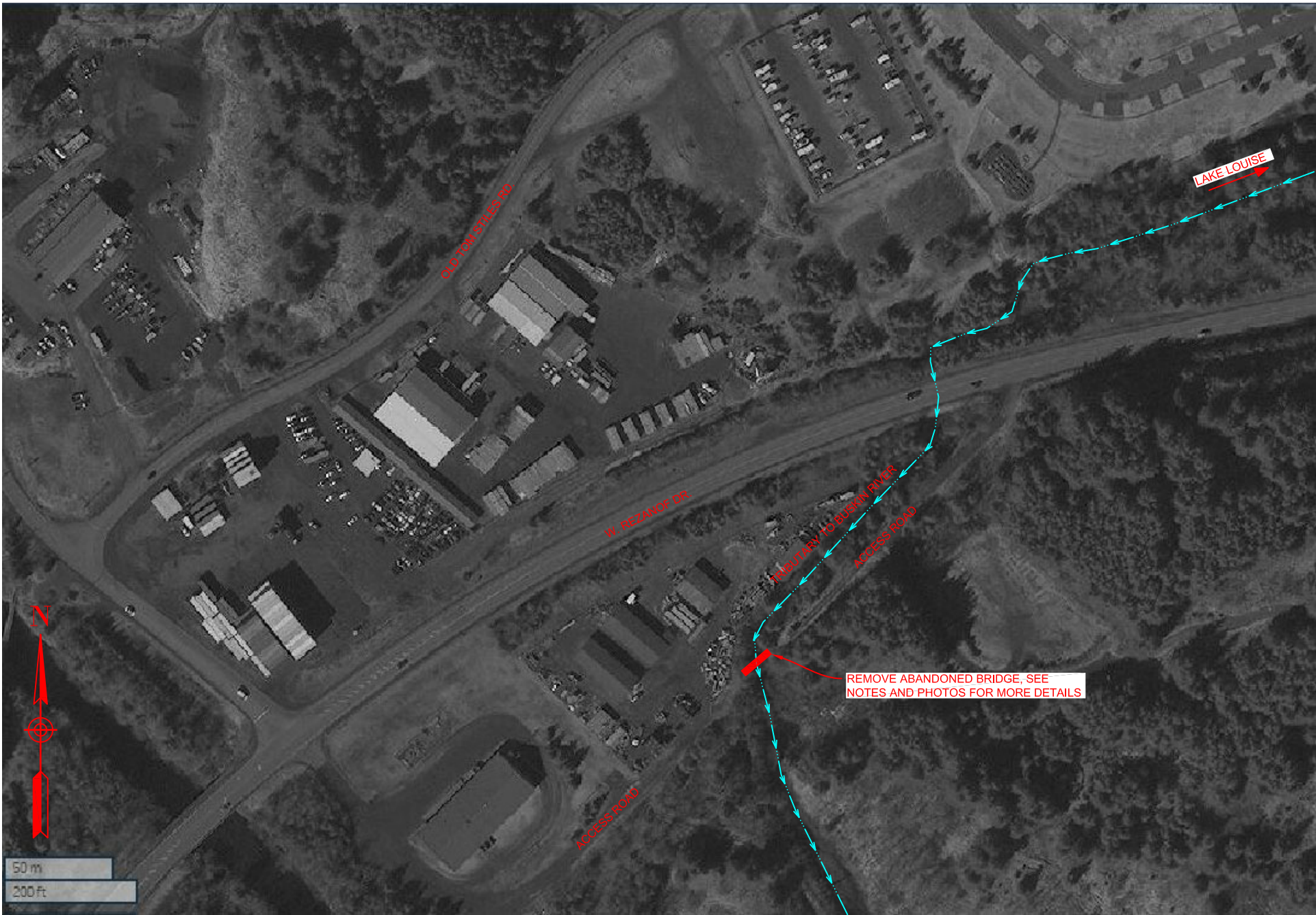
COVER SHEET &
VICINITY MAP

Drawing Number:

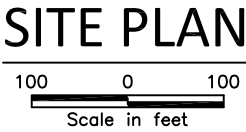
G-001

User: HGHANSON, Feb 27, 2019 - 10:39am
Drawing: CAUSERS\HGHANSON\DOCUMENTS\PROJECTS\KODIAK\EVDS\CONSTRUCTION\DOCUMENTS\LAKE CATHERINE\BRIDGE REMOVAL\BRIDGE REMOVAL.DWG - Layout G-001
Xrefs: FVS-22X34-PLNDWG - Images: DIESEL evaluation failed

User: HGHANSON, Feb 27, 2019 - 10:40am
Drawing: CAUSERS\HGHANSON\DOCUMENTS\PROJECTS\KODIAK\EVDS\CONSTRUCTION DOCUMENTS\LAKE CATHERINE\BRIDGE REMOVAL\BRIDGE REMOVAL.DWG - Layout: CD101
Xrefs: F:\S-22\34-PL\DWG - Images: evaluation failed



- NOTES:
1. REMOVE AND LEGALLY DISPOSE OF BRIDGE SUPERSTRUCTURE, DECK, AND MID-CHANNEL PIERS ABOVE AND BELOW ORDINARY HIGH WATER. LEAVE ABUTMENTS IN PLACE. MINIMIZE DISTURBANCE TO BANKS AND RIPARIAN VEGETATION.
 2. MID-CHANNEL PIERS MAY BE CUT OFF ONE FOOT BELOW THE STREAM BED ELEVATION. OTHERWISE THE PIERS AND ANY FOOTERS (IF PRESENT) SHALL BE REMOVED IN THEIR ENTIRETY.
 3. REMOVE TREES NEEDED FOR ACCESS WITH THE APPROVAL OF THE ENGINEER. LEAVE STUMPS IN PLACE. TRANSPLANT NEW TREES AT A 1:1 RATIO TO REPLACE TREES THAT ARE REMOVED AT THE COMPLETION OF THE PROJECT.
 4. SITE MAY BE ACCESSED FROM BOTH SIDES OF THE CREEK. MECHANIZED EQUIPMENT SHALL NOT BE OPERATED IN THE STREAM OR BELOW ORDINARY HIGH WATER.
 5. REMOVE ALL LOOSE DEBRIS AND MAN MADE MATERIALS IN STREAM WITHIN 100 FEET EITHER SIDE OF THE BRIDGE



This project was designed by Region 7 of the US Fish and Wildlife Service. The initials or signatures and registration numbers of the individuals who appear on these project documents within the scope of their employment.



U.S. FISH AND WILDLIFE SERVICE
ANCHORAGE CONSERVATION OFFICE
4700 BLM ROAD
ANCHORAGE, AK 99507
907-271-2888

Revision No.	Description	Date	Designed
			H. HANSON
			Drawn
			H. HANSON
			Checked
			H. HANSON
			Date
			2-27-19



KODIAK ISLAND HABITAT
ENHANCEMENT PROJECT
DEBRIS REMOVAL

BRIDGE REMOVAL
SITE PLAN & PHOTOS

Drawing Number:

CD101

A

B

C

D



User: HGHANSON Feb 27, 2019 - 10:41am
Drawing: CAUSERS\HGHANSON\DOCUMENTS\PROJECTS\KODIAK\EVDS\CONSTRUCTION\DOCUMENTS\LAKE CATHERINE\BRIDGE REMOVAL\BRIDGE REMOVAL.DWG - Layout CD102
Xrefs: FVS-22X34-PLNDWG - Images: DIESEL evaluation failed

This project was designed by Region 7 of the US Fish and Wildlife Service. The initials or signatures and registration designations of individuals appear on these project documents within the scope of their employment.



U.S. FISH AND WILDLIFE SERVICE
ANCHORAGE CONSERVATION OFFICE
4700 BLM ROAD
ANCHORAGE, AK 99507
907-271-2888

Revision No.	Description	Date	Designed
			H. HANSON
			Drawn
			H. HANSON
			Checked
			H. HANSON
			Date
			2-27-19



KODIAK ISLAND HABITAT
ENHANCEMENT PROJECT
DEBRIS REMOVAL

BRIDGE REMOVAL
PHOTOS

Drawing Number:

CD102

US FISH & WILDLIFE SERVICE (USFWS)
KODIAK ISLAND HABITAT ENHANCEMENT PROJECT
BID PACKAGE NO. 3
KODIAK, ALASKA
JANUARY 9, 2019



VICINITY MAP

PROJECT DESCRIPTION

THIS PROJECT INVOLVES REPLACING EXISTING CULVERT WITH A LARGER STREAM SIMULATION ALUMINUM BOX CULVERT AT TOM STILES ROAD AND REMOVAL OF WOODEN WEIR STRUCTURE AT CATHERINE LAKE OUTLET.

THE CONTRACTOR MUST PROVIDE ALL ALUMINUM CULVERT MATERIALS, MANPOWER, EQUIPMENT, ASSEMBLY AND INSTALLATION OF THE NEW CULVERT (SEE SPECIFICATIONS).

DRAWING INDEX	
SHEET NO.	TITLE
G-001	TITLE SHEET
G-002	ESTIMATE OF QUANTITIES & ABBREVIATIONS
G-003	GENERAL NOTES & TYPICAL ROAD SECTION
G-004	EROSION, SEDIMENT CONTROL NOTES & SILT FENCE DETAILS
V-100	CULVERT 20700877 EXISTING CONDITION
V-101	CULVERT 20700877 EXISTING CONDITION
C-100	CULVERT 20700877 DEMOLITION, EROSION & SEDIMENT CONTROL PLAN
C-101	DIVERSION PLAN & PROFILE
C-102	CULVERT 20700877 CONSTRUCTION PLAN
C-103	CULVERT 20700877 PLAN & PROFILE
C-104	CULVERT 20700877 BYPASS PLAN & PROFILE
C-105	CULVERT 20700877 SUBSTRATE PLAN
C-106	CULVERT 20700877 CROSS SECTIONS
C-107	CULVERT 20700877 STREAM CROSS SECTIONS
C-108	CULVERT 20700877 ROAD PLAN & PROFILE
C-109	SANITARY SEWER PLAN & PROFILE
C-110	WATER MAIN PLAN & PROFILE
C-111	CULVERT 20700877 DITCH C PLAN & PROFILE
C-112	CULVERT 20700877 DITCH D PLAN & PROFILE
C-113	CULVERT 20700877 REVEGETATION PLAN
C-114	SECTION DETAILS
C-115	CULVERT 20700877 GUARDRAIL PLAN & ELEVATION
C-116	ROAD SECTION
V-200	CATHERINE LAKE OUTLET WEIR EXISTING CONDITION
C-200	CATHERINE LAKE OUTLET WEIR LOCATION MAP
C-201	CATHERINE LAKE OUTLET WEIR STREAM PLAN & PROFILE
C-202	CATHERINE LAKE OUTLET WEIR REVEGETATION PLAN
C-203	CATHERINE LAKE OUTLET WEIR TYPICAL CROSS SECTION

FINAL DESIGN - JANUARY 9, 2019

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: _____	DRAWN: GDU	CHECKED: TCB	SCALE: AS NOTED	FILE: 159817-1002
---------------	-----------------	------------	--------------	-----------------	-------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3	DRAWING: TITLE SHEET
LOCATION: KODIAK, ALASKA	
CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)	

500 W 27th AVE., SUITE A
ANCHORAGE, ALASKA 99503
WWW.BCE-AL.COM


BCE
Consulting Engineers

PHONE (907) 273-3334
FAX (907) 273-3334
ANCHORAGE, ALASKA



JOB NO. 1598.17
SHEET
G-001

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

ESTIMATE OF QUANTITIES*				
ITEM NO.	WORK DESCRIPTION	PAY UNIT	ESTIMATED QUANTITIES	
			SITE 20700877	OUTLET WEIR
201(1)	CLEARING AND GRUBBING	SY	1195	232
201(6)	SELECTIVE TREE REMOVAL (COTTON WOOD & SPRUCE TREES), GREATER THAN 4" CAL.	EA	12	6
202(1)	REMOVAL OF STRUCTURES & OBSTRUCTION (DEBRIS & TRASH)	LS	0	ALL REQ'D
202(2)	REMOVAL OF PAVEMENT	SY	360	0
202(4)	REMOVAL OF CULVERT PIPE	LF	79	0
202(4)	REMOVAL OF WOODEN WEIR	LS	0	ALL REQ'D
203(2)	BEDROCK EXCAVATION	CY	0	0
203(3)	UNCLASSIFIED EXCAVATION	CY	2085	79
203(5)	RE-USE SELECT FILL MATERIAL, TYPE C1	CY	1251	0
203(5)	BORROW SELECT FILL MATERIAL, TYPE C1	CY	506	0
204(1)	SELECT FILL MATERIAL, TYPE A1	CY	135	0
204(2)	SHORING & BRACING SEWER & WATERLINE	LS	ALL REQ'D	0
301(2)	AGGREGATE BASE COURSE, GRADING D-1	CY	40	0
401(1)	HOT MIX ASPHALT, TYPE II, CLASS B	TON	62	0
602(2)	STRUCTURAL PLATE ALUMINUM BOX CULVERT 19'-5" SPAN x 6'-11" RISE W/ SOLID INVERT	LF	94.5	0
602(2)	STRUCTURAL PLATE PIPE-ARCH 81" x 59", GA 10	LF	109	0
606(1)	W-BEAM GUARDRAIL	LF	25	0
606(5)	REMOVING AND RECONSTRUCTING GUARDRAIL	LF	180	0
610(1)	DITCH LINING	CY	92	0
611(1)	RIPRAP, CLASS II	CY	264	0
618(1)	SEEDING (SCHEDULE A)	SY	1035	220
618(3)	WATER FOR SEEDING	LS	ALL REQ'D	ALL REQ'D
620(1)	TOPSOIL, 4"	SY	1035	220
621(1)	TREE (COTTONWOOD), 6'-8'-11" HT SEEDLINGS	EA	12	6
621(1)	TREE (SPRUCE TREES) 6'-8'-11" HT SEEDLINGS	EA	12	6
626(1)	SANITARY SEWER CONDUIT INSULATION WITH JACKET ON 10" Ø PVC	LF	44	0
627(1)	WATER CONDUIT INSULATION WITH JACKET ON 8" Ø DURO PIPE	LF	44	0
640(1)	MOBILIZATION & DEMOBILIZATION	LS	ALL REQ'D	ALL REQ'D
641(1)	EROSION AND POLLUTION CONTROL ADMINISTRATION	LS	ALL REQ'D	ALL REQ'D
641(3)	TEMPORARY EROSION AND POLLUTION CONTROL	LS	ALL REQ'D	ALL REQ'D
642(1)	CONSTRUCTION SURVEYING	LS	ALL REQ'D	ALL REQ'D
643(2)	TRAFFIC MAINTENANCE	LS	ALL REQ'D	0
672(1)	STREAM DIVERSION & DEWATERING	LS	ALL REQ'D	0
690(1)	WATERWAY BED - FINE MATERIALS	CY	76	0
690(1)	WATERWAY BED - COARSE MATERIALS	CY	167	0
690(1)	WATERWAY BED - RIPRAP CLASS II	CY	30	0
690(4)	VEGETATIVE MAT (3FT WIDE)	SF	1440	876

*SEE NOTE 16

ABBREVIATIONS:

AC	ASPHALT CONCRETE	N	NORTHING
ALBC	ALUMINUM BOX CULVERT	NTS	NOT TO SCALE
BMP	BEST MANAGEMENT PRACTICE	OHW	ORDINARY HIGH WATER
BR	BEDROCK	PC	POINT OF CURVATURE
CFS	CUBIC FEET PER SECOND	PCC	POINT OF COMPOUND CURVATURE
CO	CONTRACTING OFFICER	PI	POINT OF INTERSECTION
COR	CONTRACTING OFFICER REPRESENTATIVE	PRC	POINT OF REVERSE CURVATURE
CSP	CORRUGATED STEEL PIPE	PT	POINT OF TANGENCY
CY	CUBIC YARDS	PSF	POUNDS PER SQUARE FOOT
E	EASTING	Q	FLOW
EA	EACH	R	RADIUS
ELEV	ELEVATION	REQ'D	REQUIRED
FT	FEET	ROW	RIGHT OF WAY
GALV	GALVANIZED	RP	RADIUS POINT
HR	HOUR	S	SOUTH
IE	INVERT ELEVATION	SM	SILTY SAND WITH GRAVEL
IN	INCH	SP	POORLY GRADED SAND
LF	LINEAL FEET	STA	STATION
LS	LUMP SUM	SY	SQUARE YARDS
MI	MILES	TYP	TYPICAL
MID	MIDPOINT		
MIN	MINIMUM		
ML	SILT WITH SAND		
MSF	THOUSAND SQUARE FEET		

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: _____	DRAWN: GDU	CHECKED: TCB	SCALE: AS NOTED	FILE: 159817-1002
---------------	-----------------	------------	--------------	-----------------	-------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3 LOCATION: KODIAK, ALASKA CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)	DRAWING: ESTIMATE OF QUANTITIES & ABBREVIATIONS
---	---

300 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
WWW.BCE-AL.COM

BCE

Burtch & Company
CONSULTING ENGINEERS, INC.



JOB NO. 1598.17
SHEET
G-002

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

GENERAL NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES, AND THE SPECIAL PROVISIONS IN THIS PROJECT SPECIFICATIONS.

2. THE LOCATION OF THE EXISTING FEATURES AND UTILITIES SHOWN IN THESE DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES ENCOUNTERED AND RECORD THEIR LOCATION ON THE CONTRACT RECORD DRAWINGS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER.

3. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION. THE PERMITS SHALL BE MAINTAINED ON THE PROJECT SITE. THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) HAS BEEN PROVIDED FOR THE CONTRACTOR'S GUIDE. CONTRACTOR CAN MODIFY PLAN AT HIS/HER EXPENSE IF WORK SEQUENCE CALLS FOR A MODIFIED ESCP.

4. ALL WORK IN CLOSE PROXIMITY TO EXISTING OVERHEAD ELECTRIC UTILITIES SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL STATUTES, CODES AND GUIDELINES AND THE CLEARANCE REQUIREMENTS OF THE SERVING UTILITY.

5. CONTRACTOR SHALL REMOVE ANY LITTER OR DEBRIS WITHIN THE PROJECT LIMITS AT THE END OF CONSTRUCTION.

6. CONTRACTOR SHALL RESTORE DISTURBED PROPERTY TO PRE-CONSTRUCTION CONDITIONS, UNLESS OTHERWISE DIRECTED BY ENGINEER. DISTURBED AREAS NOT BEING PAVED SHALL BE TOPSOILED AND SEEDED PER THE REVEGETATION PLAN.

7. CLEARING AND GRUBBING SHALL BE PERFORMED AS DESCRIBED IN THE SPECIFICATIONS ONLY IN THE AREAS IDENTIFIED ON THE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF VEGETATIVE MAT IN THE AREAS NOT IDENTIFIED OR AFFECTED BY THE PROJECT.

8. ALL FILL, USABLE EXCAVATION, AND TRENCH BACKFILL SHALL BE COMPACTED TO NINETY-FIVE PERCENT (95%) OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT, BASED ON MODIFIED PROCTOR TEST VALUES. ALL FILL SHALL BE PLACED IN LIFTS NOT EXCEEDING 12 INCHES.

9. EXCAVATION SHALL BE PERFORMED IN COMPLIANCE WITH ALL LOCAL AND FEDERAL (OSHA) SAFETY REGULATIONS AND REQUIREMENTS.

10. FILL AND BEDDING MATERIAL SHALL BE PLACED AND COMPACTED WITH CARE UNDER HAUNCHES OF PIPE AND SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY BELOW AND ON BOTH SIDES OF PIPE TO 1 FOOT ABOVE THE TOP OF THE FULL LENGTH OF THE PIPE.

11. CONTRACTOR MUST NOTIFY THE CONTRACTING OFFICER (CO) OR CONTRACTING OFFICER REPRESENTATIVE (COR) AND UTILITY COMPANIES THE TIME OF EXCAVATION. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PREVENTING DAMAGE TO THE UTILITIES. IF DAMAGE OCCURS, CONTRACTOR SHALL REPAIR UTILITY AT NO ADDITIONAL COST TO THE GOVERNMENT.

12. CONTRACTOR SHALL PROVIDE AND INSTALL DETECTOR LOCATOR TAPE PROPERLY CODED AND LABELED IDENTIFYING THE UTILITY INSTALLED IN THE TRENCH.

13. GROUNDWATER EXISTS, SEE GEOTECH REPORT BY DOWL IN THIS PROJECT AREA.

14. ALUMINUM BOX

A. THE BOX CULVERT SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, THE MANUFACTURER'S RECOMMENDATIONS, AND THE AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES, SECTION 26 (DIVISION II).

B. THE BOX CULVERT SHALL BE ASSEMBLED IN ACCORDANCE WITH THE SHOP DRAWINGS PROVIDED BY THE MANUFACTURER, AND PER THE MANUFACTURER'S RECOMMENDATIONS. BOLTS SHALL BE TIGHTENED PER MANUFACTURER'S RECOMMENDATIONS.

C. THE BEDDING SHALL BE CONSTRUCTED TO A UNIFORM LINE AND GRADE USING MATERIAL OUTLINED IN THE SPECIFICATIONS.

D. ALL CULVERTS REPLACED SHALL BE LEGALLY DISPOSED OF IN ACCORDANCE WITH STATE AND FEDERAL REGULATIONS AND REMOVED FROM THE PROJECT SITE.

15. DIVERSION CULVERT INSTALLATION NOTES

A. DO NOT PLACE EXCESS AND/OR UNSUITABLE MATERIAL EXCAVATED DURING CONSTRUCTION ADJACENT TO THE STREAM CHANNEL.

B. CULVERT JOINTS SHALL HAVE WATERTIGHT GASKETS AND SHOULD NOT LEAK. ALL BANDS AND JOINT MATERIAL SHALL BE INSTALLED ACCORDING TO SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS.

C. CONTRACTOR SHOULD LEGALLY DISPOSE EXCESS AND/OR UNSUITABLE MATERIAL OFFSITE.

16. ESTIMATE OF QUANTITIES IS IN PLACE, AND DO NOT ACCOUNT FOR SWELL OR WASTE PRIOR TO COMPACTION.

- ROADWAY NOTES:
1. ROAD GRADES AND ALIGNMENTS, AS SHOWN ON PLANS, MAYBE SUBJECT TO REVISION AS REQUIRED.

2. PROFILE ELEVATIONS ARE TO FINISH GRADES.

3. UTILIZE EXISTING ROAD WIDTH OR MINIMUM ROAD WIDTH ESTABLISHED WHICHEVER IS GREATER.

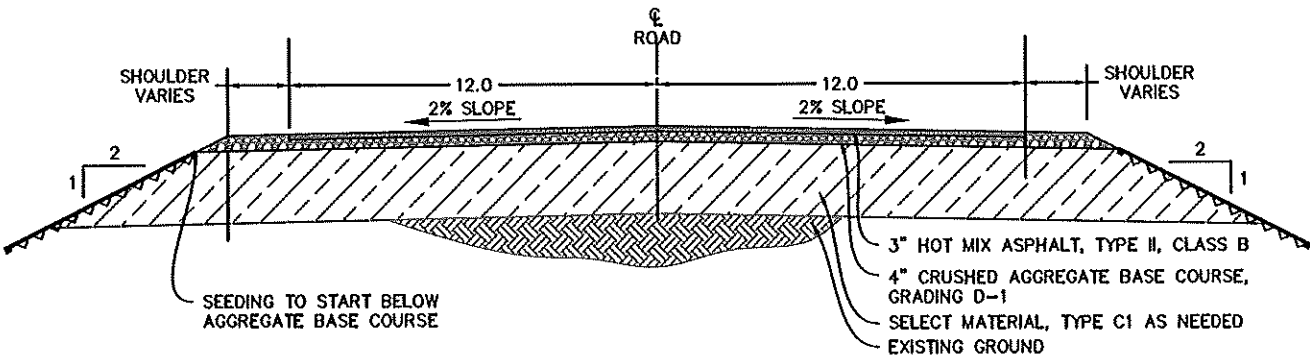
4. ANY DAMAGE TO THE EXISTING ROAD SYSTEM DUE TO CONTRACTOR OPERATIONS SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE PRIOR TO ACCEPTANCE BY ENGINEER.

5. EXCAVATED MATERIAL FROM CULVERT INSTALLATION MAY BE USED AS SELECT MATERIAL TYPE C1, FILL IF APPROVED BY THE ENGINEER.

6. MATCH EXISTING ROAD CONSTRUCTION ON ASPHALT CONCRETE PAVEMENT AND DEPTH OF FILL.

7. IN PREPARATION FOR AND IMMEDIATELY PRIOR TO PAVING, THE CONTRACTOR SHALL SAW CUT AND REMOVE ADDITIONAL PAVEMENT BEYOND THE INITIAL SAW CUT, A MINIMUM OF 1-FOOT ONTO UNDISTURBED ASPHALT. TACK COAT SHALL BE APPLIED TO THE SAWN FACE OF ASPHALT PRIOR TO BEGINNING PAVING.

8. CONTRACTOR SHALL COMPLY WITH ALL LEGAL LOAD RESTRICTIONS IN HAULING OF MATERIALS.



A ROAD TYPICAL SECTION
SCALE: NTS

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

FINAL DESIGN - JANUARY 9, 2019

REV. NO.	DATE	REVISIONS

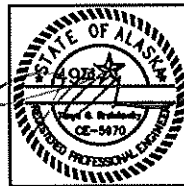
DATE: 1/09/19	DESIGNED: _____	CHECKED: TCB	SCALE: AS NOTED	FILE: 159817-1002
	DRAWN: GDU			

PROJECT KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3	DRAWING GENERAL NOTES & TYPICAL ROAD SECTION
LOCATION KODIAK, ALASKA CLIENT U.S. FISH & WILDLIFE SERVICE (FWS)	

200 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
WWW.BCE-AL.COM

BCE

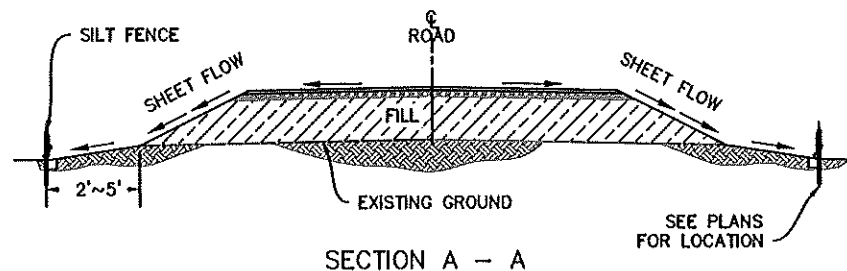
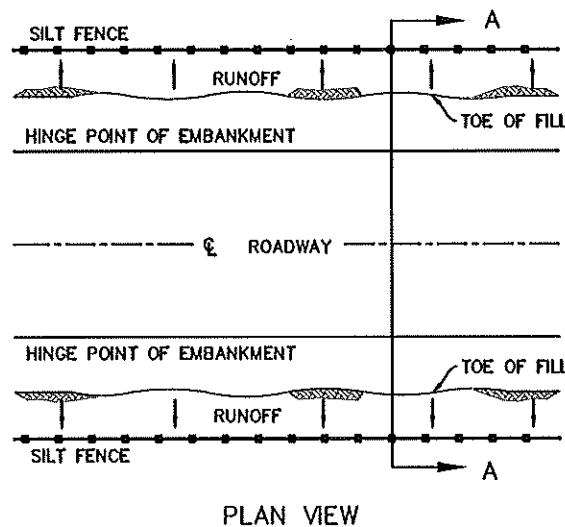
Bentley
CONSULTING ENGINEERS



JOB NO. 1598.17
SHEET
G-003

EROSION AND SEDIMENT CONTROL NOTES

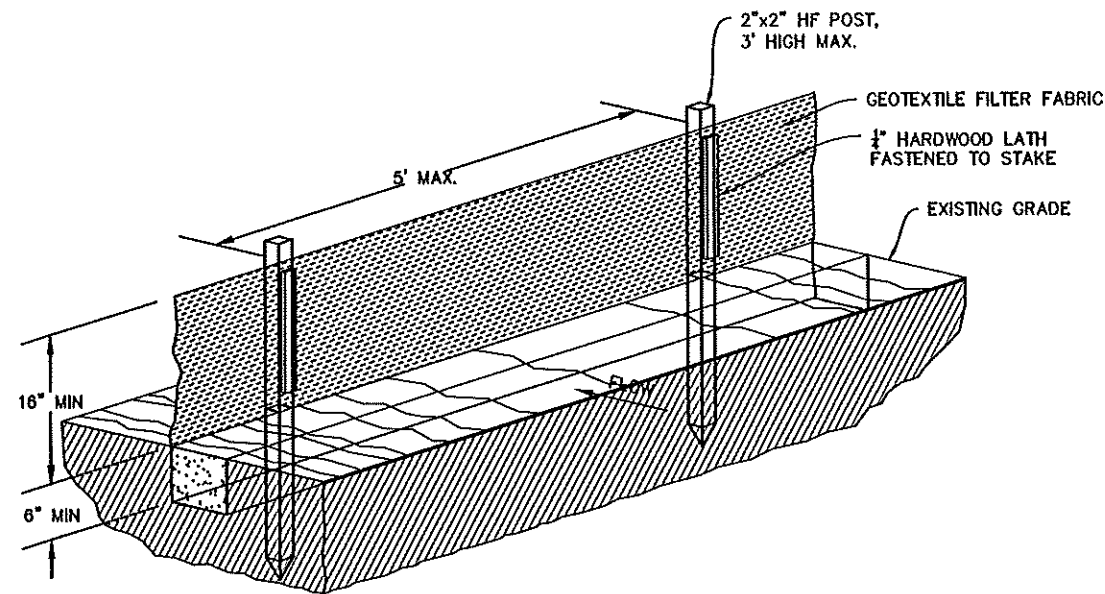
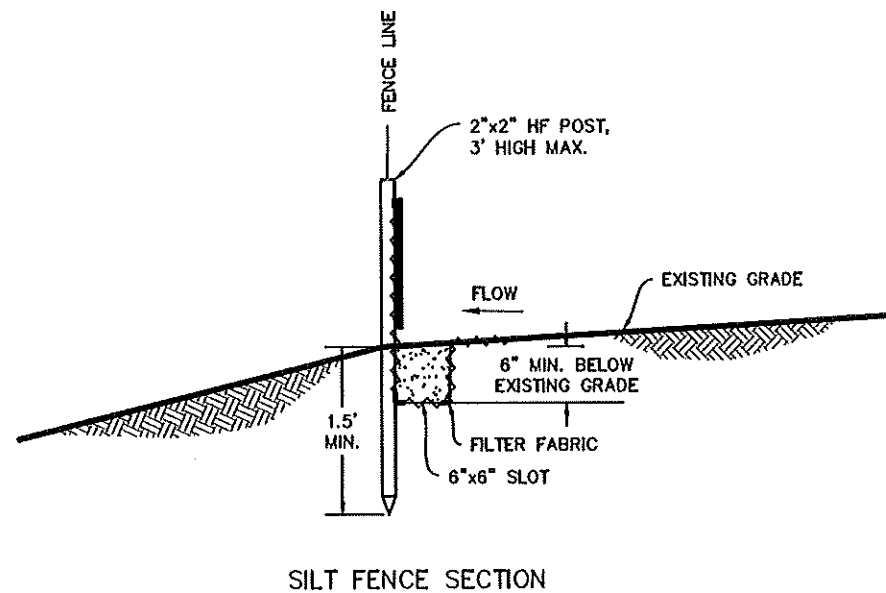
1. THE CONTRACTOR IS RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL AND SHALL OBTAIN ALL NECESSARY APPROVAL AND PERMITS REQUIRED. MINIMAL BMP'S ARE SHOWN ON DRAWING.
2. USE SUPERSACKS TO DEWATER WORK AREA DURING STREAM DIVERSION. USE VELOCITY DISSIPATORS AT ALL DEWATERING DISCHARGE POINTS. DO NOT ALLOW STREAM DIVERSION OR DEWATERING DISCHARGE WATER TO ERODE EXISTING SOILS TO CREATE POT HOLES, RUNOFF CHANNELS OR RESHAPE THE EXISTING LANDSCAPE IN ANY WAY.
3. EROSION AND SEDIMENT CONTROL PLAN SHEETS GIVE GENERAL INFORMATION. ADJUST PERIMETER CONTROLS AS NECESSARY FOR EQUIPMENT ACCESS AND ACTIVE WORK AREAS. MINIMIZE THE AMOUNT OF DISTURBED AREA OPEN TO EROSION AT ANY GIVEN TIME. THE CONTRACTOR IS EXPECTED TO PROVIDE SITE SPECIFIC DETAILS AND BMP'S BASED ON THE CONTRACTOR'S METHODS.
4. PERIMETER SEDIMENT CONTROL SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. UTILIZE VEGETATED BUFFERS, STRAW WATTLES, AND/OR SILT FENCE AT THE APPROXIMATE LOCATIONS SHOWN ON THE PLAN. TEMPORARY STABILIZATION SHALL BE INSTALLED UNTIL PERMANENT STABILIZATION IS ACHIEVED. ALL STOCKPILES OF ERODIBLE MATERIAL SHALL HAVE PERIMETER CONTROLS AROUND THE BASE.
5. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSPECTED AND MAINTAINED ON A DAILY BASIS. MAINTENANCE SHALL INCLUDE REMOVAL AND DISPOSAL OF ACCUMULATED SEDIMENT, CLEANING AND REPAIR OF DAMAGED SEDIMENT CONTROL DEVICES.
6. ALL DISTURBED GROUND CAPABLE OF SUPPORTING VEGETATION SHALL BE REVEGETATED FOR FINAL STABILIZATION. ALL AREAS NOT REVEGETATED SHALL BE 100% COVERED BY ROCK OR OTHER PERMANENT NON-ERODIBLE MATERIAL. ATTAINMENT OF FINAL STABILIZATION SHALL BE AS APPROVED BY THE ENGINEER.
7. STOCKPILE AND STAGING AREAS SHALL BE CLEANED AND FINAL GRADED TO THEIR ORIGINAL CONDITION.
8. WHEN VEGETATION IS ESTABLISHED AND ALLOWED BY ENGINEER, REMOVE AND DISPOSE OF SILT FENCES AND OTHER TEMPORARY BARRIERS IN A LEGAL MANNER.



A SILT FENCE DETAILS
SCALE: NTS

SILT FENCE GENERAL NOTES:

1. INSTALLATION AND APPLICATION SHALL BE IN ACCORDANCE WITH THE ADOT/PF SEDIMENT AND EROSION CONTROL MANUAL (<http://www.dot.state.ak.us>).
2. SILT FENCE FABRIC SHALL BE OVERLAPPED 6" AT FENCE SUPPORT.
3. SILT FENCE FABRIC SHALL BE TAUT, NOT LOOSE OR FOLDED.
4. THE CONTRACTOR SHALL INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT.
5. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
6. FENCE SHALL BE PLACED AT 2' TO 5' FROM THE TOE OF EMBANKMENT OR EXCAVATION AREAS, OR AS DIRECTED BY THE ENGINEER.
7. ACCUMULATION OF SEDIMENT BEHIND SILT FENCE SHALL BE REMOVED WHEN DEPTH REACHES 8". REMOVED SEDIMENT SHALL BE DEPOSITED IN AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.



FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: _____	CHECKED: TCB	SCALE: AS SHOWN	PLOT: 1598.17-1005
PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT	(FISH PASSAGE) BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)	

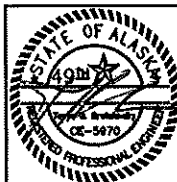
PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT	(FISH PASSAGE) BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: EROSION, SEDIMENT CONTROL NOTES & SILT FENCE DETAILS			

500 W 27th AVE., SUITE A
ANCHORAGE, ALASKA 99503
WWW.BCE-AL.COM

PHONE (907) 273-2344
FAX (907) 273-2345
ANCHORAGE-ALASKA

BCE

Bentley
CONSULTING ENGINEERS



JOB NO. 1598.17

SHEET

G-004

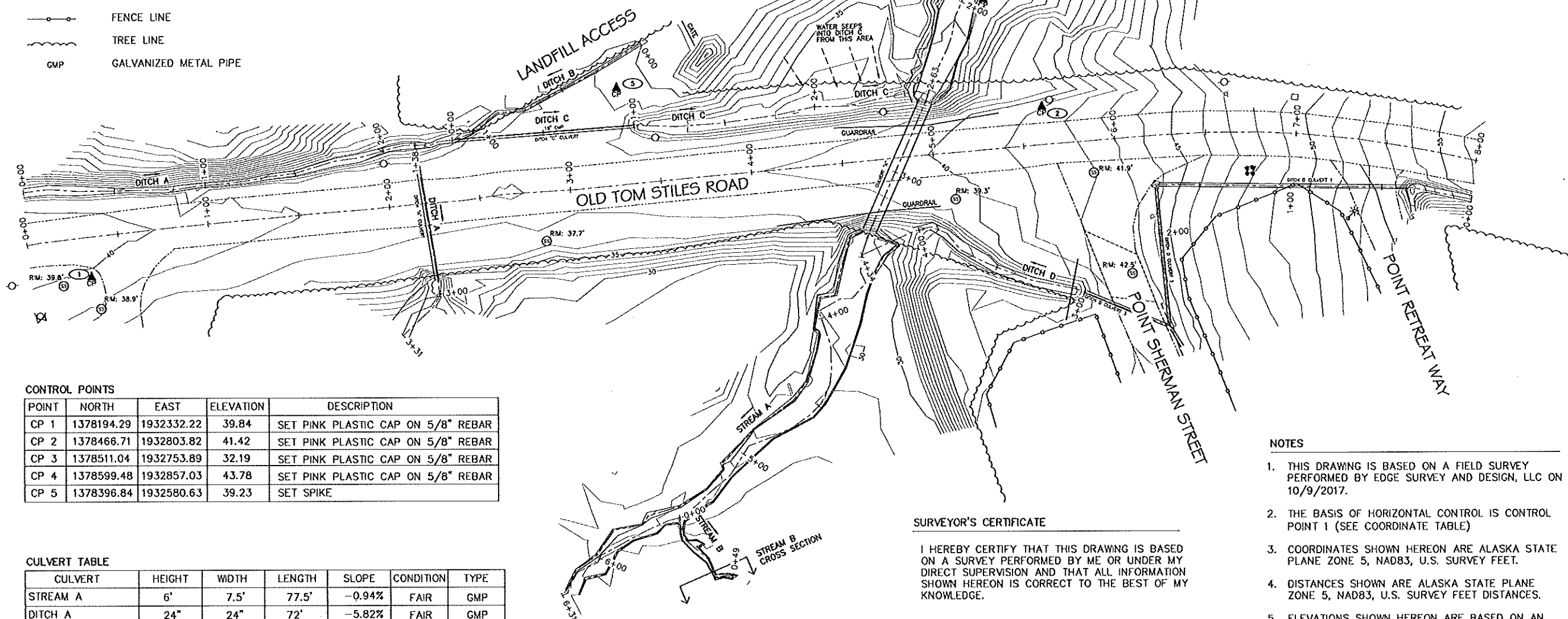
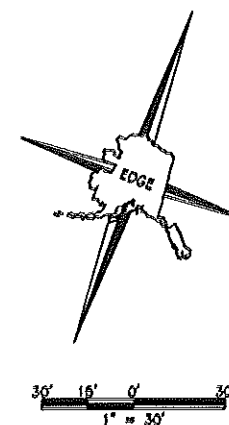
1/09/2019

LEGEND

	SURVEY CONTROL POINT
	CONTROL POINT NUMBER
	HYDRANT
	UTILITY POLE
	SANITARY SEWER
	WATER VALVE
	CATCH BASIN
	ELECTRIC VAULT
	LIGHT POLE
	BOLLARD
	SIGN
	EXISTING TREE
	CENTERLINE OF ROAD / THALWEG
	ORDINARY HIGH WATER LINE
	EDGE PAVEMENT
	EXISTING CULVERT AS NOTED
	FENCE LINE
	TREE LINE
	GALVANIZED METAL PIPE

CREEK MEASUREMENT TABLE

LOCATION	TOP CHANNEL WIDTH	TOE CHANNEL WIDTH
CROSS SECTION STREAM "A"	23'	20'
CROSS SECTION STREAM "B"	1.2'	0.75'
STREAM "A" CULVERT IN	25'	14'
STREAM "A" CULVERT OUT	24'	22'
DITCH "A" CULVERT IN	11'	3'
DITCH "A" CULVERT OUT	12'	5'
DITCH "C" CULVERT IN	8'	5'
DITCH "C" CULVERT OUT	12'	5'
DITCH "D" CULVERT 1 IN	13'	4'
DITCH "D" CULVERT 3 OUT	13'	5'



CONTROL POINTS

POINT	NORTH	EAST	ELEVATION	DESCRIPTION
CP 1	1378194.29	1932332.22	39.84	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 2	1378466.71	1932803.82	41.42	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 3	1378511.04	1932753.89	32.19	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 4	1378599.48	1932857.03	43.78	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 5	1378396.84	1932580.63	39.23	SET SPIKE

CULVERT TABLE

CULVERT	HEIGHT	WIDTH	LENGTH	SLOPE	CONDITION	TYPE
STREAM A	6'	7.5'	77.5'	-0.94%	FAIR	GMP
DITCH A	24"	24"	72'	-5.82%	FAIR	GMP
DITCH C	18"	18"	99'	-1.03%	FAIR	GMP
DITCH D CULVERT 1	24"	24"	136'	-7.44%	FAIR	GMP
DITCH D CULVERT 2	18"	18"	75'	-0.56%	FAIR	GMP
DITCH D CULVERT 3	18"	18"	54'	-0.23%	FAIR	GMP

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THIS DRAWING IS BASED ON A SURVEY PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL INFORMATION SHOWN HEREON IS CORRECT TO THE BEST OF MY KNOWLEDGE.

MARK AMONETTI
PLS 13022

12/21/18
DATE

NOTES

- THIS DRAWING IS BASED ON A FIELD SURVEY PERFORMED BY EDGE SURVEY AND DESIGN, LLC ON 10/9/2017.
- THE BASIS OF HORIZONTAL CONTROL IS CONTROL POINT 1 (SEE COORDINATE TABLE).
- COORDINATES SHOWN HEREON ARE ALASKA STATE PLANE ZONE 5, NAD83, U.S. SURVEY FEET.
- DISTANCES SHOWN ARE ALASKA STATE PLANE ZONE 5, NAD83, U.S. SURVEY FEET DISTANCES.
- ELEVATIONS SHOWN HEREON ARE BASED ON AN OPUS DERIVED NAVD88 ORTHOMETRIC HEIGHT, GEOID 12B, ON CONTROL POINT 1.

100% SUBMITTAL - JANUARY 3, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

PROJECT KODIAK ISLAND HABITAT ENHANCEMENT PROJECT

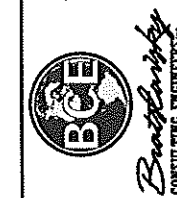
(FISH PASSAGE): BID PACKAGE 3

LOCATION KODIAK, ALASKA

CLIENT U.S. FISH & WILDLIFE SERVICE (FWS)

DRAWING CULVERT 20700877 EXISTING CONDITION

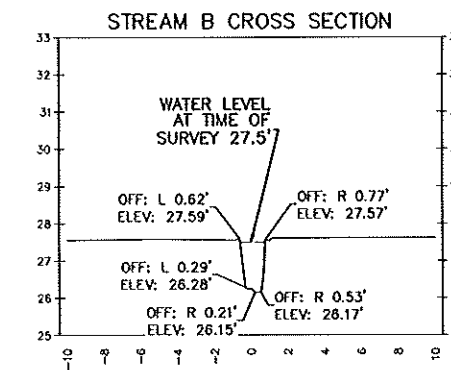
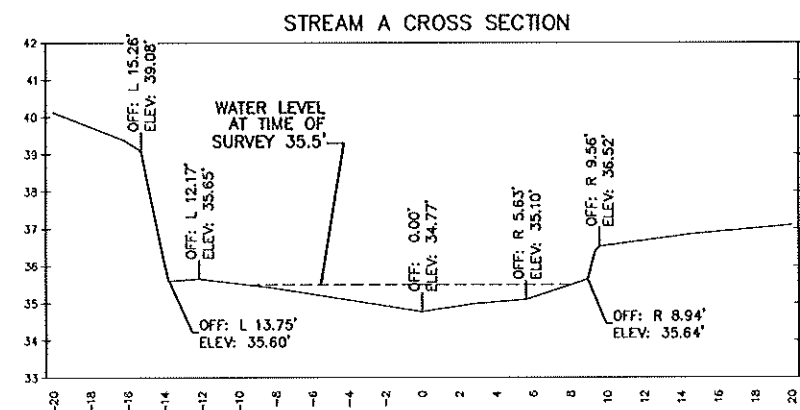
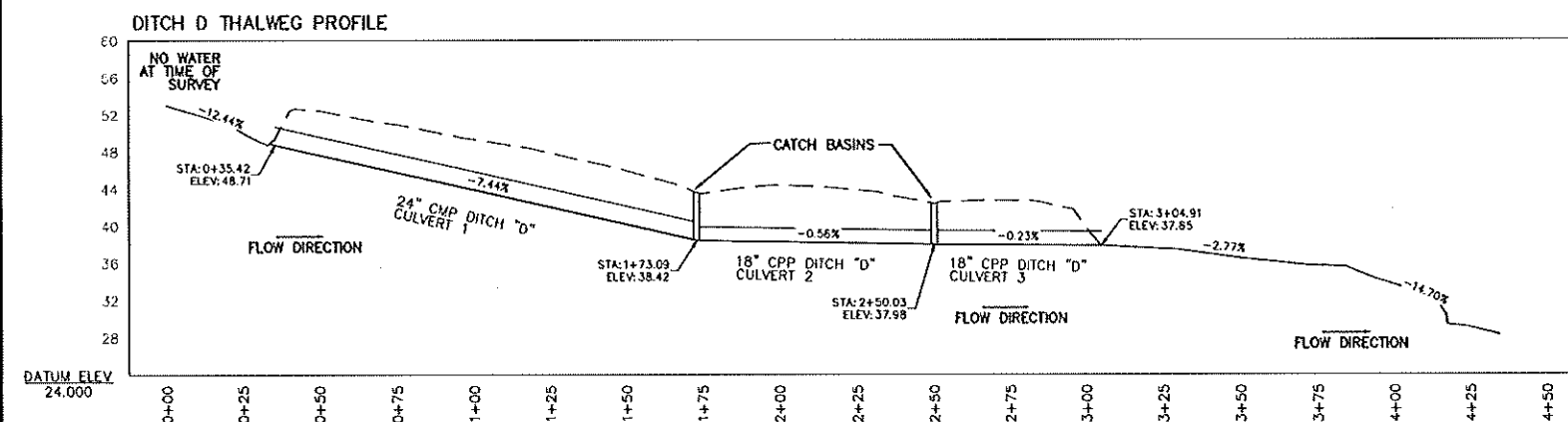
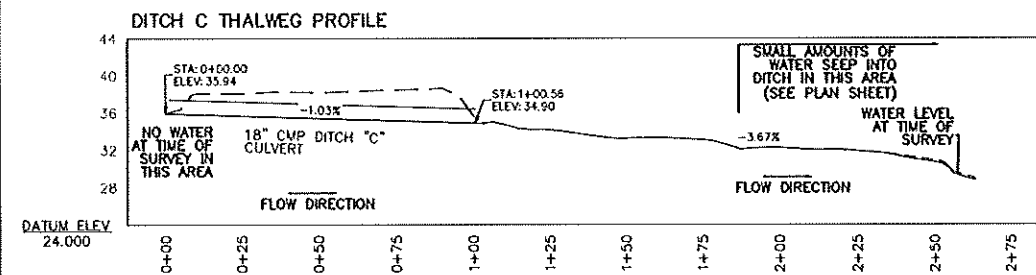
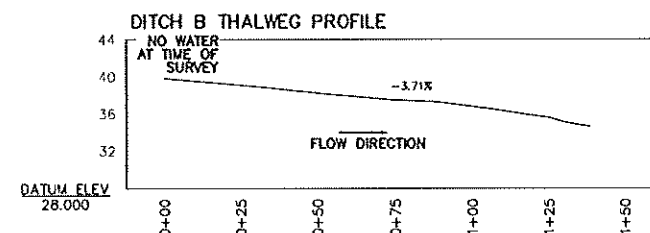
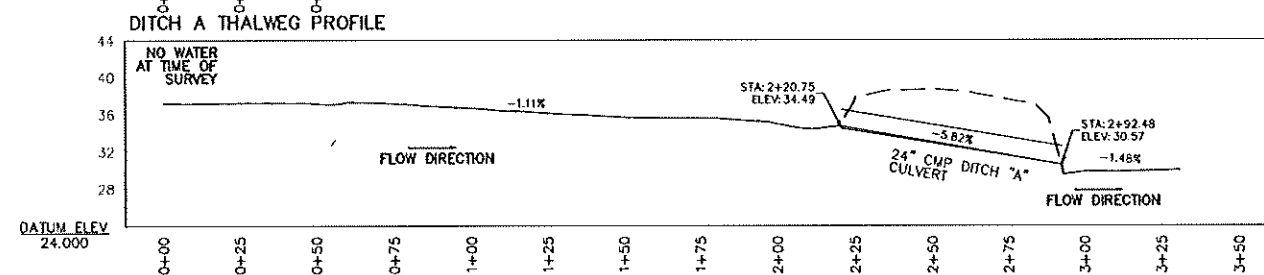
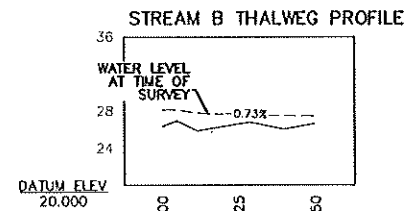
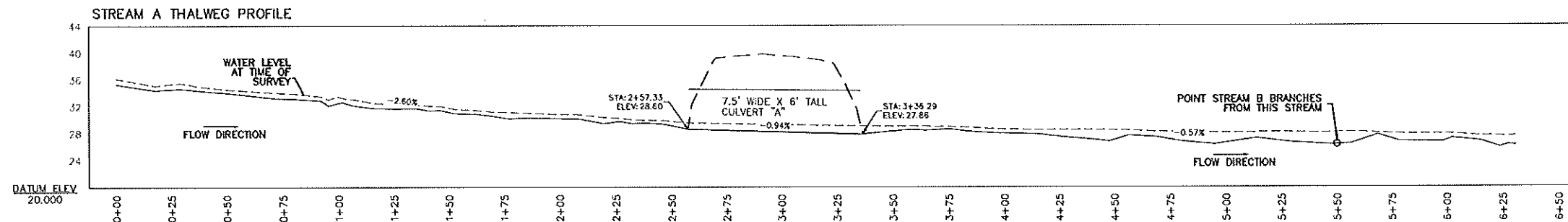
300 W 27th AVE., SUITE A
ANCHORAGE, ALASKA 99503
PHONE (907) 279-4384
FAX (907) 222-0214
WWW.EDGE-SD.COM



JOB NO. 1598.17

SHEET

V-100



100% SUBMITTAL - JANUARY 3, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 10/27/17	DESIGNED: _____	DRAWN: M/A	CHECKED: TV	SCALE: AS NOTED	FILE: 1998.17-1005
----------------	-----------------	------------	-------------	-----------------	--------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE): BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: CULVERT 20700877 EXISTING CONDITION		

500 W 27th AVE., SUITE A
ANCHORAGE, ALASKA 99503
WINDY-ALCON

PHONE (907) 272-3384
FAX (907) 272-3384
WWW.WINDY-ALCON.COM

BCE

Brattberg
CONSULTING ENGINEERS

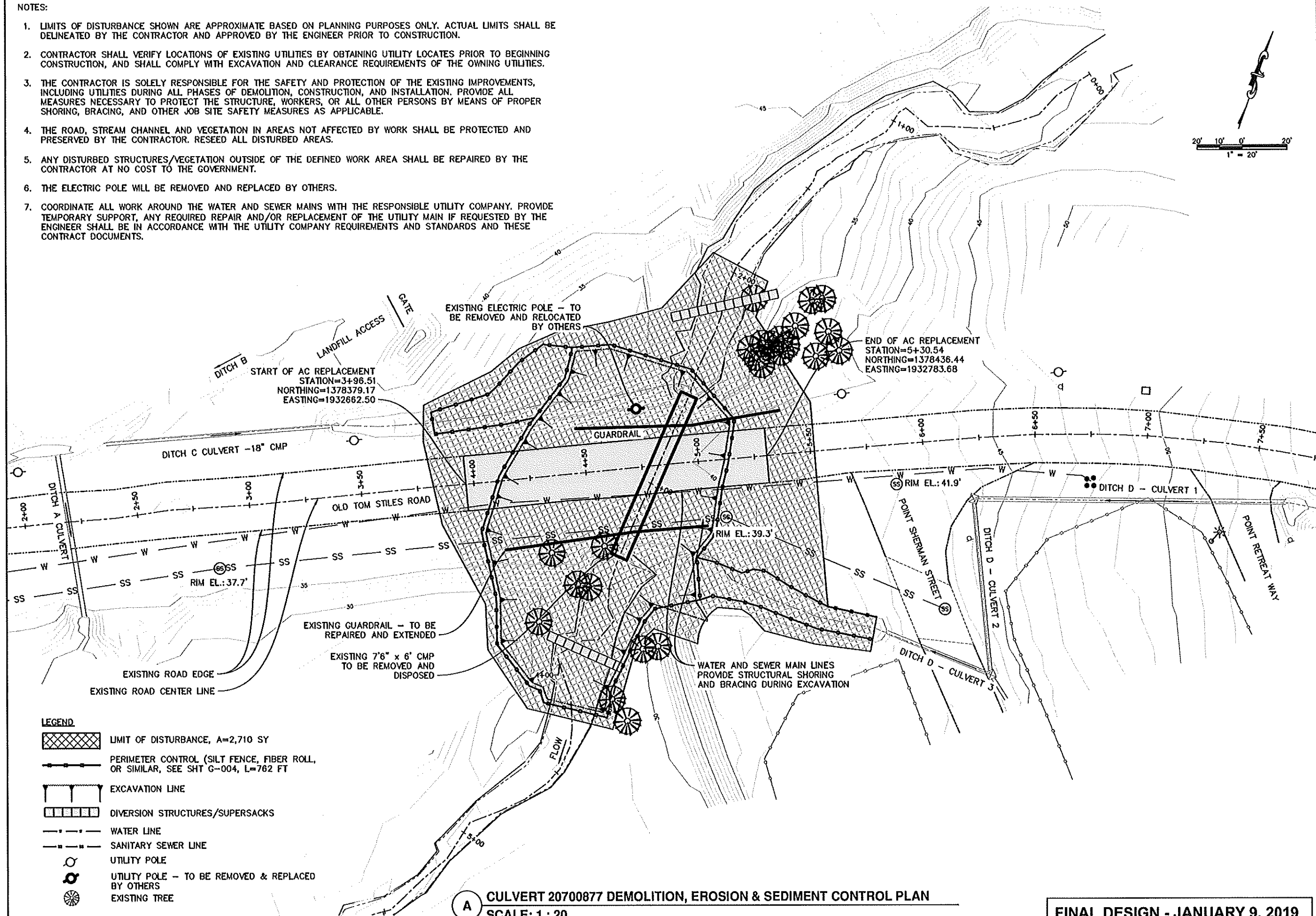


JOB NO. 1598.17

SHEET
V-101

NOTES:

1. LIMITS OF DISTURBANCE SHOWN ARE APPROXIMATE BASED ON PLANNING PURPOSES ONLY. ACTUAL LIMITS SHALL BE DELINEATED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING UTILITIES BY OBTAINING UTILITY LOCATES PRIOR TO BEGINNING CONSTRUCTION, AND SHALL COMPLY WITH EXCAVATION AND CLEARANCE REQUIREMENTS OF THE OWNING UTILITIES.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE SAFETY AND PROTECTION OF THE EXISTING IMPROVEMENTS, INCLUDING UTILITIES DURING ALL PHASES OF DEMOLITION, CONSTRUCTION, AND INSTALLATION. PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKERS, OR ALL OTHER PERSONS BY MEANS OF PROPER SHORING, BRACING, AND OTHER JOB SITE SAFETY MEASURES AS APPLICABLE.
4. THE ROAD, STREAM CHANNEL AND VEGETATION IN AREAS NOT AFFECTED BY WORK SHALL BE PROTECTED AND PRESERVED BY THE CONTRACTOR. RESEED ALL DISTURBED AREAS.
5. ANY DISTURBED STRUCTURES/VEGETATION OUTSIDE OF THE DEFINED WORK AREA SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE GOVERNMENT.
6. THE ELECTRIC POLE WILL BE REMOVED AND REPLACED BY OTHERS.
7. COORDINATE ALL WORK AROUND THE WATER AND SEWER MAINS WITH THE RESPONSIBLE UTILITY COMPANY. PROVIDE TEMPORARY SUPPORT, ANY REQUIRED REPAIR AND/OR REPLACEMENT OF THE UTILITY MAIN IF REQUESTED BY THE ENGINEER SHALL BE IN ACCORDANCE WITH THE UTILITY COMPANY REQUIREMENTS AND STANDARDS AND THESE CONTRACT DOCUMENTS.



A CULVERT 20700877 DEMOLITION, EROSION & SEDIMENT CONTROL PLAN
SCALE: 1" = 20'

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

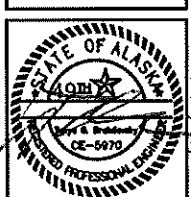
REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: GDU	CHECKED: TCB	SCALE: AS NOTED	PLOT: 159817-1000
---------------	---------------	--------------	-----------------	-------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: CULVERT 20700877 DEMOLITION, EROSION & SEDIMENT CONTROL PLAN		

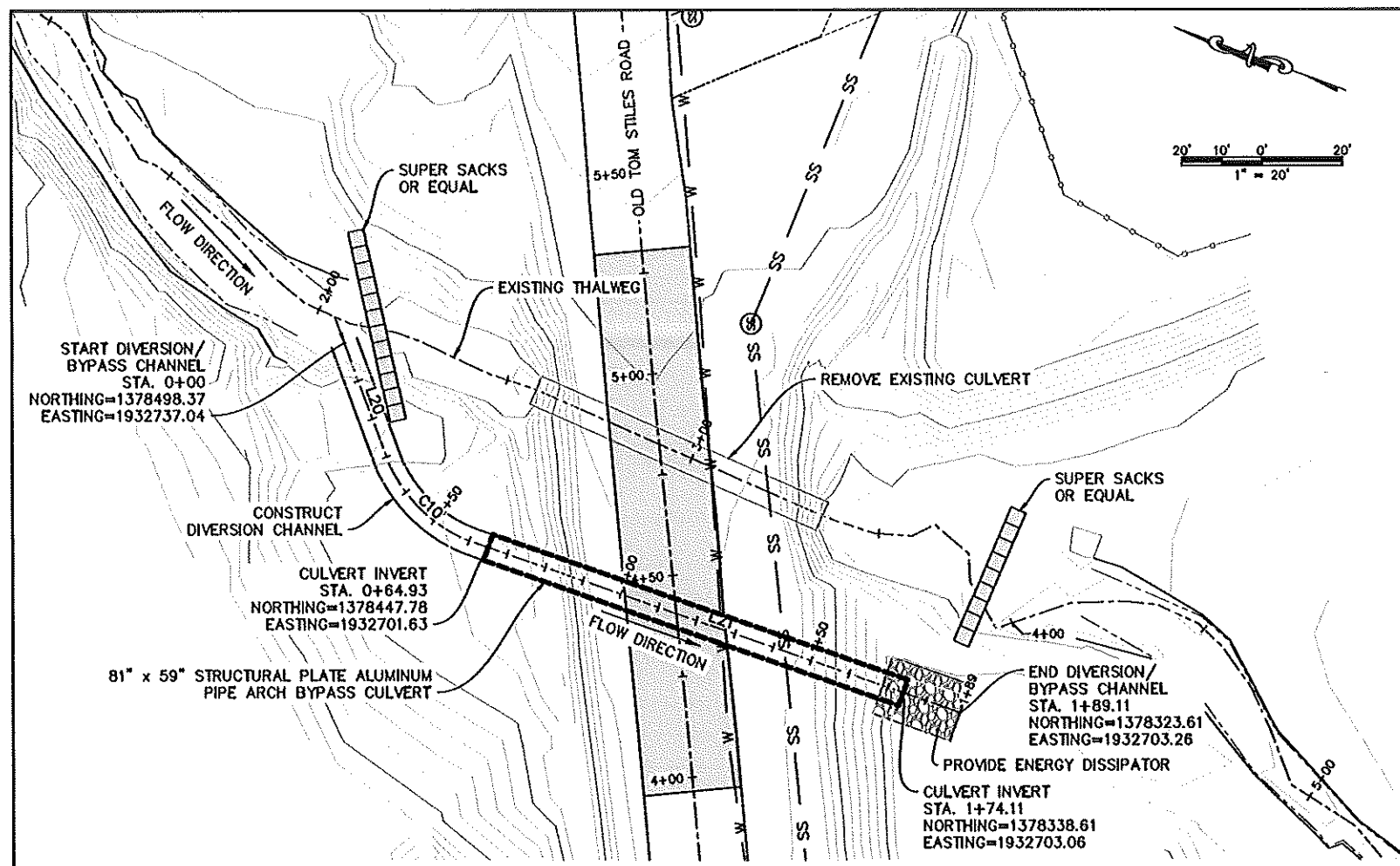
300 W 27th AVE., SUITE A
 ANCHORAGE, ALASKA 99503
 PHONE (907) 273-0344
 FAX (907) 273-0344
 WWW.BCE-ALASKA.COM

BCE
Brattberg
 CONSULTING ENGINEERS

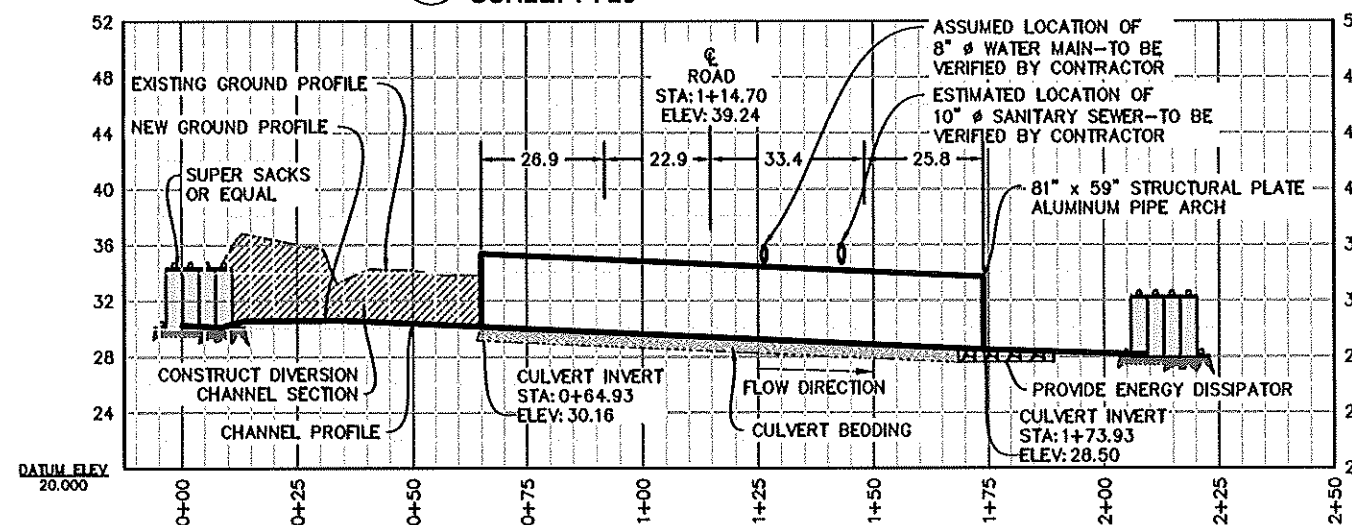


JOB NO. 1598.17

SHEET
C-100

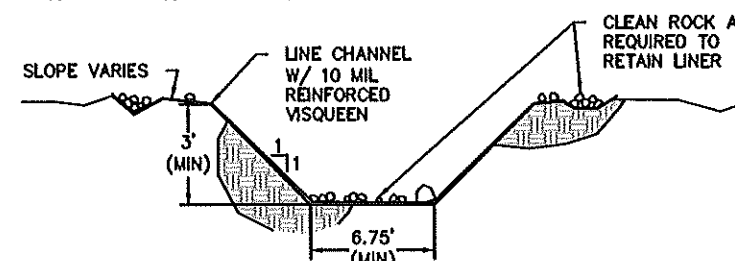


A DIVERSION PLAN
SCALE: 1 : 20



B DIVERSION PROFILE
SCALE: 1 : 20 (H) 1 : 3 (V)

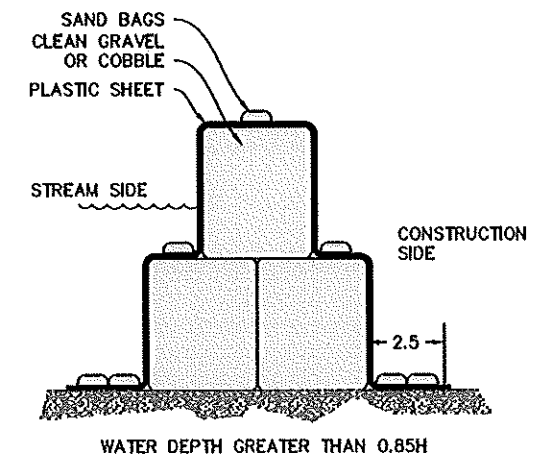
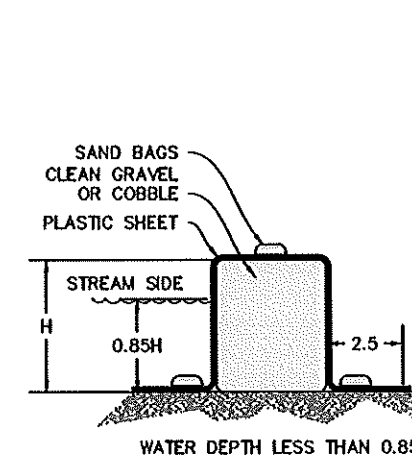
BYPASS CULVERT DATA			
SITE ID	2 YEAR Q(cfs)	AVERAGE CHANNEL SLOPE (ft/ft)	BYPASS CULVERT DIMENSION
20700877	100	0.0153	81" x 59"



C DIVERSION CHANNEL SECTION
SCALE: NTS

BULK BAGS (SUPERSACK) NOTES:

- 81" x 59" STRUCTURAL PLATE ALUMINUM PIPE ARCH BYPASS CULVERT IS TO BE USED AS OVERFLOW PIPE AND SHALL REMAIN AT THE END OF THE PROJECT.
- SUPERSACK COFFERDAM SHALL BE CONSTRUCTED OF SEVERAL UNITS OF SUPERSACKS FILLED WITH CLEAN GRAVEL OR COBBLE, AND ABUTTED SIDE BY SIDE TO CREATE A WATER TIGHT BARRIER THAT SEPARATES THE CONSTRUCTION SITE FROM THE STREAM.
- IF WATER DEPTH EXCEEDS 85% OF THE SUPER SACK HEIGHT, AN ADDITIONAL TOP ROW OF BAGS SHALL BE INSTALLED AND SUPPORTED BY TWO BOTTOM ROWS OF SUPERSACK BAGS.
- THE COFFERDAM SHALL BE SEALED BY COVERING IT WITH REINFORCED PLASTIC SHEETING THAT IS HELD IN PLACE BY ROWS OF SANDBAGS OR ROCK. INTERMITTENT PLACEMENT OF SANDBAGS OR ROCKS WILL BE EFFECTIVE. THE SANDBAGS MUST BE PLACED ON THE TOP OF THE SACKS AS WELL AS ALONG THE TOE OF THE COFFERDAM TO HOLD IT IN PLACE. THE PORTION OF THE SHEETING DRAPED ONTO THE WATER SIDE OF THE COFFERDAM SHALL BE WEIGHTED TO THE BOTTOM WITH A MINIMUM OF TWO ROWS OF SANDBAGS.
- THE ENDS OF THE COFFERDAM SHALL BE EXTENDED ONTO DRY LAND AND THE ENDS OF THE POLY SHEETING SHALL BE SECURED ABOVE THE WATERLINE WITH MULTIPLE LAYERS OF SANDBAGS. IF THE ENDS MUST BE TERMINATED AT A WET LOCATION THE COFFERDAM SHALL BE TIGHTLY SEALED TO THE GROUND WITH MULTIPLE LAYERS OF SHEETING AND SANDBAGS.
- THE SUPERSACKS SHALL BE WATERPROOF, CUBE SHAPED, POLYPROPYLENE WOVEN FABRIC WITH A FLAT BOTTOM, FOUR LIFTING LOOPS, RATED FOR A MINIMUM OF 2.5 TONS WORKING LOAD WITH A 5:1 SAFETY FACTOR.
- THE POLY SHEETING SHALL BE A MINIMUM OF 6 MIL THICKNESS. THE ROLL SHALL BE A MINIMUM OF 12 FEET WIDE AND LONG ENOUGH TO SPAN THE LENGTH OF THE COFFERDAM WITHOUT A SEAM.
- THE CONTRACTOR SHALL PROVIDE DEWATERING, AS NEEDED, ON THE BACK SIDE OF THE COFFERDAM IN THE WORK AREA. DEWATERING OPERATIONS SHALL CONSIST OF A PRIMARY PUMP AND BACKUP PUMP BOTH LARGE ENOUGH TO MAINTAIN THE WATER LEVEL SO THE EXCAVATION AND BACKFILL OPERATIONS CAN BE COMPLETED. DEWATERING OPERATIONS SHALL BE MONITORED 24 HOURS A DAY UNTIL THE PUMPS CAN BE SAFELY SHUT DOWN WITHOUT THE RISK OF DAMAGE TO THE WORK. DISCHARGE WATER SHALL BE TREATED SO THAT TURBID WATER IS NOT PUMPED BACK INTO THE STREAM OR DOWNSTREAM OF THE WORK SITE.
- WHEN THE WORK IS COMPLETED ALL SUPERSACKS, SANDBAGS, POLY SHEETING AND ALL DEBRIS SHALL BE CLEANED UP AND LEGALLY DISPOSED OF OFFSITE.



DIVERSION CHANNEL NOTES:

- USE 10 MIL. REINFORCED VISQUEEN LINER ALONG THE ENTIRE LENGTH OF TEMPORARY DIVERSION CHANNEL.
- DO NOT CONSTRUCT WITH LONGITUDINAL JOINTS. BURY UPSTREAM EDGE OF LINER A MINIMUM OF 12" DEEP AND SECURE WITH RIPRAP OR SANDBAGS.
- THE CONTRACTOR HAS AN OPTION TO USE DIFFERENT MATERIAL TO ANCHOR THE GEOTEXTILE FABRIC LINER SUBJECT TO APPROVAL OF THE ENGINEER.
- THE CONTRACTOR AT HIS DISCRETION MAY PROVIDE AN ALTERNATIVE CHANNEL DIVERSION AND COFFERDAM CONSTRUCTION OPTION. IN THIS CASE, THE ALTERNATIVE DESIGN MUST BE SUBMITTED TO THE ENGINEER, THE OWNER, AND REGULATORY AGENCIES FOR APPROVAL.

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 12/20/18	DESIGNED: [Signature]	DRAWN: GCU	CHECKED: TCB	SCALE: AS NOTED	FILE: 1338A.17-1002
----------------	-----------------------	------------	--------------	-----------------	---------------------

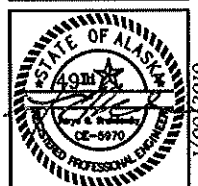
PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: DIVERSION PLAN & PROFILE		

500 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
ANCHORAGE@BCE-ALCON.COM

BCE

Beaumont
CONSULTING ENGINEERS

PHONE (907) 272-0384
FAX (907) 272-0384
ANCHORAGE, ALASKA



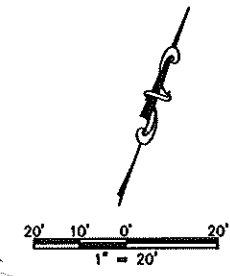
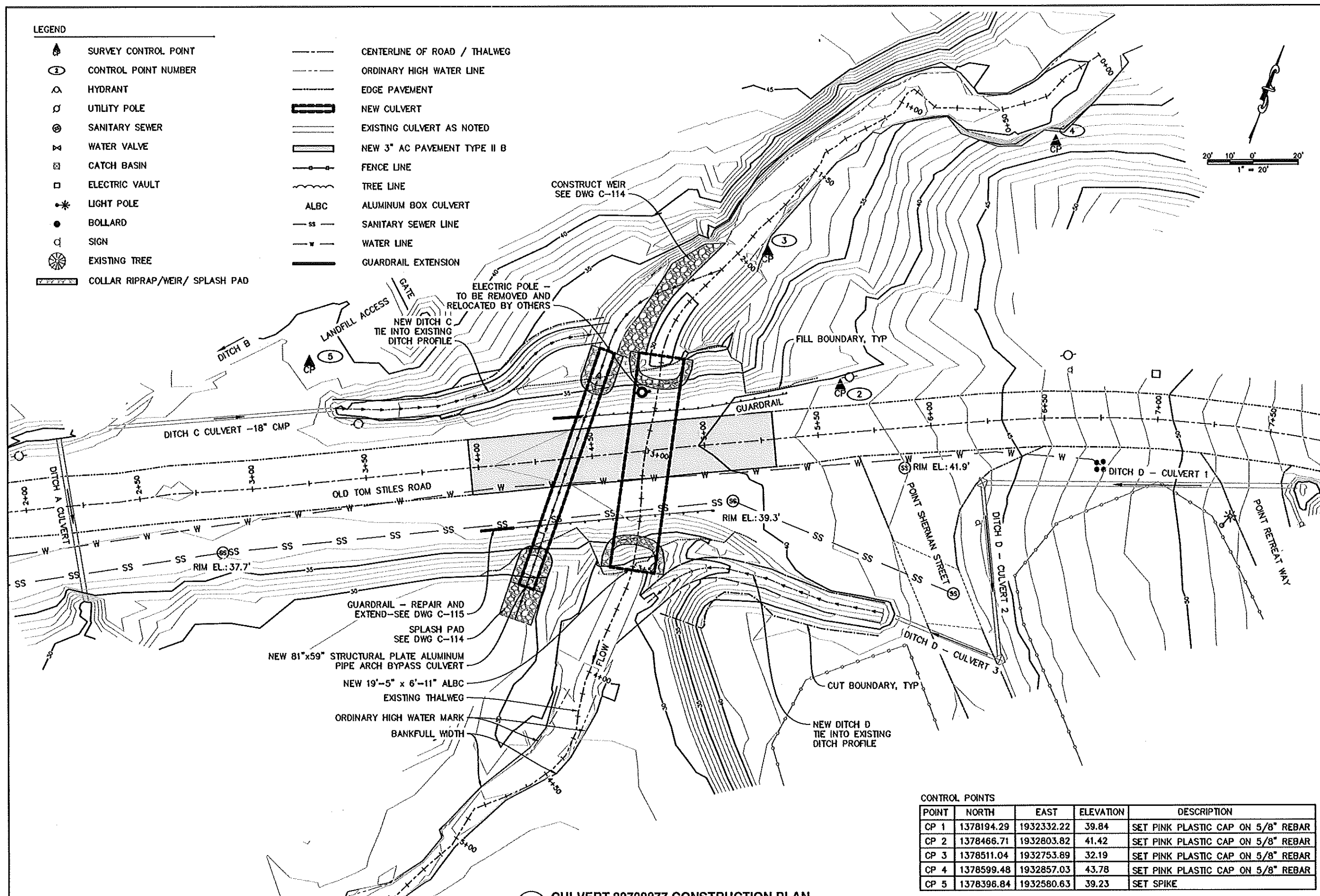
JOB NO. 1598.17

SHEET
C-101

1/09/2019

LEGEND

- SURVEY CONTROL POINT
- CONTROL POINT NUMBER
- HYDRANT
- UTILITY POLE
- SANITARY SEWER
- WATER VALVE
- CATCH BASIN
- ELECTRIC VAULT
- LIGHT POLE
- BOLLARD
- SIGN
- EXISTING TREE
- COLLAR RIPRAP/WEIR/ SPLASH PAD
- CENTERLINE OF ROAD / THALWEG
- ORDINARY HIGH WATER LINE
- EDGE PAVEMENT
- NEW CULVERT
- EXISTING CULVERT AS NOTED
- NEW 3" AC PAVEMENT TYPE II B
- FENCE LINE
- TREE LINE
- ALBC
- ALUMINUM BOX CULVERT
- SANITARY SEWER LINE
- WATER LINE
- GUARDRAIL EXTENSION



CONTROL POINTS

POINT	NORTH	EAST	ELEVATION	DESCRIPTION
CP 1	1378194.29	1932332.22	39.84	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 2	1378466.71	1932803.82	41.42	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 3	1378511.04	1932753.89	32.19	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 4	1378599.48	1932857.03	43.78	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 5	1378396.84	1932580.63	39.23	SET SPIKE

A CULVERT 20700877 CONSTRUCTION PLAN
SCALE: 1 : 20

FINAL DESIGN - JANUARY 9, 2019

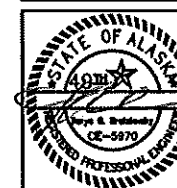
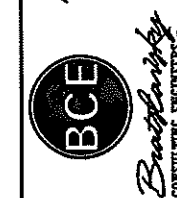
NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: GOU	CHECKED: TCS	SCALE: AS NOTED	FILE: 1598.17-1005
---------------	---------------	--------------	-----------------	--------------------

PROJECT KODIAK ISLAND HABITAT ENHANCEMENT PROJECT
LOCATION KODIAK, ALASKA
CLIENT U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING CULVERT 20700877 CONSTRUCTION PLAN

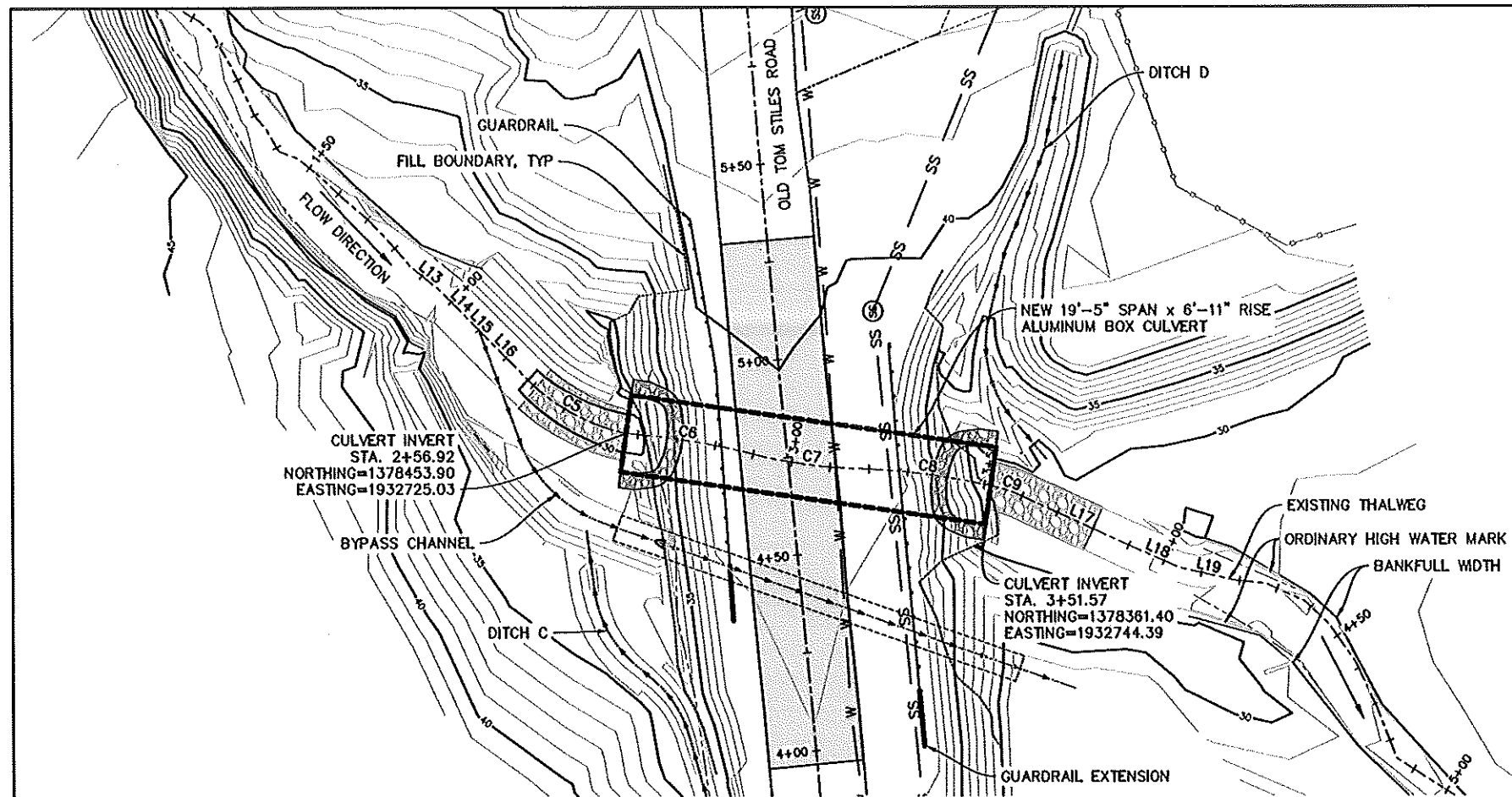
500 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA
PHONE (907) 272-0344
FAX (907) 272-0344
WWW.BCE-ENGINEERS.COM



JOB NO. 1598.17

SHEET

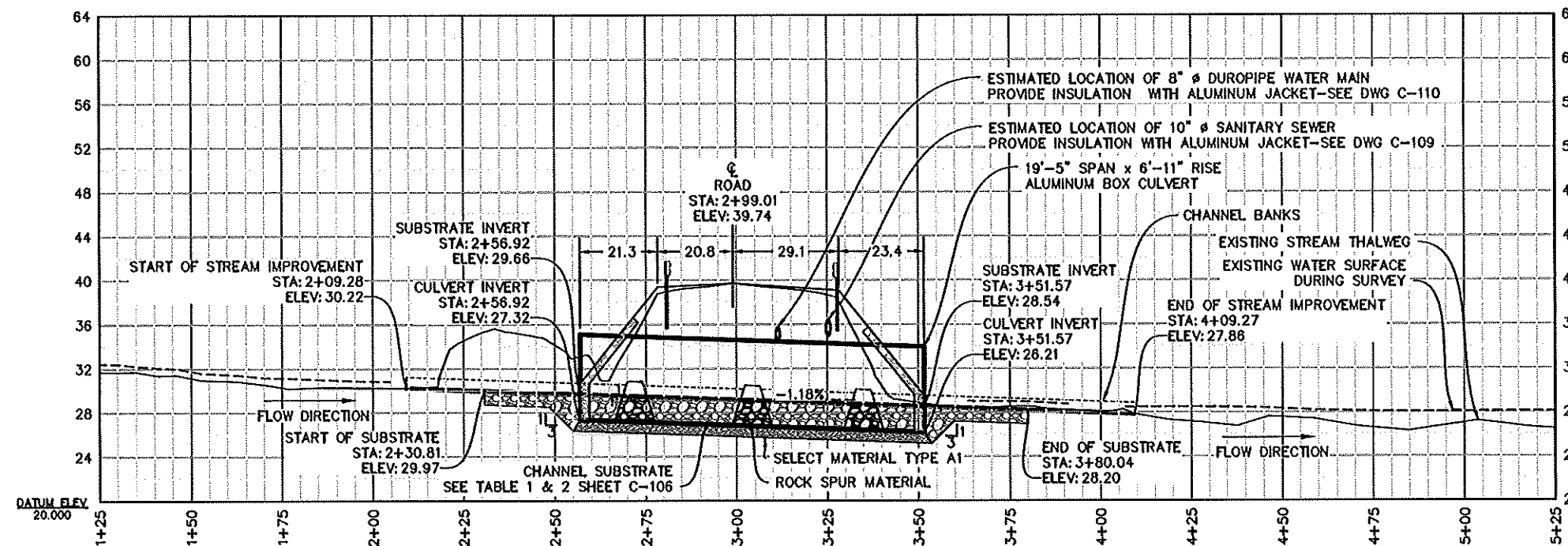
C-102



A CULVERT 20700877 PLAN
SCALE: 1 : 20

NOTE:

1. ALUMINUM BOX CULVERT (ALBC) SHALL HAVE THE FOLLOWING DIMENSIONS:
 LENGTH: 94.5'
 SPAN: 19'-5" RISE: 6'-11"
 HAUNCH GAGE: 2 CROWN GAGE: 2
 HAUNCH RIB TYPE: TYPE VI CROWN RIB TYPE: TYPE VI
 HAUNCH RIB SPACING: 18" CROWN RIB SPACING: 18"
2. LOAD RATING FOR THE CULVERT SHALL BE HS-20.
3. SEE LEGEND ON DWG C-102.



B CULVERT 20700877 PROFILE
SCALE: 1 : 20 (H) 1 : 3(V)

New Stream			
Number	Radius	Length	Line/Chord Direction
L13		10.30	S19° 38' 19.62"W
L14		11.25	S25° 27' 49.97"W
L15		3.08	S25° 27' 49.97"W
L16		14.32	S25° 27' 49.97"W
C5	52.54	31.97	S10° 12' 58.48"W
C6	193.09	31.36	S11° 02' 22.99"E
C7	124.83	30.07	S11° 54' 39.34"E
C8	190.42	33.23	S12° 28' 29.08"E
C9	41.88	9.89	S0° 27' 27.95"E
L17		29.01	S4° 42' 55.77"W
L18		13.88	S3° 35' 15.24"W
L19		14.34	S7° 12' 57.47"E

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

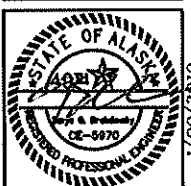
DATE: 1/09/18	DESIGNED: COLU	CHECKED: TOS	SCALE: AS NOTED	FILE: 159817-1005
---------------	----------------	--------------	-----------------	-------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT	DRAWING: CULVERT 20700877 PLAN & PROFILE
LOCATION: KODIAK, ALASKA	
CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)	

500 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA 99503

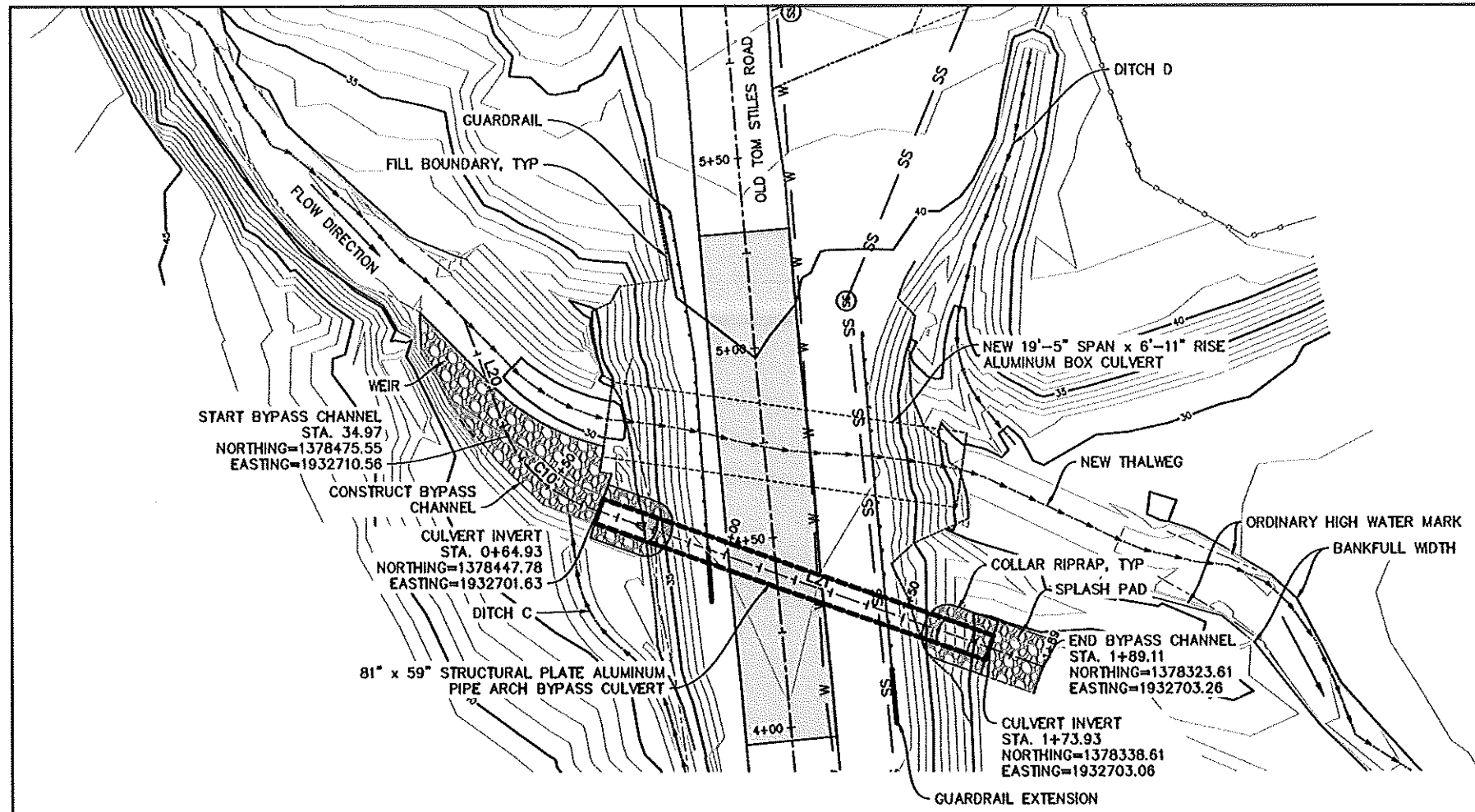
PHONE (907) 273-0384
FAX (907) 273-0384
www.bce-engineering.com

BCE
Bentley
CONSULTING ENGINEERS

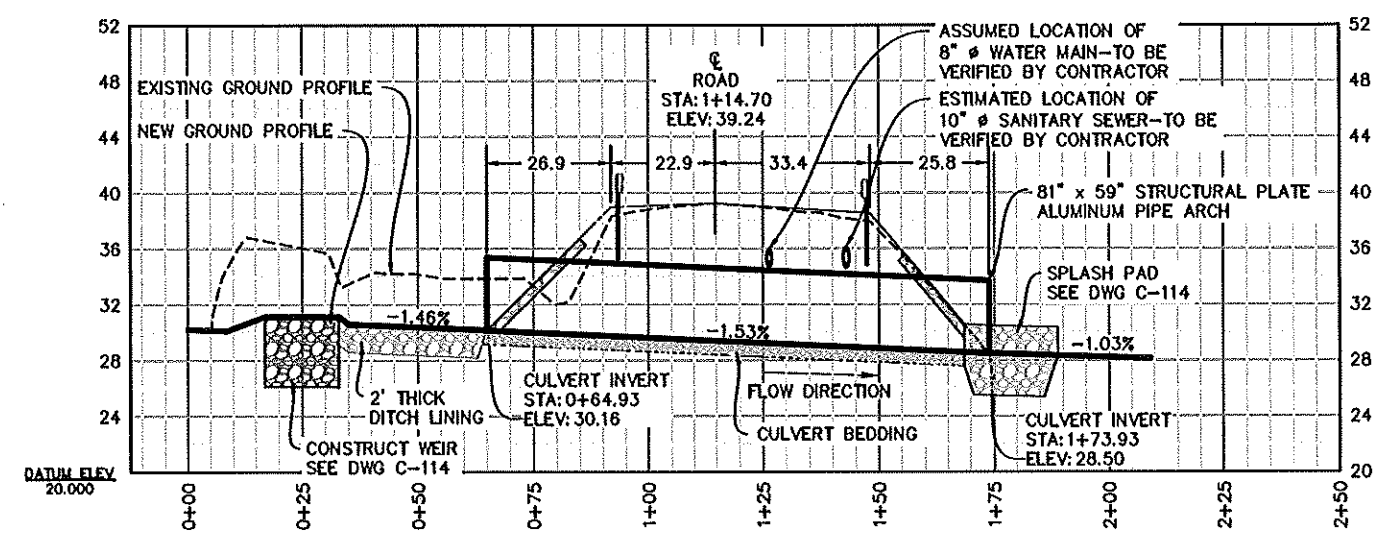


JOB NO. 1598.17

SHEET
C-103



A CULVERT 20700877 BYPASS PLAN
SCALE: 1 : 20



B CULVERT 20700877 BYPASS PROFILE
SCALE: 1 : 20 (H) 1 : 3(V)

- NOTE:
- STRUCTURAL PLATE BYPASS CULVERT SHALL HAVE THE FOLLOWING DIMENSIONS:
LENGTH: 109'
SPAN: 81" RISE: 59"
MINIMUM GAGE: 10
 - LOAD RATING FOR THE CULVERT SHALL BE HS-20.

Bypass Channel			
Number	Radius	Length	Line/Chord Direction
L20		32.10	S49° 46' 02.79"W
C10	36.38	29.83	S22° 09' 52.25"W
L21		127.19	S0° 45' 04.72"E

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

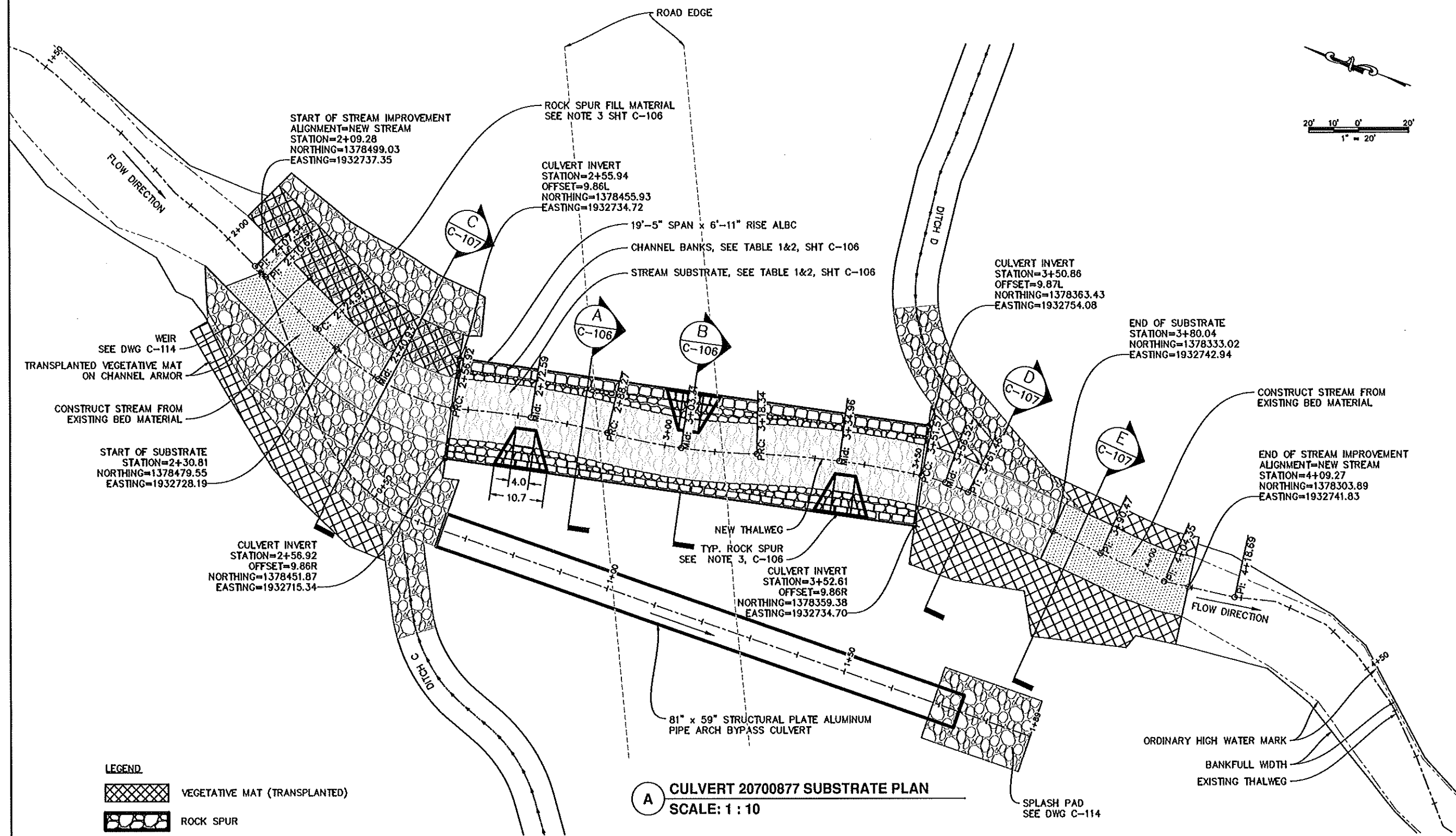
REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: [Signature]	DRAWN: GCU	CHECKED: TCB	SCALE: AS NOTED	FILE: 1598.17-1005
---------------	-----------------------	------------	--------------	-----------------	--------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: CULVERT 20700877 BYPASS PLAN & PROFILE		

500 W 27th AVE, SUITE A ANCHORAGE, ALASKA 99503 ANCHORAGE, ALASKA PHONE (907) 272-0384 FAX (907) 272-0384 BCE CONSULTING ENGINEERS	1/09/2019
---	-----------

JOB NO. 1598.17	SHEET
C-104	



NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

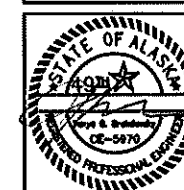
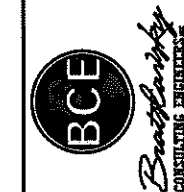
FINAL DESIGN - JANUARY 9, 2019

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: CDU	CHECKED: TOS	SCALE: AS NOTED	FILE: 20700877-1005

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT	DRAWING: CULVERT 20700877 SUBSTRATE PLAN
LOCATION: KODIAK, ALASKA	
CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)	

500 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
PHONE (907) 275-0304
FAX (907) 275-0314
WWW.BCE-AL.COM



JOB NO. 1598.17

SHEET

C-105

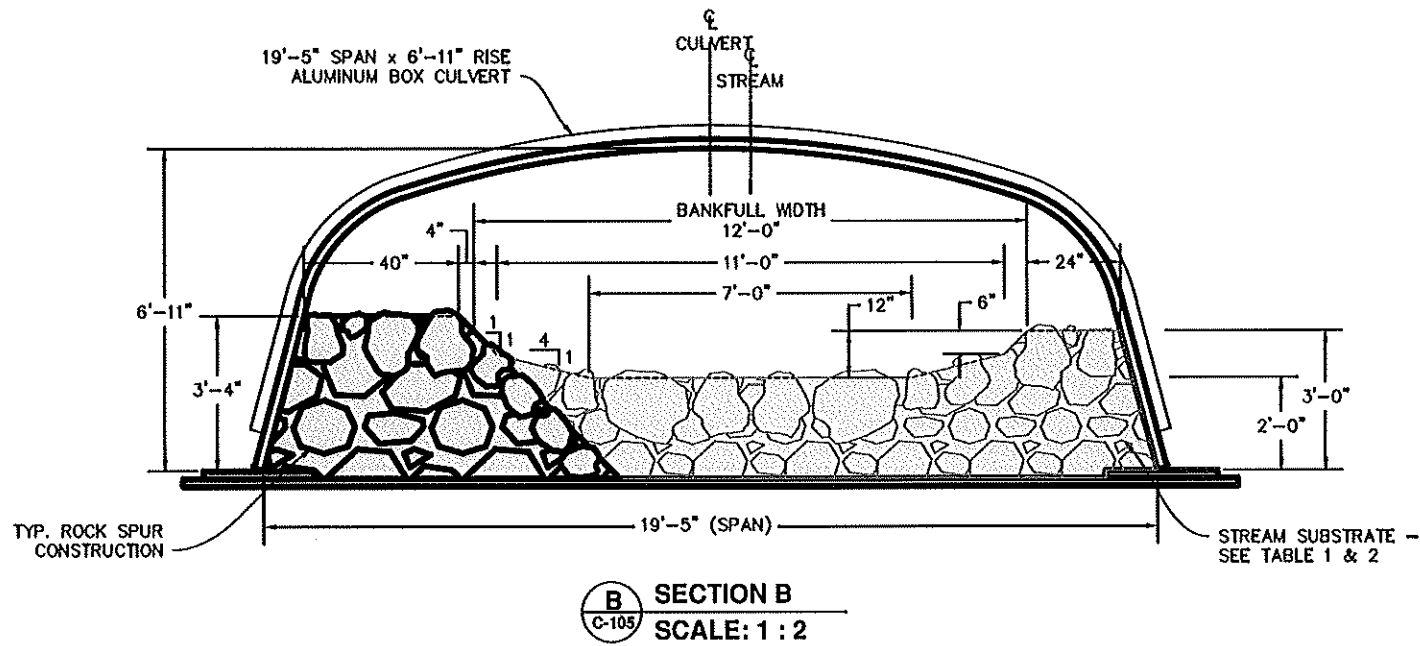
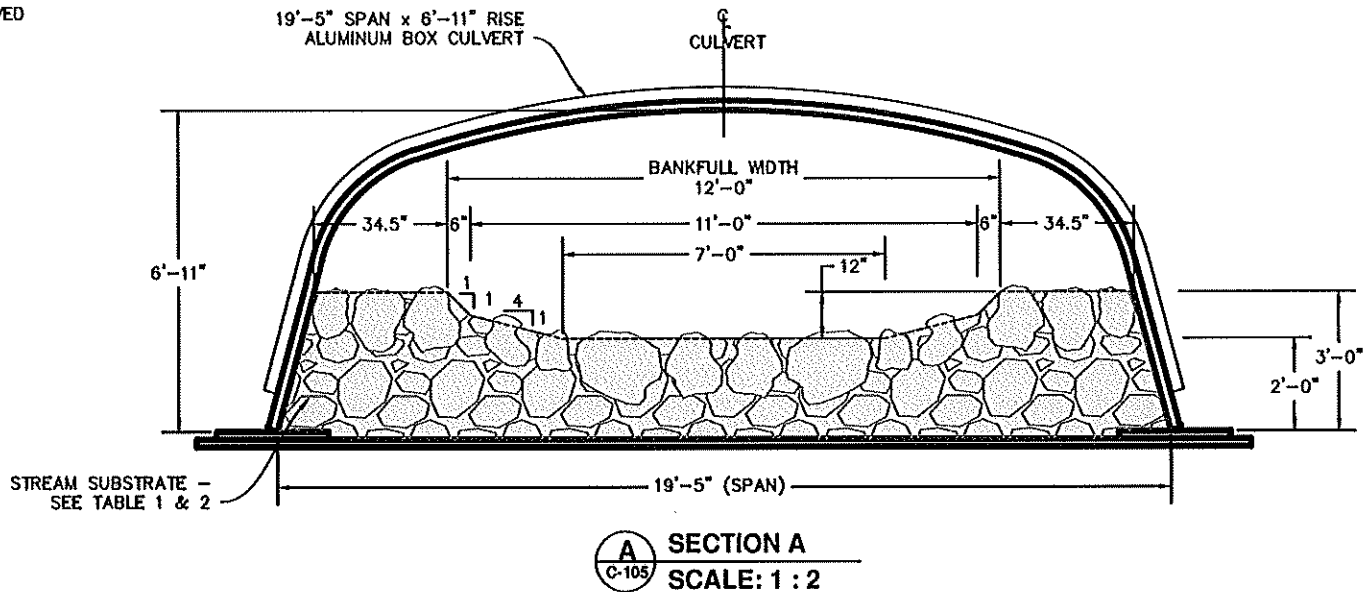
NOTES:

- 1. STREAM SUBSTRATE MATERIAL SHALL BE MIXED AT SITE USING 3 PARTS COARSE MATERIAL TO 1 PART FINE.
- 2. COARSE AND FINE MATERIALS SHALL FOLLOW THE GRADATION NOTED IN TABLE 1 AND 2, RESPECTIVELY.
- 3. ROCK SPUR MATERIALS SHALL BE MIXED USING 1 PART CLASS II RIPRAP, 1 PART COARSE AND 1 PART FINE MATERIAL PER TABLE 1 & 2 BELOW.
- 4. CONSTRUCT STREAM SUBSTRATE AND ROCK CLUSTERS LEAVING A NON-UNIFORM, ROUGH SURFACE. CONTRACTOR SHALL WASH FINE MATERIALS INTO COARSE MATERIALS UNTIL BED IS SEALED AND WATER POOLS ON SURFACE. ADDITIONAL FINES MAY BE REQUIRED DURING THIS PROCESS.
- 5. STREAM SHALL NOT BE RE-DIVERTED INTO CULVERT UNTIL ENGINEER HAS APPROVED BED MATERIALS ARE SUFFICIENTLY SEALED.
- 6. HAND PLACEMENT OF ROCKS WILL BE REQUIRED FOR CHANNEL CONSTRUCTION AND SHOULD BE SUPERVISED AND APPROVED BY THE ENGINEER.
- 7. EQUIPMENT SMALL ENOUGH TO FIT INTO CULVERT MAY BE USED TO FILL IN THE SUBSTRATE VOIDS.

TABLE 1	
COARSE MATERIAL (3 PARTS)	
SIZE	% PASSING
9"	100
7"	80-90
4"	45-55
3"	25-35
2"	10-20

TABLE 2	
FINE MATERIAL (1 PART)	
SIZE	% PASSING
2"	100
1.25"	75-85
1"	65-75
1/2"	45-55
# 4	20-30
# 10	20
# 40	10

STREAM COORDINATE TABLE				
Point #	Elevation	Northing	Easting	Description
1000	30.22	1378510.75	1932742.93	1+96.30 - PI
1001	30.22	1378500.59	1932738.09	2+07.54 - PI
1002	30.21	1378497.81	1932736.77	2+10.62 - PI
1003	30.04	1378484.88	1932730.61	2+24.94 - PC
1004	29.85	1378469.82	1932725.45	2+40.93 - Mid
1005	29.86	1378453.90	1932725.03	2+56.92 - PRC
1006	29.47	1378438.65	1932728.65	2+72.59 - Mid
1007	29.29	1378423.16	1932731.03	2+88.27 - PRC
1008	29.11	1378408.29	1932733.24	3+03.31 - Mid
1009	28.93	1378393.80	1932737.22	3+18.34 - PRC
1010	28.74	1378377.76	1932741.51	3+34.96 - Mid
1011	28.54	1378361.40	1932744.39	3+51.57 - PCC
1012	28.48	1378356.47	1932744.72	3+56.52 - Mid
1013	28.42	1378351.54	1932744.47	3+61.46 - PT
1014	28.08	1378322.82	1932742.08	3+90.47 - PI
1015	27.92	1378308.78	1932741.21	4+04.35 - PI
1016	27.32	1378294.55	1932743.01	4+18.69 - PI



NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

FINAL DESIGN - JANUARY 9, 2018

REV. NO.	DATE	REVISIONS

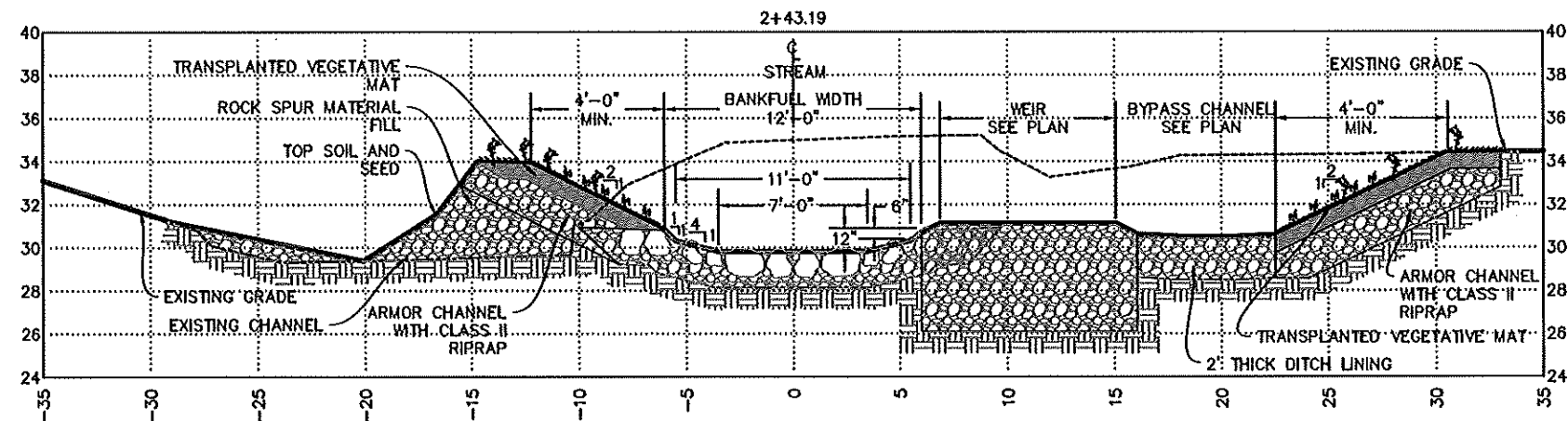
DATE: 1/09/19	DESIGNED: [Signature]	DRAWN: COU	CHECKED: TCB	SCALE: AS NOTED	FILE: 139A17-100X
---------------	-----------------------	------------	--------------	-----------------	-------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: CULVERT 20700877 CROSS SECTIONS		

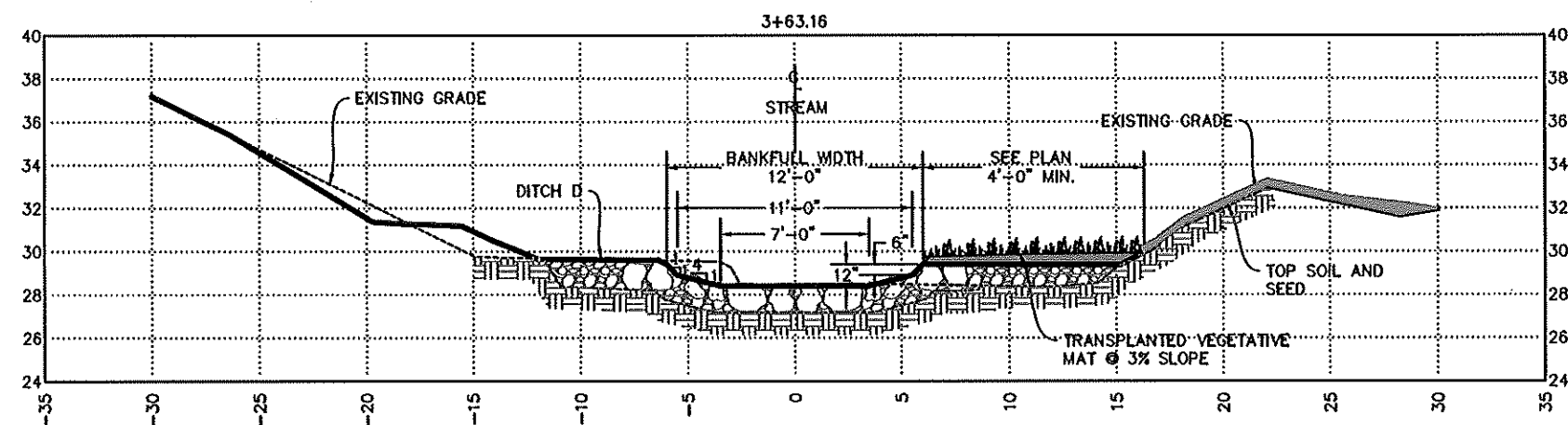
500 W 27th AVE., SUITE A
ANCHORAGE, ALASKA 99503
WHENEVER YOU CALL
BCE
BCE CONSULTING ENGINEERS
PHONE (907) 272-0384
FAX (907) 272-0384
ANCHORAGE, ALASKA



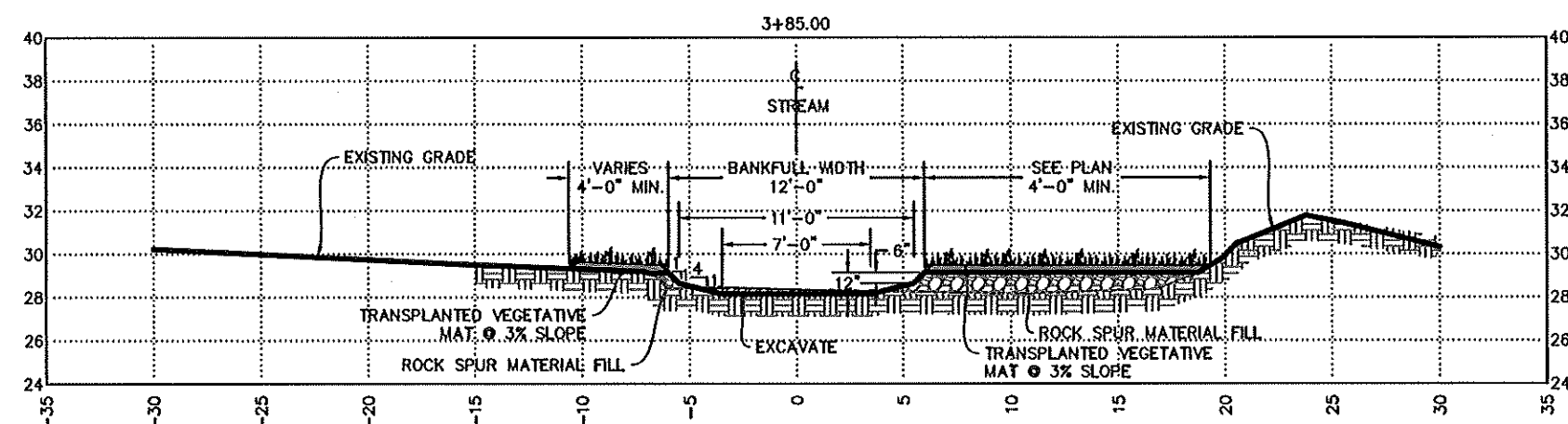
JOB NO. 1598.17
SHEET
C-106



C SECTION C
C-105 SCALE: 1 : 4



D SECTION D
C-105 SCALE: 1 : 4



E SECTION E
C-105 SCALE: 1 : 4

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

FINAL DESIGN - JANUARY 9, 2019

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: TCB	DRAWN: COU	CHECKED: TCB	SCALE: AS NOTED	FILE: 1598.17-1005
---------------	---------------	------------	--------------	-----------------	--------------------

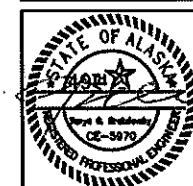
PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE): BID PACKAGE 3
LOCATION: KODIAK, ALASKA
CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: CULVERT 20700877 STREAM CROSS SECTIONS

500 W 27th AVE. SUITE 4
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA 99503

PHONE (907) 273-3344
FAX (907) 273-3344
www.bce-engineers.com

BCE

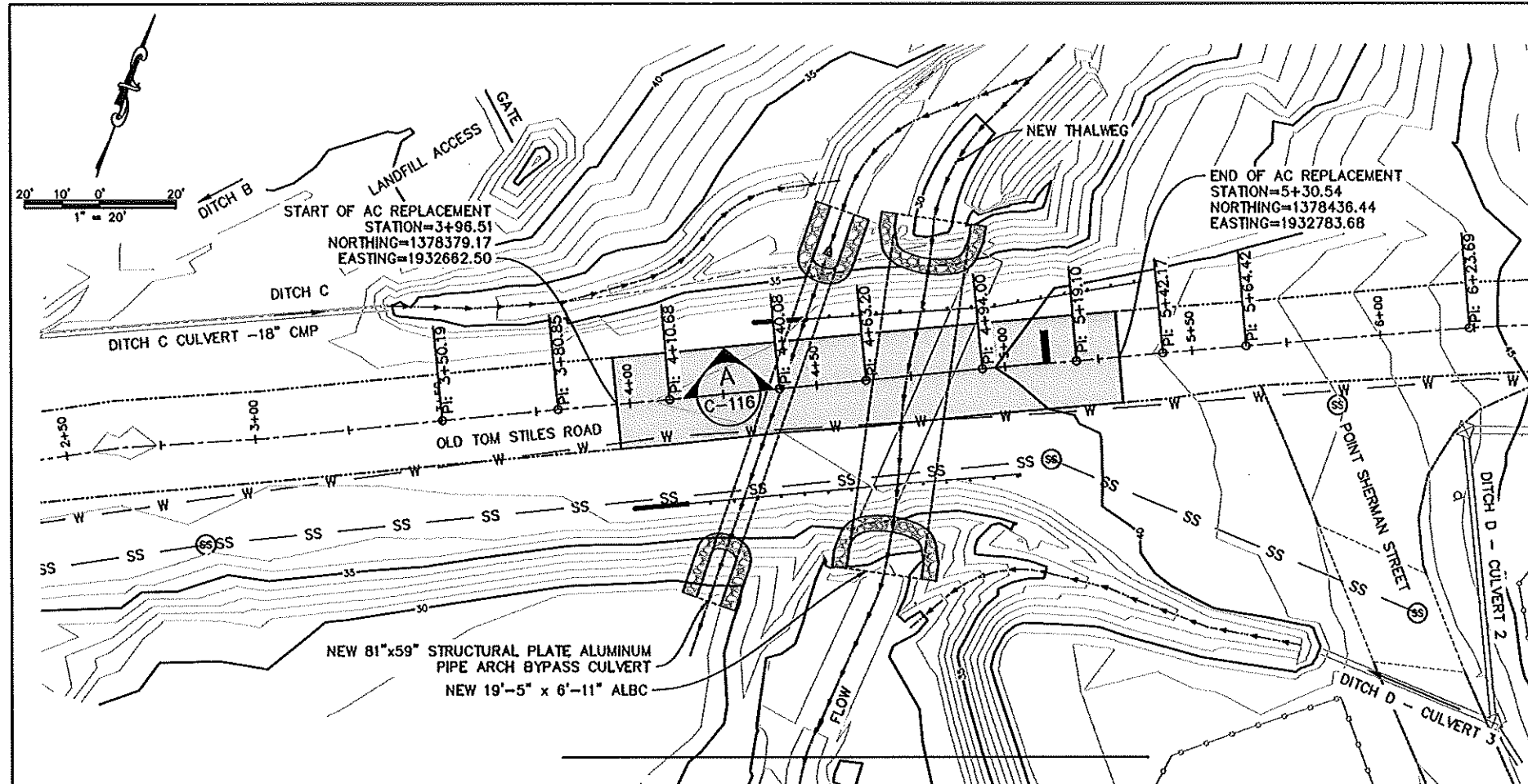
Brattberg
CONSULTING ENGINEERS



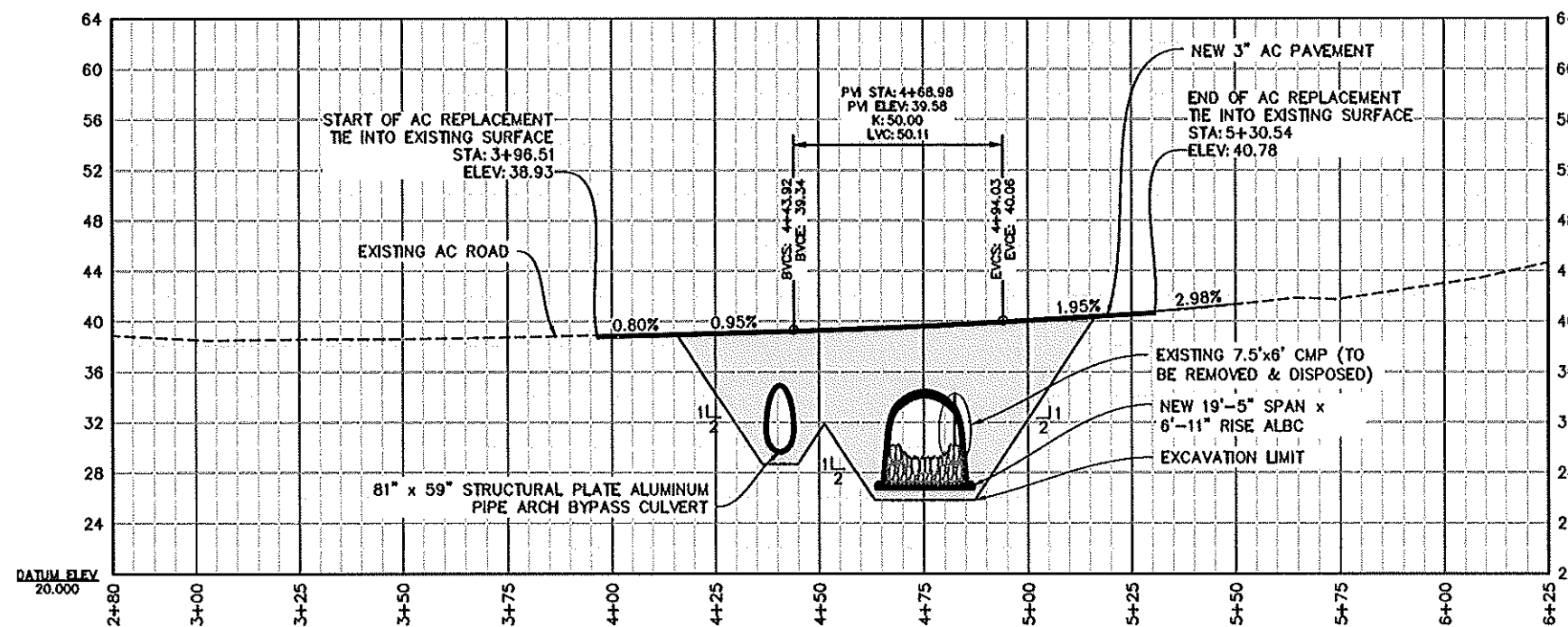
JOB NO. 1598.17

SHEET

C-107

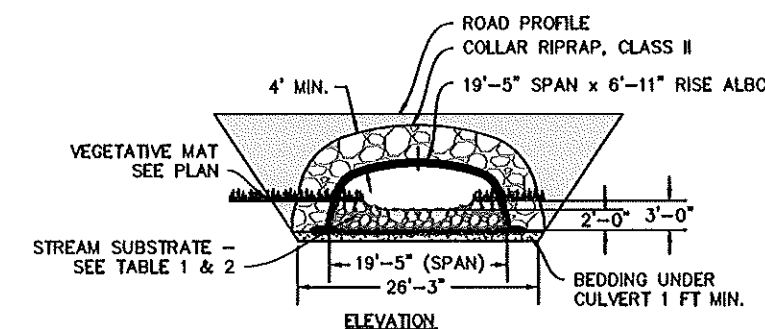
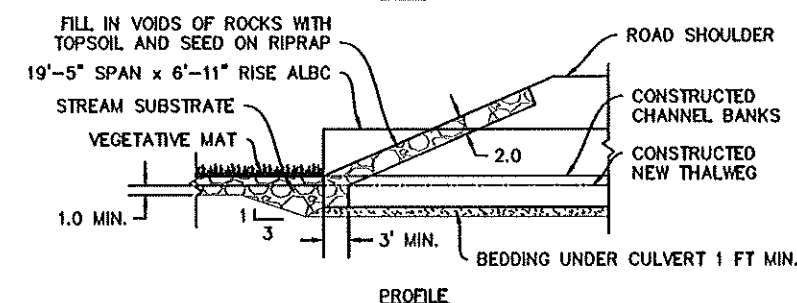
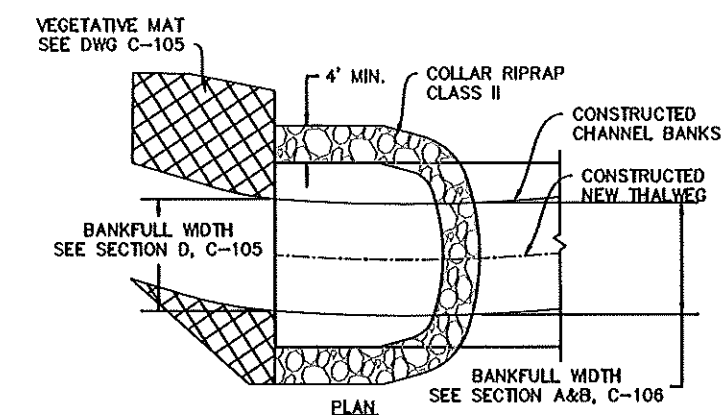


A CULVERT 20700877 ROAD PLAN
SCALE: 1 : 20



B CULVERT 20700877 ROAD PROFILE
SCALE: 1 : 20 (H) 1 : 3 (V)

ROAD COORDINATE TABLE				
Point #	Elevation	Northing	Eastng	Description
7000	0.00	1378359.38	1932620.62	3+50.19 - PI
7001	0.00	1378372.54	1932648.31	3+80.85 - PI
7002	39.03	1378385.18	1932675.35	4+10.68 - PI
7003	39.30	1378397.82	1932701.87	4+40.08 - PI
7004	39.56	1378407.78	1932722.75	4+63.20 - PI
7005	40.07	1378421.10	1932750.51	4+94.00 - PI
7006	40.57	1378431.56	1932773.33	5+19.10 - PI
7007	41.11	1378441.39	1932794.19	5+42.17 - PI
7008	41.85	1378450.74	1932814.40	5+64.42 - PI
7009	0.00	1378475.36	1932868.31	6+23.69 - PI



C TYPICAL COLLAR RIPRAP DETAIL
SCALE: NTS

FINAL DESIGN - JANUARY 9, 2018

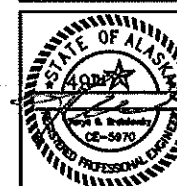
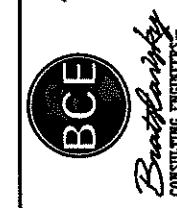
NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: JCB	CHECKED: JCB	SCALE: AS NOTED	FILE: 159817-1005

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)

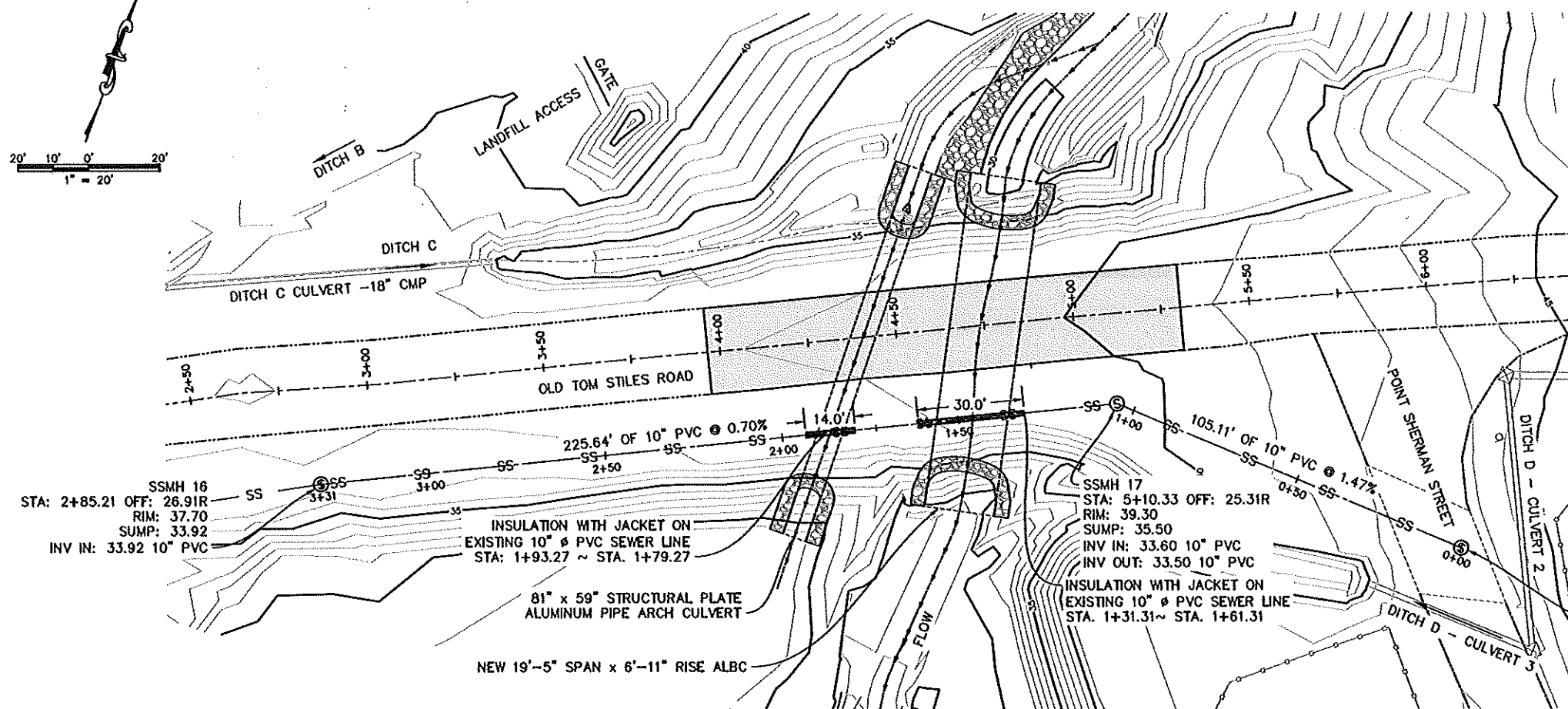
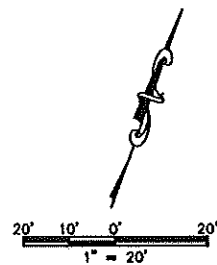
500 W 27th AVE, SUITE A	PHONE (907) 272-0384
ANCHORAGE, ALASKA 99503	FAX (907) 272-0384
WWW.BCE-ALCO.COM	ANCHORAGE@BCE-ALCO.COM



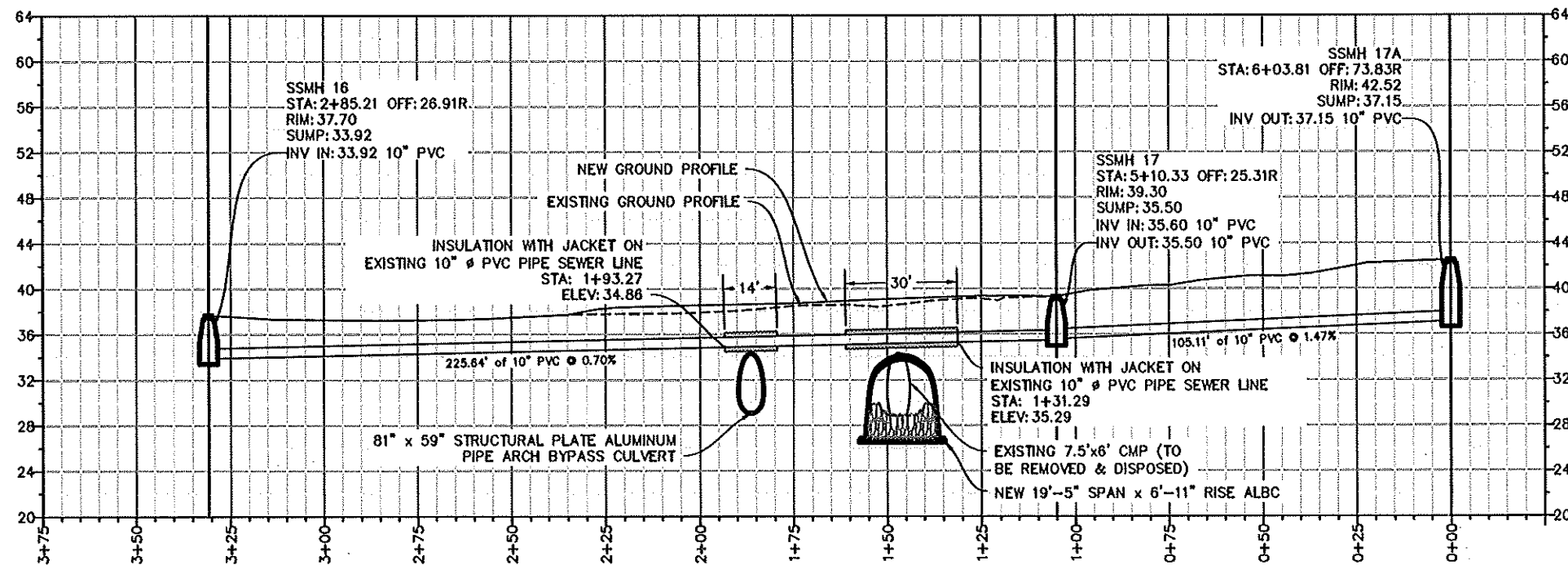
JOB NO. 1598.17

SHEET

C-108



A SANITARY SEWER PLAN
SCALE: 1 : 20



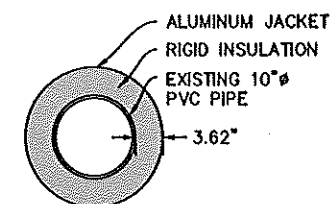
B SANITARY SEWER PROFILE
SCALE: 1 : 20 (H) 1 : 3 (V)

UTILITY NOTES

1. CONTRACTOR SHALL LOCATE UTILITIES AND NOTIFY UTILITY COMPANY AND THE OWNER (USCG) AT LEAST 72 HOURS PRIOR TO ANY WORK AROUND UTILITIES.
2. NO SERVICE INTERRUPTION WILL BE ALLOWED.
3. PROTECT AND SUPPORT UTILITIES REMAINING IN PLACE.
4. RESTORE THE SERVICE IMMEDIATELY IF ANY BREAKAGE OF UTILITY LINES OCCURS. ALL WORK IS TO BE CONDUCTED IN STRICT ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY STANDARDS AND REQUIREMENTS AND APPROPRIATE GOVERNMENTAL AGENCY REGULATIONS.
5. THE CONTRACTOR SHALL HAVE A TEMPORARY BACKUP UTILITY SERVICE PLAN REVIEWED AND APPROVED BY THE ENGINEER AND THE OWNER.
6. INSULATE UTILITY PIPE LINE AS SHOWN IN SECTION C, THIS DRAWING.

SANITARY SEWER PIPE TABLE					
PIPE LINE	PIPE MATERIAL	NOMINAL DIAMETER	PIPE DIAMETER	JACKET DIAMETER	INSULATION THICKNESS
SEWER	PVC	10"	10.75"	18.00"	3.62"

1. INSULATION SHALL BE RIGID, 90 TO 95% CLOSED CELL POLYURETHANE WITH 2 TO 4 POUNDS PER CUBIC FOOT DENSITY.
2. JACKET SHALL BE A SPECIAL ALUMINUM CLASS 5052-H32 MARINE GRADE ALUMINUM METAL WITH 16-GAUGE WALL THICKNESS.
3. EXPOSED END OF INSULATION SHALL BE COMPLETELY SEALED WITH MASTIC MOISTURE BARRIER.



C SEWER PIPE SECTION
SCALE: NTS

FINAL DESIGN - JANUARY 9, 2018

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: [Signature]	DRAWN: COU	CHECKED: TCB	SCALE: AS NOTED	FILE: 130817-100X
---------------	-----------------------	------------	--------------	-----------------	-------------------

PROJECT	KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3
LOCATION	KODIAK, ALASKA
CLIENT	U.S. FISH & WILDLIFE SERVICE (FWS)

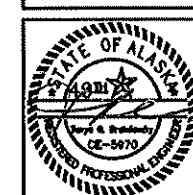
DRAWING	SANITARY SEWER PLAN & PROFILE
---------	-------------------------------

500 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA 99503

PHONE (907) 273-0384
FAX (907) 273-0384
ANCHORAGE@BCE-AL.COM

BCE

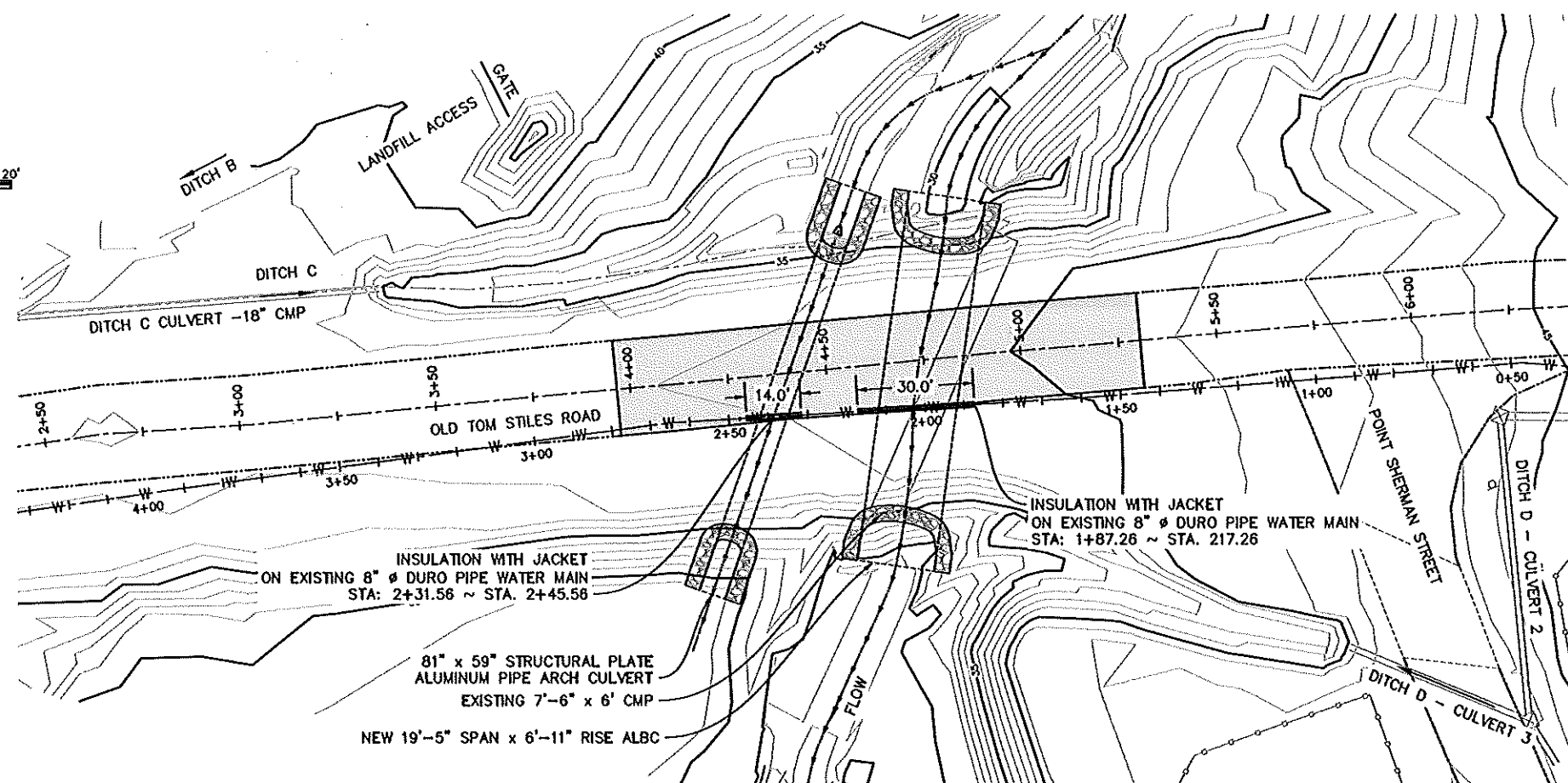
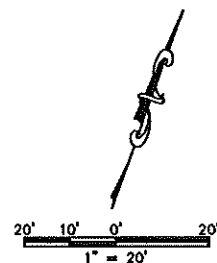
Bentley
CONSULTING ENGINEERS



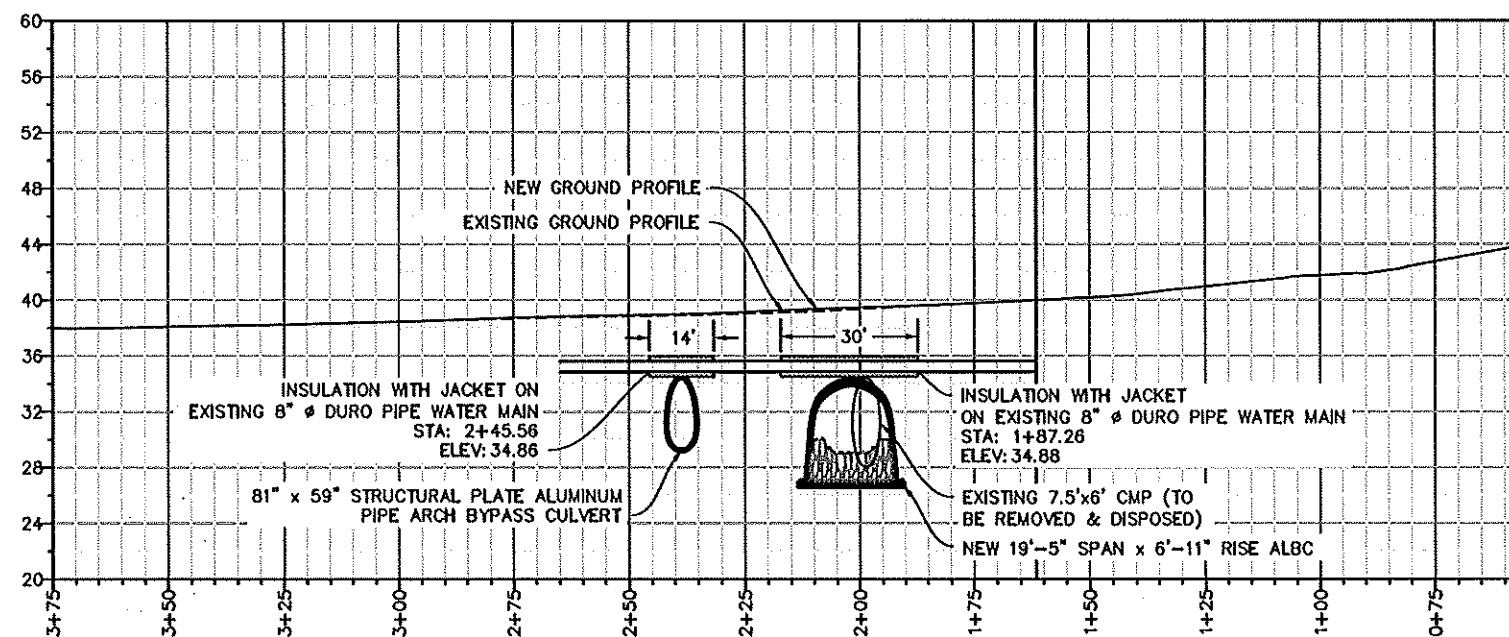
JOB NO. 1598.17

SHEET

C-109



A WATER MAIN PLAN
SCALE: 1 : 20



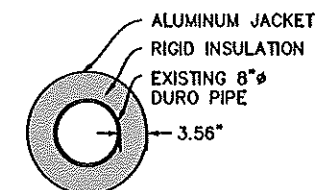
B WATER MAIN ROFILE
SCALE: 1 : 20 (H) 1 : 3(V)

UTILITY NOTES

1. CONTRACTOR SHALL LOCATE UTILITIES AND NOTIFY UTILITY COMPANY AND THE OWNER (USCG) AT LEAST 72 HOURS PRIOR TO ANY WORK AROUND UTILITIES.
2. NO SERVICE INTERRUPTION WILL BE ALLOWED.
3. PROTECT AND SUPPORT UTILITIES REMAINING IN PLACE.
4. RESTORE THE SERVICE IMMEDIATELY IF ANY BREAKAGE OF UTILITY LINES OCCURS. ALL WORK IS TO BE CONDUCTED IN STRICT ACCORDANCE WITH THE RESPECTIVE UTILITY COMPANY STANDARDS AND REQUIREMENTS AND APPROPRIATE GOVERNMENTAL AGENCY REGULATIONS.
5. THE CONTRACTOR SHALL HAVE A TEMPORARY BACKUP UTILITY SERVICE PLAN REVIEWED AND APPROVED BY THE ENGINEER AND THE OWNER.
6. INSULATE UTILITY PIPE LINE AS SHOWN IN SECTION C, THIS DRAWING.

WATER MAIN PIPE TABLE					
PIPE LINE	PIPE MATERIAL	NOMINAL DIAMETER	PIPE DIAMETER	JACKET DIAMETER	INSULATION THICKNESS
WATER	DURO	8"	8.62"	15.75"	3.56"

1. INSULATION SHALL BE RIGID, 90 TO 95% CLOSED CELL POLYURETHANE WITH 2 TO 4 POUNDS PER CUBIC FOOT DENSITY.
2. JACKET SHALL BE A SPECIAL ALUMINUM CLASS 5052-H32 MARINE GRADE ALUMINUM METAL WITH 16-GAUGE WALL THICKNESS.
3. EXPOSED END OF INSULATION SHALL BE COMPLETELY SEALED WITH MASTIC MOISTURE BARRIER.



C WATER MAIN SECTION
SCALE: NTS

FINAL DESIGN - JANUARY 9, 2019

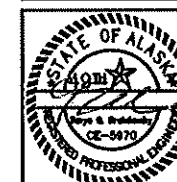
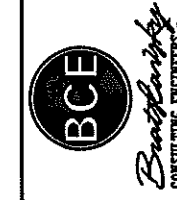
NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: JCB	CHECKED: JCB	SCALE: AS NOTED	FILE: 159817-1002
---------------	---------------	--------------	-----------------	-------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: WATER MAIN PLAN & PROFILE		

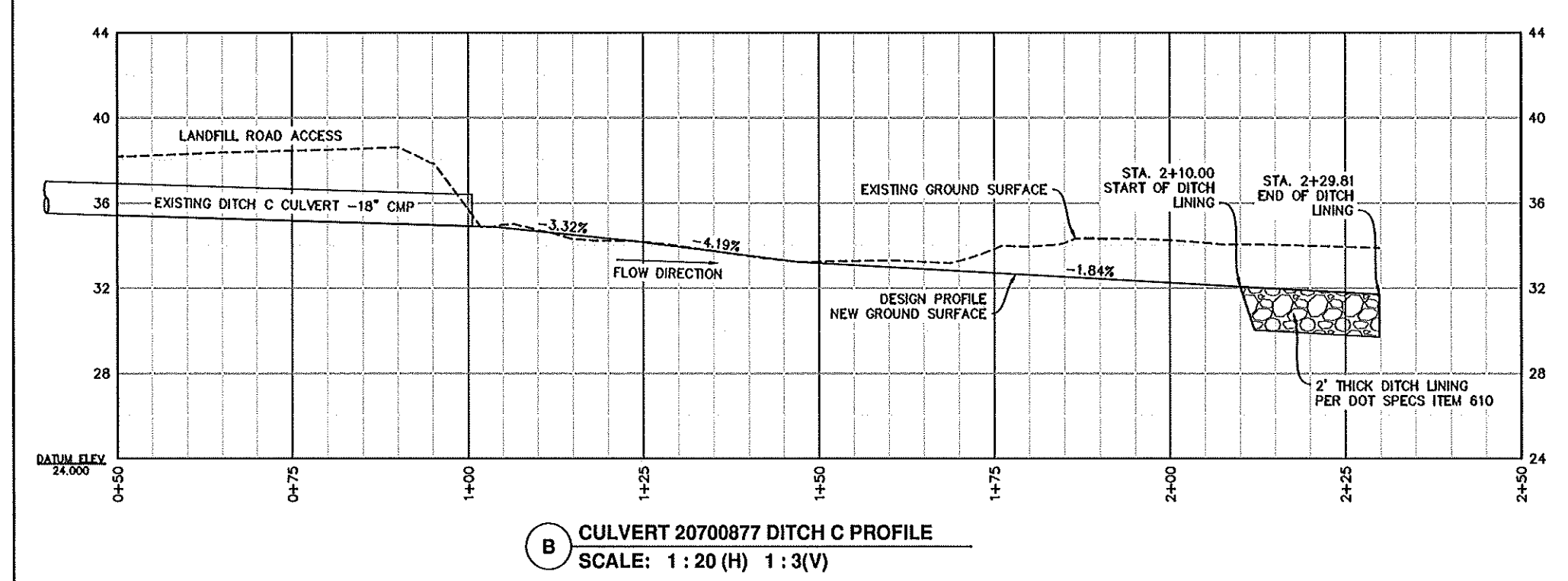
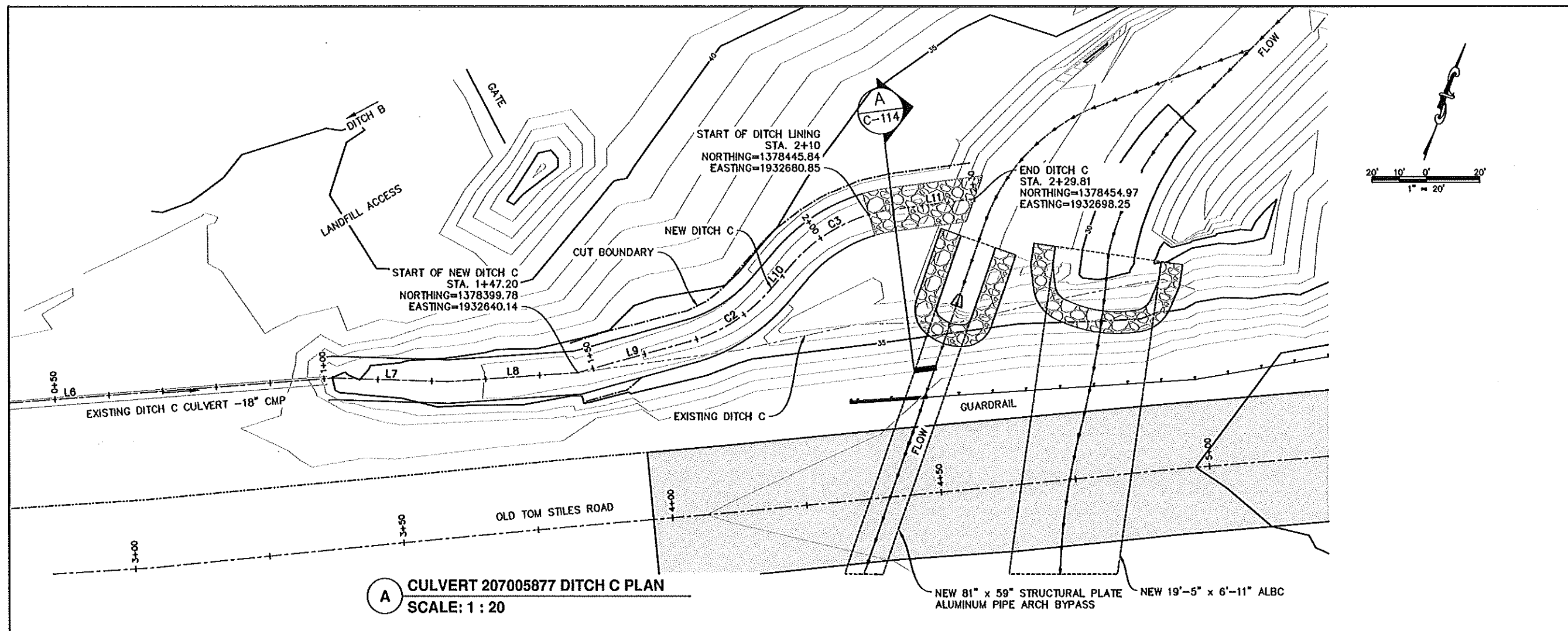
300 W 27th AVE. SUITE A
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA 99503
PHONE (907) 273-0384
FAX (907) 272-0314
WWW.BCE-ALCON.COM



JOB NO. 1598.17

SHEET

C-110



New Ditch C			
Number	Radius	Length	Line/Chord Direction
L6		101.83	N65° 38' 42.42"E
L7		21.35	N71° 46' 12.65"E
L8		23.93	N66° 01' 48.33"E
L9		21.62	N54° 32' 43.07"E
C2	30.00	17.79	N37° 33' 37.69"E
L10		6.13	N20° 34' 32.31"E
C3	30.00	21.99	N41° 34' 36.81"E
L11		15.17	N62° 34' 41.32"E

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: CDU	CHECKED: TCS	SCALE: AS NOTED	FILE: 159817-1005
---------------	---------------	--------------	-----------------	-------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE) BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: CULVERT 20700877 DITCH C PLAN & PROFILE		

500 W 27th AVE., SUITE A
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA 99503

PHONE (907) 273-0344
FAX (907) 273-0344
WWW.BCE-AL.COM

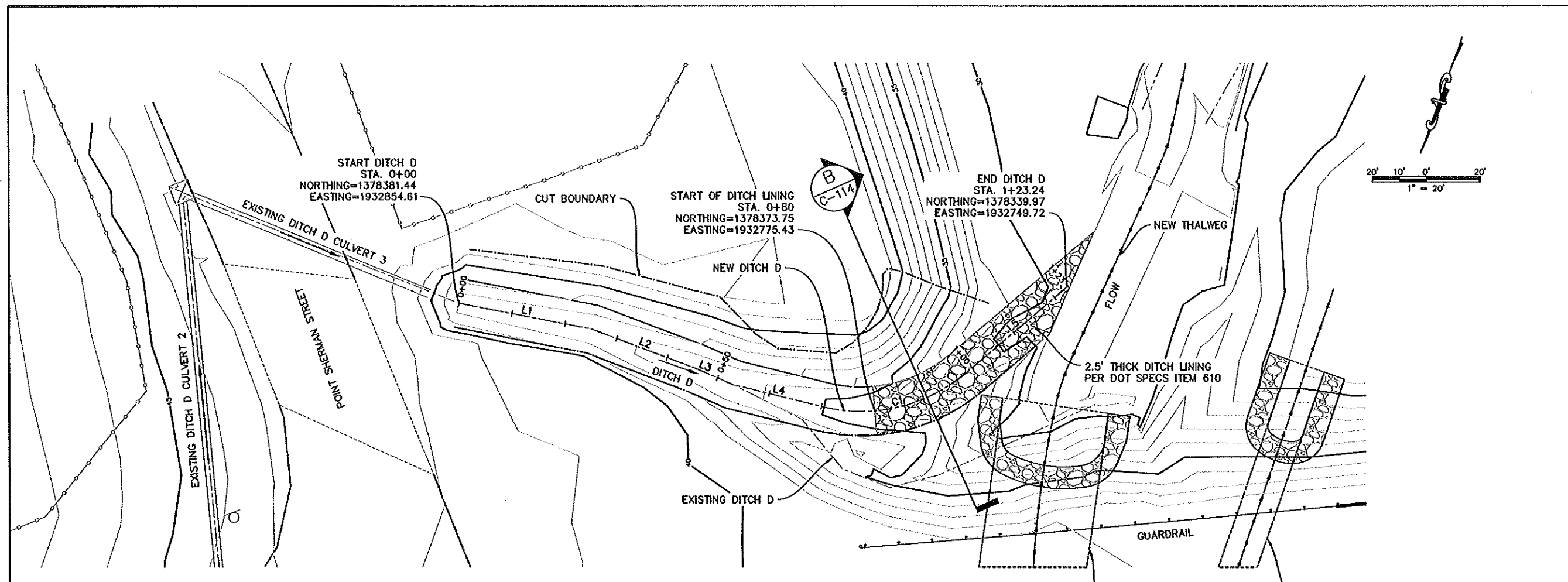
BCE

Brattberg
CONSULTING ENGINEERS

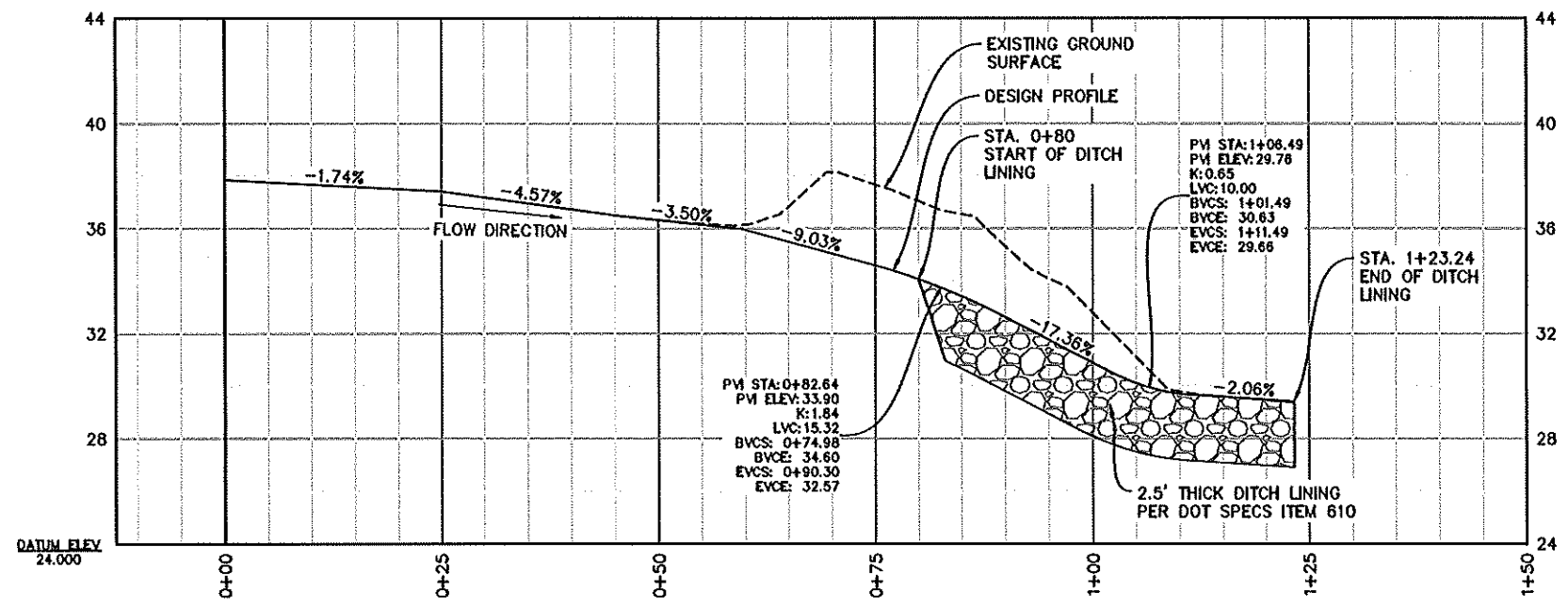
STATE OF ALASKA
Professional Engineer
CE-5470

1/09/2019

JOB NO. 1598.17
SHEET
C-111



A CULVERT 20700877 DITCH D PLAN
SCALE: 1 : 20



B CULVERT 20700877 DITCH D PROFILE
SCALE: 1 : 20 (H) 1 : 3 (V)

New Ditch D			
Number	Radius	Length	Line/Chord Direction
L1		25.08	S80° 58' 24.27"W
L2		20.43	N89° 22' 24.98"W
L3		7.60	N86° 31' 30.74"W
L4		17.10	S83° 48' 52.75"W
C1	30.00	28.29	S56° 48' 03.27"W
L5		24.73	S29° 47' 13.79"W

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	REVISIONS
DATE	

DATE: 1/09/19	DESIGNED: [Signature]	DRAWN: COU	CHECKED: TCB	SCALE: AS NOTED	FILE: 159A17-1002
---------------	-----------------------	------------	--------------	-----------------	-------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
---	--------------------------	--

DRAWING: CULVERT 20700877 DITCH D PLAN & PROFILE
--

500 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA 99503

PHONE (907) 273-0344
FAX (907) 273-0344
WWW.BCE-ALASKA.COM

BCE
Brattberg
CONSULTING ENGINEERS

STATE OF ALASKA
Professional Engineer
License No. 15981.17

JOB NO. 1598.17

SHEET

C-112

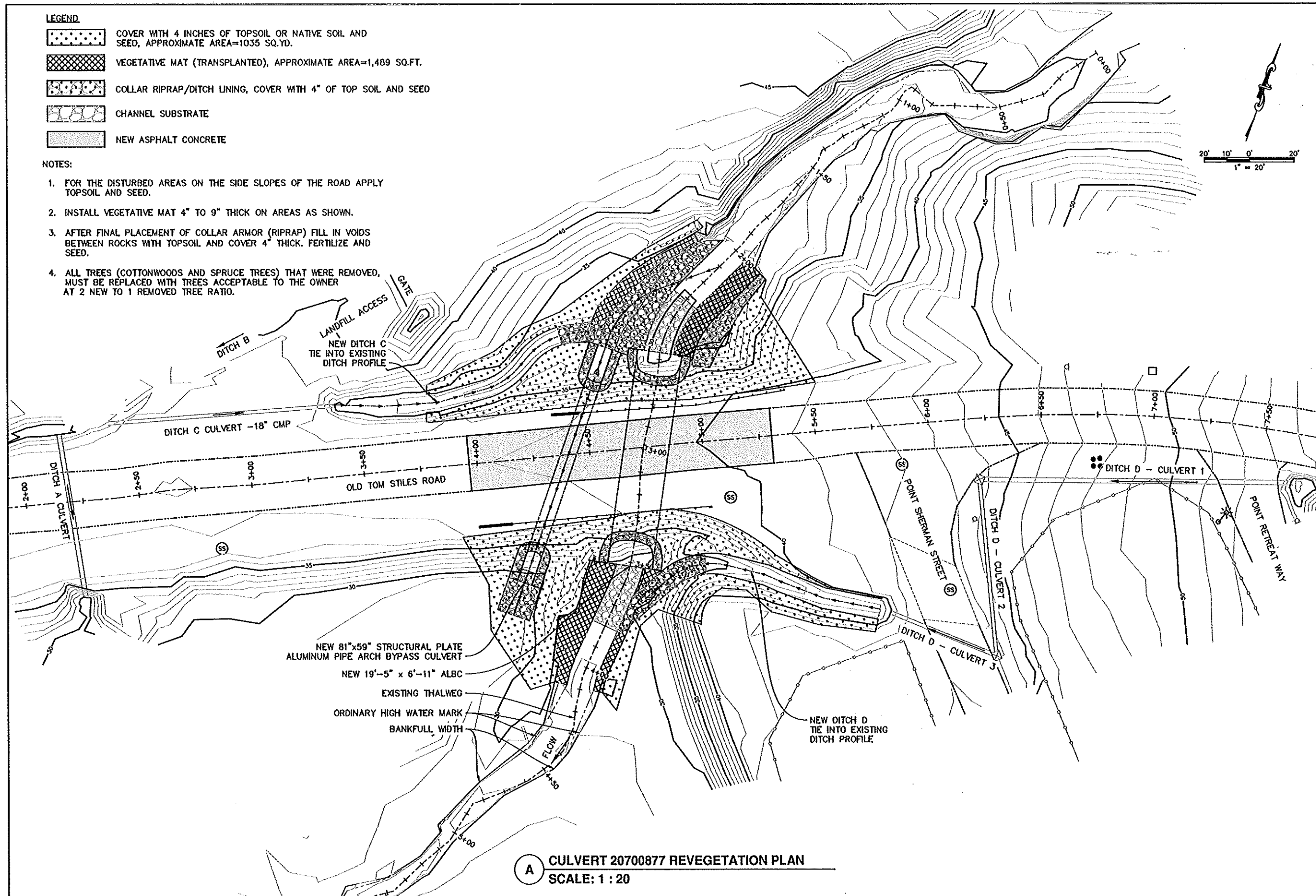
1/09/2019

LEGEND

- COVER WITH 4 INCHES OF TOPSOIL OR NATIVE SOIL AND SEED, APPROXIMATE AREA=1035 SQ.YD.
- VEGETATIVE MAT (TRANSPLANTED), APPROXIMATE AREA=1,489 SQ.FT.
- COLLAR RIPRAP/DITCH LINING, COVER WITH 4" OF TOP SOIL AND SEED
- CHANNEL SUBSTRATE
- NEW ASPHALT CONCRETE

NOTES:

- FOR THE DISTURBED AREAS ON THE SIDE SLOPES OF THE ROAD APPLY TOPSOIL AND SEED.
- INSTALL VEGETATIVE MAT 4" TO 9" THICK ON AREAS AS SHOWN.
- AFTER FINAL PLACEMENT OF COLLAR ARMOR (RIPRAP) FILL IN VOIDS BETWEEN ROCKS WITH TOPSOIL AND COVER 4" THICK. FERTILIZE AND SEED.
- ALL TREES (COTTONWOODS AND SPRUCE TREES) THAT WERE REMOVED, MUST BE REPLACED WITH TREES ACCEPTABLE TO THE OWNER AT 2 NEW TO 1 REMOVED TREE RATIO.



A CULVERT 20700877 REVEGETATION PLAN
SCALE: 1 : 20

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

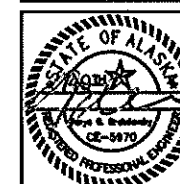
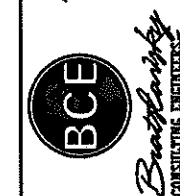
REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: GDU	CHECKED: TCS	FILE: 159817-1003
DRAWN: GDU	SCALE: AS NOTED		

PROJECT KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE) BID PACKAGE 3
LOCATION KODIAK, ALASKA
CLIENT U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING CULVERT 20700877 REVEGETATION PLAN

500 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
WWW.BCE-AL.COM

PHONE (907) 273-0384
FAX (907) 272-0384
ANCHORAGE@BCE-AL.COM

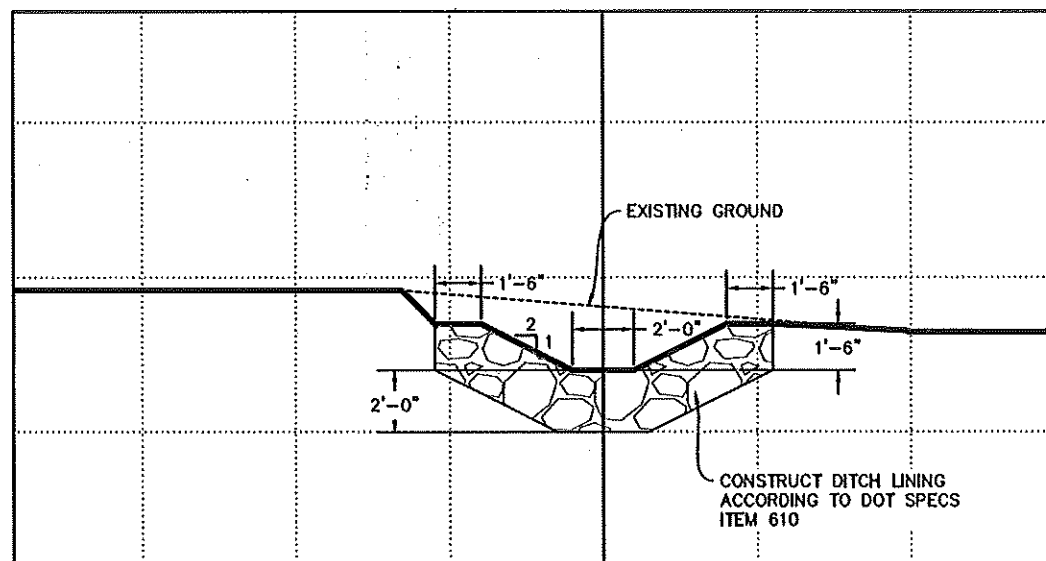


JOB NO. 1598.17

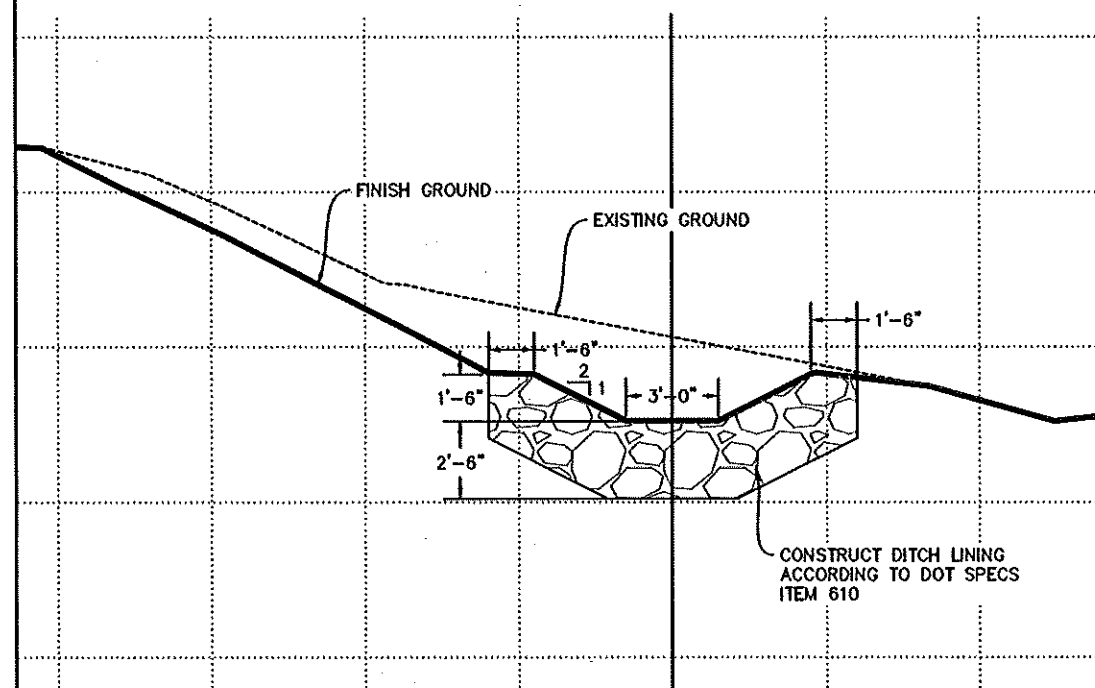
SHEET

C-113

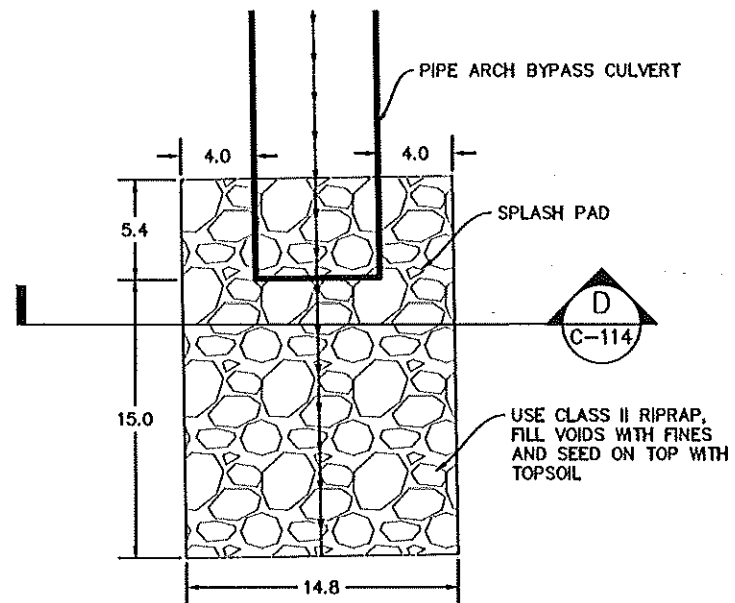
6/16/19



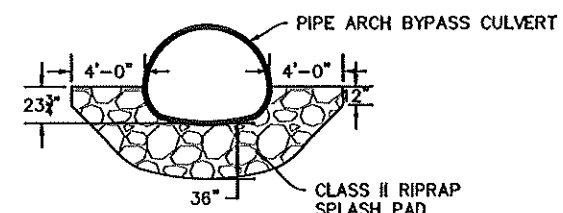
A SECTION A
C-111 SCALE: NTS



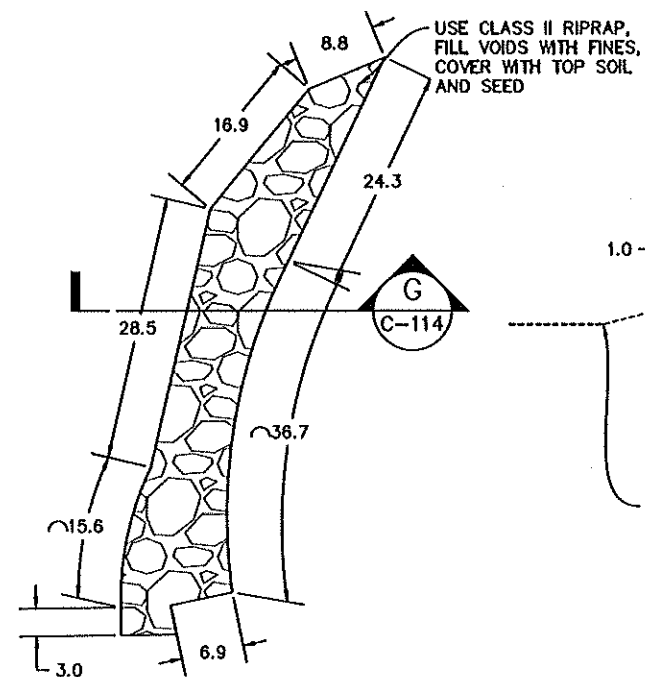
B SECTION B
C-112 SCALE: NTS



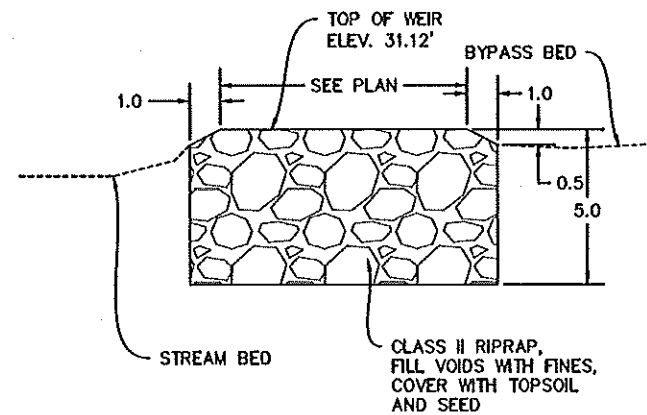
C SPLASH PAD PLAN
SCALE: NTS



D SECTION D
C-114 SCALE: 1 : 6



F WEIR PLAN
SCALE: NTS



G SECTION G
C-114 SCALE: NTS

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: CDB	CHECKED: TCB	SCALE: AS NOTED	FILE: 130617-1005
---------------	---------------	--------------	-----------------	-------------------

PROJECT KODIAK ISLAND HABITAT ENHANCEMENT PROJECT
(FISH PASSAGE) BID PACKAGE 3
LOCATION KODIAK, ALASKA
CLIENT U.S. FISH & WILDLIFE SERVICE (FWS)

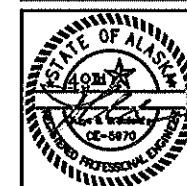
DRAWING SECTION DETAILS

500 W 27th AVE. SUITE 4
ANCHORAGE, ALASKA 99503
ANCHORAGE, ALASKA 99503

PHONE (907) 272-0344
FAX (907) 272-0344
WWW.BCE-ALCON.COM

BCE

Beatty & Co.
CONSULTING ENGINEERS

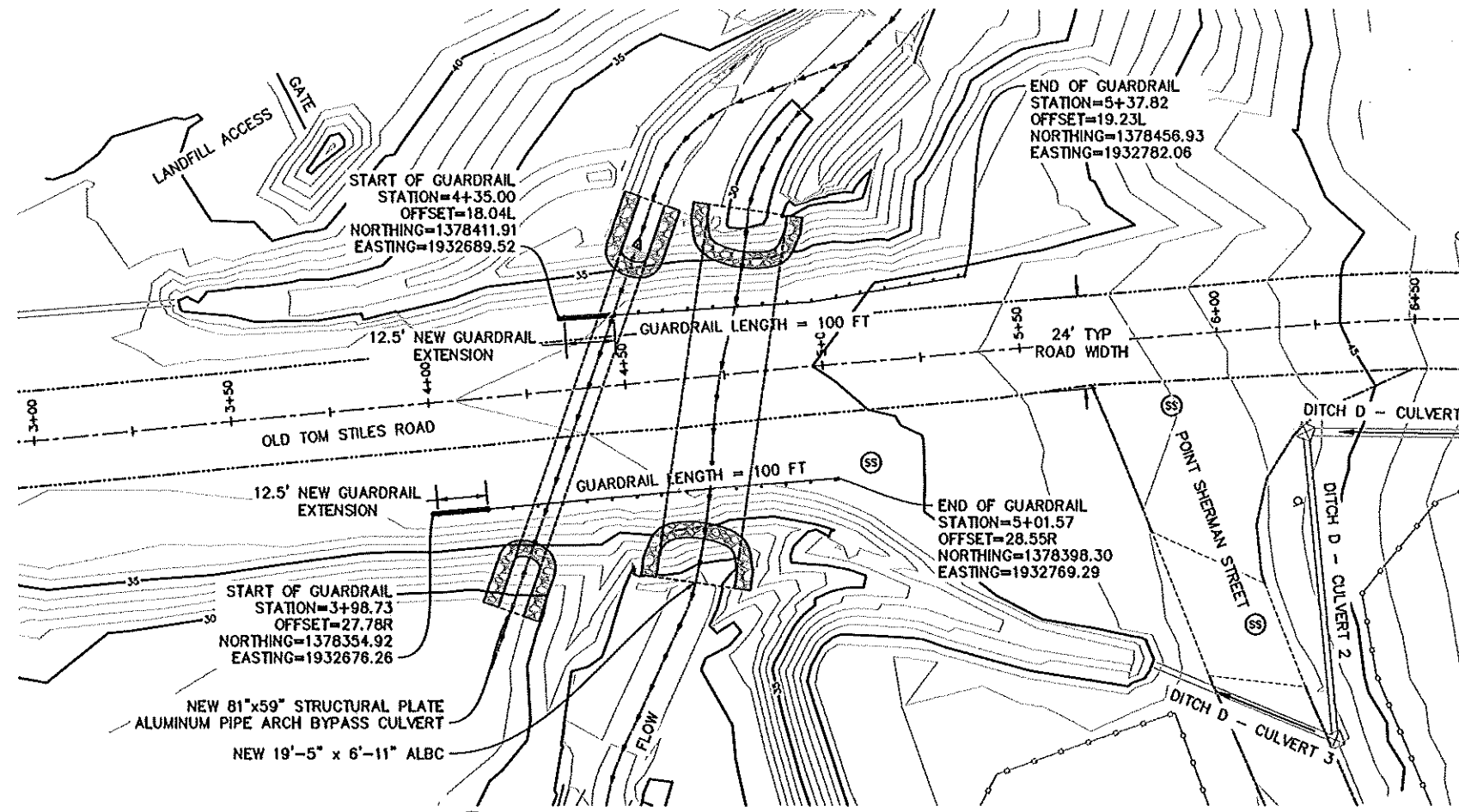


JOB NO. 1598.17

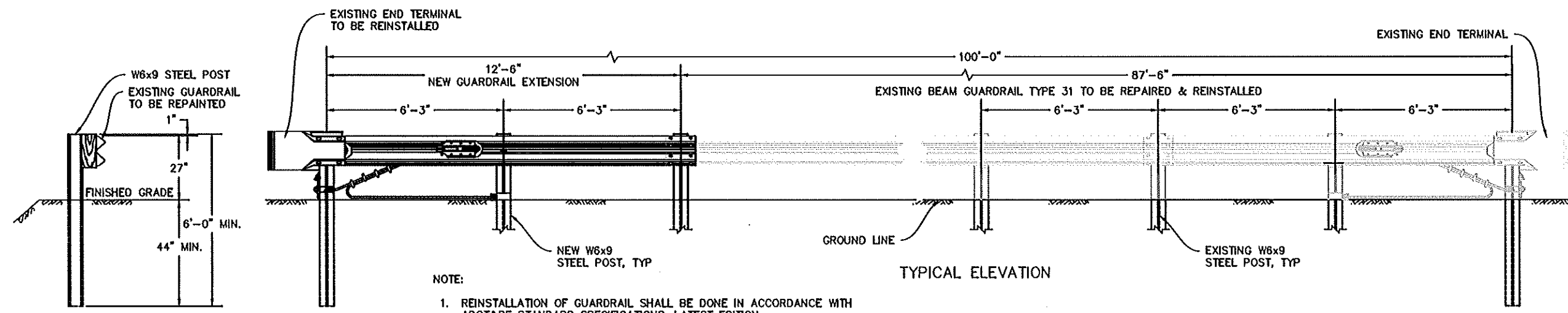
SHEET

C-114

1/09/2019



A CULVERT 20700877 GUARDRAIL PLAN
SCALE: 1 : 20



- NOTE:
1. REINSTALLATION OF GUARDRAIL SHALL BE DONE IN ACCORDANCE WITH ADOT&PF STANDARD SPECIFICATIONS, LATEST EDITION.
 2. WHEN INFORMATION IS NOT INCLUDED, SEE ADOT&PF STANDARD DRAWING AND SPECIFICATION, ITEM 606.

B CULVERT 20700877 GUARDRAIL ELEVATION
NTS

FINAL DESIGN - JANUARY 9 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: GDU	CHECKED: TCB	SCALE: AS NOTED	FILE: 159A17-1006
---------------	---------------	--------------	-----------------	-------------------

PROJECT: KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3	LOCATION: KODIAK, ALASKA	CLIENT: U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING: CULVERT 20700877 GUARDRAIL PLAN & ELEVATION		

300 W 27th AVE, SUITE 4 ANCHORAGE, ALASKA 99503 ANCHORAGE, ALASKA 99503	PHONE (907) 273-0344 FAX (907) 273-0344 www.bce-engineers.com
---	---

BCE *Beutling*
CONSULTING ENGINEERS

STATE OF ALASKA
Professional Engineer
License No. 159817
1/09/2019

JOB NO. 1598.17
SHEET
C-115



FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19
DESIGNED: _____
DRAWN: GDU
CHECKED: TCB
SCALE: AS NOTED
FILE: 159B.17-10025

PROJECT	KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE): BID PACKAGE 3
LOCATION	KODIAK, ALASKA
CLIENT	U.S. FISH & WILDLIFE SERVICE (FWS)

DRAWING ROAD SECTION

500 W 27th AVE., SUITE A
ANCHORAGE, ALASKA 99503
WWW.DCE-AK.COM



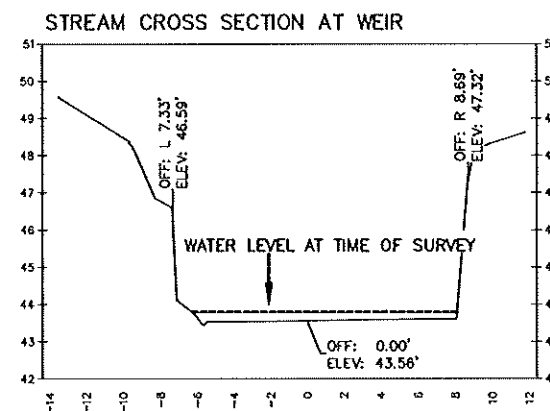
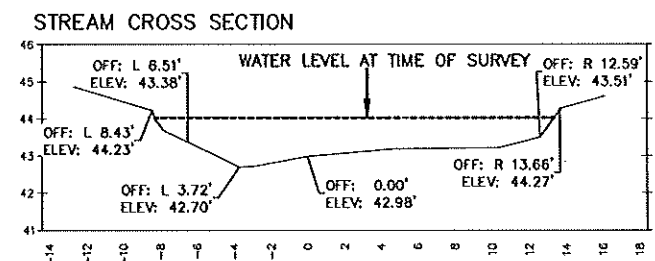
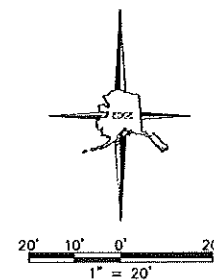
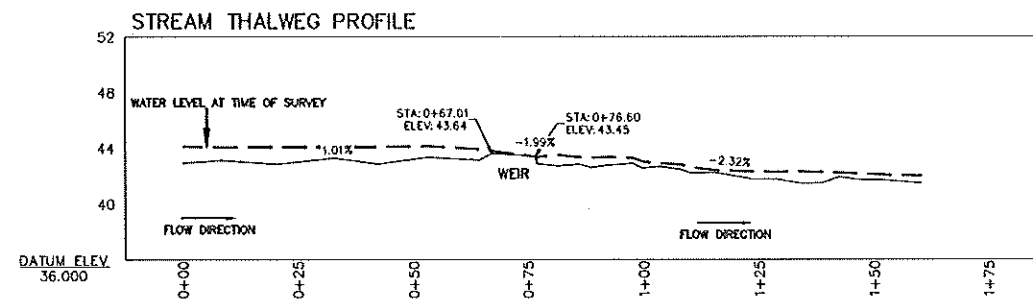
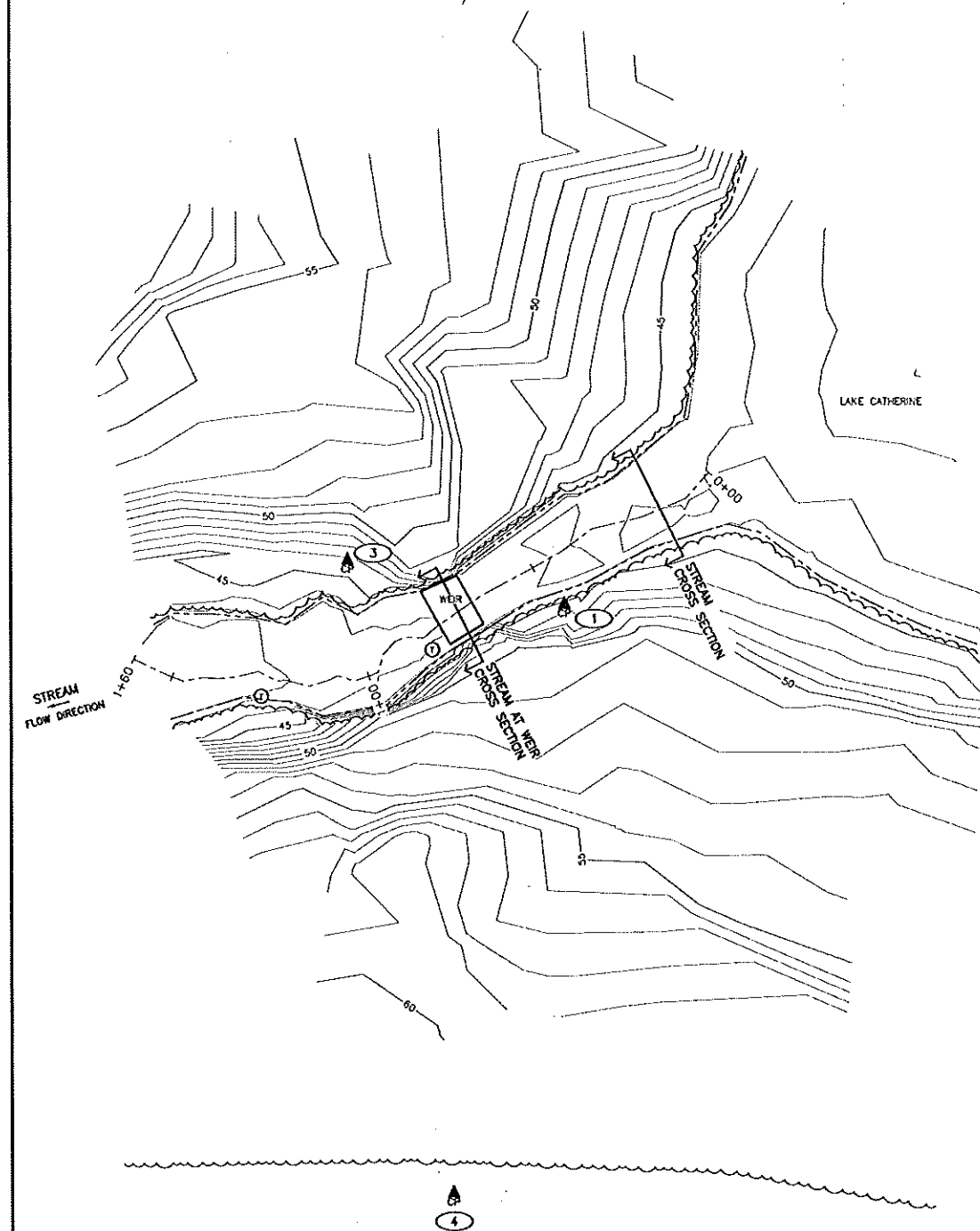
Brattlanby
CONSULTING ENGINEERS INC.



JOB NO. 1598.17

SHEET

C-116



- LEGEND**
- SURVEY CONTROL POINT
 - CONTROL POINT NUMBER
 - EXISTING TREE
 - CENTERLINE OF ROAD / THALWEG
 - ORDINARY HIGH WATER LINE
 - TREE LINE
 - ROADWAY SHOULDER
 - EXISTING CULVERT AS NOTED
 - TRASH

CONTROL POINTS

POINT	NORTH	EAST	ELEVATION	DESCRIPTION
CP 1	1378682.29	1933175.86	45.15	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 3	1378693.01	1933123.08	45.98	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 4	1378540.14	1933148.72	60.59	SET PINK PLASTIC CAP ON 5/8" REBAR

CREEK MEASUREMENT TABLE

LOCATION	TOP CHANNEL WIDTH	TOE CHANNEL WIDTH
CROSS SECTION STREAM	19'	16'
WEIR UPSTREAM	15'	11'
WEIR DOWNSTREAM	16'	13'

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THIS DRAWING IS BASED ON A SURVEY PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL INFORMATION SHOWN HEREON IS CORRECT TO THE BEST OF MY KNOWLEDGE.

MARK AIMONETTI
 PLS 13022

12/21/18
 DATE

NOTES

- THIS DRAWING IS BASED ON A FIELD SURVEY PERFORMED BY EDGE SURVEY AND DESIGN, LLC ON 10/9/2017.
- THE BASIS OF HORIZONTAL CONTROL IS CONTROL POINT 1 (SEE COORDINATE TABLE)
- COORDINATES SHOWN HEREON ARE ALASKA STATE PLANE ZONE 5, NAD83, U.S. SURVEY FEET.
- DISTANCES SHOWN ARE ALASKA STATE PLANE ZONE 5, NAD83, U.S. SURVEY FEET DISTANCES.
- ELEVATIONS SHOWN HEREON ARE BASED ON AN OPUS DERIVED NAVD88 ORTHOMETRIC HEIGHT, GEOID 12B, ON CONTROL POINT 1..

100% SUBMITTAL - JANUARY 3, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

DATE: 10/24/17	DESIGNED: MD	SCALE: AS NOTED	FILE: 1308.17-100%
	DRAWN: MD		
	CHECKED: TW		

PROJECT	KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE) BID PACKAGE 3
LOCATION	KODIAK, ALASKA
CLIENT	U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING	EXISTING CONDITION - OUTLET WEIR

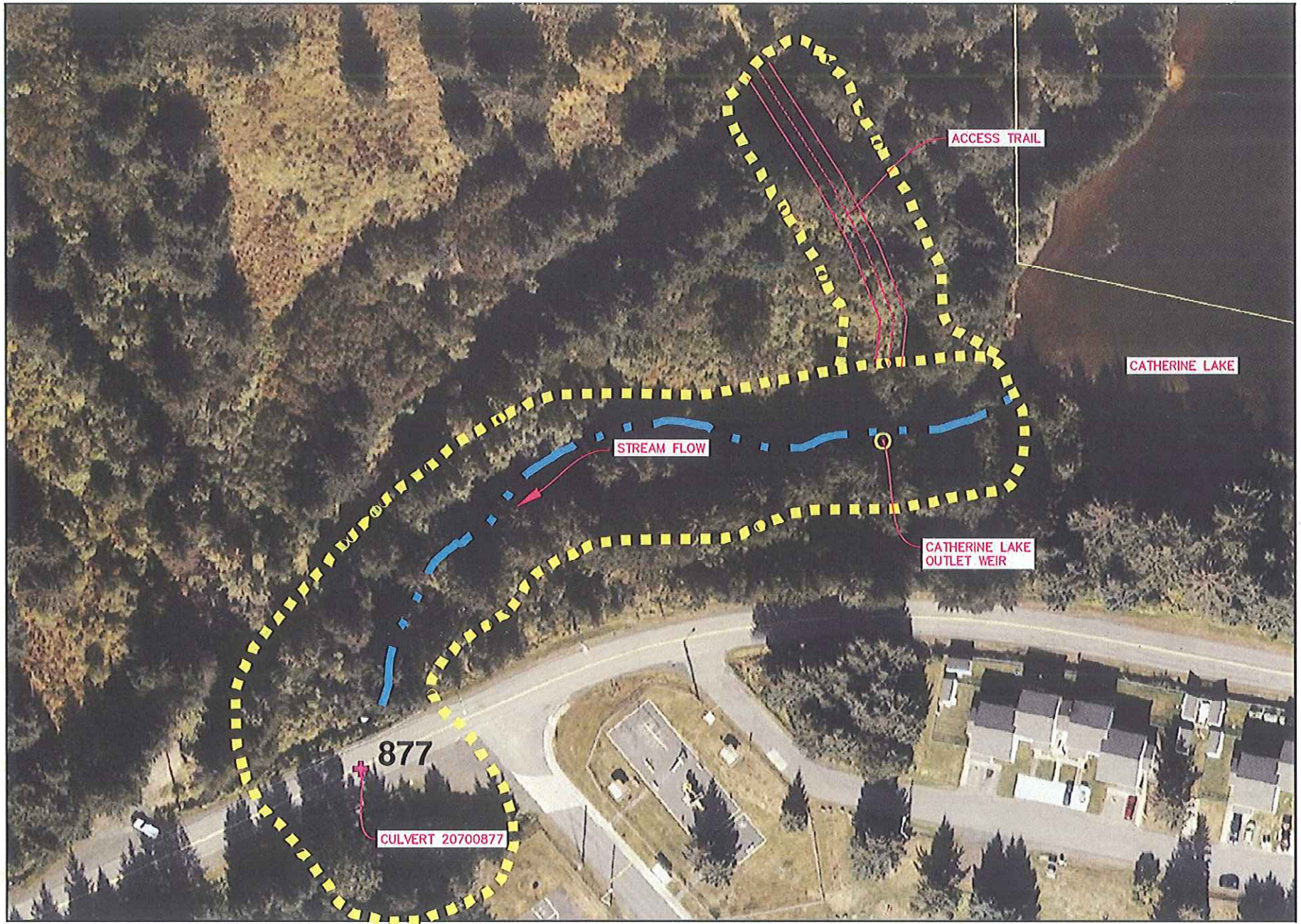
500 W 27th AVE. SUITE A
 ANCHORAGE, ALASKA 99503
 (907) 277-3344
 FAX: (907) 277-3344



JOB NO. 1598.17

SHEET

V-200



A PROJECT LOCATION MAP
SCALE: 1 : 5

- NOTES:
1. THE CONTRACTOR IS RESPONSIBLE FOR CLEARING THE TRAIL FOR PROJECT ACCESS.
 2. REMOVE MINIMUM VEGETATION AS REQUIRED FOR ACCESS.

REV. NO.	DATE	REVISIONS

DATE: 1/09/19	DESIGNED: GCU	CHECKED: TCB	SCALE: AS NOTED	FILE: 1598.17-1005
---------------	---------------	--------------	-----------------	--------------------

PROJECT KODIAK ISLAND HABITAT ENHANCEMENT PROJECT (FISH PASSAGE); BID PACKAGE 3
LOCATION KODIAK, ALASKA
CLIENT U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING CATHERINE LAKE OUTLET WEIR LOCATION MAP

500 W 27th AVE., SUITE A
ANCHORAGE, ALASKA 99503
INTEGRAL-AL.COM

PHONE (907) 275-3334
FAX (907) 275-3334
integral-ak.com

BCE

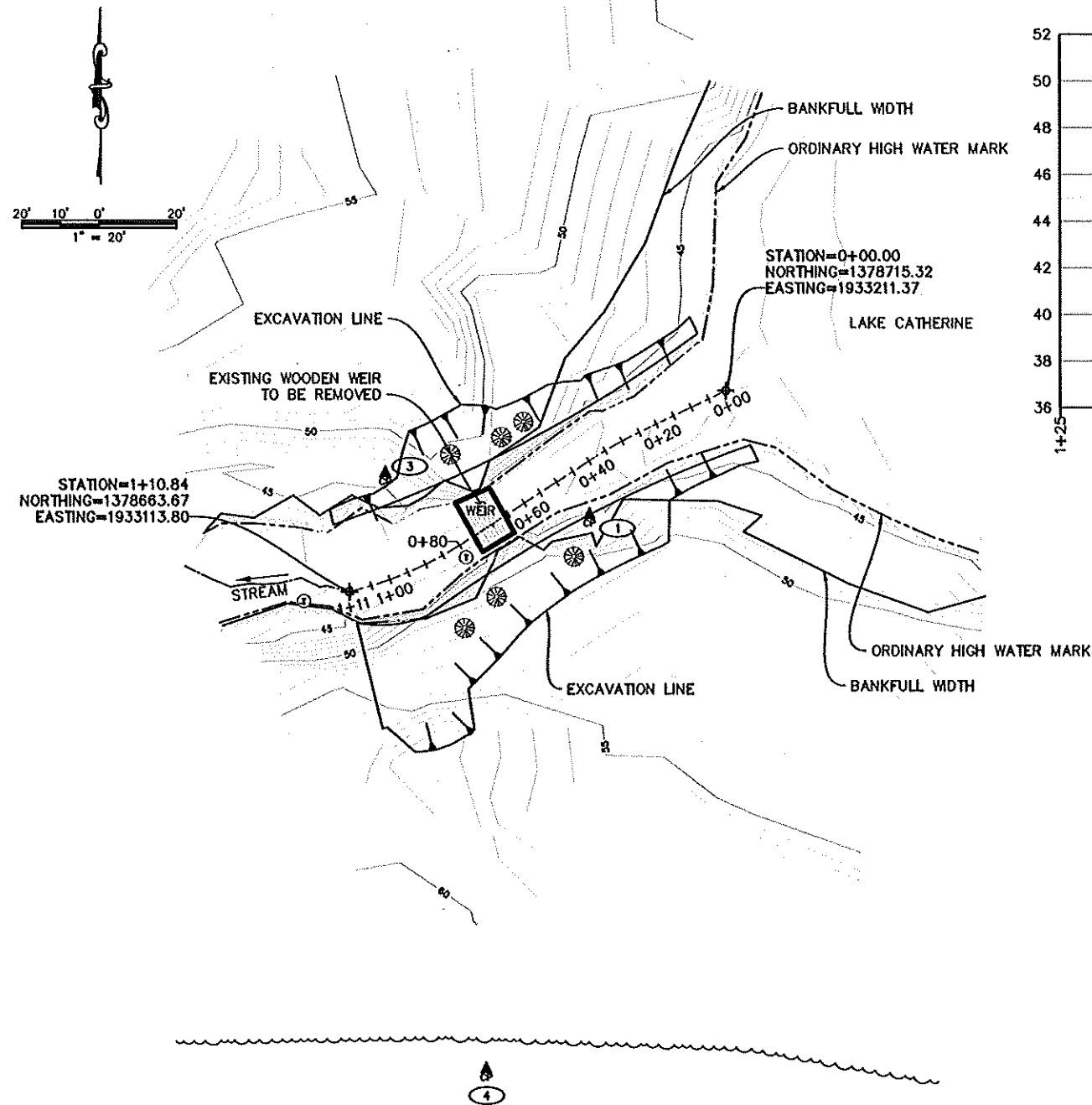
Beutler & Co.
CONSULTING ENGINEERS



JOB NO. 1598.17
SHEET C-200

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.



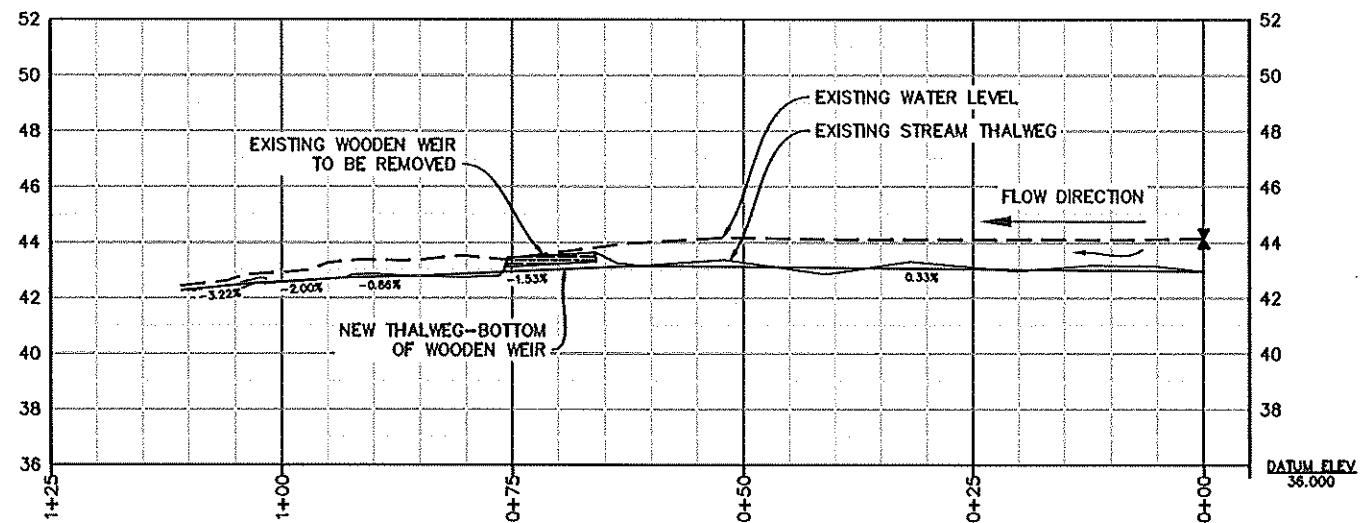
A CATHERINE LAKE OUTLET WEIR STREAM PLAN
SCALE: 1 : 20

SURVEY NOTES

1. THIS DRAWING IS BASED ON A FIELD SURVEY PERFORMED BY EDGE SURVEY AND DESIGN, LLC ON 10/9/2017.
2. THE BASIS OF HORIZONTAL CONTROL IS CONTROL POINT 1 (SEE COORDINATE TABLE)
3. COORDINATES SHOWN HEREON ARE ALASKA STATE PLANE ZONE 5, NAD83, U.S. SURVEY FEET.
4. DISTANCES SHOWN ARE ALASKA STATE PLANE ZONE 5, NAD83, U.S. SURVEY FEET DISTANCES.
5. ELEVATIONS SHOWN HEREON ARE BASED ON AN OPUS DERIVED NAVD88 ORTHOMETRIC HEIGHT, GEOID 12B, ON CONTROL POINT 1.

LEGEND

- SURVEY CONTROL POINT
- CONTROL POINT NUMBER
- THALWEG
- ORDINARY HIGH WATER LINE
- TREE LINE
- TRASH
- TREES - ASSUMED LOCATION, TO BE VERIFIED BY THE CONTRACTOR



B CATHERINE LAKE OUTLET WEIR STREAM PROFILE
SCALE: 1 : 10 (H) 1:3 (V)

CONTROL POINTS

POINT	NORTH	EAST	ELEVATION	DESCRIPTION
CP 1	1378682.29	1933175.86	45.15	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 3	1378693.01	1933123.08	45.98	SET PINK PLASTIC CAP ON 5/8" REBAR
CP 4	1378540.14	1933148.72	60.59	SET PINK PLASTIC CAP ON 5/8" REBAR

WEIR MEASUREMENT TABLE

LOCATION	TOP CHANNEL WIDTH	TOE CHANNEL WIDTH
WEIR UPSTREAM	15'	11'
WEIR DOWNSTREAM	16'	13'

GENERAL NOTES:

1. THE WORK INCLUDES REMOVAL AND LEGAL DISPOSAL OF THE EXISTING WOODEN WEIR AND DEBRIS IN THE STREAM.
2. WIDEN THE STREAM SIDE SLOPES AS SHOWN ON THE PLAN AND CROSS SECTIONS (DWG C-202 & C-203).
3. ALL DISTURBED OR EXCAVATED SIDE SLOPES WILL BE SEEDED IN ACCORDANCE WITH THE SPECIFICATIONS.
4. LEAVE THE STREAM BED AS-IS AFTER REMOVAL OF WOODEN WEIR.

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

PROJECT KODIAK ISLAND HABITAT ENHANCEMENT PROJECT
(FISH PASSAGE); BID PACKAGE 3

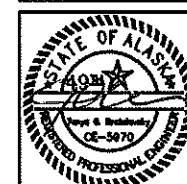
LOCATION KODIAK, ALASKA
CLIENT U.S. FISH & WILDLIFE SERVICE (FWS)

DRAWING CATHERINE LAKE OUTLET WEIR STREAM
PLAN & PROFILE

500 W 27th AVE., SUITE A
ANCHORAGE, ALASKA 99503
PHONE (907) 275-3334
FAX (907) 275-3334
WWW.BCE-AL.COM



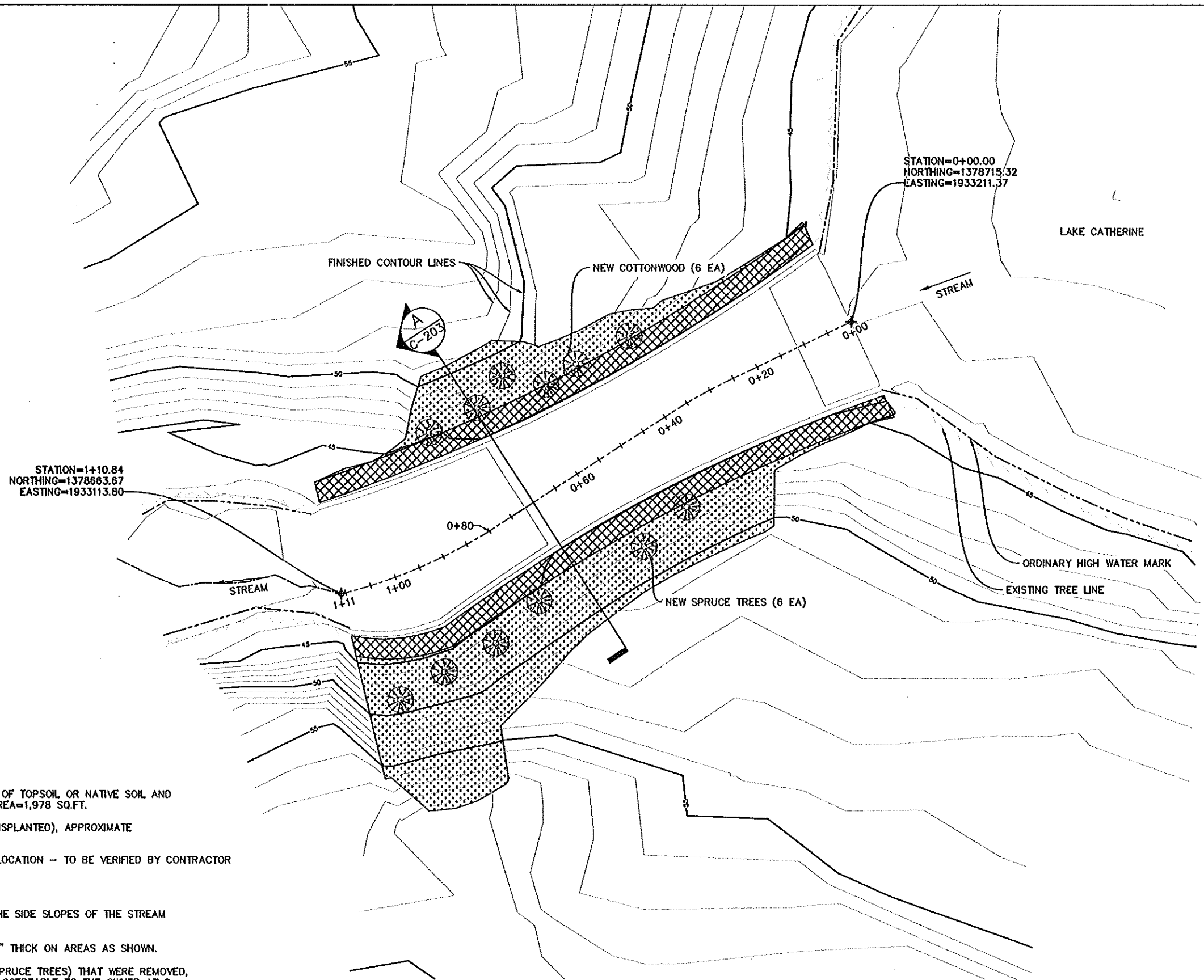
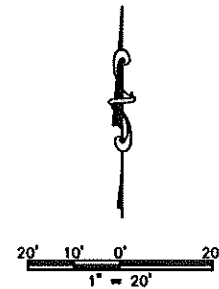
Beatty & Co.
CONSULTING ENGINEERS




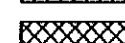
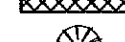
JOB NO. 1598.17

SHEET

C-201



PLAN KEY

-  COVER WITH 4 INCHES OF TOPSOIL OR NATIVE SOIL AND SEED, APPROXIMATE AREA=1,978 SQ.FT.
-  VEGETATIVE MAT (TRANSPLANTED), APPROXIMATE AREA=876 SQ.FT.
-  NEW TREES ASSUMED LOCATION - TO BE VERIFIED BY CONTRACTOR

NOTES:

1. FOR THE DISTURBED AREAS ON THE SIDE SLOPES OF THE STREAM APPLY TOPSOIL AND SEED.
2. INSTALL VEGETATIVE MAT 4" TO 9" THICK ON AREAS AS SHOWN.
3. ALL TREES (COTTONWOODS AND SPRUCE TREES) THAT WERE REMOVED, MUST BE REPLACED WITH TREES ACCEPTABLE TO THE OWNER AT 2 NEW TO 1 REMOVED TREE RATIO.

A CATHERINE LAKE OUTLET WER REVEGETATION PLAN
SCALE: 1 : 10

FINAL DESIGN - JANUARY 9, 2019


NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

REV. NO.	DATE	REVISIONS

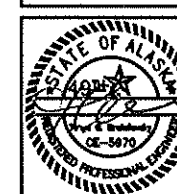
DATE	1/09/19
DESIGNED	CDU
DRAWN	TCB
CHECKED	TCB
SCALE	AS NOTED
FILE	1598.17-1005

PROJECT	KODIAK ISLAND HABITAT ENHANCEMENT PROJECT
LOCATION	(FISH PASSAGE); BID PACKAGE 3
CLIENT	U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING	CATHERINE LAKE OUTLET WER REVEGETATION PLAN

300 W 27th AVE, SUITE A
ANCHORAGE, ALASKA 99503
BCE ENGINEERING

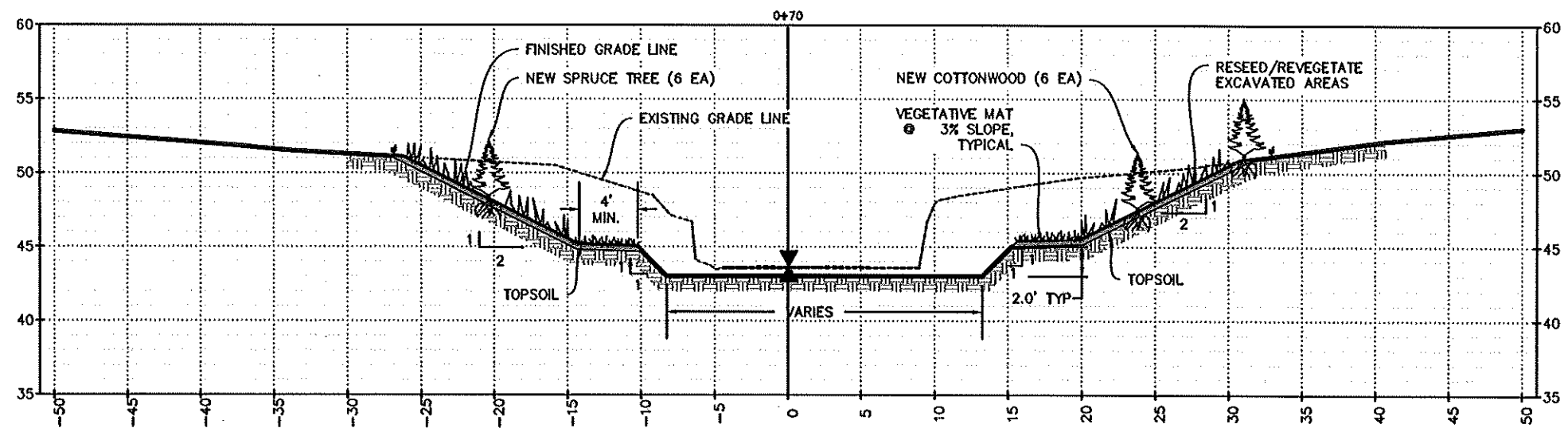

Beatty & Co.
CONSULTING ENGINEERS

PHONE (907) 275-3384
FAX (907) 275-0234
WWW.BCE-AL.COM



JOB NO.	1598.17
---------	---------

SHEET	C-202
-------	-------



A TYPICAL CROSS SECTION
SCALE: 1 : 5

FINAL DESIGN - JANUARY 9, 2019

NOTE: FOR 11"x17" DRAWINGS, USE HALF THE INDICATED SCALE.

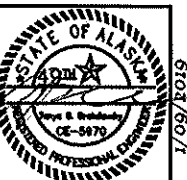
REV. NO.	DATE	REVISIONS

DATE	1/09/19
DESIGNED	
DRAWN	CDU
CHECKED	TOS
SCALE	AS NOTED
FILE	1598.17-1005

PROJECT	KODIAK ISLAND HABITAT ENHANCEMENT PROJECT
LOCATION	(FISH PASSAGE); BID PACKAGE 3
CLIENT	U.S. FISH & WILDLIFE SERVICE (FWS)
DRAWING	CATHERINE LAKE OUTLET WEIR TYPICAL CROSS SECTION

300 W 27th AVE. SUITE A
ANCHORAGE, ALASKA 99503
PHONE (907) 275-0384
FAX (907) 275-0384
WWW.BCEENGINEERING.COM

BCE
Beaumont Consulting Engineering
CONSULTING ENGINEERS



JOB NO. 1598.17

SHEET
C-203

1/09/2019