

**TUSCOLA COUNTY ROAD COMMISSION  
REQUEST FOR PROPOSAL  
PROFESSIONAL ENGINEERING AND BRIDGE DESIGN SERVICES**

Consultant: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

Sign & Print: \_\_\_\_\_

Date: \_\_\_\_\_

Phone & Fax: \_\_\_\_\_

Email: \_\_\_\_\_

**Bridge Design:**

**Completed Proposal to the Tuscola County Road Commission by September 15, 2022**

**Structure No 10552, Belsay Road over Thetford-Arbela Drain, T10N R07E**

**Cost for Design Package:                    \$ \_\_\_\_\_**

**Suggested Replacement Structure: \_\_\_\_\_**

**Estimated Construction Cost:            \$ \_\_\_\_\_**

***Qualification statements/quote proposals shall be received no later than 9:15 AM Thursday September 15<sup>th</sup>, 2022, to Brent Dankert P.E., Acting County Highway Engineer. Late proposals will not be considered. See notice to bidder. Proposals must be delivered in a plainly marked and seal envelope. No electronic bids will be accepted.***

### **Proposal Intent**

The Tuscola County Road Commission seeks to hire a qualified, professional engineering team to provide design services, any necessary environmental permitting, and preparation of plans, specifications, and preliminary estimates of cost for the replacement of Structure No. 10552, Belsay Road over the Thetford-Arbela Drain. The TCRC expects consultants proposing on this project to have the qualifications, experience, personnel, and overall understanding of the work.

### **Background**

Structure No. 10552, Belsay Road over Thetford-Arbela Drain, has reached the end of its useful life and needs to be replaced. The existing bridge is a single-span structure with steel beams, a concrete deck, and concrete abutments. The bridge has a length of 21 feet and a clear width of 27.6 feet. Due to deteriorated fascia beams, the east shoulder is currently closed to traffic. Belsay Road is a Rural Local Road with average daily traffic of 750 vehicles per day. The Belsay Road Bridge over the Thetford Arbela Drain was used for the Tuscola County Road Commission 2025 Local Bridge Application Program **Final plans, special provisions, preliminary estimates of cost and EGLE permitting must be completed and submitted to the Tuscola County Road Commission by the Fall of 2024 so the bridge can be constructed in 2025.**

### **Proposal Submittal**

The Tuscola County Road Commission (TCRC) is soliciting qualification statements and quote proposals to perform bridge design services for the structure listed on page one. The proposal shall contain, at a minimum, the following items:

- Proposed bridge design including the type of structure intended for the location and estimated cost of construction to build the proposed design.
- Qualifications for all team members Involved.
- An understanding of the requested design services.
- Design fee and breakdown
  - Cost to include all soil borings, hydraulic analysis, and any other services necessary for a complete design.
    - Minimum of one soil boring per side to a minimum depth of 50 feet
  - Include an hourly fee schedule with the proposal.
- The proposed bridge design must follow all MDOT Local Agency design standards and guidelines and include the following:
  - A clear width of 32 feet inside-of-rail to inside-of-rail
  - Minimum of a 50-foot bridge approach
  - Tuscola County Road Commission standard name plate
  - A final plan set with all necessary special provisions associated to the construction of the proposed design

- Final Deliverables
  - A signed and sealed completed plan set, a copy of all special provisions, load rating calculations and computations, a preliminary estimate of construction cost completed in MERL, and an electronic copy of all design files.

The following items shall not be included in the proposal:

- Any cost or qualifications for ROW or land acquisition. If these services are required, a cost will be determined prior to beginning the work.
- Any cost related to asbestos testing. The Tuscola County Road Commission will be responsible for obtaining any testing or related items if deemed necessary.

### **Scoring**

The scoring of the submitted proposal will be based on the following criteria:

30%	Understanding of Services
30%	Qualifications of Team
20%	Design Fee
15%	Past Performance
5%	Location

### **Award and Payment**

Award will be made in the best interest of the Road Commission. Payment will be made by monthly invoicing. Please limit your package to maximum of five (5) pages and submit your company's hourly fee schedule with the proposal. The completed first page of the RFP does not count towards the maximum 5 pages. Any questions should be made to Brent Dankert at [highwayengineer@tuscolaroad.org](mailto:highwayengineer@tuscolaroad.org) or 989-751-3873.

### **Attachments:**

- Local Bridge Application
- Bridge Inspection Report
- Location Map
- Existing structure plans

Tuscola County Road Commission

Application For Michigan Department of Transportation Local Bridge Fund

Belsay Road over Thetford-Arbela Drain (SN 10552)

Arbela Township

Tuscola County

I. Introduction

The Belsay Road Bridge(Structure No. 10552) over the Thetford-Arbela Drain is the priority for Tuscola County in the 2025 fiscal year Michigan Department of Transportation Bridge Funding. Replacement of the bridge is needed. The structure has been inspected within the last two years.

The Belsay Road Bridge was originally constructed in 1965. The bridge is a single-span structure with steel beams, a concrete deck, and an HMA overlay. The structure has concrete abutment walls. The Belsay Road bridge has a length of 21 feet and has a clear width of 27.6 feet. The roadway over the bridge is currently reduced to 17.25' wide with one foot of shy distance on each side.

Belsay Road is a north-south road and has a NFC classification as a Rural Local Road and is classified as a local road for the Tuscola County Road Commission. The bridge is approximately 0.25 miles north of Birch Run Road. The average daily traffic on Belsay Road over the Thetford-Arbela Drain is approximately 750 vehicles per day. The road is primarily utilized as a route within the county lying between several primary roads including Birch Run Road, Millington Road, Vassar Road, M-15 and Bray Road. The road serves local and commuting traffic.

Following a regular biannual inspection of the Belsay Road bridge on June 13, 2021, it had to be closed due to issues discovered during the inspection including holes in the web of the east fascia beam at the north abutment. The bridge remained closed until temporary repairs were completed in December of 2021. There have been multiple requests by residents and local municipalities to complete work on the bridge. Please see the attached letters from the local governmental entities addressing their concerns with the bridge. The bridge currently poses a problem and inconvenience to not only commuting traffic, but also agriculture operations, local businesses, and recreational opportunities within the area. Specifically, there are four small home-based businesses that rely on this bridge for deliveries and the convenience of their customers. If selected, the Tuscola County Road Commission is committed to a 20% local match to fund the project.

II. General Conditions

Belsay Road Bridge SN 10552

The Belsay Road Bridge over Thetford-Arbela Drain is currently posted at 22 tons / 29 tons / 43 tons. The deficiencies noted from a June 2021 inspection included the following:

- All 7 steel I-beams have uniform corrosion throughout with moderate to severe corrosion at ends of fascia beams near backwall. Scale is present on ends of fascia beams. East Fascia Beam at north end has 5 small holes in web and the bottom flange is nearly rusted away. Bottom flange has heavy steel flacking at both bearings.



- No paint is applied to beams.
- Steel plate bearings are uniformly corroded.
- No slope protection present under structure protecting the abutment walls. Incised banks have allowed flowing water up against both abutments. North abutment footing has been exposed by scour.
- HMA approaches have alligator cracking present with settlement noted at each reference line.
- Full replacement of the bridge is needed due to the condition of the beams, abutments, approaches, and drain channel under the bridge.

Due to structural deficiencies documented in June of 2021 the bridge was closed to the public while emergency maintenance was performed. Once the bridge was structurally analyzed and posted with reduced weight limits, it was determined the bridge could be safely reopened to traffic with a reduced roadway width keeping traffic off the outside edges of the bridge. The roadway over the bridge is currently reduced to 17.25' wide with one foot of shy distance on each side. Additional signage has been placed reducing the speed limit over the bridge to 25 mph and Narrow Bridge signs have been added. See attached plans for details modifications that were made to keep the bridge open. Due to the reduced road width and weight capacity, a significant proportion of traffic is no longer able to use the Belsay Road Bridge. Traffic that can still use the bridge is decreased dramatically.

Currently information on the bridge foundations are unknown putting the bridge at risk for scour issues. Given the unknown conditions, the Belsay Road Bridge is scour critical which is another reason why the bridge will need to be replaced.

### III. Narrative Supporting the Application

#### A. Contact Person

The contact person for the Tuscola County Road Commission is:

Mr. Brent Dankert, P.E.

Acting County Highway Engineer

Tuscola County Road Commission

1733 Mertz Road, Caro, MI 48723

Phone: 989-751-3873

Email: [highwayengineer@tuscolaroad.org](mailto:highwayengineer@tuscolaroad.org)

#### B. This application is for the **Replacement** of the Belsay Road Bridge over Thetford-Arbela Drain.

C. Economic Importance

Belsay Road is a north-south road serving commuters, residential, recreational, and agricultural users. Belsay road sees approximately 750 vehicles per day. The economic importance of the Belsay Road Bridge over Thetford-Arbela Drain includes the following.

- Belsay Road is a north-south road serving commuters, residential, and agricultural users who live and work in the surrounding area.
- There are four local businesses and a motor cycle club directly impacted by the bridge.
- Due to weight restrictions, over weight traffic is required to utilize other routes to bypass the bridge.
- During 2021 while the Belsay Road bridge was closed pending emergency repairs all traffic had to detour around the bridge.
- Primary route south for local traffic to and from I-75

D. Existing Impact of Structure Detour

The posted load restrictions and reduced roadway width on the Belsay Road Bridge requires truck traffic to backtrack and detour approximately 4 miles(Birch Run to Vassar to Millington) to bypass the bridge. From June to December of 2021 all traffic was required to detour around the bridge while severe structural deficiencies were addressed. After the bridge modifications were completed restricted lane use remains in place limiting access to the bridge.

E. Structure Maintenance

Belsay Road over Thetford-Arbela Drain (SN 10552)

The Tuscola County Road Commission performed an overlay in 1983

The Tuscola County Road Commission performed emergency bridge maintenance in 2021.

IV. Cost Breakdown

The following is the estimated cost for the replacement of the Belsay Road Bridge over the Thetford-Arbela Drain, SN 10552. The bridge will have a slight increase in overall size to meet current design standards and provide an adequate waterway opening to address scour issues.

	ITEM	COST	ITEM	COST
A.	Approach Construction	(A)	\$104,200	
B.	Structure Construction	(B)	\$614,659*	
		Total (A&B)	\$718,859	
		<u>Contingency, Mob., Inflation</u>	<u>\$255,141</u>	
		Total Estimated Project Cost	\$974,000	

\* Increasing channel width to meet hydraulic requirements.

V. Priority List

1. Belsay Road Bridge over Thetford-Arbela Drain Structure No. 10552
2. Deckerville Road Bridge over North Branch of White Creek Structure No. 10468.

The Tuscola County Road Commission is committed to funding both Belsay and Deckerville Road Projects.

2022

**BRIDGE COST ESTIMATE WORKSHEET**  
- CPM, REHAB, REPLACE -

REV. 02/09/2022

OWNER: Tuscola County FISCAL YEAR: 2022 DATE: 4/4/2022  
 REGION: Bay LENGTH: 21.0 WIDTH: 27.6 ENGINEER: Brent Dankert  
 TSC: Huron PR: 267907 MP: 2,248 WIDTH: 25.9 STRUCTURE ID: 10552  
 LOCATION: BELSAY ROAD over THETFORD-ARBELA DRAIN BRIDGE ID: N/A  
 PRIMARY WORK ACTIVITY: Bridge Replacement DECK AREA: 580 SFT STR. TYPE: Steel  
 OTHER WORK: CLEAR ROADWAY: 544 SFT Multi-Stringer, W or I-Bear

WORK ACTIVITY	MDOT Bridge Design Guides	QUANTITY	UNIT	UNIT COST	TOTAL
<b>NEW BRIDGE</b> (increase deck area based on design standards and hydraulic requirements)					
Single or Multiple Spans, Grade Separation	(add demo, approach, MOT)		SFT	\$330.00 /SFT	
Single Span, Over Water	Length < 100ft (add demo, approach, MOT)	1,188.0	SFT	\$450.00 /SFT	\$534,600
Multiple Spans, Over Water	Length > 100ft (add demo, approach, MOT)		SFT	\$330.00 /SFT	
Precast Culvert	Length < 40ft (add demo, approach, MOT)		SFT	\$490.00 /SFT	
<b>NEW SUPERSTRUCTURE</b>					
New Superstructure, Grade Separation	(incl. remove exist deck/super; add MOT & approach)		SFT	\$225.00 /SFT	
New Superstructure, Over Water	(incl. remove exist deck/super; add MOT & approach)		SFT	\$225.00 /SFT	
<b>WIDENING</b>					
Structure Widening, _____ ft	(incl. deck/super/sub widening, add approach transition)		SFT	\$550.00 /SFT	
<b>NEW DECK</b>					
New Bridge Deck & Barrier	(incl. remove exist deck/railing, add approach, MOT)		SFT	\$120.00 /SFT	
<b>DEMOLITION</b>					
Entire Structure, Grade Separation			SFT	\$65.00 /SFT	
Entire Structure, Over Water		621.0	SFT	\$65.00 /SFT	\$40,365
<b>DECK REPAIR / TREATMENTS</b>					
Bridge Railing Replacement	(incl. removal and replacement)		FT	\$600.00 /FT	
Concrete Brush Block / Curb Patch	(incl. hand chipping and formwork)		FT	\$25.00 /FT	
Concrete Barrier Patch	(incl. hand chipping and formwork)		SFT	\$76.00 /SFT	
Concrete Deck Patch	(incl. hand chipping)		SFT	\$63.00 /SFT	
Deep Overlay	(incl. joint repl & hydro)		SFT	\$43.00 /SFT	
Epoxy Overlay	(incl. warranty)		SYD	\$39.00 /SYD	
Expansion Joint Gland Replacement	(remove and replace elastomeric gland)		FT	\$115.00 /FT	
Expansion Joint Replacement	(incl. removal)		FT	\$740.00 /FT	
Full Depth Patch			SFT	\$130.00 /SFT	
Healer / Sealer	(penetrates cracks in bridge deck)		SYD	\$16.00 /SYD	
HMA Overlay with WP membrane			SYD	\$60.00 /SYD	
Overlay Removal	(Epoxy: \$22/syd   Latex: \$26/syd   HMA: \$7/syd)		SYD	\$22.00 /SYD	
Reseal Bridge Joints			FT	\$25.00 /FT	
Shallow Overlay	(incl. joint repl & hydro)		SFT	\$40.00 /SFT	
<b>SUPERSTRUCTURE REPAIR</b>					
Bearing Realignment / Replacement	(incl. temporary supports)		EA	\$5,700.00 EA	
Heat Straightening	(incl. clean and coat)		EA	\$45,000.00 EA	
Pack Rust Repair	(greater than 3/8" separation)		FT	\$850.00 /FT	
Paint - Complete	(incl. clean & coat)		SFT	\$19.00 /SFT	
Paint - Partial / Spot / Zone	(incl. clean & coat - \$20k minimum)		SFT	\$30.00 /SFT	
PCI Beam End Blockout	(incl. temporary supports)		EA	\$7,200.00 EA	
Pin & Hanger Replacement	(incl. temporary supports)		EA	\$13,000.00 EA	
Structural Steel Repair	(based on 6ft repair length)		EA	\$3,400.00 EA	
Structural Steel Repair - Stiffener	(includes each side of beam)		EA	\$1,350.00 EA	
<b>SUBSTRUCTURE REPAIR</b>					
Substructure Patching	(measured x 2) replace if repair area > 30%		CFT	\$330.00 /CFT	
Substructure Replacement	(incl. temporary supports, excavation)		CFT	\$375.00 /CFT	
Substructure Horizontal Surface Sealer			SYD	\$75.00 /SYD	
Temporary Supports	(add Structural Steel Repair - Stiffener for ea steel beam)		EA	\$3,000.00 EA	
<b>MISCELLANEOUS</b>					
Articulating Concrete Block System (ACB)			SYD	\$280.00 /SYD	
Concrete Surface Coating			SYD	\$32.00 /SYD	
Culvert Cleanout			FT	\$125.00 /FT	
Epoxy Crack Injection	(structural crack repair)		FT	\$70.00 /FT	
Metal Mesh Panels	(48" width, max 6'-6" length)		SFT	\$26.00 /SFT	
Pressure Relief Joint	(use when approach concrete roadway exceeds 1,000ft)		FT	\$110.00 /FT	
Riprap	(assume 10ft distance around perimeter of substructure)	178.0	SYD	\$223.00 /SYD	\$39,694
Silane Treatment	(penetrating sealer for concrete surfaces)		SFT	\$7.00 /SFT	
Slope Protection Repairs			SYD	\$145.00 /SYD	
Other					

**STRUCTURE CONSTRUCTION BUDGET** \$614,659

ROAD WORK	QUANTITY	UNIT	UNIT COST	TOTAL
Approach Pavement, 12" RC (incl. removal; add curb, gutter, guardrail) 40' ea. end	267.0	SYD	\$200.00 /SYD	\$53,400
Approach Curb & Gutter (incl. removal) 40' ea. quadrant	160.0	FT	\$57.00 /FT	\$9,120
Guardrail Anchorage to Bridge (each quadrant)	4.0	EA	\$2,320.00 /EA	\$9,280
Guardrail (incl. removal) < 200ft beyond reference line	200.0	FT	\$34.00 /FT	\$6,800
Guardrail Terminal (each quadrant)	4.0	EA	\$3,900.00 /EA	\$15,600
Roadway Approach Work (beyond approach pavement)		LSUM		
Utilities		LSUM		

TRAFFIC CONTROL	QUANTITY	UNIT	UNIT COST	TOTAL
<i>Unit Cost to be determined by Region or TSC Traffic &amp; Safety</i>				
Part Width Construction		LSUM		
Crossovers		EA		
Temporary Traffic Signals		set		
RR Flagging		LSUM		
Detour	1.0	LSUM	\$10,000.00	\$10,000

**RELATED ROAD/TRAFFIC CONSTRUCTION BUDGET** \$104,200

CONTINGENCY (10% - 20%) (use higher contingency for small projects)	10	%	\$719,000.00	\$72,000
MOBILIZATION (estimate at 10%)	10	%	\$791,000.00	\$79,000
INFLATION (assume 4% per year, beginning in 2023)	12	%	\$870,000.00	\$104,000

(Does not include PE or CE)		<b>TOTAL CONSTRUCTION BUDGET</b>		<b>\$974,000</b>
(Refer to programming guidelines in Bridge Cost Estimating Worksheet-Key for CE, PE & PE-S)	12 % CE	CON BUDGET		\$1,091,000
	12 % PE	PE BUDGET		\$17,000
	10 % PE	PE-S BUDGET		\$81,000

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 10552		BRIDGE SAFETY INSPECTION REPORT		
<b>Facility</b>	<b>Latitude / Longitude</b>	<b>MDOT Structure ID</b>	<b>Structure Condition</b>	
BELSAY ROAD	43.255 / -83.602	79303H00054B010	Serious Condition(3)	
<b>Feature</b>	<b>Length / Width / Spans</b>	<b>Owner</b>		
THETFORD-ARBELA DRAIN	21 / 27.6 / 1	County: Tuscola(79)		
<b>Location</b>	<b>Built / Recon. / Paint / Ovly.</b>	<b>TSC</b>	<b>Operational Status</b>	
SEC 23-24 ARBELA TWP	1965 / / / 1983	Huron(28)	P Posted for load(222943)	
<b>Region / County</b>	<b>Material / Design</b>	<b>Last NBI Inspection</b>	<b>Scour Evaluation</b>	
Bay(4) / Tuscola(79)	3 Steel / 02 Multi Str Non Comp	06/13/2021 / GEUO	U Unknown Scour	

**NBI INSPECTION** **GEUO**

Inspector Name	Agency / Company Name	Insp. Freq.	Insp. Date
Rich Kathrens, P.E.	Spicer Group, Inc.	12	06/13/2021

**GENERAL NOTES**

RFA added to close shoulder due to East Fascia Beam Section Loss. Assisted by Linda Reed

**Weight limit signs in place on both ends of bridge**  
**Required advance warning weight limit signs in place**

**DECK**

	06/17	06/19	06/21	
<b>1. Surface (SIA-58A)</b>	6	5	5	HMA on concrete deck. Block cracks at 2'-4' spacing, sealed. Estimate 6" of HMA on deck. (06/21) HMA on concrete deck. Block cracks at 2'-4' spacing with vegetation growing along edges. Estimate 6" of HMA on deck. (06/19) HMA on concrete deck. Block cracks at 2'-6' spacing with vegetation growing along edges. Estimate 6" of HMA on deck. (06/17)
<b>2. Expansion Joints</b>	N	N	N	(06/21) (06/19) (06/17)
<b>3. Other Joints</b>	N	N	6	Paved over at end joints. (06/21) (06/19) (06/17)
<b>4. Railings</b>	6	6	6	Beam guardrail mounted to cast in place concrete posts on the deck slab. East guardrail impact damage at NE end and not attached to post 4S. There are 4 posts per fascia. Spalls on the tops of most posts. (06/21) Beam guardrail mounted to cast in place concrete posts on the deck slab. East guardrail not attached to post 4S. There are 4 posts per fascia. Spalls on the tops of most posts. (06/19) Beam guardrail mounted to cast in place concrete posts on the deck slab. East guardrail not attached to post 4S. There are 4 posts per fascia. Spalls on the tops of most posts. (06/17)
<b>5. Sidewalks or Curbs</b>	N	N	N	(06/21) (06/19) (06/17)
<b>6. Deck Bottom Surface (SIA-58B)</b>	7	7	7	Form liner tar paper was left in place. Concrete is exposed in By 3 at N. End. Some efflorescence bleeding through tar paper (06/21) Form liner tar paper was left in place. No deficiencies noted. (06/19) Form liner tar paper was left in place. No deficiencies noted. (06/17)
<b>7. Deck (SIA-58)</b>	7	7	6	Concrete deck, difficult to inspection with HMA surface on top and tar paper on bottom. There are areas of efflorescence bleeding through at bottom of deck. (06/21) Concrete deck, cracked HMA surface, tar paper soffit. Some efflorescence bleeding through the tar paper. (06/19) Concrete deck, cracked HMA surface, tar paper soffit. Some efflorescence bleeding through the tar paper. (06/17)
<b>8. Drainage</b>				Structure surface drains to edge of deck. (06/21) (06/19) (06/17)


**SUPERSTRUCTURE**

06/17 06/19 06/21

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 10552

BRIDGE SAFETY INSPECTION REPORT

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THETFORD-ARBELA DRAIN	21 / 27.6 / 1	County: Tuscola(79)		
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SEC 23-24 ARBELA TWP	1965 / / / 1983	Huron(28)	P Posted for load(222943)	
<b>Region / County</b>	<b>Material / Design</b>	<b>Last NBI Inspection</b>	<b>Scour Evaluation</b>	
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<b>9. Stringer (SIA-59)</b>	5	5	3	7 steel I-beams. Uniform corrosion throughout with moderate to sever corrosion at ends of fascia beams near backwall. Beam 7w (East Fascia Beam) at north end has 5 small holes in web and the bottom flange is nearly rusted away. Bottom flange has heavy steel flacking at both bearings. (06/21) There are 7 steel I-beams. Uniform rust throughout. Scale on ends of fascias only. Beam 7w at north end has 2 small holes in the web at the back wall interface with heavy pitting most of the height. (06/19) There are 7 steel I-beams. Uniform rust throughout. Scale on ends of fascias only. Beam 7w at north end has 2 small holes in the web at the back wall interface with heavy pitting most of the height. (06/17)
<b>10. Paint (SIA-59A)</b>	N	N	N	No paint on beams (06/21) No paint on beams (06/19) No paint on beams (06/17)
<b>11. Section Loss</b>	0	0	0	Scale on ends of fascia beams. Holes in web of beam 7w at north end and near 100% loss of bottom flange. (06/21) Scale on ends of fascia beams. Holes in beam 7w at north end. (06/19) Scale on ends of fascia beams. Holes in beam 7w at north end. (06/17)
<b>12. Bearings</b>	7	7	7	Thin steel plate bearings, uniformly corroded. (06/21) Thin steel plate bearings with 100% light surface corrosion. (06/19) Thin steel plate bearings with 100% light surface corrosion. (06/17)


**SUBSTRUCTURE**

	06/17	06/19	06/21	
<b>13. Abutments (SIA-60)</b>	7	7	7	Concrete cantilever abutment walls. No deficiencies noted. Up to 6 inches of footing face exposed on north abutment, west half with east half buried. South footing buried. (06/21) Concrete cantilever abutment walls. No deficiencies noted. Up to 6 inches of footing face exposed on north abutment, west half with east half buried. South footing buried. (06/19) Concrete cantilever abutment walls. No deficiencies noted. Footings buried. Could probe to top of footing through 1'+ of sediment along the north abutment. (06/17)
<b>14. Piers (SIA-60)</b>	N	N	N	(06/21) (06/19) (06/17)
<b>15. Slope Protection</b>	N	N	N	(06/21) No slope protection under the structure protecting the abutment walls. (06/19) No slope protection under the structure protecting the abutment walls. (06/17)
<b>16. Channel (SIA-61)</b>	6	6	6	Incised banks with water flowing up against both abutments. (06/21) Incised banks with water flowing up against both abutments. (06/19) Incised banks with water flowing up against both abutments. (06/17)
<b>17. Scour Inspection</b>	7	4	4	Waded and probed. South footing buried, water 2.5 feet deep. North footing face exposed from 2 inches at west end, 6 inches under beam 2w, 0 inches at center of abutment and buried to east end. Water up to 3.5 feet deep. (06/21) Waded and probed. South footing buried, water 3 inches deep. North footing face exposed from 2 inches at west end, 6 inches under beam 2w, 0 inches at center of abutment and buried to east end. Water up to 4 inches deep. (06/19) Waded and probed. Both footings buried. Close to top of waders. (06/17)

**APPROACH**

06/17 06/19 06/21

MICHIGAN DEPARTMENT OF TRANSPORTATION

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<b>Region / County</b>	<b>Material / Design</b>	<b>Last NBI Inspection</b>	<b>Scour Evaluation</b>	
Bay(4) / Tuscola(79)	3 Steel / 02 Multi Str Non Comp	06/13/2021 / GEUO	U Unknown Scour	

<b>18. Approach Pavement</b>	7	6	6	HMA approaches. Alligator cracking at centerline of north approach. Hairline transverse cracks recently sealed with minor settlement at each reference line was over 1/2 inch at edge line. (06/21) HMA approaches. Hairline transverse cracks with minor settlement at each reference line was over 1/2 inch at edge line. (06/19) HMA approaches. Hairline transverse cracks with minor settlement at each reference line, less than 1/2". (06/17)
<b>19. Approach Shoulders Sidewalks</b>	6	6	6	Narrow HMA/grass shoulders. No approach rail. (06/21) Narrow HMA/grass shoulders. (06/19) Narrow HMA/grass shoulders. (06/17)
<b>20. Approach Slopes</b>				Vegetated slopes, Stable (06/21) Flat, stable, grass and brush covered slopes. (06/19) Flat, stable, grass and brush covered slopes. (06/17)
<b>21. Utilities</b>				There is a 1" galvanized steel conduit along the west fascia. (06/21) There is a 1" galvanized steel conduit along the west fascia. (06/19) There is a 1" galvanized steel conduit along the west fascia. (06/17)
<b>22. Drainage Culverts</b>				(06/21) (06/19) (06/17)

**MISCELLANEOUS**

Guard Rail		Other Items	
Item	Rating	Item	Rating
36A. Bridge Railings	0	71. Water Adequacy	6
36B. Transitions	0	72. Approach Alignment	7
36C. Approach Guardrail	0	Temporary Support	0 No Temporary Supports
36D. Approach Guardrail Ends	0	High Load Hit (M)	No
		Special Insp. Equipment	2
		Underwater Insp. Method	1

False Decking (Timber) Removed to Complete Inspection N/A - No False Decking

**Critical Feature Inspections (SIA-92)**

	Freq	Date
92A. Fracture Critical		
92B. Underwater		
92C. Other Special		
92D. Fatigue Sensitive		



MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 10552

BRIDGE SAFETY INSPECTION REPORT

<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	

SUPPORTING IMAGES

GEUO 06/13/2021



Document Name: IMG\_3372.JPEG  
 Category: Elevation  
 Span Number:  
 Comments: West elevation



Document Name: IMG\_3374.JPEG  
 Category: Approach  
 Span Number:  
 Comments: Looking south



Document Name: IMG\_3378.JPEG  
 Category: Approach  
 Span Number:  
 Comments: North approach



Document Name: IMG\_3389.JPEG  
 Category: Approach  
 Span Number:  
 Comments: South approach



MICHIGAN DEPARTMENT OF TRANSPORTATION

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BRIDGE SAFETY INSPECTION REPORT

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition
BELSAY ROAD	43.255 / -83.602	79303H00054B010	Serious Condition(3)
Feature	Length / Width / Spans	Owner	Operational Status
THETFORD-ARBELA DRAIN	21 / 27.6 / 1	County: Tuscola(79)	P Posted for load(222943)
Location	Built / Recon. / Paint / Ovly.	TSC	Scour Evaluation
SEC 23-24 ARBELA TWP	1965 / / / 1983	Huron(28)	U Unknown Scour
Region / County	Material / Design	Last NBI Inspection	
Bay(4) / Tuscola(79)	3 Steel / 02 Multi Str Non Comp	06/13/2021 / GEUO	



Document Name: IMG\_3426.JPEG  
 Category: Approach  
 Span Number:  
 Comments: Looking north



Document Name: IMG\_3381.JPEG  
 Category: Railing  
 Span Number:  
 Comments: West railing



Document Name: IMG\_3383.JPEG  
 Category: Railing  
 Span Number:  
 Comments: East railing



Document Name: IMG\_3384.JPEG  
 Category: Railing  
 Span Number:  
 Comments: Impact damage and missing connection, NE quad



MICHIGAN DEPARTMENT OF TRANSPORTATION

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BRIDGE SAFETY INSPECTION REPORT

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition
BELSAY ROAD	43.255 / -83.602	79303H00054B010	Serious Condition(3)
Feature	Length / Width / Spans	Owner	Operational Status
THETFORD-ARBELA DRAIN	21 / 27.6 / 1	County: Tuscola(79)	P Posted for load(222943)
Location	Built / Recon. / Paint / Ovly.	TSC	Scour Evaluation
SEC 23-24 ARBELA TWP	1965 / / / 1983	Huron(28)	U Unknown Scour
Region / County	Material / Design	Last NBI Inspection	
Bay(4) / Tuscola(79)	3 Steel / 02 Multi Str Non Comp	06/13/2021 / GEUO	



Document Name: IMG\_3387.JPEG  
 Category: Deck  
 Span Number:  
 Comments: Deck, looking north



Document Name: IMG\_3393.JPEG  
 Category: Superstructure  
 Span Number:  
 Comments: East fascia



Document Name: IMG\_3395.JPEG  
 Category: Superstructure  
 Span Number:  
 Comments: West fascia



Document Name: IMG\_3398.JPEG  
 Category: Superstructure  
 Span Number:  
 Comments: Beams, deck bottom



MICHIGAN DEPARTMENT OF TRANSPORTATION

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BRIDGE SAFETY INSPECTION REPORT

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition
BELSAY ROAD	43.255 / -83.602	79303H00054B010	Serious Condition(3)
Feature	Length / Width / Spans	Owner	Operational Status
THETFORD-ARBELA DRAIN	21 / 27.6 / 1	County: Tuscola(79)	P Posted for load(222943)
Location	Built / Recon. / Paint / Ovly.	TSC	Scour Evaluation
SEC 23-24 ARBELA TWP	1965 / / / 1983	Huron(28)	U Unknown Scour
Region / County	Material / Design	Last NBI Inspection	
Bay(4) / Tuscola(79)	3 Steel / 02 Multi Str Non Comp	06/13/2021 / GEUO	



Document Name: IMG\_3401.JPEG  
 Category: Superstructure  
 Span Number:  
 Comments: East fascia beam, flange LOS at south abutment



Document Name: IMG\_3404.JPEG  
 Category: Superstructure  
 Span Number:  
 Comments: East fascia beam, LOS at south abutment



Document Name: IMG\_3418.JPEG  
 Category: Superstructure  
 Span Number:  
 Comments: East fascia beam at north abutment



Document Name: IMG\_3421.JPEG  
 Category: Superstructure  
 Span Number:  
 Comments: East fascia beam at north abutment, holes in web



MICHIGAN DEPARTMENT OF TRANSPORTATION

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BRIDGE SAFETY INSPECTION REPORT

<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	



Document Name: IMG\_3422.JPEG  
 Category: Superstructure  
 Span Number:  
 Comments: East fascia beam at north abutment, holes in web



Document Name: IMG\_3397.JPEG  
 Category: Substructure  
 Span Number:  
 Comments: North abutment



Document Name: IMG\_3406.JPEG  
 Category: Substructure  
 Span Number:  
 Comments: North abutment, east fascia



Document Name: IMG\_3407.JPEG  
 Category: Substructure  
 Span Number:  
 Comments: South abutment, east fascia



MICHIGAN DEPARTMENT OF TRANSPORTATION

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BRIDGE SAFETY INSPECTION REPORT

<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	



Document Name: IMG\_3420.JPEG  
 Category: Substructure  
 Span Number:  
 Comments: South abutment



Document Name: IMG\_3379.JPEG  
 Category: Channel  
 Span Number:  
 Comments: Looking east



Document Name: IMG\_3380.JPEG  
 Category: Channel  
 Span Number:  
 Comments: Looking west



Document Name: IMG\_3405.JPEG  
 Category: Channel  
 Span Number:  
 Comments: Looking west

MICHIGAN DEPARTMENT OF TRANSPORTATION

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BRIDGE SAFETY INSPECTION REPORT

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition
BELSAY ROAD	43.255 / -83.602	79303H00054B010	Serious Condition(3)
Feature	Length / Width / Spans	Owner	Operational Status
THETFORD-ARBELA DRAIN	21 / 27.6 / 1	County: Tuscola(79)	P Posted for load(222943)
Location	Built / Recon. / Paint / Ovly.	TSC	Scour Evaluation
SEC 23-24 ARBELA TWP	1965 / / / 1983	Huron(28)	U Unknown Scour
Region / County	Material / Design	Last NBI Inspection	
Bay(4) / Tuscola(79)	3 Steel / 02 Multi Str Non Comp	06/13/2021 / GEUO	



Document Name: IMG\_3425.JPEG

Category: Channel

Span Number:


Comments: Looking east



MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 10552

STRUCTURE INVENTORY AND APPRAISAL

<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	

**Bridge History, Type, Materials**

27 - Year Built	1965
106 - Year Reconstructed	
202 - Year Painted	
203 - Year Overlay	1983
43 - Main Span Bridge Type	3 02
44 - Appr Span Bridge Type	
77 - Steel Type	3
78 - Paint Type	1
79 - Rail Type	1
80 - Post Type	0
107 - Deck Type	1
108A - Wearing Surface	6
108B - Membrane	0
108C - Deck Protection	0

**Structure Dimensions**

34 - Skew	0
35 - Struct Flared	N
45 - Num Main Spans	1
46 - Num Apprs Spans	0
48 - Max Span Length	19.5
49 - Structure Length	21
50A - Width Left Curb/SW	0
50B - Width Right Curb/SW	0
33 - Median	0
51 - Width Curb to Curb	25.9
52 - Width Out to Out	27.6
112 - NBIS Length	N

**Inspection Data**

90 - Inspection Date	06/13/2021
91 - Inspection Freq	12
92A - Frac Crit Req/Freq	N
92A - Frac Crit Insp Date	
92B - Und Water Req/Freq	N
92B - Und Water Insp Date	
92C - Oth Spec Insp Req/Freq	N
92C - Oth Spec Insp Date	
92D - Fatigue Req/Freq	N
92D - Fatigue Insp Date	
93D - Fatigue Insp Date	
176A - Und Water Insp Method	1
58 - Deck Rating	6
58A/B - Deck Surface/Bottom	5 7
59 - Superstructure Rating	3
59A - Paint Rating	N
60 - Substructure Rating	7
61 - Channel Rating	6
62 - Culvert Rating	N

**Navigation Data**

38 - Navigation Control	0
39 - Vertical Clearance	0
40 - Horizontal Clearance	0
111 - Pier Protection	
116 - Lift Brdg Vert Clear	

**Route Carried By Structure(ON Record)**

5A - Record Type	1
5B - Route Signing	4
5C - Level of Service	8
5D - Route Number	00000
5E - Direction Suffix	0
10L - Best 3m Unclr-Lt	0 0
10R - Best 3m Unclr-Rt	99 99
PR Number	
Control Section	
11 - Mile Point	
12 - Base Highway Network	0
13 - LRS Route-Subroute	0000002679 07
19 - Detour Length	4
20 - Toll Facility	3
26 - Functional Class	09
28A - Lanes On	2
29 - ADT	750
30 - Year of ADT	2009
32 - Appr Roadway Width	27.9
32A/B - Ap Pvt Type/Width	5 20.01
42A - Service Type On	1
47L - Left Horizontal Clear	0.0
47R - Right Horizontal Clear	25.9
53 - Min Vert Clr Ov Deck	99 99
100 - STRAHNET	0
102 - Traffic Direct	2
109 - Truck %	0
110 - Truck Network	0
114 - Future ADT	1360
115 - Year Future ADT	2029
Freeway	0

**Structure Appraisal**

36A - Bridge Railing	0
36B - Rail Transition	0
36C - Approach Rail	0
36D - Rail Termination	0
67 - Structure Evaluation	5
68 - Deck Geometry	5
69 - Underclearance	N
71 - Waterway Adequacy	6
72 - Approach Alignment	7
103 - Temporary Structure	
113 - Scour Criticality	U

**Miscellaneous**

37 - Historical Significance	5
98A - Border Bridge State	
98B - Border Bridge %	
101 - Parallel Structure	N
EPA ID	
Stay in Place Forms	
143 - Pin & Hanger Code	
148 - No. of Pin & Hangers	

**Route Under Structure (UNDER Record)**

5A - Record Type	
5B - Route Signing	
5C - Level of Service	
5D - Route Number	
5E - Direction Suffix	
10L - Best 3m Unclr-Lt	
10R - Best 3m Unclr-Rt	
PR Number	
Control Section	
11 - Mile Point	
12 - Base Highway Network	
13 - LRS Route-Subroute	
19 - Detour Length	
20 - Toll Facility	
26 - Functional Class	
28B - Lanes Under	
29 - ADT	
30 - Year of ADT	
42B - Service Type Under	5
47L - Left Horizontal Clear	
47R - Right Horizontal Clear	
54A - Left Feature	
54B - Left Underclearance	99 99
54C - Right Feature	
54D - Right Clearance	99 99
Under Clearance Year	
55A - Reference Feature	N
55B - Right Horiz Clearance	99.9
56 - Left Horiz Clearance	0
100 - STRAHNET	
102 - Traffic Direct	
109 - Truck %	
110 - Truck Network	
114 - Future ADT	
115 - Year Future ADT	
Freeway	

**Proposed Improvements**

75 - Type of Work	
76 - Length of Improvement	
94 - Bridge Cost	
95 - Roadway Cost	
96 - Total Cost	
97 - Year of Cost Estimate	


**Load Rating and Posting**

31 - Design Load	2
41 - Open, Posted, Closed	P
63 - Fed Oper Rtg Method	6
64F - Fed Oper Rtg Load	.72
64MA - Mich Oper Rtg Method	6
64MB - Mich Oper Rtg	.67
64MC - Mich Oper Truck	16
65 - Inv Rtg Method	6
66 - Inventory Load	.43
70 - Posting	0
141 - Posted Loading	222943
193 - Overload Class	

MICHIGAN DEPARTMENT OF TRANSPORTATION

**STR 10552**

**SAFETY INSPECTION REPORT - AASHTO ELEMENTS**

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition	
BELSAY ROAD	43.255 / -83.602	79303H00054B010	Serious Condition(3)	
Feature	Length / Width / Spans	Owner		
THETFORD-ARBELA DRAIN	21 / 27.6 / 1	County: Tuscola(79)		
Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status	
SEC 23-24 ARBELA TWP	1965 / / / 1983	Huron(28)	P Posted for load(222943)	
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation	
Bay(4) / Tuscola(79)	3 Steel / 02 Multi Str Non Comp	06/13/2021 / GEUO	U Unknown Scour	


**No inspections available for bridge key 79303H00054B010**



MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 10552

WORK RECOMMENDATIONS

<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	

WORK RECOMMENDATIONS

GEUO

Inspector Name	Agency / Company Name	Insp. Freq.	Insp. Date
Rich Kathrens, P.E.	Spicer Group, Inc.	12	06/13/2021


RECOMMENDATIONS & ACTION ITEMS

Recommendation Type	Priority	Description
Scour Repair	M	Add riprap along abutments.
Approach Repair	H	Seal cracks in HMA
Brush Cut	M	Brush cut
Railing Repair	H	Update guardrail on structure and approaches.
Deck Patching	H	Seal cracks in HMA
Super Repair	H	Repair fascia beam ends.

MICHIGAN DEPARTMENT OF TRANSPORTATION

**STR 10552**

**SCOUR CRITICAL BRIDGE ACTION PLAN**


Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition	
BELSAY ROAD	43.255 / -83.602	79303H00054B010	Serious Condition(3)	
Feature	Length / Width / Spans	Owner		
THETFORD-ARBELA DRAIN	21 / 27.6 / 1	County: Tuscola(79)		
Location	Built / Recon. / Paint / Ovly.	TSC	Operational Status	
SEC 23-24 ARBELA TWP	1965 / / / 1983	Huron(28)	P Posted for load(222943)	
Region / County	Material / Design	Last NBI Inspection	Scour Evaluation	
Bay(4) / Tuscola(79)	3 Steel / 02 Multi Str Non Comp	06/13/2021 / GEUO	U Unknown Scour	

**No plan available for bridge key 79303H00054B010**

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 10552

LOAD RATING ASSUMPTIONS

<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	

**Rating Considers Field Condition of Members:** Yes      **Inspection Date:** 06/13/2021

**Deterioration:**

East Fascia: 49% of total web thickness deteriorated, 90% of total bottom flange deteriorated

**Most Recent Year Construct / Reconstruct / Overlay:** 2011

**History of Work Impacting Load Rating:**

HMA overlays on concrete deck. Used 6" of HMA in load rating.

<b>Superstructure Component:</b>	3 Steel	<b>Beam fy:</b> 36.0 ksi	<b>Beam f'c / fb:</b> ksi
<b>Composite:</b>	No	<b>Number of Beams:</b> 7	<b>Shop Drawings Verified:</b> No
<b>Beam Size(s) &amp; Names (each span):</b>	W16x36 beams		
<b>Deck:</b>	<b>Thickness (in.):</b> 8.0	<b>Fy / f'c:</b> / ksi	<b>Deck Design Load &gt; H15:</b> No
<b>Wearing Surface:</b>	<b>Mat'l:</b> HMA	<b>Thickness (in.):</b> 6.0	<b>Unit Weight (pcf.):</b> 150.0
	<b>LEFT</b>	<b>CENTER</b>	<b>RIGHT</b>
<b>Barrier: Type / Weight (plf.):</b>	Conc Post / 24.0 Guardrails	/	Conc Post / 24.0 Guardrails
<b>Sidewalk: Width / Thick (in.):</b>	/	/	/
<b>Clear Roadway (ft.):</b>	17.3		

**Additional Loads:**

Barriers blocking shoulders: 625 plf on each shoulder

**Unique Factors That Affect Capacity:**

Bridge and beam data based on Elten Engineerings 8/15/1991 calculations. Shoulders blocked from traffic due to deterioration on East Fascia


**Analyzed By:** Rich Kathrens, P.E.

**Date:** 08/20/2021

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 10552

LOAD RATING SUMMARY

<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	

**Compliance Issue:** None  
**Compliance Verified:** No  
**Analysis Program:** AASHTOWare Bridge Rating (BrR)  
**Analysis Program Version:** 7.0.0  
**Rating Considers Field Condition of Members:** Yes      **Inspection Date:** 06/13/2021  
**Controlling component and failure mode:**

East Fascia Beam, Design Shear - Steel at north abutment

NEW INVENTORY CODING

**NBI Item 63 - Operating Rating Method**      6 LFR in Rating Factor  
**NBI Item 64F - Federal Operating Ratings**      0.72  
**MDOT Item 64MA - Michigan Operating Method**      6 LFR in Rating Factor  
**MDOT Item 64MB - Michigan Operating Rating**      0.67  
**MDOT Item 64MC - Michigan Operating Truck**      16  
**NBI Item 65 - Inventory Rating Method**      6 LFR in Rating Factor  
**NBI Item 66 - Federal Inventory Rating**      0.43  
**NBI Item 41 - Structure Open Posted Closed**      P P Posted for load  
**NBI Item 70 - Bridge Posting**      0 0 - 59% or less  
**Posted By**      Truck Type  
**MDOT Item 141 - Posted Loading**      222943  
**MDOT Item 193A - Michigan Overload Class**  
**MDOT Item 193C - Overload Status**


Sample Sign



R12-5

**Analyzed By:** Rich Kathrens, P.E.      **Date:** 08/20/2021  
**Checked By:** Daniel Zeddies      **Date:** 08/20/2021

**MICHIGAN DEPARTMENT OF TRANSPORTATION**

STR 10552		REQUEST FOR ACTION		
<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	

**REQUEST FOR ACTION** **10552-06172021**

Submitted By	Agency / Company Name	RFA#	RFA Date
Rich Kathrens, P.E.	Spicer Group, Inc.	10552-06172021	06/17/2021

**Problems/Comments**

East Fascia Beam has severe section loss near N. Abutment Backwall. Based on the 6/13/21 field inspection, it is recommended the shoulder be closed to keep traffic from placing loads on the fascia beam. (Rich Kathrens, P.E. 06/17/2021)

**IMMEDIATE ACTION**

Recommended Action	Requested By	Completed By	Completed Date
Close Shoulder	Rich Kathrens, P.E.	Tuscola County Crew	06/17/2021

**Comments**

Tuscola County elected to close the bridge until they verify there will be enough road way clearance to accommodate closing the shoulder. Barricades are in place to prevent traffic from crossing the structure. (Rich Kathrens, P.E. 06/17/2021)

**Date Traffic Restored / Signs Installed    Traffic Restoration / Sign Installation Comments**

**INTERMEDIATE ACTION**

Request For	Contact/User	Agency/Company Name	Review Date	Priority	Complete Date
Load Rating	Rich Kathrens, P.E.	Spicer Group, Inc.	08/10/2021	3	08/20/2021
No. of Locations	Engineering Costs (\$)	Temp. Repair Costs (\$)	Perm. Repair Costs (\$)	Estimate Date	

**Comments**

Completed load analysis for adding concrete barrier along shoulders to keep traffic from fascia girders. (Rich Kathrens, P.E. 08/20/2021)

**FINAL ACTION COMPLETED**

Comment	RFA Complete
	No

**RFA COMMITTEE**


Review Required	Committee Review Date	Estimated Repair Date	Current Priority
No			5

**Comments**

MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 10552

REQUEST FOR ACTION

<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	

SUPPORTING IMAGES

10552-06172021 06/17/2021



Document Name: Closed Looking N.jpg  
 Category: Posting  
 Span Number:  
 Comments: Looking North




Document Name: Closed Looking S.jpg  
 Category: Posting  
 Span Number:  
 Comments: Looking South



MICHIGAN DEPARTMENT OF TRANSPORTATION

STR 10552

REQUEST FOR ACTION

Facility	Latitude / Longitude	MDOT Structure ID	Structure Condition	
BELSAY ROAD	43.255 / -83.602	79303H00054B010	Serious Condition(3)	
Feature	Length / Width / Spans	Owner	Operational Status	
THETFORD-ARBELA DRAIN	21 / 27.6 / 1	County: Tuscola(79)	P Posted for load(222943)	
Location	Built / Recon. / Paint / Ovly.	TSC	Scour Evaluation	
SEC 23-24 ARBELA TWP	1965 / / / 1983	Huron(28)	U Unknown Scour	
Region / County	Material / Design	Last NBI Inspection		
Bay(4) / Tuscola(79)	3 Steel / 02 Multi Str Non Comp	06/13/2021 / GEUO		



Document Name: E Fascia at N Abut (1).jpg  
 Category: Superstructure  
 Span Number:  
 Comments: East Fascia Beam, North End, Holes in Web



Document Name: E Fascia at N Abut (2).jpg  
 Category: Superstructure  
 Span Number: 1  
 Comments: East Fascia Beam, North End




Document Name: E Fascia at N Abut (3).jpg  
 Category: Superstructure  
 Span Number:  
 Comments: East Fascia Beam, North End. Severe section loss of bottom flange.

MICHIGAN DEPARTMENT OF TRANSPORTATION

**STR 10552**

**OUTSTANDING WORK**

<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	

**WORK RECOMMENDATIONS**

**DECKSLABS**

<b>Request For</b> Deck Patching	<b>Contact/User</b>	<b>Agency/Company Name</b>	<b>Estimated Quantity</b>	<b>Unit</b>
<b>Activity</b>	<b>Material</b>	<b>Other Material</b>	<b>Actual Quantity</b>	<b>Unit</b>
<b>Personnel Hours</b>	<b>Equipment</b>			<b>Complete Date</b>
<b>Comments</b> Seal cracks in HMA (Rich Kathrens, P.E. 06/17/2021)				

**SUPERSTRUCTURE**

<b>Request For</b> Super Repair	<b>Contact/User</b>	<b>Agency/Company Name</b>	<b>Estimated Quantity</b>	<b>Unit</b>
<b>Activity</b>	<b>Material</b>	<b>Other Material</b>	<b>Actual Quantity</b>	<b>Unit</b>
<b>Personnel Hours</b>	<b>Equipment</b>			<b>Complete Date</b>
<b>Comments</b> Repair fascia beam ends. (Rich Kathrens, P.E. 06/17/2021)				

**CHANNEL/SCOUR**

<b>Request For</b> Scour Repair	<b>Contact/User</b>	<b>Agency/Company Name</b>	<b>Estimated Quantity</b>	<b>Unit</b>
<b>Activity</b>	<b>Material</b>	<b>Other Material</b>	<b>Actual Quantity</b>	<b>Unit</b>
<b>Personnel Hours</b>	<b>Equipment</b>			<b>Complete Date</b>
<b>Comments</b> Add riprap along abutments. (Rich Kathrens, P.E. 06/17/2021)				

**OTHER**

<b>Request For</b> Brush Cut	<b>Contact/User</b>	<b>Agency/Company Name</b>	<b>Estimated Quantity</b>	<b>Unit</b>
<b>Activity</b>	<b>Material</b>	<b>Other Material</b>	<b>Actual Quantity</b>	<b>Unit</b>
<b>Personnel Hours</b>	<b>Equipment</b>			<b>Complete Date</b>
<b>Comments</b> Brush cut (Rich Kathrens, P.E. 06/17/2021)				

<b>Request For</b> Railing Repair	<b>Contact/User</b>	<b>Agency/Company Name</b>	<b>Estimated Quantity</b>	<b>Unit</b>
<b>Activity</b>	<b>Material</b>	<b>Other Material</b>	<b>Actual Quantity</b>	<b>Unit</b>
<b>Personnel Hours</b>	<b>Equipment</b>			<b>Complete Date</b>


**Comments**



MICHIGAN DEPARTMENT OF TRANSPORTATION

**STR 10552**

**OUTSTANDING WORK**

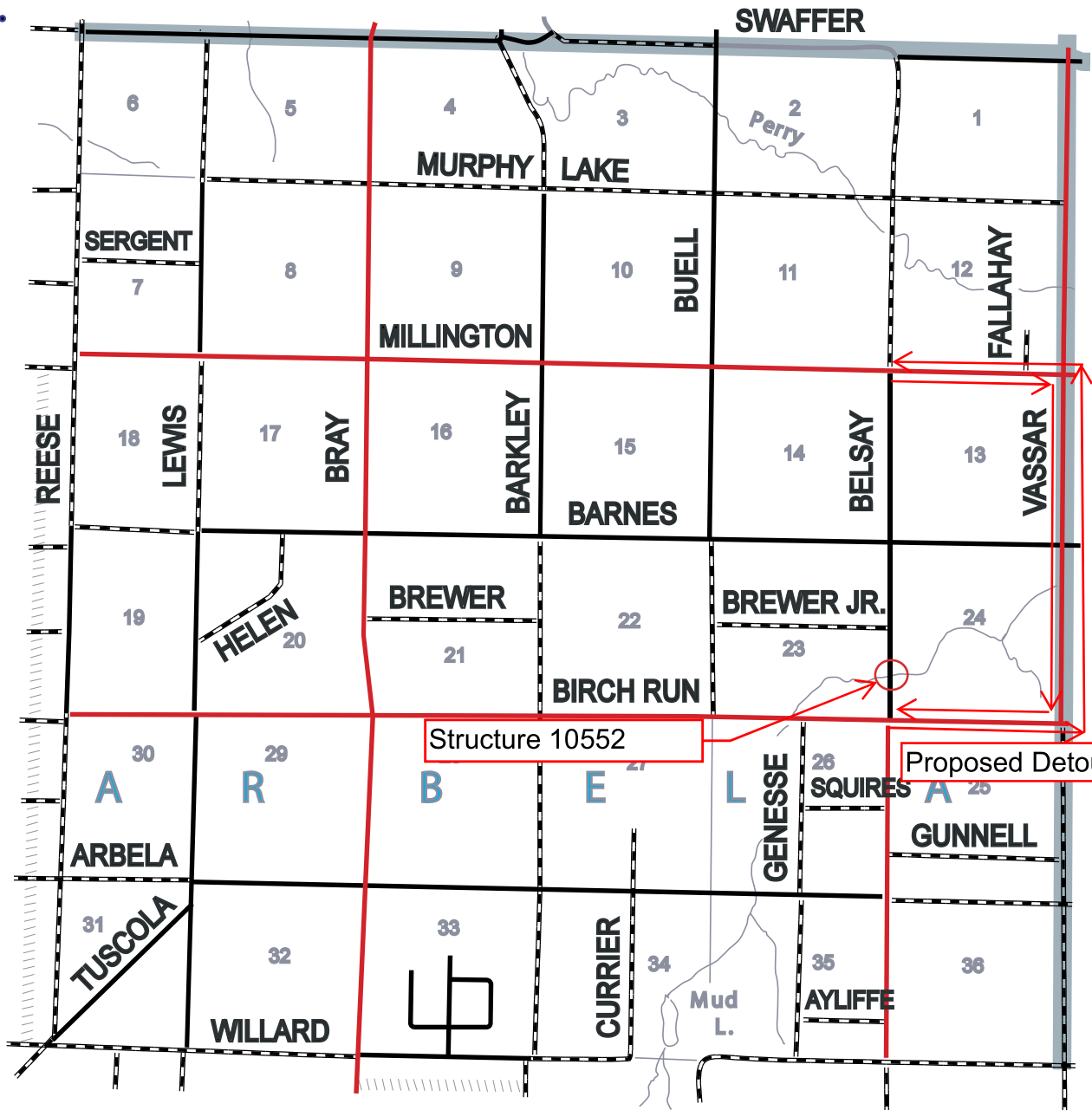
<b>Facility</b> BELSAY ROAD	<b>Latitude / Longitude</b> 43.255 / -83.602	<b>MDOT Structure ID</b> 79303H00054B010	<b>Structure Condition</b> Serious Condition(3)	
<b>Feature</b> THETFORD-ARBELA DRAIN	<b>Length / Width / Spans</b> 21 / 27.6 / 1	<b>Owner</b> County: Tuscola(79)		
<b>Location</b> SEC 23-24 ARBELA TWP	<b>Built / Recon. / Paint / Ovly.</b> 1965 / / / 1983	<b>TSC</b> Huron(28)	<b>Operational Status</b> P Posted for load(222943)	
<b>Region / County</b> Bay(4) / Tuscola(79)	<b>Material / Design</b> 3 Steel / 02 Multi Str Non Comp	<b>Last NBI Inspection</b> 06/13/2021 / GEUO	<b>Scour Evaluation</b> U Unknown Scour	

Update guardrail on structure and approaches. (Rich Kathrens, P.E. 06/17/2021)

<b>Request For</b>	<b>Contact/User</b>	<b>Agency/Company Name</b>	<b>Estimated Quantity</b>	<b>Unit</b>
Approach Repair				
<b>Activity</b>	<b>Material</b>	<b>Other Material</b>	<b>Actual Quantity</b>	<b>Unit</b>
<b>Personnel Hours</b>	<b>Equipment</b>			<b>Complete Date</b>

**Comments**

Seal cracks in HMA (Rich Kathrens, P.E. 06/17/2021)



# ARBELA TOWNSHIP



Tuscola County Road Commission  
1733 Mertz  
Caro, MI 48723  
Phone 989 673-2128  
Fax 989 673-3294

TUSCOLA COUNTY BOARD OF ROAD COMMISSIONERS  
RESOLUTION OF  
SUPPORT FOR THE REPLACEMENT OF THE BELSAY ROAD BRIDGE  
OVER THE THETFORD-ARBELA DRAIN, SECTIONS 23 & 24 – ARBELA  
TOWNSHIP  
STRUCTURE NUMBER 10552

Commissioner Parsell offered the following resolution and moved for its adoption:

BE IT RESOLVED, the Tuscola County Board of Road Commissioners supports the application for State and/or Federal funding participation in the replacement of the Belsay Road Bridge over the Thetford-Arbela Drain (Structure Number 10552),

BE IT FURTHER RESOLVED, that the Board of Road Commissioners, County of Tuscola, concurs that this replacement is urgently needed, and that the Tuscola County Road Commission will commit to 20% local funding.

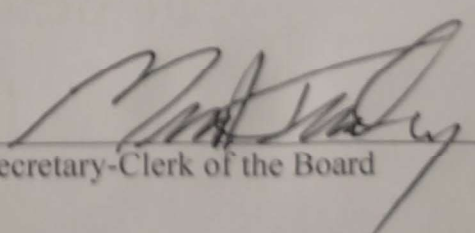
Motion supported and resolution adopted on a roll call vote:

AYES: Weber, Matuszak, Parsell, Laurie

NAYS: None

ABSENT: Kennard

I hereby certify that the foregoing is a true and correct copy of a resolution made and adopted at a regular meeting of the Board held on the 3<sup>rd</sup> day of March, 2022.

Signed:   
Secretary-Clerk of the Board



**Resolution of support for the reconstruction of the Belsay Road structure over the Arbela Thetford drain.**

The structure is located on a two mile hard surface section of road that links primary roads to the south and north. It provides a bypass of the primary road system which is very important to our agricultural economy, and in the case of a primary road closure as in the May 2019 flood event. There are four small home based businesses and a motorcycle club located on this mile that rely on a direct route to I 75 via Birch Run Rd for deliveries and the convenience of their customers. Therefore, while the present open condition, with posted weight limits and narrowed lanes is a vastly better solution than full closure, it is very important to the safety and convenience of our township residents that this structure be placed on a priority list for total replacement.

It is hereby certified by the undersigned that the foregoing resolution was duly passed by the Arbela Township Board of Trustees on the **11th day of April, 2022.**

Mary C. Warren, Clerk

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Edward C. Hunt, Supervisor

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OFFICE OF  
**TUSCOLA COUNTY DRAIN COMMISSIONER**

125 W. LINCOLN STREET, STE 100  
CARO, MI 48723

**ROBERT J. MANTEY**  
Drain Commissioner  
Cell Phone (989) 553-3824

Phone (989) 672-3820

Fax (989) 673-3497

email: [drain-commissioner@tuscolacounty.org](mailto:drain-commissioner@tuscolacounty.org)



March 3, 2022

RE: Bridge Replacement over the Thetford-Arbela Intercounty Drain

To: Tuscola County road Commission and  
Michigan Department of Transportation

From: Tuscola County Drain Commissioner

To whom it may concern;

This is a letter to support the proposed bridge replacement on Belsay Road, section 23 & 24, Arbela Township, Tuscola County, over the Thetford-Arbela Intercounty Drain. This current bridge has had some past safety issues and I am in full support to replace any infrastructure that has potential to be unsafe for traffic.

Sincerely,

Robert J. Mantey  
Tuscola County Drain Commissioner

*BELSAY RD*

50



*W3-5 (36")  
9 Sft Sign, Type III B  
32 Ft 2-Post, Steel, 3 lb*



*GUARDRAIL APPROACH TERM*

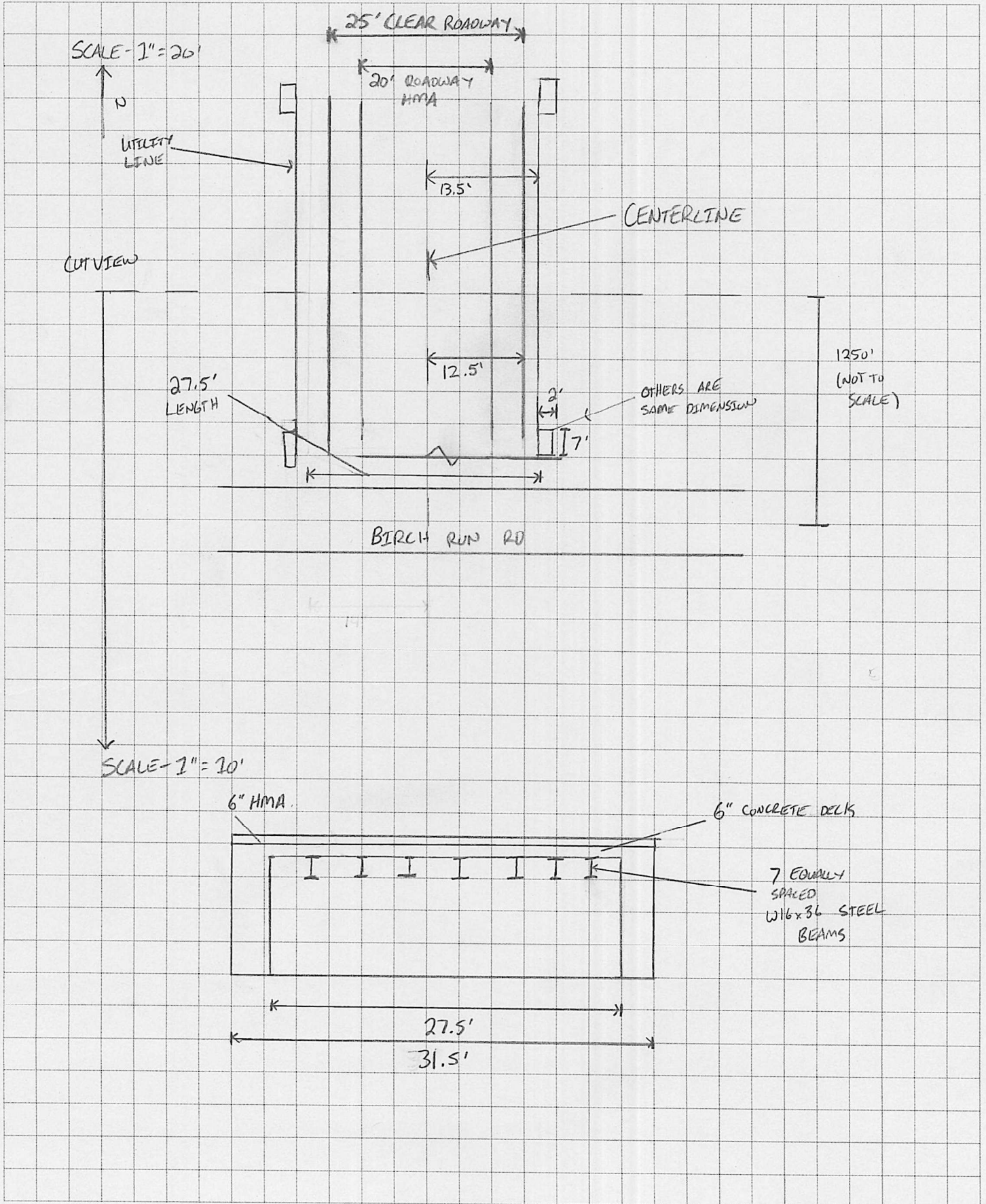
*4" SOLID DOUBLE  
CENT*



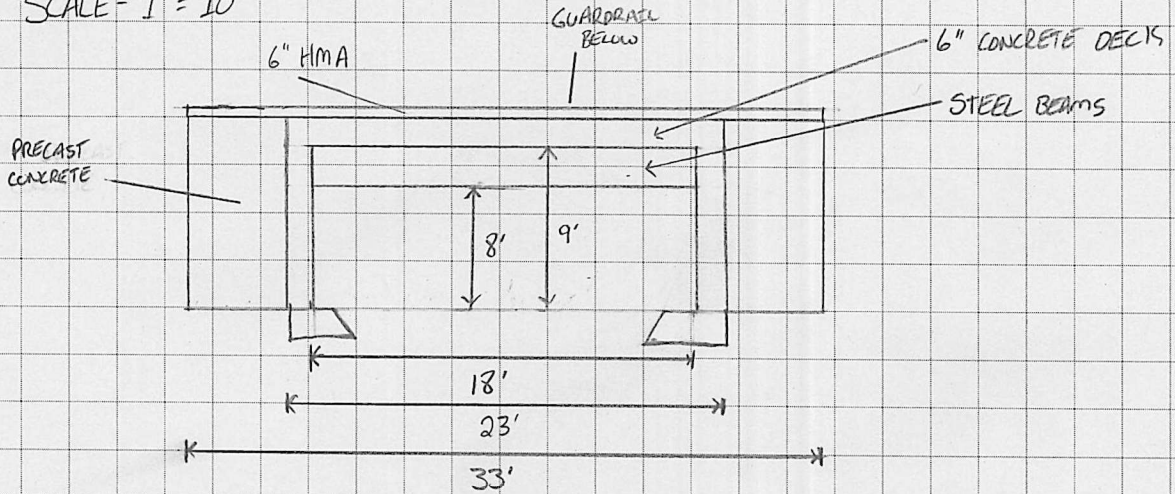


Project TUSCOLA COUNTY ROAD  
COMMISSION  
Subject BELSAV RD - BIRCH RUN RD  
BRIDGE # 10552

Sheet # 1 of 2  
Project # 130134562021  
Comp. by AS date 5-19-21  
Chkd. by TP date 5-19-21



SCALE - 1" = 10'



GUARDRAIL DRAWING

SCALE - 1" = 10'

