MEPNN Supplier Scouting Opportunity Synopsis

Section 1: General Information

Scouting Number	2025-193
Item to be Scouted	Single radius aluminum arch culvert and plate materials
Days to be scouted	30
Response Due By	07/18/2025
Description	Aluminum structural plate single radius arch culvert, head walls and wing walls
State item to be used in	Alaska

Section 2: Technical Information

Type of supplier being sought	Manufacturer
Reason	BABA
Describe the manufacturing processes (elaborate to provide as much detail as possible)	Final manufacturing processes including corrugating, punching, curving, special fabrication and optional zinc priming shall be performed in the United States of America at a common location.
Provide dimensions / size / tolerances / performance specifications for the item	15'-0" span, 7'-9" rise, with approx (2) 20' x 13' head walls and (4) 13.5' x 13' wing walls
List required materials needed to make the product, including materials of product components	Aluminum plate
Are there applicable certification requirements?	No
Are there applicable regulations?	No
Are there any other stndards, requirements, etc.?	No
Additional Technical Comments	Basis of Design is Contech aluminum structural plate culvert. https://www.conteches.com/bridges-structures/plate/aluminum-structural-plate/

Section 4: Business Information

Estimated potential business volume	one-time order of one unit
Estimated target price / unit cost information (if unavailable explain)	Best available, as this is related to BABA, acceptable pricing is to be determined in negotiation.
When is it needed by?	3 months
Describe packaging requirements	Best available. Delivered undamaged. Specifics discussed in negotiation.
Where will this item be shipped?	Sitka, Alaska

Additional Comments

Is there other information you would like to include?	Culvert will be part of a future bid package. Looking to verify availability of BABA compliant culvert structures prior to advertisement. Agency Providing funds: Commerce, U.S. Department of / National Oceanic and Atmospheric Administration (NOAA) Contact: Debbie Maas debbie.maas@alaska.gov

ALUMINUM STRUCTURAL PLATE SPECIFICATIONS

1.0 GENERAL

1.1 This specification covers the design, manufacturing and installation of the ALUMINUM STRUCTURAL PLATE 9 inch x 2-1/2 inch corrugated aluminum structural plate structure detailed in the plans.

1.2 Qualified Suppliers

(a) Each bidder is required to identify their intended bridge supplier as part of the bid submittal. Qualified suppliers must have at least fifteen (15) years experience fabricating equal or larger type structures.

(b) Pre-Approved Manufacturer:
Contech Engineered Solutions LLC
700 Tech Drive
Winchester, KY 40391

(c) Suppliers other than those listed above may be used provided the owner's agent evaluates the proposed supplier and approves the supplier 14 business days prior to bid.

(d) The contractor must provide the following documentation, for any proposed Supplier who is not pre-approved, at least 14 business days prior to bid:

- Product Literature
- All documentation to ensure substitution will be in compliance with these specifications.
- Project specific representative drawings for bridge projects listed above with material, complete design calculations and design specification references.

(e) Proposed suppliers must have at least fifteen (15) years experience designing these types of structures and a minimum of fifteen (15) successful projects, of similar shape and construction as specifically written in these specifications and drawings, each of which has been in service at least three (3) years. List the location, shape, size, owner, and a contact for reference for each project.

(f) The owner's agent will evaluate and verify the accuracy of the submittal prior to bid. If the owner's agent determines that the qualifying criteria have not been met, the contractor's proposed supplier shall be rejected. This ruling shall be final.

1.3 The required structure will be designated by standard applicable catalog structure number, span, rise and plate N.

1.4 N shall equal 9.625 inches.

1.5 Cover over the structure shall be determined from the crown of the structure to the bottom of flexible pavement or top of rigid pavement.

2.0 DIMENSIONS

2.1 **Span**: Maximum span shall be ____ ft - ____ in
Bottom span shall be ____ ft - ____ in
Span shall be determined at the inside corrugations

2.2 **Rise**: Total rise shall be ____ ft - ____ in
Top rise shall be ____ ft - ____ in (from spring line to crown)
Rise shall be determined at the inside corrugations

2.3 **Thickness**: Plate thickness shall be _____ in for all plates or as described _____
Plate properties shall conform to Table 1.

2.4 **Ribs**: Reinforcing ribs shall be Type II, Type IV or Type VI as required by curving radii and plate and rib composite section properties in Table 2.

2.5 **Corrugation:** The Aluminum Structural Plate shall have 9 inch x 2-1/2 inch annular corrugations. The corrugation profile shall have AASHTO recognition for a minimum of 15 years.

3.0 DESIGN [specifier: chose one]

3.1 **Design Criteria**: The design of the structure shall be in accordance with:
❑ AASHTO Standard Specification For Highway Bridges 17th Edition with interim revisions Section 12 Working Stress Design.
❑ AASHTO LRFD Bridge Design Specifications 2012 Section 12 Load Resistance Factor Design.
❑ AREMA Manual for Railway Engineering 2012 Edition Working Stress Design
❑ ASTM B790 Standard Practice for Structural Design of Corrugated Aluminum Pipe, Pipe-Arches, and Arches for Culverts, Storm Sewers, and Other Buried Conduit.

3.2 **Design Loads:** Design loads shall be specified by the Engineer. Construction loads and any temporary loads exceeding the service live load are not allowed on the structure without approval from the Engineer.

(a) The Engineer shall specify the materials and extents of the foundations or bedding and backfill material within the critical backfill zone with consideration of structure shape and in situ conditions.

(b) The Engineer shall consider the structural capacity of trench walls or adjacent embankments to provide balanced soil loads on the structure.

(c) The Engineer shall consider hydraulic forces on the ends of the structure. End treatment such as headwalls, slope collars, slope paving or cut-off walls shall be considered to protect the backfill and provide stability and protection to the ends of the structure as well as to prevent erosion or washout.

(d) The Engineer shall consider scour effects on the structure foundation. The use of scour counter-measures shall be considered for strip footings. The

Engineer shall consider potential washout/undermining effects on the invert. The use of a toewall at the ends of a structure or a paved invert shall be considered.

3.3 **Shop Drawings**: Shop drawings and design calculations shall be prepared and submitted to the owner for approval. The contractor shall be responsible for verification of all field dimensions prior to fabrication.

3.4 **Aluminum Box Culverts**: Shall conform to ASTM B864.

4.0 MATERIALS

4.1 **Structural Plate**: Aluminum Structural Plate shall consist of plate, ribs and appurtenant items as shown on the plans and shall conform to the requirements of AASHTO M219 or ASTM B746 and Table 1

Table 1 – ALUMINUM STRUCTURAL PLATE - 9x2-1/2 Corrugated Plate Section Properties

Nominal Thickness (in)	Moment of Inertia (in^4/ft)	Section Modulus (in^3/ft)	Radius of Gyration (in)	Area of Section (in^2/ft)
*0.100	0.997	0.767	0.844	1.404
0.125	1.248	0.951	0.844	1.750
0.150	1.499	1.131	0.845	2.100
0.175	1.751	1.309	0.845	2.449
0.200	2.004	1.484	0.846	2.799
0.225	2.258	1.657	0.847	3.149
0.250	2.513	1.828	0.847	3.501

*0.100 inch thick plate shall be used for un-curved elements only.

Table 2 – ALUMINUM STRUCTURAL PLATE/RIB Composite Section Properties

	Metal Thickness (inches)					
Rib Type @ Spacing	0.125	0.150	0.175	0.200	0.225	0.250
Plastic Moment Capacity, Mp (kip-ft/ft)						
No Rib	2.65	3.18	3.71	4.24	4.77	5.30
Type II @ 54	4.62	5.46	6.04	6.61	7.17	7.74
@ 27	6.18	7.25	7.94	8.60	9.25	9.87
@ 18	7.41	8.66	9.48	10.26	11.00	11.71
@ 9	10.63	12.13	13.08	14.05	15.03	16.02
Type IV @ 54	5.87	6.82	7.43	8.04	8.63	9.21
@ 27	8.32	9.59	10.39	11.14	11.85	12.55
@ 18	10.42	11.90	12.84	13.72	14.57	15.39
@ 9	16.45	18.46	19.41	20.38	21.37	22.37
Type VI @ 54	8.74	9.51	10.24	10.95	11.64	12.32
@ 27	13.76	14.33	15.16	16.19	17.36	17.48
@ 18	20.09	20.56	20.79	21.30	21.74	22.58
@ 9	32.24	34.35	36.46	38.54	39.88	40.63

4.2 **Aluminum Alloy - Plate:** Plates shall be fabricated from 5052-H141 aluminum alloy conforming to AASHTO M219 or ASTM B209.

4.3 **Aluminum Alloy – Ribs:** Ribs shall be fabricated from 6061-T6 aluminum alloy conforming to ASTM B221.

4.4 **Fasteners:**

4.4.1 Steel Nuts and bolts shall conform to AASHTO M232 and M291 or ASTM A307, Grade A (bolts) and A563, Grade A (nuts).

4.4.2 Aluminum nuts and bolts (if required) shall conform to ASTM B746. The structural design shall conform to the provisions of AASHTO Standard Specifications for Highway Bridges Section 12.6.2.

4.5 **Field Applied Bituminous (Asphalt) Coating:** If specified, field applied bituminous coating shall conform to AASHTO M190.

5.0 FABRICATION AND QUALITY CONTROL

5.1 Final manufacturing processes including corrugating, punching, curving, special fabrication and optional zinc priming shall be performed in the United States of America at a common location.

5.2 All raw materials shall be traceable and certified by the mill for material composition and physical properties.

6.0 INSTALLATION

6.1 **Assembly:** The structure shall be assembled in accordance with the shop drawings and plate layout provided by the manufacturer. Bolts shall be tightened to an applied torque between 100 and 150 ft-lbs.

6.2 **Installation:** The structure shall be installed in accordance with AASHTO Standard Specifications for Highway Bridges Section 26 or ASTM A807, the plans and specifications, and the manufacturer's recommendations.

(a) The Contractor shall provide footings as required per the plans and specifications.

(b) The Contractor shall provide proper bedding and backfill to avoid distortion that may create undesirable stresses in the structure and/or settlement of the roadway. The bedding shall be free of rock formations, protrusions, frozen material or organic material.

6.3 **Backfill:** The structure shall be backfilled using clean, well graded granular materials that meets the requirements of AASHTO M145 soil classifications A-1, A-2 or A-3. Aluminum box culverts shall be backfilled with A-1, A-2-4, A-2-5 or A-3 material.

(a) Backfill materials shall be placed in symmetrical lifts on each side of the structure. The differential between the lifts on either side shall not exceed 24 inches. Each layer of soil shall be placed in 6 to 8 inch loose lifts and compacted to a minimum of 90% density per AASHTO T99 or ASTM D698 (Standard Proctor). Aluminum box culverts shall be compacted to 90% density per AASHTO T180 or ASTM D1557 (Modified Proctor).

(b) Backfill soils shall be free of rocks exceeding 3 inches, frozen lumps, ice, organic matter and foreign materials that could cause hard spots or decompose to create voids.

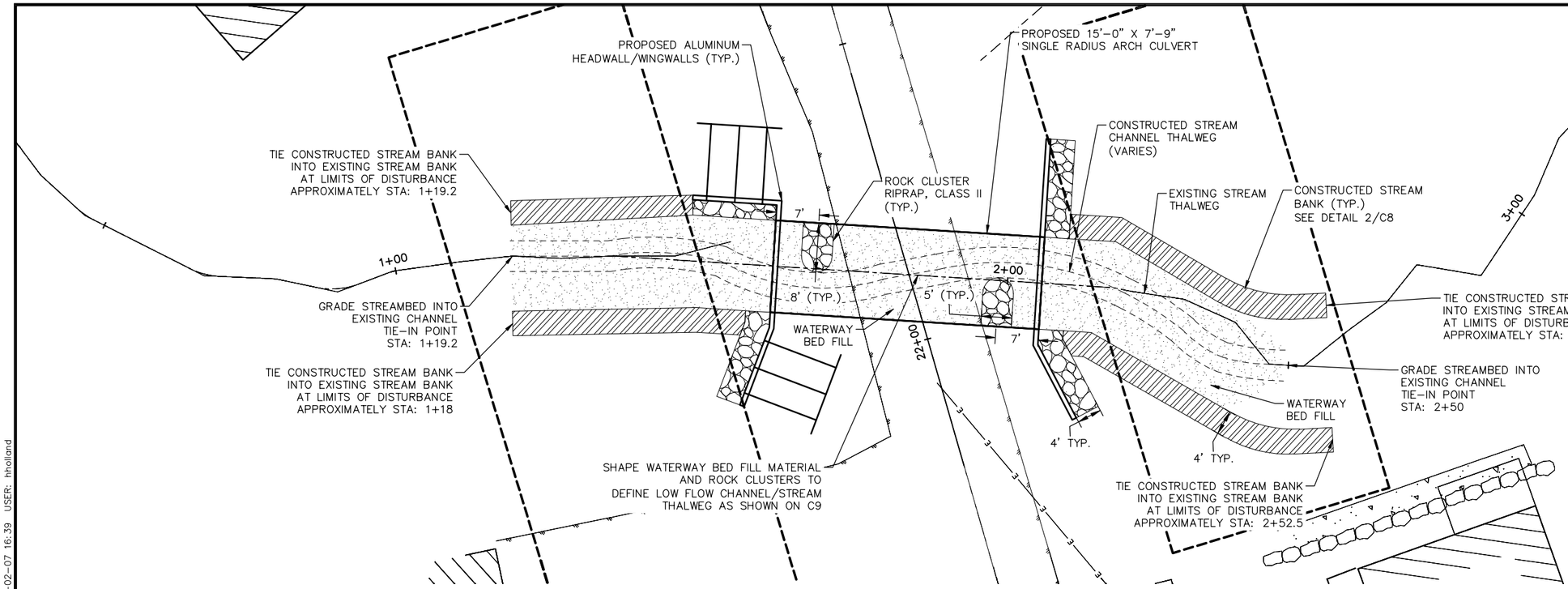
(c) The presence of a high percentage of silt or fine sand in the native soils suggests the need for well graded granular material in the critical backfill zone or

the use of non-woven geotextile to prevent soil migration.

(d) During backfilling operations, only small tracked construction equipment (such as a D-4 dozer or smaller) shall be near the structure as fill progresses above the crown and to the minimum height of cover. After adequate cover and compaction is achieved, live loads may increase at the direction of the Engineer.

6.4 **Critical Backfill Zone:** The Engineer shall determine the extents of the critical backfill zone and provide a detail on the plans.

Revised February 2014



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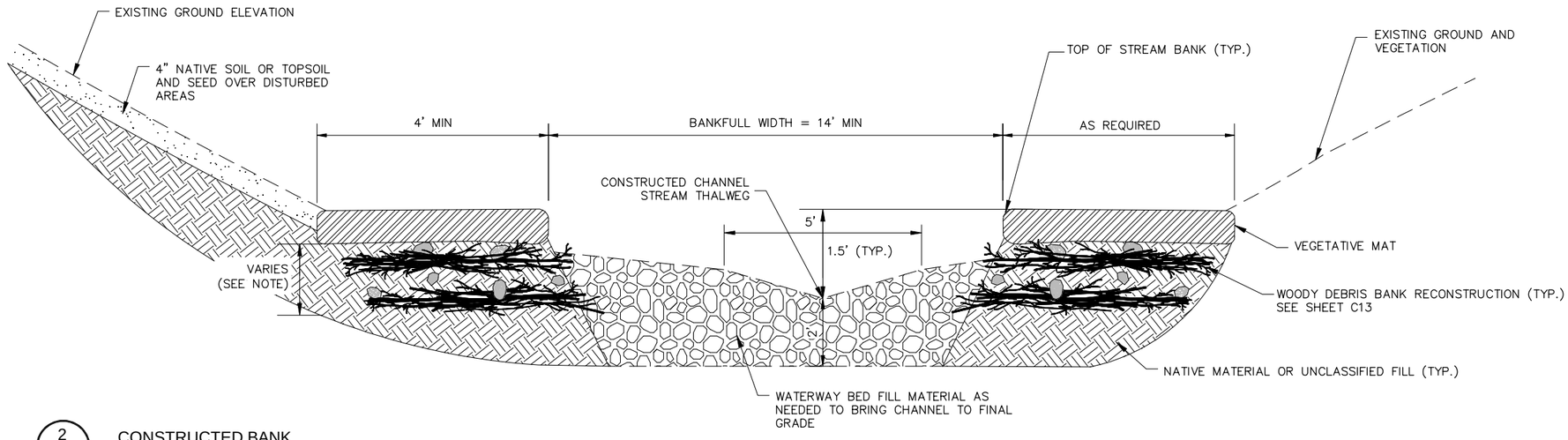
C8

STREAM SIMULATION DETAIL - PLAN VIEW



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C8

CONSTRUCTED BANK

NTS

NOTES:

1. SALVAGED VEGETATIVE MAT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND BE SOURCED FROM THE DISTURBED AREA OR LOCAL AREA COORDINATED WITH CBS.
2. VEGETATIVE MAT WITH THICKNESS LESS THAN 12 INCHES MAY BE USED WITH TOPSOIL BELOW TO BRING THE TOTAL THICKNESS TO 12 INCHES.
3. GRADE TO STREAM THALWEG SHOWN IN PROFILE ON C7.
4. IF FILL IS REQUIRED TO CONSTRUCT CHANNEL TO DIMENSIONS SHOWN, USE WATERWAY BED FILL MATERIAL AND COORDINATE CHANNEL RECONSTRUCTION WITH HABITAT PERSONNEL (USFWS OR ADF&G) ON SITE.
5. PLACEMENT OF WATERWAY BED FILL MATERIAL FOR CONSTRUCTED BANK DETAIL IS SUBSIDIARY TO PAY ITEM 55.02.
6. TAPER BANKS AND TIE INTO EXISTING BANKS UPSTREAM AND DOWNSTREAM, AS DIRECTED BY THE ENGINEER.

REVISIONS

REV	DATE	DESCRIPTION	BY

NOT FOR CONSTRUCTION

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WACHUSETTS STREET FISH PASSAGE
CULVERT IMPROVEMENTS
STREAM DESIGN DETAILS
SITKA, ALASKA

PROJECT 11136.62907.01
DATE FEBRUARY 2025

SHEET
C8 OF C13

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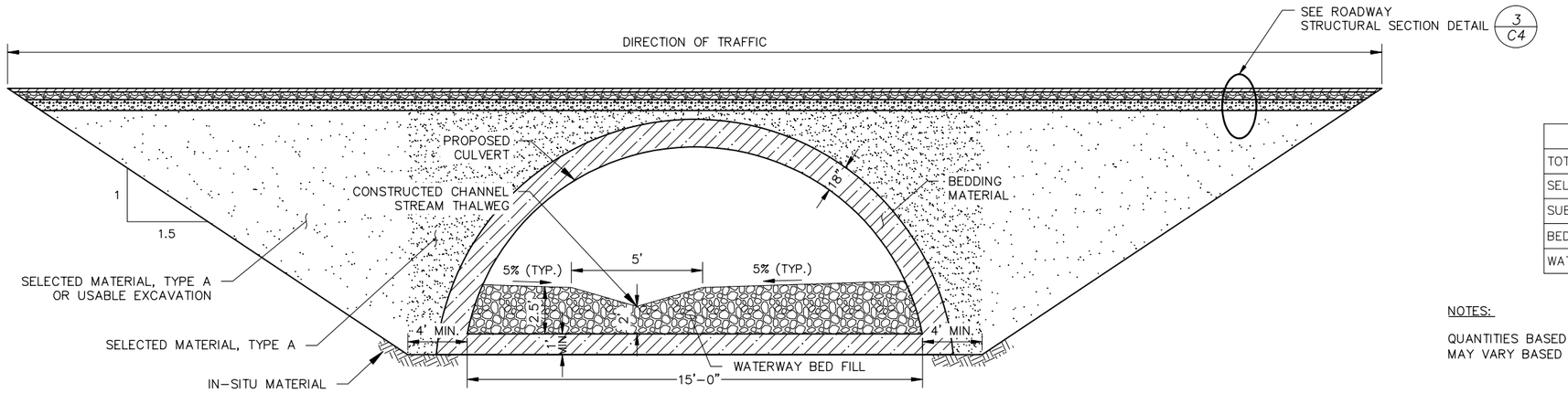


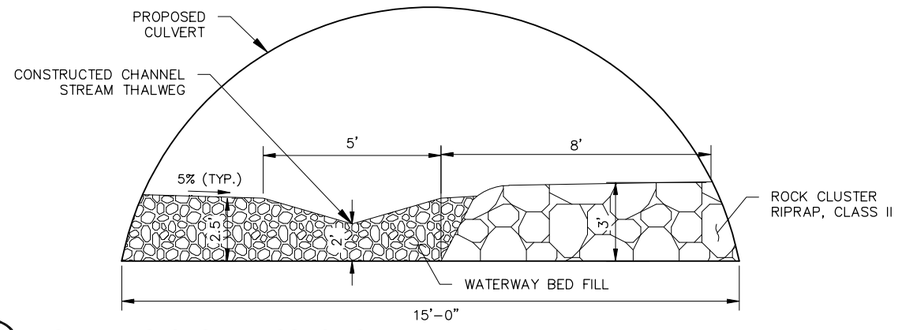
1/C9 TYPICAL CULVERT SECTION

NTS

ITEM	QUANTITY
TOTAL EXCAVATION	1,420 CY
SELECTED MATERIAL, TYPE A	1,000 CY
SUBBASE, GRADING B	66 CY
BEDDING MATERIAL	110 CY
WATERWAY BED FILL	135 CY

NOTES:

QUANTITIES BASED ON DESIGN ASSUMPTIONS SHOWN ON PLANS AND MAY VARY BASED ON CONTRACTOR'S CONSTRUCTION METHODS.



2/C9 CULVERT SECTION AT ROCK CLUSTER

NTS

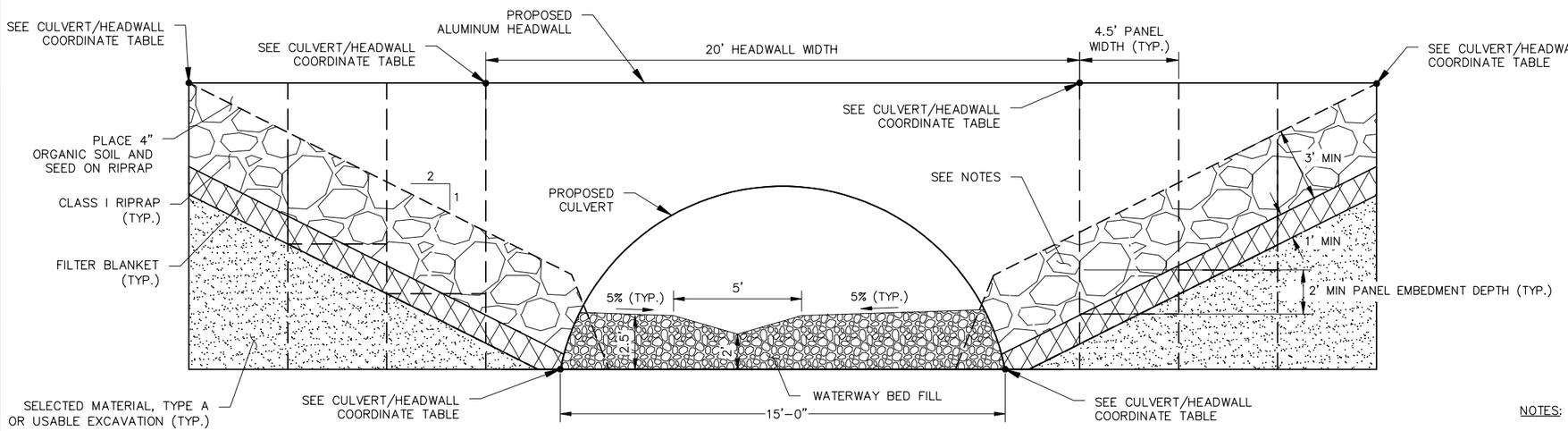
NOTES:

1. FILL VOIDS IN FOR WATERWAY BED FILL AND WASH FINES IN AFTER PLACEMENT.
2. FILL VOIDS IN ROCK CLUSTERS WITH SELECTED MATERIAL, TYPE A OR USABLE EXCAVATION MEETING SELECTED MATERIAL, TYPE C.

CULVERT/HEADWALL COORDINATE TABLE				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	5197.92	5678.95	40.42	BOTTOM CULVERT INLET, EAST
2	5199.35	5664.02	40.42	BOTTOM CULVERT INLET, WEST
3	5154.23	5674.78	39.97	BOTTOM CULVERT OUTLET, EAST
4	5155.66	5659.85	39.97	BOTTOM CULVERT OUTLET, WEST
5	5211.37	5682.74	52.24	TOP INLET HEADWALL, EAST END
6	5197.68	5681.44	52.24	TOP INLET HEADWALL, EAST HINGE
7	5199.58	5661.53	52.24	TOP INLET HEADWALL, WEST HINGE
8	5204.79	5649.07	52.24	TOP INLET HEADWALL, WEST END
9	5152.71	5690.71	51.39	TOP OUTLET HEADWALL, EAST END
10	5153.99	5677.27	51.39	TOP OUTLET HEADWALL, EAST HINGE
11	5155.89	5657.36	51.39	TOP OUTLET HEADWALL, WEST HINGE
12	5150.02	5645.21	51.39	TOP OUTLET HEADWALL, WEST END

4/C9 HEADWALL/WINGWALL LAYOUT

NTS



3/C9 HEADWALL/WINGWALL END VIEW AND RIPRAP SLOPE PROTECTION

NTS

WATERWAY BED FILL	
SIZE (IN.)	PERCENT PASSING
9	100%
6	90%
4	65%-85%
2	40%-60%
#10	5% MIN.
#200	15% MAX.

NOTES:

1. FILL VOIDS IN RIPRAP SLOPE PROTECTION WITH SELECTED MATERIAL, TYPE A OR USABLE EXCAVATION MEETING SELECTED MATERIAL, TYPE C.
2. PLACE SALVAGED ORGANIC TOPSOIL AND SEED ON SURFACE OF PLACED RIPRAP PER SPECIFICATION SECTION 20.24.

REVISIONS

REV	DATE	DESCRIPTION	BY

NOT FOR CONSTRUCTION

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WACHUSETTS STREET FISH PASSAGE
CULVERT IMPROVEMENTS
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SITKA, ALASKA

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SHEET

C9 OF C13