

DAVID D. BROWN  
CHAIRMAN

DAVID F. BRANDT  
VICE-CHAIRMAN

RICHARD A. LAHAIE  
COMMISSIONER

KENNETH PAQUET  
COMMISSIONER

HENRY GINOP  
COMMISSIONER

## **Cheboygan County Road Commission**

5302 South Straits Highway  
Indian River, Michigan 49749

Phone: (231) 238-7775

Fax: (231) 238-0830

877-257-2272

R. BRENT SHANK  
ENGINEER/MANAGING DIRECTOR

DANA S. STEMPKY  
CLERK

# **BID NOTICE - 2019**

Sealed Bids will be received at the office of the Cheboygan County Road Commission, located at 5302 South Straits Hwy, Indian River, Michigan, 49749, until **9:00 a.m. on Tuesday, February 19, 2019**, at which time and place they will be publicly opened and read aloud for furnishing the annual requirements of the following items:

- |       |                    |       |                          |
|-------|--------------------|-------|--------------------------|
| 19-01 | Aggregate Material | 19-02 | Bituminous Emulsion      |
| 19-03 | Cold Patch         | 19-04 | Hot Mix Asphalt Patching |
| 19-05 | Culvert Materials  | 19-06 | Dust Control/Brine       |
| 19-07 | Grader Blades      | 19-08 | Hot Mix Asphalt          |
| 19-11 | Pavement Markings  | 19-12 | Plow Shoe & Wing Shoe    |
| 19-13 | Road Signs         | 19-14 | Aggregate Processing     |
| 19-15 | Tires              |       |                          |

**Please contact our office by calling 231-238-7775, faxing 231-238-0830 or by sending an e-mail (PREFERRED METHOD) to [engtech@chcrc.com](mailto:engtech@chcrc.com) to obtain bidding package and specifications.** All bids must be submitted on CCRC Bid Sheets in a sealed envelope (one item per envelope) clearly identifying the bidder and bid item. All Bids Shall be valid for a period of one year from the date of award.

Bids will be awarded at the regular Road Commission Board meeting on February 21, 2019. The Cheboygan County Road Commission reserves the right to accept or reject any and all bids, in whole or in part; to waive irregularities or informalities; and to award bids, in whole or in part, as deemed to be in the best interest of the Cheboygan County Road Commission.

MDOT specifications must be met and material certification provided.

BOARD OF COUNTY ROAD COMMISSIONERS  
COUNTY OF CHEBOYGAN, MICHIGAN

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### **PLOW SHOE & WING SHOE BID**

**CCRC Bid No. 19-12**

The Cheboygan County Road Commission will accept sealed bids for supplies pertaining to Plow Shoe & Wing Shoe needs for the 2019/2020.

Bids shall be submitted on the enclosed CCRC Plow Shoe & Wing Shoe Bid Sheet in a sealed envelope clearly indentifying the bidder and marked "Plow Shoe & Wing Shoe".

Price to be held for a period of 1 year from acceptance date.

Bids are due at **9:00 a.m. on Tuesday, February 19, 2019**, at which time, the bid will be publicly opened and read aloud. Bid results will not be available until they have been tabulated and presented with recommendations and approved by the Road Commission Board at their next regular meeting on February 21, 2019.

Cheboygan County Road Commission reserves the right to accept or reject any and all bids, in whole or in part; to waive irregularities or informalities; and to award bids, in whole or in part, as deemed to be in the best interest of the Cheboygan County Road Commission.

Travis Horrocks, P.S.  
Engineer Technician

[engtech@chcrc.com](mailto:engtech@chcrc.com)

(231)238-7775

Enclosures

**Cheboygan County Road Commission**  
**2019 PLOW SHOE & WING SHOE**  
19-12 Bid Sheet

(To be completed by bidder in ink or typewritten)

Company

Name: \_\_\_\_\_

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

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

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

Contact Person w/Title: \_\_\_\_\_

E-Mail: \_\_\_\_\_

FOB to Indian River Garage - 5203 S. Straits Hwy, Indian River, MI 49749

Description	\$/Unit
Cast Iron Single Ear Plow Shoe.....	\$ _____
Manufacturer _____ Place of origin _____	
Carbide Plow Shoes.....	\$ _____
Manufacturer _____ Place of origin _____	
Wing Shoe.....	\$ _____
Manufacturer _____ Place of origin _____	

Allowable Discounts, Shipping Terms, Payment Terms:

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Authorized Signature

Date

Printed Name

**Cast Iron Single Ear Plow Shoe: SPEC A**

- Shall be single ear, hi-carbon, long-wear shoe.
- Shoes made from Modified Class 40 gray iron with 1% chrome added for long-wear purposes shall have Brinell Hardness (HBW 10/3000) of 233 or equivalent.
- Plow Shoes to weigh 70 to 75 lbs.
- Plow Shoes to meet measurement specifications on the following pages A or must be equivalent.

**Carbide Plow Shoes: SPEC B**

- Must fit the same mounting brackets that Cast Iron Single Eared Plow Shoes fit.

Carbide front plow shoe to be single ear, supplied with two rows of Lungsten carbide. Each row shall be 9.5” in length and inserted to a depth of 3/16 of an inch.

Carbide shall be high shock WC grade of Tungsten carbide with 10 – 12% Cobalt content. Density shall be 14.1 to 14.6 grams  
Hardness shall be 87.5 to 89.0 Rockwell “A”  
Traverse Rupture Strength shall be 350,000 to 400,000

Each Bidder to identify the manufacture and supply place of origin.

**Wing Shoe: HD Cast Iron Moldboard Shoe: SPEC C**

- HD cast iron shoe **MUST** be designed to attach to the back side of a plow or wing moldboard. There shall be a .750 inch offset in the casting so when the shoe is bolted to the bottom angle, the top of the wear portion of the shoe, will be flush with the bottom angle. This offset will also act as a shear stop for the mounting bolts. The mounting holes will be oblong in shape, .750 x 1.375 inches and designed for the possibility of hole misalignment. The mounting holes will be 12.00 inches center to center within the reinforced top mount portion of the moldboard shoe that shall be a minimum of 2.750 inches thick and minimum of 3.750 inches wide. The top portion of the moldboard shoe shall be designed to clear the bottom angle reinforcement and have the part number cast within. The lower wear portion of the moldboard shoe shall be minimum of 10.00 inches wide, 4.50 inches deep and 4.652 inches high. There shall be reinforcement gussets as part of the casting from the sides of the lower wear portion to the upper mount portion. The bottom of the moldboard shoe shall be flush with the road surface when the moldboard is at a 10 degree attack angle. Shoe must be cast of alloyed grey iron, minimum weight of seventy pounds and manufactured in the U.S.A. Certification of origin is required upon request.

***Iron Alloys:***

***Ductile Irons***

**ASTM Standard      Nominal Hardness**

**Ductile Iron**

A536 Grade 60-40-18      150–180 BHN      Grade with maximum ductility and low temperature toughness. Excellent machinability.

A536 Grade 65-45-12      180–120 BHN

A536 Grade 80-55-06      210–250 BHN      High strength, good wear resistance, moderate ductility and impact resistance. Good Machinability.

A536 Grade 100-70-03      250–300 BHN

AQ536 Grade 120-90-02      300-360-BHN      Very high strength and wear resistance. Fair machinability.

***Ductile Ni-Resist (Austenitic)***

A439- Type D-2      139-202 BHN      Used when resistance to heat, corrosion, oxidation and wear are required. Good strength and dimensional stability at elevated temperatures.

### ***Austempered Ductile Iron (ADI)***

Grade 125/80/10	269-321-BHN	Groat Strength, excellent dynamic properties.
Grade 150/100/7	302-363-BHN	All ADI grades are stronger per unit of weight than Aluminum, as wear resistant.
Grade 175/125/4	341-444-BHN	As strong as steel and easier to machine than free-machining steel.
Grade 200/155/1	388-477-BHN	
Grade 230/185/0	444-555-BHN	Even Higher strength, excellent wear resistance.

### ***Gray Irons***

<b>ASTM Standard</b>	<b>Nominal Hardness</b>	
Gray Iron		
A48 Class 20 thermal shock.	110-140-BHN	Excellent machinability and damping capacity. Good resistance to thermal shock.
A48 Class 30	150-180-BHN	
A48 Class 40 machining.	220-250-BHN	Wear resistance increases, strength increases, finer finish after machining.

### ***Heat Resistant Gray Iron***

	<b>Element (s) Added</b>	
A319 Class 1 Type A	Chromium	Low Tensile strength, very good resistance to thermal shock. A319
Class II Type A	Chromium	Moderate tensile strengths, average resistance to thermal shock. A319
Class III Type B/C	Chromium	High Tensile strengths, average resistance to thermal shock.
A319 II-B Plus Mo	Cr & Moly	Creep rupture properties greatly improved (at elevated temperatures). A319
II B Plus Cu	Cr & Copper	Most effective in retarding growth.

### ***Abrasion Resistant & High Chrome Irons***

Engineers to guarantee through hardness in sections up to 12 inches thick.

#### **Nihard**

A532 Class 1 Type A	550 BHN	Microstructure is largely tempered Martensite, with less than 25% Carbides by volume. Least abrasion resistant grade of alloyed white Iron.
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**20-1**

A532 Class II Type D	>650 BHN (>820 LD)	Microstructure is 30% by volume Carbides; remainder is Martensite.
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***Pilant25***

A532 Class III Type A	<300 BHN (softened)	Microstructure is 25% by volume Carbides. Used when drilling and tapping the casting is necessary.
	>600 BHN (hardened)	Casting can be supplied in softened condition and hardened machining.

***Granite25***

A 532 Class III Type A	>650 BHN (>820 LD)	Microstructure is 35% by volume Carbides; remainder is Martinsite.
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***Diamond25***

A 532 Class II Type A	>650 BHN (>820 LD)	Microstructure is 40% by volume Carbides; remainder is Martinsite. The hardest, most abrasion resistant white iron on the market.
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