

MA 18P 2002040000000000105
MODIFICATION

State of Maine



Master Agreement

Effective Date: 03/01/20

Expiration Date: 02/28/23

Master Agreement Description: Culverts, Metal & Reinforced HDPE, TriState - ME,NH,VT

Buyer Information

William Allen 207-624-7871 ext. NULL WJE.Allen@maine.gov

Issuer Information

Sharon Krechkin 207-624-3038 ext. sharon.krechkin@maine.gov

Requestor Information

Theresa Spooner 207-435-7963 ext. 210 theresa.spooner@maine.gov

Agreement Reporting Categories

Reason For Modification: Extended Contract Pricing: DOT negotiated price increase due to current market conditions. The pricing structure will be reviewed with the vendor in late June 2022 and adjusted if the market has changed.

Authorized Departments

17A TRANSPORTATION
ALL

Vendor Information

Vendor Line #: 1

Vendor ID

VC1000018083

Vendor Name

CONTECH ENGINEERED SOLUTIONS LLC

Alias/DBA

Vendor Address Information

71 US Route 1, Suite F

Scarborough, ME 04074

US

Vendor Contact Information

steve wolf
802-233-9110 ext.
swolf@conteches.com

Payment Discount Terms

Discount 1:	0.5000%	10	Days
		0	Days
		0	Days
		0	Days

Commodity Information

Vendor Line #: 1
Vendor Name: CONTECH ENGINEERED SOLUTIONS LLC
Commodity Line #: 2
Commodity Code: 91339
Commodity Description: Culverts, Metal & Reinforced HDPE, TriState - ME,NH,VT
Commodity Specifications:
Commodity Extended Description: Culverts, Metal & Reinforced HDPE, TriState - ME,NH,VT. Maine is the Lead State.

Quantity	UOM	Unit Price
0.00000		0.000000
Delivery Days	Free On Board	
21		
Contract Amount	Service Start Date	Service End Date
0.00		
Catalog Name	Discount	
Contech	0.0000 %	
	Discount Start Date	Discount End Date
	03/01/20	02/28/23

Commodity Information

Vendor Line #: 1
Vendor Name: CONTECH ENGINEERED SOLUTIONS LLC
Commodity Line #: 3
Commodity Code: 91339
Commodity Description: Freight Charges, CONTECH ENGINEERED SOLUTIONS LLC
Commodity Specifications:
Commodity Extended Description: Freight Charges, CONTECH ENGINEERED SOLUTIONS LLC

Quantity	UOM	Unit Price
0.00000		0.000000
Delivery Days	Free On Board	
21		
Contract Amount	Service Start Date	Service End Date
0.00	03/01/20	02/28/23
Catalog Name	Discount	
	0.0000 %	
	Discount Start Date	Discount End Date

Please see authorized signatures displayed on the next page

Each signatory below represents that the person has the requisite authority to enter into this Contract.
The parties sign and cause this Contract to be executed.

State of Maine - Department of Administrative and Financial Services

DocuSigned by:
 2/11/2022
6D6437754DD0459...

Signature Date

Jaime C. Schorr, Chief Procurement Officer

and

ONTECH ENGINEERED SOLUTIONS LLC

DocuSigned by:
 2/11/2022
1AD7DBDFF78F4D6...

Signature Date

Stephen S. Wolfe, NNE Sales Manager

State of Maine – Department of Administrative and Financial Services
Division of Procurement Services
9 State House Station
Augusta, Maine 04333-0009

Contract Number
MA 200204*105

Tel. (207) 624-7340

EXTENSION OF MASTER AGREEMENT CONTRACT

Commodity Item: Culverts, Metal & Reinforced HDPE, Tri-State - ME, NH, VT

Contractor: CONTECH ENGINEERED SOLUTIONS LLC

Contract Period Extended Through: February 28, 2023

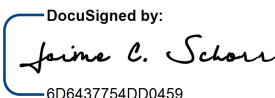
Extended Contract Pricing: DOT negotiated price increase due to current market conditions. The pricing structure will be reviewed with the vendor in late June 2022 and adjusted if the market has changed. New prices to go into effect March 1, 2022.

Scope Change: New Hampshire and Vermont can participate with this extended master agreement contract or they may negotiate their own contracts.

Dollar value the vendor has recorded that State of Maine has spent on commodities and/or services covered by this contract over the last twelve months: \$ 982,000 in 2021 thru december

Agreement to extend Master Agreement 18P – 20020400000000000105 authorized by:

State of Maine – Department of Administrative and Financial Services

DocuSigned by:

6D6437754DD0459...

Jaime C. Schorr, Chief Procurement Officer

Date 2/11/2022

and

CONTECH ENGINEERED SOLUTIONS LLC

DocuSigned by:

1AD7DBDFE78F4D6...

Stephen S. Wolfe, Northern New England Sales Manager

Date 2/11/2022

RIDERS

<input checked="" type="checkbox"/>	The following riders are hereby incorporated into this Contract and made part of it by reference: (check all that apply)
<input checked="" type="checkbox"/>	Rider A – Scope of Work and/or Specifications
<input checked="" type="checkbox"/>	Rider B – Terms and Conditions
<input type="checkbox"/>	Rider C - Exceptions
<input checked="" type="checkbox"/>	Bid Cover Page and Debarment Form – Appendix A from RFQ
<input checked="" type="checkbox"/>	Municipality Political Subdivision and School District Participation Certification – Appendix D from RFQ
<input checked="" type="checkbox"/>	Bid Product Information
<input type="checkbox"/>	Optional

RIDER A
Scope of Work and/or Specifications
MA 200204-105

Commodity: Culverts, Metal & Reinforced HDPE, TriState - ME,NH,VT

Master Agreement Competitive Bid RFQ: 17A 200113-207 – Maine is the lead state.

Contract Period: Through February 28, 2022. The State of Maine with vendor approval can opt to issue up to two (2) one (1) year extensions. *First extension through February 28, 2023*

Vendor Contact Person: The vendor contact person will help consumers place orders, inquire about orders that have not been delivered, all shipping issues, quality issues and any issues pertaining to the Master Agreement (MA) contract. All orders not submitted through a Delivery Order will be sent through the vendor contact person. The vendor contact person for this MA is:

Name: Stephen Wolf **Tel:** 802-233-9110 **Email:** swolf@conteches.com

Prices: Prices are with shipping terms of “Free on Board (FOB) – Destination”. The State intends for this to mean that all goods shall be priced to include shipping charges, if any, to the State’s desired location. The “FOB – Destination” shipping term is also intended to mean that the State shall not bear any responsibility for the goods in question until the State takes possession of them at the destination point of delivery.

Freight Charges: The vendor will only charge actual freight costs from the vendor to the delivery point. Any using department or agency can request actual bills of lading or invoices from freight companies for freight charge verification. If there is an overcharge, the vendor will be required to refund the balance of the freight charge plus administrative costs.

Quantities: It is understood and agreed that the MA will cover the actual quantities required by the State over the length of the contract.

Ordering Procedures: Delivery Orders (DO) will be created in AdvantageME for all orders over \$5000.00. If a DO is used, the DO will be emailed to the email address referenced on the MA as a .pdf file. Orders less than \$5000.00 can be placed using a State of Maine issued P-Card (credit card).

Using Departments: All State of Maine Departments can utilize this Master Agreement Contract. The primary using department will be The Department of Transportation.

Shipping Points: The items covered by this MA may be requested for and expect to be shipped to any State of Maine owned facility. The primary delivery points will be in Scarborough, Augusta, Washington, Dixfield, Solon, Charleston, Jonesboro, Presque Isle

Delivery: The vendor is responsible for the delivery of material in first class condition at the point of delivery, and in accordance with good commercial practice.

Delivery Times: All deliveries must be made during normal working hours. Generally this is to mean between 8:00 am and 3:00 pm.

Delivery Notification: The vendor must notify the ordering department minimally two (2) business days in advance of delivery. If there is a scheduled holiday the vendor must provide minimally three (3) business days notice. Each State has their own holiday schedule and the vendor is responsible for obtaining these schedules. Deliveries attempted to be made without the required notification can be rejected and the State will not be held responsible for the extra delivery charges. If delivery occurs after normal working hours, acceptance or rejection shall be at the convenience of the State.

Delivered Items Condition: The items being delivered must in good condition upon arrival. The State shall not bear any responsibility for the goods in question until the State takes possession of them at the destination point of delivery. The pipe will be accepted or rejected at the time of delivery. The unloading shall be a mutual effort between State and Supplier. The State will not be responsible for the costs of material or return shipping costs for items returned due to poor condition.

Specifications

METAL CULVERTS AND STORM DRAINS

DESCRIPTION. The work shall consist of furnishing and delivering culverts and under-drains (as applicable) of the following type:

Metal:

GCMP, Galvanized Corrugated Metal Pipe and Under-drains.
ALCCMP, Aluminum Coated Corrugated Metal Pipe (Type 2) and Under-drains.
PPGCMP, Polymer Pre-coated Galvanized Corrugated Metal Pipe and Under-drains
CAAP, Corrugated Aluminum Alloy Pipe and Under-drains

MATERIALS.

603.023 CORRUGATED STEEL PIPE AND UNDER-DRAINS

Corrugated steel pipe, under-drain and coupling bands shall conform to the requirements of AASHTO M36 and Attachments B and C as applicable. Material furnished under this Subsection shall be formed from sheet material coated in accordance with AASHTO M218 and M274.

- a) Coupling Bands. Coupling bands shall conform to AASHTO M36 and Attachment C, with the following modifications:

- (1) Coupling bands and their connections shall be of such dimensions as required to meet the "Erosion Special Joint" category criteria of Division II of the AASHTO

Standard Specifications for Highway Bridges. Structural steel for band connections shall conform to ASTM A 36/A 36M.

- (2) The only approved methods of connection and connection details at the ends of the bands shall be:
- a. $2 \times 2 \times 3/16$ inch galvanized steel angles extending the full width of the band.
 - b. 12 gauge die-cast angle with a configuration that provides at least the same section modulus as the $2 \times 2 \times 3/16$ inch angle, extending the full width of the band.
 - c. Minimum of two bolts for a 7 inch wide band, three bolts for a 12 inch wide band, and five bolts for a 24 inch wide band, uniformly spaced. Bolts, nuts, and other threaded items used with coupling bands shall be coated by the electroplating process as provided in ASTM B 633, Class Fe/Zn 25 the zinc coating process as provided in AASHTO M 232M/M 232 or the mechanical zinc coating process as provided in AASHTO M 298, Class 25.
 - d. Angles will be connected to bands by one of the following:
 1. Spot welds spread over full width of the band,
 2. Stitch-welded over the full width of the band, or
 3. Attached by rivets.
- (3) Minimum band thickness shall be $1/16$ inch, and bands shall be no more than two nominal sheet thicknesses thinner than the wall thickness of the culvert or unit being connected. Coupling bands and die-cast angles may be formed from any one of the three types of sheet material specified above.
- (4) The use of projection pipe coupling (dimpled) bands or preformed channel bands is not allowed.
- (5) The Contractor may submit for approval to the Agency alternate coupling bands. The Contractor shall allow 30 days for a testing and evaluation period. Coupling bands shall not be shipped to projects until the Contractor has been notified that the proposed band has been approved by the Agency.
- b) Under-drain: Under-drain perforations shall be Class 1.

603.024 CORRUGATED ALUMINUM ALLOY PIPE AND UNDER-DRAINS.

Corrugated aluminum alloy pipe, under-drain, and coupling bands shall conform to the requirements of AASHTO M 196 and Attachments B and C.

- a) Coupling Bands. Coupling bands shall conform to AASHTO M 196 and Attachment C, with the following modifications:

- (1) Coupling bands and their connections shall be of such dimensions as required to meet the "Erosion Special Joint" category criteria of Division II of the AASHTO Standard Specifications for Highway Bridges.
- (2) Coupling band connections:
 - a. Shall be $2 \times 2 \times 1/4$ inch aluminum angles (Alloy 6061-T6) extending the full width of the band or 12 gauge minimum die-cast aluminum angles, extending the full width of the band.
 - b. Shall have a minimum shear strength capacity of 6.3 kips.
 - c. Shall be connected with a minimum of two bolts for a 7 inch wide band, three bolts for a 12 inch wide band and five bolts for a 24 inch wide band. Bolts shall be uniformly spaced across the width of the band. Bolts, nuts, and other threaded items shall be coated in accordance with the requirements of Subsection 603.023(a)(2)c.
 - d. Shall have angles attached to the bands by stitch welding over the full width of the band or by rivets uniformly spaced across the width of the band.
- (3) Minimum band thickness shall be 0.06 inch, and bands shall be no more than two nominal sheet thicknesses thinner than the wall thickness of the culvert being connected.
- (4) Alternate coupling bands may be submitted for approval as specified in Subsection 603.023(a) (5).
 - b) Under-drain: Under-drain perforations shall be Class 1.

603.025 POLYMERIC COATED CORRUGATED STEEL PIPE.

Polymeric coated corrugated steel pipe shall conform to AASHTO M 245 and Attachments B and C. Polymeric coating shall conform to AASHTO M 246, Grade 250/250.

- a) Coupling Bands. Coupling bands shall conform to the requirements of Subsection 603.023(a) and Attachment C, modified as follows:
 - (1) Coupling bands and die-cast angles shall be formed from sheet material coated in accordance with AASHTO M 218, M 245, M 274, or M 289.
 - (2) Coupling bands formed from AASHTO M 274 or M 289 material shall be not more than one nominal sheet thickness thinner than the wall thickness of the culvert or unit being connected.
 - (3) Coupling bands formed from AASHTO M 245 material shall be not more than two nominal sheet thicknesses thinner than the thickness of the culvert or unit being connected. Angles must be attached to the band by rivets.
 - (4) Coupling bands formed from AASHTO M 218 material shall be the same nominal sheet thickness as the culvert or units being connected. Angles must be attached to the band with rivets or by stitch-welding over the full width of the band.

FABRICATION OF CAAP, ALCCMP, AND PPGCMP.

- a) Metal pipe may have either spiral or annular corrugations. All spiral pipes 300 mm (12") diameter and larger shall have the ends re-rolled to provide two annular corrugations which shall be 68 mm (2 2/3") x 13 mm (1/2") per Section 7.7.1 of AASHTO M36/M 36M. Any damage to the ends shall be repaired per AASHTO M36. Section 9.1.3 of AASHTO M 36/M 36M and Section 9.1.5 of AASHTO M 196 do not apply.
- b) Pipe with spiral corrugations shall be either continuous helical lock seams or welded seams.
- c) The corrugations for all pipes shall meet the requirements of Attachment B.
- d) The requirements of Fabrication, Rivet and Riveting of M36, pertaining to the plates being drawn tightly together, shall be interpreted such that any portion of a rivet being visible between the sheets shall be reason for the rejection of the pipe.
- e) There shall be no un-bonding, splitting or cracking of the coatings. Any visible evidence of these imperfections shall be reason for rejection of the pipe.
- f) Grinding shall be required for all metal culvert pipe ends to remove burrs and/or slivers resulting from the cutting of the pipe by the method of sawing.
- g) Marking. All material furnished under this Subsection shall be clearly marked in an approved manner with the name or trademark of the pipe fabricator and the sheet metal thickness.
- h) All corrugated metal pipe shall be supplied in lengths of 12', 18' and 20'. The 6" perforated under-drain pipe shall be supplied in 20' lengths.

STRUTTING.

Strutting of the culverts will be as ordered at strut bid price per foot of pipe.

All specified flexible culverts to be strutted shall be elongated along the vertical diameter in accordance with one of the following two methods.

- a) The pipe shall be elongated by the manufacturer after fabrication by increasing the diameter along the vertical axis approximately 3 percent with a corresponding decrease along the horizontal axis. The elongation shall be obtained by installing rods and tightening the rods, uniformly from end to end of the pipe, obtaining approximately one-quarter of the required elongation each time throughout the length of the pipe.

The rods shall be 5/8" diameter threaded 7" at both ends with washers and nuts. The length of the rods shall be the diameter of the pipe plus 8". The rods shall be placed on the horizontal axis of the pipe on 24" spacing and located halfway between the circumferential riveting. A soft wood block 2" by 4" by 12" long shall be placed over the rods at each end to provide contact against the outside of the pipe. The long dimension of the blocks shall be parallel with the horizontal axis of the pipe. The rods shall be left in the pipe until the fill is completed and compacted, unless for some unusual condition their removal is ordered by the Engineer. The rods shall be removed by cutting from the inside adjacent to the pipe.

- b) The pipe shall be elongated by the manufacturer by increasing the diameter along the vertical axis approximately 5 percent with a corresponding decrease along the horizontal axis by mechanical means in which sufficient pressure is applied to the sides of the pipe after fabrication to produce the specified distortion. The elongation shall be maintained by drilling holes in the ends of the pipe sections and placing horizontal wires. After the pipe sections have been installed with coupling bands, the wires will be removed.

Helically corrugated culvert sections shall be match marked before being elongated by the manufacturer of before the 5/8" diameter rods are installed.

NESTING. Nesting of culvert pipes shall require the wood separators to protect the coatings except for Corrugated Aluminum Alloy Pipe.

RIDER B
TERMS AND CONDITIONS

- 1. DEFINITIONS:** The following definitions are applicable to these standard terms and conditions:
 - a. The term “Buyer” or “State” shall refer to the Government of the State of Maine or a person representing the Government of the State of Maine.
 - b. The term “Department” or “DAFS” shall refer to the State of Maine Department of Administrative and Financial Services.
 - c. The term “Bureau” or “BGS” shall refer to the State of Maine Bureau of General Services.
 - d. The term “Division” shall refer to the State of Maine Division of Purchases.
 - e. The term “Contractor”, “Vendor”, or “Provider” shall refer to the organization that is providing goods and/or services through the contract to which these standard terms and conditions have been attached and incorporated.
 - f. The term “Contract” or “Agreement” shall refer to the contract document to which these standard terms and conditions apply, taking the format of a Buyer Purchase Order (BPO) or Master Agreement (MA) or other contractual document that is mutually agreed upon between the State and the Contractor.
- 2. WARRANTY:** The Contractor warrants the following:
 - a. That all goods and services to be supplied by it under this Contract are fit and sufficient for the purpose intended, and
 - b. That all goods and services covered by this Contract will conform to the specifications, drawing samples, symbols or other description specified by the Division, and
 - c. That such articles are merchantable, good quality, and free from defects whether patent or latent in material and workmanship, and
 - d. That all workmanship, materials, and articles to be provided are of the best grade and quality, and
 - e. That it has good and clear title to all articles to be supplied by it and the same are free and clear from all liens, encumbrances and security interest.

Neither the final certificate of payment nor any provision herein, nor partial nor entire use of the articles provided shall constitute an acceptance of work not done in accordance with this agreement or relieve the Contractor liability in respect of any warranties or responsibility for faulty material or workmanship. The Contractor shall remedy any defects in the work and pay any damage to other work resulting therefrom, which shall appear within one year from the date of final acceptance of the work provided hereunder. The Division of Purchases shall give written notice of observed defects with reasonable promptness.

3. TAXES: Contractor agrees that, unless otherwise indicated in the order, the prices herein do not include federal, state, or local sales or use tax from which an exemption is available for purposes of this order. Contractor agrees to accept and use tax exemption certificates when supplied by the Division as applicable. In case it shall ever be determined that any tax included in the prices herein was not required to be paid by Contractor, Contractor agrees to notify the Division and to make prompt application for the refund thereof, to take all proper steps to procure the same and when received to pay the same to the Division.

4. PACKING AND SHIPMENT: Deliveries shall be made as specified without charge for boxing, carting, or storage, unless otherwise specified. Articles shall be suitably packed to secure lowest transportation cost and to conform to the requirements of common carriers and any

applicable specifications. Order numbers and symbols must be plainly marked on all invoices, packages, bills of lading, and shipping orders. Bill of lading should accompany each invoice. Count or weight shall be final and conclusive on shipments not accompanied by packing lists.

5. DELIVERY: Delivery should be strictly in accordance with delivery schedule. If Contractor's deliveries fail to meet such schedule, the Division, without limiting its other remedies, may direct expedited routing and the difference between the expedited routing and the order routing costs shall be paid by the Contractor. Articles fabricated beyond the Division's releases are at Contractor's risk. Contractor shall not make material commitments or production arrangements in excess of the amount or in advance of the time necessary to meet delivery schedule, and, unless otherwise specified herein, no deliveries shall be made in advance of the Division's delivery schedule. Neither party shall be liable for excess costs of deliveries or defaults due to the causes beyond its control and without its fault or negligence, provided, however, that when the Contractor has reason to believe that the deliveries will not be made as scheduled, written notice setting forth the cause of the anticipated delay will be given immediately to the Division. If the Contractor's delay or default is caused by the delay or default of a subcontractor, such delay or default shall be excusable only if it arose out of causes beyond the control of both Contractor and subcontractor and without fault of negligence or either of them and the articles or services to be furnished were not obtainable from other sources in sufficient time to permit Contractor to meet the required delivery schedule.

6. FORCE MAJEURE: The State may, at its discretion, excuse the performance of an obligation by a party under this Agreement in the event that performance of that obligation by that party is prevented by an act of God, act of war, riot, fire, explosion, flood or other catastrophe, sabotage, severe shortage of fuel, power or raw materials, change in law, court order, national defense requirement, or strike or labor dispute, provided that any such event and the delay caused thereby is beyond the control of, and could not reasonably be avoided by, that party. The State may, at its discretion, extend the time period for performance of the obligation excused under this section by the period of the excused delay together with a reasonable period to reinstate compliance with the terms of this Agreement.

7. INSPECTION: All articles and work will be subject to final inspection and approval after delivery, notwithstanding prior payment, it being expressly agreed that payment will not constitute final acceptance. The Division of Purchases, at its option, may either reject any article or work not in conformity with the requirements and terms of this order, or re-work the same at Contractor's expense. The Division may reject the entire shipment where it consists of a quantity of similar articles and sample inspection discloses that ten (10%) percent of the articles inspected are defective, unless Contractor agrees to reimburse the Division for the cost of a complete inspection of the articles included in such shipment. Rejected material may be returned at Contractor's risk and expense at the full invoice price plus applicable incoming transportation charges, if any. No replacement of defective articles of work shall be made unless specified by the Division.

8. INVOICE: The original and duplicate invoices covering each and every shipment made against this order showing Contract number, Vendor number, and other essential particulars, must be forwarded promptly to the ordering agency concerned by the Vendor to whom the order is issued. Delays in receiving invoice and also errors and omissions on statements will be considered just cause for withholding settlement without losing discount privileges. All accounts are to be carried in the name of the agency or institution receiving the goods, and not in the name of the Division of Purchases.

9. ALTERATIONS: The Division reserves the right to increase or decrease all or any portion of the work and the articles required by the bidding documents or this agreement, or to eliminate all or any portion of such work or articles or to change delivery date hereon without invalidating this Agreement. All such alterations shall be in writing. If any such alterations are made, the contract amount or amounts shall be adjusted accordingly. In no event shall Contractor fail or refuse to continue the performance of the work in providing of articles under this Agreement because of the inability of the parties to agree on an adjustment or adjustments.

10. TERMINATION: The Division may terminate the whole or any part of this Agreement in any one of the following circumstances:

- a. The Contractor fails to make delivery of articles, or to perform services within the time or times specified herein, or
- b. If Contractor fails to deliver specified materials or services, or
- c. If Contractor fails to perform any of the provisions of this Agreement, or
- d. If Contractor so fails to make progress as to endanger the performance of this Agreement in accordance with its terms, or
- e. If Contractor is adjudged bankrupt, or if it makes a general assignment for the benefit of its creditors or if a receiver is appointed because of its insolvency, or
- f. Whenever for any reason the State shall determine that such termination is in the best interest of the State to do so.

In the event that the Division terminates this Agreement in whole or in part, pursuant to this paragraph with the exception of 8(f), the Division may procure (articles and services similar to those so terminated) upon such terms and in such manner as the Division deems appropriate, and Contractor shall be liable to the Division for any excess cost of such similar articles or services.

11. NON-APPROPRIATION: Notwithstanding any other provision of this Agreement, if the State does not receive sufficient funds to fund this Agreement and other obligations of the State, if funds are de-appropriated, or if the State does not receive legal authority to expend funds from the Maine State Legislature or Maine courts, then the State is not obligated to make payment under this Agreement.

12. COMPLIANCE WITH APPLICABLE LAWS: Contractor agrees that, in the performance hereof, it will comply with applicable laws, including, but not limited to statutes, rules, regulations or orders of the United States Government or of any state or political subdivision(s) thereof, and the same shall be deemed incorporated herein by reference. Awarding agency requirements and regulations pertaining to copyrights and rights in data. Access by the grantee, the subgrantee, the Federal grantor agency, the Comptroller General of the United States, or any of their duly authorized representatives to any books, documents, papers and records of the Contractor which are directly pertinent to that specific contract for the purpose of making audit, examination, excerpts, and transcriptions. Retention of all required records for three years after grantees or subgrantees make final payments and all other pending matters are closed. Compliance with all applicable standards, orders, or requirements issued under section 306 of the Clean Air Act (42 U.S.C. 1857(h), section 508 of the Clean Water Act, (33 U.S.C. 1368), Executive Order 11738, and Environmental Protection Agency regulations (40 CFR part 15). (Contracts, subcontracts, and subgrants of amounts in excess of \$100,000). Mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with Energy Policy and Conservation Act (Pub. L. 94-163, 89 Stat. 871).

13. INTERPRETATION: This Agreement shall be governed by the laws of the State of Maine as to interpretation and performance.

14. DISPUTES: The Division will decide any and all questions which may arise as to the quality and acceptability of articles provided and installation of such articles, and as to the manner of performance and rate of progress under this Contract. The Division will decide all questions, which may arise as to the interpretation of the terms of this Agreement and the fulfillment of this Agreement on the part of the Contractor.

15. ASSIGNMENT: None of the sums due or to become due nor any of the work to be performed under this order shall be assigned nor shall Contractor subcontract for completed or substantially completed articles called for by this order without the Division's prior written consent. No subcontract or transfer of agreement shall in any case release the Contractor of its obligations and liabilities under this Agreement.

16. STATE HELD HARMLESS: The Contractor agrees to indemnify, defend, and save harmless the State, its officers, agents, and employees from any and all claims and losses accruing or resulting to any and all contractors, subcontractors, material men, laborers and other persons, firm or corporation furnishing or supplying work, services, articles, or supplies in connection with the performance of this Agreement, and from any and all claims and losses accruing or resulting to any person, firm or corporation who may be injured or damaged by the Contractor in the performance of this Agreement.

17. SOLICITATION: The Contractor warrants that it has not employed or written any company or person, other than a bona fide employee working solely for the Contractor to solicit or secure this Agreement, and it has not paid, or agreed to pay any company, or person, other than a bona fide employee working solely for the Contractor any fee, commission, percentage, brokerage fee, gifts, or any other consideration, contingent upon, or resulting from the award for making this Agreement. For breach or violation of this warranty, the Division shall have the absolute right to annul this agreement or, in its discretion, to deduct from the Agreement price or consideration, or otherwise recover the full amount of such fee, commission, percentage, brokerage fee, gifts, or contingent fee.

18. WAIVER: The failure of the Division to insist, in any one or more instances, upon the performance of any of the terms, covenants, or conditions of this order or to exercise any right hereunder, shall not be construed as a waiver or relinquishment of the future performance of any such term, covenant, or condition or the future exercise of such right, but the obligation of Contractor with respect to such future performance shall continue in full force and effect.

19. MATERIAL SAFETY: All manufacturers, importers, suppliers, or distributors of hazardous chemicals doing business in this State must provide a copy of the current Material Safety Data Sheet (MSDS) for any hazardous chemical to their direct purchasers of that chemical.

20. COMPETITION: By accepting this Contract, Contractor agrees that no collusion or other restraint of free competitive bidding, either directly or indirectly, has occurred in connection with this award by the Division of Purchases.

21. INTEGRATION: All terms of this Contract are to be interpreted in such a way as to be consistent at all times with this Standard Terms and Conditions document, and this document shall take precedence over any other terms, conditions, or provisions incorporated into the Contract.

Appendix A

**STATE OF MAINE
DEPARTMENT OF ADMINISTRATIVE AND FINANCIAL SERVICES
DIVISION OF PROCUREMENT SERVICES**

BID COVER PAGE and DEBARMENT FORM

Bidder's Organization Name: <u>Contech Engineered Solutions LLC</u>		
Chief Executive - Name/Title: <u>Ed Zax</u>		
Tel:	Fax:	E-mail: <u>ezax@conteches.com</u>
Headquarters Street Address: <u>9025 Centre Pointe Drive Suite 400</u>		
Headquarters City/State/Zip: <u>West Chester OH 45069</u>		
<i>(provide information requested below if different from above)</i>		
Lead Point of Contact for Bid - Name/Title: <u>Stephen S. Wolf, P.E.</u>		
Tel: <u>802-233-9110</u>	Fax: <u>207-885-9825</u>	E-mail: <u>swolf@conteches.com</u>
Street Address: <u>71 US Rt 1 Suite F</u>		
City/State/Zip: <u>Scarborough, ME 04074</u>		

By signing below Bidder affirms:

- Their bid complies with all requirements of this RFQ;
- This bid and the pricing structure contained herein will remain firm for a period of 180 days from the date and time of the bid opening;
- That no personnel currently employed by the Department or any other State agency participated, either directly or indirectly, in any activities relating to the preparation of the Bidder's proposal;
- That no attempt has been made or will be made by the Bidder to induce any other person or firm to submit or not to submit a proposal; and
- The undersigned is authorized to enter into contractual obligations on behalf of the above-named organization.

Name: <u>Stephen S. Wolf</u>	Title: <u>Sales Mgr. - Northern New England</u>
To have your bid accepted, this Appendix MUST have an actual wet signature or utilize DocuSign or Adobe Sign forms of electronic signature.	
Authorized Signature: <u>Stephen S Wolf</u>	Date: <u>1/24/20</u>

Debarment, Performance, and Non-Collusion Certification

By signing this document, I certify to the best of my knowledge and belief that the aforementioned organization, its principals, and any subcontractors named in this proposal:

- a. Are not presently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from bidding or working on contracts issued by any governmental agency.
- b. Have not within three years of submitting the proposal for this contract been convicted of or had a civil judgment rendered against them for:
 - i. fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government transaction or contract.
 - ii. violating Federal or State antitrust statutes or committing embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - iii. are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or Local) with commission of any of the offenses enumerated in paragraph (b) of this certification; and
 - iv. have not within a three (3) year period preceding this proposal had one or more federal, state or local government transactions terminated for cause or default.
- c. Have not entered into a prior understanding, agreement, or connection with any corporation, firm, or person submitting a response for the same materials, supplies, equipment, or services and this proposal is in all respects fair and without collusion or fraud. The above mentioned entities understand and agree that collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards.

- Failure to provide this certification may result in the disqualification of the Bidder's proposal, at the discretion of the Department.

To the best of my knowledge all information provided in the enclosed proposal, both programmatic and financial, is complete and accurate at the time of submission.

Name: <i>Stephen S. Wolf</i>	Title: <i>Northern Sales Mgr. - New England</i>
To have your bid accepted, this Appendix MUST have an actual wet signature or utilize Docu Sign or Adobe Sign forms of electronic signature.	
Authorized Signature: <i>Stephen S Wolf</i>	Date: <i>1/24/20</i>

Appendix D

**STATE OF MAINE
DEPARTMENT OF ADMINISTRATIVE AND FINANCIAL SERVICES
DIVISION OF PROCUREMENT SERVICES**

**MUNICIPALITY POLITICAL SUBDIVISION and SCHOOL DISTRICT PARTICIPATION
CERTIFICATION**

RFQ # 17A 200113-207

Culverts, Metal, HDPE, Reinforced HDPE, Tri-State ME, NH, VT

The Division of Procurement Services is committed to providing purchasing opportunities for **municipalities, political subdivisions and school districts** in Maine by allowing them access, through our vendors, to our contract pricing. A bidder's willingness to extend contract pricing to these entities will be taken into consideration in making awards.

Will you accept orders from political subdivisions and school districts in Maine at the prices quoted?

☒ Yes

☐ Yes, with conditions as follows:

☐ No

Name of Company:

Contech Engineered Solutions LLC

Address:

71 US Rt 1 Suite F Scarborough, ME

Signature:

Stephen S Wolf 04074

Date:

1/24/20

STATE OF NEW HAMPSHIRE
MUNICIPALITY POLITICAL SUBDIVISION and SCHOOL DISTRICT PARTICIPATION
CERTIFICATION

ELIGIBLE PARTICIPANTS:

Political sub-divisions (counties, cities, towns, school districts, special district or precinct, or any other governmental organization), or any nonprofit agency under the provisions of section 501c of the Federal Internal Revenue Code, are eligible to participate under this contract whenever said sub-division or nonprofit agency so desires. These entities are autonomous and may participate at their sole discretion. In doing so, they are entitled to the prices established under the contract. However, such entities shall be solely responsible for their association with the successful Vendor. The State of New Hampshire shall assume no liability as may arise from such an association between the successful Vendor and any such eligible participants.

Does your company agree to these terms?

☒ Yes

or

☐ No

Name of Company:

Contech Engineered Solutions LLC

Address:

71 US Rt 1 Suite F Scarborough ME

Signature:

Stephen S. Wolf04074

Date:

1/24/20

STATE OF VERMONT
MUNICIPALITY POLITICAL SUBDIVISION and SCHOOL DISTRICT PARTICIPATION
CERTIFICATION

TOWNS AND SCHOOLS: Provisions for the purchase of supplies, materials, and equipment for Towns, Schools, Political Subdivisions, and Independent Colleges of the State of Vermont.

1. Bidder agrees to furnish the products identified in this response to the political subdivisions of the State of Vermont at the same prices, terms and conditions as are quoted in this response?
Yes ☒ No ☐

If no, kindly outline below the prices, terms, and conditions under which Bidder will agree to supply these needs to the political subdivisions of the State of Vermont.

2. Bidder agrees to furnish the products identified in this response to the independent colleges of the State of Vermont at the same prices, terms and conditions as are quoted in this response?
Yes ☒ No ☐

If no, kindly outline below the prices, terms, and conditions under which you will agree to supply these needs to the independent colleges of the State of Vermont.

It should be noted that if Bidder agrees to extend the State's contract terms and prices to the political subdivisions or to independent colleges, all such items furnished will be billed directly to and paid for by the political subdivision or college and neither the State of Vermont, nor its Commissioner of Buildings and General Services, personally or officially, assumes any responsibility.

Name of Company:

Contech Engineered Solutions LLC

Address:

71 US RT 1 Suite F Scarborough, ME

Signature:

Stephen S Wolf 04074

Date:

1/24/20



Corrugated Metal Pipe Design Guide



Table 1 — Recommended Environments

Material Type	Soil* and Water pH											Resistivity (ohm-cm)	
	3	4	5	6	7	8	9	10	11	12		Minimum	Maximum
Galvanized Steel*												2000	8000
Aluminized Steel Type 2 (ALT2)												1500	N/A
Polymer Coated												250	N/A
Aluminum Alloy												500	N/A

*Appropriate pH range for Galvanized Steel is 6.0 to 10

Table 2 — FHWA Abrasion Guidelines

Abrasion Level	Abrasion Condition	Bed Load	Flow Velocity (fps)
1	Non-Abrasive	None	Minimal
2	Low Abrasion	Minor	< 5
3	Moderate Abrasion	Moderate	5 - 15
4	Severe Abrasion	Heavy	> 15

*Interim Direct Guidelines on Drainage Pipe Alternative Selection." FHWA, 2005.

**Table 3 — Drainage Product Usage Guide**

Application	Culverts, Storm Drain, Cross Drain, Median Drain, Side Drain											
Roadway Classification	Rural	Minor	Major	Urban	Rural	Minor	Major	Urban	Rural	Minor	Major	Urban
Design Service Life	25	50	75	100	25	50	75	100	25	50	75	100
Abrasion Level	Abrasion Level 1 & 2				Abrasion Level 3				Abrasion Level 4			
CMP (1/2" & 1" deep corrugations), ULTRA FLO® & Smooth Cor™ Minimum gage required to meet design service life, assuming that structural design has been met.												
Galvanized (2 oz.)	16	12	10	8 ⁴	14	10	8	N/A	14 ⁵	10 ⁵	8 ⁵	N/A
Galvanized and Asphalt Coated	16	14	10	8	14	12	8	N/A	14 ⁵	12 ⁵	8 ⁵	N/A
Galv., Asphalt Coated & Paved Invert	16	16	14	10	16	14	12	8	14	12	10	N/A
Aluminized Type 2 (ALT2)	16	16	16	14	14	14	14	12	14 ⁶	14 ⁶	14 ⁶	12 ⁶
Polymer Coated	16	16	16 ⁸	16 ⁷	16	16	16 ⁸	16 ⁷	14 ⁷	14 ⁷	14 ^{7,9}	14 ^{7,7}
Aluminum Alloy	16	16	16	16	14	14	14	14	14 ⁵	14 ⁵	14 ⁵	14 ⁵

- Based on Table 1 - Recommended Environments.
- Smooth Cor™ Steel Pipe combines a corrugated steel exterior shell with a hydraulically smooth interior liner.
- Service life estimates for ULTRA FLO® and Smooth Cor™ Pipe assume a storm sewer application. Storm sewers rarely achieve abrasion levels 3 or 4. For applications other than storm sewers or abrasion conditions above Abrasion Level 2, please contact your Contech Sales Representative for gage and coating recommendations.
- Design service life for 8 GA galvanized is 97 years.
- Invert protection to consist of velocity reduction structures.
- Asphalt coated and paved invert or velocity reduction structures are needed.
- Requires a field applied concrete paved invert with minimum thickness 1" above corrugation crests.
- 75 year service life for polymer coated is based on a pH range of 4-9 and resistivity greater than 750 ohm-cm.
- 100 year service life for polymer coated is based on a pH range of 5-9 and resistivity greater than 1500 ohm-cm.

Table 4 - AASHTO Reference Specifications

	Material Type	Material	Pipe	Design*	Installation*
Pipe & Pipe-Arch	CMP (1/2" or 1" deep corrugations)				
	Galvanized (2 oz.)	M218	M36	Section 12	Section 26
	Asphalt Coated	M190	M36	Section 12	Section 26
	Asphalt Coated and Paved Invert	M190	M36	Section 12	Section 26
	Aluminized Type 2	M274	M36	Section 12	Section 26
	Polymer Coated	M246	M36 & M245	Section 12	Section 26
	Aluminum Alloy	M197	M196	Section 12	Section 26
	ULTRA FLO® (3/4" x 3/4" x 7-1/2" corrugation)				
	Galvanized (2 oz.)	M218	M36	Section 12	Section 26
	Aluminized Type 2	M274	M36	Section 12	Section 26
	Polymer Coated	M246	M36 & M245	Section 12	Section 26
	Aluminum Alloy	M197	M196	Section 12	Section 26
	Smooth Cor™				
	Polymer Coated	M246	M36 & M245	Section 12	Section 26

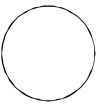
* AASHTO LRFD Bridge Design Specification and AASHTO Standard Specification for Highway Bridges

HEL-COR® Corrugated Steel Pipe

Heights of Cover


2 2/3" x 1/2" Height of Cover Limits for Corrugated Steel Pipe

H 20 and H 25 Live Loads



Diameter (Inches)	Minimum Cover (Inches)	Maximum Cover ⁽²⁾ (Feet)					
		Specified Thickness (Inches) and Gage					
		(0.052) 18	(0.064) 16	(0.079) 14	(0.109) 12	(0.138) 10	(0.168) 8
6 ⁽⁸⁾	12	388	486				
8 ⁽⁸⁾	12	291	365				
10 ⁽⁸⁾	12	233	292				
12	12	197	248	310			
15	12	158	198	248			
18	12	131	165	206			
21	12	113	141	177	248		
24	12	98	124	155	217		
30	12		99	124	173		
36	12		83	103	145	186	
42	12		71	88	124	159	195
48	12		62	77	108	139	171
54	12			67	94	122	150
60	12				80	104	128
66	12				68	88	109
72	12					75	93
78	12						79
84	12						66

H 20 and H 25 Live Loads, Pipe-Arch



Size		Minimum Thickness (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)
Round Equivalent (Inches)	Span x Rise (Inches)			2 Tons/Ft. ² Corner Bearing Pressure
15	17 x 13	0.064	12	16
18	21 x 15	0.064	12	15
21	24 x 18	0.064	12	15
24	28 x 20	0.064	12	15
30	35 x 24	0.064	12	15
36	42 x 29	0.064	12	15
42	49 x 33	0.064*	12	15
48	57 x 38	0.064*	12	15
54	64 x 43	0.079*	12	15
60	71 x 47	0.109*	12	15
66	77 x 52	0.109*	12	15
72	83 x 57	0.138*	12	15

E 80 Live Loads

Diameter (Inches)	Minimum Cover (Inches)	Maximum Cover ⁽²⁾ (Feet)					
		Specified Thickness (Inches) and Gage					
		(0.052) 18	(0.064) 16	(0.079) 14	(0.109) 12	(0.138) 10	(0.168) 8
12	12	197	248	310			
15	12	158	198	248			
18	12	131	165	206			
21	12	113	141	177	248		
24	12	98	124	155	217		
30	12		99	124	173		
36	12		83	103	145	186	
42	12		71	88	124	159	195
48	12		62	77	108	139	171
54	18			67	94	122	150
60	18				80	104	128
66	18				68	88	109
72	18					75	93
78	24						79
84	24						66

E 80 Live Loads, Pipe-Arch

Size		Minimum Thickness (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)
Round Equivalent (Inches)	Span x Rise (Inches)			3 Tons/Ft. ² Corner Bearing Pressure
15	17 x 13	0.079	24	22
18	21 x 15	0.079	24	22
21	24 x 18	0.109	24	22
24	28 x 20	0.109	24	22
30	35 x 24	0.138	24	22
36	42 x 29	0.138	24	22
42	49 x 33	0.138*	24	22
48	57 x 38	0.138*	24	22
54	64 x 43	0.138*	24	22
60	71 x 47	0.138*	24	22

* These values are based on the AISI Flexibility Factor limit (0.0433 x 1.5) for pipe-arch.

Heights of Cover Notes:

- These tables are for lock-seam or welded-seam construction. They are not for riveted construction. Consult your Contech Sales Representative for Height of Cover tables on riveted pipe.
- These values, where applicable, were calculated using a load factor of $K=0.86$ as adopted in the NCSPA CSP Design Manual, 2008.
- The haunch areas of a pipe-arch are the most critical zone for backfilling. Extra care should be taken to provide good material and compaction to a point above the spring line.
- E 80 minimum cover is measured from top of pipe to bottom of tie.
- H 20 and H 25 minimum cover is measured from top of pipe to bottom of flexible pavement or top of rigid pavement.
- The pipe-arch tables are based on the corner bearing pressures as shown. These values may increase or decrease with changes in allowable corner bearing pressures. Consider the use of a round pipe in cases where the height of cover exceeds 8'.

- For construction loads, see Page 15.
- 1-1/2" x 1/4" corrugation. H 20, H 25 and E 80 loading.
- Smooth Cor™ has same Height of Cover properties as corrugated steel pipe. The exterior shell of Smooth Cor™ is manufactured in either 2 2/3" x 1/2" or 3" x 1" corrugations; maximum exterior shell is 12 GA.

Heights of Cover

5" x 1" or 3" x 1" Height of Cover Limits for Corrugated Steel Pipe

H 20 and H 25 Live Loads

Diameter (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)				
		Specified Thickness (Inches) and Gage				
		(0.064) 16	(0.079) 14	(0.109) 12	(0.138) 10	(0.168) 8
54	12	56	70	98	127	155
60	12	50	63	88	114	139
66	12	46	57	80	103	127
72	12	42	52	74	95	116
78	12	39	48	68	87	107
84	12	36	45	63	81	99
90	12	33	42	59	76	93
96	12	31	39	55	71	87
102	18	29	37	52	67	82
108	18		35	49	63	77
114	18		32	45	58	72
120	18		30	42	54	66
126	18			39	50	61
132	18			36	46	58
138	18			33	43	53
144	18				39	49

Maximum cover heights shown are for 5" x 1".

To obtain maximum cover for 3" x 1", increase these values by 12%.

E 80 Live Loads

Diameter or Span (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)				
		Specified Thickness (Inches) and Gage				
		(0.064) 16	(0.079) 14	(0.109) 12	(0.138) 10	(0.168) 8
54	18	56	70	98	127	155
60	18	50	63	88	114	139
66	18	46	57	80	103	127
72	18	42	52	74	95	116
78	24	39	48	68	87	107
84	24	36	45	63	81	99
90	24	33 ⁽¹⁾	42	59	76	93
96	24	31 ⁽¹⁾	39	55	71	87
102	30	29 ⁽¹⁾	37	52	67	82
108	30		35	49	63	77
114	30		32 ⁽¹⁾	45	58	72
120	30		30 ⁽¹⁾	42	54	66
126	36			39	50	61
132	36			36	46	58
138	36			33 ⁽¹⁾	43	53
144	36				39	49

Maximum cover heights shown are for 5" x 1".

To obtain maximum cover for 3" x 1", increase these values by 12%.

(1) These diameters in these gages require additional minimum cover.

5" x 1" Pipe-Arch Height of Cover Limits for Corrugated Steel Pipe

H 20 and H 25 Live Loads

Size		Minimum Thickness (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)
Round Equivalent (Inches)	Span x Rise (Inches)			2 Tons/Ft. ² Corner Bearing Pressure
72	81 x 59	0.109	18	21
78	87 x 63	0.109	18	20
84	95 x 67	0.109	18	20
90	103 x 71	0.109	18	20
96	112 x 75	0.109	21	20
102	117 x 79	0.109	21	19
108	128 x 83	0.109	24	19
114	137 x 87	0.109	24	19
120	142 x 91	0.138	24	19

Larger sizes are available in some areas of the United States. Check with your local Contech representative. Some minimum heights of cover for pipe-arches have been increased to take into account allowable "plus" tolerances on the manufactured rise.

E 80 Live Loads

Size		Minimum Thickness (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)
Round Equivalent (Inches)	Span x Rise (Inches)			2 Tons/Ft. ² Corner Bearing Pressure
72	81 x 59	0.109	30	21
78	87 x 63	0.109	30	18
84	95 x 67	0.109	30	18
90	103 x 71	0.109	36	18
96	112 x 75	0.109	36	18
102	117 x 79	0.109	36	17
108	128 x 83	0.109	42	17
114	137 x 87	0.109	42	17
120	142 x 91	0.138	42	17

Some 3" x 1" and 5" x 1" minimum gages shown for pipe-arch are due to manufacturing limitations.

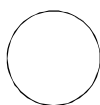
Heights of Cover Notes:

- These tables are for lock-seam or welded-seam construction. They are not for riveted construction. Consult your Contech Sales Representative for Height of Cover tables on riveted pipe.
- These values, where applicable, were calculated using a load factor of $K=0.86$ as adopted in the NCSA CSP Design Manual, 2008.
- The span and rise shown in these tables are nominal. Typically the actual rise that forms is greater than the specified nominal. This actual rise is within the tolerances as allowed by the AASHTO & ASTM specifications. The minimum covers shown are more conservative than required by the AASHTO and ASTM specifications to account for this anticipated increase in rise. Less cover height may be tolerated depending upon actual rise of supplied pipe-arch.
- The haunch areas of a pipe-arch are the most critical zone for backfilling. Extra care should be taken to provide good material and compaction to a point above the spring line.
- E 80 minimum cover is measured from top of pipe to bottom of tie.
- H 20 and H 25 minimum cover is measured from top of pipe to bottom of flexible pavement or top of rigid pavement.
- The pipe-arch tables are based on the corner bearing pressures as shown. These values may increase or decrease with changes in allowable corner bearing pressures. Consider the use of a round pipe in cases where the height of cover exceeds 8'.
- For construction loads, see Page 15.
- Smooth Cor™ has same Height of Cover properties as corrugated steel pipe. The exterior shell of Smooth Cor™ is manufactured in either 2" $\frac{2}{3}$ " x 1" $\frac{1}{2}$ " or 3" x 1" corrugations; maximum exterior shell is 12 GA.

CORLIX® Corrugated Aluminum Pipe

Heights of Cover

2 2/3" X 1/2" Height of Cover Limits for Corrugated Aluminum Pipe



HL 93 Live Load

Diameter (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)					
		Specified Thickness (Inches) and Gage					
		(0.048)	(0.060)	(0.075)	(0.105)	(0.135)	(0.164)
		18	16	14	12	10	8
6 ⁽⁴⁾	12	197	247				
8 ⁽⁴⁾	12	147	185				
10 ⁽⁴⁾	12	119	148				
12	12		125	157			
15	12		100	125			
18	12		83	104			
21	12		71	89			
24	12		62	78	109		
27	12			69	97		
30	12			62	87		
36	12			51	73	94	
42	12				62	80	
48	12				54	70	85
54	15				48	62	76
60	15					52	64
66	18						52
72	18						43

2 2/3" x 1/2" Height of Cover Limits for Corrugated Aluminum Pipe-Arch



HL 93 Live Load

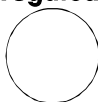
Size		Minimum Gage	Minimum Cover (Inches)	Maximum Cover (Feet)
Round Equivalent (Inches)	Span x Rise (Inches)			2 Tons/Ft. ² for Corner Bearing Pressures
15	17 x 13	16	12	13
18	21 x 15	16	12	12
21	24 x 18	16	12	12
24	28 x 20	14	12	12
30	35 x 24	14	12	12
36	42 x 29	12	12	12
42	49 x 33	12	15	12
48	57 x 38	10	15	12
54	64 x 43	10	18	12
60	71 x 47	8 ⁽⁹⁾	18	12

Notes:

1. Height of cover is measured to top of rigid pavement or to bottom of flexible pavement.
2. Maximum cover meets AASHTO LRFD design criteria.
3. Minimum cover meets AASHTO and ASTM B 790 design criteria.
4. 1 1/2" x 1/4" corrugation.
5. 8 GA pipe has limited availability.
6. For construction loads, see page 15.
7. Consult your Cortech Sales Representative for E 80 Live Loads.

Heights of Cover

3" x 1" Height of Cover Limits for Corrugated Aluminum Pipe



HL 93 Live Load

Diameter (Inches)	Minimum Cover (Inches)	Maximum Cover (Feet)				
		Specified Thickness (Inches) and Gage				
		(0.060)	(0.075)	(0.105)	(0.135)	(0.164)
		16	14	12	10	8
30	12	57	72	101	135	159
36	12	47	60	84	112	132
42	12	40	51	72	96	113
48	12	35	44	62	84	99
54	15	31	39	55	74	88
60	15	28	35	50	67	79
66	18	25	32	45	61	72
72	18	23	29	41	56	66
78	21		27	38	51	61
84	21			35	48	56
90	24			33	44	52
96	24			31	41	49
102	24				39	46
108	24				37	43
114	24					39
120	24					36

3" x 1" Height of Cover Limits for Corrugated Aluminum Pipe-Arch



HL 93 Live Load

Size		Minimum Gage	Minimum Cover (Inches)	Maximum Cover (Feet)
Round Equivalent (Inches)	Span x Rise (Inches)			2 Tons/Ft. ² for Corner Bearing Pressures
54	60 x 46	14	15	20
60	66 x 51	14	18	20
66	73 x 55	14	21	20
72	81 x 59	12	21	16
78 ⁽⁴⁾	87 x 63	12	24	16
84 ⁽⁴⁾	95 x 67	12	24	16
90 ⁽⁴⁾	103 x 71	10	24	16
96 ⁽⁴⁾	112 x 75	8 ⁽⁵⁾	24	16

Notes:

1. Height of cover is measured to top of rigid pavement or to bottom of flexible pavement.
2. Maximum cover meets AASHTO LRFD design criteria.
3. Minimum cover meets ASTM B 790 design criteria.
4. Limited availability on these sizes.
5. 8 GA pipe has limited availability.
6. For construction loads, see page 15.
7. Consult your Cortech Sales Representative for E 80 Live Loads.