

Town of Weymouth  
Massachusetts

Robert L. Hedlund  
Mayor

75 Middle Street  
Weymouth, MA 02189



Office: 781.340.5012  
Fax: 781.335.8184

www.weymouth.ma.us

*extra*

MEMORANDUM

19 105

TO: TOWN COUNCIL  
FROM: MAYOR ROBERT L. HEDLUND  
RE: CPA FUNDING REQUEST FOR LOVELL FIELD PEDESTRIAN BRIDGE  
DATE: OCTOBER 3, 2019

*Robert Hedlund*

RECEIVED  
TOWN OF WEYMOUTH  
TOWN CLERK'S OFFICE  
2019 OCT -3 AM 9:29

I hereby submit the following measure to Town Council for its consideration and action:

“That the Town of Weymouth appropriate the sum of \$182,341 from the Unreserved Fund Balance account (4906-321001) for the design, permitting and construction of a bridge over the Herring Run to Lovell Field.”

This measure requires a legal notice and public hearing.

See the attached supporting documentation provided by the Department of Planning and Community Development.

At the time of this submittal, the balance in the Unreserved Fund Balance account is \$1,633,210.43.

Referral Dte. \_\_\_\_\_ PH Dte. \_\_\_\_\_  
Comm. Referral \_\_\_\_\_ TC Vote \_\_\_\_\_  
Comm. Vote \_\_\_\_\_ TC Vote Dte. \_\_\_\_\_  
Comm. Vote Dte. \_\_\_\_\_

Weymouth  
Town Council

2019 OCT -3 AM 9:40

RECEIVED

Department of Planning and  
Community Development

Robert J. Luongo  
Director of Planning and  
Community Development  
email: rluongo@weymouth.ma.us  
(781) 340-5015

*Town of Weymouth  
Massachusetts*



Robert L. Hedlund  
Mayor

75 Middle Street  
Weymouth, MA 02189

www.weymouth.ma.us


MEMORANDUM

TO: Robert L. Hedlund, Mayor

FROM: Robert J. Luongo, Director of Planning & Community Development

DATE: September 27, 2019

SUBJECT: **Request for Funding - CPA**



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At the September 5, 2019 meeting of the Community Preservation Committee, the committee reviewed and discussed the application put forward by the Weymouth Recreation Department and the Department of Asset Management in the amount of \$182,341. Steve Reilly presented the request for funds for design, permitting and construction of a bridge over the Herring Run to Lovell Field.

After review and discussion, the following motion was approved unanimously.

Motion to appropriate and fund \$182,341 from the unreserved fund balance account.

The Community Preservation Committee appreciates your review and action on this recommendation.

ATTACHMENT: Funding Request submitted by the Weymouth Recreation Department dated August 28, 2019

CC: Ted Langill, Chief of Staff  
Christopher Hannan, Chairman, CPC  
Jeanne Savoy, Office of the Mayor

**WEYMOUTH**  
**Community Preservation Committee**  
**Application for Funding**

Name Weymouth Recreation Department

Date 8/28/2019

Phone 781-682-6124

Email sreilly@weymouth.ma.us

Address 1393 Pleasant Street, Weymouth, MA 02189

Affiliation/Organization (if applicable) \_\_\_\_\_

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Project Name: Lovell Field Pedestrian Bridge

Amount: \$182,341.00

Purpose

(please select all that apply)

Historic Preservation

Open Space & Recreation

Housing

**Description**

**Please provide a written narrative with detailed data; including cost estimates, schedule, budget, maintenance plan, if any and implementation strategy. Include other funding sources and the amounts of funding. Attach separate sheets as needed.**

The Town of Weymouth received a grant from the Massachusetts Department of Transportation to construct a pedestrian bridge connection between the Lovell Field and the MBTA East Weymouth Commuter Rail parking lot. The grant is for a total of \$200,000.

In 2018, the Town worked with the engineering firm CDR Maguire to analyze options for a bridge connection across the Herring Brook between the Lovell Field and East Weymouth Commuter Rail lot. The study identified four options, ranging in price from \$164,000 to \$264,000. These proposals were for a painted steel truss bridge, weathering steel truss bridge, single span timber bridge, or multiple span timber bridge. After analyzing the options and working with the state to secure grant funding, Town staff identified the painted steel truss bridge, estimated at \$206,000 for construction, as the most viable option. The project cost, including all of the engineering, design, permitting, and construction would total \$432,293 (including contingency). In addition to the awarded grant funding the Town seeks \$182,341.00 in CPC funding to complete the construction of the bridge.

The project budget would be as follows:

Task	Estimated Cost	Funding Source
Site work for clearing and grubbing	\$5,000	Weymouth DPW In-Kind
Initial field stake and survey	\$45,000	Weymouth DPW In-Kind
Engineering & Design - Testing - Permitting	\$136,600.00	CPC Funding
Borings extraction and report	\$2,808.00	CPC Funding
Basic bridge cost delivered to site	\$180,000.00	Grant funding
Unload and set superstructure with cranes	\$3,240.00	Grant funding
Excavating and abutment construction	\$14,594.00	Grant funding
Misc. attachments	\$588.00	Grant funding
Temporary shoring	\$1,530.00	Grant funding
Backfill with granular material	\$826.00	CPC Funding
Final Grading	\$1,595.00	CPC Funding
Touch-up paint work	\$1,212.00	CPC Funding
<b>SUBTOTAL</b>	<b>\$392,993.00</b>	
Contingency (10%)	\$39,300.00	CPC Funding
<b>TOTAL</b>	<b>\$432,293.00</b>	

NOTE: Totals are based off of a preliminary study completed in 2018 as well as preliminary design and engineering costs. Costs for bridge construction are anticipated to be higher than 2018 figures due to increasing construction costs, materials costs and market conditions. Therefore, a 10% contingency was allotted for the project.

The majority of the CPC funding would be allocated toward the engineering and design costs, particularly those costs associated with permitting of the structure. The Town has included very conservative estimates for the permitting costs due to the unpredictable nature of permitting in the ACEC. It is possible permitting and testing will not require use of all of the funds included here. In addition, the CPC funding would support the contingency which potentially would go unused depending on construction costs. Finally, it is anticipated the town wide in-kind services would account for approximately \$30,000 - \$50,000 in services.

**Describe how this this project helps to preserve Weymouth's character.**

**Please provide a written narrative including the goals of the project, who benefits, and how the project relates to planning documents such as the Town's Master Plan. Describe the nature of support and outreach for the project. Attach separate sheets as needed.**

Since 2016, the Town has invested over \$14 million in maintenance, renovations, and upgrades to town owned playing fields, facilities, open spaces, and recreation spaces. Included in this is an approximately \$6 million upgrade to Lovell Field. As a result, Lovell Field has become a premiere playing facility on the South Shore, drawing nearly

year-round play and tournaments, attracting hundreds of youth, and providing countless programs and options for Weymouth as well as other South Shore communities. The fields host public, private, and regional play. In addition, field patrons bring in revenue to the town through the field permits and rental fees as well as visiting local businesses. As a result of this increased use, parking and access is often an issue at the fields. Patrons are forced to park in the MBTA lot for overflow parking and then walk around the lot to the field. The Lovell Field pedestrian bridge would provide direct access to the fields from the MBTA lot, not only improving access but also resolving some of the overflow parking issues that arise on the surrounding streets.

More importantly, the Town's Back River Master Plan identifies the Back River trail as traversing the East Weymouth Commuter Rail lot and connecting to Lovell Field. It specifically states "The trail will turn and follow along the northernmost end of the new MBTA train station parking lot before turning to follow Herring Brook into Lovell Playground. From Lovell Playground the trail will become an on-road trail with dedicated bike lanes along Water Street up to and through the intersection with Pleasant Street". By building the pedestrian bridge between the commuter rail lot, over the Herring Brook, and connecting it to Lovell Field, a major access point for the trail will be completed, creating a contiguous access point through to Osprey Overlook Park. This will present trail users with a unique opportunity to traverse and interact with the Herring Brook as well as improve education of the trail system for field users. Future signage, interpretive panels, and recreation/conservation programming can also take place at the site once the bridge is complete.

Overall, improved access through the construction of the pedestrian bridge will improve existing recreational opportunities, enhance the access to the fields, and complete a critical component of the Back River trail. The passive recreation and open space benefits are complemented by the unique opportunity to harness MassDOT grant funding that will account for nearly 50% of the project costs as well.

Applicants are encouraged to be creative and consider projects that will benefit the community; including, but not limited to; projects which may not receive typical funding from traditional sources.

Submit to:  
Community Preservation Committee  
c/o Dept. of Planning & Community Development  
75 Middle Street, Weymouth, MA 02189



# TOWN OF WEYMOUTH MASSACHUSETTS

*Pedestrian Bridge Connecting  
Lovell Field to East Weymouth MBTA  
Commuter Rail Parking Lot  
Over Herring Run Brook*

*Preliminary Study – Bridge Structure Types*

August 17, 2018

Submitted To:



Town of Weymouth  
75 Middle Street  
Weymouth, MA 02189

Prepared By:



**CDR** | **MAGUIRE**

CDR Maguire Inc.  
2 Granite Avenue  
Milton, MA 02186

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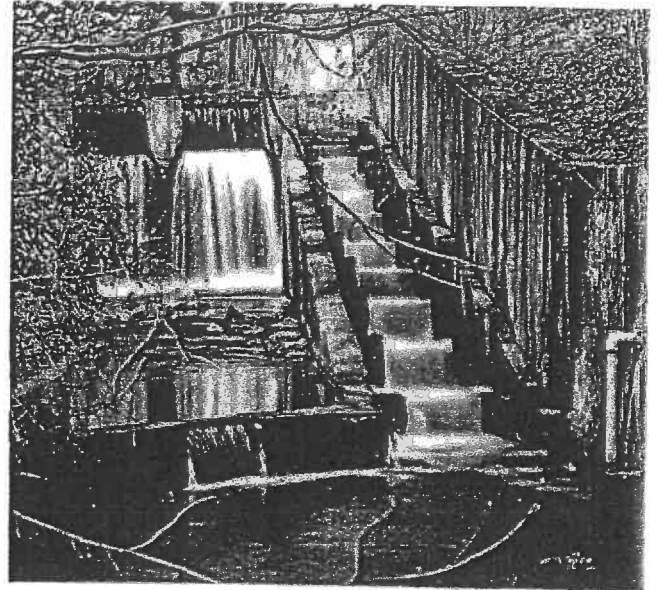
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Report Prepared By: Carlos A. Merino Calvo, E.I.T Date: 07/31/2018

Report Checked By: Anthony Danksewicz, P.E. Date: 08/16/2018

## INTRODUCTION

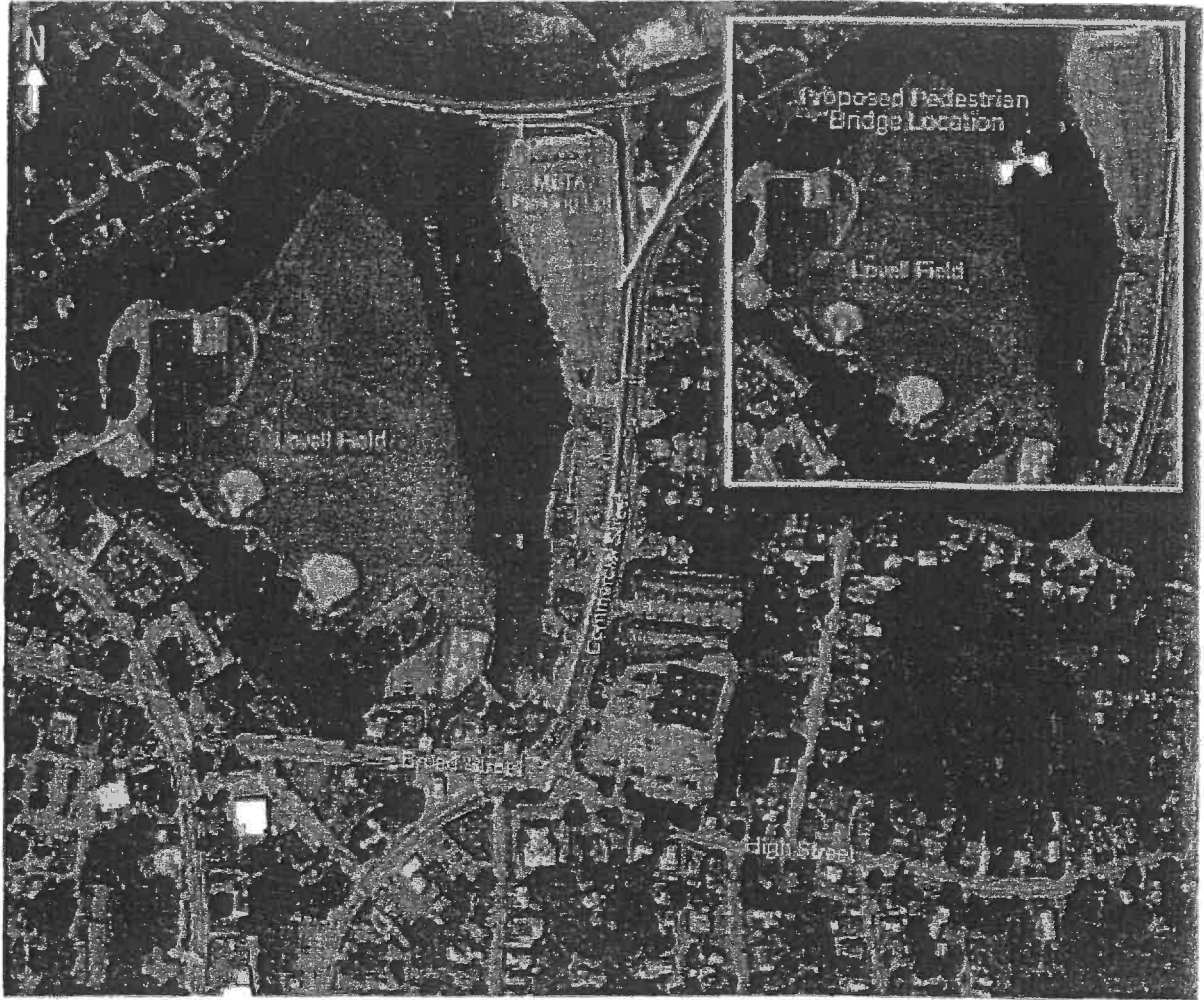
CDR Maguire Inc. (CDR|M) was retained by the Town of Weymouth to provide preliminary engineering services in the design of a pedestrian bridge connecting the newly renovated Lovell Field to the East Weymouth MBTA Commuter Rail Parking Lot. The improvements to Lovell Field transformed three well-worn baseball fields into two full size regulation artificial turf fields to accommodate Weymouth's Youth Soccer, Football, Lacrosse and Cheerleading teams. As designed, the improvements include parking for 180 vehicles which is insufficient for parking demand for weekend games. As a result, overflow is accommodated at the East Weymouth MBTA Station Commuter Parking Lot, as it is rarely used on weekends. However, to get to Lovell Field, spectators need to walk along the highly traversed Commercial Street around the field to reach it, presenting pedestrian safety issues. The proposed site for the pedestrian bridge is located within the Weymouth Back River Watershed, an Area of Critical Environmental Concern (ACEC) as designated by the Commonwealth's Secretary of Energy and Environmental Affairs, presenting a design constraint to minimize impacts. The Weymouth Back River ACEC, spanning 950 acres in Hingham and Weymouth, is unusual because it is uniquely preserved despite its presence in the middle of an urban/suburban environment. In 1982, the Weymouth Back River area received official designation as an ACEC to provide additional protection for the area's ecosystem. Its relevance to the erection of a pedestrian bridge for the safe passage of spectators to Lovell Field, is to require a context-sensitive design, free of obstruction in Herring Brook, to continue the annual tradition of the herring's safe passage home to Whitman's Pond.



In its evaluation of bridge structure types, CDR|M investigated and then reviewed schematic cross sections and details from two reputable pedestrian bridge manufacturers for cost effective solutions to aid the Town in reducing overall costs. CDR|M also reviewed example photos of similar pedestrian bridges built by these pedestrian bridge manufacturers and included some in these report for viewing purposes. This preliminary study presents potential cross sections and preliminary cost estimates for review and comparison by the Town. To assist the Town of Weymouth in selecting a safe, durable and aesthetically pleasing pedestrian bridge, CDR|M investigated several bridge structure types to offer a solution to the Town that avoids any obstructions in the Herring Run Brook. Final foundation selection will evolve, based on geotechnical studies once the preferred design alternative is advanced. CDR|M is available to address any comments resulting from our preliminary study and is prepared to provide any recommend solutions to the Town upon review. CDR|M also looks forward to working with the Town to select a preferred alternative and advance its design. We are also eager to assist the Town in working with MassDOT, the MBTA and other Commonwealth programs for potential funding sources.



# 1. PROJECT LOCATION



*Figure 1: Project Site and Pedestrian Bridge Location (source: Google Maps)*

Located in the Town of Weymouth, Massachusetts, the project site runs between the Lawrence W. Pingree Elementary School playing fields (Lovell Field) and the East Weymouth MBTA Commuter Rail Station Parking Lot. The lot is available for overflow parking on weekends for game days to provide additional capacity. To reach Lovell Field, pedestrians are required to walk along Commercial Street in the area of the High and Broad Street intersection, which is not safe for pedestrian traffic and could result in injury due to the volume of vehicle traffic along Commercial Street.

A solution to create safer conditions identified by the Town, is to construct a pedestrian bridge over the Herring Run Brook (see Figure 1) that connects Lovell Field with the East Weymouth MBTA Commuter Rail Parking Lot; therefore reducing or eliminating pedestrian traffic along Commercial Street.

## 2. EXISTING SITE CONDITIONS AND PROJECT CONSTRAINTS

The proposed site presents dense vegetation and trees on both sides of the embankments at Herring Run Brook. In addition, there is a drainage pipe situated on the parking lot side (east embankment). Existing geological and soil data has not been analyzed for this study; however, soils are not expected to be problematic and should present adequate conditions for the construction of the proposed pedestrian bridge. No erosion issues or utility obstructions were identified in the site visit done in June 2018. In addition, hydraulic or scour data have not been taken into consideration for this study. The main design constraint is to avoid any obstruction in the Herring Run Brook and avoid disruption to the existing drainage pipe, as shown in Photo 2 (below), because the proposed site location lies within the Weymouth Back River ACEC.

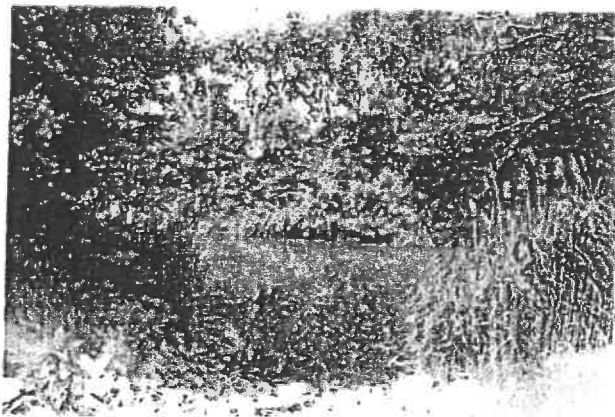


Photo 1: Existing site on east embankment, looking west  
(Source: site visit June 2018)



Photo 2: Drainage pipe on east embankment, looking west  
(Source: site visit June 2018)

## 3. PROPOSED BRIDGE STRUCTURE TYPES

The exact length of the proposed pedestrian bridge has yet to be determined, but is estimated to span approximately 100-120 feet over the Herring Run Brook. A span length of 120 feet was chosen as a baseline to compare alternatives for this conceptual study and set the required foundations high enough on each embankment to avoid any obstruction within the brook.

According to paragraph 11.4.1.1 from the *Massachusetts Highway Department 2006 Project Development & Design Guide*, the minimum width for a two-directional shared use path is 10 feet. In certain circumstances, a reduced width of 8 feet may be acceptable where there are severe environmental, historical, and/or structural constraints. To lessen these potential impacts, a width of 8 feet was chosen for a pedestrian bridge in the proposed site location.

In pursuing design options and to provide the most cost-effective value to the Town, two leading manufacturers in the pedestrian bridge industry were contacted to provide alternatives with cost estimates for suitable structure types. Contech Engineered Solutions, LLC (Contech) and York Bridge Concepts, Inc. (YBC) have built similar pedestrian bridges locally and come highly recommended due to their niche in providing this type of construction.

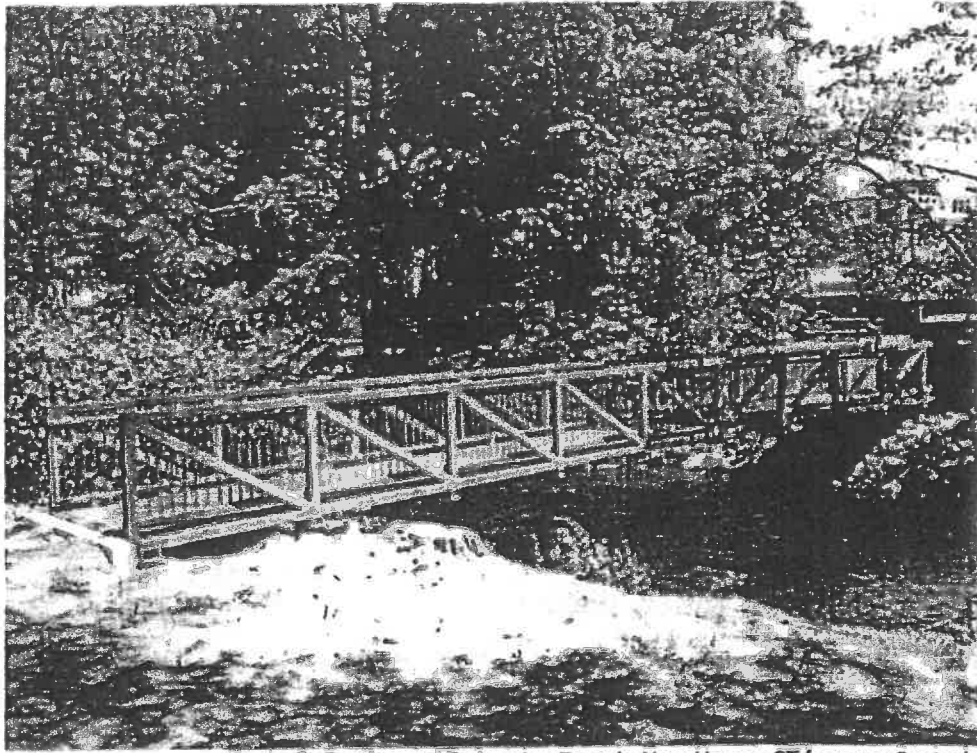


Photo 3: Continental Pedestrian Truss in New Haven, CT (source: Contech)  
Similar to proposed alternative.

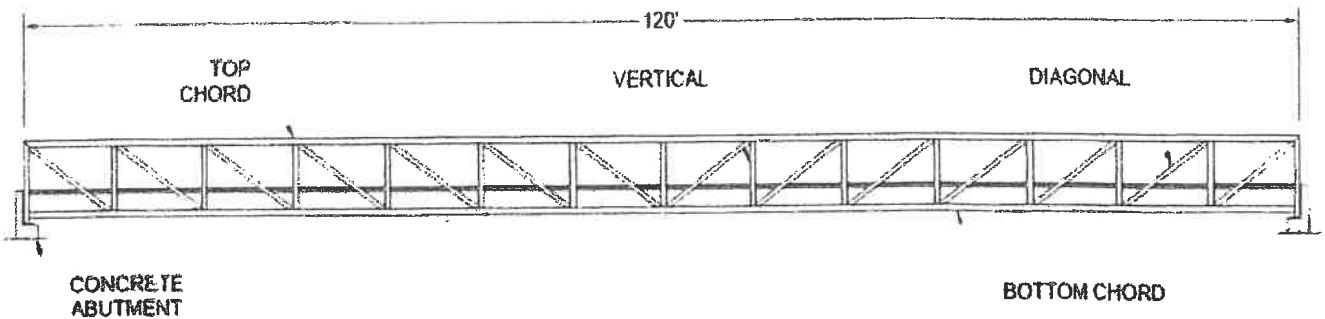


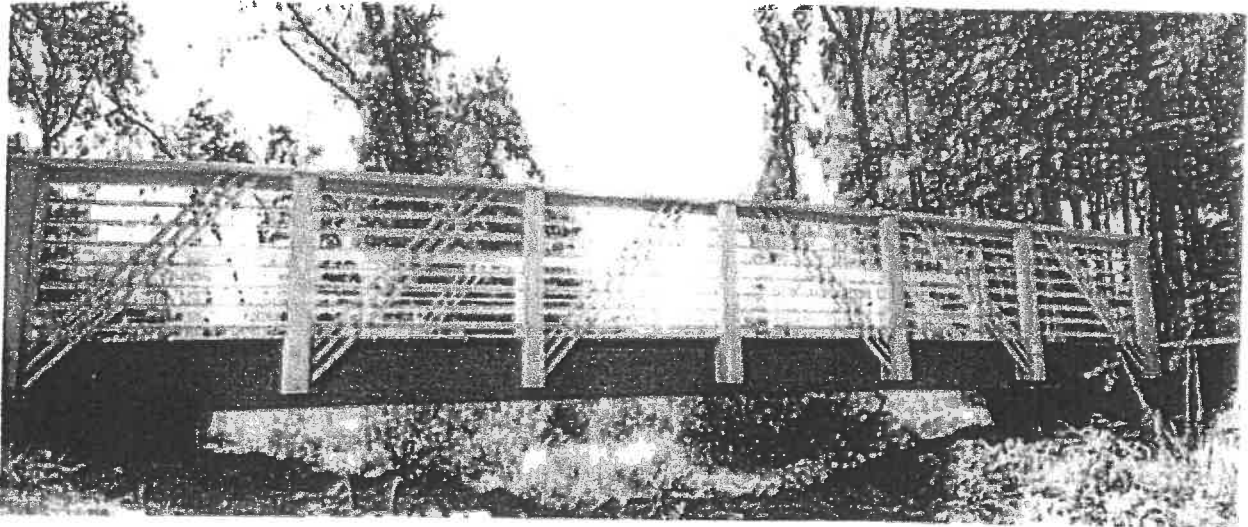
Figure 2: Elevation - Contech Continental Pedestrian Truss Bridge

### 3.1 Contech Connector 120' Span x 8' Width Steel Pedestrian Bridge

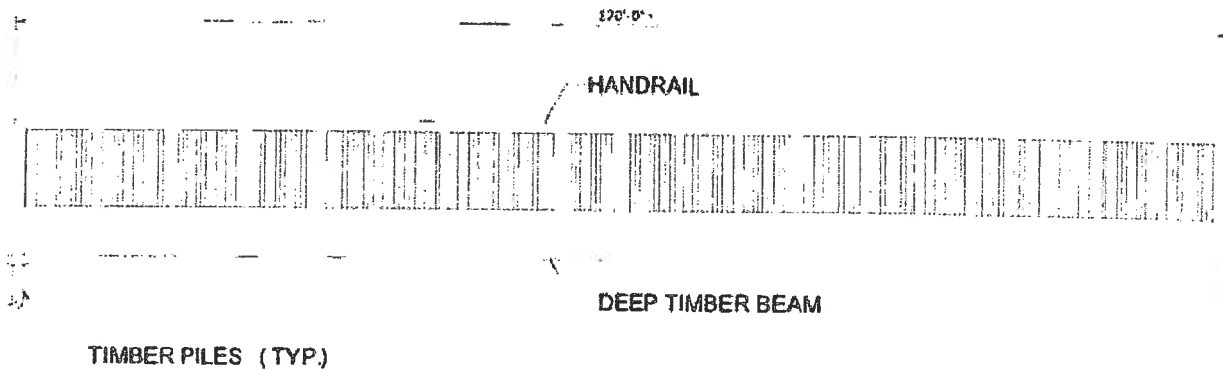
This prefabricated steel pedestrian bridge type is provided by Contech within their continental pedestrian truss styles portfolio (see Photo 3). This style bridge consists of 120' single span x 8' width bridge (see Figure 2 and Appendix A, B and C for additional information). The superstructure is a prefabricated steel truss structure that would be supported on two cast-in-place concrete abutments and located on the embankments of the brook.

According to a Contech representative, the service life expectancy for this bridge is 25 - 30 years. This prefabricated steel truss alternative would have a wood deck supported along steel members and available in the following options:

- 2 – Coat Paint Finish (requires painting every 2-10 years)
- Unpainted Weathering Steel



*Photo 4: YBC Single-Span Pedestrian Timber Bridge in Falls Church, VA. Similar to proposed alternative with single-span and uniform depth timber beam (Source: YBC)*



*Figure 3: Elevation - YBC Single-Span Timber Bridge*

### 3.2 YBC Single - or Multiple - Span Timber Pedestrian Bridge

These bridge types are provided by YBC within their pedestrian bridge portfolio. Two alternatives are considered:

1. Single-span bridge, 120' x 8': This alternative would require uniform 5'-0" deep timber beams, approximately, and timber pile foundations at each embankment of the brook (see Photo 4 and Figure 3).
2. Multiple-span layout x 8' width: This alternative requires the use of timber pile bents just beyond water edges of the brook and multiple pile bents along each embankment to reduce span lengths and minimize the depth of the timber beams required (see Photo 5 and Figure 4).



## 4. PRELIMINARY PROJECT COST ESTIMATE AND CONSTRUCTION

RSMeans Data 2018 Heavy Construction Costs was used to estimate the approximate project cost for the four presented alternatives:

- Contech Steel Truss Bridge – Painted Steel
- Contech Steel Truss Bridge – Weathering Steel
- YBC Timber Bridge – Single-Span
- YBC Timber Bridge – Multiple-Span

These preliminary cost estimates also include material, labor, and equipment costs.

### 4.1 Anticipated Work Tasks

The following tasks have been identified for the construction of the pedestrian bridge:

- Site Work for Clearing and Grubbing
- Soil Condition Determination (Geotechnical Investigation)
- Basic Bridge Cost Delivered to Site
- Unload and Set Superstructure on Foundation with Cranes
- Excavation and Abutment Construction
- Driving Timber Piles
- Miscellaneous Attachments (Installation of anchor bolts)
- Temporary Shoring
- Backfill with Granular Material
- Final Grading
- Touch-up Paint Work

4.2 Preliminary Cost Estimate

Estimated Work Tasks		Contech		York Bridge Concepts (YBC)	
		Steel Tuss Bridge		Timber Bridge	
		Painted (1)	Weathering (2)	Single Span (3)	Multiple Spans (4)
1	Site Work for Clearing and Grubbing	Assumed to be done by Weymouth DPW			
2	Soil Condition Determination				
2.1	Initial Field Stake and Survey	Assumed to be done by Weymouth DPW			
2.2	Borings Extraction and Report	\$2,808	\$2,808	\$2,808	\$2,808
3	Basic Bridge Cost Delivered to Site	\$180,000 <sup>(5)</sup>	\$160,000 <sup>(5)</sup>	\$260,000 <sup>(1)</sup>	\$160,000 <sup>(2)</sup>
4	Unload and Set Superstructure with Cranes	\$3,240	\$3,240	\$0 <sup>(3)</sup>	\$0 <sup>(3)</sup>
5	Excavating and Abutment Construction	\$14,594	\$14,594	\$0	\$0
6	Driving Timber Piles	\$0	\$0	\$0 <sup>(4)</sup>	\$0 <sup>(4)</sup>
7	Miscellaneous Attachments	\$588	\$588	\$0	\$0
8	Temporary Shoring	\$1,530	\$1,530	\$0	\$0
9	Backfill with Granular Material	\$826	\$826	\$0	\$0
10	Final Grading	\$1,595	\$1,595	\$1,195	\$1,195
11	Touch-Up Paint Work	\$1212	\$1212	\$0	\$0
	<b>Total Estimated Cost</b>	<b>\$206,393</b>	<b>\$186,393</b>	<b>\$264,003</b>	<b>\$164,003</b>

- (1) Cost range estimated to be \$250,000 - \$ 275,000 according to provided cost by YBC, see Appendix D
- (2) Cost range estimated to be \$ 150,000 - \$ 170,000 according to provided cost by YBC, see Appendix D
- (3) Cost included within the Basic Bridge Cost Delivered to Site work task, see Appendix D
- (4) Cost included within the Basic Bridge Cost Delivered to Site work task, see Appendix D
- (5) See Appendix A, B, and C for cost and other details provided by Contech representative

**CONCLUSION**

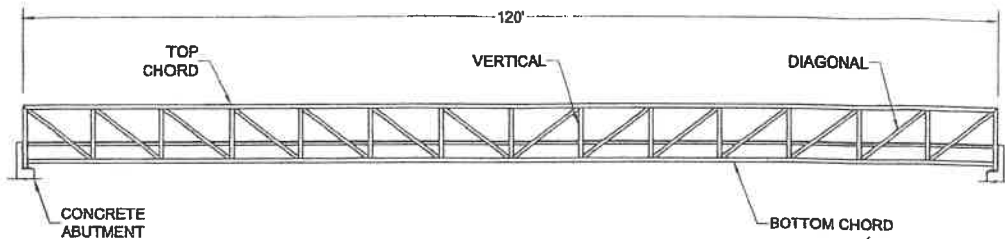
In our investigation of appropriate solutions for the Town of Weymouth, CDR|M identified and investigated two leading firms in the pedestrian bridge industry that have developed and enhanced a boutique niche, leading to cost-effective, easily constructed, and aesthetically pleasing alternatives for the proposed pedestrian bridge. Both firms, Contech and York Bridge Concepts (as presented), use the design-build method of project delivery and share CDR|M's goal for the Town, the installation of a durable, safe and context-sensitive pedestrian bridge. We are prepared to discuss the pros and cons of each alternative using a cost-benefit analysis to select a preferred alternative that captures the end goal of the Town: safe passage to Lovell Field.

**APPENDIX A**  
**PAINTED STEEL TRUSS OPTION-**  
*CONTECH ENGINEERED SOLUTIONS, LLC*



**BRIDGE SUMMARY**

Connector Pedestrian Bridge 120' Span x 8' Width  
 Deck Type: IPE (Hardwood)  
 Bridge Finish: Painted Warm Brown



**BRIDGE ELEVATION**

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a way that demonstrates your correct input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

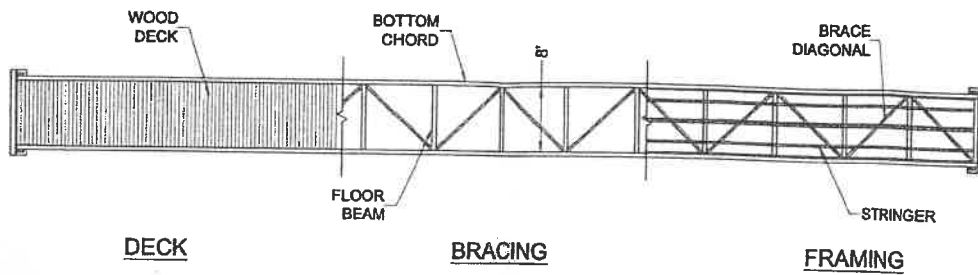
<b>PRELIMINARY</b>	
PROJECT NUMBER: 14854	DATE: 8/21/2018
DESIGNED BY: EYD	DRAWN BY: EYD
CHECKED BY:	APPROVED BY:
SHEET NO. 1 of 4	

NO.	DATE	REVISION DESCRIPTION	BY

**CONTECH**  
 ENGINEERED SOLUTIONS LLC  
 www.contechES.com  
 8031 Centre Plaza Dr, Suite 400, West Chester, OH 45380  
 800-338-1122 913-545-7000 913-545-7993 FAX

**CONTINENTAL**  
 BRIDGE  
 CONTECH  
 DYO®  
 POWER

Connector® 120' Span x 8' Width  
 Pedestrian Bridge  
 Pedestrian Bridge  
 Milton, Massachusetts



**BRIDGE PLAN**

CONTECH ENGINEERED SOLUTIONS LLC  
 8025 Centre Pike Dr., Suite 400, West Chester, OH 45386  
 609-356-1122 610-648-7000 610-648-7982 FAX

The graphic information and details contained in this drawing were prepared in electronic form. The plans, elevations and sections have been developed automatically in a way that demonstrates your current input in a relative and proportional manner. The details included in these plans have been selected to represent currently built, similar structures. They are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

NO.	DATE	DESCRIPTION	BY

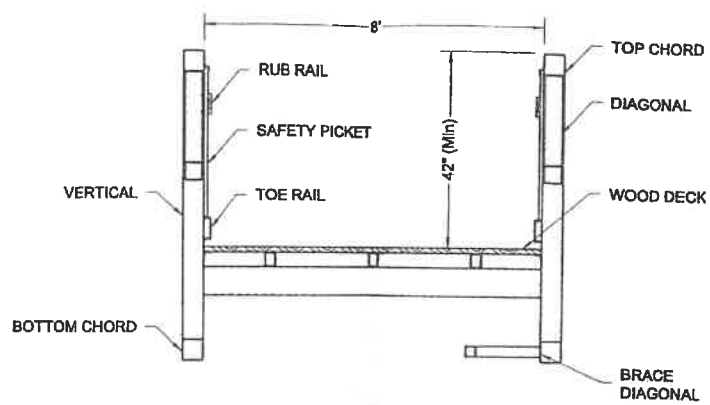
**CONTECH**  
ENGINEERED SOLUTIONS LLC

www.contechES.com  
8025 Centre Pike Dr., Suite 400, West Chester, OH 45386  
609-356-1122 610-648-7000 610-648-7982 FAX

CONTECH  
DYOP®  
DESIGN

Connector® 120' Span x 8' Width  
Pedestrian Bridge  
Pedestrian Bridge  
Milton, Massachusetts

PRELIMINARY	
DESIGNED BY	SP/MB/18
CHECKED BY	SP/MB
DATE	
SCALE	
SHEET NO.	2 of 4



**SECTION**

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a way that demonstrates your current input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

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NO.	DATE	REVISION DESCRIPTION	BY

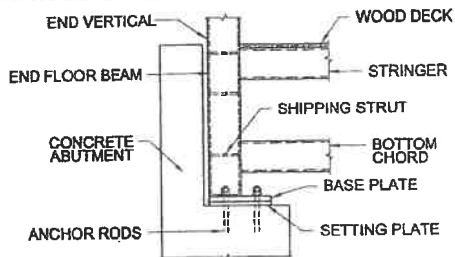
**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.contechES.com  
8025 Carver Park Dr., Suite 400, West Chester, OH 43081  
602-338-1123 513-842-7000 513-842-7923 FAX

**CONTINENTAL**  
ENGINEERING SOLUTIONS  
CONTECH  
ENGINEERED SOLUTIONS  
DESIGNED BY  
DYOB

Connector® 120' Span x 6' Width  
Pedestrian Bridge  
Pedestrian Bridge  
Milton, Massachusetts

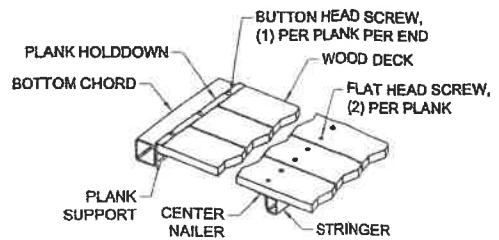
**PRELIMINARY**  
NOT FOR CONSTRUCTION

TABLE	6/21/2016
DESIGNER	DYOB
CHECKER	
DATE	
SHEET NO.	3 OF 4

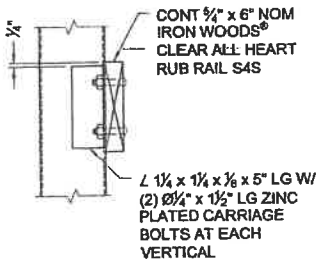


**BEARING SIDE VIEW**

INFORMATION PROVIDED FOR REPRESENTATION ONLY.  
ACTUAL BEARING DIAGRAMS TO BE BASED ON FINAL DESIGN.



**WOOD DECK DETAIL**



**RUB RAIL DETAIL**

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CONTECH ENGINEERED SOLUTIONS LLC  
8025 Centre Pointe Dr., Suite 400, West Chester, OH 45386  
800-334-1122 513-646-7000 513-646-7895 FAX  
www.contechES.com

NO.	DATE	REVISION DESCRIPTION	BY

**CONTECH**  
ENGINEERED SOLUTIONS LLC  
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8025 Centre Pointe Dr., Suite 400, West Chester, OH 45386  
800-334-1122 513-646-7000 513-646-7895 FAX

**CONFIDENTIAL**  
BRIDGE ENGINEERING  
CONTECH  
DYOB®  
Systems

Connector® 120' Span x 6' Width  
Pedestrian Bridge  
Pedestrian Bridge  
Milton, Massachusetts

<b>PRELIMINARY</b>			
PROJECT NUMBER	14884	DATE	02/10/14
DESIGNED BY	DYOB	CHECKED BY	DYOB
DRAWN BY		APPROVED BY	
SHEET NO.	4	OF	4

Design Your Own Bridge File for Painted Steel Truss Option

**Thank you for using DYOB Truss.**

For your records, here is a copy of your truss bridge project

Your local Contech representative will be in touch to discuss your project and provide additional assistance as needed. If you have any additional questions or need immediate assistance, please call 600-338-1122 or visit your local resources to speak with a Contech representative.

Click here for more information on our Truss structures

**My Project:**

**Contact Information**

First Name	Last Name
Anthony	Danksewicz
Title	Role in Project
Principal Structural Engineer	Engineer
Company	
CDR Maguire	
Address	Address Continued
2 Granite Avenue Suite 150	
City	State
Milton	Massachusetts
Zip	Country
02186	USA
e-mail	Phone
<u>anthony.danksewicz@cdrmaguire.com</u>	617-778-1487
Fax	

How did you hear about Contech's bridge solutions?

Site Solutions

If other, please specify

Way:

Mat

## Project Information

DYOB Project Number

148824

Project Title

Pedestrian Bridge

Project Location - City

Milton

Project Location - County

Norfolk

Project Location - State

Massachusetts

End Market

NonResidential

End Sub-Market

Amusement, Social and Recreational

Funding

Other

## Bridge Detail

Bridge Type

Pedestrian

Application

Trail Bridge

Bridge Style

Connector

Bridge Width

8

ft

Bridge Span

120

ft

Deck Type

IPE (Hardwood)

Rail Height

42" Pedestrian

Life Safety Rail

Vertical

Bridge Finish

Painted

Bridge Finish Color

Warm Brown

Abutment Type

Cast in Place

Design Code

AASHTO

Uniform Live Load

85 psf

Abutment Design

By CONTECH

Estimate Requested

Yes

Weyn

# CONTECH<sup>®</sup>

ENGINEERED SOLUTIONS

6025 Centre Pointe Drive  
Suite 600  
West Chester, Ohio 45069  
(513) 645-7000  
(800) 244-2102  
Fax: (513) 645-7689  
www.contech-csi.com

6/24/2018

Anthony Danksewicz  
CDR Maguire  
617-778-1487  
anthony.danksewicz@cdmaguire.com

**Subject: Milton Pedestrian Bridge, Milton, MA . (CONTECH Project #)**

The following is a Continental Pedestrian Bridge System ENGINEER'S COST ESTIMATE for the subject project. This ESTIMATE is intended for preliminary estimating purposes only and should not be interpreted as a final QUOTATION. The information presented is based on the most current data made available to CONTECH.

CONTECH will fabricate and deliver the following described Continental Pedestrian Bridge components and appurtenances

#### DESCRIPTION OF SUPPLIED MATERIALS:

- 1 - 120 ft span x 8 ft wide Continental Link Bridge
- 2-Coat Paint Finish
- 2" x 8" (nominal) Ironwood IPE Deck
- Vertical Pickets at 4" max to height of 54 inches
- IPE (rub rail)/rail provided
- Steel toe plate provided
- AASHTO LRFD Pedestrian Guide Specifications
- Uniform Live Load of 90 psf (LRFD)
- Vehicular Live Load of 10000 lbs
- Delivered in 2 sections

**ESTIMATE: \$180,000 Delivered (F O B )**

Estimated Heaviest Crane Pick: 48 800 lbs

These costs do not include the foundation, or installation costs. As part of the construction process, the contractor is to perform the items listed below in accordance with the installation drawings:

- Excavate and/or construction for the structure & foundations
- Provide and install anchor bolts
- Unload and set structure utilizing crane
- Touch-Up paint work
- Third-party testing

Please contact me should you have any questions or need additional information. Thank you for your interest in the Continental Pedestrian Bridge System.

Respectfully,

Tom Hennessey  
(774) 402-0312

Town th

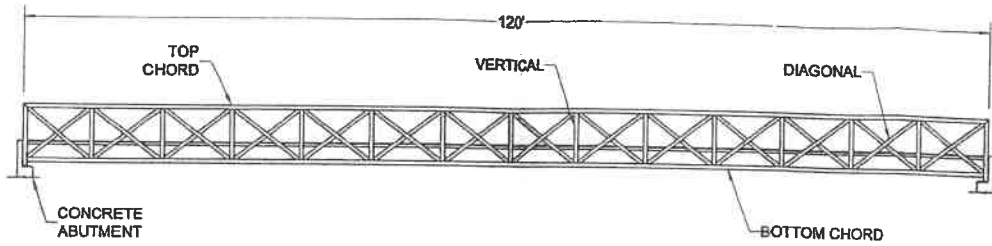


**APPENDIX B**  
**WEATHERING STEEL TRUSS OPTION-**  
*CONTECH ENGINEERED SOLUTIONS, LLC*



**BRIDGE SUMMARY**

Link Pedestrian Bridge 120' Span x 8' Width  
 Deck Type: IPE (Hardwood)  
 Bridge Finish: Weathering Steel



**BRIDGE ELEVATION**

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a 2D CAD environment based on your current input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

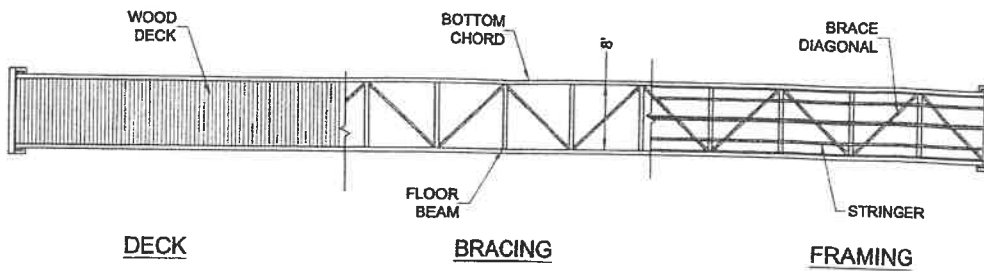
<b>PRELIMINARY</b>	
PROJECT NUMBER: 14422	DATE: 07/20/18
DRAWN: DYC	CHECKED: DYC
DESIGNED: DYC	APPROVED:
SHEET NO. 1 of 4	

NO.	DATE	REVISION DESCRIPTION	BY

**CONTECH ENGINEERED SOLUTIONS LLC**  
 8025 Centre Pointe Dr., Suite 400, West Chester, OH 45389  
 905-336-1122 613-446-7000 613-445-7993 FAX

**CONTINENTAL**  
 CONSTRUCTION  
 GROUP

Link® 120' Span x 8' Width  
 Pedestrian Bridge  
 Pedestrian Bridge  
 Milton, Massachusetts



**BRIDGE PLAN**

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a way that demonstrates your current input in a relative and proportional manner. The details included in these plans have been solidified to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

NO.	DATE	REVISION DESCRIPTION	BY

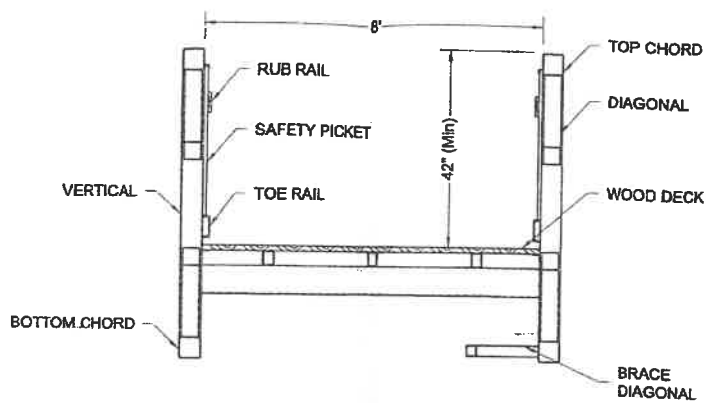
**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.contechcs.com

8231 Centre Pointe Dr., Suite 400, West Chester, OH 45381  
800-350-1122 513-645-7000 513-645-7983 FAX

CONTINENTAL  
BRIDGE  
CORPORATION  
DYOB®  
BRIDGES

Link® 120' Span x 8' Width  
Pedestrian Bridge  
Pedestrian Bridge  
Milton, Massachusetts

<b>PRELIMINARY</b> NOT FOR CONSTRUCTION		
PROJECT NUMBER: 148321	DATE: 8/21/2014	
DRAWN BY: DYOB	CHECKED BY: DYOB	
DESIGNED BY: DYOB	APPROVED BY: [Signature]	
SHEET NO.: 2		OF 4



**SECTION**

The graphic information and details contained in these plans is schematic in nature. The plans, elevations and sections have been developed automatically in a way that demonstrates your current input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not Engineering drawings, and as such, the details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

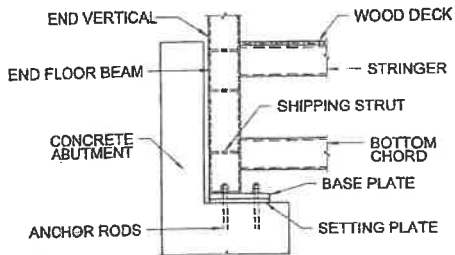
<b>PRELIMINARY</b>	
DATE	BY
01/08	DYOS
PROJECT	
FILE NO.	3 of 4

**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.contechcs.com  
8120 Danks Plaza Dr., Suite 400, West Chester, OH 43080  
937-338-1122 937-346-7220 937-345-7961 FAX

**CONTINENTAL**  
CONSTRUCTION  
CONTRACTOR  
DIVERSIFIED

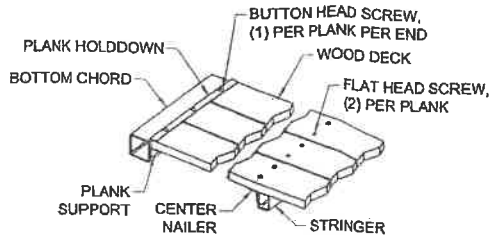
Link<sup>®</sup> 120' Span x 8' Width  
Pedestrian Bridge  
Pedestrian Bridge  
Milton, Massachusetts

NO.	DATE	REVISION DESCRIPTION

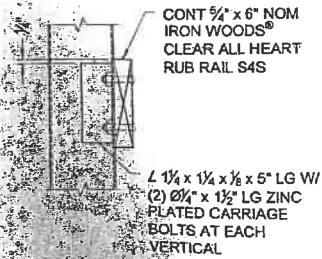


**BEARING SIDE VIEW**

INFORMATION PROVIDED FOR REPRESENTATION ONLY.  
ACTUAL BEARING DIAGRAMS TO BE BASED ON FINAL DESIGN.



**WOOD DECK DETAIL**



**RUB RAIL DETAIL**

The graphic information and details contained in these drawings are preliminary in nature. The plans, elevations and sections have been developed automatically and do not demonstrate your current input in a relative and proportional manner. The details included in these plans have been selected to represent commonly built construction assemblies. These are not to be used as a final design. The details may vary in the final design for your project depending on many variables that are selected in your final scope of work and specifications.

All drawings are preliminary in nature and are not to be used for construction. The information contained herein is for informational purposes only. The user of this information assumes all liability for any errors or omissions. The user of this information assumes all liability for any errors or omissions. The user of this information assumes all liability for any errors or omissions.

NO.	DATE	REVISION/DESCRIPTION

**CONTECH**  
ENGINEERED SOLUTIONS LLC  
www.contechES.com  
6376 Glenside Pkwy, Dr., Suite 400, W. of Chatham, OH 45201  
937-236-1322 937-695-1900 513-443-7883 FAX

**CONTINENTAL**  
BRIDGE  
CONSTRUCTION  
CORPORATION  
OFFICE  
DTON, OHIO

Link® 120' Span x 8' Width  
Pedestrian Bridge  
Pedestrian Bridge  
Milton, Massachusetts

**PRELIMINARY**

DESIGNED BY	DATE	REVISED BY	DATE
DRAWN BY		CHECKED BY	
SCALE		APPROVED BY	
SHEET NO.	4	OF	4

Design Your Own Bridge File for Weathering Steel Truss Option

**Thank you for using DYOB Truss.**

For your records, here is a copy of your truss bridge project

Your local Contech representative will be in touch to discuss your project and provide additional assistance as needed. If you have any additional questions or need immediate assistance, please call 800-338-1122 or visit your **local resources** to speak with a Contech representative

**Click here** for more information on our Truss structures

**My Project:**

**Contact Information**

First Name

Anthony

Last Name

Danksewicz

Title

Principal Structural Engineer

Role in Project

Engineer

Company

CDR Maguire

Address

2 Granite Avenue

Address Continued

City

Milton

State

Massachusetts

Zip

02186

Country

Norfolk

e mail

[anthony.danksewicz@cdrmaquire.com](mailto:anthony.danksewicz@cdrmaquire.com)

Phone

617-778-1487

Fax

How did you hear about Contech's bridge solutions?

Site Solutions

If other, please specify

## Project Information

DYOB Project Number

148828

Project Title

Pedestrian Bridge

Project Location - City

Milton

Project Location - County

Norfolk

Project Location - State

Massachusetts

End Market

NonResidential

End Sub-Market

Amusement, Social and Recreational

Funding

Other

## Bridge Detail

Bridge Type

Pedestrian

Application

Trail Bridge

Bridge Style

Link

Bridge Width

8

ft

Bridge Span

120

ft

Deck Type

IPE (Hardwood)

Life Safety Rail

Vertical

Rail Height

42" Pedestrian

Bridge Finish

Weathering Steel

Bridge Finish Color

N/A

Abutment Type

Cast in Place

Design Code

AASHTO

Uniform Live Load

85 psf

Abutment Design

By CONTECH

Estimate Requested

Yes

of

# CONTECH<sup>®</sup>

ENGINEERED SOLUTIONS

9025 Centre Pointe Drive  
Suite 400  
West Chester, Ohio 45069  
(513) 645-7000  
(800) 344-2102  
Fax: (513) 645-7669  
[www.contech-cpi.com](http://www.contech-cpi.com)

6/24/2018

Anthony Danksewicz  
CDR Maguire  
617-778-1487  
[anthony.danksewicz@cdmaguire.com](mailto:anthony.danksewicz@cdmaguire.com)

**Subject: Milton Pedestrian Bridge, Milton, MA , (CONTECH Project #)**

The following is a Continental Pedestrian Bridge System ENGINEER'S COST ESTIMATE for the subject project. This ESTIMATE is intended for preliminary estimating purposes only and should not be interpreted as a final QUOTATION. The information presented is based on the most current data made available to CONTECH.

CONTECH will fabricate and deliver the following described Continental Pedestrian Bridge components and appurtenances:

#### DESCRIPTION OF SUPPLIED MATERIALS

- 1 - 120 ft span x 8 ft wide Continental Link Bridge
- Unpainted Weathering Steel
- 2" x 8" (nominal) Ironwood IPE Deck
- Vertical Pickets at 4" max to height of 54 inches
- IPE (rub rail) rail provided
- Steel toe plate provided
- AASHTO LRFD Pedestrian Guide Specifications
- Uniform Live Load of 90 psf (LRFD)
- Vehicular Live Load of 10000 lbs
- Delivered in 2 sections

ESTIMATE: \$160,000 Delivered (F.O.B.)

Estimated Heaviest Crane Pick: 47,900 lbs

These costs do not include the foundation, or installation costs. As part of the construction process, the contractor is to perform the items listed below in accordance with the installation drawings:

- Excavate and/or construction for the structure & foundations
- Provide and install anchor bolts
- Unload and set structure utilizing crane
- Touch-Up paint work
- Third-party testing

Please contact me should you have any questions or need additional information. Thank you for your interest in the Continental Pedestrian Bridge System.

Respectfully,

Tom Hennessey  
(774) 402-0312

**APPENDIX C**  
**PREFABRICATED STEEL TRUSS**  
**BRIDGE PLAN PACKAGE -**  
*CONTECH ENGINEERED SOLUTIONS, LLC*



Example Project Plan Package - Prefabricated Steel Truss Bridge  
Contech

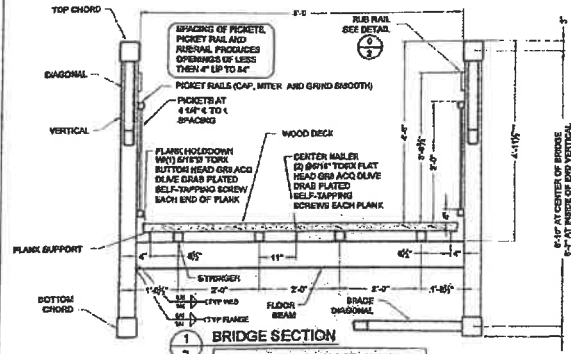
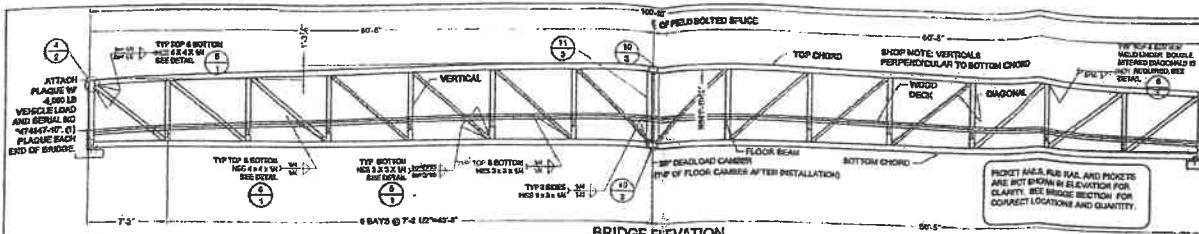
The following drawings are a representative set of drawings provided by Contech Engineered Solutions, LLC for a similar prefabricated steel truss pedestrian bridge.



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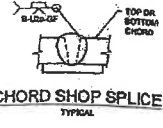
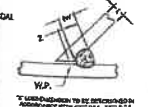
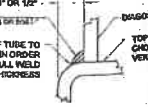
**SCHEDULE OF MEMBERS**

TOP CHORD	MS 8 2 2 X 14
BOTTOM CHORD	MS 8 2 2 X 14
END VERTICAL	MS 8 2 2 X 14
VERTICAL	MS 8 2 2 X 14
SPICE FLOOR BEAM	8 X 8 X 1/2
DIAGONAL	MS 8 2 2 X 14
BRACE DIAGONAL	MS 8 2 2 X 14
FLOOR BEAM	8 X 8 X 1/2
END FLOOR BEAM	MS 10 X 6 X 14
CENTER RAILER	2 X 2 X 3/16
STRINGER	MS 2 X 2 X 14
PLANK SUPPORT	2 X 2 X 3/16
PLANK HOLDDOWN	1/2 X 2 X 3/16
PICKET RAIL	MS 2 X 2 X 3/16
PICKETS	1/2 ROUND BAR

\*2-11 819P @ FIRST (2) INTERIOR VERTICALS, 4-11 12" @ ALL OTHER VERTICALS (ALONG CENTERLINE OF VERTICALS). TOP OF TOP CHORD IS PARALLEL TO TOP FLANGE OF FLOOR BEAM. FLOOR BEAM WILL NEED TO BE ROTATED TO ACHIEVE THIS. THE FLOOR BEAM CENTERLINES SHOULD BE CENTERED ON THE VERTICAL CENTERLINE.

**BRIDGE ELEVATION**  
**GENERAL NOTES**

- DESIGN PROVIDED IS IN ACCORDANCE WITH "LIFE BRIDGE DESIGN SPECIFICATIONS"-4TH EDITION & "GUIDE SPECIFICATIONS FOR DESIGN OF PEDESTRIAN BRIDGES" BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO).
- BRIDGE MEMBERS ARE MANUFACTURED FROM HIGH STRENGTH, LOW ALLOY, ENHANCED ATMOSPHERIC CORROSION RESISTANT (A572) AND COLD-FORMED WELDED SQUARE AND RECTANGULAR TUBING, AND ASTM A501, ASTM A571, OR ASTM A588 PLATE AND STRUCTURAL SHAPES (BY-PRODUCTS).
- BRIDGE DESIGNER HAS SELECTED STRUCTURAL STEEL SOUTHERN YELLOW PINE (FEM-140) PER MILITARY DESIGN MANUAL SHALL BE TREATED WITH ALUMINUM COPPER QUATERNARY (AOC) TO A 0.4 PCF RETENTION OR TO REPAIR.
- THE GAS METAL ARC WELDING PROCESS OR FLUX COATED ARC WELDING PROCESS WILL BE USED.
- ALL TOP AND BOTTOM CHORD SHOP SPICES TO BE COMPLETE PENETRATION TYPE WELDS. WELD BETWEEN TOP CHORD AND END VERTICAL SHALL BE AS DETAIL.
- UNLESS OTHERWISE NOTED, WELDED CONNECTIONS SHALL BE FILLET WELDS (OR HAVE THE EFFECTIVE THROAT OF A FILLET WELD) OF A SIZE EQUAL TO THE THICKNESS OF THE THINNEST GAUGE MEMBER IN THE CONNECTION. WELDS SHALL BE APPLIED AS FOLLOWS:
  - BOTH ENDS OF VERTICALS, DIAGONALS, AND FLOOR BEAMS SHALL BE WELDED ALL AROUND.
  - SPACE BRACES SHALL BE WELDED ALL AROUND.
  - UNLESS OTHERWISE NOTED, STRUCTURAL MEMBERS WILL BE STITCH WELDED TO THEIR SUPPORTING MEMBERS.
- BRIDGE DESIGNER HAS BASED ON COMBINATIONS OF THE FOLLOWING LOADS WHICH WILL PRODUCE MAXIMUM CRITICAL MEMBER STRESSES:
  - 80 PSF UNIFORM LIVE LOAD ON THE FULL DECK AREA OR ONE (400 LB) VEHICLE LOAD. THE LOAD SHALL BE DISTRIBUTED AS FOUR-WHEEL VEHICLE WITH 80% OF THE LOAD ON THE REAR WHEELS. THE WHEEL TRACK WIDTH OF THE VEHICLE SHALL BE 4'-0" AND THE WHEEL BASE SHALL BE 4'-0". THE VEHICLE SHALL BE POSITIONED AS TO PRODUCE THE MAXIMUM STRESS IN EACH MEMBER, INCLUDING DECKING.
  - AS PER WIND LOADS AT THE FULL HEIGHT OF THE BRIDGE, AS IT ENCLOSED.
  - AS PER IMPACT FORCE APPLIED AT THE FORWARD QUARTER POINT OF THE TRANSVERSE BRIDGE WIDTH (AS SHOWN).
- CLEANING: ALL EXPOSED SURFACES OF STEEL SHALL BE CLEANED IN ACCORDANCE WITH AISC, STRUCTURAL STEELWORK SURFACE PREPARATION SPECIFICATIONS (NO. 7) BRUSH-OFF BLAST CLEANING.



**WELD DETAIL 7.2**

TO BE PARTIAL PENETRATION WELDS TO END VERTICALS

8" MIN CLEARANCE TO FLANGES OUT (WHENVER IN LEGS)

**CONTECH FABRICATION**

41945

STATE OF CONNECTICUT

100'-10" X 8'-0" FOOTBRIDGE OVER RIDGEFIELD PEDESTRIAN BRIDGE RIDGEFIELD, CT

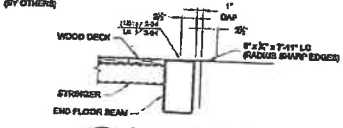
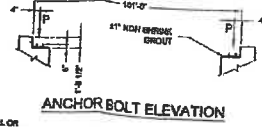
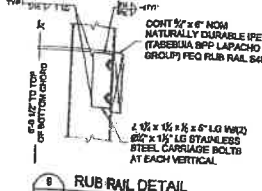
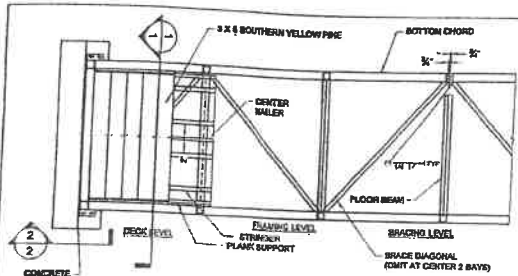
DATE

BY

CONTECH FABRICATION

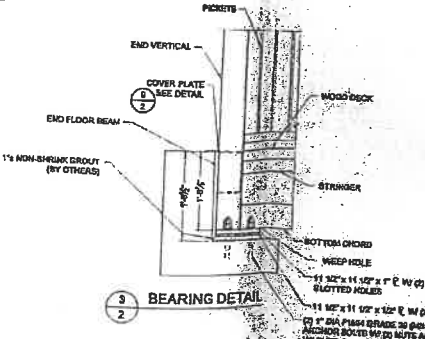
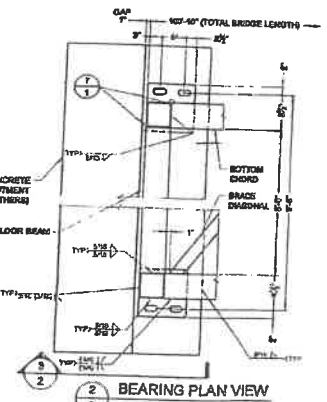
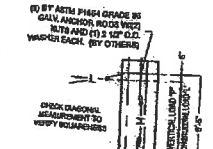
41945

STATE OF CONNECTICUT



BRIDGE REACTIONS

REACTION	TYPE	REMARKS
DECK LOAD	UNIFORM	AS PER LOCAL OR GOVERNING BUILDING CODES AS REQUIRED
WIND LOAD	UNIFORM	AS PER LOCAL OR GOVERNING BUILDING CODES AS REQUIRED
SEMI-TRUCK	MOVING	AS PER LOCAL OR GOVERNING BUILDING CODES AS REQUIRED
WIND	UNIFORM	AS PER LOCAL OR GOVERNING BUILDING CODES AS REQUIRED
SEMI-TRUCK	MOVING	AS PER LOCAL OR GOVERNING BUILDING CODES AS REQUIRED



**QUALITY ASSURANCE NOTES**

- ALL WELDS TO BE VISUALLY INSPECTED.



CONTECH FABRICATION COMPANY

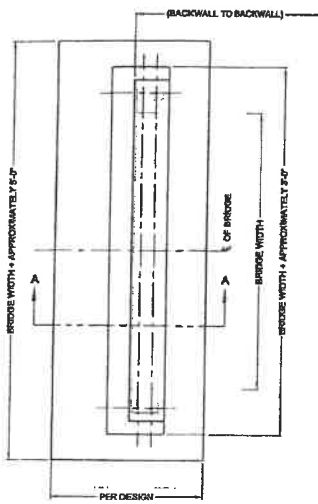
ADAM K. HOMEVIG  
LICENSED PROFESSIONAL ENGINEER  
41945  
STATE OF PENNSYLVANIA

100'-10" X 8'-0"  
FOOTBRIDGE OVER RIDGEFIELD  
PEDESTRIAN BRIDGE  
RIDGEFIELD, CT

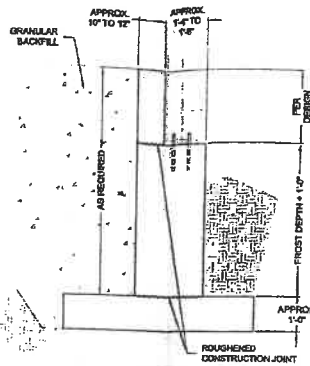
CONTECH  
BRIDGE SOLUTIONS  
CONSTRUCTION

DATE: \_\_\_\_\_  
SCALE: \_\_\_\_\_



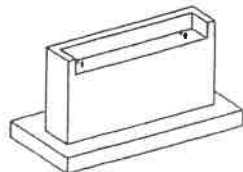


ABUTMENT PLAN



SECTION A-A

**CONTRACTOR/OWNER NOTE:**  
ALL ABUTMENT MATERIALS, INCLUDING ANCHOR BOLTS, ARE TO BE SUPPLIED BY OTHERS, NOT CONTECH



ABUTMENT ISOMETRIC  
NOT TO SCALE

**ABUTMENT DESIGN**

- DESIGN WILL BE BASED ON AN ASSUMED ALLOWABLE NET SOIL BEARING PRESSURE OF 1500 POUNDS PER SQUARE FOOT UNLESS ADDITIONAL SOIL INFORMATION IS PROVIDED.
- ABUTMENT DESIGN WILL BE BASED ON LOAD REACTIONS FOR A CONTECH PENETRATION BRIDGE ONLY. IF BRIDGE IS IN A SEISMIC REGION OR IS SUBJECT TO OTHER EXTERNAL LOADS (SNOW LOADING, UTILITY, ETC.), STANDARD DETAILS DO NOT APPLY. PLEASE CONTACT ENGINEERING FOR ADDITIONAL REQUIREMENTS.
- ABUTMENT DETAILS SHOWN ARE FOR ABUTMENTS ON EACH SIDE OF THE CROSSING. TOP OF ABUTMENTS TO BE THE SAME ON EITHER SIDE OF THE CROSSING.

**FOUNDATION NOTES**

- CONTRACTOR TO CONFIRM ABUTMENT ELEVATION AND LOCATION ARE CONSISTENT WITH PROJECT CIVIL PLANS.
- BACKFILLING OF ABUTMENTS TO BE DONE WITH GOOD, CLEAN GRANULAR MATERIAL, PLACED IN 6" LAYER LIFTS AND COMPACTED TO 98% OF ITS MAXIMUM DRY DENSITY AS SHOWN BY ASTM D-2922 STANDARD PROCTOR TEST.
- IF GROUNDWATER IS ENOUGH, THE EXCAVATION SHOULD BE PUMPED DRY BEFORE PLACEMENT OF FORMWORK AND CONCRETE.

**GEOTECHNICAL NOTES**

- OWNER DESIGNATED INSPECTOR SHALL OBSERVE FOUNDATION EXCAVATIONS PRIOR TO PLACEMENT OF FORMS OR STEEL REINFORCING BARS.
- SCOUR HAS NOT BEEN EVALUATED BY, AND IS NOT THE RESPONSIBILITY OF CONTECH ENGINEERING SOLUTIONS, LLC. IF SCOUR DESIGN'S PROTECTION IS REQUIRED, CONTACT ENGINEERING FOR ADDITIONAL REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SHORING, Dewatering AND CHAINING SOLE, IF NECESSARY, DURING EXCAVATIONS.

**CONCRETE NOTES**

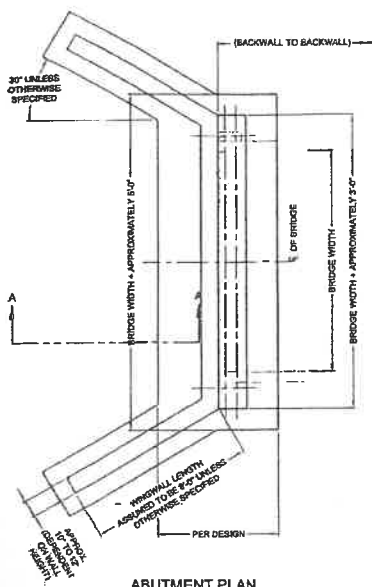
- ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 FOR MATERIALS, QUALITY, MIXING, PLACING, FORMWORK AND DETAILING.
- ALL CONCRETE SHALL ACHIEVE A COMPRESSIVE STRENGTH OF 3,000 PSI @ 28 DAYS.
- MAXIMUM AGGREGATE SIZE SHALL BE 3/4".
- ALL EXPOSED CORNERS OR EDGES SHALL BE FORMED WITH A 1/2" RADIUS CURVED EDGE, UNLESS ON STRUCTURAL OR ARCHITECTURAL DRAWINGS.
- MAXIMUM WATER CEMENT RATIO SHALL BE 0.5.

**REINFORCING NOTES**

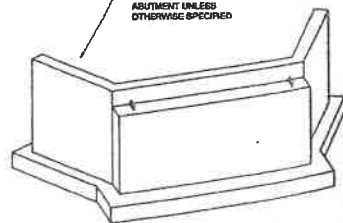
- ALL REINFORCING STEEL IS TO MEET ASTM 615-40 OR EQUAL.
- REINFORCING BARS SHALL BE PROVIDED, PREPARED, PLACED AND PROTECTED IN ACCORDANCE WITH ACI 318.11.
- REINFORCING BARS SHALL BE HELD SECURELY IN PLACE DURING PLACING OF CONCRETE BY TIES AT ALL INTERSECTIONS, DOBBS OR EQUIVALENT SHALL BE USED TO SUPPORT BARS. OTHER METHODS MAY BE APPROVED TO SECURE AND/OR SUPPORT BARS.
- CONCRETE COVER FOR REINFORCING BARS SHALL BE AS SHOWN ON THE PLANS AND SHALL COMPLY WITH ACI 318.11 OR:
  - CONCRETE CAST AGAINST EXH. "J"
  - OTHER EXTERIOR CASES... 2"
- REINFORCING BARS SHALL BE IN AS LONG OF LENGTHS AS PRACTICABLE AND AS DETAILLED.
- SPICES SHALL BE 40 BAR DIAMETERS, STAGGERED WITH SPICES IN ADJACENT BARS AND A MINIMUM OF 30 INCHES.

CONTECH  
FABRICATION  
DRAWING

CONTECH ENGINEERING SOLUTIONS, LLC 1000 W. WASHINGTON ST. SUITE 200 SAINT CLAIR, MI 48079 TEL: 810.386.1100 FAX: 810.386.1101 WWW.CONTECHENGINEERING.COM	
PROJECT NO. 2022010 DATE: 10/10/2021 DRAWN BY: JMM CHECKED BY: JMM APPROVED BY: JMM SCALE: AS SHOWN	REVISION DESCRIPTION NO. DATE 1.00 10/10/21
MDOT Item 88 St. Clair Co MDOT Item 88 St. Clair Co MDOT Item 88 St. Clair Co Saint Clair, MI	CONTRACTOR: BRIDGES



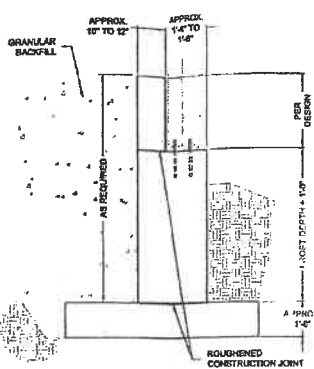
ABUTMENT PLAN



ABUTMENT ISOMETRIC  
NOT TO SCALE

**CONTRACTOR/OWNER NOTE:**  
ALL ABUTMENT MATERIALS INCLUDING ANCHOR RODS ARE TO BE SUPPLIED BY OTHERS, NOT CONTECH

TOP OF ABUTMENT ASSUMED TO BE FLAT & SAME HEIGHT AS ABUTMENT UNLESS OTHERWISE SPECIFIED



SECTION A-A

**ABUTMENT DESIGN**

- DESIGN WILL BE BASED ON AN ASSUMED ALLOWABLE NET SOIL BEARING PRESSURE OF 1,500 POUNDS PER SQUARE FOOT UNLESS ADDITIONAL SOIL INFORMATION IS PROVIDED.
- ABUTMENT DESIGN WILL BE BASED ON LOAD REACTIONS FOR A CONTECH PEDESTRIAN BRIDGE ONLY. IF BRIDGE IS IN A DESIGN REGION OR IS SUBJECT TO OTHER EXTERNAL LOADS (SNOW LOADS, UTILITIES, ETC.) STANDARD DETAILS DO NOT APPLY. PLEASE CONTACT ENGINEERING FOR ADDITIONAL REQUIREMENTS.
- ABUTMENT DETAILS SHOWN ARE FOR ABUTMENTS ON EACH SIDE OF THE CROSSING. TOP OF ABUTMENTS TO BE THE SAME ON EITHER SIDE OF THE CROSSING.

**FOUNDATION NOTES**

- CONTRACTOR TO CONFIRM ABUTMENT ELEVATION AND LOCATION ARE CONSISTENT WITH PROJECT CIVIL PLANS.
- BACKFILLING OF ABUTMENTS TO BE DONE WITH GOOD, CLEAN GRANULAR MATERIAL, PLACED IN 8" LAYER LIFTS AND COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY AS SHOWN BY ASTM D-998 STANDARD PROCTOR TEST.
- IF GROUNDWATER IS EVIDENT, THE EXCAVATION SHOULD BE PUMPED DRY BEFORE PLACEMENT OF FORMWORK AND CONCRETE.

**GEO TECHNICAL NOTES**

- OWNER DESIGNATED INSPECTOR SHALL OBSERVE FOUNDATION EXCAVATIONS PRIOR TO PLACEMENT OF FORMS OR STEEL REINFORCING BARS.
- SCOUR HAS NOT BEEN EVALUATED BY, AND IS NOT THE RESPONSIBILITY OF CONTECH ENGINEERED SOLUTIONS, LLC. IF SCOUR DESIGN & PROTECTION IS REQUIRED, CONTACT ENGINEERING FOR ADDITIONAL REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SHORING, Dewatering AND CAVING SOILS, IF NECESSARY, DURING EXCAVATIONS.

**CONCRETE NOTES**

- ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 FOR MATERIALS, QUALITY, MIXING, PLACING, FORMWORK AND DETAILING.
- ALL CONCRETE SHALL ACHIEVE A COMPRESSIVE STRENGTH OF 3,000 PSI @ 28 DAYS.
- MAXIMUM AGGREGATE SIZE SHALL BE 3/4".
- ALL EXPOSED CORNERS OR EDGES SHALL BE FORMED WITH A 1/2" RADIUS CURVED EDGE, LOCAL ON STRUCTURAL OR ARCHITECTURAL DRAWINGS.
- MAXIMUM WATER CEMENT RATIO SHALL BE 0.5.

**REINFORCING NOTES**

- ALL REINFORCING STEEL IS TO MEET ASTM 615-80 OR EQUAL.
- REINFORCING BARS SHALL BE PROVIDED, PREPARED, PLACED AND PROTECTED IN ACCORDANCE WITH ACI 318.11.
- REINFORCING BARS SHALL BE HELD SECURELY IN PLACE DURING PLACING OF CONCRETE BY TIES AT ALL INTERSECTIONS, DOGS OR EQUIVALENT SHALL BE USED TO SUPPORT BARS, OTHER METHODS MAY BE APPROVED TO SECURE ANCHOR SUPPORT BARS.
- CONCRETE COVER FOR REINFORCING BARS SHALL BE AS SHOWN ON THE PLANS AND SHALL COMPLY WITH ACI 318.11 OR:
  - CONCRETE CAST AGAINST EARTH... 2"
  - OTHER EXTERIOR CASES... 2"
- REINFORCING BARS SHALL BE IN AS LONG OF LENGTHS AS PRACTICABLE AND AS DETAILLED.
- SPLICES SHALL BE 40 BAR DIAMETERS, STAGGERED WITH SPLICES IN ADJACENT BARS AND A MINIMUM OF 30 INCHES.

CONTECH  
FABRICATION  
DRAWING

MDDOT Item 68 St. Clair Co MDDOT Item 68 St. Clair Co MDDOT Item 68 St. Clair Co Saint Clair, MI	
DATE	3/22/2013
DRAWN BY	MA
CHECKED BY	JOC
DESIGNED BY	MA
SCALE	AS SHOWN
PROJECT NO.	6811
1 of 1	

**APPENDIX D**  
**TIMBER BRIDGE OPTIONS-**  
*YORK BRIDGE CONCEPTS, INC.*

## Cost Estimate and Details for Timber Bridge Alternatives (YBC)

On June 22, 2018, Principal Structural Engineer at CDR Maguire, Inc. Anthony Danksewicz had a teleconference with Titus Edwards to discuss providing a bridge quote for the proposed pedestrian bridge over Weymouth's Herring Run Brook. Titus' contact phone number at YBC is (813) 482-0613 x105.

### **Alternative 1: Single-Span**

As previously described, YBC is an industry leader for timber bridges using the design-build delivery method from concept to ribbon cutting. Anthony discussed timber bridge concepts for 100 foot – 120-foot lengths, since exact length is to be determined. In discussing specifications, Titus said that glued laminated timber (glulam) would be used and would require a 5'-0" deep beam. Timber pile abutments installed by YBC would also be used.

Basic bridge cost inclusive of materials, labor, mobilization and equipment would be approximately **\$250,000 - \$275,000 for single-span layout**. YBC's on-site builders are located throughout U.S. and can mobilize rapidly.

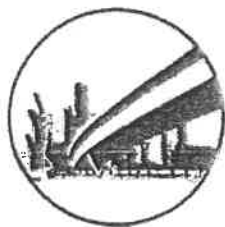
### **Alternative 2: Multiple-Span**

To aid in cost control without sacrificing safety, Titus suggested to Anthony that using timber pile bents installed just beyond water edges of the brook and multiple pile bents up each embankment could reduce span lengths and minimize the depth of beam required, reducing overall cost considerably. The basic bridge cost for the multiple-span bridge alternative would be approximately \$150,000 - \$170,000 inclusive of materials, labor, mobilization and equipment.

### **Additional Variables-Timber Bridge Alternative:**

- 75-year life expectancy for bridge
- Multiple-span layout preferred to reduce costs
- Timber piling used for substructure supports
- Small excavator with pile driving hammer attached to install
- Works where soil conditions are unknown
- Timber piling driven 8 feet below ground surface
- No permitting required
- YBC does not provide site work and the area would need to have grading either done by the Weymouth DPW or an independent contractor hired by the Town
- Accelerated construction schedule with approximately three (3) weeks needed to build bridge
- Custom design/custom build
- Three (3) month process once YBC is notified to proceed
- 3 – 4 weeks design/review process
- Crews are located throughout the United States and ready to mobilize to respective project sites, including Massachusetts.





**CDR | MAGUIRE**

**2 GRANITE AVENUE, SUITE 150, MILTON, MA 02186**  
**[www.cdrmaguire.com](http://www.cdrmaguire.com)**