

STATE OF MICHIGAN ENTERPRISE PROCUREMENT

Department of Technology, Management, and Budget 320 S. Walnut Street 2nd Floor Lansing, MI 48933 P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number 5 Contract Number MA20000000034

	TRUCK & TRAILER SPECIALTIES INC
CC	3286 Hanna Lake Industrial Drive
ONTRACTO	Dutton MI 49316
RAC	Dan Bouwman
TOR	616-698-8215
	dbouwman@ttspec.com
	CV0030059

remain the same. Per DTMB Procurement approval.

	Program Manager	Erin Reincke	MDOT		
		5178551986			
STATE		ReinckeE@michigan.gov			
\TE	Contract Administrator	Yvon Dufour	DTMB		
		(517) 249-0455			
		dufoury@michigan.gov			

	CONTRACT SUMMARY							
Winter Maintena	ance Truck C	omponents						
INITIAL EFFEC	TIVE DATE	INITIAL EXPI	RATION DATE	INITIAL AVAILA	ABLE OPTIONS	EXPIRATION DATE BEFORE		
October 22	2, 2019	Novembe	er 30, 2024	2 - 12	Months	November 30, 2024		
	PAYMEN	IT TERMS			DELIVERY TIME	FRAME		
ALTERNATE PAYMENT OPTIONS					EXTENDE	ED PURCHASING		
☐ P-Ca	ard 🔲	Direct Vouche	r (PRC)	☐ Other	⊠ Yes □ No			
MINIMUM DELIVER	RY REQUIREME	NTS						
		DE	ESCRIPTION OF (CHANGE NOTICE				
OPTION	LENGTH (OF OPTION	EXTENSION	LENGTH O	F EXTENSION	REVISED EXP. DATE		
\boxtimes	24 N	lonths				November 30, 2026		
CURRENT	VALUE	VALUE OF CH	IANGE NOTICE	ESTIMATED AGGREGATE CONTRACT VALUE				
\$40,000,000.00 \$249,000.00			00.00	\$40,249,000.00				
	DESCRIPTION							
	-		•	•	is increased by signs, specification	· ·		



TRUCK & TRAILER SPECIALTIES INC

STATE OF MICHIGAN **CENTRAL PROCUREMENT SERVICES**

Department of Technology, Management, and Budget 320 S. WALNUT ST., LANSING, MICHIGAN 48933

Scott Poyer

MDOT

P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number 4

to

Contract Number **20000000034**

3286 Hanna Lake Industrial Drive					age	ager am				
ONTRACTOR	Dutton, MI 49316 Dan Bouwman 616-698-8215				er Adn	poyers@Michigan.gov				
Ī₽					Adn	Yvon Dufour	DTMB			
CT					Contract Administrator	(517) 249-0455				
SR		man@ttspec.co	ım		rator	dufoury@michigan.զ	gov			
	CV003	<u> </u>								
	C V 003	0039								
\//INI	TER M	AINTENANCE	TRUCK COMPO		T SUMMARY					
		ECTIVE DATE	INITIAL EXPIRAT		INITIAL	AVAILABLE OPTION	S		ATION DATE EFORE	
	Octobe	er 22, 2019 November 30, 2024 2 - 1 Year			2 - 1 Year	November 30, 2024				
	PAYMENT TERMS DELIVERY TIMEFRAME									
		4	5 DAYS							
			ALTERNATE PAY	MENT OPTION	S EXTENDED PURCHASING				JRCHASING	
] P-Ca		□ PRC	☐ Othe	er ⊠ Yes □			□ No		
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		LLITOTI	TOT OF HON		LLIN	SITI OF EXTENSION			ber 30, 2024	
		NT VALUE	VALUE OF CHANG		ES	STIMATED AGGREGA	TE CON		· · · · · · · · · · · · · · · · · · ·	
	\$20,00	00,000.00	\$20,000,00	00.00	\$40,000,000.00					
					RIPTION					
			ontract is hereby incre cy request, DTMB Pr							



TRUCK & TRAILER SPECIALTIES INC

STATE OF MICHIGAN CENTRAL PROCUREMENT SERVICES

Department of Technology, Management, and Budget

Scott Poyer

MDOT

320 S. WALNUT ST., LANSING, MICHIGAN 48933 P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number 3

to

Contract Number 2000000034

3286 F	lanna Lake Indu	ager 'am							
3	, MI 49316			or Adm	poyers@Michigan.gov				
Dan Bo	Dan Bouwman 616-698-8215 dbouwman@ttspec.com				Yvon Dufour		DTMB		
616-69					(517) 249-0455				
dbouw					dufoury@michigan.	gov			
CV003	0059								
			CONTRAC	T SUMMARY					
WINTER M	IAINTENANCE	TRUCK COMPO							
INITIAL EFFECTIVE DATE INITIAL EXPIRATION DATE			ION DATE	INITIAL				ATION DATE EFORE	
Octobe	October 22, 2019 November 30, 2024				2 - 1 Year	November 30, 2			
	PAYM	ENT TERMS			DELIVERY TIMEFRAME				
	4	5 DAYS							
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MINIMUM DE	LIVERY REQUIR	REMENTS							
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OPTION	LENGTH	H OF OPTION	EXTENSION	LENGTH OF EXTENSION			REVISED EXP. DATE		
							Novem	nber 30, 2024	
CURRE	NT VALUE	VALUE OF CHANG	GE NOTICE	EST	TIMATED AGGREGA	LE CON	TRACT V	ALUE	
\$20,000,000.00 \$0.00					\$20,000,	00.00			
				RIPTION					
		owing amendment is ontractor. Contractor							

current contract price sheet as a guide (Schedule B - Pricing is attached). This amendment shall expire on 7/1/2023, and pricing shall revert to Schedule B if not renewed by the State via Change Notice. All other terms, conditions, specifications, and pricing

remain the same. Per contractor request, and DTMB Procurement approval.

STATE OF MICHIGAN

Contract No. 20000000034
Winter Maintenance Truck Build-Up Components

SCHEDULE B PRICING

- 1. The Contractor must provide a pricing schedule for the proposed Contract Activities using Microsoft Excel. The pricing schedule should be submitted in a modifiable format (e.g., Microsoft Word or Excel); however, you may also submit an additional pricing schedule in a non-modifiable format (e.g., PDF). Failure to complete the pricing schedule as requested may result in disqualification of your proposal.
- 2. Price proposals must include all costs, including but not limited to, any one-time or set-up charges, fees, and potential costs that Contractor may charge the State (e.g., shipping and handling, per piece pricing, and palletizing).

	he Contractor is encouraged to offer quick payment terms. The number of days must not include processing time for ent to be received by the Contractor's financial institution.
Quick	payment terms:0 % discount off invoice if paid within0 days after receipt of invoice.
•	y submitting its proposal, the Contractor certifies that the prices were arrived at independently, and without lattion, communication, or agreement with any other Contractor.

- 5. **Pricing Term.** Pricing is firm for a 365 day period ("Pricing Period"). The first pricing period begins on the Effective Date. Adjustments may be requested, in writing, by either party and will take effect no earlier than the next Pricing Period.
- 6. Adjustments will be based on changes in actual Contractor costs. Any request must be supported by written evidence documenting the change in costs. The State may consider sources, such as the Consumer Price Index; Producer Price Index; other pricing indices as needed; economic and industry data; manufacturer or supplier letters noting the increase in pricing; and any other data the State deems relevant.

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The Contractor remains responsible for Contract Activities at the current price for all orders received before the mutual execution of a Change Notice indicating the start date of the new Pricing Period.

- 7. Quantities specified if any, are estimates based on prior purchases, and the State is not obligated to purchase in these or any other quantities. Orders for delivery will be issued directly to the Contractor by MDOT on the Direct Purchase Order Contract Release Form and MiDEAL members (local units of government).
- 8. Please see "Standard Contract Terms" section 7 for administrative fee.

	ITEM	PRICING
1	# 04-Fuel Tank and Hydraulic Reservior Assembly	\$4,026.00
2	# 04-PLOWJACK.1.C19 Front Plow Jack	\$1,250.00
3	# 04-Tarps .C19 Automatic Electric Tarp Assemblies	\$1,144.00
4	# 04-Pre-Wet Systems .C19 Hydraulic driven for rear discharge combination DVS bodies -See addendum in Schedule C for option specifications	\$3,402.00
5	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 1	\$10,069.00
6	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 2	\$10,560.00
7	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 3	\$10,129.00
8	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 4	\$10,733.00
9	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 5	\$10,673.00
10	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 6	\$11,276.00

	YD-PP.C19 Hydraulic System - With Valve Combination Number 7	\$10,070.00
	YD-PP.C19 Hydraulic System - With Valve Combination Number 8	\$10,693.00
	RDSPD.C19 Ground Speed Oriented Salt Distribution Spreader Control System with Electric Over draulic Joystick Controls - With Multiple Joysticks	\$10,710.00
	RDSPD.C19 Ground Speed Oriented Salt Distribution Spreader Control System with Electric Over draulic Joystick Controls - With Single Joystick	\$10,710.00
	4-11CBBDY.C19 11 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Rear charge and Distribution Systems	\$31,503.00
	4-11CBBDYDA.C19 11 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Dual Auger, st, Rear Discharge and Distribution Systems	\$35,746.00
17 # 0	4-11SSDMP.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., Hoist and 1/2 Cab Protector	\$15,947.00
-0	4-11SSDMPUBH.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., with Under Body Hoist and 1/2 Cab tector	\$16,099.00
	4-14CBBDY.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Rear charge and Distribution Systems	\$33,907.00
	4-14CBBDYDA.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Dual Auger, st, Rear Discharge and Distribution Systems	\$37,186.00
	4-14FCBBDY.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Front and ir Discharge Distribution Systems	\$38,236.00
22 # 0	4-14SSDMP.C19 Dump Body, Stainless Steel, 10 cu. yd., 14 ft., Hoist and 1/2 Cab Protector	\$18,809.00
	4-14SSDMPUBH.C19 Dump Body, Stainless Steel, 10 cu. yd., 14 ft., with Under Body Hoist and 1/2 Cab tector	\$19,257.00
24 # 5!	5-FMBBLD.C19 Under-Body Scraper, Folding Mold Board Style Snow Blade, Hydraulic Angling	\$10,279.00
25 # 5!	5-MOPBLD.C19 Under-Body Scraper, MOP Style Snow Blade, Hydraulic Angling	\$9,621.00
	7-0901SMW.C19 Wing Plow, behind Scraper Mount, 9 Foot Left or Right	\$8,637.00
	7-0901SMWJR.C19 Wing Plow, behind Scraper Mount, 9 Foot Left or Right	\$7,961.00
	7-1201SMW.C19 Wing Plow, behind Scraper Mount, 12 Foot Left or Right	\$9,040.00
	0-11-14SSDMP Option1.C19 Reversing Rear Cross Auger with Side Spinner	\$4,621.00
10 # 60	0-11_14SSDMP-Option2.C19 Zero Velocity Spreader (LEFT HAND ACCUPLACE SPINNER IS 00182933-B) GHT HAND ACCUPLACE SPINNER IS 00188316-B)	\$4,330.00
1 # 6	0-11SSDMP.C19 Hopper Box Material Spreader 11 Foot and Distribution Systems	\$12,347.00
	0-11SSUBHDMP.C19 Hopper Box Material Spreader 11 Foot and Distribution Systems	\$12,063.00
3 # 6	0-14SSDMP.C19 Hopper Box Material Spreader 14 Foot and Distribution Systems	\$15,565.00
4 # 6	0-14SSUBHDMP.C19 Hopper Box Material Spreader 14 Foot and Distribution Systems	\$15,281.00
SPI 000	4-11-14CBBDY-Option1.C19 Reversing Rear Cross Auger with Side Spinner (RIGHT MOTOR WITH LEFT NNER HAND ARRANGEMENT 00184407-B AUGER, 00022294-B IS THE DROP CHUTE WITH DOOR, 022064-J- LEFT SPINNER) (LEFT MOTOR WITH RIGHT HAND SPINNER ARRANGEMENT 00184404-B GER,, 00022294-B IS THE DROP CHUTE WITH DOOR, , 00081047-H RIGHT HAND SPINNER)	\$5,235.00
6 # O	4-11-14CBBDY-Option2.C19 Reversing Rear Cross Auger with Center Spinner	\$4,995.00
7 # 6	0-11_14MSDMP-Option3.C19 "Y" Chute Distributor - Stainless Steel	\$3,256.00
8 # 6	0-11_14MSDMP-Option3.C19 "Y" Chute Distributor - Non-Stainless Steel	\$2,763.00
9 # 0	4-11CBBDY_Option4.C19 Belt Over Main Conveyor Chain	\$2,348.00
0 # 0	4-14CBBDY_Option5.C19 Belt Over Main Conveyor Chain	\$3,550.00
1 # 0	4-11_14CBBDY_Option6.C19 Salt Slurry Generator	\$8,302.00
2 # 6	5-HHLF.C19 Hydraulic Hook Lift Assembly - Hook Lift Hoist	\$25,390.00
_	5-HHLF.C19 Hydraulic Hook Lift Assembly - Hook Lift Body Subframe	\$5,130.00
. 4 (ITE	M 1 OPTION REPLACEMENT) Western star combination tank- See addendum in schedule c for option cifications	\$3,248.00
,5 (ITI	EM 3 OPTION ADD) PART NO 83200- ASPHALT COVER	\$247.00
	EM 3 OPTION ADD) PART NO 81200 MESH COVER	\$155.00
	EM 3 OPTION ADD) Optional plug kit for swaploader application - PART NUMBER 12760	\$54.00

48	(ITEM 3 OPTION ADD) OPTIONAL TARP COVER- CUSTOM SIZE COVER FOR SWAPLOADER V BOXES PART NO 81010@83X18	¢204.00
40	(ITEM 4 OPTIONAL REPLACEMENT) Hydraulic driven for front and rear discharge combination DVS bodies-	\$204.00
49	See addendum in Schedule C for option specifications	\$3,696.00
50	(ITEM 4 OPTIONAL REPLACEMENT) Electric driven for rear discharge combination DVS bodies See	
	addendum in Schedule C for option specifications	\$3,203.00
51	(ITEM 4 OPTIONAL REPLACEMENT) Electric Driven for front and rear discharge DVS bodies See addendum in Schedule C for option specifications	\$3,597.00
52	(ITEM 4 OPTIONAL REPLACEMENT) Hydraulic driven for V box spreades See addendum in Schedule C for	. ,
	option specifications	\$3,579.00
53	(ITEM 4 OPTIONAL REPLACEMENT) Electric driven for v box spreaders- See addendum in Schedule C for option specifications	\$3,380.00
54	(ITEM 4 OPTION ADD) optional installation of prewet system to seither a combination DVS body or a V	. ,
	box spreader See addendum in Schedule C for option specifications	\$528.00
55	(ITEM 5 - 12 PART - INCLUDED) Double acting cylinder spool valve section- ship loose pricing for section	
	replacement or additional function. Specify flow rate at time of order	\$752.00
56	(ITEM 5 - 12 PART - INCLUDED) Single acting motor spooled secttion- ship loose pricing, Specify flow rate	
	at time or order	\$655.00
57	(ITEM 5 - 12 PART - INCLUDED) Double acting motor spooled valve section-ship loose pricing for section	
	replacement or additional function. Specify flow rate at time of order	\$752.00
58	(ITEM 13 & 14 OPTION ADD) add on for prewet driver	\$576.00
59	(ITEM 13 & 14 OPTION ADD) add on for cross conveyor potentiomter driver and direction control switch	\$788.00
60	(ITEM 13 & 14 OPTION ADD) Add on for hoist and jib disable circuits on Swaploader installation	\$191.00
61	(ITEM 13 & 14 OPTION ADD) Road Watch system 849-1242-000	\$314.00
62	(ITEM 15 OPTION ADD) poly subfloor for 11 ft rear discharge DVS	\$736.00
63	(ITEM 19 OPTION ADD) POLY SUBFLOOR FOR 14' REAR DISCHARGE DVS UNIT INSTALLED	\$809.00
64	(ITEM 21 OPTION ADD) POLY SUBFLOOR FOR 14' FRONT/REAR DISCHARGE DVS UNIT INSTALLED	\$735.00
65	(ITEM 26 OPTION ADD) 9 FT RIGHT HAND PATROL WING POLY MOLDBOARD LINER. PART NO 00188368I	\$704.00
66	(ITEM 26 OPTIONAL REPLACEMENT) 9 FT LEFT HAND PATROL WING PART NO 00184445	\$8,637.00
67	(ITEM 26 OPTION ADD) 9 FT LEFT HAND PATROL WING POLY MOLDBOARD LINER. PART NO 00188950I	φο,σοτ.σο
07	,	\$704.00
68	(ITEM 27 OPTION ADD) 9 FT RIGHT HAND JUNIOR WING POLY MOLDBOARD LINER 00188366I	\$666.00
69	(ITEM 27 OPTIONAL REPLACEMENT) 9 FT LEFT HAND JUNIOR WING PART NO 00184443	\$7,961.00
70	(ITEM 27 OPTION ADD) 9 FT LEFT HAND JUNIOR WING POLY MOLDBOARD LINER PART NO 00188367I	\$666.00
71	(ITEM 27 OPTIONAL REPLACEMENT) 7 FT RIGHT HAND JUNIOR WING PART NO 00188369	\$7,895.00
72	(ITEM 27 OPTION ADD) 7 FT RIGHT HAND JUNIOR WING POLY MOLDBOARD LINER PART NUMBER	+ - , 333.00
12	001883721	\$665.00
73	(ITEM 27 OPTIONAL REPLACEMENT) 7 FT LEFT HAND JUNIOR WING PART NO 00189828	\$7,895.00
74	(ITEM 27 OPTION ADD) 7 FT LEFT HAND JUNIOR WING POLY MOLDBOARD LINER-PART NUMBER NOT YET ISSUED	\$665.00
75	(ITEM 28 OPTION ADD) 12 FT RIGHT HAND PATROL WING POLY MOLDBOARD LINER	\$825.00
76	(ITEM 28 OPTIONAL REPLACEMENT) 12 FT LEFT HAND PATROL WING PART NO 00184446	\$9,040.00
77	(ITEM 28 OPTION ADD) 12 FT LEFT HAND PATROL WING POLY MOLDBOARD LINER	\$825.00
78	(ITEM 30 OPTION ADD) flip up rear spinner for DVS combination body See addendum in Schedule C for	Ç023.00
	option specifications	\$2,143.00
79	(ITEM 34 OPTIONAL REPLACEMENT) MCV168-84-56- BELT/ CHAIN V BOX WITH CUTOUT FOR DOGHOUSE	
	See addendum in Schedule C for option specifications	\$17,647.00
80	(ITEM 34 OPTIONAL REPLACEMENT) MCV168-84-56/ DUAL AUGER SLIDE IN V BOX WITH DOGHOUSE See addendum in Schedule C for option specifications	18,185.00
	L L	_0,100.00

81	(ITEM 36 OPTION ADD) mounting tube- See addendum in Schedule C for option specifications	\$114.00
82	(ITEM 36 OPTIONAL REPLACEMENT) MS9612 to fit V box application: See addendum in Schedule C for option specifications	\$5,566.00
83	(ITEM 37 OPTION ADD) STAINLESS STEEL Y CHUTE EXTENSION FOR USE WITH HOOKLOADER MOUNTS OR TANDEM SLIDE IN V BOXES WITH UNDERBODY HOISTS PART NO 00129376-B	\$277.00
84	(ITEM 38 OPTION ADD) STEEL Y CHUTE EXTENSION FOR USE WITH HOOKLOADER MOUNTS OR TANDEM SLIDE IN V BOXES WITH UNDERBODY HOISTS PART NO 00129376-A	\$165.00
85	(ITEM 40 OPTIONAL REPLACEMENT) BELT / CHAIN OPTION FOR 14' FRONT/ REAR DISCHARGE DVS UNIT PART NO IS 00184402-C	\$3,147.00
86	(OPTION ADD) REAR ROLLERS- EXTENDABLE/GALVANIZED FOR SKID ASSEMBLY	\$452.00
87	(OPTIONAL REPLACEMENT) Hookloader v box assembly. See addendum in Schedule C for option specifications.	\$18,003.00
88	(OPTION ADD) Monroe MP36-60-12-ct/316 Expressway plow . Includes Snow wheels. See addendum in Schedule C for option specifications.	10,294.00
89	(OPTION ADD)Monroe model MP48R12-ISCT DUAL MOUSE EAR PLOW, Includes Snow wheels. See addendum in Schedule C for option specifications.	\$9,750.00
90	(OPTION ADD) MONROE MODEL MPFA34-71-12 ON WAY FIXED ANGLE LEFT PLOW NO 00151122. See addendum in Schedule C for option specifications.	\$6,987.00



December 7, 2021.

TRUCK & TRAILER SPECIALTIES INC

STATE OF MICHIGAN CENTRAL PROCUREMENT SERVICES

Department of Technology, Management, and Budget

Scott Poyer

MDOT

525 W. ALLEGAN ST., LANSING, MICHIGAN 48913 P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number 2

to

Contract Number <u>2000000034</u>

3286 Hanna Lake Industrial Drive					ram					
CONTRACTOR	Dutton, MI 49316 Dan Bouwman 616-698-8215				er Adm	poyers@Michigan.g	ov			
Ī₽.					Yvon Dufour			DTMB		
CT					Contract Administrator	(517) 249-0455				
dbouwman@ttspec.com					rator	dufoury@michigan.g	gov			
	CV003									
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WIN	TER M	AINTENANCE	TRUCK COMPO		T SUMMARY					
INITIAL EFFECTIVE DATE INITIAL EXPIRATION DATE			INITIAL AVAILABLE OPTIONS EXPIRATION BEFORE							
October 22, 2019 November 30, 2024					2 - 1 Year	November 30, 2024				
		PAYN	MENT TERMS		DELIVERY TIMEFRAME					
		4	45 Days		120 days, 180 days (custom items)					
			ALTERNATE PAY	MENT OPTION	S EXTENDED PURCHASING			HASING		
	□ P-Ca	rd	□ PRC	☐ Othe	er		⊠ \	Yes	□ No	
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Effec	tive Dec	cember 7 2021	this contract is here			0 00 All other terms	condit	ions specifica	ations and	

pricing remain the same. Per Vendor and Agency agreement, DTMB Central Procurement approval and Ad Board approval on



TRUCK & TRAILER SPECIALTIES INC

3286 Hanna Lake Industrial Drive

STATE OF MICHIGAN CENTRAL PROCUREMENT SERVICES

Department of Technology, Management, and Budget

Scott Poyer

517-284-6448

MDOT

525 W. ALLEGAN ST., LANSING, MICHIGAN 48913 P.O. BOX 30026 LANSING, MICHIGAN 48909

CONTRACT CHANGE NOTICE

Change Notice Number 1

to

Contract Number 2000000034

Dutton, MI 49316				ATE	poyoro simoriigarii.gov			
Dan Bo	Dutton, MI 49316 Dan Bouwman 616-698-8215 dhauwman @ttanaa aam				Yvon Dufour	I	OTMB	
616-69					(517) 249-0455			
dbouwr	man@ttspec.co	om		Contract Administrator	dufoury@michigan.g	jov		
CV003	0059							
			CONTRAC	T SUMMARY				
WINTER M	AINTENANCE	TRUCK COMPO						
INITIAL EFFECTIVE DATE INITIAL EXPIRATION DATE				INITIAL	INITIAL AVAILABLE OPTIONS EXPIRATION BEFORE			
Octobe	r 22, 2019	November 3	0, 2024		2 - 1 Year	November 30, 2		
	PAYM	IENT TERMS		DELIVERY TIMEFRAME				
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□ P-Ca	rd	□ PRC	☐ Othe	er		⊠Y	es	□ No
MINIMUM DE	LIVERY REQUIR	REMENTS						
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OPTION	LENGTI	H OF OPTION	EXTENSION	LENG	TH OF EXTENSION		REVISED E	EXP. DATE
							Novembe	r 30, 2024
CURRE	NT VALUE	VALUE OF CHAN	GE NOTICE	ES	TIMATED AGGREGAT	E CON	TRACT VALU	JE
\$10,000,000.00 \$0.00				\$10,000,000.00				
				RIPTION				
quotation pro	vided by the Co	ontractor. Contracto	r shall limit pric	cing to increas	contract. New pricing ses and reductions by his amendment shall	their s	upplier(s) u	sing the

pricing shall revert to Schedule B if not renewed by the State via Change Notice. All other terms, conditions, specifications and

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STATE OF MICHIGAN

Contract No. 20000000034
Winter Maintenance Truck Build-Up Components

SCHEDULE B PRICING

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	ITEM	PRICING
1	# 04-Fuel Tank and Hydraulic Reservior Assembly	\$4,026.00
2	# 04-PLOWJACK.1.C19 Front Plow Jack	\$1,250.00
3	# 04-Tarps .C19 Automatic Electric Tarp Assemblies	\$1,144.00
4	# 04-Pre-Wet Systems .C19 Hydraulic driven for rear discharge combination DVS bodies -See addendum in Schedule C for option specifications	\$3,402.00
5	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 1	\$10,069.00
6	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 2	\$10,560.00
7	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 3	\$10,129.00
8	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 4	\$10,733.00
9	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 5	\$10,673.00
10	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 6	\$11,276.00

	YD-PP.C19 Hydraulic System - With Valve Combination Number 7	\$10,070.00			
	YD-PP.C19 Hydraulic System - With Valve Combination Number 8	\$10,693.00			
	Hydraulic Joystick Controls - With Multiple Joysticks \$10,710.00				
	RDSPD.C19 Ground Speed Oriented Salt Distribution Spreader Control System with Electric Over draulic Joystick Controls - With Single Joystick	\$10,710.00			
	4-11CBBDY.C19 11 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Rear charge and Distribution Systems	\$31,503.00			
	4-11CBBDYDA.C19 11 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Dual Auger, st, Rear Discharge and Distribution Systems	\$35,746.00			
17 # 0	4-11SSDMP.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., Hoist and 1/2 Cab Protector	\$15,947.00			
-0	4-11SSDMPUBH.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., with Under Body Hoist and 1/2 Cab tector	\$16,099.00			
	4-14CBBDY.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Rear charge and Distribution Systems	\$33,907.00			
	4-14CBBDYDA.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Dual Auger, st, Rear Discharge and Distribution Systems	\$37,186.00			
	4-14FCBBDY.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Front and ir Discharge Distribution Systems	\$38,236.00			
22 # 0	4-14SSDMP.C19 Dump Body, Stainless Steel, 10 cu. yd., 14 ft., Hoist and 1/2 Cab Protector	\$18,809.00			
	4-14SSDMPUBH.C19 Dump Body, Stainless Steel, 10 cu. yd., 14 ft., with Under Body Hoist and 1/2 Cab tector	\$19,257.00			
24 # 5!	5-FMBBLD.C19 Under-Body Scraper, Folding Mold Board Style Snow Blade, Hydraulic Angling	\$10,279.00			
25 # 5!	5-MOPBLD.C19 Under-Body Scraper, MOP Style Snow Blade, Hydraulic Angling	\$9,621.00			
	7-0901SMW.C19 Wing Plow, behind Scraper Mount, 9 Foot Left or Right	\$8,637.00			
	7-0901SMWJR.C19 Wing Plow, behind Scraper Mount, 9 Foot Left or Right	\$7,961.00			
	7-1201SMW.C19 Wing Plow, behind Scraper Mount, 12 Foot Left or Right	\$9,040.00			
	0-11-14SSDMP Option1.C19 Reversing Rear Cross Auger with Side Spinner	\$4,621.00			
10 # 60	0-11_14SSDMP-Option2.C19 Zero Velocity Spreader (LEFT HAND ACCUPLACE SPINNER IS 00182933-B) GHT HAND ACCUPLACE SPINNER IS 00188316-B)	\$4,330.00			
1 # 6	0-11SSDMP.C19 Hopper Box Material Spreader 11 Foot and Distribution Systems	\$12,347.00			
	0-11SSUBHDMP.C19 Hopper Box Material Spreader 11 Foot and Distribution Systems	\$12,063.00			
3 # 6	0-14SSDMP.C19 Hopper Box Material Spreader 14 Foot and Distribution Systems	\$15,565.00			
4 # 6	0-14SSUBHDMP.C19 Hopper Box Material Spreader 14 Foot and Distribution Systems	\$15,281.00			
SPI 000	4-11-14CBBDY-Option1.C19 Reversing Rear Cross Auger with Side Spinner (RIGHT MOTOR WITH LEFT NNER HAND ARRANGEMENT 00184407-B AUGER, 00022294-B IS THE DROP CHUTE WITH DOOR, 022064-J- LEFT SPINNER) (LEFT MOTOR WITH RIGHT HAND SPINNER ARRANGEMENT 00184404-B GER,, 00022294-B IS THE DROP CHUTE WITH DOOR, , 00081047-H RIGHT HAND SPINNER)	\$5,235.00			
6 # O	4-11-14CBBDY-Option2.C19 Reversing Rear Cross Auger with Center Spinner	\$4,995.00			
7 # 6	0-11_14MSDMP-Option3.C19 "Y" Chute Distributor - Stainless Steel	\$3,256.00			
8 # 6	0-11_14MSDMP-Option3.C19 "Y" Chute Distributor - Non-Stainless Steel	\$2,763.00			
9 # 0	4-11CBBDY_Option4.C19 Belt Over Main Conveyor Chain	\$2,348.00			
0 # 0	4-14CBBDY_Option5.C19 Belt Over Main Conveyor Chain	\$3,550.00			
1 # 0	4-11_14CBBDY_Option6.C19 Salt Slurry Generator	\$8,302.00			
2 # 6	5-HHLF.C19 Hydraulic Hook Lift Assembly - Hook Lift Hoist	\$25,390.00			
_	5-HHLF.C19 Hydraulic Hook Lift Assembly - Hook Lift Body Subframe	\$5,130.00			
. 4 (ITE	M 1 OPTION REPLACEMENT) Western star combination tank- See addendum in schedule c for option cifications	\$3,248.00			
,5 (ITI	EM 3 OPTION ADD) PART NO 83200- ASPHALT COVER	\$247.00			
	EM 3 OPTION ADD) PART NO 81200 MESH COVER	\$155.00			
	EM 3 OPTION ADD) Optional plug kit for swaploader application - PART NUMBER 12760	\$54.00			

48	(ITEM 3 OPTION ADD) OPTIONAL TARP COVER- CUSTOM SIZE COVER FOR SWAPLOADER V BOXES PART NO 81010@83X18	¢204.00
40	(ITEM 4 OPTIONAL REPLACEMENT) Hydraulic driven for front and rear discharge combination DVS bodies-	\$204.00
49	See addendum in Schedule C for option specifications	\$3,696.00
50	(ITEM 4 OPTIONAL REPLACEMENT) Electric driven for rear discharge combination DVS bodies See	
	addendum in Schedule C for option specifications	\$3,203.00
51	(ITEM 4 OPTIONAL REPLACEMENT) Electric Driven for front and rear discharge DVS bodies See addendum in Schedule C for option specifications	\$3,597.00
52	(ITEM 4 OPTIONAL REPLACEMENT) Hydraulic driven for V box spreades See addendum in Schedule C for	. ,
	option specifications	\$3,579.00
53	(ITEM 4 OPTIONAL REPLACEMENT) Electric driven for v box spreaders- See addendum in Schedule C for option specifications	\$3,380.00
54	(ITEM 4 OPTION ADD) optional installation of prewet system to seither a combination DVS body or a V	. ,
	box spreader See addendum in Schedule C for option specifications	\$528.00
55	(ITEM 5 - 12 PART - INCLUDED) Double acting cylinder spool valve section- ship loose pricing for section	
	replacement or additional function. Specify flow rate at time of order	\$752.00
56	(ITEM 5 - 12 PART - INCLUDED) Single acting motor spooled secttion- ship loose pricing, Specify flow rate	
	at time or order	\$655.00
57	(ITEM 5 - 12 PART - INCLUDED) Double acting motor spooled valve section-ship loose pricing for section	
	replacement or additional function. Specify flow rate at time of order	\$752.00
58	(ITEM 13 & 14 OPTION ADD) add on for prewet driver	\$576.00
59	(ITEM 13 & 14 OPTION ADD) add on for cross conveyor potentiomter driver and direction control switch	\$788.00
60	(ITEM 13 & 14 OPTION ADD) Add on for hoist and jib disable circuits on Swaploader installation	\$191.00
61	(ITEM 13 & 14 OPTION ADD) Road Watch system 849-1242-000	\$314.00
62	(ITEM 15 OPTION ADD) poly subfloor for 11 ft rear discharge DVS	\$736.00
63	(ITEM 19 OPTION ADD) POLY SUBFLOOR FOR 14' REAR DISCHARGE DVS UNIT INSTALLED	\$809.00
64	(ITEM 21 OPTION ADD) POLY SUBFLOOR FOR 14' FRONT/REAR DISCHARGE DVS UNIT INSTALLED	\$735.00
65	(ITEM 26 OPTION ADD) 9 FT RIGHT HAND PATROL WING POLY MOLDBOARD LINER. PART NO 00188368I	\$704.00
66	(ITEM 26 OPTIONAL REPLACEMENT) 9 FT LEFT HAND PATROL WING PART NO 00184445	\$8,637.00
67	(ITEM 26 OPTION ADD) 9 FT LEFT HAND PATROL WING POLY MOLDBOARD LINER. PART NO 00188950I	φο,σοτ.σο
07	,	\$704.00
68	(ITEM 27 OPTION ADD) 9 FT RIGHT HAND JUNIOR WING POLY MOLDBOARD LINER 001883661	\$666.00
69	(ITEM 27 OPTIONAL REPLACEMENT) 9 FT LEFT HAND JUNIOR WING PART NO 00184443	\$7,961.00
70	(ITEM 27 OPTION ADD) 9 FT LEFT HAND JUNIOR WING POLY MOLDBOARD LINER PART NO 00188367I	\$666.00
71	(ITEM 27 OPTIONAL REPLACEMENT) 7 FT RIGHT HAND JUNIOR WING PART NO 00188369	\$7,895.00
72	(ITEM 27 OPTION ADD) 7 FT RIGHT HAND JUNIOR WING POLY MOLDBOARD LINER PART NUMBER	+ - , 333.00
12	001883721	\$665.00
73	(ITEM 27 OPTIONAL REPLACEMENT) 7 FT LEFT HAND JUNIOR WING PART NO 00189828	\$7,895.00
74	(ITEM 27 OPTION ADD) 7 FT LEFT HAND JUNIOR WING POLY MOLDBOARD LINER-PART NUMBER NOT YET ISSUED	\$665.00
75	(ITEM 28 OPTION ADD) 12 FT RIGHT HAND PATROL WING POLY MOLDBOARD LINER	\$825.00
76	(ITEM 28 OPTIONAL REPLACEMENT) 12 FT LEFT HAND PATROL WING PART NO 00184446	\$9,040.00
77	(ITEM 28 OPTION ADD) 12 FT LEFT HAND PATROL WING POLY MOLDBOARD LINER	\$825.00
78	(ITEM 30 OPTION ADD) flip up rear spinner for DVS combination body See addendum in Schedule C for	Ç023.00
	option specifications	\$2,143.00
79	(ITEM 34 OPTIONAL REPLACEMENT) MCV168-84-56- BELT/ CHAIN V BOX WITH CUTOUT FOR DOGHOUSE	
	See addendum in Schedule C for option specifications	\$17,647.00
80	(ITEM 34 OPTIONAL REPLACEMENT) MCV168-84-56/ DUAL AUGER SLIDE IN V BOX WITH DOGHOUSE See addendum in Schedule C for option specifications	18,185.00
	L L	_0,100.00

81	(ITEM 36 OPTION ADD) mounting tube- See addendum in Schedule C for option specifications	\$114.00
82	(ITEM 36 OPTIONAL REPLACEMENT) MS9612 to fit V box application: See addendum in Schedule C for option specifications	\$5,566.00
83	(ITEM 37 OPTION ADD) STAINLESS STEEL Y CHUTE EXTENSION FOR USE WITH HOOKLOADER MOUNTS OR TANDEM SLIDE IN V BOXES WITH UNDERBODY HOISTS PART NO 00129376-B	\$277.00
84	(ITEM 38 OPTION ADD) STEEL Y CHUTE EXTENSION FOR USE WITH HOOKLOADER MOUNTS OR TANDEM SLIDE IN V BOXES WITH UNDERBODY HOISTS PART NO 00129376-A	\$165.00
85	(ITEM 40 OPTIONAL REPLACEMENT) BELT / CHAIN OPTION FOR 14' FRONT/ REAR DISCHARGE DVS UNIT PART NO IS 00184402-C	\$3,147.00
86	(OPTION ADD) REAR ROLLERS- EXTENDABLE/GALVANIZED FOR SKID ASSEMBLY	\$452.00
87	(OPTIONAL REPLACEMENT) Hookloader v box assembly. See addendum in Schedule C for option specifications.	\$18,003.00
88	(OPTION ADD) Monroe MP36-60-12-ct/316 Expressway plow . Includes Snow wheels. See addendum in Schedule C for option specifications.	10,294.00
89	(OPTION ADD)Monroe model MP48R12-ISCT DUAL MOUSE EAR PLOW, Includes Snow wheels. See addendum in Schedule C for option specifications.	\$9,750.00
90	(OPTION ADD) MONROE MODEL MPFA34-71-12 ON WAY FIXED ANGLE LEFT PLOW NO 00151122. See addendum in Schedule C for option specifications.	\$6,987.00



STATE OF MICHIGAN PROCUREMENT

Department of Technology, Management & Budget 525 W. Allegan Street Lansing, MI 48933 P.O. Box 30026 Lansing, MI 48909

NOTICE OF CONTRACT

NOTICE OF CONTRACT NO. 20000000034

between

THE STATE OF MICHIGAN

and

	Truck & Trailer Specialties, Inc.
œ	3286 Hanna Lake industrial Drive
сто	Dutton, MI 49316
'RA(Dan Bouwman
CONTRACTOR	616-698-8215
Ö	dbouwman@ttspec.com
	CV0030059

	r.	Scott Poyer	MDOT
	Program Manager	517-284-6448	
∖TE		poyers@michigan.gov	
STA	ot ator	Yvon Dufour	DTMB
	Contract Administrator	517-249-0455	
	C Adn	dufoury@michigan.gov	

CONTRACT SUMMARY				
DESCRIPTION: Winter Maintenance Truck Components				
INITIAL EFFECTIVE DATE	INITIAL EXPIRATION DATE	INITIAL AVAILABLE OPTIONS	EXPIRATION DA CHANGE(S) NOT	
10/22/2019	11/30/2024	2, one year		
PAYMENT	TERMS	D	ELIVERY TIMEFRAME	
45 Days		120 days	s, 180 days (custom ite	ems)
ALTERNATE PAYMENT OPTIONS	S		EXTENDED PU	RCHASING
☐ P-card ☐	Payment Request (PRC)	☐ Other		□ No
MINIMUM DELIVERY REQUIREM	ENTS			
MISCELLANEOUS INFORMATION				
ESTIMATED CONTRACT VALUE	AT TIME OF EXECUTION			10.000.000.00

FOR THE CONTRACTOR: Truck & Trailer Specialties, Inc. Company Name **Authorized Agent Signature** Dan Bouwman Authorized Agent (Print or Type) FOR THE STATE: <u>Steve Rigg - Commodities Procurement Manager</u> Name & Title DTMB Agency



STATE OF MICHIGAN

STANDARD CONTRACT TERMS

This STANDARD CONTRACT ("Contract") is agreed to between the State of Michigan (the "State") and Truck & Trailer Specialties ("Contractor"), a Michigan corporation. This Contract is effective on 10/22/2019 ("Effective Date"), and unless terminated, expires on 11/30/24.

This Contract may be renewed for up to two (2) additional one (1) year period(s). Renewal is at the sole discretion of the State and will automatically extend the Term of this Contract. The State will document its exercise of renewal options via Contract Change Notice.

The parties agree as follows:

 Duties of Contractor. Contractor must perform the services and provide the deliverables described in Schedule A – Statement of Work (the "Contract Activities"). An obligation to provide delivery of any commodity is considered a service and is a Contract Activity.

Contractor must furnish all labor, equipment, materials, and supplies necessary for the performance of the Contract Activities, and meet operational standards, unless otherwise specified in Schedule A.

Contractor must: (a) perform the Contract Activities in a timely, professional, safe, and workmanlike manner consistent with standards in the trade, profession, or industry; (b) meet or exceed the performance and operational standards, and specifications of the Contract; (c) provide all Contract Activities in good quality, with no material defects; (d) not interfere with the State's operations; (e) obtain and maintain all necessary licenses, permits or other authorizations necessary for the performance of the Contract; (f) cooperate with the State, including the State's quality assurance personnel, and any third party to achieve the objectives of the Contract; (g) return to the State any State-furnished equipment or other resources in the same condition as when provided when no longer required for the Contract; (h) not make any media releases without prior written authorization from the State; (i) assign to the State any claims resulting from state or federal antitrust violations to the extent that those violations concern materials or services supplied by third parties toward fulfillment of the Contract; (j) comply with all State physical and IT security policies and standards which will be made available upon request; and (k) provide the State priority in performance of the Contract except as mandated by federal disaster response requirements. Any breach under this paragraph is considered a material breach.

Contractor must also be clearly identifiable while on State property by wearing identification issued by the State, and clearly identify themselves whenever making contact with the State.

2. Notices. All notices and other communications required or permitted under this Contract must be in writing and will be considered given and received: (a) when verified by written receipt if sent by courier; (b) when actually received if sent by mail without verification of receipt; or (c) when verified by automated receipt or electronic logs if sent by facsimile or email.

If to State:	If to Contractor:
Yvon Dufour	Dan Bouwman-President
525 W. Allegan,	3286 Hanna Lake Industrial Drive
Constitution Hall, 1 st Floor NE	Dutton, MI 49316
Lansing, MI 48933	Toll Free Phone: (888)-200-8146
dufoury@michigan.gov	dbouwman@ttspec.com
(517) 249-0455	

3. Contract Administrator. The Contract Administrator for each party is the only person authorized to modify any terms of this Contract, and approve and execute any change under this Contract (each a "Contract Administrator"):

Yvon Dufour	Dan Bouwman-President
525 W. Allegan,	3286 Hanna Lake Industrial Drive
Constitution Hall, 1st Floor NE	Dutton, MI 49316
Lansing, MI 48933	Toll Free Phone: (888)-200-8146
dufoury @michigan.gov	dbouwman@ttspec.com
(517) 249-0455	

4. Program Manager. The Program Manager for each party will monitor and coordinate the day-to-day activities of the Contract (each a "**Program Manager**"):

State:	Contractor:
Scott Poyer	Mike Bouwman
2522 W. Main St.	3286 Hanna Lake Industrial Drive
Lansing, MI 48917	Dutton, MI 49316
poyers@michigan.gov	Toll Free Phone: (888)-200-8146
(517) 284-6448	mbouwman@ttspec.com

- 5. Performance Guarantee. Contractor must at all times have financial resources sufficient, in the opinion of the State, to ensure performance of the Contract and must provide proof upon request. The State may require a performance bond (as specified in Schedule A) if, in the opinion of the State, it will ensure performance of the Contract.
- 6. Insurance Requirements. Contractor must maintain the insurances identified below and is responsible for all deductibles. All required insurance must: (a) protect the State from claims that may arise out of, are alleged to arise out of, or result from Contractor's or a subcontractor's performance; (b) be primary and non-contributing to any comparable liability insurance (including self-insurance) carried by the State; and (c) be provided by a company with an A.M. Best rating of "A-" or better, and a financial size of VII or better.

Required Limits	Additional Requirements			
Commercial General Liability Insurance				
Minimum Limits: \$1,000,000 Each Occurrence Limit \$1,000,000 Personal & Advertising Injury Limit \$2,000,000 General Aggregate Limit \$2,000,000 Products/Completed Operations Deductible Maximum: \$50,000 Each Occurrence	Contractor must have their policy endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds using endorsement CG 20 10 11 85, or both CG 2010 07 04 and CG 2037 07 04.			
Umbrella or Excess Liability Insurance				
Minimum Limits: \$5,000,000 General Aggregate	Contractor must have their policy follow form.			
Automobile Liability Insurance				
Minimum Limits: \$1,000,000 Per Accident	Contractor must have their policy: (1) endorsed to add "the State of Michigan, its departments, divisions, agencies, offices, commissions, officers, employees, and agents" as additional insureds; and (2) include Hired and Non-Owned Automobile coverage.			
Workers' Compensation Insurance				

Minimum Limits: Coverage according to applicable laws governing work activities.	Waiver of subrogation, except where waiver is prohibited by law.	
Employers Liability Insurance		
Minimum Limits: \$500,000 Each Accident \$500,000 Each Employee by Disease \$500,000 Aggregate Disease.		

If any of the required policies provide **claims-made** coverage, the Contractor must: (a) provide coverage with a retroactive date before the effective date of the contract or the beginning of Contract Activities; (b) maintain coverage and provide evidence of coverage for at least three (3) years after completion of the Contract Activities; and (c) if coverage is cancelled or not renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective date, Contractor must purchase extended reporting coverage for a minimum of three (3) years after completion of work.

Contractor must: (a) provide insurance certificates to the Contract Administrator, containing the agreement or delivery order number, at Contract formation and within 20 calendar days of the expiration date of the applicable policies; (b) require that subcontractors maintain the required insurances contained in this Section; (c) notify the Contract Administrator within 5 business days if any insurance is cancelled; and (d) waive all rights against the State for damages covered by insurance. Failure to maintain the required insurance does not limit this waiver.

This Section is not intended to and is not to be construed in any manner as waiving, restricting or limiting the liability of either party for any obligations under this Contract (including any provisions hereof requiring Contractor to indemnify, defend and hold harmless the State).

7. Administrative Fee and Reporting. Contractor must pay an administrative fee of 1% on all payments made to Contractor under the Contract including transactions with the State (including its departments, divisions, agencies, offices, and commissions), MiDEAL members, and other states (including governmental subdivisions and authorized entities). Administrative fee payments must be made by check payable to the State of Michigan and mailed to:

Department of Technology, Management and Budget Cashiering P.O. Box 30681 Lansing, MI 48909

Contractor must submit an itemized purchasing activity report, which includes at a minimum, the name of the purchasing entity and the total dollar volume in sales. Reports should be mailed to MiDeal@michigan.gov.

The administrative fee and purchasing activity report are due within 30 calendar days from the last day of each calendar quarter.

8. **Extended Purchasing Program.** This contract is extended to MiDEAL members. MiDEAL members include local units of government, school districts, universities, community colleges, and nonprofit hospitals. A current list of MiDEAL members is available at www.michigan.gov/mideal.

Upon written agreement between the State and Contractor, this contract may also be extended to: (a) other states (including governmental subdivisions and authorized entities) and (b) State of Michigan employees.

If extended, Contractor must supply all Contract Activities at the established Contract prices and terms. The State reserves the right to impose an administrative fee and negotiate additional discounts based on any increased volume generated by such extensions.

Contractor must submit invoices to, and receive payment from, extended purchasing program members on a direct and individual basis.

 Independent Contractor. Contractor is an independent contractor and assumes all rights, obligations and liabilities set forth in this Contract. Contractor, its employees, and agents will not be considered employees of

the State. No partnership or joint venture relationship is created by virtue of this Contract. Contractor, and not the State, is responsible for the payment of wages, benefits and taxes of Contractor's employees and any subcontractors. Prior performance does not modify Contractor's status as an independent contractor.

- 10. Subcontracting. Contractor may not delegate any of its obligations under the Contract without the prior written approval of the State. Contractor must notify the State at least 90 calendar days before the proposed delegation and provide the State any information it requests to determine whether the delegation is in its best interest. If approved, Contractor must: (a) be the sole point of contact regarding all contractual matters, including payment and charges for all Contract Activities; (b) make all payments to the subcontractor; and (c) incorporate the terms and conditions contained in this Contract in any subcontract with a subcontractor. Contractor remains responsible for the completion of the Contract Activities, compliance with the terms of this Contract, and the acts and omissions of the subcontractor. The State, in its sole discretion, may require the replacement of any subcontractor.
- **11. Staffing.** The State's Contract Administrator may require Contractor to remove or reassign personnel by providing a notice to Contractor.
- 12. Background Checks. Pursuant to Michigan law, all agencies subject to IRS Pub. 1075 are required to ask the Michigan State Police to perform fingerprint background checks on all employees, including Contractor and Subcontractor employees, who may have access to any database of information maintained by the federal government that contains confidential or personal information, including, but not limited to, federal tax information. Further, pursuant to Michigan law, any agency described above is prohibited from providing Contractors or Subcontractors with the result of such background check. For more information, please see Michigan Public Act 427 of 2018. Upon request, Contractor must perform background checks on all employees and subcontractors and its employees prior to their assignment. The scope is at the discretion of the State and documentation must be provided as requested. Contractor is responsible for all costs associated with the requested background checks. The State, in its sole discretion, may also perform background checks.
- 13. Assignment. Contractor may not assign this Contract to any other party without the prior approval of the State. Upon notice to Contractor, the State, in its sole discretion, may assign in whole or in part, its rights or responsibilities under this Contract to any other party. If the State determines that a novation of the Contract to a third party is necessary, Contractor will agree to the novation and provide all necessary documentation and signatures.
- 14. Change of Control. Contractor will notify within 30 days of any public announcement or otherwise once legally permitted to do so, the State of a change in Contractor's organizational structure or ownership. For purposes of this Contract, a change in control means any of the following: (a) a sale of more than 50% of Contractor's stock; (b) a sale of substantially all of Contractor's assets; (c) a change in a majority of Contractor's board members; (d) consummation of a merger or consolidation of Contractor with any other entity; (e) a change in ownership through a transaction or series of transactions; (f) or the board (or the stockholders) approves a plan of complete liquidation. A change of control does not include any consolidation or merger effected exclusively to change the domicile of Contractor, or any transaction or series of transactions principally for bona fide equity financing purposes.

In the event of a change of control, Contractor must require the successor to assume this Contract and all of its obligations under this Contract.

- **15. Ordering.** Contractor is not authorized to begin performance until receipt of authorization as identified in Schedule A.
- 16. Acceptance. Contract Activities are subject to inspection and testing by the State within 30 calendar days of the State's receipt of them ("State Review Period"), unless otherwise provided in Schedule A. If the Contract Activities are not fully accepted by the State, the State will notify Contractor by the end of the State Review Period that either: (a) the Contract Activities are accepted, but noted deficiencies must be corrected; or (b) the Contract Activities are rejected. If the State finds material deficiencies, it may: (i) reject the Contract Activities without performing any further inspections; (ii) demand performance at no additional cost; or (iii) terminate this Contract in accordance with Section 23, Termination for Cause.

Within 10 business days from the date of Contractor's receipt of notification of acceptance with deficiencies or rejection of any Contract Activities, Contractor must cure, at no additional cost, the deficiency and deliver unequivocally acceptable Contract Activities to the State. If acceptance with deficiencies or rejection of the Contract Activities impacts the content or delivery of other non-completed Contract Activities, the parties' respective Program Managers must determine an agreed to number of days for re-submission that minimizes

the overall impact to the Contract. However, nothing herein affects, alters, or relieves Contractor of its obligations to correct deficiencies in accordance with the time response standards set forth in this Contract.

If Contractor is unable or refuses to correct the deficiency within the time response standards set forth in this Contract, the State may cancel the order in whole or in part. The State, or a third party identified by the State, may perform the Contract Activities and recover the difference between the cost to cure and the Contract price plus an additional 10% administrative fee.

- **17. Delivery.** Contractor must deliver all Contract Activities F.O.B. destination, within the State premises with transportation and handling charges paid by Contractor, unless otherwise specified in Schedule A. All containers and packaging become the State's exclusive property upon acceptance.
- 18. Risk of Loss and Title. Until final acceptance, title and risk of loss or damage to Contract Activities remains with Contractor. Contractor is responsible for filing, processing, and collecting all damage claims. The State will record and report to Contractor any evidence of visible damage. If the State rejects the Contract Activities, Contractor must remove them from the premises within 10 calendar days after notification of rejection. The risk of loss of rejected or non-conforming Contract Activities remains with Contractor. Rejected Contract Activities not removed by Contractor within 10 calendar days will be deemed abandoned by Contractor, and the State will have the right to dispose of it as its own property. Contractor must reimburse the State for costs and expenses incurred in storing or effecting removal or disposition of rejected Contract Activities.
- **19. Warranty Period.** The warranty period, if applicable, for Contract Activities is a fixed period commencing on the date specified in Schedule A. If the Contract Activities do not function as warranted during the warranty period, the State may return such non-conforming Contract Activities to the Contractor for a full refund.
- 20. Terms of Payment. Invoices must conform to the requirements communicated from time-to-time by the State. All undisputed amounts are payable within 45 days of the State's receipt. Contractor may only charge for Contract Activities performed as specified in Schedule A. Invoices must include an itemized statement of all charges. The State is exempt from State sales tax for direct purchases and may be exempt from federal excise tax, if Services purchased under this Agreement are for the State's exclusive use. All prices are exclusive of taxes, and Contractor is responsible for all sales, use and excise taxes, and any other similar taxes, duties and charges of any kind imposed by any federal, state, or local governmental entity on any amounts payable by the State under this Contract.

The State has the right to withhold payment of any disputed amounts until the parties agree as to the validity of the disputed amount. The State will notify Contractor of any dispute within a reasonable time. Payment by the State will not constitute a waiver of any rights as to Contractor's continuing obligations, including claims for deficiencies or substandard Contract Activities. Contractor's acceptance of final payment by the State constitutes a waiver of all claims by Contractor against the State for payment under this Contract, other than those claims previously filed in writing on a timely basis and still disputed.

The State will only disburse payments under this Contract through Electronic Funds Transfer (EFT). Contractor must register with the State at http://www.michigan.gov/SIGMAVSS to receive electronic fund transfer payments. If Contractor does not register, the State is not liable for failure to provide payment. Without prejudice to any other right or remedy it may have, the State reserves the right to set off at any time any amount then due and owing to it by Contractor against any amount payable by the State to Contractor under this Contract.

- 21. Liquidated Damages. Liquidated damages, if applicable, will be assessed as described in Schedule A.
- 22. Stop Work Order. The State may suspend any or all activities under the Contract at any time. The State will provide Contractor a written stop work order detailing the suspension. Contractor must comply with the stop work order upon receipt. Within 90 calendar days, or any longer period agreed to by Contractor, the State will either: (a) issue a notice authorizing Contractor to resume work, or (b) terminate the Contract or delivery order. The State will not pay for Contract Activities, Contractor's lost profits, or any additional compensation during a stop work period.
- 23. Termination for Cause. The State may terminate this Contract for cause, in whole or in part, if Contractor, as determined by the State: (a) endangers the value, integrity, or security of any location, data, or personnel; (b) becomes insolvent, petitions for bankruptcy court proceedings, or has an involuntary bankruptcy proceeding filed against it by any creditor; (c) engages in any conduct that may expose the State to liability; (d) breaches any of its material duties or obligations; or (e) fails to cure a breach within the time stated in a notice of breach.

Any reference to specific breaches being material breaches within this Contract will not be construed to mean that other breaches are not material.

If the State terminates this Contract under this Section, the State will issue a termination notice specifying whether Contractor must: (a) cease performance immediately, or (b) continue to perform for a specified period. If it is later determined that Contractor was not in breach of the Contract, the termination will be deemed to have been a Termination for Convenience, effective as of the same date, and the rights and obligations of the parties will be limited to those provided in Section 24, Termination for Convenience.

The State will only pay for amounts due to Contractor for Contract Activities accepted by the State on or before the date of termination, subject to the State's right to set off any amounts owed by the Contractor for the State's reasonable costs in terminating this Contract. The Contractor must pay all reasonable costs incurred by the State in terminating this Contract for cause, including administrative costs, attorneys' fees, court costs, transition costs, and any costs the State incurs to procure the Contract Activities from other sources.

- 24. Termination for Convenience. The State may immediately terminate this Contract in whole or in part without penalty and for any reason, including but not limited to, appropriation or budget shortfalls. The termination notice will specify whether Contractor must: (a) cease performance of the Contract Activities immediately, or (b) continue to perform the Contract Activities in accordance with Section 25, Transition Responsibilities. If the State terminates this Contract for convenience, the State will pay all reasonable costs, as determined by the State, for State approved Transition Responsibilities.
- 25. Transition Responsibilities. Upon termination or expiration of this Contract for any reason, Contractor must, for a period of time specified by the State (not to exceed 90 calendar days), provide all reasonable transition assistance requested by the State, to allow for the expired or terminated portion of the Contract Activities to continue without interruption or adverse effect, and to facilitate the orderly transfer of such Contract Activities to the State or its designees. Such transition assistance may include, but is not limited to: (a) continuing to perform the Contract Activities at the established Contract rates; (b) taking all reasonable and necessary measures to transition performance of the work, including all applicable Contract Activities, training, equipment, software, leases, reports and other documentation, to the State or the State's designee; (c) taking all necessary and appropriate steps, or such other action as the State may direct, to preserve, maintain, protect, or return to the State all materials, data, property, and confidential information provided directly or indirectly to Contractor by any entity, agent, vendor, or employee of the State; (d) transferring title in and delivering to the State, at the State's discretion, all completed or partially completed deliverables prepared under this Contract as of the Contract termination date; and (e) preparing an accurate accounting from which the State and Contractor may reconcile all outstanding accounts (collectively, "Transition Responsibilities"). This Contract will automatically be extended through the end of the transition period.
- 26. General Indemnification. Contractor must defend, indemnify and hold the State, its departments, divisions, agencies, offices, commissions, officers, and employees harmless, without limitation, from and against any and all actions, claims, losses, liabilities, damages, costs, attorney fees, and expenses (including those required to establish the right to indemnification), arising out of or relating to: (a) any breach by Contractor (or any of Contractor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable) of any of the promises, agreements, representations, warranties, or insurance requirements contained in this Contract; (b) any infringement, misappropriation, or other violation of any intellectual property right or other right of any third party; (c) any bodily injury, death, or damage to real or tangible personal property occurring wholly or in part due to action or inaction by Contractor (or any of Contractor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable); and (d) any acts or omissions of Contractor (or any of Contractor's employees, agents, subcontractors, or by anyone else for whose acts any of them may be liable).

The State will notify Contractor in writing if indemnification is sought; however, failure to do so will not relieve Contractor, except to the extent that Contractor is materially prejudiced. Contractor must, to the satisfaction of the State, demonstrate its financial ability to carry out these obligations.

The State is entitled to: (i) regular updates on proceeding status; (ii) participate in the defense of the proceeding; (iii) employ its own counsel; and to (iv) retain control of the defense if the State deems necessary. Contractor will not, without the State's written consent (not to be unreasonably withheld), settle, compromise, or consent to the entry of any judgment in or otherwise seek to terminate any claim, action, or proceeding. To the extent that any State employee, official, or law may be involved or challenged, the State may, at its own expense, control the defense of that portion of the claim.

Any litigation activity on behalf of the State, or any of its subdivisions under this Section, must be coordinated with the Department of Attorney General. An attorney designated to represent the State may not do so until approved by the Michigan Attorney General and appointed as a Special Assistant Attorney General.

- 27. Infringement Remedies. If, in either party's opinion, any piece of equipment, software, commodity, or service supplied by Contractor or its subcontractors, or its operation, use or reproduction, is likely to become the subject of a copyright, patent, trademark, or trade secret infringement claim, Contractor must, at its expense: (a) procure for the State the right to continue using the equipment, software, commodity, or service, or if this option is not reasonably available to Contractor, (b) replace or modify the same so that it becomes non-infringing; or (c) accept its return by the State with appropriate credits to the State against Contractor's charges and reimburse the State for any losses or costs incurred as a consequence of the State ceasing its use and returning it.
- 28. Limitation of Liability and Disclaimer of Damages. IN NO EVENT WILL THE STATE'S AGGREGATE LIABILITY TO CONTRACTOR UNDER THIS CONTRACT, REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR BY STATUTE OR OTHERWISE, FOR ANY CLAIM RELATED TO OR ARISING UNDER THIS CONTRACT, EXCEED THE MAXIMUM AMOUNT OF FEES PAYABLE UNDER THIS CONTRACT. The State is not liable for consequential, incidental, indirect, or special damages, regardless of the nature of the action.
- 29. Disclosure of Litigation, or Other Proceeding. Contractor must notify the State within 14 calendar days of receiving notice of any litigation, investigation, arbitration, or other proceeding (collectively, "Proceeding") involving Contractor, a subcontractor, or an officer or director of Contractor or subcontractor, that arises during the term of the Contract, including: (a) a criminal Proceeding; (b) a parole or probation Proceeding; (c) a Proceeding under the Sarbanes-Oxley Act; (d) a civil Proceeding involving: (1) a claim that might reasonably be expected to adversely affect Contractor's viability or financial stability; or (2) a governmental or public entity's claim or written allegation of fraud; or (e) a Proceeding involving any license that Contractor is required to possess in order to perform under this Contract.
- 30. Reserved.
- 31. Reserved.
- **32. Non-Disclosure of Confidential Information.** The parties acknowledge that each party may be exposed to or acquire communication or data of the other party that is confidential, privileged communication not intended to be disclosed to third parties. The provisions of this Section survive the termination of this Contract.
 - a. Meaning of Confidential Information. For the purposes of this Contract, the term "Confidential Information" means all information and documentation of a party that: (a) has been marked "confidential" or with words of similar meaning, at the time of disclosure by such party; (b) if disclosed orally or not marked "confidential" or with words of similar meaning, was subsequently summarized in writing by the disclosing party and marked "confidential" or with words of similar meaning; and, (c) should reasonably be recognized as confidential information of the disclosing party. The term "Confidential Information" does not include any information or documentation that was: (a) subject to disclosure under the Michigan Freedom of Information Act (FOIA); (b) already in the possession of the receiving party without an obligation of confidentiality; (c) developed independently by the receiving party, as demonstrated by the receiving party, without violating the disclosing party's proprietary rights; (d) obtained from a source other than the disclosing party without an obligation of confidentiality; or, (e) publicly available when received, or thereafter became publicly available (other than through any unauthorized disclosure by, through, or on behalf of, the receiving party). For purposes of this Contract, in all cases and for all matters, State Data is deemed to be Confidential Information.
 - b. Obligation of Confidentiality. The parties agree to hold all Confidential Information in strict confidence and not to copy, reproduce, sell, transfer, or otherwise dispose of, give or disclose such Confidential Information to third parties other than employees, agents, or subcontractors of a party who have a need to know in connection with this Contract or to use such Confidential Information for any purposes whatsoever other than the performance of this Contract. The parties agree to advise and require their respective employees, agents, and subcontractors of their obligations to keep all Confidential Information confidential. Disclosure to a subcontractor is permissible where: (a) use of a subcontractor is authorized under this Contract; (b) the disclosure is necessary or otherwise naturally occurs in connection with work that is within the subcontractor's responsibilities; and (c) Contractor obligates the subcontractor in a written contract to maintain the State's Confidential Information in confidence. At the State's request, any

- employee of Contractor or any subcontractor may be required to execute a separate agreement to be bound by the provisions of this Section.
- c. <u>Cooperation to Prevent Disclosure of Confidential Information</u>. Each party must use its best efforts to assist the other party in identifying and preventing any unauthorized use or disclosure of any Confidential Information. Without limiting the foregoing, each party must advise the other party immediately in the event either party learns or has reason to believe that any person who has had access to Confidential Information has violated or intends to violate the terms of this Contract and each party will cooperate with the other party in seeking injunctive or other equitable relief against any such person.
- d. Remedies for Breach of Obligation of Confidentiality. Each party acknowledges that breach of its obligation of confidentiality may give rise to irreparable injury to the other party, which damage may be inadequately compensable in the form of monetary damages. Accordingly, a party may seek and obtain injunctive relief against the breach or threatened breach of the foregoing undertakings, in addition to any other legal remedies which may be available, to include, in the case of the State, at the sole election of the State, the immediate termination, without liability to the State, of this Contract or any Statement of Work corresponding to the breach or threatened breach.
- e. <u>Surrender of Confidential Information upon Termination</u>. Upon termination of this Contract or a Statement of Work, in whole or in part, each party must, within 5 calendar days from the date of termination, return to the other party any and all Confidential Information received from the other party, or created or received by a party on behalf of the other party, which are in such party's possession, custody, or control; provided, however, that Contractor must return State Data to the State following the timeframe and procedure described further in this Contract. Should Contractor or the State determine that the return of any Confidential Information is not feasible, such party must destroy the Confidential Information and must certify the same in writing within 5 calendar days from the date of termination to the other party. However, the State's legal ability to destroy Contractor data may be restricted by its retention and disposal schedule, in which case Contractor's Confidential Information will be destroyed after the retention period expires.
- 33. Reserved.
- 34. Reserved.
- 35. Reserved.
- **36. Records Maintenance, Inspection, Examination, and Audit.** The State or its designee may audit Contractor to verify compliance with this Contract. Contractor must retain and provide to the State or its designee and the auditor general upon request, all financial and accounting records related to the Contract through the term of the Contract and for 4 years after the latter of termination, expiration, or final payment under this Contract or any extension ("**Audit Period**"). If an audit, litigation, or other action involving the records is initiated before the end of the Audit Period. Contractor must retain the records until all issues are resolved.

Within 10 calendar days of providing notice, the State and its authorized representatives or designees have the right to enter and inspect Contractor's premises or any other places where Contract Activities are being performed, and examine, copy, and audit all records related to this Contract. Contractor must cooperate and provide reasonable assistance. If any financial errors are revealed, the amount in error must be reflected as a credit or debit on subsequent invoices until the amount is paid or refunded. Any remaining balance at the end of the Contract must be paid or refunded within 45 calendar days.

This Section applies to Contractor, any parent, affiliate, or subsidiary organization of Contractor, and any subcontractor that performs Contract Activities in connection with this Contract.

37. Warranties and Representations. Contractor represents and warrants: (a) Contractor is the owner or licensee of any Contract Activities that it licenses, sells, or develops and Contractor has the rights necessary to convey title, ownership rights, or licensed use; (b) all Contract Activities are delivered free from any security interest, lien, or encumbrance and will continue in that respect; (c) the Contract Activities will not infringe the patent, trademark, copyright, trade secret, or other proprietary rights of any third party; (d) Contractor must assign or otherwise transfer to the State or its designee any manufacturer's warranty for the Contract Activities; (e) the Contract Activities are merchantable and fit for the specific purposes identified in the Contract; (f) the Contract signatory has the authority to enter into this Contract; (g) all information furnished by Contractor in connection with the Contract fairly and accurately represents Contractor's business, properties, finances, and operations as of the dates covered by the information, and Contractor will inform the State of any material

adverse changes;(h) all information furnished and representations made in connection with the award of this Contract is true, accurate, and complete, and contains no false statements or omits any fact that would make the information misleading; and that (i) Contractor is neither currently engaged in nor will engage in the boycott of a person based in or doing business with a strategic partner as described in 22 USC 8601 to 8606. A breach of this Section is considered a material breach of this Contract, which entitles the State to terminate this Contract under Section 23, Termination for Cause.

- 38. Conflicts and Ethics. Contractor will uphold high ethical standards and is prohibited from: (a) holding or acquiring an interest that would conflict with this Contract; (b) doing anything that creates an appearance of impropriety with respect to the award or performance of the Contract; (c) attempting to influence or appearing to influence any State employee by the direct or indirect offer of anything of value; or (d) paying or agreeing to pay any person, other than employees and consultants working for Contractor, any consideration contingent upon the award of the Contract. Contractor must immediately notify the State of any violation or potential violation of these standards. This Section applies to Contractor, any parent, affiliate, or subsidiary organization of Contractor, and any subcontractor that performs Contract Activities in connection with this Contract.
- **39.** Compliance with Laws. Contractor must comply with all federal, state and local laws, rules and regulations.
- 40. Reserved.
- 41. Reserved.
- 42. Nondiscrimination. Under the Elliott-Larsen Civil Rights Act, 1976 PA 453, MCL 37.2101, et seq., the Persons with Disabilities Civil Rights Act, 1976 PA 220, MCL 37.1101, et seq., and Executive Directive 2019-09. Contractor and its subcontractors agree not to discriminate against an employee or applicant for employment with respect to hire, tenure, terms, conditions, or privileges of employment, or a matter directly or indirectly related to employment, because of race, color, religion, national origin, age, sex (as defined in Executive Directive 2019-09), height, weight, marital status, partisan considerations, any mental or physical disability, or genetic information that is unrelated to the person's ability to perform the duties of a particular job or position. Breach of this covenant is a material breach of this Contract.
- **43. Unfair Labor Practice.** Under MCL 423.324, the State may void any Contract with a Contractor or subcontractor who appears on the Unfair Labor Practice register compiled under MCL 423.322.
- 44. Governing Law. This Contract is governed, construed, and enforced in accordance with Michigan law, excluding choice-of-law principles, and all claims relating to or arising out of this Contract are governed by Michigan law, excluding choice-of-law principles. Any dispute arising from this Contract must be resolved in Michigan Court of Claims. Contractor consents to venue in Ingham County, and waives any objections, such as lack of personal jurisdiction or forum non conveniens. Contractor must appoint agents in Michigan to receive service of process.
- **45. Non-Exclusivity.** Nothing contained in this Contract is intended nor will be construed as creating any requirements contract with Contractor. This Contract does not restrict the State or its agencies from acquiring similar, equal, or like Contract Activities from other sources.
- **46. Force Majeure.** Neither party will be in breach of this Contract because of any failure arising from any disaster or acts of god that are beyond their control and without their fault or negligence. Each party will use commercially reasonable efforts to resume performance. Contractor will not be relieved of a breach or delay caused by its subcontractors. If immediate performance is necessary to ensure public health and safety, the State may immediately contract with a third party.
- **47. Dispute Resolution.** The parties will endeavor to resolve any Contract dispute in accordance with this provision. The dispute will be referred to the parties' respective Contract Administrators or Program Managers. Such referral must include a description of the issues and all supporting documentation. The parties must submit the dispute to a senior executive if unable to resolve the dispute within 15 business days. The parties will continue performing while a dispute is being resolved, unless the dispute precludes performance. A dispute involving payment does not preclude performance.

Litigation to resolve the dispute will not be instituted until after the dispute has been elevated to the parties' senior executive and either concludes that resolution is unlikely or fails to respond within 15 business days. The parties are not prohibited from instituting formal proceedings: (a) to avoid the expiration of statute of limitations period; (b) to preserve a superior position with respect to creditors; or (c) where a party makes a

determination that a temporary restraining order or other injunctive relief is the only adequate remedy. This Section does not limit the State's right to terminate the Contract.

- **48. Media Releases.** News releases (including promotional literature and commercial advertisements) pertaining to the Contract or project to which it relates must not be made without prior written State approval, and then only in accordance with the explicit written instructions of the State.
- **49. Website Incorporation.** The State is not bound by any content on Contractor's website unless expressly incorporated directly into this Contract.
- **50. Schedules**. All Schedules and Exhibits that are referenced herein and attached hereto are hereby incorporated by reference. The following Schedules are attached hereto and incorporated herein:

Schedule A Statement of Work

Schedule B Pricing

Schedule C Specifications

- 51. Entire Agreement and Order of Precedence. This Contract, which includes Schedule A Statement of Work, and schedules and exhibits which are hereby expressly incorporated, is the entire agreement of the parties related to the Contract Activities. This Contract supersedes and replaces all previous understandings and agreements between the parties for the Contract Activities. If there is a conflict between documents, the order of precedence is: (a) first, this Contract, excluding its schedules, exhibits, and Schedule A Statement of Work; (b) second, Schedule A Statement of Work as of the Effective Date; and (c) third, schedules expressly incorporated into this Contract as of the Effective Date. NO TERMS ON CONTRACTOR'S INVOICES, ORDERING DOCUMENTS, WEBSITE, BROWSE-WRAP, SHRINK-WRAP, CLICK-WRAP, CLICK-THROUGH OR OTHER NON-NEGOTIATED TERMS AND CONDITIONS PROVIDED WITH ANY OF THE CONTRACT ACTIVITIES WILL CONSTITUTE A PART OR AMENDMENT OF THIS CONTRACT OR IS BINDING ON THE STATE FOR ANY PURPOSE. ALL SUCH OTHER TERMS AND CONDITIONS HAVE NO FORCE AND EFFECT AND ARE DEEMED REJECTED BY THE STATE, EVEN IF ACCESS TO OR USE OF THE CONTRACT ACTIVITIES REQUIRES AFFIRMATIVE ACCEPTANCE OF SUCH TERMS AND CONDITIONS.
- 52. Severability. If any part of this Contract is held invalid or unenforceable, by any court of competent jurisdiction, that part will be deemed deleted from this Contract and the severed part will be replaced by agreed upon language that achieves the same or similar objectives. The remaining Contract will continue in full force and effect.
- **53. Waiver.** Failure to enforce any provision of this Contract will not constitute a waiver.
- **54. Survival.** The provisions of this Contract that impose continuing obligations, including warranties and representations, termination, transition, insurance coverage, indemnification, and confidentiality, will survive the expiration or termination of this Contract.
- **55. Contract Modification.** This Contract may not be amended except by signed agreement between the parties (a "**Contract Change Notice**"). Notwithstanding the foregoing, no subsequent Statement of Work or Contract Change Notice executed after the Effective Date will be construed to amend this Contract unless it specifically states its intent to do so and cites the section or sections amended.

Federal Provisions Addendum

The provisions in this addendum may apply if the purchase will be paid for in whole or in part with funds obtained from the federal government. If any provision below is not required by federal law for this Contract, then it does not apply and must be disregarded. If any provision below is required to be included in this Contract by federal law, then the applicable provision applies and the language is not negotiable. If any provision below conflicts with the State's terms and conditions, including any attachments, schedules, or exhibits to the State's Contract, the provisions below take priority to the extent a provision is required by federal law; otherwise, the order of precedence set forth in the Contract applies. Hyperlinks are provided for convenience only; broken hyperlinks will not relieve Contractor from compliance with the law.

- 1. Federally Assisted Construction Contracts. If this contract is a "federally assisted construction contract" as defined in 41 CRF Part 60-1.3, and except as otherwise may be provided under 41 CRF Part 60, then during performance of this Contract, the Contractor agrees as follows:
 - (1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

- (2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
- (3) The Contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the Contractor's legal duty to furnish information.
- (4) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (5) The Contractor will comply with all provisions of <u>Executive Order 11246</u> of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (6) The Contractor will furnish all information and reports required by <u>Executive Order 11246</u> of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

2. Davis-Bacon Act (Prevailing Wage)

- a. If applicable, the Contractor (and its Subcontractors) for prime construction contracts in excess of \$2,000 must comply with the Davis-Bacon Act (40 USC 3141-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction").
- b. The Contractor (and its Subcontractors) shall pay all mechanics and laborers employed directly on the site of the work, unconditionally and at least once a week, and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the advertised specifications, regardless of any contractual relationship which may be alleged to exist between the Contractor or subcontractor and the laborers and mechanics;
- c. The Contractor will post the scale of wages to be paid in a prominent and easily accessible place at the site of the work:
- d. There may be withheld from the Contractor so much of accrued payments as the contracting officer considers necessary to pay to laborers and mechanics employed by the Contractor or any Subcontractor on the work the difference between the rates of wages required by the Contract to be paid laborers and mechanics on the work and the rates of wages received by the laborers and mechanics and not refunded to the Contractor or Subcontractors or their agents.
- 3. Copeland "Anti-Kickback" Act. If applicable, the Contractor must comply with the Copeland "Anti-Kickback"

 Act (40 USC 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"), which prohibits the Contractor and subrecipients from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled.
- 4. Contract Work Hours and Safety Standards Act. If the Contract is in excess of \$100,000 and involves the employment of mechanics or laborers, the Contractor must comply with 40 USC 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5), as applicable.
- 5. Rights to Inventions Made Under a Contract or Agreement. If the Contract is funded by a federal "funding agreement" as defined under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.
- 6. Clean Air Act. If this Contract is in excess of \$150,000, the Contractor must comply with all applicable standards, orders, and regulations issued under the Clean Air Act (42 USC 7401-7671q) and the Federal Water Pollution Control Act (33 USC 1251-1387). Violations must be reported to the federal awarding agency and the regional office of the Environmental Protection Agency.
- 7. Debarment and Suspension. A "contract award" (see <u>2 CFR 180.220</u>) must not be made to parties listed on the government-wide exclusions in the <u>System for Award Management</u> (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred,

- suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.
- 8. Byrd Anti-Lobbying Amendment. If this Contract exceeds \$100,000, bidders and the Contractor must file the certification required under <u>31 USC 1352</u>.
- 9. Procurement of Recovered Materials. Under 2 CFR 200.322, a non-Federal entity that is a state agency or agency of a political subdivision of a state and its contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000 or the value of the quantity acquired during the preceding fiscal year exceeded \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

Byrd Anti-Lobbying Certification

The following certification and disclosure regarding payments to influence certain federal transactions are made under FAR 52.203-11 and 52.203-12 and 31 USC 1352, the "Byrd Anti-Lobbying Amendment." Hyperlinks are provided for convenience only; broken hyperlinks will not relieve Contractor from compliance with the law.

- 1. <u>FAR 52.203-12</u>, "Limitation on Payments to Influence Certain Federal Transactions" is hereby incorporated by reference into this certification.
- 2. The bidder, by submitting its proposal, hereby certifies to the best of his or her knowledge and belief that:
 - a. No federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress on his or her behalf in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any federal contract, grant, loan, or cooperative agreement:
 - b. If any funds other than federal appropriated funds (including profit or fee received under a covered federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress on his or her behalf in connection with this solicitation, the bidder must complete and submit, with its proposal, OMB standard form LLL, Disclosure of Lobbying Activities, to the Solicitation Manager; and
 - c. He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of \$150,000 must certify and disclose accordingly.
- 3. This certification is a material representation of fact upon which reliance is placed at the time of Contract award. Submission of this certification and disclosure is a prerequisite for making or entering into this Contract under 31 USC 1352. Any person making an expenditure prohibited under this provision or who fails to file or amend the disclosure form to be filed or amended by this provision is subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

Signed by:	
[Type name and title] [Type company name]	_
Date:	

STATE OF MICHIGAN

Contract No. 20000000034
Winter Maintenance Truck Build-Up Components

SCHEDULE A STATEMENT OF WORK CONTRACT ACTIVITIES

Project Background: Optional use, multi-year contract for winter maintenance truck build-up components

Requirements

1. Specifications

1.1 The Contractor must provide the following:

Contractor must provide the resources and staffing needed to supply all items per Schedule C - Specifications.

1.2 Product Literature/Manuals

Contractor is to provide two sets of operating, maintenance and parts manuals with each unit at the time of delivery.

1.3 Warranties

Bidder is to provide a one-year warranty on all components, starting on the in-service start date (MDOT shall provide the Contractor with the in-service start date as applicable). Warranty shall include parts and labor, or manufacturer's warranty whichever is greater. Warranty shall be provided by factory trained technicians at a Michigan dealership, designated in the vendor offering section of this specification.

All products have at least a full warranty of one year minimum from in-service date except for Bosch hydraulic components which are warrantied 1 year from date of purchase and 6 months from in-service date. Some products have a longer limited warranty beyond the one-year.

The State reserves the right to require additional warranties other than those identified by the Contractor in its response to this RFP.

1.4 Recall Requirements and Procedures

Upon receipt of recall notice from the manufacturer, the Contractor will contact MDOT Fleet Administrator via email and/or phone with follow-up as deemed necessary for expeditious communication.

2. Service Levels

2.1 Time Frames

All Contract Activities must be delivered within **120** calendar days from receipt of order. The receipt of order date is pursuant to Section 2. Notice provisions of the Standard Contract.

<u>Exception:</u> Monroe Truck, Snow & Ice standard delivery lead time is 180 days, or less, from completion of preconstruction meeting.

2.2 Delivery

Delivery will be expected within **120** calendar days upon date of order. Delivery shall be to the Fleet Operations Garage, 2522 W. Main Street, Lansing, Michigan, 48917. Hours of operation for deliveries will be between 7:30 AM to 2:30 PM, Monday through Friday except Holidays. **Contact: TBD at least 48 hours before delivery.**

Exception: Monroe Truck, Snow & Ice standard delivery lead time is 180 days, or less, from completion of preconstruction meeting.

2.3 Reporting

The Contractor must submit reports per **Standard Contract Terms**, **section 7**. **Administrative Fee and Reporting**.

2.4 Meetings

The Contractor must attend the following meetings:

Example: Kick-off meeting within 30 calendar days of the Effective Date.

The State may request other meetings as it deems appropriate.

3. Staffing

3.1 Contractor Representative

The Contractor must provide one (1) individual, specifically assigned to State of Michigan accounts, that will respond to State inquiries regarding the Contract Activities, answering questions related to ordering and delivery, etc. (the "Contractor Representative").

Mike Bouwman-Contract Program Manager 3286 Hanna Lake Industrial Drive Dutton, MI 49316 Toll free: (888)-200-8146 mbouwman@ttspec.com

The Contractor must notify the Contract Administrator at least **30** calendar days before removing or assigning a new Contractor Representative.

3.2 Customer Service Toll-Free Number

The Contractor must specify its toll-free number for the State to make contact with the Contractor Representative. The Contractor Representative must be available for calls during the hours of 8 am to 5 pm EST.

(888)-200-8146 toll free number

Regular business hours: 7:00 a.m. to 5:00 p.m. EST weekdays.

Saturday 7:00 a.m. to 12:00 noon EST.

3.3 Technical Support, Repairs and Maintenance

The Contractor must specify its toll-free number for the State to make contact with the Contractor for technical support, repairs and maintenance. The Contractor must be available for calls and service during the hours of 8 am to 5 pm EST.

(888)-200-8146 toll free number
Regular business hours: 7:00 a.m. to 5:00 p.m. EST weekdays.
Saturday 7:00 a.m. to 12:00 noon EST.

3.4 Disclosure of Subcontractors

- If the Contractor intends to utilize subcontractors, the Contractor must disclose the following:
- The legal business name; address; telephone number; a description of subcontractor's organization and the services it will provide; and information concerning subcontractor's ability to provide the Contract Activities.
- The relationship of the subcontractor to the Contractor.
- Whether the Contractor has a previous working experience with the subcontractor. If yes, provide the
 details of that previous relationship.
- A complete description of the Contract Activities that will be performed or provided by the subcontractor.

3.5 Security

The Contractor's staff may be required to make deliveries to or enter State facilities.

The bidder must: Deliver items in placarded company vehicles. Names of delivery personnel will be provided upon request.

The State may require the Contractor's personnel to wear State issued identification badges.

4. Pricing

4.1 Price Term

Pricing is firm for a 365 day period ("Pricing Period"). The first pricing period begins on the Effective Date. Adjustments may be requested, in writing, by either party and will take effect no earlier than the next Pricing Period.

4.2 Price Changes

Version 2 Revised Date: 2/2019

Adjustments will be based on changes in actual Contractor costs. Any request must be supported by written evidence documenting the change in costs. The State may consider sources, such as the Consumer Price Index; Producer Price Index; other pricing indices as needed; economic and industry data; manufacturer or supplier letters noting the increase in pricing; and any other data the State deems relevant.

Following the presentation of supporting documentation, both parties will have 30 days to review the information and prepare a written response. If the review reveals no need for modifications, pricing will remain unchanged unless mutually agreed to by the parties. If the review reveals that changes are needed, both parties will negotiate such changes, for no longer than 30 days, unless extended by mutual agreement.

The Contractor remains responsible for Contract Activities at the current price for all orders received before the mutual execution of a Change Notice indicating the start date of the new Pricing Period.

5. Ordering

5.1 Authorizing Document

The appropriate authorizing document for the Contract will be a *delivery order* (AKA purchase order).

5.2 Order Verification

The Contractor must have internal controls, approved by Central Procurement Services, to verify abnormal orders and to ensure that only authorized individuals place orders.

6. Delivery

6.1 Delivery Programs

Large components are delivered either f.o.b. from manufacturer to MDOT Lansing Shop or by Contractor personnel in company vehicle and/or trailer. Smaller items will be delivered by the most economical method; either UPS, FedEx, or by Contractor personnel.

6.2 Packaging and Palletizing

Packaging must be optimized to permit the lowest freight rate. Shipments must be palletized whenever possible using manufacturer's standard 4-way shipping pallets.

7. Acceptance

7.1 Acceptance, Inspection and Testing

Purchase Orders issued to the Contractor for more than one unit: Contractor will be required to provide subsistence and transportation for **three (3)** MDOT personnel to inspect and approve the first completed unit constructed, before production begins on the balance of the order. The date and time of inspection shall be agreed upon by the Contractor and MDOT.

The following criteria will be used by the State to determine Acceptance of the Services or Deliverables provided under this contract:

Winter Maintenance Truck Components are inspected for compliance with the attached specification and approved or rejected upon delivery.

8. Invoice and Payment

8.1 Invoice Requirements

All invoices submited to the State must include: (a) date; (b) delivery order; (c) quantity; (d) description of the Contract Activities; (e) unit price; (f) shipping cost (if any); and (g) total price.

8.2 Payment Methods

The State will make payment for Contract Activities by EFT.

9. Additional Requirements

9.1 Environmental and Energy Efficient Products

The Contractor must identify any energy efficient, bio-based, or otherwise environmental friendly products used in the products. Contractor must include any relevant third-party certification, including the verification of a United States department of agriculture certified bio based product label.

9.2 Hazardous Chemical Identification

In accordance with the federal Emergency Planning and Community Right-to-Know Act, 42 USC 11001, *et seq.*, as amended, the Contractor must provide a Material Safety Data Sheet listing any hazardous chemicals, as defined in 40 CFR §370.2, to be delivered. Each hazardous chemical must be properly identified, including

any applicable identification number, such as a National Stock Number or Special Item Number.

The Contractor must identify any hazardous chemicals that will be provided under any resulting contract.

9.3 Mercury Content

Pursuant to MCL 18.1261d, mercury-free products must be procured when possible. The Contractor must explain if it intends to provide products containing mercury, the amount or concentration of mercury, and whether cost competitive alternatives exist. If a cost competitive alternative does exist, the Contractor must provide justification as to why the particular product is essential. All products containing mercury must be labeled as containing mercury.

9.4 Brominated Flame Retardants

The State prefers to purchase products that do not contain brominated flame retardants (BFRs) whenever possible. The Contractor must disclose whether the products contain BFRs.

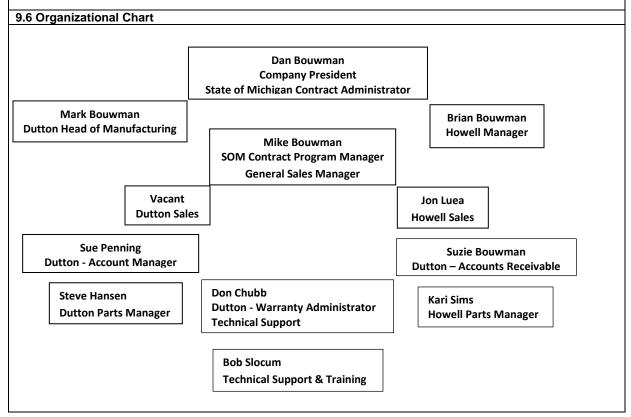
9.5 Key Personnel

The Contractor must appoint one (1) individual who will be directly responsible for the day to day operations of the Contract ("Key Personnel"). Key Personnel must be specifically assigned to the State account, be knowledgeable on the contractual requirements, and respond to State inquires within 4 hours.

The Contractor may not remove or assign Key Personnel without the prior consent of the State. Prior consent is not required for reassignment for reasons beyond the Contractor's control, including illness, disability, death, leave of absence, personal emergency circumstances, resignation, or termination for cause. The State may request a résumé and conduct an interview before approving a change. The State may require a 30 calendar day training period for replacement personnel.

The Contractor must identify the Key Personnel, indicate where they will be physically located, describe the functions they will perform, and provide current chronological résumés.

Mike Bouwman-Contract Program Manager 3286 Hanna Lake Industrial Drive Dutton, MI 49316 Toll free: (888)-200-8146 mbouwman@ttspec.com



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9.7 Project Plan

The contractor will carry out this project under the direction and control of MDOT, Office of Operations Administrative Services, Fleet Administration & Operations. Contact in Field Support is TBD.

10. Liquidated Damages

The delivery of units must be consistent with the scheduling as established within the Purchase Order. If any units are not delivered within the delivery schedule specified, the delay will interfere with the build-up and implementation of the winter maintenance fleet and fleet management programs utilizing these vehicles, to the loss and damage of the State of Michigan. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damage sustained in the event of any such delay. The State of Michigan and the Contractor, therefore, agree that in the event of any such delay, the amount of damage which will be sustained from a delay will be the amount set forth in Paragraphs A & B. They agree that in the event of such delay, the contractor shall pay such amounts as liquidated damages and not a penalty. The State of Michigan as its option for amounts due as liquidated damages, may deduct such from any money payable to the Contractor or may bill the Contractor as a separate item.

- **A.** If the Contractor does not deliver the units before the delivery date scheduled, the Contractor shall pay to the State of Michigan fixed and agreed, liquidated damages, for each calendar day between the due date and the date the units are received, but not more than 30 calendar days. In lieu of all other damages due to such non-delivery, an amount of 2/10th of 1% of per unit cost of the Purchase Order for each unit that is not delivered by the delivery date.
- **B.** If the Contractor delivers the units before the delivery due date specified and the units do not comply with the Purchase Order Specifications and therefore are not ready for the build-up operation, the State of Michigan may, at its options, delay the implementation of the units into fleet build-up operation. The Contractor shall pay to the State of Michigan, as fixed and agreed liquidated damages in the amount of 2/10 of 1% of the Purchase Order Unit Cost, per Unit, for each calendar day beginning from the delivery date scheduled in the Purchase Order, and the date the unit is accepted as being in compliance with Purchase Order Specifications, but not more than 30 calendar days.
- **C.** Exception. Except with respect to defaults of subcontractors, the Contractor shall not be liable for liquidated damages when delays arise out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but not be restricted to, acts of God, or of the public enemy, acts of the State in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, or unusually severe weather; but, in every case, the delays must be beyond the control and without the fault or negligence of the Contractor. If the delays are caused by the default of the subcontractor, and if such default arises out of causes beyond the control of both the Contractor and subcontractor and without the fault or negligence of any of them, the Contractor shall not be liable for liquidated damages for delays, unless the supplies or services to be furnished by their subcontractors were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

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STATE OF MICHIGAN

Contract No. 20000000034
Winter Maintenance Truck Build-Up Components

SCHEDULE B PRICING

- 1. The Contractor must provide a pricing schedule for the proposed Contract Activities using Microsoft Excel. The pricing schedule should be submitted in a modifiable format (e.g., Microsoft Word or Excel); however, you may also submit an additional pricing schedule in a non-modifiable format (e.g., PDF). Failure to complete the pricing schedule as requested may result in disqualification of your proposal.
- 2. Price proposals must include all costs, including but not limited to, any one-time or set-up charges, fees, and potential costs that Contractor may charge the State (e.g., shipping and handling, per piece pricing, and palletizing).

	he Contractor is encouraged to offer quick payment terms. The number of days must not include processing time for ent to be received by the Contractor's financial institution.
Quick	payment terms:0 % discount off invoice if paid within0 days after receipt of invoice.
•	y submitting its proposal, the Contractor certifies that the prices were arrived at independently, and without lattion, communication, or agreement with any other Contractor.

- 5. **Pricing Term.** Pricing is firm for a 365 day period ("Pricing Period"). The first pricing period begins on the Effective Date. Adjustments may be requested, in writing, by either party and will take effect no earlier than the next Pricing Period.
- 6. Adjustments will be based on changes in actual Contractor costs. Any request must be supported by written evidence documenting the change in costs. The State may consider sources, such as the Consumer Price Index; Producer Price Index; other pricing indices as needed; economic and industry data; manufacturer or supplier letters noting the increase in pricing; and any other data the State deems relevant.

Following the presentation of supporting documentation, both parties will have 30 days to review the information and prepare a written response. If the review reveals no need for modifications, pricing will remain unchanged unless mutually agreed to by the parties. If the review reveals that changes are needed, both parties will negotiate such changes, for no longer than 30 days, unless extended by mutual agreement.

The Contractor remains responsible for Contract Activities at the current price for all orders received before the mutual execution of a Change Notice indicating the start date of the new Pricing Period.

- 7. Quantities specified if any, are estimates based on prior purchases, and the State is not obligated to purchase in these or any other quantities. Orders for delivery will be issued directly to the Contractor by MDOT on the Direct Purchase Order Contract Release Form and MiDEAL members (local units of government).
- 8. Please see "Standard Contract Terms" section 7 for administrative fee.

	ITEM	PRICING
1	# 04-Fuel Tank and Hydraulic Reservior Assembly	\$4,026.00
2	# 04-PLOWJACK.1.C19 Front Plow Jack	\$1,250.00
3	# 04-Tarps .C19 Automatic Electric Tarp Assemblies	\$1,144.00
4	# 04-Pre-Wet Systems .C19 Hydraulic driven for rear discharge combination DVS bodies -See addendum in Schedule C for option specifications	\$3,402.00
5	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 1	\$10,069.00
6	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 2	\$10,560.00
7	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 3	\$10,129.00
8	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 4	\$10,733.00
9	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 5	\$10,673.00
10	# HYD-PP.C19 Hydraulic System - With Valve Combination Number 6	\$11,276.00

	HYD-PP.C19 Hydraulic System - With Valve Combination Number 7	\$10,070.00
	HYD-PP.C19 Hydraulic System - With Valve Combination Number 8	\$10,693.00
	GRDSPD.C19 Ground Speed Oriented Salt Distribution Spreader Control System with Electric Over draulic Joystick Controls - With Multiple Joysticks	\$10,710.00
	GRDSPD.C19 Ground Speed Oriented Salt Distribution Spreader Control System with Electric Over draulic Joystick Controls - With Single Joystick	\$10,710.00
	04-11CBBDY.C19 11 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Rear scharge and Distribution Systems	\$31,503.00
	04-11CBBDYDA.C19 11 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Dual Auger, bist, Rear Discharge and Distribution Systems	\$35,746.00
17 # (04-11SSDMP.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., Hoist and 1/2 Cab Protector	\$15,947.00
	04-11SSDMPUBH.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., with Under Body Hoist and 1/2 Cab otector	\$16,099.00
	04-14CBBDY.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Rear scharge and Distribution Systems	\$33,907.00
	04-14CBBDYDA.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Dual Auger, bist, Rear Discharge and Distribution Systems	\$37,186.00
	04-14FCBBDY.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Front and lar Discharge Distribution Systems	\$38,236.00
22 # ⁽	04-14SSDMP.C19 Dump Body, Stainless Steel, 10 cu. yd., 14 ft., Hoist and 1/2 Cab Protector	\$18,809.00
	04-14SSDMPUBH.C19 Dump Body, Stainless Steel, 10 cu. yd., 14 ft., with Under Body Hoist and 1/2 Cab otector	\$19,257.00
24 # 5	55-FMBBLD.C19 Under-Body Scraper, Folding Mold Board Style Snow Blade, Hydraulic Angling	\$10,279.00
25 # 5	55-MOPBLD.C19 Under-Body Scraper, MOP Style Snow Blade, Hydraulic Angling	\$9,621.00
26 # 5	57-0901SMW.C19 Wing Plow, behind Scraper Mount, 9 Foot Left or Right	\$8,637.00
27 # 5	57-0901SMWJR.C19 Wing Plow, behind Scraper Mount, 9 Foot Left or Right	\$7,961.00
28 # 5	57-1201SMW.C19 Wing Plow, behind Scraper Mount, 12 Foot Left or Right	\$9,040.00
29 # 6	50-11-14SSDMP Option1.C19 Reversing Rear Cross Auger with Side Spinner	\$4,621.00
	50-11_14SSDMP-Option2.C19 Zero Velocity Spreader (LEFT HAND ACCUPLACE SPINNER IS 00182933-B) IGHT HAND ACCUPLACE SPINNER IS 00188316-B)	\$4,330.00
31 # ⁶	50-11SSDMP.C19 Hopper Box Material Spreader 11 Foot and Distribution Systems	\$12,347.00
32 # ⁶	60-11SSUBHDMP.C19 Hopper Box Material Spreader 11 Foot and Distribution Systems	\$12,063.00
3 # e	50-14SSDMP.C19 Hopper Box Material Spreader 14 Foot and Distribution Systems	\$15,565.00
4 # 6	60-14SSUBHDMP.C19 Hopper Box Material Spreader 14 Foot and Distribution Systems	\$15,281.00
SP 00	04-11-14CBBDY-Option1.C19 Reversing Rear Cross Auger with Side Spinner (RIGHT MOTOR WITH LEFT INNER HAND ARRANGEMENT 00184407-B AUGER, 00022294-B IS THE DROP CHUTE WITH DOOR, 022064-J- LEFT SPINNER) (LEFT MOTOR WITH RIGHT HAND SPINNER ARRANGEMENT 00184404-B JGER,, 00022294-B IS THE DROP CHUTE WITH DOOR, , 00081047-H RIGHT HAND SPINNER)	\$5,235.00
86 # C	04-11-14CBBDY-Option2.C19 Reversing Rear Cross Auger with Center Spinner	\$4,995.00
	50-11_14MSDMP-Option3.C19 "Y" Chute Distributor - Stainless Steel	\$3,256.00
	50-11_14MSDMP-Option3.C19 "Y" Chute Distributor - Non-Stainless Steel	\$2,763.00
_	04-11CBBDY_Option4.C19 Belt Over Main Conveyor Chain	\$2,348.00
	04-14CBBDY_Option5.C19 Belt Over Main Conveyor Chain	\$3,550.00
	04-11_14CBBDY_Option6.C19 Salt Slurry Generator	\$8,302.00
_	55-HHLF.C19 Hydraulic Hook Lift Assembly - Hook Lift Hoist	\$25,390.00
_	55-HHLF.C19 Hydraulic Hook Lift Assembly - Hook Lift Body Subframe	\$5,130.00
4 (IT	TEM 1 OPTION REPLACEMENT) Western star combination tank- See addendum in schedule c for option ecifications	\$3,248.00
	EM 3 OPTION ADD) PART NO 83200- ASPHALT COVER	\$247.00
	EM 3 OPTION ADD) PART NO 81200 MESH COVER	\$155.00
	EM 3 OPTION ADD) Optional plug kit for swaploader application - PART NUMBER 12760	\$54.00

48	(ITEM 3 OPTION ADD) OPTIONAL TARP COVER- CUSTOM SIZE COVER FOR SWAPLOADER V BOXES PART NO 81010@83X18	¢204.00
40	(ITEM 4 OPTIONAL REPLACEMENT) Hydraulic driven for front and rear discharge combination DVS bodies-	\$204.00
49	See addendum in Schedule C for option specifications	\$3,696.00
50	(ITEM 4 OPTIONAL REPLACEMENT) Electric driven for rear discharge combination DVS bodies See	
	addendum in Schedule C for option specifications	\$3,203.00
51	(ITEM 4 OPTIONAL REPLACEMENT) Electric Driven for front and rear discharge DVS bodies See addendum in Schedule C for option specifications	\$3,597.00
52	(ITEM 4 OPTIONAL REPLACEMENT) Hydraulic driven for V box spreades See addendum in Schedule C for	. ,
	option specifications	\$3,579.00
53	(ITEM 4 OPTIONAL REPLACEMENT) Electric driven for v box spreaders- See addendum in Schedule C for option specifications	\$3,380.00
54	(ITEM 4 OPTION ADD) optional installation of prewet system to seither a combination DVS body or a V	. ,
	box spreader See addendum in Schedule C for option specifications	\$528.00
55	(ITEM 5 - 12 PART - INCLUDED) Double acting cylinder spool valve section- ship loose pricing for section	
	replacement or additional function. Specify flow rate at time of order	\$752.00
56	(ITEM 5 - 12 PART - INCLUDED) Single acting motor spooled secttion- ship loose pricing, Specify flow rate	
	at time or order	\$655.00
57	(ITEM 5 - 12 PART - INCLUDED) Double acting motor spooled valve section-ship loose pricing for section	
	replacement or additional function. Specify flow rate at time of order	\$752.00
58	(ITEM 13 & 14 OPTION ADD) add on for prewet driver	\$576.00
59	(ITEM 13 & 14 OPTION ADD) add on for cross conveyor potentiomter driver and direction control switch	\$788.00
60	(ITEM 13 & 14 OPTION ADD) Add on for hoist and jib disable circuits on Swaploader installation	\$191.00
61	(ITEM 13 & 14 OPTION ADD) Road Watch system 849-1242-000	\$314.00
62	(ITEM 15 OPTION ADD) poly subfloor for 11 ft rear discharge DVS	\$736.00
63	(ITEM 19 OPTION ADD) POLY SUBFLOOR FOR 14' REAR DISCHARGE DVS UNIT INSTALLED	\$809.00
64	(ITEM 21 OPTION ADD) POLY SUBFLOOR FOR 14' FRONT/REAR DISCHARGE DVS UNIT INSTALLED	\$735.00
65	(ITEM 26 OPTION ADD) 9 FT RIGHT HAND PATROL WING POLY MOLDBOARD LINER. PART NO 00188368I	\$704.00
66	(ITEM 26 OPTIONAL REPLACEMENT) 9 FT LEFT HAND PATROL WING PART NO 00184445	\$8,637.00
67	(ITEM 26 OPTION ADD) 9 FT LEFT HAND PATROL WING POLY MOLDBOARD LINER. PART NO 00188950I	φο,σοτ.σο
07	,	\$704.00
68	(ITEM 27 OPTION ADD) 9 FT RIGHT HAND JUNIOR WING POLY MOLDBOARD LINER 001883661	\$666.00
69	(ITEM 27 OPTIONAL REPLACEMENT) 9 FT LEFT HAND JUNIOR WING PART NO 00184443	\$7,961.00
70	(ITEM 27 OPTION ADD) 9 FT LEFT HAND JUNIOR WING POLY MOLDBOARD LINER PART NO 00188367I	\$666.00
71	(ITEM 27 OPTIONAL REPLACEMENT) 7 FT RIGHT HAND JUNIOR WING PART NO 00188369	\$7,895.00
72	(ITEM 27 OPTION ADD) 7 FT RIGHT HAND JUNIOR WING POLY MOLDBOARD LINER PART NUMBER	+ - , 333.00
12	001883721	\$665.00
73	(ITEM 27 OPTIONAL REPLACEMENT) 7 FT LEFT HAND JUNIOR WING PART NO 00189828	\$7,895.00
74	(ITEM 27 OPTION ADD) 7 FT LEFT HAND JUNIOR WING POLY MOLDBOARD LINER-PART NUMBER NOT YET ISSUED	\$665.00
75	(ITEM 28 OPTION ADD) 12 FT RIGHT HAND PATROL WING POLY MOLDBOARD LINER	\$825.00
76	(ITEM 28 OPTIONAL REPLACEMENT) 12 FT LEFT HAND PATROL WING PART NO 00184446	\$9,040.00
77	(ITEM 28 OPTION ADD) 12 FT LEFT HAND PATROL WING POLY MOLDBOARD LINER	\$825.00
78	(ITEM 30 OPTION ADD) flip up rear spinner for DVS combination body See addendum in Schedule C for	Ç023.00
	option specifications	\$2,143.00
79	(ITEM 34 OPTIONAL REPLACEMENT) MCV168-84-56- BELT/ CHAIN V BOX WITH CUTOUT FOR DOGHOUSE	
	See addendum in Schedule C for option specifications	\$17,647.00
80	(ITEM 34 OPTIONAL REPLACEMENT) MCV168-84-56/ DUAL AUGER SLIDE IN V BOX WITH DOGHOUSE See addendum in Schedule C for option specifications	18,185.00
	L L	_0,100.00

81	(ITEM 36 OPTION ADD) mounting tube- See addendum in Schedule C for option specifications	\$114.00
82	(ITEM 36 OPTIONAL REPLACEMENT) MS9612 to fit V box application: See addendum in Schedule C for option specifications	\$5,566.00
83	(ITEM 37 OPTION ADD) STAINLESS STEEL Y CHUTE EXTENSION FOR USE WITH HOOKLOADER MOUNTS OR TANDEM SLIDE IN V BOXES WITH UNDERBODY HOISTS PART NO 00129376-B	\$277.00
84	(ITEM 38 OPTION ADD) STEEL Y CHUTE EXTENSION FOR USE WITH HOOKLOADER MOUNTS OR TANDEM SLIDE IN V BOXES WITH UNDERBODY HOISTS PART NO 00129376-A	\$165.00
85	(ITEM 40 OPTIONAL REPLACEMENT) BELT / CHAIN OPTION FOR 14' FRONT/ REAR DISCHARGE DVS UNIT PART NO IS 00184402-C	\$3,147.00
86	(OPTION ADD) REAR ROLLERS- EXTENDABLE/GALVANIZED FOR SKID ASSEMBLY	\$452.00
87	(OPTIONAL REPLACEMENT) Hookloader v box assembly. See addendum in Schedule C for option specifications.	\$18,003.00
88	(OPTION ADD) Monroe MP36-60-12-ct/316 Expressway plow . Includes Snow wheels. See addendum in Schedule C for option specifications.	10,294.00
89	(OPTION ADD)Monroe model MP48R12-ISCT DUAL MOUSE EAR PLOW, Includes Snow wheels. See addendum in Schedule C for option specifications.	\$9,750.00
90	(OPTION ADD) MONROE MODEL MPFA34-71-12 ON WAY FIXED ANGLE LEFT PLOW NO 00151122. See addendum in Schedule C for option specifications.	\$6,987.00

CONTRACT Dept. 171, No. 200000000034

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	Specification # 04-Fuel Tank and Hydraulic Reservoir Assembly	
1	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	Contractor Specification Compliance
	Referenced Make and Model: Monroe 00140316 or equal	Make and Model: Monroe Combo tank,
	Contractor to identify proposed make and model	current part no is 00170637-A
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	
1.0	Basic Requirements:	yes.
	Tank shall be a combination diesel fuel, hydraulic oil and hydraulic valve enclosure behind the cab style unit with mounting feet and angle truck frame mounting brackets	yes.
1.2	The combination tank/enclosure shall have mounting feet designed to support the weight of a full fuel tank, a full hydraulic oil tank and a fully assembled hydraulic valve assembly	yes.
1.3	The fuel/oil tank shall have continuous welded seams throughout. The integrated valve enclosure shall be in the lower driver side beneath the fuel tank fill. The integrated valve enclosure shall have a stainless steel valve mounting plate bolted in the base and a removable access door equipped with "T" handle latches	yes.
1.4	Tank truck frame mounting brackets shall be 4 inch x 12 inch x 17 inch x 1/2 inch angle with four gussets and an 8-1/2 inch wide x 7-1/2 inch cutout for access to the bottom of the tank	yes.
1.5	Top of the angle bracket shall have two (2) elongated holes 1-1/2 inch long x 11/16 inch wide	yes.
1.6		yes.
1.7	Tank /enclosure assembly shall have all metal surfaces pre-cleaned and prepped prior to applying black powder coat	yes.
1.8	Fuel/oil tank/enclosure and the removable enclosure door shall be powder coated black in color	yes.
1.9	Fuel capacity shall be 115 gallons minimum	yes.

4.40		
	Approximate overall dimensions shall be 34 inches tall x 19 inches wide x 80 inches long	yes.
1.11	Construction shall be of pickled and oiled, #7 gauge steel	yes.
1.12	Each tank shall have a magnetic drain plug, be pressure tested for leaks, and be FHWA labeled	yes.
2.0	Hydraulic Tank:	
	Hydraulic tank shall have installed, one (1) Zinga RF-1618-S-25-EP15-0 tank top mounted return filter with bypass, bolted and	yes.
	gasketed or equivalent	
2.2	Screen in the fill port	yes.
	Lockable breather cap with filtered vent	yes.
	3 inch NPT flange for suction outlet	yes.
	Steel suction strainer Zinga #2030-3 or D equivalent with a 2 inch NPT ID	yes.
	Combined level/temperature gauge mounted on outside end of tank approximately 6 inches from the top of the reservoir to the top	·
2.6	hole in the gauge	yes.
2.7		ves.
	One (1) 1-1/16-12 straight threaded fitting in bottom	yes.
	Hydraulic tank shall be delivered clean with no contamination particles in excess of 5 microns	yes.
	Filtration:	
3.1	Bypass switch shall be Force America PS-25-WP or equivalent	yes.
	Filter unit shall have a pressure drop of less than 3psi @ 40gpm with 150 SSU oil	yes.
	Filter unit shall have a 1-1/2 inch NPT port out the bottom of the canister and extended drop tube	yes.
		•
	Two Zinga RE409-10 or equivalent replacement elements shall be furnished	yes.
	Fuel Tank:	
	Fuel tanks shall have a pickup sump 6 inch x 6 inch x 3 inch with three (3) 3/4 -16 straight thread fittings, one out the bottom and two	was .
	out the front.	yes.
	Fuel tank shall be shipped with sending units for fuel level, installed, and standard baffles within the tank	yes.
	Fuel sending units shall be ISS PRO RA9531-ISS-LP or equivalent	yes.
4.4		
	Fuel tanks shall have ball check vent on top of the tank and a male safety filler cap with chain valve enclosure shall have a wire access	
	hole 5 inches wide by 2-1/2 tall located approximately 6 inches in from the outside edge and 5 inches up from the bottom	yes.
	Valve enclosure shall have a wire access hole 5 inches wide by 2-1/2 tall located approximately 6 inches in from the outside edge and	
	5 inches up from the bottom	yes.
-	Access hole shall have a plate to be attached with four (4) 5/16 inch bolts and nuts, 6-1/2 inches wide by 4 inches tall with no holes	
	drilled in it	yes.
4.7	Enclosure shall have a stainless steel hydraulic valve mounting plate cutout to fit the current MDOT hydraulic valve and attached to	
- 4.0	enclosure with fourteen (14) 3/8 inch bolts and nuts	yes.
	Bottom of valve enclosure shall be cutout to accommodate the hydraulic valve mounting plate	yes.
4.9	2000	
	A 3/16 inch x 2 inch stiffener shall be welded vertically to the underside of the valve enclosure opening and shall have two (2) 7/16	
	inch elongated holes centered 1-1/8 inch and 4-1/8 inches in from the left edge, both front and back for step installation	yes.
	Fuel tank shall be delivered clean with no contamination particles in excess of 5 microns	yes.
5.0	Wire Tie Downs:	
5.1	Tie downs will be constructed from 3/16 inch thick $f 1$ inch x $f 1$ inch with 5/16 inch hole in the center	yes.
	Back of tank locations	ves.
a.		7
-	Four (4) welded vertical, 36 inches in from left edge with holes centered at 4, 12-1/2,21, 29-1/2 inches up from bottom of tank	yes.
b.		•
	Four (4) welded vertical, 12-1/2 inches in from right edge with holes centered at 4, 12-1/2, 21, 29-1/2 inches up from bottom of tank	yes.
5.3	Front of tank locations	yes.
a.		<i>y</i>
<u> </u>	Four (4) welded vertical, 12-1/2 inches in from right edge with holes centered at 4, 12-1/2, 21, 29-1/2 inches up from bottom of tank	yes.
b.	One (1) welded horizontal, with hole centered 3-1/2 inches in from right edge 1 inch up from bottom of tank	yes.
C.	one (1) messes nonzontal, with note centered 5-1/2 limites in non-right eage 1 limit up non-bottom or tank	yes.
L.	Four (4) welded horizontal, 4 inches up from bottom of tank with holes centered at 25-1/2, 40, 54-1/2 inches in from right edge	yes.
6.0	Steps:	
6.1	3/16 inch thick 4 inch x 1-1/2 inch light mounting plate shall be welded to the bottom of the tank, 4-1/4 inches back from front edge	
	and 1/2 inch in from right edge with two (2) 5/16 holes on 3 inch centers, 1/2 inch in from front and rear edges and 3/4 inch up from	
	bottom	yes.
6.2		7
	Step fabricated from 9-1/2 inch deep by 18 inch wide expanded metal step material with "L" shaped plates on each end to be	
	mounted on the left side of tank assembly to stiffener and have 5 inch wide mounting surface with three (3) sets of mounting holes 3	
	inches on center horizontally and 2 inches on center vertically shall be provided	yes.
	Step shall have a light mounting bracket 3/16 inch thick x 1-1/2 inch x 2-1/2 welded to the inside of the front "L" shaped plate at the	
	bottom with 1/2 inch hole centered 3/4 inches in from the inside end	yes.
7.0	Low Oil Alert:	yes.
	A Compac Erecta Switch low oil sensor shall be provided and installed in the hydraulic tank	yes.
-	A 1-1/4 inch NPT fitting shall be located in the top of the hydraulic tank for the low oil sensor	
	. , ,	yes.
/.3	The low oil level sensor shall be normally open, low oil level in the tank will cause the sensor to close	yes.
	END OF SPECIFICATION	
	Specification # 04-PLOWJACK.1.C19 Front Plow Jack	
2		Contractor Specification Compliance
	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	- Familian Computation
	standard features normally offered with these models	

	Referenced Make and Model: Monroe/HH34 or equivalent.	Make and Model: Monroe Model HH34,
	Contractor to identify proposed make and model	part no 00031145
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	
1.0	Basic Requirements:	yes.
1.1	Truck portion of the hitch shall be of the automatic snap coupling type	yes.
1.2	Hitch assemblies shall be 34 inches wide and 42 inches in height	yes.
1,3		
	The slide rails of the hitch shall be manufactured of .375 inch thick plate, formed from a 12.221 inch wide x 42 inch high plate	yes.
1.4	Side rails shall be 9.858 inches deep with an inside radii of .406 forming a 2.5 inch wide front face	yes.
1.5		yes.
	Top and bottom 1 inch of the side rails will be tapered inward to prevent restriction with the mating plow portion	
	The back inside of the slide plates will be reinforced with 3/8 inch x 2-½ inch x 2-½ inch angle	yes.
1.7	Top and bottom cross member angle shall be 3-½ inch x 3-½ inch x .375 inch	yes.
	Bottom angle shall be supported with an additional angle inner brace of 2-½ inch x 2-½ inch x .375 inch	yes.
1.9	Lift arm assembly shall be manufactured from ¾ inch plate, a solid 2 ½ inch diameter x 3 ¼ inch long lift shaft and shall have ½ inch	yes.
	plate provisions for attaching the plow lift cylinder with 1 inch pins	
1.10	Diam lift cultivators shall be 2 inch v.10 inch double coting with a Connetic red with 1 inch vin at bose and red and 3/ 1C ODD north	yes.
1.11	Plow lift cylinders shall be 3 inch x 10 inch double acting, with a Socratic rod, with 1 inch pin at base and rod end, %-16 ORB ports.	ves.
1.11	Bracing for the lift arm shall consist of two (2) 3/8 inch triangular plates and 3/8 inch angle and have a 1 inch pivot pin	yes.
1.12	The enclosed spring loaded canisters shall have a tapered 1.875 inch machined pin that is induction hardened to 48-52RC and to a	yes.
	case depth of .030 inches, that is greaseable	,
1.13	Canisters will be welded to the slide plates and reinforced with ½ inch triangular gussets	yes.
	Unlocking lever shall be of 3/8 inch x 1-½ inch bar with 3/8 inch round linkage rods connecting the canister pins	yes.
1.15	Hitches shall be powder coated black	yes.
1.16	Tritteries shall be powder coated black	ves.
1.10	Hitch slide plates shall be coated with a graphite anti-seize compound and shall be 100% continuously welded, No Exceptions	,
	END OF SPECIFICATION	
	Specification # 04-Tarps .C19 Automatic Electric Tarp Assemblies	
_		Combination Constitution Constitution
3	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	Contractor Specification Compliance
	standard features normally offered with these models	
	Referenced Make and Model: Roll-Rite or equal	Make and Model: RollRite kit no 64172M,
	Contractor to identify proposed make and model	Asphalt cover is number 83200. Mesh cover
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	is number 81200
	Basic Requirements:	1400
	·	yes
1.1	The unit will need to be available for 11 foot and 14 foot applications	yes
1.1 2.0	The unit will need to be available for 11 foot and 14 foot applications Tarp:	†
1.1 2.0	The unit will need to be available for 11 foot and 14 foot applications	yes
1.1 2.0 2.1	The unit will need to be available for 11 foot and 14 foot applications Tarp:	yes yes
1.1 2.0 2.1 2.2	The unit will need to be available for 11 foot and 14 foot applications Tarp: Tarp shall be made of high quality minimum 18oz material with a urethane coating on both sides	yes yes yes
1.1 2.0 2.1 2.2 2.3	The unit will need to be available for 11 foot and 14 foot applications Tarp: Tarp shall be made of high quality minimum 18oz material with a urethane coating on both sides Tarp shall have a 350° F temperature rating. (Must indicate when ordering: Black Mesh or Asphalt Main body of tarp shall be constructed of a single piece of material	yes yes yes yes
1.1 2.0 2.1 2.2 2.3 2.4	The unit will need to be available for 11 foot and 14 foot applications Tarp: Tarp shall be made of high quality minimum 18oz material with a urethane coating on both sides Tarp shall have a 350° F temperature rating. (Must indicate when ordering: Black Mesh or Asphalt Main body of tarp shall be constructed of a single piece of material Tarp tube pocket shall be lined with a solid weave material	yes yes yes yes yes
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1.1 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8	The unit will need to be available for 11 foot and 14 foot applications Tarp: Tarp shall be made of high quality minimum 18oz material with a urethane coating on both sides Tarp shall have a 350° F temperature rating. (Must indicate when ordering: Black Mesh or Asphalt Main body of tarp shall be constructed of a single piece of material Tarp tube pocket shall be lined with a solid weave material Tarp shall have rear corners reinforced by doubling the 18oz material in the corners Edges shall be heat welded to bind them Any stitching shall be bonded polyester thread Tarps shall not have side or tail flaps	yes yes yes yes yes yes yes yes yes
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8.1	Tarp spool shall include a one piece polished aluminum wind deflector that can be cut to fit any truck	yes
8.2	Ends of wind deflector shall incorporate mounts for strobe lights and drive motor	yes
8.3	Tarp spool shall include a tarp axle with five (5) full length pre-threaded grooves for mounting the tarp	yes
8.4	Axle shall have a Nitro carburized stub shaft to help prevent corrosion between a-similar metals	yes
8.5	Tarp spools shall include all electrical components needed to wire truck for easy in cab operation	yes
8.6		1
	Tarp spools shall be designed so as NOT to trap debris on the cab shield and allow for easy cleaning of cab shield	yes
9.0	Tarp Drive:	
	Tarp drive shall have controls mounted in cab	yes
	Tarp drive shall have a 12 volt gear motor	yes
	Tarp drive shall be chrome plated	•
		yes
	Tarp drive shall have a tool steel Nitro carburized output shaft	yes
9.5	There shall be NO chain drives in the construction of the gear motor The tarp control system shall include a remote mounted, solenoid controlled, polarity reversing switch, a three position, non-detent	yes
9.6	control switch, circuit protection, and enough 6 gauge dual conductor wire to extend from the batteries to solenoid switch and to the	
	tarp motor	yes
	Specification # 04-Pre-Wet Systems .C19	yes
_		
4	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	Contractor Specification Compliance
	standard features normally offered with these models	
	Referenced Make and Model: Monroe LDS or equal	Yes Monroe LDS is a hydraulic driven
	Contractor to identify proposed make and model	prewet system. See additional information
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	for electric systems
	Basic Requirements:	
1.1	Units shall provide a ground speed controlled pre-wet systems to be mounted on MDOT winter maintenance trucks	
4.0	Dra wat liquid pump shall be directly coupled to the hydroulis mater	yes.
	Pre-wet liquid pump shall be directly coupled to the hydraulic motor	yes.
	Pre-wet pump shall be capable of 6gpm and constructed with a built in system relief valve	yes.
	Pre-wet pump shall be constructed with bronze type gears	yes.
1.5	Pre-wet pump/motor shall be mounted inside a NEMA type enclosure with a hinged door for access, size to be determined by MDOT	yes.
	at pre-construction meeting.	
	A Dickey-John flow meter shall also be mounted in the enclosure	yes.
1.7		yes.
	Stainless steel hydraulic lines for the pump motor shall be plumbed to bulkhead fittings mounted on the side of the enclosure	
	Pre-wet pump system shall have a poly check valve to be mounted in the discharge line to the spray nozzles	yes.
1.9		no-driver for an electric system is to be
	Prewet elctric controls including 15amp driver and all necessary cables	supplied with the spreader controller system
2.0	Pre-wet system shall include a nozzle kit including:	yes.
		yes.
	Three (3) 2gpm spray nozzles	
	All necessary hoses and fittings	yes.
	Strainers shall be included in line in the discharge lines	yes
	Stainless steel guards to be installed with the nozzles	yes.
3.0	Liquid Tanks:	yes.
3.1		yes.
<u> </u>	Liquid tanks shall be 100 gallon minimum capacity for combination body trucks and 100 gallon capacity for slide-in V-box bodies	
3.2	Each body shall be equipped with twin tanks and shall be fitted with an equalizing hose between tanks	yes.
3.3	Tanks shall be fitted with 2 inch cam-lock fittings for bulk filling	no- 1.5" poly cam lock fitting, not 2"
3.4	Tanks shall be constructed of 3/8 inch wall rotationally molded polypropylene and shall have built in baffles	yes.
3.5	Each tank shall have a minimum 3 inch fill opening at the top	yes.
3.6	Tanks shall fit existing MDOT combination bodies and slide in material spreaders	yes.
3.7	Tanks shall be fitted with the proper poly type tank vents	yes.
	Discharge fittings shall be molded type	yes.
	Spin welded or flange type fittings shall NOT be acceptable	yes.
3.10	Obin meinen of hatige type littiligs shall not be acceptable.	yes.
3.10	Tanks shall be provided with stainless steel mounting brackets and all necessary stainless steel hardware and attachments	,
3.11	The state of the s	yes.
	Tank kits for the combination bodies and the slide in bodies shall include a one (1) piece stainless steel tray that is as long as the tank	
3.12	The V-box kits shall include brackets that bolt directly to the V-box cross members	yes.
3.13	A stainless steel pump enclosure mounting bracket shall be supplied with pre-wet system	yes.
	A bulk fill kit with poly cam-lock fittings and poly shut-off valve shall be provided	yes.
	A flusher kit consisting of a poly directional ball valve and a separate suction hose shall also be provided to be installed in the liquid	ves.
3.13	supply line from the tank to the pump	,
3.16	Quick disconnect poly cam fitting kits shall be supplied for the liquid discharge line to the spinner	yes.
3.17	Tanks to be mounted to either the body or the slide in spreader that correspond to the unit that it is ordered for at time of delivery	yes.
'	from factory	,
	END OF SPECIFICATION	yes.
	Specification # HYD-PP.C19 Hydraulic System	
г		Contractor Specification Compliance
5	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	Contractor Specification Compliance
	standard features normally offered with these models	

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	Contractor to identify proposed make and model	Make and Model:
1.0	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	YES
	Basic Requirements:	
1.1	Hydraulic valve must be compatible with Dickey-john Control Point and Freedom controllers as manufactured by Certified Power	yes.
1.2	Each system shall be priced individually and shall include the pump, shutdown system, driveline and a specific valve as described in	ves.
	the following.	
1.3	The Contractor shall package each system and identify by label as to the truck unit numbers as assigned by M-DOT.	yes.
2.0	Pump Drive:	yes.
2.1	Pump shall be driven from the front of the engine crankshaft via a Spicer 1310 series drive-line assembly, or equal, with a splined slip	yes.
	yoke and fixed end yokes assembled per MDOT specifications	
2.2	The drive line assembly shall include a companion flange with a 1.5 inch keyed opening to fit the hydraulic pump. The companion	yes.
	flange shall be keyed to the pump and shall include a hub piloted flange. Drive line assembly shall include hub piloted end yokes to	
	fit both the front of the engine as well as the companion flange.	
2.3	Pump shall be driven from the front of the engine crankshaft via a Spicer 1310 series drive-line assembly, or equal, with a splined slip	yes.
	yoke and fixed end yokes assembled per MDOT specifications	
2.4	Two (2) setscrews will be drilled for, and secured by, a safety wire and all cross and bearing assemblies will have grease fittings that	yes.
2.5	are readily accessible	
	The splined slip joint shall have a readily accessible grease fitting also	yes.
	Hydraulic Pump:	yes.
	Furnish a variable volume, pressure, and flow compensated, load sensing axial piston pump	yes.
	The pump shall offer the following features as standard	yes.
	Bolt on compensator with separate adjustments for stand by and main pressure	yes.
b.	SAE C mounting flange	yes.
	SAE code 62 flanged pressure port	yes.
d.	SAE code 61 flanged suction port size 2-1/2 inch	yes.
e.	1-½ inch SAE keyed input shaft. The end of the shaft shall be drilled and tapped to accept a retainer bolt for the companion flange	yes.
f.		yes.
	One piece input shaft for long service life	yes.
3.4	The pump shall be of cast iron construction, 6.0ci displacement for all truck systems	<u>'</u>
3.4	Low Oil Alert: A low oil level sensor (Sensor furnished by hydraulic tank vendor) of the solid state, non-mechanical, non-float type,	yes.
	to be connected to a normally open, energize to close, solenoid operated control valve of the cartridge and manifold design to be	
	directly bolted to the pump pressure port. Actuation shall be by the closing of a ground connection through the low oil level sensor,	
	to automatically shut off pump pressure port flow to all downstream functions in the event of low hydraulic oil level.	
	Valve Body:	yes.
4.1	Hydraulic control valve shall be a closed center sectional type valve, load sense, individually pressure and flow compensated, rated at	yes.
4.2	minimum 40gpm	
	The valve shall be assembled with a mid-inlet to allow a maximum flow into P (pressure port) of 52gpm	yes.
	All valve assemblies shall have the same "footprint" to facilitate the use of M-DOT valve enclosures	yes.
	The P port must be SAE 16, tank (T) SAE 20 X, Y, L, M ports SAE 6	yes.
	The valve shall feature individual sections for all functions. The A & B work-ports shall be SAE 12	yes.
	The valve shall include a cartridge type shuttle network with access opposite the working ports for serviceability	yes.
	All valve functions shall be pilot solenoid operated	yes.
	All valve functions shall include individual load sense pressure adjustment for each work port Valve section flow to be determined by spool selection, for proper proportional joystick operation at C in the down travel position	yes.
4.9	valve section flow to be determined by spool selection, for proper proportional Joystick operation at C in the down travel position under induced load conditions	yes.
4.10	Spool flows shall be easily field adjustable within a range by the addition or subtraction of shims or adjusting nuts, adjustment shall	yes.
	not reduce main spool travel	
4.11	For serviceability when enclosure mounted the solenoid coils and the individual work port load sense pressure controls shall be	yes.
	adjustable and accessible on the same side of the valve	
	Push pin manual overrides on the proportional coils shall be covered to exclude corrosion	yes.
4.13	Coils will be one piece assemblies with covered manual overrides	YES
-	All valve functions shall include stroke limiter	yes.
4.15	All valve functions shall have adjustable flow compensators, either shim or screw adjustment is acceptable	yes.
	The hydraulic pilot supply will be internal to the valve	YES
4.17	The pump sense line bleed off shall be integral to the valve	yes.
	All valve assemblies shall be painted	yes.
4.19	All valve sections shall be identified as to their function	YES
4.20	All sections are to be fully proportional electric	yes.
5.0	Vender shall supply pricing for the following valve sections. All sections shall be EPC type and shall include adjustable load sense	yes.
	pressure control as well as spool stops. Flow rates will be determined at the time of order. Pricing to include the following sections.	
a.	4 way, EPC section	yes.
b.	3 way motor spooled EPC section	yes.
c.	4 way motor spooled EPC section	yes.
$\overline{}$	Valve Combination Number 1:	yes.
a.	Valve Combination Number 1: Combination number 1 system shall include the following sections for a rear discharge combination body with one wing, and shall	yes.
a.	include the following	,

b.	Left End Cover: Blank	yes.
c.	Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	yes.
d.	Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief	yes.
"	down and 1,400psi load sense relief up	yes.
σ.	Section 5: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12	yes.
	A&B work-ports adjustable load sense pressure control	yes.
h.	Section 6: Hoist, 4 way Low boy, 34g.p.m., SAE 12 A&B work-ports, with 500psi load sense relief for down pressure	yes.
- :		
- '	Mid Inlet: Must have adjustable anti-cavitation relief valve	yes.
J.	Section 7: Main conveyor 3 way, 24 gpm, motor spooled, adjustable load sense pressure control section for rear discharge	yes.
	combination body includes adjustable load sense relief for B port	lue
к.	Section 8: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control	yes.
—	either front or rear cross auger Section 9: Grinner Avenue material equipment rice leastion 5.65.13 meters 18 meters 4 meters 9 meters editectable lead excess	lua.
"	Section 9: Spinner, 4 way motor spooled, asymmetrical section, SAE 12 ports, 18 gpm A port, 8 gpm B port, adjustable load sense	yes.
	pressure control for either a standard spinner or a zero velocity spinner	voc
	Section 10: pass through section	yes.
	Section 11: pass through section	yes.
о.	Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner	yes.
	attachment; port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	
5.2	Valve Combination Number 2:	yes.
a.	Combination number 2 system shall include the following sections for a rear discharge combination body with two wings , and shall	yes.
<u></u>	include the following	
b.	Left End Cover: Blank	yes.
c.	Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	yes.
		yes.
	Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	<u>'</u>
	Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
f.	Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief	yes.
	down and 1,400psi load sense relief up	
g.	Section 5: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12	yes.
	A&B work-ports adjustable load sense pressure control	
h.	Section 6: Hoist, 4 way section, 34g.p.m., SAE 12 A&B work-ports, with 500psi load sense relief for down pressure	yes.
i.	Mid Inlet: Must have adjustable anti-cavitation relief valve	yes.
j.	Section 7: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12	yes.
	A&B work-ports adjustable load sense pressure control	
k.	Section 8: Main conveyor 3 way, 24 gpm, motor spooled, adjustable load sense pressure control section for rear discharge	yes.
	combination body includes adjustable load sense relief for B port	
I.	Section 9: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control	yes.
	either front or rear cross auger	
m.	Section 10: Spinner, 4 way motor spooled, asymmetrical section, SAE 12 ports, 18 gpm A port, 8 gpm B port, adjustable load sense	yes.
	pressure control for either a standard spinner or a zero velocity spinner	
n.	Section 11: pass through section	yes.
0.	Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner	yes.
	attachment; port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	,
5.3	Valve Combination Number 3:	yes.
	Combination Number 3 system shall include the following sections for a front and rear discharge combination body with one wing ,	yes.
a.	and shall include the following	,
h		yes.
	Left End Cover: Blank	
C.	Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	yes.
d.	Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
e.	Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief	yes.
1	down and 1,400psi load sense relief up	
g.	Section 5: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12	yes.
1	A&B work-ports adjustable load sense pressure control	
h.	Section 6: Hoist, 4 way section, 34g.p.m., SAE 12 A&B work-ports, with 500psi load sense relief for down pressure	yes.
i.	Mid Inlet: Must have adjustable anti-cavitation relief valve	yes.
- "	·	
J.	Section 7: Main conveyor 4 way, 24 gpm, motor spooled, adjustable load sense pressure control section for rear discharge	yes.
L	combination body includes adjustable load sense relief for A& B port Section 8: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control	vos
к.	either front or rear cross auger	yes.
	Section 9: Spinner, 4 way motor spooled, section, SAE 12 ports,, 8 gpm A&B port, adjustable load sense pressure control for front	yes.
1 "	and rear spinners	,
m	·	yes.
	Section 10: pass through section	
n.	Section 11: pass through section	yes.
0.	Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner	yes.
<u> </u>	attachment; port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	
	Valve Combination Number 4:	yes.
a.	Combination Number 4 system shall include the following sections for a front and rear discharge combination body with two wings ,	yes.
	and shall include the following	
b.	Left End Cover: Blank	yes.
c.	Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	yes.
		I.

		T
d.	Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
e.	Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
f.	Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief down and 1,400psi load sense relief up	yes.
g.	Section 5: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control	yes.
h.	Section 6: Hoist, 4 way section, 34g.p.m., SAE 12 A&B work-ports, with 500psi load sense relief for down pressure	yes.
	Mid Inlet: Must have adjustable anti-cavitation relief valve	yes.
	Section 7: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12	yes.
	A&B work-ports adjustable load sense pressure control Section 8: Main conveyor 4 way, 24 gpm, motor spooled, adjustable load sense pressure control section for rear discharge	
	combination body includes adjustable load sense relief for A& B port	yes.
	Section 9: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control either front or rear cross auger	yes.
m.	Section 10: Spinner, 4 way motor spooled, section, SAE 12 ports,, 8 gpm A&B port, adjustable load sense pressure control for front and rear spinners	yes.
n.	Section 11: pass through section	yes.
0.	Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner	yes.
	attachment; port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	
5.5	Valve Combination Number 5:	yes.
a.	Combination Number 5 system shall include the following for sections for hookloader units with one wing, and shall include the following	yes.
b.	Left End Cover: Blank	yes.
	Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	yes.
d.	Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief	yes.
	down and 1,400psi load sense relief up	
	Section 5: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control	yes.
h.	Section 6: Hoist, 4 way motor spooled section, 34g.p.m., SAE 12 A&B work-ports, adjustable pressure control with 3500 psi on A&B ports	yes.
i.	Mid Inlet: Must have adjustable anti-cavitation relief valve	yes.
j.	Section 7: Jib, 4 way motor spooled section, 19 gpm., SAE 12 A&B work-ports, adjustable pressure control with 3500 psi on A&B	yes.
k.	ports Section 8: Main conveyor/auger, 3 way, 15 gpm, motor spooled, adjustable load sense pressure control section for v box attachment	ves
	includes adjustable load sense relief for B port	,
I.	Section 9: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control either front or rear cross auger	yes.
m.	Section 10: Spinner, 4 way motor spooled, asymmetrical section, SAE 12 ports, 18 gpm A port, 8 gpm B port, adjustable load sense pressure control for either a standard spinner or a zero velocity spinner	yes.
n.	Section 11: pass through section	yes.
	Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner	yes.
F 6	attachment; port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	luce
	Valve Combination Number 6:	yes.
a.	Combination Number 6 system shall include the following for sections for hookloader units with two wings, and shall include the following	yes.
b.	Left End Cover: Blank	yes.
c.	Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	yes.
	Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief	yes.
	down and 1,400psi load sense relief up Section 5: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12	ves.
	A&B work-ports adjustable load sense pressure control	′
h.	Section 6: Hoist, 4 way motor spooled section, 34g.p.m., SAE 12 A&B work-ports, adjustable pressure control with 3500 psi on A&B ports	yes.
i.	Mid Inlet: Must have adjustable anti-cavitation relief valve	yes.
j.	Section 7: Jib, 4 way motor spooled section, 19 gpm., SAE 12 A&B work-ports, adjustable pressure control with 3500 psi on A&B ports	yes.
k.	Section 8: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12	yes.
l.	A&B work-ports adjustable load sense pressure control Section 9: Main conveyor/auger, 3 way, 15 gpm, motor spooled, adjustable load sense pressure control section for v box attachment	yes.
m.	includes adjustable load sense relief for B port Section 10: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control	yes.
n.	either front or rear cross auger Section 11: Spinner, 4 way motor spooled, asymmetrical section, SAE 12 ports, 18 gpm A port, 8 gpm B port, adjustable load sense	yes.
	pressure control for either a standard spinner or a zero velocity spinner Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner	
	attachment; port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	yes.
	Valve Combination Number 7:	yes.
a.	Combination Number 7 system shall include the following for sections for dump trucks with slide in V Boxes and one wing, and shall include the following	yes.
h	Left End Cover: Blank	yes.
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_	Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	yes.
d.	Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief down and 1,400psi load sense relief up	yes.
g.	Section 5: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control	yes.
h.	Section 6: Hoist, 4 way section, 34g.p.m., SAE 12 A&B work-ports, with 500psi load sense relief for down pressure	yes.
i.	Mid Inlet: Must have adjustable anti-cavitation relief valve	yes.
j.	Section 7: Main conveyor 3 way, 15 gpm, motor spooled, adjustable load sense pressure control section for slide in V box includes adjustable load sense relief for B port	yes.
k.	Section 8: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control either front or rear cross auger	yes.
I.	Section 9: Spinner, 4 way motor spooled, asymmetrical section, SAE 12 ports, 18 gpm A port, 8 gpm B port, adjustable load sense pressure control for either a standard spinner or a zero velocity spinner	yes.
m.	Section 10: pass through section	yes.
	Section 11: pass through section	yes.
	Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner	ves.
	attachment; port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	,
5.8	Valve Combination Number 8:	yes.
a.	Combination Number 8 system shall include the following for sections for dump trucks with slide in V Boxes and two wings, and shall	yes.
	include the following	
b.	Left End Cover: Blank	yes.
c.	Section 1: Front plow swing, 4 way, 15gpm, SAE 12 A&B work-ports, adjustable load sense pressure control	yes.
	Section 2: Front plow lift, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
e.	Section 3: Underbody swing, 4 way, SAE 12 A&B work-ports 15gpm, adjustable load sense pressure control	yes.
	Section 4: Underbody blade up/down, 4 way, 15gpm, SAE 12 A&B work-ports adjustable pressure control, 800psi load sense relief	yes.
g.	down and 1,400psi load sense relief up Section 5: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12	ves.
	A&B work-ports adjustable load sense pressure control	
h.	Section 6: Hoist, 4 way section, 34g.p.m., SAE 12 A&B work-ports, with 500psi load sense relief for down pressure	yes.
i.	Mid Inlet: Must have adjustable anti-cavitation relief valve	yes.
j.	Section 7: Wing raise and lower (extend/retract shall be incorporated with the single valve), 4 way, 15gpm, motor spooled, SAE 12	yes.
- L	A&B work-ports adjustable load sense pressure control Section 8: Main conveyor 3 way, 15 gpm, motor spooled, adjustable load sense pressure control section for slide in V box includes	vos
	adjustable load sense relief for B port	yes.
	Section 9: Cross auger, 4 way, 15gpm, motor spooled, SAE 12 A&B work-ports adjustable load sense pressure control to control either front or rear cross auger	yes.
m.	Section 10: Spinner, 4 way motor spooled, asymmetrical section, SAE 12 ports, 18 gpm A port, 8 gpm B port, adjustable load sense pressure control for either a standard spinner or a zero velocity spinner	yes.
n.	Section 11: pass through section	yes.
	Right end cover: Outlet cover shall include power beyond with load sense carryover for plumbing of a zero velocity spinner attachment; port sizes (P) SAE 12, (T) SAE 16 (LS) SAE 6	yes.
		yes.
	END OF SPECIFICATION Specification # GRDSPD.C19 Ground Speed Oriented Salt Distribution Spreader Control System with Electric Over Hydraulic	yes.
6	Joystick Controls All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	Contractor Specification Compliance
	Referenced Make and Model: Certified Power Freedom XDS (FRXDS) or equivalent. Contractor to	Make and Model: Certified Power Freedom
	identify proposed make and model. Brands or trade names are for	XDS controller
	identification purposes only and do not limit the contractor to such brands.	
	Basic Requirements:	
	These systems will be used in conjunction with a closed center valve and load sense/pressure compensated piston pump, to be supplied by MDOT	yes.
1.2	Electric over hydraulic joysticks are to control the underbody scraper up/down, left/right, front plow up/down, left/right, dump body and mid-mount wing up/down	yes.
1.3	Spreader functions shall be ground speed controlled with in-cab display and control	yes.
1.4	The control must be capable of closed loop prewet and anti-ice systems and dual spreaders (tow plow)	yes.
2.0	Remote Valve Controls:	
2.1	Remote valve joysticks (or single joystick) controllers shall be located in the cab of the truck, configured for mounting in a location	yes.
2.2	convenient to the operator, on a console mounting base, to a fixture on the cab floor supplied by MDOT. Joystick controllers shall have the capability to provide proportional control to the hydraulic pulse width modulated (PWM) valves up	ves.
	to 14 per output module	,
	The joysticks will be incorporated into the CAN bus network.	yes
	The joysticks (or joystick) shall be mounted in a console that houses them and provides an armrest.	yes.
2.4 2.5	The joysticks (or joystick) shall be mounted in a console that houses them and provides an armrest. Controllers shall have a user selectable interface to be compatible with a proportional hydraulic valves	yes.
2.4 2.5	The joysticks (or joystick) shall be mounted in a console that houses them and provides an armrest.	
2.4 2.5	The joysticks (or joystick) shall be mounted in a console that houses them and provides an armrest. Controllers shall have a user selectable interface to be compatible with a proportional hydraulic valves Controllers shall be mounted in a modular base that accepts one to four controllers and be available in a dual or single gated axis	yes.
2.4 2.5 2.6 3.0	The joysticks (or joystick) shall be mounted in a console that houses them and provides an armrest. Controllers shall have a user selectable interface to be compatible with a proportional hydraulic valves Controllers shall be mounted in a modular base that accepts one to four controllers and be available in a dual or single gated axis configuration	yes.

3.2	Red button shall serve as a safety lockout, or switch, whereas output from the control will not activate without first depressing the	yes.
	push button	
	All other components shall be black in color	yes.
3.4	Controller shall contain a microprocessor with 14 control channels and the sticks shall be gated such that the handle only moves in	yes.
2 5	one axis (front to back) or side to side.	NO.
	Single Joystick shall be Multiplexed and shall have 3 axis.	yes
	Controller shall be user selectable to provide PWM frequency from 0-300Hz	yes.
	Electrostatic discharge and electromagnetic interference protection shall be provided	yes.
3.8	Single axis joysticks shall control both the dump body and the wing, if so equipped, with the use of a toggle switch provided in the	yes.
	console	
	Base Plate:	
	Standard base will include terminal strips and necessary relays. Three rocker switches will be included	yes.
4.2	Base will be enclosed cabinet style with mounting post for armrest. Front access panel will be bolt on.	yes.
4.3	MDOT supplied floor rails for the console and base plate shall be reviewed at the preconstruction meeting	yes.
5.0	Ground Speed System I (GSS I):	
5.1	System shall have the capability to maintain a uniform application rate of granular deicing materials and liquid materials	yes.
	simultaneously (based on granular output)	
5.2	System shall have the capability of being used as a liquid only control and monitor boom shutoff inputs	yes.
5.3		yes.
	System shall have the flexibility of closed loop control of the spinner in order to maintain a desired spinner spread width	
	GSS I - Console:	
6.1	Control cancel askell have an easy to read I CD display which is smaller of displaying.	yes.
	Control console shall have an easy to read LCD display which is capable of displaying a minimum of four (4) control channel	
	application rates, ground speed, spread width, time/date, gate height, liquid level, simultaneously	wor
	Control console shall contain a microprocessor and have a minimum of four (4) closed loop control channels	yes.
6.3	One control channel shall be used for application of granular material on a pounds (kilograms) per mile (kilometer) or area based	yes.
6.4	(pounds per square foot/grams per square meter)	yes.
0.4	A second channel and third shall be used for control of liquid material on a gallons (liters) per ton based on the granular application	yes.
	rate or gallons (liters) per mile (kilometer) and gallons (liters) per square yard (meter) a direct application channel will be included	
6.5	A fourth channel will be used for controlling the spinner speed and be capable of utilizing a feedback sensor to close the loop in order	yes.
	to maintain a desired spinner rpm and spread width	
6.6	Display will offer switches to cycle to menus and enter accumulated spread rate data screens.	yes.
	Console shall have sufficient memory capable of recording the following information and display as current run totals and season	yes.
	totals:	
a.	Miles(kilometers), tons (metric/English), and gallons (liters) spread while in automatic control mode	yes.
b.	Miles(kilometers), tons (metric/English), and gallons (liters) spread while in BLAST mode	yes.
	Total miles (kilometers), tons (metric/English), and gallons (liters) spread in automatic control mode	yes.
d.	Total vehicle miles (kilometers) driven while output is active	yes.
e.	Liquid gallons (liters) sprayed during pre-wetting and anti-icing applications	yes.
$\overline{}$	Console shall also record system information which includes:	yes.
a.		yes.
	Application rate history Alarm history indicating when control system was operating in an error condition (application error, manual override, or loss of	ves.
Б.	feedback sensor)	yes.
6.9	Control console will automatically adjust the amount of granular material being applied when the closed loop spinner is in operation	ves.
0.5	and the spread width knob setting is increased or decreased, this shall provide for spreading granular material in pounds per lane	,
	mile or pounds (kilograms) per square yard (meter)	
6.10	Control console shall have visual display of when unit is operating in application rate error, unload or blast condition, manual speed	yes.
	and automatic manual override condition, and built in ground speed simulator	
6.11	Truck ID can be entered into the unit that has a unique code for each truck	yes.
6.12	This ID would also show up on AVL so that data tracking can be done on an entire fleet of trucks	yes.
6.13	Console shall have the capability of being switched from English units to metric units	yes.
6.14	For <u>Combination Body trucks</u> , units shall have Electro Proportional Control (EPC) for speed of cross conveyor and two (2) position	yes- see option for cross conveyor driver
	switch to control direction	
6.15	A two (2) position switch to control main conveyor direction and spinner shall be provided	yes.
	This switch shall be wired into the main controller to maintain ground speed control	yes.
	Unit shall be programmable for at least four (4) types of material, four (4) liquids, and capable of controlling pre-wet and anti-icing	yes.
	with boom controls without changing consoles or modules	
6.18	Wiring for liquid operation shall be plug and program	yes.
6.19	Units shall include a two (2) year warranty on the processor and console	yes.
6.20	Data logging information shall be available for transmission through AVL.	yes
6.21	Unit to include on board diagnostics of all CAN BUS connected hardware	yes.
6.22	Console will allow dynamic joystick calibration on screen with adjustments for travel, deadband, multiplexing of outputs and PWM	yes.
<u></u>	output range.	
6.23	Controller shall beep and flash a warning to the operator	yes
6.24	Console can be programmed on screen, or through USB port via computer.	yes.
6.25	Console to include FIRST guide , on screen tutorial for programming.	yes.
	Console calibration mode:	yes.
	Automatic calibration procedures for granular and liquid channels to determine the granular spreader constant of conveyor/auger	yes.
a.	and liquid sprayer constant of flow meter	,,
b.	Ground speed calibration procedure in units of 1 mile or 1 kilometer	yes.
	and a parameter process of a control of a filling of a minimical	r-

	one will include capability for at 3 speed input signal.	yes.
d.	Automatic calibration procedure that will determine the PWM offset and saturation points of valve as well as system gain and enter	yes.
	into the console's memory	
e.	Programmable blast timed button or on/off when blast button is pressed and then released	yes.
	Spinner calibration procedure to allow for open loop operation of spinner or closed loop to coordinate spread width knob position	ves.
"	with a specific spread width for lane mile application of material	,
9		yes.
	Calibration procedures shall only be accessible with password protection	,
	Console programming features:	yes.
a.	Application rates may be preset for thirty (30) fixed rates or to expand application rate choices, a preset minimum rate, preset	yes.
	maximum rate and rate change increments between	
b.	A blast application rate is provided for each material for control of the blast function	yes.
c.		yes.
	All of the granular and liquid materials can have user defined labels to aid in easy selection of the correct material by the operator	
d.	Reset of granular season accumulators	yes.
	Reset of liquid season accumulators	yes.
		<u>'</u>
	Ability to lockout granular and liquid materials availability in the operate mode	yes.
g.		yes.
	Program the console for use as a granular and liquid material control, a liquid only control, or a granular only control	
h.		yes.
	When liquid only control is selected, the operate screen automatically configures itself and displays three boom identifiers	
i.	Capability to program console for automatic switch of liquid materials from pre-wet (gal/ton) to liquid only (gal/lane mile) for anti-	yes.
	icing	
	Display to offer customizable color and configuration sizes.	yes.
k.	Have provisions to work with a low oil level sensor connected to a normally open, energize to close, solenoid operated control valve,	yes.
	actuated by the closing of a ground connection through the sensor, to automatically shutoff pump pressure (also connected to a light	
	on the console to alert operator)	
7.0	GSS I - Operator Remote Switch Module:	yes.
	A remote switch module shall be used for operator convenience which contains switches to:	yes.
		<u>'</u>
	Power liquid and granular channels on or off individually	yes.
b.	Allow liquid and granular application rates to be increased or decreased separately	yes.
c.	Provide a momentary push button switch used for blast mode	yes
	Master spreader switch for off, automatic and unload of granular, liquid, and spinner channels	yes.
		yes.
	Provide a infinite position rotary knob for adjustment of spinner speed	,
7.2	Remote switch module shall be backlit for visibility and use during night operation	yes.
7.3	Remote switch module shall allow operator to select materials to be applied	yes.
8.0		yes.
	Hydraulic valves (MDOT provided) have pulse width modulated outputs to control hydraulic flow to spinner and conveyor motors	ľ
8.1	Unit shall be compatible with Hall Effect conveyor feed rate sensored hydraulic motors (MDOT provided) with at least 50 pulses per	ves.
8.1		yes.
	revolution of motor	<u></u>
8.2	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device	yes.
8.2 8.3	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights	yes.
8.2	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights	yes. yes. yes provided with the prewet system- not
8.2 8.3	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights	yes. yes yes provided with the prewet system- not part of the controller. Only necessary cable
8.2 8.3	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights	yes. yes. yes provided with the prewet system- not
8.2 8.3 8.4	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed	yes. yes. yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter
8.2 8.3 8.4	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if	yes. yes yes provided with the prewet system- not part of the controller. Only necessary cable
8.2 8.3 8.4	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used	yes. yes. yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver
8.2 8.3 8.4 8.5	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves	yes. yes. yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter
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8.2 8.3 8.4 8.5 8.6 8.7	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any	yes. yes. yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes.
8.2 8.3 8.4 8.5 8.6 8.7	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular	yes. yes. yes yes yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular	yes. yes. yes yes yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular	yes. yes. yes yes yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes. yes.
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8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width	yes. yes. yes yes yes yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS	yes. yes. yes yes yes yes yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes. yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width	yes. yes. yes yes yes yes yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes. yes. yes. yes.
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8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square foot/grams per square meter), liquid material on a gallons (liters)per ton based on a granular application rate or gallons (liters) per mile (km) and gallons (liters) per square yard (meter)	yes. yes. yes yes yes yes yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes. yes. yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square foot/grams per square meter), liquid material on a gallons (liters)per ton based on a granular application rate or gallons (liters)	yes. yes. yes yes yes yes yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes. yes. yes. yes. yes.
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8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square meter), liquid material on a gallons (liters) per ton based on a granular application rate or gallons (liters) per mile (km) and gallons (liters) per square meter).	yes. yes. yes. yes yes yes yes provided with the prewet system- not part of the controller. Only necessary cable to hook up to the flow meter yes see option for liquid driver yes. yes. yes. yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square foot/grams per square meter), liquid material on a gallons (liters) per ton based on a granular application rate or gallons (liters) per mile (km) and gallons (liters) per square yard (meter) Channel 4 shall be used for controlling the spinner speed and be capable of utilizing a feedback sensor to close the loop in order to maintain a desired spinner rpm and spread width	yes. yes. yes. yes yes yes yes yes yes yes see option for liquid driver yes yes. yes. yes. yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square foot/grams per square meter), liquid material on a gallons (liters)per ton based on a granular application rate or gallons (liters) per mile (km) and gallons (liters) per square yard (meter) Channel 4 shall be used for controlling the spinner speed and be capable of utilizing a feedback sensor to close the loop in order to maintain a desired spinner rpm and spread width Control channels can be programmed for manual control of operation allowing for operating hydraulic tools other than used in snow and ice control operations	yes. yes. yes. yes yes yes yes yes yes yes see option for liquid driver yes yes. yes. yes. yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11 8.12	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square foot/grams per square meter), liquid material on a gallons (liters)per ton based on a granular application rate or gallons (liters) per mile (km) and gallons (liters) per square yard (meter) Channel 4 shall be used for controlling the spinner speed and be capable of utilizing a feedback sensor to close the loop in order to maintain a desired spinner rpm and spread width Control channels can be programmed for manual control of operation allowing for operating hydraulic tools other than used in snow and ice control operations	yes. yes. yes. yes yes yes yes yes yes yes see option for liquid driver yes yes. yes. yes. yes. yes. yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11 8.12	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square foot/grams per square meter), liquid material on a gallons (liters)per ton based on a granular application rate or gallons (liters) per mile (km) and gallons (liters) per square foot forms per square yard (meter) Channel 4 shall be used for controlling the spinner speed and be capable of utilizing a feedback sensor to close the loop in order to maintain a desired spinner rpm and spread width Control channels can be programmed for manual control of operation allowing for operating hydraulic tools other than used in snow and ice control operations	yes. yes. yes. yes yes yes yes yes yes yes see option for liquid driver yes yes. yes. yes. yes. yes. yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11 8.12	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square foot/grams per square meter), liquid material on a gallons (liters) per ton based on a granular application rate or gallons (liters) per mile (km) and gallons (liters) per square yard (meter) Channel 4 shall be used for controlling the spinner speed and be capable of utilizing a feedback sensor to close the loop in order to maintain a desired spinner rpm and spread width Control channels can be programmed for manual control of operation allowing for operating hydraulic tools other than used in snow and ice control operations All logged data events shall be available in a single .csv formatted file before transferred to a modem of third party AVL device via DB9	yes. yes. yes. yes yes yes yes yes yes yes yes see option for liquid driver yes. yes. yes. yes. yes. yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11 8.12 8.13	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square foot/grams per square meter), liquid material on a gallons (liters) per ton based on a granular application rate or gallons (liters) per mile (km) and gallons (liters) per square yard (meter) Channel 4 shall be used for controlling the spinner speed and be capable of utilizing a feedback sensor to close the loop in order to maintain a desired spinner rpm and spread width Control channels can be programmed for manual control of operation allowing for operating hydraulic tools other than used in snow and ice control operations All logged data events shall be available in a single .csv formatted file before transferred to a modem of third party AVL device via DB9 Operator remote switch module, member mod	yes. yes. yes. yes yes yes yes yes yes yes yes see option for liquid driver yes. yes. yes. yes. yes. yes. yes. yes.
8.2 8.3 8.4 8.5 8.6 8.7 8.8 8.9 8.10 8.11 8.12 8.13 8.14 8.15 8.16	revolution of motor Vehicle speed sensor will be provided by a cable to adapt to vehicle electronic speed sensing device Conveyor feed rate sensor adapter cable shall be provided with LED indicator lights Flow meter shall be provided for accurate measurement of liquid sprayed A modulated valve driver (15amps) shall be provided to drive PWM hydraulic valve for desired volume of liquid application rate if electric prewet pump is used System shall have in line ball valve control capability for on/off boom valves System shall have the capability to maintain a uniform application rate of up to four (4) individual products simultaneously in any combination of granular and liquid deicing materials This combination can include two (2) granular and one (1) liquid or two (2) liquid and one (1) granular System console shall have the integrated boom section control capable of controlling up to three (3) boom section shut offs System shall have the flexibility of closed and open loop control of the spinner in order to maintain a desired spinner rpm or spread width Display terminal, master control module, member control module, and remote switch unit shall communicate via a CAN BUS Channels 1-3 can be used for applications of granular material on a pounds (kilograms) per mile (km) or area based (pounds per square foot/grams per square meter), liquid material on a gallons (liters) per ton based on a granular application rate or gallons (liters) per mile (km) and gallons (liters) per square yard (meter) Channel 4 shall be used for controlling the spinner speed and be capable of utilizing a feedback sensor to close the loop in order to maintain a desired spinner rpm and spread width Control channels can be programmed for manual control of operation allowing for operating hydraulic tools other than used in snow and ice control operations All logged data events shall be available in a single .csv formatted file before transferred to a modem of third party AVL device via DB9 Operator remote switch module, member mod	yes. yes. yes. yes yes yes yes yes yes yes yes see option for liquid driver yes. yes. yes. yes. yes. yes. yes. yes.
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a.	Four (4) control channel application rates	yes.
	Ground speed	yes.
	Spread width	yes.
		,
	Time/date	yes.
e.	Five (5) accessory analog inputs, eight (8) digital inputs, four (4) feedback sensor inputs	yes.
f.	Plow selection	yes.
	Display terminal shall have the capability to display date, time, road speed and four (4) control channel application rates	ves.
	simultaneously and pavement and air temp on screen	
8.22	Display terminal shall contain a microprocessor and a memory to send operation commands to a minimum of four (4) control	yes.
	channels simultaneously	
8.23	Display terminal shall have sufficient memory capable of logging and recording the following information:	yes.
a.	Total miles (km), tons, (metric/English) and gallons (liters) spread while in automatic control for each control channel and product	yes.
a.	spread	yes.
b.		yes.
	Miles (km), tons (metric/English) and gallons (liters) spread while in blast mode for each product spread	,
c.	Total vehicle miles (km) driven	yes.
d.	Liquid gallons (liters) sprayed during pre-wetting and anti-icing application	yes.
e.	Total time spent spreading granular, spraying liquid, and blasting	yes.
f.	Miles (km), tons (metric/English), and gallons (liters) spread while in pause mode	yes.
	whies (kill), tons (metho) English), and ganons (inters) spread while in pause mode	,
g.	All of this information shall be viewable on the display terminal as current run totals and season totals to the operator/supervisor	yes.
0 24		VAC
	Display terminal shall also record system information including:	yes.
a.		yes.
	Percentage of time when in automatic mode of control versus off as well as when blast and pause functions were activated	
8.25	When the closed loop spinner is in operation and the spread width knob is increased or decreased, the control console shall	yes.
	automatically adjust the amount of granular material being applied, which shall provide for spreading granular material in pounds	
<u> </u>	(kilograms) per square yard (meter) units of application	
8.26		yes.
	Display terminal shall have visual display and/or audible alerting operator of when unit is operating in application rate error, unload	
	or blast condition, pause mode, manual speed, and automatic manual override condition	
8.27	Display terminal shall have an integrated manual ground speed simulator for use when speedometer sensor fails or stationary testing	yes.
	or spreading is required	
8.28		yes.
	Display terminal shall have capability of changing all application, distance, and vehicle speed units from English units to metric units	
8.29	A remote switch module shall be used for operator convenience which contains:	yes.
a.	Multiple independent switches to allow various functions such as conveyor direction, cross conveyors with speed adjustment,	ves.
	placement chute selection, prewet nozzle diversion.	
	Blast switch	yes.
ı b.	DIAST SMITCH	
		vos
c.	Pause switch	yes.
c.		yes.
c.	Pause switch	
c. d. e.	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation	yes.
c. d. e.	Pause switch Master spreader switch for material application auto/off	yes.
c. d. e.	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation	yes.
c. d. e. 8.30	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS	yes.
c. d. e. 8.30	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display	yes. yes.
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c. d. e. 8.30 8.31	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS ECU shall contain the control channel algorithms, electronic driver devices to control the signal output for PWM hydraulic valve, servo valves, electronic pumps, and switching valves to control the desired liquid and granular material application rates, spinner	yes. yes. yes.
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c. d. e. 8.30 8.31	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS ECU shall contain the control channel algorithms, electronic driver devices to control the signal output for PWM hydraulic valve, servo valves, electronic pumps, and switching valves to control the desired liquid and granular material application rates, spinner speed, and spread width All input sensors for monitoring application rates (360 pulse per revolution shaft sensors), liquid flow meters, accessory monitoring	yes. yes. yes. yes.
c. d. e. 8.30 8.31	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS ECU shall contain the control channel algorithms, electronic driver devices to control the signal output for PWM hydraulic valve, servo valves, electronic pumps, and switching valves to control the desired liquid and granular material application rates, spinner speed, and spread width All input sensors for monitoring application rates (360 pulse per revolution shaft sensors), liquid flow meters, accessory monitoring sensors (gate height, electronic joystick, functions, hydraulic pressure sensors, rpm sensors, position sensors) shall be connected	yes. yes. yes. yes.
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c. d. e. 8.30 8.31 8.32	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS ECU shall contain the control channel algorithms, electronic driver devices to control the signal output for PWM hydraulic valve, servo valves, electronic pumps, and switching valves to control the desired liquid and granular material application rates, spinner speed, and spread width All input sensors for monitoring application rates (360 pulse per revolution shaft sensors), liquid flow meters, accessory monitoring sensors (gate height, electronic joystick, functions, hydraulic pressure sensors, rpm sensors, position sensors) shall be connected directly to the ECU An optional member output module shall be connected to the master control module via a CAN BUS interface protocol to drive	yes. yes. yes. yes. yes.
c. d. e. 8.30 8.31 8.32 8.33	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS ECU shall contain the control channel algorithms, electronic driver devices to control the signal output for PWM hydraulic valve, servo valves, electronic pumps, and switching valves to control the desired liquid and granular material application rates, spinner speed, and spread width All input sensors for monitoring application rates (360 pulse per revolution shaft sensors), liquid flow meters, accessory monitoring sensors (gate height, electronic joystick, functions, hydraulic pressure sensors, rpm sensors, position sensors) shall be connected directly to the ECU An optional member output module shall be connected to the master control module via a CAN BUS interface protocol to drive additional accessories installed on the vehicle such as boom section shut off valves, open and close V-box gates, switching valves for front/rear conveyors, switch valves for left/right discharge cross augers and accessory 12 volt switched output	yes. yes. yes. yes. yes.
c. d. e. 8.30 8.31 8.32 8.33	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS ECU shall contain the control channel algorithms, electronic driver devices to control the signal output for PWM hydraulic valve, servo valves, electronic pumps, and switching valves to control the desired liquid and granular material application rates, spinner speed, and spread width All input sensors for monitoring application rates (360 pulse per revolution shaft sensors), liquid flow meters, accessory monitoring sensors (gate height, electronic joystick, functions, hydraulic pressure sensors, rpm sensors, position sensors) shall be connected directly to the ECU An optional member output module shall be connected to the master control module via a CAN BUS interface protocol to drive additional accessories installed on the vehicle such as boom section shut off valves, open and close V-box gates, switching valves for	yes. yes. yes. yes. yes. yes. yes.
c. d. e. 8.30 8.31 8.32 8.33	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS ECU shall contain the control channel algorithms, electronic driver devices to control the signal output for PWM hydraulic valve, servo valves, electronic pumps, and switching valves to control the desired liquid and granular material application rates, spinner speed, and spread width All input sensors for monitoring application rates (360 pulse per revolution shaft sensors), liquid flow meters, accessory monitoring sensors (gate height, electronic joystick, functions, hydraulic pressure sensors, rpm sensors, position sensors) shall be connected directly to the ECU An optional member output module shall be connected to the master control module via a CAN BUS interface protocol to drive additional accessories installed on the vehicle such as boom section shut off valves, open and close V-box gates, switching valves for front/rear conveyors, switch valves for left/right discharge cross augers and accessory 12 volt switched output Granular application control:	yes. yes. yes. yes. yes.
8.30 8.31 8.32 8.33 8.34	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS ECU shall contain the control channel algorithms, electronic driver devices to control the signal output for PWM hydraulic valve, servo valves, electronic pumps, and switching valves to control the desired liquid and granular material application rates, spinner speed, and spread width All input sensors for monitoring application rates (360 pulse per revolution shaft sensors), liquid flow meters, accessory monitoring sensors (gate height, electronic joystick, functions, hydraulic pressure sensors, rpm sensors, position sensors) shall be connected directly to the ECU An optional member output module shall be connected to the master control module via a CAN BUS interface protocol to drive additional accessories installed on the vehicle such as boom section shut off valves, open and close V-box gates, switching valves for front/rear conveyors, switch valves for left/right discharge cross augers and accessory 12 volt switched output Granular application control: Compatible with pulse width modulated hydraulic valves used to control hydraulic oil flow to auger and conveyor motors	yes. yes. yes. yes. yes. yes. yes.
8.30 8.31 8.32 8.33 8.34 8.35 a.	Pause switch Master spreader switch for material application auto/off Rotary knob for adjustment of spinner speed, conveyor speed, and liquid rate with unlimited detents and rotation Remote switch module shall be backlit for visibility and use during night operation and be capable of being mounted next to display terminal, driver seat arm rest or on side of electronic joystick hydraulic controller Master control module (ECU) shall be connected to the display terminal via a CAN BUS ECU shall contain the control channel algorithms, electronic driver devices to control the signal output for PWM hydraulic valve, servo valves, electronic pumps, and switching valves to control the desired liquid and granular material application rates, spinner speed, and spread width All input sensors for monitoring application rates (360 pulse per revolution shaft sensors), liquid flow meters, accessory monitoring sensors (gate height, electronic joystick, functions, hydraulic pressure sensors, rpm sensors, position sensors) shall be connected directly to the ECU An optional member output module shall be connected to the master control module via a CAN BUS interface protocol to drive additional accessories installed on the vehicle such as boom section shut off valves, open and close V-box gates, switching valves for front/rear conveyors, switch valves for left/right discharge cross augers and accessory 12 volt switched output Granular application control: Compatible with pulse width modulated hydraulic valves used to control hydraulic oil flow to auger and conveyor motors High current solenoid interface driver to operate electric motor drive augers and spinners	yes. yes. yes. yes. yes. yes. yes. yes.
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c.	Calibration procedures shall include an on screen set up tutorial to step through the calibration process	yes.
8.38	Programming mode for entering application rates and resetting accumulators:	yes.
8.39	Program independent application rates for up to four (4) separate granular materials and four (4) separate liquid materials	yes.
b.	Application rates may be preset for ten (10) fixed rates or to expand application rate choices, a preset minimum and maximum rate and rate change increments can be selected	yes.
c.		yes.
	A blast application rate is provided for each material for rate control of the blast function	,
	Reset of granular current and season accumulators	yes.
e.	Reset of liquid current and season accumulators	yes.
f.	Ability to lock out granular and liquid materials availability in the operate mode	yes.
g.		yes.
h.	Program the console for use as a granular and liquid material control, a liquid only control or a granular material only control When liquid only control is selected the operator screen automatically configures itself and displays a three (3) section boom shut off	yes.
i.	along left side of terminal The operator screen of the display terminal shall automatically configure itself dependent upon the number of active control	yes.
	channels to fit all active products being applied on display for viewing System shall have an automatic override feature which, in the event of loss of feed rate sensor or flow meter signal, transfers system	
8.40	to open loop control with a "manual" indication flashing next to the appropriate control channel and continue application of material until sensor is required	yes.
9 /11	-	vos
	System shall have a built in ground speed simulator	yes.
8.42	The system shall have the capability of being programmed to allow access to manual aread for the driver to turn on and off	yes.
Ω //2	The system shall have the capability of being programmed to allow access to manual speed for the driver to turn on and off	ves
8.43	System shall have the capability to program three (3) control channels as manual mode of operation	yes.
8.44	When set as manual mode of control, the control channel will allow for nudging the control valve open and close in 5% increments	yes.
	with the application rate change increase/decrease switches located on operator remote switch module	luca .
	Manual mode of control channel shall allow for running accessory hydraulic tools in winter and summer months possibly not associated with winter maintenance activities	yes.
8.46	System shall have the ability to unload/flush both granular and liquid materials separately or simultaneously	yes.
8.47	Unload/flush shall provide for full spreader and sprayer output	yes.
8.48	Console shall NOT accumulate granular or liquid quantities while in unload or flush	yes.
8.49	System shall NOT initiate unload or flush unless vehicle ground speed is zero	yes.
8.50		yes.
8.51	After unload or flush is activated, the system shall allow forward movement of vehicle but pause at 5mph.	·
	Spinner shall stop when the spreading of granular material is stopped	yes.
8.52	Spinner can be preset to run or be stopped at the console when ground speed is zero	yes.
8.53	System shall allow the spread of granular material without spraying liquid material	yes.
8.54	Each of the four (4) liquid materials programmed into console memory shall be able to be set as either gallons (liters) per mile (km) or gallons (liters) per ton units allowing for the liquid channel of console to be used in an anti-icing application and for pre-wetting of granular material without the need for reprogramming	yes.
8.55	Console shall have a visual and audio indication of inaccurate application for both granular and liquid channels	yes.
8.56	System shall have a programmable start up ground speed in percent of valve drive which the control will utilize until true ground	yes.
	speed of vehicle exceeds the start up speed value	
	System shall have a programmable shut off speed which the control will utilize and shut off the spreading of materials when the true ground speed of the vehicle drops below the programmed shut off speed	,
	System shall be able to be used for application of liquid or granular on meters square, yards square, square foot, gallons per acre and lane miles units of measure	yes.
	Display terminal ports:	yes.
	Shall provide an RS232 for connection to 3 rd party hardware which shall allow the transmission of current operation information and	yes.
h	logged data to be exported and/or accessed real time Shall provide a USB port to allow insertion of USB media storage to allow for export of logged spreadsheet data and transfer to lap	ves.
	top computer USB terminal shall allow for import of system firmware updates to display terminal and master control module from USB media	,
c.	storage device	yes.
d.	USB port on terminal shall allow for import of critical system configuration file which shall provide means to program each display terminal and master control module with pre-determined system	yes.
	END OF SPECIFICATION	yes.
	Specification # 04-11CBBDY.C19 11 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Rear Discharge and	
7	Distribution Systems	Contractor Specification Compliance
	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	
	standard features normally offered with these models	Make and Madel: MONDOF DVOCAGE OF TO
	Referenced Make and Model: Monroe/DVS-132-96-56 or equivalent.	Make and Model: MONROE DVS132-96-56/
	Contractor to identify proposed make and model	REAR DISCHARGE- CHAIN
1 0	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	yes.
	Basic Requirements: MDOT will install this dump have as a 44 000 CVW single axis, each and shassis with shassis massurements of approx 197 inch W.B.	,
1.1	MDOT will install this dump box on a 44,000 GVW single axle, cab, and chassis with chassis measurements of approx. 187 inch W.B., 112 inch CA., and 187 inch C.E.	yes.
1.2	112 Inch CA., and 187 inch C.E. 11 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a	ves.
-:-2	type 201 stainless steel body, dump hoist, discharge/feed conveyor.	<u> </u>
1.3		yes.
	Body shall have an approximate struck capacity of 7-¾ cu/yd minimum for rear discharge without removable side boards	
	Dedicated the below is and add the first of an ADOT and in the state of the state o	yes.
1.4	Bodies will have holes pierced and wire tie studs mounted per MDOT specifications	ycs.
	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered	yes.

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1.6	Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or	yes.
	Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions	
1.7	All lighting shall be provided by MDOT	yes.
	Body:	yes.
	Bodies shall be of type 201 stainless steel construction	yes.
		,
	Overall height above truck frame shall not exceed 55 inches without cab shield	yes.
2.3	Top inside width of body shall be approximately 89 inches and outside width shall not exceed 96 inches	yes.
2.4	Top of floor to the top of the side wall shall be approximately 44 inches	yes.
2.5		yes.
	Body shall be rigidly constructed with a boxed top rail construction of 7 gauge type 201 stainless steel, 5 inch height x 4 inch depth	
2.6	Sides shall include vertical channel type ribs, approximately 4 inches wide x 2 inches deep constructed of 7 gauge type 201 stainless	yes.
	steel, spaced on 36 inch centers minimum	
2.7	Body longitudinal shall be constructed of ¼ inch type 201 stainless steel with minimum 12 inch height and include two (2) 3 inch ID	yes.
	cross over tubes for installation of hydraulic hoses and wiring	
2.8	Rear of body longsills must be slotted to facilitate removal of drive system	yes.
	Drive system including gearboxes, drive shaft, sprockets and bearings, must be removable as an assembly	yes.
	Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 8	yes.
2.10	inch round stainless steel and shall be greaseable	yes.
2 11		yes.
	Rear body hinge top plate shall not extend rearward more than 4 inches from the centerline of the pivot pin	,
	A 1.25 inch x ¼ inch, 201 stainless steel flat stock tarp tie rail, welded to side braces, full length of body	yes.
2.13	Tarp tie rail shall be installed just below the 45° break on the side braces	yes.
2.14	Two (2) body props shall be provided to support empty body weight	yes.
2.15		yes.
1	Body floor shall be 1/4inch 201 stainless steel and shall be bolted in with 1 inch welds at all four corners, and be supported by 7	
L	gauge 3 inch x 3 inch cross angles located on 12 inch centers, and shall have rear "roller" lip with wiper belt	
2.16	Body longitudinal shall be supported under chain by 4 inch formed cross members on 24 inch centers	yes.
2.17	All channel supports under the floor shall be constructed of ¼ inch type 201 stainless steel	yes.
2.18		yes.
	Return angle on the longitudinal shall be 4-1/2 inch boxed type for additional support and any retention of material	<u> </u>
	All joints on body shall be continuous welded	yes.
	Four (4) covered access openings shall be provided below the body interior on the rear facing panel:	yes.
		yes.
	For accessing the rear gear boxes for maintenance	
	For installation of rear attachments/accessories	yes.
	Two (2) covered access openings shall be provided on the forward facing panel of the rear corner post	yes.
2.22	Rear of body shall be flat to allow installation of MDOT approved accessories	yes.
2.23	Rear corner posts shall be boxed in and drilled and tapped to accept MDOT rear lighting arrangement	yes.
2.24	Both rear side posts shall have one (1) 1-1/2 inch hole, two (2) 1-¼ inch holes, one (1) 13/16 inch hole and four (4) 9/16 inch holes	yes.
	with ½ inch stainless steel nuts welded to the backside	yes.
	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light	yes.
	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting	
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2.25	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart	yes.
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2.25 2.26 2.27 3.0	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart Body sides shall be 45° sloped Additional wire/cable retention studs shall be installed, per MDOT specifications Head Sheet:	yes. yes. YES
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2.25 2.26 2.27 3.0 3.1	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart Body sides shall be 45° sloped Additional wire/cable retention studs shall be installed, per MDOT specifications Head Sheet:	yes. YES yes.
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2.25 2.26 2.27 3.0 3.1 3.2	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart Body sides shall be 45° sloped Additional wire/cable retention studs shall be installed, per MDOT specifications Head Sheet: Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside Front sheet to include an enclosure for a front mounted telescopic hoist	yes. yes. YES yes. yes. yes. yes.
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2.25 2.26 2.27 3.0 3.1 3.2 3.3 3.4 3.5	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart Body sides shall be 45° sloped Additional wire/cable retention studs shall be installed, per MDOT specifications Head Sheet: Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside Front sheet to include an enclosure for a front mounted telescopic hoist Cylinders mounted forward of the front of the body will NOT be acceptable Front shall be at least 6 inches higher than the sides	yes. yes. YES yes. yes. yes. yes. yes. yes. yes.
2.25 2.26 2.27 3.0 3.1 3.2 3.3 3.4 3.5 3.6	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart Body sides shall be 45° sloped Additional wire/cable retention studs shall be installed, per MDOT specifications Head Sheet: Head Sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside Front sheet to include an enclosure for a front mounted telescopic hoist Cylinders mounted forward of the front of the body will NOT be acceptable Front shall be at least 6 inches higher than the sides All horizontal surfaces shall be dirt shedding	yes.
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2.25 2.26 2.27 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart Body sides shall be .45° sloped Additional wire/cable retention studs shall be installed, per MDOT specifications Head Sheet: Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside Front sheet to include an enclosure for a front mounted telescopic hoist Cylinders mounted forward of the front of the body will NOT be acceptable Front shall be at least 6 inches higher than the sides All horizontal surfaces shall be dirt shedding All bolts used shall be stainless steel All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader Body shall include all items needed to be fully operational	yes. yes. YES yes.
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2.25 2.26 2.27 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 3.10 4.0 4.1	with ¼ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be 1.25 inches and shall be 3.625 inches apart Body sides shall be 45° sloped Additional wire/cable retention studs shall be installed, per MDOT specifications Head Sheet: Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside Front sheet to include an enclosure for a front mounted telescopic hoist Cylinders mounted forward of the front of the body will NOT be acceptable Front shall be at least 6 inches higher than the sides All horizontal surfaces shall be dirt shedding All bolts used shall be stainless steel All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader Body shall include all items needed to be fully operational All items which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and workmanship to best commercial practice Conveyor: Conveyor shall be pintle chain type running longitudinally with the body feeding material to the hinged rear end-gate opening Conveyor shall not extend past the vertical tailgate Overall conveyor width shall be 34 inches minimum	yes.
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2.25 2.26 2.27 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 3.10 4.0 4.1 4.2 4.3 4.4	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart Body sides shall be 45° sloped Additional wire/cable retention studs shall be installed, per MDOT specifications Head Sheet: Head Sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside Front sheet to include an enclosure for a front mounted telescopic hoist Cylinders mounted forward of the front of the body will NOT be acceptable Front shall be at least 6 inches higher than the sides All horizontal surfaces shall be dirt shedding All bolts used shall be stainless steel All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader Body shall include all items needed to be fully operational All items which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and workmanship to best commercial practice Conveyor: Conveyor shall not extend past the vertical tailgate Overall conveyor width shall be 34 inches minimum Conveyor chain shall be heat-treated 2-¼ inch pitch pintle type with .224 inch link thickness, 15/32 inch pin diameter and have a	yes.
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2.25 2.26 2.27 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 3.10 4.0 4.1 4.2 4.3 4.4 4.5	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be 1.25 inches and shall be 3.625 inches apart Body sides shall be 45° sloped Additional wire/cable retention studs shall be installed, per MDOT specifications Head Sheet: Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside Front sheet to include an enclosure for a front mounted telescopic hoist Cylinders mounted forward of the front of the body will NOT be acceptable Front shall be at least 6 inches higher than the sides All horizontal surfaces shall be dirt shedding All bolts used shall be stainless steel All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader Body shall include all items needed to be fully operational All items which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and workmanship to best commercial practice Conveyor: Conveyor shall be pintle chain type running longitudinally with the body feeding material to the hinged rear end-gate opening Conveyor shall not extend past the vertical tailgate Overall conveyor width shall be heat-treated 2-¼ inch pitch pintle type with .224 inch link thickness, 15/32 inch pin diameter and have a 26,000 pound minimum average tensile strength, manufactured in the USA Cross bars ½ inch x 1-½ inch shall be positioned on approximately 2-½ inch centers and welded on both the top and bottom of the bar	yes.
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5.1	Tailgate shall be minimum of 6 inches higher than sides of body	yes.
5.2	Tailgate shall be manufactured of minimum 3/16 inch, type 201 stainless steel with, 5 panel, boxed perimeter of 3 inch formed	yes.
	channel	
5.3	Tailgate shall have a 3 inch x 3 inch D-ring welded to the top center of tailgate	yes.
5.4	Tailgate shall be double acting with squared perimeter and two (2) horizontal braces of 3/16 inch material the full width of the	yes.
	tailgate	
5.5		yes.
	Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat	
5.6	Chain shall be removable, 3/8 inch, high tensile plated type	YES
5.7	5/8 inch 201 stainless steel lift loop shall be welded on the outside	yes.
5.8		ves.
	Tailgate shall have a 5/8 inch stainless rod by a minimum 7 inch grip handle located in the lower left hand corner	ľ
5.9	Material door shall extend 16 inches into the interior of the body to prevent material from escaping through the partially opened	yes.
	door over the conveyor	
5.10		yes.
	An adjustable discharge gate or door with an opening of at least 21 inches x 8-½ inches of a minimum of ¼ inch thick with a heavy	
	duty screw-type operated adjustment mechanism on passenger's side and at bottom edge of tailgate	
5.11	Feedgate must have infinite positions and include ruler to indicate gate opening height	yes.
	Tailgate shall have 1 inch x 4 inch bar stock tailgate hardware with 1-¼ inch hardened pins	yes.
	Tailgate latches shall be 1 inch flame cut with each latch being adjustable, over center type	yes.
	Tailgate latches shall be air operated	yes.
		yes.
	Air cylinder must provide power latch and power release, spring assist latching systems are not acceptable	<u>'</u>
	Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service	yes.
5.17	and of minder mounting or an arrangement of the state of	yes.
5.18	Air cylinder rod shall be stainless steel	yes.
	Cylinder kits shall fit the existing brackets body without modification	YES
	Power Drive and Controls:	yes.
	Two (2) high torque, variable speed 6:1 gearboxes and hydraulic motors with ground speed sensor having 100 pulses/revolution	yes.
	capability on one of the gearboxes shall be provided	,
6.2	Sensor shall be a Hall Effect speed type	yes.
	Rear discharge bodies shall have drive located at the rear of the conveyor	yes.
	Hydraulic drive shall include two (2) geroler-type, high-torque, low speed hydraulic motors 12.1 CID, integrally mounted to the	yes.
0.4	conveyor gear cases	yes.
6.5	Hydraulic tubing shall be stainless steel, rated along with hydraulic hose to withstand 1-½ times system operating pressure	yes.
0.0	requirements	700.
6.6	Hydraulic tubing shall be ¾ inch minimum I.D.	yes.
	Try ar durie cubing shair be 74 men miniman i.b.	
		ves
6.7	All tubing shall be secured to body with polymer retaining blocks	yes.
6.7 7.0	All tubing shall be secured to body with polymer retaining blocks Hoist:	yes.
7.0 7.1	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder	yes. yes.
7.0 7.1 7.2	All tubing shall be secured to body with polymer retaining blocks Hoist:	yes.
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6.7 7.0 7.1 7.2 7.3 7.4 7.5	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi	yes. yes. yes. yes. yes.
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6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi Cylinder total stroke of 99 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector:	yes. yes. yes. yes. yes. yes. yes. yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi Cylinder total stroke of 99 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body	yes. yes. yes. yes. yes. yes. yes. yes.
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6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b.	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi Cylinder total stroke of 99 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify successful vendor of the proper mounting height of cab protector and stud location prior to construction Fenders:	yes. yes. yes. yes. yes. yes. yes. yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi Cylinder total stroke of 99 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify successful vendor of the proper mounting height of cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders	yes. yes. yes. yes. yes. yes. yes. yes.
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6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0 9.1 9.2 9.3 9.4 10.0 10.1 10.2 10.3	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi Cylinder total stroke of 99 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify successful vendor of the proper mounting height of cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body Overall length of fenders shall be 81 inches Fenders must have factory cut holes for installation of tarp springs, to be provided by MDOT at pre construction meeting Miscellaneous: A grease extension kit shall be provided and installed at the front and the rear of the body Rear grease kits shall provide lubrication to both the rear bearings and all pivot points for the tailgate linkage Front grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot points for the over cera cam that operates the tailgate linkage Front grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot points for the over cera cam that operates the tailgate linkage Front grease kits shall provide lubrication	yes. yes. yes. yes. yes. yes. yes. yes.

44.4		Luc
	Entire body shall be cleaned and rinsed	yes.
11.2	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	no- entire underside of the body is stainless steel construction. No paint is needed
	Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	no- entire underside of the body is stainless steel construction. No paint is needed
	END OF SPECIFICATION	yes.
8	Specification # 04-11CBBDYDA.C19 11 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Dual Auger, Hoist, Rear Discharge and Distribution Systems All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	Contractor Specification Compliance
	Referenced Make and Model: Monroe/DVS-132-96-56 or equivalent.	Make and Model: Monroe DVS132-96-
	Contractor to identify proposed make and model	56/DA/201ss
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	vos
	Basic Requirements:	yes.
	MDOT will install this dump box on a 44,000 GVW single axle, cab, and chassis with chassis measurements of approx. 187 inch W.B., 112 inch CA., and 187 inch C.E. 11 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a	yes.
	type 201 stainless steel body, dump hoist, discharge/augers.	yes.
1.3	Body shall have an approximate struck capacity of 7-% cu/yd minimum for rear discharge without removable side boards	yes.
1.4	Bodies will have holes pierced and wire tie studs mounted per MDOT specifications	yes.
	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered	yes.
	Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions	yes.
	All lighting shall be provided by MDOT	yes.
	Body:	yes.
	Bodies shall be of type 201 stainless steel construction	yes.
	Overall height above truck frame shall not exceed 55 inches without cab shield	yes.
	Top inside width of body shall be approximately 89 inches and outside width shall not exceed 96 inches	yes.
		yes.
2.5	Top of trough to the top of the side wall shall be approximately 44 inches	yes.
	Body shall be rigidly constructed with a boxed top rail construction of 7 gauge type 201 stainless steel, 5 inch height x 4 inch depth Sides shall include vertical channel type ribs, approximately 4 inches wide x 2 inches deep constructed of 7 gauge type 201 stainless	yes.
	steel, spaced on 36 inch centers minimum Body longitudinal shall be constructed of ¼ inch type 201 stainless steel with minimum 12 inch height and include two (2) 3 inch ID	
	cross over tubes for installation of hydraulic hoses and wiring	yes.
2.8	Rear of body longsills must be slotted to facilitate removal of drive system	REMOVEABLE PLANETARY GEAR BOXES- INDIVIDUALLY REMOVEABLE ON AUGER DVS
2.9	Real of body foriganis must be stocked to facilitate removal of drive system	REMOVEABLE PLANETARY GEAR BOXES- INDIVIDUALLY REMOVEABLE ON AUGER DVS
2.10	Drive system including gearboxes must be removable as an assembly Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 8 inch round stainless steel and shall be greaseable	yes.
2.11	Rear body hinge top plate shall not extend rearward more than 4 inches from the centerline of the pivot pin	yes.
	A 1.25 inch x ¼ inch, 201 stainless steel flat stock tarp tie rail, welded to side braces, full length of body	yes.
2.13	Tarp tie rail shall be installed just below the 45° break on the side braces	yes.
	Two (2) body props shall be provided to support empty body weight	yes.
2.15	Body auger trough shall be bolted in with 3/8 inch bolts on 12 inch centers and supported by 7 gauge 4 inch cross angles located on 24 inch centers. The longitudinal will be boxed with 1/4 inch plate interlaced with the cross angles	yes.
	Body longitudinal shall be supported under the trough by 4 inch formed cross members on 24 inch centers	yes.
	All channel supports under the floor shall be constructed of ¼ inch type 201 stainless steel	yes.
2.18	An Granner Supports under the moor shall be constructed or 24 mich type 201 Stalmess Steel	yes.
	Return angle on the longitudinal shall be 4-½ inch boxed type for additional support and any retention of material All joints on body shall be continuous welded	yes.
2.20	Two (2) covered access openings shall be provided below the body interior on the rear facing corner panel	NO-NOT NEEDED ON DUAL AUGER SYSTEM
2.21	Two (2) covered access openings shall be provided on the forward facing panel of the rear corner post	yes.
	For accessing the rear linkage and wiring for maintenance	yes.
b.	For installation of rear attachments/accessories	yes.
2.22	Rear of body shall be flat to allow installation of MDOT approved accessories	yes.
2.23	Rear corner posts shall be boxed in and drilled and tapped to accept MDOT rear lighting arrangement Both rear side posts shall have one (1) 1-1/2 inch hole, two (2) 1-¼ inch holes, one (1) 13/16 inch hole and four (4) 9/16 inch holes	yes.
	with ½ inch stainless steel nuts welded to the backside The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart	yes.
	Body sides shall be 45° sloped	yes.
	Additional wire/cable retention studs shall be installed, per MDOT specifications	YES
,	Additional who cable recention status shall be installed, per MDOT specifications	<u> </u>

	Head Sheet:	yes.
3.1	read sheet shall be constituted or 7 badbe 1/pe 202 stanness steel and be stoped is badic	yes.
3.2	Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside	yes.
3.3	Front sheet to include an enclosure for a front mounted telescopic hoist	yes.
3.4	Cylinders mounted forward of the front of the body will NOT be acceptable	yes.
3.5	Front shall be at least 6 inches higher than the sides	yes.
3.6		yes.
3.7	All bolts used shall be stainless steel	yes.
3.8		yes.
	All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader	YES
	Body shall include all items needed to be fully operational	
3.10	All items which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and workmanship to best commercial practice	yes.
4.0	Conveyor:	yes.
4.1	conteyer.	yes.
4.1	Conveyor shall be dual 7 inch OD augers running longitudinally with the body feeding material to the rear discharge ramp opening	yes.
4.2		yes.
4.3	Overall conveyor trough width shall be approximately 34 inches	yes.
	Bolt in conveyor trough shall have 37 degree sloped out sides and an intergral 8 inch high centered inverted "V" to separate the	yes.
4.4	augers and shall be 1/4 inch type 201 stainless steel	yes.
4.5	The dual auger drive system will be bolted to the 3/8 inch gearbox mounting plate that is welded to the front of the long member	yes.
L	weldment	<u> </u>
4.6		yes.
1	Counter rotating, hard surfaced 7 inch OD augers with 1/2 inch progessive flighting with 4-1/2 inch pitch, 6-1/2 inch pitch and 8-3/4	
	inch pitch welded to schedule 80, 3-1/2 inch pipe. One auger with right hand helical and one auger with left hand helical flighting	
	Tailgate:	yes.
5.1	Tailgate shall be minimum of 6 inches higher than sides of body	yes.
	Tailgate shall be manufactured of minimum 3/16 inch, type 201 stainless steel with, 5 panel, boxed perimeter of 3 inch formed	yes.
	channel	
5.3	Tailgate shall have a 3 inch x 3 inch D-ring welded to the top center of tailgate	yes.
5.4	Tailgate shall be double acting with squared perimeter and two (2) horizontal braces of 3/16 inch material the full width of the	yes.
	tailgate	
5.5		yes.
	Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat	VEC
	Chain shall be removable, 3/8 inch, high tensile plated type	YES
5.7	5/8 inch 201 stainless steel lift loop shall be welded on the outside	yes.
5.8	L	yes.
	Tailgate shall have a 5/8 inch stainless rod by a minimum 7 inch grip handle located in the lower left hand corner	
	Tailgate shall have 1 inch x 4 inch bar stock tailgate hardware with 1-¼ inch hardened pins	yes.
	Tailgate latches shall be 1 inch flame cut with each latch being adjustable, over center type	yes.
5.11	Tailgate latches shall be air operated	yes.
5.12	Air cylinder must provide power latch and power release, spring assist latching systems are not acceptable	yes.
5.13	Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service	yes.
	Air cylinder housing shall be aluminum	yes.
	Air cylinder rod shall be stainless steel	yes.
	Cylinder kits shall fit the existing brackets body without modification	YES
	Power Drive and Controls:	yes.
	Two (2) high torque, variable speed 3.6:1 planetary gearboxes and 14 tooth 24.9 CID hydraulic motors with ground speed sensor	yes.
0.1	having 100 pulses/revolution capability on one of the gearboxes shall be provided	,
6.2	Gearboxs will float on the drive system mounting plate	yes.
	Sensor shall be a Hall Effect speed type	yes.
	Gearbox drive shafts will be isolated from the auger tube with an ABS plastic bushing and bolted to the auger shaft with 7/8 inch bolt	ves.
0.4	and nut	,
6.5	Ther rear 3/8 inch idler plate will have two (2) two inch 4 -bolt flange bearings bolted to the plate and the 2 inch idler shafts will have	yes.
<u></u>	ABS plastic bushings and be bolted to the auger tube using 7/8 inch bolts and nuts	
6.6	Hydraulic tubing shall be stainless steel, rated along with hydraulic hose to withstand 1-½ times system operating pressure	yes.
	requirements	
	Hydraulic tubing shall be ¾ inch minimum I.D.	yes.
6.8	All tubing shall be secured to body with polymer retaining blocks	yes.
7.0	Top Grates:	yes.
7.1	One piece removable, bolt in top grates shall be provided. Grates will be designed to be retained within the board pockets front and	yes.
	rear on both sides of the body	
7.2	The grate kit will have a centered 3-1/2 inch schdule 80 beam supported front and rear with a 2 inch x 4 inch x 1/4 inch tube welded	yes.
	to the 1/4 inch formed angles that sit on the top rails of the body	
7.3	The ten corone shall be constructed of 3/9 inch rade welded to force a 3.4/2 inch assure much which is forced by a 1.5 inch	yes.
	The top screens shall be constructed of 3/8 inch rods welded to form a 2-1/2 inch square mesh which is formed by a combination of	
7.4	1/4 inch x 1-1/2 flat steel and 2 inch angle iron with the edge supports reinforced by 1/4 inch x 1 inch flat steel bars	yes.
	Top grates will be bolted to the top beam mounting brackets and be secured to prevent opening with out tools	′
8.0	Hoist:	yes.
	Double acting hoist cylinder	yes.
	Double acting hoist cylinder Hard nitride hoist cylinder surfaces	No- hard chromed- not nitrided

		ı
8.3	Inverted, trunnion mounted cylinder	yes.
8.4	s many r many a man active sections	yes.
	NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi	yes.
8.6	Cylinder total stroke of 99 inches	yes.
8.7	Hoist must be listed in the NTEA dump body hoist chart	yes.
9.0	Cab Protector:	yes.
9.1	Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body	yes.
9.2	All welding shall be continuous	yes.
9.3	End plates shall be streamlined to prevent sharp corners or edges	yes.
a.	A stainless steel grab handle shall be located on the cab protector	yes.
b.	Cab protector shall extend forward of the body a minimum of 24 inches	yes.
c.	Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body	yes.
9.4	' '	yes.
	MDOT will notify successful vendor of the proper mounting height of cab protector and stud location prior to construction	•
10.0	Fenders:	yes.
10.1	Body shall be equipped with 7 gauge type 201 stainless steel fenders	yes.
10.2	Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the	yes.
	body	
10.3	Overall length of fenders shall be 81 inches	yes.
10.4		yes.
11.0	Fenders must have factory cut holes for installation of tarp springs, to be provided by MDOT at pre construction meeting	voc
	Miscellaneous:	yes.
11.1	A grease extension kit shall be provided and installed at the front and the rear of the body	yes.
11.2	Rear grease kits shall provide lubrication to both the rear bearings and all pivot points for the tailgate linkage	yes.
11.3	Front grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot	yes.
11.4	points for the over center cam that operates the tailgate linkage	yes.
	Grease hoses shall be SAE107 Hytron hose rated at 3000 psi maximum work pressure Swing up type side ladder constructed of type 201 stainless steel shall be provided by manufacturer and shipped loose for custom	yes.
11.5	fitting by MDOT	yes.
12.0	Body Preparation:	yes.
12.1	Entire body shall be cleaned and rinsed	yes.
12.2		no- entire underside of the body is stainless
	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	steel construction. No paint is needed
42.2		
12.3		no- entire underside of the body is stainless
	Inside floor, floor, radius, and inner tailgate nanel to be primed with 4-part Enoxy primer, then top coated with a Black Poly-I Irethane.	stool construction. No paint is pooded
	Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	steel construction. No paint is needed
		steel construction. No paint is needed yes.
	paint	·
9	paint END OF SPECIFICATION Specification # 04-11SSDMP.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., Hoist and 1/2 Cab Protector	yes.
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1.0 1.1 1.2 1.3 1.4 1.5 1.6	END OF SPECIFICATION Specification # 04-11SSDMP.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., Hoist and 1/2 Cab Protector All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 44,000 GVW single axle, cab, and chassis with chassis measurements of approx. 187 inch W.B., 112 inch CA., and 187 inch C.E. Bodies will have holes pierced and studs mounted per MDOT specifications Body shall measure 132 inches long, 40 inch high front, 34 inch high sides and tailgate Body shall have inside width of 87 inches Body shall have outside width of 96 inches Capacity shall be approximately 8 cubic yards	yes. Contractor Specification Compliance Make and Model: Crysteel Select ss body with Marathon M5399 hoist yes. yes. yes. yes. Except front is 46" to accommodate hoist doghouse yes. yes. yes.
1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7	paint END OF SPECIFICATION Specification # 04-11SSDMP.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., Hoist and 1/2 Cab Protector All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 44,000 GVW single axle, cab, and chassis with chassis measurements of approx. 187 inch W.B., 112 inch CA., and 187 inch C.E. Bodies will have holes pierced and studs mounted per MDOT specifications Body shall measure 132 inches long, 40 inch high front, 34 inch high sides and tailgate Body shall have inside width of 87 inches Body shall have outside width of 96 inches Capacity shall be approximately 8 cubic yards Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered	yes. Contractor Specification Compliance Make and Model: Crysteel Select ss body with Marathon M5399 hoist yes. yes. yes. yes. Except front is 46" to accommodate hoist doghouse yes. yes. yes. yes.
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		and the said floor and an analysis and ad
	Support plates shall be installed from the rub rails to the floor:	no floor is flush - no supports needed
a.	Open at the front and rear	yes.
b.	Made of A1011 carbon steel	yes.
c.	Notched opening 31-38 inches behind the front corner posts of the body to allow access for tarp arm mounting bracket fasteners	yes.
3.8	Longsills shall have 3 inch passageway in the rear of the longitudinal for wiring	yes.
	Front Bulkhead & 1/2 Cab Shield:	
	Front bulkhead shall be constructed of 7-gauge 201 polished stainless steel with pressed in brace for rigidity	no- type 201 2B finish- not polished
4.2	Front sheet to include an enclosure for a front mounted telescopic hoist	yes.
	A hoist mounting that is in front of the body will not be acceptable	yes.
	Front of body shall have a 1-1/4 inch wiring hole placed in the lower left corner, center to be 1.875 inches from side and 2 inches up	yes.
	from lower edge	
4.5	1/2 cab shield shall be 100% welded to the front bulkhead at the factory per MDOT measurements	yes.
	1/2 cab shield shall be of 7-gauge 201 stainless steel with flat plate style reinforcements on top	yes.
4.7	Two (2) 9/16 inch holes shall be located on both sides of the cab shield, 1 and 8 inches back from the front of the cab shield, forward	yes.
4.0	hole shall be 1-3/8 inches down from top and they shall be parallel with box sides A grab handle made of 5/8 inch stainless steel rod, 20 inches long and 3 inches high, shall be welded to the cab shield and the bulk	lues .
4.8	head, diagonally	yes.
4.9		yes.
	Wiring studs 1/4 inch x 3/4 inch stainless steel threaded, shall be installed on the front bulkhead and cab shield:	,
a.		yes.
	Studs shall be placed along the left side of front bulkhead 3 inches in from the left edge of the cab shield beginning 7 inches up from	
	the bottom edge of bulkhead and proceeding vertically on 16 inch centers to the horizontal member of the cab shield. Studs shall be placed on the underside of the cab shield starting 4 inches from the rear bend towards the front of the cab shield on 16 inch centers	
	with one directly inline on front facing return	
4.10	Studs shall be placed on the front of the cab shield horizontally, the first 6 inches in from the left edge on 16 inch centers, 1-1/2	yes.
	inches down from the top bend	
5.0	Tailgate:	
5.1	Tailgate shall be double acting	yes.
5.2	Tailgate shall be fully boxed, double walled design	yes.
5.3	All horizontal surfaces shall be dirt shedding	yes.
5.4	Inner wall shall be 1/4 inch AR400 to match the strength and durability of the floor and shall be primer coated	yes exceed, AR450
5.5	Outer wall shall be 10-gauge 201 stainless steel	yes.
5.6	All tailgate hardware on body shall be 201 stainless steel	yes
5.7	Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset	yes.
5.8	Upper and lower pins shall be 1-1/4 inch 201 stainless steel	yes.
5.8 5.9		yes.
	Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable	·
5.9	Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate	yes.
5.9 5.10 5.11	Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat	yes. yes.
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5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6.11 6.12 6.13	Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrall shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, 201 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar Pillars shall be dirt shedding Two (2) 11/16 inch holes shall be located on the sloped surface of left & right rubrails, 2-1/2 inches below the breakline, 11 and 13 1/2 inches back from the rear of the front corner post Two (2) threaded wiring studs 1/4 inch x 3/4 inch stainless steel shall be located 4 inches above sloped surface of left & right rubrails, 12 and 20-3/4 inches forward of the rear corner post	yes. yes. yes. yes. yes. yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. yes. yes. yes.
5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6.11 6.12 6.13	Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder nod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall be continuous Sides shall be continuous Sides shall be fully boxed and dirt shedding Rubrall shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, 201 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar Pillars shall be dirt shedding Time (2) 11/16 inch holes shall be located on the sloped surface of left & right rubrails, 2-1/2 inches below the breakline. They shall be Ture (2) 11/16 inch holes shall be located on the sloped surface of left trubrails, 1-3/4 inch	yes. yes. yes. yes. yes. yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. yes. yes. yes.

6.15	Two (2) 9/16 inch holes shall be located on the flat portion of left rubrail, 1 inch down from the breakline, 2 and 11-¼ inches rear of	yes.
6 16	the front corner post Two (2) 9/16 inch holes shall be located on the flat portion of left & right rubrails, 2-1/2 inches below the breakline, 31-1/2 and 37-	yes.
0.10	1/4inches back from the front post	yes.
6.17	A 2 inch tarp rail shall be installed 2 inches above the horizontal side and shall extend from the back side of the of the front corner	yes.
	post to the front side of the rear corner post on each side of the body	
	The tarp rail shall include supports to the body sides located on 24 inch centers	yes.
	Both the tarp rail and the gussets shall be constructed of type 201 stainless steel	yes.
-	Holes shall be provided in both rear pillars:	yes.
a.	A 13/16 inch hole shall be located 6-3/4 inches forward of the rear of the pillar and 30-1/2 inches from the bottom of the rubrail	yes.
b.	A 5/8 inch hole shall be located 4-3/4 inches from the rear of the pillar and 30-1/2 inches from the bottom of the rubrail with a 1/2 x	yes.
	13 stainless steel nut welded on the inside of pillar	,
c.	A 1-% inch hole shall be located 6-% inches forward of the rear of the pillar and 13 inches up from the bottom of the rubrail	yes.
d.	<u> </u>	vos
u.	A 5/8 inch hole shall be located 4-% inches forward of the rear of the pillar and 13 inches from the bottom of the rubrail	yes.
e.		yes.
	A 1-1/4 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	
f.	A 5/8 inch hole shall be located 4-% inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	yes.
g.		yes.
L °	A 5/8 inch hole shall be located 3-% inches in from the rear of the pillar and ½ inch below the bottom of the rubrail	,
h.	The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light	yes.
	mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting	
-	holes shall be .125 inches and shall be 3.625 inches apart Left pillar shall have two (2) 3/8 inch holes 10 inches forward of the rear of the pillar, up 7 inches and 10-¼ inches from the bottom of	ves.
L"	the pillar	
7.0	Hoist:	yes.
7.1	Double acting hoist cylinder	yes.
7.2	Hard nitride hoist cylinder surfaces	No- hard chromed- not nitrided
	Inverted, trunnion mounted cylinder	yes.
	5 inch, 4 inch, 3 inch active sections	yes.
7.5	NTEA Class 90, rated at 27.5 tons lift capacity @ 2,500psi and 22.0 tons @ lift capacity @ 2,000psi	yes.
	Cylinder total stroke of 99 inches	yes.
7.7	Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 8 inch round stainless steel and shall be greaseable	no- hinge is 8" x 4-3/8" x 1/2" x 39"
7.8	men round stamess steer and shan be greaseable	no- top plates can be eliminated from the
	Rear body hinge top plate shall not extend rearward more than 4 inches from the centerline of the pivot pin	hinge package
	Two (2) body props shall be provided to support empty body weight	yes.
-	Hoist must be listed in the NTEA dump body hoist chart	yes.
8.0	Body Preparation:	
8.1	Entire body shall be cleaned and rinsed	yes. Except paint is 2 part epoxy
0.2	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	yes. Except paint is 2 part epoxy
8.3	Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane	yes. Except paint is 2 part epoxy
	paint	
	END OF SPECIFICATION	
	Specification # 04-11SSDMPUBH.C19 Dump Body, Stainless Steel, 8 cu. yd., 11 ft., with Under Body Hoist and 1/2 Cab Protector	
10	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	Contractor Specification Compliance
	standard features normally offered with these models	
	Referenced Make and Model: Crysteel/Select Stainless Steel or equal	Make and Model: Crysteel Select ss body
	Contractor to identify proposed make and model	with RC750 hoist
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	
	Basic Requirements:	yes.
1.1	MDOT will install this dump box on a 44,000 GVW single axle, cab, and chassis with chassis measurements of approx. 187 inch W.B., 112 inch CA., and 187 inch C.E.	yes.
1.2	Bodies will have holes pierced and studs mounted per MDOT specifications	yes.
	Body shall measure 132 inches long, 40 inch high front, 34 inch high sides and tailgate	yes.
	Body shall have inside width of 87 inches	yes.
1.5	Body shall have outside width of 96 inches	yes.
1.6	Capacity shall be approximately 8 cubic yards	yes.
1.7	Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or	yes.
1.0	Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions	ves
2.0	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered Floor:	yes.
2.1	FIUUI.	yes. Exceed- floor is AR450,175000 yeild,
	Floor shall be constructed of 1/4 inch AR400 plate steel, 180,000 PSI tensile strength and yield of 145,000 PSI	205000 tensile
2.2	Floor shall have 9 inch radius wings of 1/4 inch A1011 carbon steel at sides only	yes.
3.0	Understructure:	yes.
3.0		,

		Luca
	All welding shall be continuous	yes.
	Fabricated longsills shall be of 1/4 inch CQ carbon steel inner panels and 1/4 inch CQ carbon steel outer panels	no- 10" I beam western understructure
	Interior of longsills shall be coated with rust inhibitor coating at factory	yes.
3.5	Rear rub rail shall be full width, fabricated design, 7-gauge 201 stainless steel, Channel style rear aprons are not acceptable	yes
3.6		yes.
	Wiring tie down loop of 1/4 inch steel rod shall be installed on the underside of the floor, 3 inches in from the inside of the longsills	
	and 3-1/4 inches forward of the rear rubrail and extend the entire length of the underside of the floor Support plates shall be installed from the rub rails to the floor:	yes.
		,
	Open at the front and rear	yes.
	Made of A1011 carbon steel	yes.
c.	Notched opening 31-38 inches behind the front corner posts of the body to allow access for tarp arm mounting bracket fasteners	yes.
3.8	Longsills shall have 3 inch passageway in the rear of the longitudinal for wiring	yes.
	Front Bulkhead & 1/2 Cab Shield:	yes.
4.1	Front bulkhead shall be constructed of 7-gauge 201 polished stainless steel with pressed in brace for rigidity	no- type 201 2B finish- not polished
4.2	Front of body shall have a 1-1/4 inch wiring hole placed in the lower left corner, center to be 1.875 inches from side and 2 inches up	yes.
	from lower edge	
	1/2 cab shield shall be 100% welded to the front bulkhead at the factory per MDOT measurements	yes.
	1/2 cab shield shall be of 7-gauge 201 stainless steel with flat plate style reinforcements on top	yes.
	Two (2) 9/16 inch holes shall be located on both sides of the cab shield, 1 and 8 inches back from the front of the cab shield, forward	yes.
	hole shall be 1-3/8 inches down from top and they shall be parallel with box sides A grab handle made of 5/8 inch stainless steel rod, 20 inches long and 3 inches high, shall be welded to the cab shield and the bulk	ves.
	head, diagonally	ycs.
4.7	Wiring studs 1/4 inch x 3/4 inch stainless steel threaded, shall be installed on the front bulkhead and cab shield:	yes.
a.		yes.
	Studs shall be placed along the left side of front bulkhead 3 inches in from the left edge of the cab shield beginning 7 inches up from	
	the bottom edge of bulkhead and proceeding vertically on 16 inch centers to the horizontal member of the cab shield. Studs shall be	
	placed on the underside of the cab shield starting 4 inches from the rear bend towards the front of the cab shield on 16 inch centers with one directly inline on front facing return	
	Studs shall be placed on the front of the cab shield horizontally, the first 6 inches in from the left edge on 16 inch centers, 1-1/2	yes.
	inches down from the top bend	-
5.0	Tailgate:	
5.1	Tailgate shall be double acting	yes.
	Tailgate shall be fully boxed, double walled design	yes.
5.3	All horizontal surfaces shall be dirt shedding	yes.
	Inner wall shall be 1/4 inch AR400 to match the strength and durability of the floor and shall be primer coated	yes exceed, AR450
5.5	Outer wall shall be 10-gauge 201 stainless steel	yes.
	All tailgate hardware on body shall be 201 stainless steel	yes
	Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset	yes.
	Upper and lower pins shall be 1-1/4 inch 201 stainless steel	yes.
5.9	All tailgate hinges shall be greaseable	yes.
5.10	A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate	yes.
5.11	Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat	yes.
	Chain shall be removable, 3/8 inch, high tensile plated type	
	CHAIL SHALLOE LETHOVADIE. 270 IDCH. DISH FEISHE DIATED IVOR	ves
5.12		yes ves
	5/8 inch 201 stainless steel lift loop shall be welded on the outside	yes.
5.14	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated	yes.
5.14 5.15	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility	yes.
5.14 5.15 5.16	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated	yes.
5.14 5.15 5.16 5.17	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service	yes. yes. no- Zerk is located inside rear corner post
5.14 5.15 5.16 5.17 5.18	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum	yes. yes. no- Zerk is located inside rear corner post yes.
5.14 5.15 5.16 5.17 5.18 5.19	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel	yes. yes. no- Zerk is located inside rear corner post yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B yes. yes. yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side One integral break-formed strengthening brace per side	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B yes. yes. yes. yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, radiused, 201 stainless steel	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B yes. yes. yes. yes. yes. yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, 201 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B yes. yes. yes. yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, radiused, 201 stainless steel Rear pillars shall be full-depth, 201 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar Pillars shall be dirt shedding	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B yes. yes. yes. yes. yes. yes. yes.
5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6.11	5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, 201 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar	yes. yes. no- Zerk is located inside rear corner post yes. yes. yes. yes. yes. no- finish is not polished- 201 stainless steel type 2B yes. yes. yes. yes. yes. yes. yes. yes.

6.12	Two (2) threaded wiring studs 1/4 inch x 3/4 inch stainless steel shall be located 4 inches above sloped surface of left & right rubrails,	yes.
6 13	12 and 20-3/4 inches forward of the rear corner post Three (3) 1-1/2 inch holes shall be located on the sloped surface of the left rub rail, 1-3/4 inches below the break line. They shall be	ves.
0.13	2, 4-1/2 and 7 inches forward of the rear corner post	yes.
6.14	Two (2) 1-½ inch holes shall be located on the sloped surface of right rubrail, 1-¾ inches below the breakline. They shall be 2 and 4-½	yes.
	inches forward of the rear corner post	
	Two (2) 9/16 inch holes shall be located on the flat portion of left rubrail, 1 inch down from the breakline, 2 and 11-¼ inches rear of the front corner post	yes.
	Two (2) 9/16 inch holes shall be located on the flat portion of left & right rubrails, 2-1/2 inches below the breakline, 31-1/2 and 37-	ves.
	1/4inches back from the front post	,
	A 2 inch tarp rail shall be installed 2 inches above the horizontal side and shall extend from the back side of the of the front corner	yes.
	post to the front side of the rear corner post on each side of the body	voc.
	The tarp rail shall include supports to the body sides located on 24 inch centers Both the tarp rail and the gussets shall be constructed of type 201 stainless steel	yes.
-	Holes shall be provided in both rear pillars:	yes.
a.	The state of the s	yes.
	A 13/16 inch hole shall be located 6-3/4 inches forward of the rear of the pillar and 30-1/2 inches from the bottom of the rubrail	,
b.		yes.
<u></u>	13 stainless steel nut welded on the inside of pillar	yes.
c.	A 1-¼ inch hole shall be located 6-¾ inches forward of the rear of the pillar and 13 inches up from the bottom of the rubrail	yes.
d.	A 5/8 inch hole shall be located 4-% inches forward of the rear of the pillar and 13 inches from the bottom of the rubrail	yes.
	25 menes non the bottom of the rustial	
e.	A 1-1/4 inch hole shall be located 6-% inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	yes.
f.		yes.
<u> </u>	A 5/8 inch hole shall be located 4-% inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	
g.	A 5/8 inch hole shall be located 3-% inches in from the rear of the pillar and ½ inch below the bottom of the rubrail	yes.
h.	The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light	yes.
	mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting	
	holes shall be .125 inches and shall be 3.625 inches apart	
	Left pillar shall have two (2) 3/8 inch holes 10 inches forward of the rear of the pillar, up 7 inches and 10-¼ inches from the bottom of the pillar	yes.
	Hoist:	
	Hoist shall be Crysteel Roller Combo Model # RC 750 or approved equal	yes.
	Hoist shall be NTEA Performance Class 50 NTEA Type VII	yes
7.3	Hoist shall have two, double acting, single stage cylinders	yes.
7.4	Cylinder bore shall be 7 inches	yes.
7.5	Cylinder shaft diameter shall be 2-1/4 inches	yes.
7.6	Cylinder stroke shall be 21-5/8 inches	yes.
7.7	Cylinder shaft shall be nitrite SW85 steel with 85,000psi yield strength	yes.
7.8	Cylinders shall have maximum operating pressure of 2,200psi with internal bypass to protect cylinder from damage	yes.
7.9	Cylinder base (raise) port size shall be SAE-12 (7/8-14)	yes.
	Rod port (lower) shall be SAE-8 (3/4-16)	yes.
	Cylinder Displacement:	yes.
	Up shall be 832.2 cubic inches	yes.
	Down shall be 746.5.4 cubic inches	yes.
	Load capacity shall be 15.3 tons @ 50° dump angle	yes
	Hoist shall have 13-3/4 inch mounting height	yes.
7.14	Hoist shall have "Roller Combo" design with the initial lift point ahead of the center line of the body, directing the force of the hoist	yes.
7 15	cylinder upwards for more breakaway power before transferring it to a scissors action	yes.
1 ,.13		
	Greaseless composite bearings shall be provided at all critical pivot points	<i>'</i>
7.16	Hoist shall have full length sub-frame that is the same length as the dump body	yes.
7.16 7.17	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength	,
7.16 7.17	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and	yes.
7.16 7.17 7.18	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks	yes. yes.
7.16 7.17 7.18 7.19	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks	yes. yes. no- hinge is 8" x 4-3/8" x 1/2" x 39" pin is 2-
7.16 7.17 7.18 7.19	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks Rear hinge shall be fabricated with structural steel angle that is 5 inch x 3 inch x 3/8 inch x 36-1/2 inch	yes. yes.
7.16 7.17 7.18 7.19 7.20	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks	yes. yes. yes. no- hinge is 8" x 4-3/8" x 1/2" x 39" pin is 2- 1/4" x 8" long
7.16 7.17 7.18 7.19 7.20 7.21	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks Rear hinge shall be fabricated with structural steel angle that is 5 inch x 3 inch x 3/8 inch x 36-1/2 inch Hinge pins shall be 1-3/4 inch x 5-13/16 inch round stainless steel with greaseless composite bearings	yes. yes. yes. no- hinge is 8" x 4-3/8" x 1/2" x 39" pin is 2- 1/4" x 8" long no
7.16 7.17 7.18 7.19 7.20 7.21 7.22	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks Rear hinge shall be fabricated with structural steel angle that is 5 inch x 3 inch x 3/8 inch x 36-1/2 inch Hinge pins shall be 1-3/4 inch x 5-13/16 inch round stainless steel with greaseless composite bearings Two (2) body props shall be provided to support empty body weight	yes. yes. no- hinge is 8" x 4-3/8" x 1/2" x 39" pin is 2- 1/4" x 8" long no yes.
7.16 7.17 7.18 7.19 7.20 7.21 7.22 8.0 8.1	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks Rear hinge shall be fabricated with structural steel angle that is 5 inch x 3 inch x 3/8 inch x 36-1/2 inch Hinge pins shall be 1-3/4 inch x 5-13/16 inch round stainless steel with greaseless composite bearings Two (2) body props shall be provided to support empty body weight Hoist must be listed in the NTEA dump body hoist chart	yes. yes. no- hinge is 8" x 4-3/8" x 1/2" x 39" pin is 2-1/4" x 8" long no yes. yes.
7.16 7.17 7.18 7.19 7.20 7.21 7.22 8.0 8.1	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks Rear hinge shall be fabricated with structural steel angle that is 5 inch x 3 inch x 3/8 inch x 36-1/2 inch Hinge pins shall be 1-3/4 inch x 5-13/16 inch round stainless steel with greaseless composite bearings Two (2) body props shall be provided to support empty body weight Hoist must be listed in the NTEA dump body hoist chart Body Preparation:	yes. yes. no- hinge is 8" x 4-3/8" x 1/2" x 39" pin is 2- 1/4" x 8" long no yes. yes.
7.16 7.17 7.18 7.19 7.20 7.21 7.22 8.0 8.1	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks Rear hinge shall be fabricated with structural steel angle that is 5 inch x 3 inch x 3/8 inch x 36-1/2 inch Hinge pins shall be 1-3/4 inch x 5-13/16 inch round stainless steel with greaseless composite bearings Two (2) body props shall be provided to support empty body weight Hoist must be listed in the NTEA dump body hoist chart Body Preparation: Entire body shall be cleaned and rinsed Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	yes. yes. no- hinge is 8" x 4-3/8" x 1/2" x 39" pin is 2- 1/4" x 8" long no yes. yes. yes. yes. yes. Except paint is 2 part epoxy
7.16 7.17 7.18 7.19 7.20 7.21 7.22 8.0 8.1	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks Rear hinge shall be fabricated with structural steel angle that is 5 inch x 3 inch x 3/8 inch x 36-1/2 inch Hinge pins shall be 1-3/4 inch x 5-13/16 inch round stainless steel with greaseless composite bearings Two (2) body props shall be provided to support empty body weight Hoist must be listed in the NTEA dump body hoist chart Body Preparation: Entire body shall be cleaned and rinsed	yes. yes. no- hinge is 8" x 4-3/8" x 1/2" x 39" pin is 2-1/4" x 8" long no yes. yes.
7.16 7.17 7.18 7.19 7.20 7.21 7.22 8.0 8.1 8.2	Hoist shall have full length sub-frame that is the same length as the dump body Sub-frame shall have 4-3/4 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and have Four (4) grease zerks Rear hinge shall be fabricated with structural steel angle that is 5 inch x 3 inch x 3/8 inch x 36-1/2 inch Hinge pins shall be 1-3/4 inch x 5-13/16 inch round stainless steel with greaseless composite bearings Two (2) body props shall be provided to support empty body weight Hoist must be listed in the NTEA dump body hoist chart Body Preparation: Entire body shall be cleaned and rinsed Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane	yes. yes. no- hinge is 8" x 4-3/8" x 1/2" x 39" pin is 2- 1/4" x 8" long no yes. yes. yes. yes. yes. Except paint is 2 part epoxy

	Specification # 04-14CBBDY.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Rear Discharge and	
11	Distribution Systems	Contractor Specification Compliance
	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	
	Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent.	Make and Model: Monroe model DVS168-
	Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	96-56/201 rear discharge 00188377-C
	Basic Requirements:	yes.
	MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch	yes.
	W.B., 136 inch CA., and 192 inch C.E.	
	14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor.	yes.
1.3	type 201 stainless steer body, dump noist, disendinge/need conveyor.	yes.
	Body shall have an approximate struck capacity of 10 cu/yd minimum for rear discharge without removable side boards	
	Bodies will have holes pierced and wire tie studs mounted per MDOT specifications MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered	yes.
	Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or	yes.
	Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions	, cs.
	All lighting shall be provided by MDOT	yes.
	Body:	yes.
	Bodies shall be of type 201 stainless steel construction	yes.
	Overall height above truck frame shall not exceed 55 inches without cab shield Top inside width of body shall be approximately 89 inches and outside width shall not exceed 96 inches	yes.
	Top of floor to the top of the side wall shall be approximately 44 inches	yes.
2.5	Top or noon to the top of the side wan shan be approximately 44 mones	yes.
	Body shall be rigidly constructed with a boxed top rail construction of 7 gauge type 201 stainless steel, 5 inch height x 4 inch depth	
	Sides shall include vertical channel type ribs, approximately 4 inches wide x 2 inches deep constructed of 7 gauge type 201 stainless steel, spaced on 36 inch centers minimum	yes.
	Body longitudinal shall be constructed of ¼ inch type 201 stainless steel with minimum 12 inch height and include two (2) 3 inch ID	ves.
	cross over tubes for installation of hydraulic hoses and wiring	,
	Rear of body longsills must be slotted to facilitate removal of drive system	yes.
	Drive system including gearboxes, drive shaft, sprockets and bearings, must be removable as an assembly	yes.
	Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 8 inch round stainless steel and shall be greaseable	yes.
	Rear body hinge top plate shall not extend rearward more than 4 inches from the centerline of the pivot pin	yes.
2.12	A 1.25 inch x ¼ inch, 201 stainless steel flat stock tarp tie rail, welded to side braces, full length of body	yes.
2.13	Tarp tie rail shall be installed just below the 45° break on the side braces	yes.
	Two (2) body props shall be provided to support empty body weight	yes.
2.15	Body floor shall be 1/4inch 201 stainless steel and shall be bolted in with 1 inch welds at all four corners, and be supported by 7	yes.
	gauge 3 inch x 3 inch cross angles located on 12 inch centers, and shall have rear "roller" lip with wiper belt	
2.16	Body longitudinal shall be supported under chain by 4 inch formed cross members on 24 inch centers	yes.
	All channel supports under the floor shall be constructed of ¼ inch type 201 stainless steel	yes.
2.18	Return angle on the longitudinal shall be 4-1/2 inch boxed type for additional support and any retention of material	yes.
	All joints on body shall be continuous welded	yes.
	Four (4) covered access openings shall be provided below the body interior on the rear facing panel:	yes.
a.	For accessing the rear gear boxes for maintenance	yes.
	For installation of rear attachments/accessories	yes.
	Two (2) covered access openings shall be provided on the forward facing panel of the rear corner post	yes.
	Rear of body shall be flat to allow installation of MDOT approved accessories	yes.
	Rear corner posts shall be boxed in and drilled and tapped to accept MDOT rear lighting arrangement Both rear side posts shall have one (1) 1-1/2 inch hole, two (2) 1-¾ inch holes, one (1) 13/16 inch hole and four (4) 9/16 inch holes	yes.
2.24	Both rear side posts shall have one (1) 1-1/2 inch noie, two (2) 1-% inch noies, one (1) 13/16 inch noie and four (4) 9/16 inch noies with ½ inch stainless steel nuts welded to the backside	yes.
	The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light	yes.
	mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting	
	holes shall be .125 inches and shall be 3.625 inches apart Body sides shall be 45° sloped	yes.
	Additional wire/cable retention studs shall be installed, per MDOT specifications	yes.
	Head Sheet:	yes.
	Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back	yes.
	Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of	yes.
2 2	the body, 100% welded on the inside and outside	Ves
	Front sheet to include an enclosure for a front mounted telescopic hoist Cylinders mounted forward of the front of the body will NOT be acceptable	yes.
	Cylinders mounted forward of the front of the body will NOT be acceptable Front shall be at least 6 inches higher than the sides	yes.
	All horizontal surfaces shall be dirt shedding	yes.
	All bolts used shall be stainless steel	yes.
	All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader	yes.
	Body shall include all items needed to be fully operational	Yes

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3.10	All items which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and	yes.
	workmanship to best commercial practice	
	Conveyor:	yes.
4.1	Conveyer shall be girtle shair type gypning lengitudically with the heading material to the binged year and gate energing	yes.
4.2	Conveyor shall be pintle chain type running longitudinally with the body feeding material to the hinged rear end-gate opening	yes.
	Conveyor shall not extend past the vertical tailgate	,
	Overall conveyor width shall be 34 inches minimum	yes.
4.4	Conveyor chain shall be heat-treated 2-¼ inch pitch pintle type with .224 inch link thickness, 15/32 inch pin diameter and have a	yes.
4.5	26,000 pound minimum average tensile strength, manufactured in the USA	yes.
	Cross bars ½ inch x 1-½ inch shall be positioned on approximately 2-¼ inch centers and welded on both the top and bottom of the bar	yes.
4.6		yes.
	Eight toothed, case hardened to 40-48 Rc, self-cleaning drive sprockets shall be keyed to the 2 inch drive and idler shafts	
4.7	Conveyor drive shaft shall have heavy duty, dust sealed self-aligning four bolt flange bearings	yes.
4.8	Heavy duty idler assembly with side rail style adjusters and 1-¼ inch adjusting bolt shall provide 9 inches of adjustment for proper	yes.
	conveyor chain tension	
5.0	Tailgate:	yes.
5.1	Tailgate shall be minimum of 6 inches higher than sides of body	yes.
	Tailgate shall be manufactured of minimum 3/16 inch, type 201 stainless steel with, 5 panel, boxed perimeter of 3 inch formed	yes.
	channel	
5.3	Tailgate shall have a 3 inch x 3 inch D-ring welded to the top center of tailgate	yes.
5.4	Tailgate shall be double acting with squared perimeter and two (2) horizontal braces of 3/16 inch material the full width of the	yes.
	tailgate	
5.5	Hanny and lawyy deploy platted shall be appear shall be 200 estimated with wife to the first term of the control of the contro	yes.
F.C	Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat	ves
-	Chain shall be removable, 3/8 inch, high tensile plated type	yes.
	5/8 inch 201 stainless steel lift loop shall be welded on the outside	yes.
5.8	Tailanta shall be as a 5 /0 is ab at interested to a minimum 7 is ab ania benedle beat of in the law splittle and assess	yes.
F 0	Tailgate shall have a 5/8 inch stainless rod by a minimum 7 inch grip handle located in the lower left hand corner Material door shall extend 16 inches into the interior of the body to prevent material from escaping through the partially opened	luos .
3.9	door over the conveyor	yes.
5.10	additional disconnection	yes.
	An adjustable discharge gate or door with an opening of at least 21 inches x 8-½ inches of a minimum of ¼ inch thick with a heavy	,
	duty screw-type operated adjustment mechanism on passenger's side and at bottom edge of tailgate	
5.11	Feedgate must have infinite positions and include ruler to indicate gate opening height	yes.
5.12	Tailgate shall have 1 inch x 4 inch bar stock tailgate hardware with 1-¼ inch hardened pins	yes.
	Tailgate latches shall be 1 inch flame cut with each latch being adjustable, over center type	yes.
5.14	Tailgate latches shall be air operated	yes.
5.15	Air cylinder must provide power latch and power release, spring assist latching systems are not acceptable	yes.
	Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service	yes.
5.17		yes.
	Air cylinder housing shall be aluminum	yes.
	Air cylinder rod shall be stainless steel	
	Cylinder kits shall fit the existing brackets body without modification	yes
	Power Drive and Controls:	yes.
6.1	Two (2) high torque, variable speed 6:1 gearboxes and hydraulic motors with ground speed sensor having 100 pulses/revolution	yes.
6.2	capability on one of the gearboxes shall be provided	yes.
	Sensor shall be a Hall Effect speed type	<i>'</i>
	Rear discharge bodies shall have drive located at the rear of the conveyor	yes.
6.4	Hydraulic drive shall include two (2) geroler-type, high-torque, low speed hydraulic motors 12.1 CID, integrally mounted to the	yes.
6.5	conveyor gear cases Hydraulic tubing shall be stainless steel, rated along with hydraulic hose to withstand 1-½ times system operating pressure	No hydraulic tubing is required for a rear
"	requirements	discharge unit
6.6	Hydraulic tubing shall be ¾ inch minimum I.D.	yes.
	All tubing shall be secured to body with polymer retaining blocks	yes.
	Hoist:	yes.
	Double acting hoist cylinder	yes.
7.2	Doddie deting noist cynnice	No. Cylinder is hard chromed- not nitrated
'.2	Hard nitride hoist cylinder surfaces	Symbol is hard chromou- not intrated
7.3	Inverted, trunnion mounted cylinder	yes.
	5 inch, 4 inch, 3 inch active sections	yes.
	NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi	yes.
	Cylinder total stroke of 138 inches	yes.
-		yes.
-	Hoist must be listed in the NTEA dump body hoist chart	<i>'</i>
	Cab Protector:	yes.
	Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body	yes.
	All welding shall be continuous	yes.
8.3	End plates shall be streamlined to prevent sharp corners or edges	yes.
a.	A stainless steel grab handle shall be located on the cab protector	yes.
b.	Cab protector shall extend forward of the body a minimum of 24 inches	yes.
c.	Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body	yes.
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8.4	AND THE RESERVE OF THE SECOND	yes.
	MDOT will notify successful vendor of the proper mounting height of cab protector and stud location prior to construction	
	Fenders:	yes.
	Body shall be equipped with 7 gauge type 201 stainless steel fenders	yes.
9.2	Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body	yes.
9.3	· ·	yes.
9.4	Overall length of fenders shall be 108 inches	<u>'</u>
3.4	Fenders must have factory cut holes for installation of tarp springs, to be provided by MDOT at pre construction meeting	yes.
10.0	Miscellaneous:	yes.
	A grease extension kit shall be provided and installed at the front and the rear of the body	yes.
H	Rear grease kits shall provide lubrication to both the rear bearings and all pivot points for the tailgate linkage	yes.
	Front grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot	yes.
10.5	points for the over center cam that operates the tailgate linkage	yes.
10.4	Grease hoses shall be SAE107 Hytron hose rated at 3000 psi maximum work pressure	yes.
10.5	Swing up type side ladder constructed of type 201 stainless steel shall be provided by manufacturer and shipped loose for custom	yes.
	fitting by MDOT	
11.0	Body Preparation:	yes.
11.1	Entire body shall be cleaned and rinsed	yes.
11.2		no- entire underside of the body is stainless
	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	steel construction. No paint is needed
11.3	Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane	no- entire underside of the body is stainless steel construction. No paint is needed
<u> </u>	paint	
	END OF SPECIFICATION Specification # 04 14CBBDVDA C10 14 ft Combination 45 degree Stand Side Dump and Spreader Body, Dual August Heist Book	
	Specification # 04-14CBBDYDA.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Dual Auger, Hoist, Rear Discharge and Distribution Systems	
12	Sistematical Systems	Contractor Specification Compliance
	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	р
	standard features normally offered with these models	
	Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent.	Make and Model: Monroe DVS168-96-
	Contractor to identify proposed make and model	56/201/DA part no 00182934-C
1.0	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	lues .
	Basic Requirements:	yes.
1.1	MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E.	yes.
1.2	W.B., 136 Inch CA., and 192 Inch C.E. 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor.	yes.
1.3		yes.
1 /	Body shall have an approximate struck capacity of 10 cu/yd minimum for rear discharge without removable side boards Bodies will have holes pierced and wire tie studs mounted per MDOT specifications	
		VES
	·	yes.
1.5	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered	yes.
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1.5 1.6 1.7 2.0	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions All lighting shall be provided by MDOT Body:	yes. yes. yes. yes.
1.5 1.6 1.7 2.0 2.1	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions All lighting shall be provided by MDOT Body: Bodies shall be of type 201 stainless steel construction	yes. yes. yes. yes. yes.
1.5 1.6 1.7 2.0 2.1 2.2	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions All lighting shall be provided by MDOT Body: Bodies shall be of type 201 stainless steel construction Overall height above truck frame shall not exceed 55 inches without cab shield	yes. yes. yes. yes. yes. yes.
1.5 1.6 1.7 2.0 2.1 2.2 2.3	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions All lighting shall be provided by MDOT Body: Bodies shall be of type 201 stainless steel construction Overall height above truck frame shall not exceed 55 inches without cab shield Top inside width of body shall be approximately 89 inches and outside width shall not exceed 96 inches	yes. yes. yes. yes. yes. yes. yes. yes.
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1.5 1.6 1.7 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions All lighting shall be provided by MDOT Body: Bodies shall be of type 201 stainless steel construction Overall height above truck frame shall not exceed 55 inches without cab shield Top inside width of body shall be approximately 89 inches and outside width shall not exceed 96 inches Top of trough to the top of the side wall shall be approximately 44 inches Body shall be rigidly constructed with a boxed top rail construction of 7 gauge type 201 stainless steel, 5 inch height x 4 inch depth Sides shall include vertical channel type ribs, approximately 4 inches wide x 2 inches deep constructed of 7 gauge type 201 stainless steel, spaced on 36 inch centers minimum Body longitudinal shall be constructed of ½ inch type 201 stainless steel with minimum 12 inch height and include two (2) 3 inch ID cross over tubes for installation of hydraulic hoses and wiring Rear of body longsills must be slotted to facilitate removal of drive system Drive system including gearboxes must be removable as an assembly Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 8	yes. yes. yes. yes. yes. yes. yes. yes.
1.5 1.6 1.7 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9	MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions All lighting shall be provided by MDOT Body: Bodies shall be of type 201 stainless steel construction Overall height above truck frame shall not exceed 55 inches without cab shield Top inside width of body shall be approximately 89 inches and outside width shall not exceed 96 inches Top of trough to the top of the side wall shall be approximately 44 inches Body shall be rigidly constructed with a boxed top rail construction of 7 gauge type 201 stainless steel, 5 inch height x 4 inch depth Sides shall include vertical channel type ribs, approximately 4 inches wide x 2 inches deep constructed of 7 gauge type 201 stainless steel, spaced on 36 inch centers minimum Body longitudinal shall be constructed of ¼ inch type 201 stainless steel with minimum 12 inch height and include two (2) 3 inch ID cross over tubes for installation of hydraulic hoses and wiring Rear of body longsills must be slotted to facilitate removal of drive system Drive system including gearboxes must be removable as an assembly Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 8 inch round stainless steel and shall be greaseable	yes. yes. yes. yes. yes. yes. yes. yes.
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2.18		
1	Datum and an the length dine shall be 4.1/ inch haved two few additional assessment and any extention of material	yes.
2 10	Return angle on the longitudinal shall be 4-½ inch boxed type for additional support and any retention of material	yes.
	All joints on body shall be continuous welded	no- not needed on dual auger system
2.21	Two (2) covered access openings shall be provided below the body interior on the rear facing corner panel	yes.
	Two (2) covered access openings shall be provided on the forward facing panel of the rear corner post	yes.
b.	For accessing the rear linkage and wiring for maintenance	•
	For installation of rear attachments/accessories	yes.
	Rear of body shall be flat to allow installation of MDOT approved accessories	yes.
	Rear corner posts shall be boxed in and drilled and tapped to accept MDOT rear lighting arrangement Both rear side posts shall have one (1) 1-1/2 inch hole, two (2) 1-¼ inch holes, one (1) 13/16 inch hole and four (4) 9/16 inch holes	ves.
2.24	with ½ inch stainless steel nuts welded to the backside	yes.
2.25	The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light	yes.
	mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting	
	holes shall be .125 inches and shall be 3.625 inches apart	
	Body sides shall be 45° sloped	yes.
	radicional wile, educe recention stade shall be instance, per mis or specifications	yes
	Head Sheet:	yes.
	Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back	yes.
3.2	Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of the body, 100% welded on the inside and outside	yes.
3.3	Front sheet to include an enclosure for a front mounted telescopic hoist	yes.
3.4	Cylinders mounted forward of the front of the body will NOT be acceptable	yes.
3.5	Front shall be at least 6 inches higher than the sides	yes.
3.6	All horizontal surfaces shall be dirt shedding	yes.
3.7	All bolts used shall be stainless steel	ves.
3.8	All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader	yes.
3.9		ves
	All items which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and	•
3.10	workmanship to best commercial practice	yes.
4.0	Conveyor:	yes.
4.1		yes.
	Conveyor shall be dual 7 inch OD augers running longitudinally with the body feeding material to the rear discharge ramp opening	
4.2	Conveyor shall not extend past the vertical tailgate	yes.
	Overall conveyor trough width shall be approximately 34 inches	no- dual auger trough
4.4	Bolt in conveyor trough shall have 37 degree sloped out sides and an intergral 8 inch high centered inverted "V" to separate the augers and shall be 1/4 inch type 201 stainless steel	yes.
4.5	The dual auger drive system will be bolted to the 3/8 inch gearbox mounting plate that is welded to the front of the long member	yes.
	weldment	7
4.6		yes.
	Counter rotating, hard surfaced 7 inch OD augers with 1/2 inch progessive flighting with 4-1/2 inch pitch, 6-1/2 inch pitch and 8-3/4	
5.0	inch pitch welded to schedule 80, 3-1/2 inch pipe. One auger with right hand helical and one auger with left hand helical flighting Tailgate:	VAC
	-	yes.
	Tailgate shall be minimum of 6 inches higher than sides of body Tailgate shall be manufactured of minimum 3/16 inch, type 201 stainless steel with, 5 panel, boxed perimeter of 3 inch formed	yes.
3.2	channel	yes.
5.3	Tailgate shall have a 3 inch x 3 inch D-ring welded to the top center of tailgate	yes.
	Tailgate shall be double acting with squared perimeter and two (2) horizontal braces of 3/16 inch material the full width of the	yes.
	tailgate	
5.5	Hanner and lawar daglag clatted chain koonare chall be 201 stainless steel with sufficient alots of the last distribute fit.	yes.
i	Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat	
5.6	Chain shall be removable 3/8 inch, high tensile plated type	ves
	Chain shall be removable, 3/8 inch, high tensile plated type	yes ves.
5.7	Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside	yes.
		•
5.7 5.8	5/8 inch 201 stainless steel lift loop shall be welded on the outside Tailgate shall have a 5/8 inch stainless rod by a minimum 7 inch grip handle located in the lower left hand corner	yes.
5.7 5.8	5/8 inch 201 stainless steel lift loop shall be welded on the outside	yes.
5.7 5.8 5.9	5/8 inch 201 stainless steel lift loop shall be welded on the outside Tailgate shall have a 5/8 inch stainless rod by a minimum 7 inch grip handle located in the lower left hand corner Tailgate shall have 1 inch x 4 inch bar stock tailgate hardware with 1-¼ inch hardened pins	yes. yes.
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5.7 5.8 5.9 5.10 5.11 5.12	5/8 inch 201 stainless steel lift loop shall be welded on the outside Tailgate shall have a 5/8 inch stainless rod by a minimum 7 inch grip handle located in the lower left hand corner Tailgate shall have 1 inch x 4 inch bar stock tailgate hardware with 1-¼ inch hardened pins Tailgate latches shall be 1 inch flame cut with each latch being adjustable, over center type Tailgate latches shall be air operated Air cylinder must provide power latch and power release, spring assist latching systems are not acceptable	yes. yes. yes. yes. yes. yes.
5.7 5.8 5.9 5.10 5.11 5.12 5.13	5/8 inch 201 stainless steel lift loop shall be welded on the outside Tailgate shall have a 5/8 inch stainless rod by a minimum 7 inch grip handle located in the lower left hand corner Tailgate shall have 1 inch x 4 inch bar stock tailgate hardware with 1-½ inch hardened pins Tailgate latches shall be 1 inch flame cut with each latch being adjustable, over center type Tailgate latches shall be air operated Air cylinder must provide power latch and power release, spring assist latching systems are not acceptable Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service	yes. yes. yes. yes. yes. yes. yes. yes.
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 6.6 Hydraulic tubing shall be stainless steel, rated along with hydraulic hose to withstand 1-½ times system operating pressure requirements 6.7 Hydraulic tubing shall be ¾ inch minimum I.D. 6.8 All tubing shall be secured to body with polymer retaining blocks 7.0 Top Grates: 7.1 One piece removable, bolt in top grates shall be provided. Grates will be designed to be retained within the board pockets front and rear on both sides of the body 7.2 The grate kit will have a centered 3-1/2 inch schdule 80 beam supported front and rear with a 2 inch x 4 inch x 1/4 inch tube welded to the 1/4 inch formed angles that sit on the top rails of the body 	· ·
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rear on both sides of the body 7.2 The grate kit will have a centered 3-1/2 inch schdule 80 beam supported front and rear with a 2 inch x 4 inch x 1/4 inch tube welded to the 1/4 inch formed angles that sit on the top rails of the body	
to the 1/4 inch formed angles that sit on the top rails of the body	
7.3 The top screens shall be constructed of 3/8 inch rods welded to form a 2-1/2 inch square mesh which is formed by a combination of 1/4 inch x 1-1/2 flat steel and 2 inch angle iron with the edge supports reinforced by1/4 inch x 1 inch flat steel bars	
7.4 Top grates will be bolted to the top beam mounting brackets and be secured to prevent opening with out tools	
8.0 Hoist: yes.	
8.1 Double acting hoist cylinder yes.	
	romed- not nitrided
8.3 Inverted, trunnion mounted cylinder yes.	
8.4 5 inch, 4 inch, 3 inch active sections yes.	
The first states are self-tens interespending expension of the supposition of the supposi	
8.6 Cylinder total stroke of 138 inches	
8.7 Hoist must be listed in the NTEA dump body hoist chart yes.	
9.0 Cab Protector: yes.	
9.1 Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body yes.	
9.2 All welding shall be continuous yes.	
9.3 End plates shall be streamlined to prevent sharp corners or edges yes.	
a. A stainless steel grab handle shall be located on the cab protector yes.	
b. Cab protector shall extend forward of the body a minimum of 24 inches yes.	
c. Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body yes.	
9.4 yes.	
MDOT will notify successful vendor of the proper mounting height of cab protector and stud location prior to construction	
10.0 Fenders: yes.	
10.1 Body shall be equipped with 7 gauge type 201 stainless steel fenders yes.	-
10.2 Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the yes.	
body	
10.3 Overall length of fenders shall be 108 inches	
10.4 yes.	
Fenders must have factory cut holes for installation of tarp springs, to be provided by MDOT at pre construction meeting	
11.0 Miscellaneous: yes.	
11.1 A grease extension kit shall be provided and installed at the front and the rear of the body	
11.2 Rear grease kits shall provide lubrication to both the rear bearings and all pivot points for the tailgate linkage yes.	
11.3 Front grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot yes.	
points for the over center cam that operates the tailgate linkage	
11.4 Grease hoses shall be SAE107 Hytron hose rated at 3000 psi maximum work pressure	
11.5 Swing up type side ladder constructed of type 201 stainless steel shall be provided by manufacturer and shipped loose for custom yes.	
fitting by MDOT	
12.0 Body Preparation: yes.	
12.1 Entire body shall be cleaned and rinsed yes.	
	inderside of the body is stainless ruction. No paint is needed
	inderside of the body is stainless ruction. No paint is needed
END OF SPECIFICATION Yes.	
Specification # 04-14FCBBDY.C19 14 ft. Combination 45 degree Sloped Side Dump and Spreader Body, Hoist, Front and Rear	
Dischargo Distribution Systems	
Discharge Distribution Systems	ctor Specification Compliance
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	Model: Monroe model DVS168-
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent. Make and Make and Model: Monroe/DVS-168-96-56 or equivalent.	
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent. Contractor to identify proposed make and model Contractor to identify proposed make and model	front-rear
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent. Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	front-rear
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent. Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands 1.0 Basic Requirements: 1.1 MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch yes.	front-rear
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent. Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands 1.0 Basic Requirements:	front-rear
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent. Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands 1.0 Basic Requirements: 1.1 MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E.	front-rear
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent. Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands 1.0 Basic Requirements: 1.1 MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. 1.2 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor. yes.	front-rear
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent. Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands 1.0 Basic Requirements: 1.1 MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. 1.2 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor. 1.3 Body shall have an approximate struck capacity of 10 cu/yd minimum for rear discharge without removable side boards	front-rear
All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/DVS-168-96-56 or equivalent. Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands 1.0 Basic Requirements: 1.1 MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. 1.2 14 foot combination 45° slope side dump and spreader bodies which shall consist of self-unloading dump bodies constructed of a type 201 stainless steel body, dump hoist, discharge/feed conveyor. yes.	front-rear

1.6	Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or	yes.
	Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions	yes.
1.7	All lighting shall be provided by MDOT	yes.
	Body:	yes.
2.1	Bodies shall be of type 201 stainless steel construction	yes.
2.2	Overall height above truck frame shall not exceed 55 inches without cab shield	yes.
2.3	Top inside width of body shall be approximately 89 inches and outside width shall not exceed 96 inches	yes.
2.4	Top of floor to the top of the side wall shall be approximately 44 inches	yes.
2.5	Body shall be rigid construction with a boxed top rail of 7 gauge type 201 stainless steel, 5" height x 4" depth	yes.
2.6	Sides shall include vertical channel type ribs, approximately 4 inches wide x 2 inches deep constructed of 7 gauge type 201 stainless	yes.
	steel, spaced on 36 inch centers minimum Body longitudinal shall be constructed of ¼ inch type 201 stainless steel with minimum 12 inch height and include two (2) 3 inch ID	
2.7	cross over tubes for installation of hydraulic hoses and wiring	yes.
2.8	Rear of body longsills must be slotted to facilitate removal of drive system	yes.
	Drive system including gearboxes, drive shaft, sprockets and bearings, must be removable as an assembly	yes.
	Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 8	yes.
	inch round stainless steel and shall be greaseable	
	Rear body hinge top plate shall not extend rearward more than 4 inches from the centerline of the pivot pin	yes.
	A 1.25 inch x ¼ inch, 201 stainless steel flat stock tarp tie rail, welded to side braces, full length of body	yes.
2.13	Tarp tie rail shall be installed just below the 45° break on the side braces	yes.
2.14	Two (2) body props shall be provided to support empty body weight	yes.
2.15	Body floor shall be 1/4inch 201 stainless steel and shall be bolted in with 1 inch welds at all four corners, and be supported by 7	yes.
1	gauge 3 inch x 3 inch cross angles located on 12 inch centers, and shall have rear "roller" lip with wiper belt	
2.16	Body longitudinal shall be supported under chain by 4 inch formed cross members on 24 inch centers	yes.
2.17	All channel supports under the floor shall be constructed of ¼ inch type 201 stainless steel	yes.
2.18		yes.
2.40	Return angle on the longitudinal shall be 4-1/2 inch boxed type for additional support and any retention of material	
	All joints on body shall be continuous welded	yes.
	Four (4) covered access openings shall be provided below the body interior on the rear facing panel:	yes.
	For accessing the rear gear boxes for maintenance	yes.
2.21	For installation of rear attachments/accessories	yes.
	Two (2) covered access openings shall be provided on the forward facing panel of the rear corner post Rear of body shall be flat to allow installation of MDOT approved accessories	yes.
	Rear corner posts shall be boxed in and drilled and tapped to accept MDOT rear lighting arrangement	yes.
	Both rear side posts shall have one (1) 1-1/2 inch hole, two (2) 1-¼ inch holes, one (1) 13/16 inch hole and four (4) 9/16 inch holes	yes.
	with ½ inch stainless steel nuts welded to the backside	,
2.25	The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light	yes.
	mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting holes shall be .125 inches and shall be 3.625 inches apart	
2.26	Body sides shall be 45° sloped	yes.
2.27	Additional wire/cable retention studs shall be installed, per MDOT specifications	yes.
3.0	Head Sheet:	
	Head sheet shall be constructed of 7 gauge type 201 stainless steel and be sloped 45° back	yes.
3.2	Front of body shall be sloped to accommodate a trunnion-mounted cylinder with partial doghouse and conform to the 45° slope of	yes.
	the body, 100% welded on the inside and outside	
	Front sheet to include an enclosure for a front mounted telescopic hoist	yes.
3.4	Cylinders mounted forward of the front of the body will NOT be acceptable	yes.
3.5	Front shall be at least 6 inches higher than the sides	yes.
3.6	All horizontal surfaces shall be dirt shedding	yes.
3.8	All proper of hody shall be constructed to withstand beaus duty use as a dump and as a spreader	yes.
3.9	All areas of body shall be constructed to withstand heavy duty use as a dump and as a spreader Body shall include all items needed to be fully operational	yes.
	All items which are normally furnished as standard equipment shall be supplied and shall conform in strength, quality of material, and	*
	workmanship to best commercial practice	
	Conveyor:	
4.1	Conveyor shall be pintle shain two supplies longitudinally with the head of eading method to the his and account acts.	yes.
4.2	Conveyor shall be pintle chain type running longitudinally with the body feeding material to the hinged rear end-gate opening Conveyor shall not extend past the vertical tailgate	yes.
4.3	Overall conveyor width shall be 34 inches minimum	yes.
	•	yes.
4.4	Conveyor chain shall be heat-treated 2-¼ inch pitch pintle type with .224 inch link thickness, 15/32 inch pin diameter and have a	yes.
4.4	Conveyor chain shall be heat-treated 2-¼ inch pitch pintle type with .224 inch link thickness, 15/32 inch pin diameter and have a 26,000 pound minimum average tensile strength, manufactured in the USA	yes.
4.4	26,000 pound minimum average tensile strength, manufactured in the USA	yes.
4.5		yes.
	26,000 pound minimum average tensile strength, manufactured in the USA	
4.5	26,000 pound minimum average tensile strength, manufactured in the USA Cross bars ½ inch x 1-½ inch shall be positioned on approximately 2-¼ inch centers and welded on both the top and bottom of the bar	yes.
4.5 4.6 4.7	26,000 pound minimum average tensile strength, manufactured in the USA Cross bars ½ inch x 1-½ inch shall be positioned on approximately 2-¼ inch centers and welded on both the top and bottom of the bar Eight toothed, case hardened to 40-48 Rc, self-cleaning drive sprockets shall be keyed to the 2" drive and idler shafts Conveyor drive shaft shall have heavy duty, dust sealed self-aligning four bolt flange bearings Heavy duty idler assembly with side rail style adjusters and 1-¼ inch adjusting bolt shall provide 9 inches of adjustment for proper	yes.
4.5 4.6 4.7 4.8	26,000 pound minimum average tensile strength, manufactured in the USA Cross bars ½ inch x 1-½ inch shall be positioned on approximately 2-¾ inch centers and welded on both the top and bottom of the bar Eight toothed, case hardened to 40-48 Rc, self-cleaning drive sprockets shall be keyed to the 2" drive and idler shafts Conveyor drive shaft shall have heavy duty, dust sealed self-aligning four bolt flange bearings	yes. yes.

4		T
	Tailgate shall be minimum of 6 inches higher than sides of body	yes.
5.2	Tailgate shall be manufactured of min. 3/16", type 201 stainless steel with, 5 panel, boxed perimeter of 3" formed channel	yes.
5.3	Tailgate shall have a 3 inch x 3 inch D-ring welded to the top center of tailgate	yes.
	Tailgate shall be double acting with squared perimeter and two (2) horizontal braces of 3/16 inch material the full width of the tailgate	yes.
5.5		yes.
5.6	Chain shall be removable, 3/8 inch, high tensile plated type	yes
5.7	5/8 inch 201 stainless steel lift loop shall be welded on the outside	yes.
5.8		yes.
5.9	Material door shall extend 16 inches into the interior of the body to prevent material from escaping through the partially opened door over the conveyor	yes.
5.10	An adjustable discharge gate or door with an opening of at least 21 inches x 8-½ inches of a minimum of ¼ inch thick with a heavy duty screw-type operated adjustment mechanism on passenger's side and at bottom edge of tailgate	yes.
5.11	Feedgate must have infinite positions and include ruler to indicate gate opening height	yes.
	Tailgate shall have 1 inch x 4 inch bar stock tailgate hardware with 1-¼ inch hardened pins	yes.
5.13	Tailgate latches shall be 1 inch flame cut with each latch being adjustable, over center type	yes.
5.14	Tailgate latches shall be air operated	yes.
5.15	Air cylinder must provide power latch and power release, spring assist latching systems are not acceptable	yes.
5.16		
	The symmetry of the state of th	yes.
5.17	Air cylinder housing shall be aluminum	yes.
	Air cylinder rod shall be stainless steel	yes.
		yes
	Power Drive and Controls:	
6.1	Two (2) high torque, variable speed 6:1 gearboxes and hydraulic motors with ground speed sensor having 100 pulses/revolution capability on one of the gearboxes shall be provided	yes.
6.2	Sensor shall be a Hall Effect speed type	yes.
	Rear discharge bodies shall have drive located at the rear of the conveyor	yes.
	Hydraulic drive shall include two (2) geroler-type, high-torque, low speed hydraulic motors 12.1 CID, integrally mounted to the conveyor gear cases	yes.
6.5	Hydraulic tubing shall be stainless steel, rated along with hydraulic hose to withstand 1-½ times system operating pressure requirements	yes.
6.6	Hydraulic tubing shall be ¾ inch minimum I.D.	yes.
6.7		yes.
6.7	All tubing shall be secured to body with polymer retaining blocks	· · · · · · · · · · · · · · · · · · ·
6.7 7.0	All tubing shall be secured to body with polymer retaining blocks Hoist:	yes.
7.0 7.1	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder	yes.
7.0 7.1 7.2	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces	yes. yes. No- hard chromed- not nitrided
7.0 7.1 7.2 7.3	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder	yes. yes. No- hard chromed- not nitrided yes.
7.0 7.1 7.2 7.3 7.4	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections	yes. yes. No- hard chromed- not nitrided yes. yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi	yes. Ves. No- hard chromed- not nitrided yes. yes. yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches	yes. yes. No- hard chromed- not nitrided yes. yes. yes. yes.
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6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body	yes. yes. No- hard chromed- not nitrided yes. yes. yes. yes. yes. yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous	yes. yes. No- hard chromed- not nitrided yes. yes. yes. yes. yes. yes. yes. yes.
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6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a.	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector	yes. yes. No- hard chromed- not nitrided yes. yes. yes. yes. yes. yes. yes. yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b.	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches	yes. yes. No- hard chromed- not nitrided yes.
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6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0 9.1	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify Contractor of the proper mounting height of cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the	yes. yes. No- hard chromed- not nitrided yes.
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6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0 9.1 9.2	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify Contractor of the proper mounting height of cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body Overall length of fenders shall be 108 inches	yes. yes. No- hard chromed- not nitrided yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0 9.1 9.2	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body Overall length of fenders shall be 108 inches Fenders must have factory cut holes for installation of tarp springs, provided by MDOT at pre-construction meeting	yes. yes. No- hard chromed- not nitrided yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0 9.1 9.2 9.3 9.4	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify Contractor of the proper mounting height of cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body Overall length of fenders shall be 108 inches Fenders must have factory cut holes for installation of tarp springs, provided by MDOT at pre-construction meeting Miscellaneous: A grease extension kit shall be provided and installed at the front and the rear of the body	yes. yes. No- hard chromed- not nitrided yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0 9.1 9.2 9.3 9.4 10.0 10.1 10.2	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder S inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify Contractor of the proper mounting height of cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body Overall length of fenders shall be 108 inches Fenders must have factory cut holes for installation of tarp springs, provided by MDOT at pre-construction meeting Miscellaneous:	yes. yes. No- hard chromed- not nitrided yes.
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6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0 9.1 9.2 9.3 9.4 10.0 10.1 10.2 10.3	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify Contractor of the proper mounting height of cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body Overall length of fenders shall be 108 inches Fenders must have factory cut holes for installation of tarp springs, provided by MDOT at pre-construction meeting Miscellaneous: A grease extension kit shall be provided and installed at the front and the rear of the body Rear grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot	yes. yes. No- hard chromed- not nitrided yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0 9.1 9.2 10.0 10.1 10.2 10.3	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify Contractor of the proper mounting height of cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body Overall length of fenders shall be 108 inches Fenders must have factory cut holes for installation of tarp springs, provided by MDOT at pre-construction meeting Miscellaneous: A grease extension kit shall be provided and installed at the front and the rear of the body Rear grease kits shall provide lubrication to both the rear bearings and all pivot points for the tailgate linkage Front grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot points for the over center cam that operates the tailgate linkage Grease hoses shall be SAE107 Hytron hose rated at 3000 psi maximum work pressure Swing up type side ladder constructed of type 201 stainless steel shall be provided by manufacturer and shipped loose for custom	yes. yes. No- hard chromed- not nitrided yes. yes. yes. yes. yes. yes. yes. yes.
6.7 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 8.0 8.1 8.2 8.3 a. b. c. 8.4 9.0 9.1 9.2 9.3 9.4 10.0 10.1 10.2 10.3	All tubing shall be secured to body with polymer retaining blocks Hoist: Double acting hoist cylinder Hard nitride hoist cylinder surfaces Inverted, trunnion mounted cylinder 5 inch, 4 inch, 3 inch active sections NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi Cylinder total stroke of 138 inches Hoist must be listed in the NTEA dump body hoist chart Cab Protector: Half cab protector shall be 7 gauge type 201 steel, installed by vendor on the front of the body All welding shall be continuous End plates shall be streamlined to prevent sharp corners or edges A stainless steel grab handle shall be located on the cab protector Cab protector shall extend forward of the body a minimum of 24 inches Stainless steel studs for wire and cable retention shall be on the cab protector as well as the body MDOT will notify Contractor of the proper mounting height of cab protector and stud location prior to construction Fenders: Body shall be equipped with 7 gauge type 201 stainless steel fenders Fenders shall be sufficiently constructed and supported so as to allow for mounting of 100 gallon liquid tanks on each side of the body Overall length of fenders shall be 108 inches Fenders must have factory cut holes for installation of tarp springs, provided by MDOT at pre-construction meeting Miscellaneous: A grease extension kit shall be provided and installed at the front and the rear of the body Rear grease kits shall provide lubrication to both the rear bearings and all pivot points for the tailgate linkage Front grease kits shall provide lubrication to both the upper and lower trunnions on the hoist, front conveyor bearings, and the pivot points for the over center cam that operates the tailgate linkage Grease hoses shall be SAE107 Hytron hose rated at 3000 psi maximum work pressure	yes. yes. No- hard chromed- not nitrided yes. yes.

	Entire body shall be cleaned and rinsed	yes.
11.2	·	no- entire underside of the body is stainless
	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	steel construction. No paint is needed
11.3	Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	no- entire underside of the body is stainless steel construction. No paint is needed
	see note below on front cross augers included with the front discharge unit	
	The cross auger assembly shall be designed to be installed within the long members of the 23" X 12" rectangular opening of a DVS front discharge live floor body.	yes
	The cross auger assembly will be installed on top of the chassis frame within the openings and remain stationary when the body is raised. The cross auger assembly will have the ability to discharge front left or right.	
	The auger trough weldment will be manufactured of 7-gauge 201 stainless steel and be 20" in depth, 76" in width and 18" in overall height.	
	The trough will have 30° sloped sides front and rear and 10" x 11" bottom openings on each end. A 52" long inverted "V" will be centered and welded to the bottom of the trough to isolate each auger assembly.	
	The 7-gauge boxed sides and ends of the trough assembly will be designed to accept various spinner assemblies and have two openings on each end for placement of pre-wet nozzles if required.	
	Mounting angles, two each side of the chassis frame, one front and one rear, will be integral with the trough assembly. A rubber wiper will be bolted on the rear side of the trough assembly to wipe the top of the chain or belt into the trough when it returns to the rear.	
	The 7-gauge end plates will support the drive and idler components for the dual auger system. The auger weldments will be manufactured of 2-1/2" schedule 40 pipe 72" long with a 1" idler shaft centered and welded inside the pipe.	
	There will be two 1" two-bolt flange relubable bearings to support the idler shafts, bolted to the end plate. The auger flighting will be 7" OD x 2-7/8" ID with 4" pitch, LH helical, 3/8" x 1-3/4" stock x 72" long, stitch welded to the schedule	
	40 pipe. The drive side of the auger pipe will have a 9/16" cross hole for the ½" bolt that retains the UHMW bushing and 1" shaft coupler. The 4-bolt flange 10 cubic inch drive motors will engage the drive side of the auger thru the drive end	
	plate and be secured to the auger coupler with a set screw and to the endplate with four 3/8" bolts and lock washers. There shall be two 10-gauge 201 stainless steel covers.	
	One for the left side and one for the right side to cover the top exposed area over the augers when the body is on the chassis frame. The covers will be pooched punched grating type.	
	A 10-gauge gravity chute that is 20" wide x 24" long shall bolt to the end plate of the cross conveyor. The chute will be designed to pin in the gravity flow position or up in the stored position.	
	An adjustable 10 gauge stainless steel spinner assembly with a top mounted 3.2 cubic inch motor and an 18" CCW polymer	
Í	spinner disc coupled to the cast hub shall be installed on the endplate. The spinner design will have a shield to deflect material away from the chassis frame and be adjustable in height for underbody	
	END OF SPECIFICATION	
	LIND OF SECURCATION	
	Consideration WOLASSCOAD CAD Development of the Chairles Consideration of ALE United and ALE Consideration	CONTRACTOR must respond to each section
	Specification # 04-14SSDMP.C19 Dump Body, Stainless Steel, 10 cu. yd., 14 ft., Hoist and 1/2 Cab Protector	CONTRACTOR must respond to each section with YES (or additional information as
1/1		with YES (or additional information as requested).
14	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	with YES (or additional information as requested). If NO is indicated, provide explanation and
14	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	with YES (or additional information as requested). If NO is indicated, provide explanation and available option.
14	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body
14	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	with YES (or additional information as requested). If NO is indicated, provide explanation and available option.
1.0	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements:	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body
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1.0	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body with Marathon 63138 hoist yes.
1.0 1.1 1.2 1.3	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. Bodies will have holes pierced and studs mounted per MDOT specifications Body shall measure 168 inches long, 42 inch high front, 34 inch high sides and 42 inch tailgate	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body with Marathon 63138 hoist yes. yes. yes. yes. Except front is 58" to accommodate the hoist doghouse
1.0 1.1 1.2 1.3	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. Bodies will have holes pierced and studs mounted per MDOT specifications Body shall measure 168 inches long, 42 inch high front, 34 inch high sides and 42 inch tailgate	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body with Marathon 63138 hoist yes. yes. yes. yes. Except front is 58" to accommodate the hoist doghouse yes.
1.0 1.1 1.2 1.3 1.4 1.5	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. Bodies will have holes pierced and studs mounted per MDOT specifications Body shall measure 168 inches long, 42 inch high front, 34 inch high sides and 42 inch tailgate Body shall have inside width of 87 inches Body shall have outside width of 96 inches	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body with Marathon 63138 hoist yes. yes. yes. yes. Except front is 58" to accommodate the hoist doghouse
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1.0 1.1 1.2 1.3 1.4 1.5 1.6	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. Bodies will have holes pierced and studs mounted per MDOT specifications Body shall measure 168 inches long, 42 inch high front, 34 inch high sides and 42 inch tailgate Body shall have inside width of 87 inches Body shall have outside width of 96 inches Capacity shall be approximately 10 cubic yards Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body with Marathon 63138 hoist yes. yes. yes. yes. Except front is 58" to accommodate the hoist doghouse yes. yes. yes. yes.
1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. Bodies will have holes pierced and studs mounted per MDOT specifications Body shall measure 168 inches long, 42 inch high front, 34 inch high sides and 42 inch tailgate Body shall have outside width of 87 inches Body shall have outside width of 96 inches Capacity shall be approximately 10 cubic yards Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body with Marathon 63138 hoist yes. yes. yes. yes. yes. Except front is 58" to accommodate the hoist doghouse yes. yes.
1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. Bodies will have holes pierced and studs mounted per MDOT specifications Body shall measure 168 inches long, 42 inch high front, 34 inch high sides and 42 inch tailgate Body shall have inside width of 87 inches Body shall have outside width of 96 inches Capacity shall be approximately 10 cubic yards Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body with Marathon 63138 hoist yes. yes. yes. yes. Except front is 58" to accommodate the hoist doghouse yes. yes. yes. yes.
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1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 2.0 2.1 2.2 3.0 3.1 3.2	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Crysteel/Select Stainless Steel or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this dump box on a 64,000 GVW tandem axle, cab, and chassis with chassis measurements of approx. 218 inch W.B., 136 inch CA., and 192 inch C.E. Bodies will have holes pierced and studs mounted per MDOT specifications Body shall measure 168 inches long, 42 inch high front, 34 inch high sides and 42 inch tailgate Body shall have outside width of 87 inches Body shall have outside width of 96 inches Capacity shall be approximately 10 cubic yards Body raised light (supplied by MDOT) shall be activated by an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-W2OME2 12V - 24V supplied with each body No Exceptions MDOT can adjust hole and wire tie stud locations at a preconstruction meeting after units are ordered Floor: Floor shall be constructed of 1/4 inch AR400 plate steel, 180,000 PSI tensile strength and yield of 145,000 PSI Floor shall have 9 inch radius wings of 1/4 inch A1011 carbon steel at sides only Understructure: Understructure shall be cross-memberless All welding shall be continuous	with YES (or additional information as requested). If NO is indicated, provide explanation and available option. Make and Model: Crysteel Selectss body with Marathon 63138 hoist yes. yes.
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3.6		yes.
	Wiring tie down loop of 1/4 inch steel rod shall be installed on the underside of the floor, 3 inches in from the inside of the longsills	
	and 3-1/4 inches forward of the rear rubrail and extend the entire length of the underside of the floor	
3.7	Support plates shall be installed from the rub rails to the floor:	no- floor is flush
a.	Open at the front and rear	yes.
b.	Made of A1011 carbon steel	yes.
c.		yes.
	Notched opening 60-80 inches behind the front corner posts of the body to allow access for tarp arm mounting bracket fasteners	
3.8	Longsills shall have 3 inch passageway in the rear of the longitudinal for wiring	yes.
	Front Bulkhead & 1/2 Cab Shield:	
	Front bulkhead shall be constructed of 7-gauge 201 polished stainless steel with pressed in brace for rigidity	no- type 201 2B finish- not polished
-	Front sheet to include an enclosure for a front mounted telescopic hoist	yes.
		yes.
	A hoist mounting that is in front of the body will not be acceptable Front of body shall have a 1-1/4 inch wiring hole placed in the lower left corner, center to be 1.875 inches from side and 2 inches up	,
	from lower edge	yes.
\vdash	1/2 cab shield shall be 100% welded to the front bulkhead at the factory per MDOT measurements	yes.
	1/2 cab shield shall be of 7-gauge 201 stainless steel with flat plate style reinforcements on top	,
		yes.
4.7	Two (2) 9/16 inch holes shall be located on both sides of the cab shield, 1 and 8 inches back from the front of the cab shield, forward	yes.
4.0	hole shall be 1-3/8 inches down from top and they shall be parallel with box sides A grab handle made of 5/8 inch stainless steel rod, 20 inches long and 3 inches high, shall be welded to the cab shield and the bulk	VAS
	head, diagonally	yes.
4.9	incoo, alaborany	yes.
	Wiring studs 1/4 inch x 3/4 inch stainless steel threaded, shall be installed on the front bulkhead and cab shield:	,
a.	5 , 2 3, 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	yes.
	Studs shall be placed along the left side of front bulkhead 3 inches in from the left edge of the cab shield beginning 7 inches up from	ľ
	the bottom edge of bulkhead and proceeding vertically on 16 inch centers to the horizontal member of the cab shield. Studs shall be	
	placed on the underside of the cab shield starting 4 inches from the rear bend towards the front of the cab shield on 16 inch centers	
	with one directly inline on front facing return	
	Studs shall be placed on the front of the cab shield horizontally, the first 6 inches in from the left edge on 16 inch centers, 1-1/2	yes.
	inches down from the top bend	
	Tailgate:	yes.
5.1	Tailgate shall be double acting	yes.
5.2	Tailgate shall be fully boxed, double walled design	yes.
	All horizontal surfaces shall be dirt shedding	yes.
	Inner wall shall be 1/4 inch AR400 to match the strength and durability of the floor and shall be primer coated	yes AR450
	Outer wall shall be 10-gauge 201 stainless steel	yes.
7.7		
		,
5.6	All tailgate hardware on body shall be 201 stainless steel	yes
5.6 5.7	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset	yes yes.
5.6 5.7 5.8	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel	yes. yes.
5.6 5.7 5.8 5.9	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable	yes yes.
5.6 5.7 5.8 5.9	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel	yes. yes.
5.6 5.7 5.8 5.9 5.10	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate	yes yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat	yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type	yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat	yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type	yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides:	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength	yes. yes. yes. yes. yes. yes. yes. yes.
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5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding	yes. yes. yes. yes. yes. yes. yes. yes.
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5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder housing shall be aluminum Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, 201 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6.11	All tailgate hardware on body shall be 201 stainless steel Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder rod shall be stainless steel Sides: Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, 201 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center hole) for 45° marker light in corner 24 inches from bottom of pillar Pillars shall be dirt shedding Two (2) 11/16 inch holes shall be located on the sloped surface of left & right rubrails, 2-1/2 inches below the breakline, 11 and 13 1/2 inches back from the rear of the front corner post	yes. yes. yes. yes. yes. yes. yes. yes.
5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6.11	All tailgate hardware on body shall be 201 stainless steel Upper all gate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, 201 stainless steel Front pillars shall be full-depth, 201 stainless steel Rear pillars shall be full-depth, 201 stainless steel Rear pillars shall be dirt shedding	yes. yes. yes. yes. yes. yes. yes. yes.
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5.6 5.7 5.8 5.9 5.10 5.11 5.12 5.13 5.14 5.15 5.16 5.17 5.18 5.19 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.7 6.8 6.9 6.10 6.11 6.12 6.12	All tailgate hardware on body shall be 201 stainless steel Upper all gate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset Upper and lower pins shall be 1-1/4 inch 201 stainless steel All tailgate hinges shall be greaseable A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type 5/8 inch 201 stainless steel lift loop shall be welded on the outside All pivot points shall be grease zerk lubricated 201 stainless steel latches shall be retractable, grease zerk lubricated, with the zerks located on the outside of the rear corner posts for accessibility Tailgate release shall be air operated Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service Air cylinder rod shall be stainless steel Sides: Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength Finish shall be polished All welds shall be continuous Sides shall have a reverse-bend design Top rail shall be fully boxed and dirt shedding Rubrail shall have 45° slope to the flat side One integral break-formed strengthening brace per side Front pillars shall be full-depth, 201 stainless steel Front pillars shall be full-depth, 201 stainless steel Rear pillars shall be full-depth, 201 stainless steel Rear pillars shall be dirt shedding	yes. yes. yes. yes. yes. yes. yes. yes.

	Two (2) 1-½ inch holes shall be located on the sloped surface of right rubrail, 1-¾ inches below the breakline. They shall be 2 and 4-½	yes.
	inches forward of the rear corner post True (2) 0 (16 inch halos shall be leasted on the flat parties of left rubrail 1 inch days from the breakling 2 and 11 1/ inches your of	
	Two (2) 9/16 inch holes shall be located on the flat portion of left rubrail, 1 inch down from the breakline, 2 and 11-¼ inches rear of	yes.
	the front corner post Two (2) 9/16 inch holes shall be located on the flat portion of left & right rubrails, 2-1/2 inches below the breakline, 31-1/2 and 37-	NOS.
6.16	1/4inches back from the front post	yes.
6.17	A 2 inch tarp rail shall be installed 2 inches above the horizontal side and shall extend from the back side of the of the front corner	yes.
	post to the front side of the rear corner post on each side of the body	yes.
	The tarp rail shall include supports to the body sides located on 24 inch centers	yes.
	Both the tarp rail and the gussets shall be constructed of type 201 stainless steel	yes.
		<u> </u>
	Holes shall be provided in both rear pillars:	yes.
a.		yes.
	A 13/16 inch hole shall be located 6-3/4 inches forward of the rear of the pillar and 30-1/2 inches from the bottom of the rubrail A 5/8 inch hole shall be located 4-3/4 inches from the rear of the pillar and 30-1/2 inches from the bottom of the rubrail with a 1/2 x	
D.	13 stainless steel nut welded on the inside of pillar	yes.
	13 Statilless steer nut welded on the inside of pilial	yes.
c.	A 1-% inch hole shall be located 6-% inches forward of the rear of the pillar and 13 inches up from the bottom of the rubrail	yes.
d.		yes.
۵.	A 5/8 inch hole shall be located 4-% inches forward of the rear of the pillar and 13 inches from the bottom of the rubrail	, co.
e.		yes.
	A 1-1/4 inch hole shall be located 6-% inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	,
f.	·	yes.
	A 5/8 inch hole shall be located 4-% inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	
g.		yes.
	A 5/8 inch hole shall be located 3-¾ inches in from the rear of the pillar and ½ inch below the bottom of the rubrail	
h.	The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light	yes.
	mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting	
	holes shall be .125 inches and shall be 3.625 inches apart	
	Left pillar shall have two (2) 3/8 inch holes 10 inches forward of the rear of the pillar, up 7 inches and 10-% inches from the bottom of	yes.
	the pillar	
	Hoist:	
7.1	Double acting hoist cylinder	yes.
7.2	Hard nitride hoist cylinder surfaces	yes.
7.3	Inverted, trunnion mounted cylinder	yes.
	5 inch, 4 inch, 3 inch active sections	yes.
	NTEA Class 120, rated at 46.4 tons lift capacity @ 2,500psi and 37.1 tons @ lift capacity @ 2,000psi	yes.
		·
	Cylinder total stroke of 138 inches	yes.
	Rear hinge shall be fabricated with structural steel angle that is 8 inch x 4 inch x ½ inch x 38 inch, Hinge pins shall be 2-3/8 inch x 8	yes.
	inch round stainless steel and shall be greaseable	yes.
	Rear body hinge top plate shall not extend rearward more than 4 inches from the centerline of the pivot pin	•
	Two (2) body props shall be provided to support empty body weight	yes.
	Hoist must be listed in the NTEA dump body hoist chart	yes.
0.0	Body Preparation:	yes.
8.0		
	Entire body shall be cleaned and rinsed	yes.
8.1	·	yes. yes. Except paint is 2 part epoxy
8.1	Entire body shall be cleaned and rinsed Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	
8.1 8.2	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	
8.1 8.2	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	yes. Except paint is 2 part epoxy
8.1 8.2	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane	yes. Except paint is 2 part epoxy
8.1 8.2	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint END OF SPECIFICATION	yes. Except paint is 2 part epoxy
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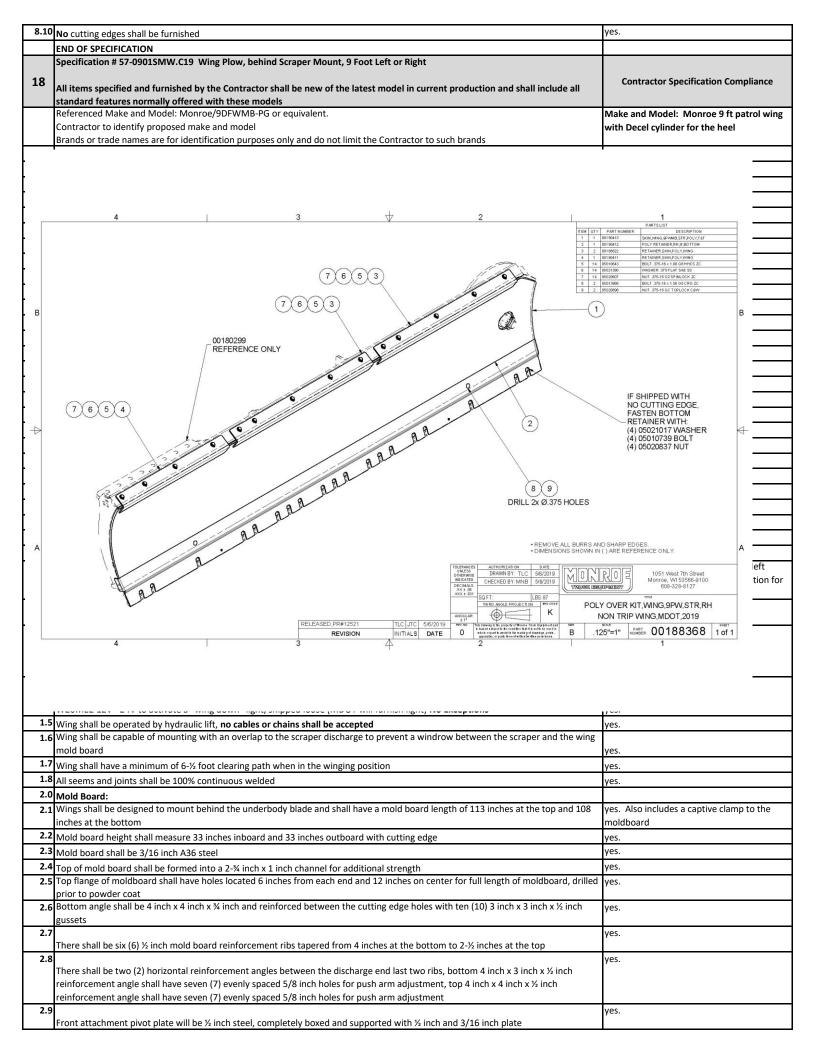
		Luca
	Understructure shall be cross-memberless	yes.
	All welding shall be continuous	yes.
	Fabricated longsills shall be of 1/4 inch CQ carbon steel inner panels and 1/4 inch CQ carbon steel outer panels	no- 12 " I beam western understructure
3.4	Interior of longsills shall be coated with rust inhibitor coating at factory	no- painted
3.5	Rear rub rail shall be full width, fabricated design, 7-gauge 201 stainless steel, Channel style rear aprons are not acceptable	yes.
3.6	Wiring tie down loop of 1/4 inch steel rod shall be installed on the underside of the floor, 3 inches in from the inside of the longsills	yes.
	and 3-1/4 inches forward of the rear rubrail and extend the entire length of the underside of the floor	no- floor is flush
	Support plates shall be installed from the rub rails to the floor:	
	Open at the front and rear	yes.
	Made of A1011 carbon steel	yes.
	Notched opening 60-80 inches behind the front corner posts of the body to allow access for tarp arm mounting bracket fasteners	yes.
3.8	Longsills shall have 3 inch passageway in the rear of the longitudinal for wiring	yes.
4.0	Front Bulkhead & 1/2 Cab Shield:	yes.
4.1	Front bulkhead shall be constructed of 7-gauge 201 polished stainless steel with pressed in brace for rigidity	no- type 201 2B finish- not polished
	Front of body shall have a 1-1/4 inch wiring hole placed in the lower left corner, center to be 1.875 inches from side and 2 inches up from lower edge	yes.
4.3	1/2 cab shield shall be 100% welded to the front bulkhead at the factory per MDOT measurements	yes.
	1/2 cab shield shall be of 7-gauge 201 stainless steel with flat plate style reinforcements on top	yes.
	Two (2) 9/16 inch holes shall be located on both sides of the cab shield, 1 and 8 inches back from the front of the cab shield, forward	yes.
	hole shall be 1-3/8 inches down from top and they shall be parallel with box sides A grab handle made of 5/8 inch stainless steel rod, 20 inches long and 3 inches high, shall be welded to the cab shield and the bulk	,
	head, diagonally	yes.
4.7	Wiring studs $1/4$ inch $\times 3/4$ inch stainless steel threaded, shall be installed on the front bulkhead and cab shield:	yes.
a.		yes.
	Studs shall be placed along the left side of front bulkhead 3 inches in from the left edge of the cab shield beginning 7 inches up from the bottom edge of bulkhead and proceeding vertically on 16 inch centers to the horizontal member of the cab shield. Studs shall be placed on the underside of the cab shield starting 4 inches from the rear bend towards the front of the cab shield on 16 inch centers	
	with one directly inline on front facing return Studs shall be placed on the front of the cab shield horizontally, the first 6 inches in from the left edge on 16 inch centers, 1-1/2	
	inches down from the top bend	yes.
	Tailgate:	yes.
	Tailgate shall be double acting	yes.
	Tailgate shall be fully boxed, double walled design	yes.
5.3	All horizontal surfaces shall be dirt shedding	yes.
	Inner wall shall be 1/4 inch AR400 to match the strength and durability of the floor and shall be primer coated	yes exceed. AR450
	Outer wall shall be 10-gauge 201 stainless steel	yes.
	All tailgate hardware on body shall be 201 stainless steel	yes
	Upper tailgate hinges shall be 1-1/2 inch thick 201 stainless steel with 5 inch offset	yes.
	Upper and lower pins shall be 1-1/4 inch 201 stainless steel	yes.
	All tailgate hinges shall be greaseable	yes.
	A 201 stainless steel grab handle shall be located on the lower left corner of the tailgate	yes.
5.11		yes.
-	Upper and lower dogleg slotted chain keepers shall be 201 stainless steel, with sufficient plated chain to lay tailgate flat Chain shall be removable, 3/8 inch, high tensile plated type	yes
	5/8 inch 201 stainless steel lift loop shall be welded on the outside	yes.
-	All pivot points shall be grease zerk lubricated	yes.
	201 stainless steel latches shall be retractable, grease zerk lubricated with zerks located on the outside of the rear corner posts for	yes. But Zerks are inside the corner posts
	accessibility	·
	Tailgate release shall be air operated	yes.
-	Air cylinder shall be 3-1/2 inch diameter and meet military specifications for cold weather service	yes.
5.18	Air cylinder housing shall be aluminum	yes.
	Air cylinder rod shall be stainless steel	yes.
	Sides:	
6.1	Sides of dump body shall be 7-gauge 201 stainless steel, 85,000 PSI tensile strength, 35,000 PSI yield strength	yes. no- finish is not polished- 201 stainless steel
	Finish shall be polished	type 2B
-	All welds shall be continuous	yes.
6.4	Sides shall have a reverse-bend design	yes.
6.5	Top rail shall be fully boxed and dirt shedding	yes.
6.6	Rubrail shall have 45° slope to the flat side	yes.
	One integral break-formed strengthening brace per side	yes.
-	Front pillars shall be full-depth, radiused, 201 stainless steel	yes.
	Rear pillars shall be full-depth, 201 stainless steel with 1 inch center hole and two (2) 11/64 inch holes (one on either side of center	yes.
	hole) for 45° marker light in corner 24 inches from bottom of pillar	
	Pillars shall be dirt shedding	

	Two (2) 11/16 inch holes shall be located on the sloped surface of left & right rubrails, 2-1/2 inches below the breakline, 11 and 13	yes.
	1/2 inches back from the rear of the front corner post Two (2) threaded wiring studs 1/4 inch x 3/4 inch stainless steel shall be located 4 inches above sloped surface of left & right rubrails,	
6.12	12 and 20-3/4 inches forward of the rear corner post	yes.
6.13	Three (3) 1-1/2 inch holes shall be located on the sloped surface of the left rub rail, 1-3/4 inches below the break line. They shall be	yes.
	2, 4-1/2 and 7 inches forward of the rear corner post	
	Two (2) 1-½ inch holes shall be located on the sloped surface of right rubrail, 1-¾ inches below the breakline. They shall be 2 and 4-½	yes.
	inches forward of the rear corner post The (2) 2 (4) in the least test that the flat continue of left colors is 1.4 in the design from the base bline 2 and 4.4 1/ inches a configuration.	
	Two (2) 9/16 inch holes shall be located on the flat portion of left rubrail, 1 inch down from the breakline, 2 and 11-¼ inches rear of the front corner post	yes.
	Two (2) 9/16 inch holes shall be located on the flat portion of left & right rubrails, 2-1/2 inches below the breakline, 54-1/2 and 60-	ves.
	3/4inches back from the front post	,
6.17	A 2 inch tarp rail shall be installed 2 inches above the horizontal side and shall extend from the back side of the of the front corner	yes.
	post to the front side of the rear corner post on each side of the body	
	The tarp rail shall include supports to the body sides located on 24 inch centers	yes.
	Both the tarp rail and the gussets shall be constructed of type 201 stainless steel	yes.
—	Holes shall be provided in both rear pillars:	yes.
	A 13/16" hole shall be located 6-3/4" forward of the rear of the pillar and 38-1/2" from the bottom of the rubrail	yes.
b.	A 5/8" hole shall be located 4-3/4" from the rear of the pillar and 38-1/2" from the bottom of the rubrail with a 1/2 x 13 stainless steel nut welded on the inside of pillar	yes.
	A 1-%" hole shall be located 6-%" forward of the rear of the pillar and 13" up from the bottom of the rubrail	yes.
	A 5/8" hole shall be located 4-3/4" forward of the rear of the pillar and 13" from the bottom of the rubrail	yes.
e.	7. 5/5 Hote shall be located 4.74. To ward of the real of the pillar and 15. Horn the bottom of the rubian	yes.
	A 1-1/4 inch hole shall be located 6-¾ inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	,,
f.	A 5/8 inch hole shall be located 4-% inches forward of the rear of the pillar and 5 inches from the bottom of the rubrail	yes.
	71.575 men note shall be located 4.74 menes for ward of the real of the pillar and 5 metres from the bottom of the rubial	
g.	A 5/8 inch hole shall be located 3-% inches in from the rear of the pillar and ½ inch below the bottom of the rubrail	yes.
h	A 5/8 inch hole shall be located 3-% inches in from the rear of the pillar and ½ inch below the bottom of the rubrall. The marker light cut out with mounting light bracket shall be installed in each rear pillar posts. The cutout shall include light	yes.
	mounting brackets installed at a 45°. The bracket shall fit a Betts maker light. The pilot hole shall be 2.25 inches. The mounting	yes.
	holes shall be .125 inches and shall be 3.625 inches apart	
	Left pillar shall have two (2) 3/8 inch holes 10 inches forward of the rear of the pillar, up 7 inches and 10-% inches from the bottom of	yes.
	the pillar	
	Hoist:	
	Hoist shall be Crysteel Roller Combo Model # RC 690 or approved equal	yes.
_	Hoist shall be NTEA Performance Class 90 NTEA Type VII	yes
	Hoist shall have two, double acting, single stage cylinders	yes.
	Cylinder bore shall be 6 inches	yes.
	Cylinder shaft diameter shall be 2-3/8 inches	yes.
	Cylinder stroke shall be 32-1/2 inches	yes.
	Cylinder shaft shall be nitride SW85 steel with 85,000psi yield strength	yes.
7.8	Cylinders shall have maximum operating pressure of 2,200psi with internal bypass to protect cylinder from damage	yes.
7.9	Cylinder base (raise) port size shall be SAE-12 (1-16)	yes.
	Rod port (lower) shall be SAE-10 (7/8-14)	yes.
	Cylinder Displacement:	yes.
	Up shall be 1837.8 cubic inches	yes.
	Down shall be 1579.4 cubic inches	yes.
	Load capacity shall be 28.4 tons @ 50° dump angle	yes
	Hoist shall have 17-1/2 inch mounting height	yes.
	Hoist shall have "Roller Combo" design with the initial lift point ahead of the center line of the body, directing the force of the hoist	yes.
	cylinder upwards for more breakaway power before transferring it to a scissors action	
	Greaseless composite bearings shall be provided at all critical pivot points	yes.
	Hoist shall have full length sub-frame that is the same length as the dump body	yes.
	Sub-frame shall have 5-1/8 inch high, "C" channel frame rails fabricated of ¼ inch A1011 steel with 50,000psi yield and 65,000psi	yes.
	tensile strength Remote grease kit - Hoist shall have a grease fitting bulkhead for the primary hoist pivot, located on the right (passenger) side and	wor
7.18	have six (6) grease zerks	yes.
7.19		no- mounting angle is 8" x 4-3/8" x 1/2" x 39"
	Rear hinge shall be fabricated with structural steel angle that is 8 inch \times 4 inch \times 1/2 inch \times 38 inch	long
7.20	Hinge pins shall be 2-3/8 inch x 6 inch round stainless steel with greaseless composite bearings	pin is 2-1/4"
7.21	Two (2) body props shall be provided to support empty body weight	yes.
$\overline{}$	Hoist must be listed in the NTEA dump body hoist chart	yes.
8.0	Body Preparation:	
	Entire body shall be cleaned and rinsed	yes.
8.2	Underside of body to be sandblasted and primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane paint	yes. Except paint is 2 part epoxy
	Inside floor, floor radius, and inner tailgate panel to be primed with 4-part Epoxy primer, then top coated with a Black Poly-Urethane	ves. Event paint is 2 part appear
	paint	yes. Except paint is 2 part epoxy
	END OF SPECIFICATION	

	Constitution HEF PARPILE CAO Hadro Body Courses Folding Made Board Chile Constitution Dade Hadronic Applica	
	Specification # 55-FMBBLD.C19 Under-Body Scraper, Folding Mold Board Style Snow Blade, Hydraulic Angling	
16	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	Contractor Specification Compliance
	standard features normally offered with these models	
	Referenced Make and Model: Monroe/FMB-3512 or equivalent. Contractor to identify proposed make and model	Monroe FMB3512-MI, part no 00183844I
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	
1.0	Basic Requirements:	yes.
	12 foot under-body scrapers/snow blades, with a two-piece "Folding Mold Board"	yes.
1.2	MDOT will install this scraper blade on a 44,000 GVWR single axle 4 x 2, dump truck with chassis measurements of approximately 186	yes.
	inch W.B., 108 inch C.A. and 171 inch C.E. or a 64,000 GVWR tandem axle 6 x 4, dump truck with chassis measurements of approx. 211 inch W.B., 136 inch C.T. and 213 inch C.E.	
2.0	Folding Mold Board:	yes.
2.1		no- Grade 50 hi tensile steel- not heat
	Folding mold board shall be approximately 20-½ inches high x 12 feet long, heat treated, high carbon steel	treated
2.2	Upper deflector or "folding flap" shall be ½ inch x 10 inches and welded at its bottom side with a hinge line to connect to the lower mold board "backer plate"	yes.
2.3	Lower mold board shall consist of two (2) pieces	yes.
2.4		yes.
2.5	"Backer plate" shall be 5/8 inch thick x 6 inches high and include the pivot hinge line for raising and lowering the blade	no louver costion of model board is sund of CO b
2.5	Lower section of mold board shall be ¾ inch x 9 inch, heat treated, roll formed with pressed in offset for USS blades, AASHO punched	no- lower section of moldboard is grade 50 hi tensile steel- not heat treated- all other items
	and capable of mounting a 5/8 inch x 6 inch x 4 foot carbide edges. It shall be bolted to lower "backer plate"	comply
2.6		no- reversing cylinders shipped loose to
	Mold board assembly, actuating cylinders and reversing circle shall be shipped as a complete unit	prevent damage. Actuating cylinders are installed
2.7	Hanger brackets, reversing cylinders and mounting box shall be packaged with each scraper	yes.
	Mold Board Hinge:	yes.
	Mold board hinge shall consist of seamless DOM tubing, 1-¼ inch OD x 13/16 ID and a ¾ inch solid cold rolled 1018 steel hinge shaft	yes.
3.2	the full length of mold board	ves.
3.2	Ends of hinge shall be encapsulated and supported by two (2) ¾ inch gussets to/from the upper and lower deflector pieces	yes.
3.3	Gussets shall be notched and fitted to the deflectors, welded top and bottom, both sides	yes.
3.4	This additional area at the ends of the mold boards shall add strength at the ends of the hinge shaft, eliminating the mold board	yes.
4.0	hinge tubing from breaking away from deflectors	voc.
4.0	Reversing Table (Circle):	yes.
4.1	Reversing table (circle) shall be 1 inch thick solid one piece circle, no notches, with infinite plowing positions available to 45°	yes.
4.2	Because of rear wing installation, circle must not exceed 55-¼ inches in length	yes.
4.3	To maximize circle strength and durability, the cut outs for the hanger board 3 inch pin bosses, shall not exceed 4-5/8 inch wide x 15	yes.
4.4	inches long and follow the contour of the circle Power reversing shall be accomplished with two (2) 4 inch ID, 4-1/2 inch OD, double acting cylinders	yes.
4.5	Power reversing shall be accomplished with two (2) 4 mich ib, 4-½ mich ob, double acting cylinders	yes.
	Cylinder rods shall be Socatri 1000, 2 inch diameter, cast iron heads, 2 inch thick base and rod ends with grease zerks	
	Heads shall have external locks to prevent backing out and poly pack seals on the head and piston	yes.
b.	Cylinders shall be mounted with 2 inch hardened pivot pins	yes
	Pivot pins shall be zinc coated and have spiraled grease groove	yes.
4.7	Cross over relief (cushion) valve will be furnished and set for 2,500 psi and 30 gpm for reversing protection Reversing circle with hardened center bushing (RC 51-58), shall pivot on a hardened 5 inch center pin with a 3 port grease journal,	yes.
4.0	5/16 inches wide x 3/16 inches deep full circumference grease groove and be attached with three (3) 3-% inch grade 8 mounting bolts	yes.
4.0	to prevent hole elongation and will be lubricated with a grease zerk Circle clamp blocks shall be 20 inch long x 7 inches deep minimum and shall make full contact with the circle when fully reversed at	yes.
	45° on both the right and left sides	
4.10	Circle clamp blocks shall be contoured to the circle and bolted to the hanger board with three 1 inch grade 8 bolts as close to the circle as possible for maximum strength	yes.
4.11		yes.
/ 12	Circle clamp blocks shall have 3/8 inch UHMW poly wear plate for ease of movement of hanger board and replacement Rear of circle for the reversing cylinder mounts shall be braced by a ¾ inch x 3 inch bars gusset under the bottom side and the bracing	VAS
	to support the rear cylinder pin and boss	ycs.
4.13	Because of rear wing mount, additional circle support from the chassis frame to the circle at the rear will not be acceptable	yes.
4.14	The hold down block shall include a lower half welded to the hanger plate, which will act as a stop block against the rear of the circle	yes.
5.0	for a positive stop Hanger Brackets:	yes.
5.1		yes.
F 3	Hanger brackets shall be one piece solid ¾ inch x 35 inch x 25-½ inch x 9-½ inch, A36 or equal steel plate for maximum strength	voc
	Hanger brackets to have 7 inch x 7 inch hand hole cut outs	yes.
	Hanger Board: Hanger board or mold board headboard shall consist of approximately 1 inch x 10 inch x 103 inch heavy duty steel	yes.
	Power Actuation:	yes.
	Power actuation shall be relative to horizontal axis and shall be accomplished through at least two (2) hydraulic steel cylinders	yes.
	mounted beneath the hanger board, activating the mold board's up and down movement and shall includes a J50 relief valve for	
7.0	actuating cylinder protection(required for warranty protection)	VAS
7.0	Main Hinge:	yes.

		T
	Hinge line shall be solid shaft 1-½ inch diameter cold rolled 1018 steel	yes.
	Hinge tubing shall be 2-1/8 inch OD x 1-9/16 inch ID pre-channel tube	yes.
	There shall be a minimum of 12 grease zerks on hinge shaft	yes.
	Mold Board Activation:	yes.
8.1		yes.
9.2	Mold board activation shall be accomplished by two (2) 3 inch ID double acting cylinders with 1-½ inch minimum nitride piston rods	yes.
8.3	Cylinders are to have 9/16 inch ORB ports and supplied with 3/8 inch, 2 wire hydraulic hose and tubing	,
	17250 1000 psi dajustable Fener varve with 72 men ports shall be supplied with the scraper	yes.
8.4	Hydraulic tubing shall be retained with a minimum of four (4) machined polymer hold down blocks	yes.
	Hydraulic hose inside tubing shall not be acceptable	yes.
	Mold Board Cylinders and Pistons:	yes.
9.1	Cylinders shall be trunnion mounted so with the mold board operating in the down position, the application of pressure on the piston shall be at the end of the cylinder opposite the piston rod	yes.
9.2	Cylinders shall have:	yes.
		yes.
b.	3 inch inside diameter minimum	ves.
—	3,000p3 but stills pressure minimum	,
C.	2,500psi working pressure	yes.
	Ground or polished inside cylinder surface	yes.
	Polypak (type B) cylinder packing	yes.
	Internal thread type head glands with two (2) locks to prevent backing out	yes.
	Pistons, cylinder heads and packing glands shall be either aluminum or cast steel	yes.
	Cylinder heads shall be designed such that head nut cracking will not occur after it is tightened	yes.
	1 istori rous shall be high carbon mitrae seeci	no- socatri rods
	Socatri 1000 rods shall be used on all swing cylinders	yes
	Shock Absorbers:	yes.
10.1	Cushioning of the mold board shall be with four (4), heavy duty, long travel springs with 1-¼ inch cold rolled shafts, threaded at the top and double nutted for adjustable spring tension	yes.
10.2	Springs shall be 3-3/8 inch OD and 5,500 pound solid capacity each	yes.
	Standard Equipment:	yes.
11.1	Standard Equipment.	yes.
	Stainless steel hydraulic tubing shall be externally mounted and clamped in machined polymer brackets for ease of maintenance	yes.
11.2		yes.
	A remote grease kit that allows grease to be applied at two centralized locations outside of the chassis frame shall be provided	
11.3	Grease kit hoses shall be SAE107 Hytron hose rated at 3000 psi maximum work pressure	yes.
11.4	Grease line kit shall incorporate all grease points on the scraper including center pin, entire hinge line, cylinder pivot points, and	yes.
	canister trunion bearings	·
11.5	canister trunion bearings All fabricated sub-components shall be shot blasted and powder coated black prior to assembly	yes.
11.5 11.6	canister trunion bearings All fabricated sub-components shall be shot blasted and powder coated black prior to assembly All bolts, nuts, and washers shall be Grade 8	yes.
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11.5 11.6 11.7 17 1.0 1.1 1.2	canister trunion bearings All fabricated sub-components shall be shot blasted and powder coated black prior to assembly All bolts, nuts, and washers shall be Grade 8 No cutting edges shall be furnished END OF SPECIFICATION Specification # 55-MOPBLD.C19 Under-Body Scraper, MOP Style Snow Blade, Hydraulic Angling All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/MS4512 or equivalent. Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: 12 foot under-body scrapers/snow blades, with a single hinge "MOP Style" MDOT will install this scraper blade on a 44,000 GVWR single axle 4 x 2, dump truck with chassis measurements of approx. 211 inch W.B., 136 inch C.A. and 171 inch C.E. or a 64,000 GVWR tandem axle 6 x 4, dump truck with chassis measurements of approx.	yes. yes. yes. yes. Contractor Specification Compliance Make and Model: Monroe MS4512 part no 001838441 yes. yes.
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3.7	Cylinders shall be mounted with 2 inch hardened pivot pins	yes
3.8	Pivot pins shall be zinc coated and have spiraled grease groove	yes.
3.9	Cross over relief (cushion) valve will be furnished and set for 2,500psi and 30gpm for reversing protection	yes.
3.10	Reversing circle with hardened center bushing (RC 51-58), shall pivot on a hardened 5 inch center pin with a 3 port grease journal,	ves.
	5/16 inches wide x 3/16 inches deep full circumference grease groove and be attached with three (3) 3-¾ inch grade 8 mounting bolts	,
	to prevent hole elongation and will be lubricated with a grease zerk	
3.11	Center pin shall be piloted ½ inch deep x 5 inch diameter into hanger board	yes.
	Circle clamp blocks shall be 20 inch long x 7 inches deep minimum and shall not extend beyond the circle when fully reversed at 45°	,
3.12		yes.
2.42	on both the right and left rotation	
3.13	Circle clamp blocks shall be contoured to the circle and bolted to the hanger board with three 1 inch grade 8 bolts as close to the	yes.
	circle as possible for maximum strength	
3.14	Code shows block about a 1970 and 1990 March and a shows a few same of a second and and and and a shows a	yes.
2.45	Circle clamp blocks shall have 3/8 inch UHMW poly wear plate for ease of movement of hanger board and replacement Rear of circle for the reversing cylinder mounts shall be braced by a ¾ inch x 3 inch bars gusset under the bottom side and the bracing	
3.15		yes.
	to support the rear cylinder pin and boss	
3.16		yes.
	Because of rear wing mount, additional circle support from the chassis frame to the circle at the rear will not be acceptable	
3.17	The hold down block shall include a lower half welded to the hanger plate, which will act as a stop block against the rear of the circle	yes.
	for a positive stop	
4.0	Hanger Brackets:	yes.
4.1		yes.
L	Hanger brackets shall be one piece solid ¾ inch x 35 inch x 25-½ inch by 9-½, A36 or equal steel plate for maximum strength	
4.2	Hanger brackets to have 7 inch x 7 inch cut outs centered in the plate just above the top of the circle	yes.
	Hanger Board:	yes.
5.1	•	ves.
1	Hanger board shall consist of formed ½ inch plate and reinforced by ½ inch formed plate full length of the hanger board	ľ
5.2	Cylinder pin mounting tubes shall be 3 inch OD, reinforced at the base with two (2) ½ inch plates	yes.
	Hinge tubes shall be 3-¼ inch OD.344 inch wall thickness, 36 inches long with two (2) grease zerks each	yes.
	Hanger board cut out for center hinge shall have a ½ inch stiffener plate full width front to rear that adds an anchor point for pin	yes.
3.4	bosses and adds thrust plate for ends of hinge tubes	yes.
		yes.
3.3	Outer canister mounting arm must be bolted to the hanger board. Welded arms are not acceptable	,
6.0	Hinge:	yes.
6.1	Hinge line shall be a solid shaft 96 inches long and have three (3) mold board anchor points	yes.
6.2		yes.
	Hinge shaft shall be 2-½ inch diameter cold rolled 1018 steel with the two (2) outer hinges being 3-¼ inch x 6 inch and one (1) center	
	hinge being 3-½ inch x 10-¾ inch minimum in length and .344 inch wall thickness mechanical tubing	
6.3		yes.
	Hinge shall be reinforced with one (1) wrap around ½ inch gusset on the outer two (2) and two (2) gussets on the inner hinge	yes.
		yes.
6.4	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength	
6.4	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft	yes.
6.4 6.5 6.6	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board	yes. yes. yes.
6.4 6.5 6.6 7.0	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft	yes. yes. yes. yes.
6.4 6.5 6.6	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation:	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other
6.4 6.5 6.6 7.0	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other
6.4 6.5 6.6 7.0 7.1	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection)	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply
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6.4 6.5 6.6 7.0 7.1	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply
6.4 6.5 6.6 7.0 7.1 7.2	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes.
6.4 6.5 6.6 7.0 7.1 7.2 7.3	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes.
6.4 6.5 6.6 7.0 7.1 7.2	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes.
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¼ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¼ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes.
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes.
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6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5 7.6	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-½ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at the bottom, which are trunnion mounted with ¾ inch thick reinforced steel trunnion brackets Trunnion bearings shall be 2-¾ inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes.
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5 7.6	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at the bottom, which are trunnion mounted with ¾ inch thick reinforced steel trunnion brackets Trunnion bearings shall be 2-¾ inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts Canister trunion mount pins are 2 inch solid rod, bolt in removable design	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes. yes. yes.
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at the bottom, which are trunnion mounted with ¾ inch thick reinforced steel trunnion brackets Trunnion bearings shall be 2-¾ inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts Canister trunion mount pins are 2 inch solid rod, bolt in removable design A grease zerk shall be provided at the cylinder head	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes. yes. yes. yes. yes
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at the bottom, which are trunnion mounted with ¾ inch thick reinforced steel trunnion brackets Trunnion bearings shall be 2-¾ inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts Canister trunnion mount pins are 2 inch solid rod, bolt in removable design A grease zerk shall be provided at the cylinder head Mold board cushioning shall be through two (2) heavy duty shock assemblies with two (2) internally mounted 586lb/inch 13/16 inch	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes. yes. yes.
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¾ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at the bottom, which are trunnion mounted with ½ inch thick reinforced steel trunnion brackets Trunnion bearings shall be 2-¾ inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts Canister trunion mount pins are 2 inch solid rod, bolt in removable design A grease zerk shall be provided at the cylinder head Mold board cushioning shall be through two (2) heavy duty shock assemblies with two (2) internally mounted 586lb/inch 13/16 inch wire AlSI 5161 steel springs	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes. yes. yes. yes. yes
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9 7.10	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold Board Activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¼ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¾ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at the bottom, which are trunnion mounted with ¾ inch thick reinforced steel trunnion brackets Trunnion bearings shall be 2-¼ inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts Canister trunion mount pins are 2 inch solid rod, bolt in removable design A grease zerk shall be provided at the cylinder head Mold board cushioning shall be through two (2) heavy duty shock assemblies with two (2) internally mounted 586lb/inch 13/16 inch wire AlSI 5161 steel springs Standard Equipment:	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes. yes. yes. yes. yes
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9 7.10 8.0 8.1	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¼ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¼ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at the bottom, which are trunnion mounted with ¼ inch thick reinforced steel trunnion brackets Trunnion bearings shall be 2-¾ inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts Canister trunion mount pins are 2 inch solid rod, bolt in removable design A grease zerk shall be provided at the cylinder head Mold board cushioning shall be through two (2) heavy duty shock assemblies with two (2) internally mounted 586lb/inch 13/16 inch wire AISI 5161 steel springs Standard Equipment: Hydraulic stainless steel tubing shall be externally mounted with machined polymer hold down blocks	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes. yes. yes. yes. yes
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9 7.10 8.0 8.1 8.2	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a JSO relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-% inch diameter x 1-% inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-% inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at the bottom, which are trunnion mounted with ½ inch thick reinforced steel trunnion brackets Trunnion bearings shall be 2-% inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts Canister trunion mount pins are 2 inch solid rod, bolt in removable design A grease zerk shall be provided at the cylinder head Mold board cushioning shall be through two (2) heavy duty shock assemblies with two (2) internally mounted 586lb/inch 13/16 inch wire AISI 5161 steel springs Standard Equipment: Hydraulic stainless steel tubing shall be externally mounted with machined polymer hold down blocks Hoses, tubing, and ports on actuating cylinders shall be 3/8 inch NPT minimum	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes. yes. yes. yes. yes
6.4 6.5 6.6 7.0 7.1 7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9 7.10 8.0 8.1	Three heavy duty hinges shall be located to minimize stress along the hanger board for maximum strength There shall be four (4) grease zerks on the hinge shaft Inner hinge shall have two thrust plates to prevent side to side shifting of the mold board Mold Board Activation: Mold board activation shall be accomplished by two (2) 3 inch ID x 10 inch stroke minimum double with 2 inch minimum Socatri 1000 treated piston rods and shall include a J50 relief valve for actuating cylinder protection(required for warranty protection) Cylinders shall have 3/8 inch NPT ports, cast iron heads, poly pack seals and 2-¼ inch diameter x 1-¼ inch wide cross tube on the rod side with grease zerks. Cylinders shall have a ½ inch x 5-¼ inch diameter flange with a ½ inch x 1-3/8 inch guide tang reinforced to the 3/8 rod port with ½ inch bar to protect the port A 250-1000 psi adjustable relief valve with ½ inch ports shall be supplied with the scraper Canister cylinder assembly shall be retained by a four (4) bolt minimum ½ inch flange assembly with an internal ½ inch x 1-½ inch ring Canister cylinders shall be mounted in shock housings with a 1-½ inch cylinder guide at the top and a 1-½ inch x 6 inch relief slot at the bottom, which are trunnion mounted with ¼ inch thick reinforced steel trunnion brackets Trunnion bearings shall be 2-¾ inch x .344 inch wall thickness carbon steel, lubricated by two (2) grease zerks per cylinder at the trunnion mounts Canister trunion mount pins are 2 inch solid rod, bolt in removable design A grease zerk shall be provided at the cylinder head Mold board cushioning shall be through two (2) heavy duty shock assemblies with two (2) internally mounted 586lb/inch 13/16 inch wire AISI 5161 steel springs Standard Equipment: Hydraulic stainless steel tubing shall be externally mounted with machined polymer hold down blocks	yes. yes. yes. yes. Actuating cylinders are 3.5"- not 3". All other items comply yes. yes. yes. yes. yes. yes. yes. yes
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2.10	Pivot tube for the 1-1/2 inch pivot bolt shall have a minimum .625 inch wall and be welded 100% to the inside of the 1/2 inch plate and	yes.
344	outside of the mold board	lvos
	A ½ inch safety stop eyelet shall be on the front of the mold board and a ½ inch centered lift loop	yes.
	Mold board shall be designed to except a poly liner with no additional modifications Mounting/Push Arms:	yes.
3.1	Mounting/Push Arms:	yes.
	A ½ inch x 4 inch x 6 inch cross tube passing thru two (2) mounting plates shall attach the wing to the frame of the truck	, cs.
3.2	Side plates shall be 5/8 inch thick, 25-1/2 inches tall, 16 inches wide at the top, 10 inches wide at the bottom	yes.
3.3		yes.
3.4	Side plates shall have 3 inch x 3 inch x 3/8 inch angle welded to inside of the plate to butt to bottom flange of the chassis frame rail Each side plate shall have two (2) 2 inch x ½ inch bar stock reinforcement bars welded to the outside of the side plate contoured to	yes.
5.4	the shape of the side plate	yes.
3.5	The cross tube shall pass behind the underbody blade "circle"	yes.
3.6	The front wing post shall be welded to the cross tube	yes.
3.7	Front post shall be of trailing link, free floating, design	yes.
3.8	Wing post must be able to be mounted under a dump body without adding to chassis CA	yes.
3.9	The post front structure shall be no more than 24 inches high and 14 inches wide	yes.
3.10	Post is manufactured with a ¾ inch inside plate and a matching ½ inch outer plate	yes.
3.11	Inner and outer plates shall be reinforced inside with 3/8 inch Ex-Ten 50 and ½ inch plate	yes.
3.12	The front post shall be an anchor point for the three trailing link assemblies; one (1) lift link and two (2) float links	,,,,,
3.13	All link arms shall be oriented parallel to the chassis frame	yes.
3.14	Upper and lower link arms shall be ¾ inch bar stock with 1-3/4 inch machined hole on each end	yes.
	Float link arms shall be joined and reinforced with 2-1/2 inch schedule 80 pipe and $\frac{1}{2}$ inch plate	yes.
	Lift link arms shall be ½ inch plate joined and reinforced with 2-1/2 inch schedule 80 pipe and 1 inch plate	yes.
3.17	Upper and lower float arms shall be linked with ½ inch inner and 1 inch outer lift bars	yes.
	Lift bars shall have 1-3/4 inch machined holes at both ends	yes.
3.19	Outer 1 inch lift bar shall have three (3) 1 inch ears to accept the pin for the wing mounting plate	yes.
3.20	The state of the s	yes.
	Pin for banjo plate shall be 1-½ inch diameter Banjo plate/hinge for moldboard shall be fabricated of 1 inch material, reinforced with ½ inch bar and have four (4) 1 inch thick	yes. Also includes a captive clamp to the
3.22	reinforced ears for the hinge pin	moldboard
3.23	The bolt for retaining the mold board shall be 1-½-6 x 7 G8 HHCS Zinc plated with castle nut and cotter pin	yes.
3.24	Bolt shall be drilled for the cotter pin	yes.
3.25	Rear wing mount shall be fabricated from 4 inch x 6 inch x ½ inch steel tube, and shall include one (1) 12 inch x 15 inch x ½ inch plate	yes.
3.26	and six (6) 3 inch x 3 inch x ½ inch gussets for tube reinforcement Rear wing mounting post and rear push arm/cylinder mounting plate with gussets shall be fully assembled	yes.
	The rear upper push arm shall be equipped with an external slide assembly to allow for mechanical float and attachment of the heel	ves.
	lift cylinder	<u>'</u>
3.28	Rear push arms and heel lift cylinder shall be attached with 1-¼ inch bolts for attach and detach	yes.
3.29	There shall be two (2) rear wing heavy duty, 2-½ inch schedule 80, adjustable, spring cushioned lift arms including safety shear pins, 6	yes.
	feet long fully extended, pin mounting points shall have flange tube weldments to prevent premature wear	
3.30	Mounting hardware shall include schedule 80 pipe bracing, two (2) pipe balls, a flame cut ¾ inch support plate, Grade 8 nuts, bolts,	yes.
2 21	and washers necessary for a complete installation Rear push arm/cylinder mounting plate shall include two (2) ½ inch plates, flame cut with three (3) offset mounting holes to mount	
5.31	the rear push arms and the heel lift cylinder fabricated from ½ inch plate	yes.
3.32	All 1-3/4 inch machined holes in all link arms shall have RC 50 hardened bushings	yes.
	Hinge pins shall be 1-1/2 inch OD, case hardened to RC 55-60	yes.
3.34	All hinge pins shall be rifled and cross drilled with grease zerks on both ends	yes.
	Hydraulics:	
	One (1) 3 inch OD x 5 inch double acting lift cylinder, 1-1/2 inch nitride rod, ¾-16ORB ports, polypak seals	yes.
4.2	Cylinder shall be attached with 1 inch stress proof pins, machine washers and roll pins Lifting action for the heal and of the wing shall be accomplished via a single 2 inch ID v 15 inch streke, pitrated 2 inch rod 3/ 160PP.	yes.
4.3	Lifting action for the heel end of the wing shall be accomplished via a single 3 inch ID x 15 inch stroke, nitrated 2 inch rod, %-16ORB ports, polypak seals, double acting hydraulic deceleration cylinder	yes.
4.4	Heel cylinder shall be attached to the upper rear push arm slide assembly	yes.
	Line lock to be provided in the heel cylinder to keep mold board from dropping from the storage position in the event of a hydraulic	yes.
	line failure	lugs.
4.5	A sequencing valve shall be supplied with the wings	yes.
4.0	Sequencing valve shall be adjustable for both the up sequencing of the wing and the down sequencing of the wing	yes.
4.7	Lock valves shall be built into the sequencing valve to prevent both the toe and heel cylinder from drifting when in the stored position	yes.
	The sequencing valve shall allow wing to hydraulically drift up when in the plowing position	yes.
	Sequencing valve shall be equipped with an adjustable metering valve to control the speed at which the blade drops when going from the stored position to the plow position	<u></u>
	Finish:	yes.
5.1	All fabricated components shall be shot blasted and washed prior to powder coating	yes.
5.2	Mold board shall be powder coated to a match a paint color sample supplied by MDOT at the preconstruction meeting	yes.
5.3	All other components shall be powder coated black	yes.
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	TAID OF COFCIFICATION	
	END OF SPECIFICATION Specification # 57-0901SMWJR.C19 Wing Plow, behind Scraper Mount, 9 Foot Left or Right	
19		Contractor Specification Compliance
19	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	contractor specification compliance
	standard features normally offered with these models Referenced Make and Model: Monroe/9MJW-PG or equivalent.	Make and Model: Monroe 9 ft junior wings
	Contractor to identify proposed make and model	with decel cylinders
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	
_	Basic Requirements:	
1.1		yes. Part number and pricing for both 9 ft
		and 7 ft right and left Jr wings supplied on
	9 ft. Left or right side behind scraper mount wings	price sheet as well as option for poly liners
1.2	MDOT will install this scraper blade on a 64,000 GVWR tandem axle 6 x 4, dump truck with underbody scraper chassis measurements	
1.3	of approx. 211 inch W.B., 136 inch C.T. and 213 inch C.E.	yes
	MDOT assigned unit numbers shall be welded to a stainless steel plate 2"x 10" with two (2) holes 1/2' from each end that will accept	
	a 1/4' bolt, Two (2) 1/4' x 1" bolts with 4 flat washers and lock nuts shall be provided and shipped loose with the plow. Hole location	
1.4	in the mold board shall be determined at the preconstruction meeting.	yes
1.4	Each wing assembly shall be furnished with an epoxy sealed, magnetic proximity switch, Grainger part # 6C834 or Omron type TL-	
	W20ME2 12V - 24V to activate a "wing down" light, shipped loose (MDOT will furnish light) No Exceptions	yes
	Wing shall be operated by hydraulic lift, no cables or chains shall be accepted	yes
1.6	Wing shall be capable of mounting with an overlap to the under body scraper discharge to prevent a windrow between the scraper and the wing mold board	yes
1.7	Wing shall have a minimum of 6-½ foot clearing path when in the winging position	ves
1.8	All seems and joints shall be 100% continuous welded	yes
2.0	Mold Board:	
2.1	Wings shall be designed to mount behind the underbody blade and shall have a mold board length of 113 inches at the top and 108	yes. Also includes a captive clamp to the
2.2	inches at the bottom	moldboard
	Mold board height shall measure 27 inches inboard and 28 inches outboard with cutting edge Mold board shall be 3/16 inch A36 steel	yes yes
	Top of mold board shall be formed into a 2-¾ inch x 1 inch channel for additional strength	ves
	Top flange of moldboard shall have holes located 6 inches from each end and 12 inches on center for full length of moldboard, drilled	yes
	prior to powder coat	
2.6	Bottom angle shall be 4 inch x 4 inch x ¾ inch and reinforced between the cutting edge holes with ten (10) 3 inch x 3 inch x ½ inch gussets	yes
2.7	Paracra	yes
	There shall be five (5) ½ inch mold board reinforcement ribs tapered from 4 inches at the bottom to 2-½ inches at the top	
2.8	There shall be three (3) horizontal reinforcement angles between the discharge end last two ribs, bottom 3 inch x 3 inch x ½ inch	yes
	reinforcement angle shall have seven (7) evenly spaced 5/8 inch holes for push arm adjustment, top 4 inch x 4 inch x ½ inch	
	reinforcement angle shall have seven (7) evenly spaced 5/8 inch holes for push arm adjustment	
2.9	Front attachment pivot plate will be ½ inch steel, completely boxed and supported with ½ inch and 3/16 inch plate	yes
2.10	Pivot tube for the 1-½ inch pivot bolt shall have a minimum .625 inch wall and be welded 100% to the inside of the ½ inch plate and	yes
244	outside of the mold board	
	A ½ inch safety stop eyelet shall be on the front of the mold board and a ½ inch centered lift loop	yes yes
	Mold board shall be designed to except a poly liner with no additional modifications Mounting/Push Arms:	yes
3.1	Wounting/Fusit Attits.	yes
	A ½ inch x 4 inch x 6 inch cross tube passing thru two (2) mounting plates shall attach the wing to the frame of the truck	
	Side plates shall be 5/8 inch thick, 25-1/2 inches tall, 16 inches wide at the top, 10 inches wide at the bottom	yes
3.3	Side plates shall have 3 inch x 3 inch x 3/8 inch angle welded to inside of the plate to butt to bottom flange of the chassis frame rail	yes
3.4	Each side plate shall have two (2) 2 inch x ½ inch bar stock reinforcement bars welded to the outside of the side plate contoured to	yes
	the shape of the side plate	
	The cross tube shall pass behind the underbody blade "circle"	yes
	The front wing post shall be welded to the cross tube	yes
3.7	Front post shall be of trailing link, free floating, design	yes yes
3.9	Wing post must be able to be mounted under a dump body without adding to chassis CA The post front structure shall be no more than 24 inches high and 14 inches wide	yes
	Post is manufactured with a % inch inside plate and a matching ½ inch outer plate	yes
3.11	Inner and outer plates shall be reinforced inside with 3/8 inch Ex-Ten 50 and ½ inch plate	yes
3.12	p	yes
3.10	The front post shall be an anchor point for the three trailing link assemblies; one (1) lift link and two (2) float links	
3.13	All link arms shall be oriented parallel to the chassis frame	yes
3.14 3.15	Upper and lower link arms shall be ¾ inch bar stock with 1-3/4 inch machined hole on each end	yes
3.16	Float link arms shall be joined and reinforced with 2-1/2 inch schedule 80 pipe and ½ inch plate Lift link arms shall be ½ inch plate joined and reinforced with 2-1/2 inch schedule 80 pipe and 1 inch plate	yes
3.17	Upper and lower float arms shall be linked with ½ inch inner and 1 inch outer lift bars	yes
3.18	Lift bars shall have 1-3/4 inch machined holes at both ends	yes

		1
	Outer 1 inch lift bar shall have three (3) 1 inch ears to accept the pin for the wing mounting plate	yes
	A 1 inch thick reinforced banjo mounting plate shall be pinned to the post and bolted to the moldboard	yes
	Pin for banjo plate shall be 1-½ inch diameter	yes
	Banjo plate/hinge for moldboard shall be fabricated of 1 inch material, reinforced with ½ inch bar and have four (4) 1 inch thick	yes. Also includes a captive clamp to the
3.22	reinforced ears for the hinge pin	moldboard
3.23	The bolt for retaining the mold board shall be 1-½-6 x 7 G8 HHCS Zinc plated with castle nut and cotter pin	yes
	Bolt shall be drilled for the cotter pin	yes
		·
3.25	Rear wing mount shall be fabricated from 4 inch x 6 inch x ½ inch steel tube, and shall include one (1) 12 inch x 15 inch x ½ inch plate	yes
2.25	and six (6) 3 inch x 3 inch x ½ inch gussets for tube reinforcement	luas .
3.26	Rear wing mounting post and rear push arm/cylinder mounting plate with gussets shall be fully assembled	yes
	The rear upper push arm shall be equipped with an external slide assembly to allow for mechanical float and attachment of the heel	yes
	lift cylinder	
3.28	Rear push arms and heel lift cylinder shall be attached with 1-¼ inch bolts for attach and detach	yes
3.29		yes
	There shall be one (1) rear wing heavy duty, 2-½ inch schedule 80, adjustable, spring cushioned lift arm including safety shear pins, 6	
	feet long fully extended, pin mounting points shall have flange tube weldments to prevent premature wear	
3.30	A safety cable shall be provided that is fastened to the both ends of the lower push arm	yes
	Mounting hardware shall include schedule 80 pipe bracing, two (2) pipe balls, a flame cut ¾ inch support plate, Grade 8 nuts, bolts,	yes
	and washers necessary for a complete installation	
3.32	Rear push arm/cylinder mounting plate shall include two (2) ½ inch plates, flame cut with three (3) offset mounting holes to mount	yes
	the rear push arm fabricated from ½ inch plate	
3.33	All 1-3/4 inch machined holes in all link arms shall have RC 50 hardened bushings	yes
	Hinge pins shall be 1-1/2 inch OD, case hardened to RC 55-60	yes
		,
	All hinge pins shall be rifled and cross drilled with grease zerks on both ends	yes
	Hydraulics:	
4.1	One (1) 3 inch OD x 5 inch double acting lift cylinder, 1-1/2 inch nitride rod, ¾-16ORB ports, polypak seals	yes
4.2	Cylinder shall be attached with 1 inch stress proof pins, machine washers and roll pins	yes
	Lifting action for the heel end of the wing shall be accomplished via a single 4 inch ID x 10 inch stroke, nitrated 2 inch rod, %-16ORB	yes
	ports, polypak seals, double acting hydraulic deceleration cylinder	ľ
	Heel cylinder shall be attached to the front banjo plate and the lower mold board float link assembly	yes
	Line lock to be provided in the heel cylinder to keep mold board from dropping from the storage position in the event of a hydraulic	ves
	line failure	,
	A sequencing valve shall be supplied with the wings	yes
4.6	A sequencing valve shall be supplied with the wings	,
	Sequencing valve shall be adjustable for both the un sequencing of the wing and the down sequencing of the wing	yes
4.7	Sequencing valve shall be adjustable for both the up sequencing of the wing and the down sequencing of the wing	vos
4.7	Lock valves shall be built into the sequencing valve to provent both the too and heal culinder from drifting when in the stored resition	yes
	Lock valves shall be built into the sequencing valve to prevent both the toe and heel cylinder from drifting when in the stored position	
4.0		i
	The sequencing valve shall allow wing to hydraulically drift up when in the plowing position	yes
4.9	The sequencing valve shall allow wing to hydraulically drift up when in the plowing position Sequencing valve shall be equipped with an adjustable metering valve to control the speed at which the blade drops when going from	yes
4.9	The sequencing valve shall allow wing to hydraulically drift up when in the plowing position Sequencing valve shall be equipped with an adjustable metering valve to control the speed at which the blade drops when going from the stored position to the plow position	yes yes
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	Mold board shall be 3/16 inch A36 steel	yes
2.4	Top of mold board shall be formed into a 2-¾ inch x 1 inch channel for additional strength	yes
2.5	Top flange of moldboard shall have holes located 6 inches from each end and 12 inches on center for full length of moldboard, drilled	yes
	prior to powder coat	
2.6	Bottom angle shall be 4 inch x 4 inch x ¾ inch and reinforced between the cutting edge holes with thirteen (13) 3 inch x 3 inch x ½	yes
	inch gussets	
2.7		yes
- 2.0	There shall be nine (9) ½ inch mold board reinforcement ribs tapered from 4 inches at the bottom to 2-½ inches at the top	
2.8	There shall be three (3) horizontal reinforcement angles between the discharge end last three ribs, bottom one (1) - 5 inch x 3 inch x	yes
	½ inch shall have five (5) evenly spaced 5/8 inch holes and Two (2) -22 inch x 3 inch reinforcement angle shall have seven (7) evenly	
	spaced 5/8 inch holes for push arm adjustment, top one (1) 16 1/2 inch x 6 1/2 inch x ½ inch shall have five (5) evenly spaced 5/8 inch	
	holes an Two (2) 22 inch x 6 1/2 inch reinforcement angle shall have seven (7) evenly spaced 5/8 inch holes for push arm adjustment	
2.9		yes
	Front attachment pivot plate will be ½ inch steel, completely boxed and supported with ½ inch and 3/16 inch plate	•
2.10	Pivot tube for the 1-½ inch pivot bolt shall have a minimum .625 inch wall and be welded 100% to the inside of the ½ inch plate and	yes
	outside of the mold board	
2.11	A ½ inch safety stop eyelet shall be on the front of the mold board and a ½ inch centered lift loop	yes
	Mold board shall be designed to except a poly liner with no additional modifications	yes
	Mounting/Push Arms:	yes
3.1	mounting, contrains.	yes
5.1	A ½ inch x 4 inch x 6 inch cross tube passing thru two (2) mounting plates shall attach the wing to the frame of the truck	,
3.2	Side plates shall be 5/8 inch thick, 25-1/2 inches tall, 16 inches wide at the top, 10 inches wide at the bottom	yes
3.3	2.22 p. 2.22 p. and and and any 20 2/2 mones can 20 mones mad at the top, 20 mones mad at the bottom	yes
5.5	Side plates shall have 3 inch x 3 inch x 3/8 inch angle welded to inside of the plate to butt to bottom flange of the chassis frame rail	,
3.4	Each side plate shall have two (2) 2 inch x ½ inch bar stock reinforcement bars welded to the outside of the side plate contoured to	yes
	the shape of the side plate	•
3.5	The cross tube shall pass behind the underbody blade "circle"	yes
	The front wing post shall be welded to the cross tube	yes
		yes
	Front post shall be of trailing link, free floating, design	
	Wing post must be able to be mounted under a dump body without adding to chassis CA	yes
	The post front structure shall be no more than 24 inches high and 14 inches wide	yes
3.10	Post is manufactured with a ¾ inch inside plate and a matching ½ inch outer plate	yes
3.11	Inner and outer plates shall be reinforced inside with 3/8 inch Ex-Ten 50 and ½ inch plate	yes
3.12		yes
	The front post shall be an anchor point for the three trailing link assemblies; one (1) lift link and two (2) float links	
3.13	All link arms shall be oriented parallel to the chassis frame	yes
3.14	Upper and lower link arms shall be ¾ inch bar stock with 1-3/4 inch machined hole on each end	yes
3.15	Float link arms shall be joined and reinforced with 2-1/2 inch schedule 80 pipe and ½ inch plate	yes
	Lift link arms shall be ½ inch plate joined and reinforced with 2-1/2 inch schedule 80 pipe and 1 inch plate	yes
	Upper and lower float arms shall be linked with ½ inch inner and 1 inch outer lift bars	yes
	Lift bars shall have 1-3/4 inch machined holes at both ends	yes
		yes
	Outer 1 inch lift bar shall have three (3) 1 inch ears to accept the pin for the wing mounting plate	,
	A 1 inch thick reinforced banjo mounting plate shall be pinned to the post and bolted to the moldboard	yes
3.21	Pin for banjo plate shall be 1-½ inch diameter	yes
3.22	Banjo plate/hinge for moldboard shall be fabricated of 1 inch material, reinforced with ½ inch bar and have four (4) 1 inch thick	yes. Also includes a captive clamp to the
<u> </u>	reinforced ears for the hinge pin	moldboard
	The bolt for retaining the mold board shall be 1-½-6 x 7 G8 HHCS Zinc plated with castle nut and cotter pin	yes
	Bolt shall be drilled for the cotter pin	yes
3.25	Rear wing mount shall be fabricated from 4 inch x 6 inch x ½ inch steel tube, and shall include one (1) 12 inch x 15 inch x ½ inch plate	yes
<u> </u>	and six (6) 3 inch x 3 inch x ½ inch gussets for tube reinforcement	
	Rear wing mounting post and rear push arm/cylinder mounting plate with gussets shall be fully assembled	yes
3.27	The rear upper push arm shall be equipped with an external slide assembly to allow for mechanical float and attachment of the heel	yes
	lift cylinder	
3.28	Rear push arms and heel lift cylinder shall be attached with 1-¼ inch bolts for attach and detach	yes
3.29		yes
	There shall be two (2) rear wing heavy duty, 2-½ inch schedule 80, adjustable, spring cushioned lift arms including safety shear pins, 6	
	feet long fully extended, pin mounting points shall have flange tube weldments to prevent premature wear	
3.30	Mounting hardware shall include schedule 80 pipe bracing, two (2) pipe balls, a flame cut ¾ inch support plate, Grade 8 nuts, bolts,	yes
2.20	and washers necessary for a complete installation Rear push arm/cylinder mounting plate shall include two (2) % inch plates, flame cut with three (3) offset mounting plates to mount	No.
3.31	Rear push arm/cylinder mounting plate shall include two (2) ½ inch plates, flame cut with three (3) offset mounting holes to mount	yes
2 22	the rear push arms and the heel lift cylinder fabricated from ½ inch plate	wes
	All 1-3/4 inch machined holes in all link arms shall have RC 50 hardened bushings	yes
	Hinge pins shall be 1-1/2 inch OD, case hardened to RC 55-60	yes
	All hinge pins shall be rifled and cross drilled with grease zerks on both ends	yes
	Hydraulics:	
4.1	One (1) 3 inch OD x 5 inch double acting lift cylinder, 1-1/2 inch nitride rod, ¾-16ORB ports, polypak seals	yes
	Cylinder shall be attached with 1 inch stress proof pins, machine washers and roll pins	yes
	Lifting action for the heel end of the wing shall be accomplished via a single 3 inch ID x 15 inch stroke, nitrated 2 inch rod, %-160RB	yes
	ports, polypak seals, double acting hydraulic deceleration cylinder	
4.4	Heel cylinder shall be attached to the upper rear push arm slide assembly	yes
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Iline failure 4.6 A sequencing valve shall be supplied with the wings yes			
4.4 A segerating valve shall be supplied with the wings. 7. Comparing valve shall be supplied with the wings. 7. Comparing valve shall be supplied for both the up operations of the wing and the down requesting of the wing. 8. Lest sharts with the built of the the requesting valve to movement both that to and bed infected from drifting when in the stand possible. 4. The expectancy shall be built and the requesting valve to movement both that to and bed infected from drifting when in the stand possible requestion. 4. So precision will be the supplied and an adjustable memorary valve to the stand of the sta	4.5		yes
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	1.34	Mounting nardware shall be 201 stainless steel and be provided	ILJ

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	All stainless steel parts shall be in bare stainless	YES
1.36	All mild steel parts shall be painted black	YES
	END OF SPECIFICATION	
	Specification # 60-11_14SSDMP-Option2.C19 Zero Velocity Spreader	
	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	Contractor Specification Compliance
_	Referenced Make and Model: Monroe/ACCU-Place or equivalent.	Make and Model: MONROE ACCUPLACE
	Contractor to identify proposed make and model	
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	
	Basic Requirements:	
1.1	Spinner housing shall be of 10 gauge type 201 stainless steel	YES
1.2	Housing shall have a 12 inch x 14 inch opening with three flexible bolt on flares to divert material into housing	YES
1,3	Housing opening shall have four (4) safety bars of 3/16 inch 201 stainless steel to prevent large objects from entering housing opening	YES
1.4	Spreader impeller shall dispense material onto roadway, and be manufactured from type 201 stainless steel and shall include replaceable end bits	YES
1.5		YES
	Impeller shall have four (4) 4-¾ inch x 4 inch paddles, 16 inches in diameter with a 1 inch bore steel hub integrally welded to impeller	vec.
	Impeller motor shall be low speed/high torque "orbital type" hydraulic wheel motor with 3 CID displacement	YES
	Motor shall be capable of applications up to 800rpm	YES
	Motor shall be Parker type with a stainless steel output shaft	YES
	Impeller drive shaft shall extend through both sides of the housing and is supported by a greaseable bearing on the housing side opposite the drive motor	YES
	An in line flow meter with a hall affect speed sensor shall be provided with a Brad Harrison type connector to interface with control console	Standard MDOT application has deleted the flow meter
		Standard MDOT application has deleted the
	XDS (or equivalent) Control Point controller	flow meter
	Spinner assembly shall be mounted with approximately 6 inches ground clearance and be adjustable in height	yes
	Mount brackets MUST have MDOT written approval	yes
	Unit must be capable of being mounted on the left or right side of the unit	yes
1.15	Spinner assembly shall lift 6 inches by actuating in cab switch	yes
1.16	Spinner assembly shall rotate 45° right and left of center position by actuating remote in cab switch	yes
	Direction of spinner assembly shall be displayed on console by indicator lights	Standard MDOT application has deleted the flow meter
1.18		right/left cylinder is included- position
	actuating cylinder	indicator has been deleted
	A closed center, electric actuated valve shall be provided with the zero velocity spinner to control the up/down, right/left, and deflector functions	yes
	Cab controls for the zero velocity spinner shall include switches for up/down, right /left, deflector up/down, a position display, and all necessary wiring harnesses to interface the controls to the valve	Custom MDOT switch includes a vertical switch for up/down, ahorizontal switch for left right, and a vertical switch for deflector up/down
	END OF SPECIFICATION	up/ uowii
	Specification # 60-11SSDMP.C19 Hopper Box Material Spreader 11 Foot and Distribution Systems	
23	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	Contractor Specification Compliance
	standard features normally offered with these models	Make and Madel: Marrier 140/400 07
	Referenced Make and Model: Monroe/MCV-132-84-50 or equal Contractor to identify proposed make and model	Make and Model: Monroe MCV132-85-
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	50/201- CHAIN- DOGHOUSE
	Basic Requirements:	
	MDOT will install this slide in type hopper box material spreader on a 44,000 GVW single axle truck with 11 foot dump box and a	
	closed center load sensing hydraulic system	yes
1.2	Spreader Body:	
	Spreader body length shall be 11 feet	yes
1.4		yes
	Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends	
1.5	Spreader shall be of modular, slot and tab design	yes
	Spreader hopper is approximate 5.8 cubic yard capacity	yes
	Spreader overall width shall be approximately 84 inches	yes
	Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel	yes
	Longitudinal support members shall be 7 gauge type 201 stainless steel	yes
	Longitudinal shall have a 24 inch bolt on replaceable rear tail section	yes
-		yes
	Tail section and the mating longitudinal shall have ¼ inch flanges reinforced with ¼ inch triangular gussets	,
_	Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel	yes
	Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor	yes
	The eight (8) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks	yes
1.15	End panels shall slope inward 25° on front panel and 20° on back panel	yes
1.16	Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel	yes
	Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch	yes

1.3.18 Floor about built be conceptioned by Rapping the design to form a 2 facts at 1 and channel. 1.3.19 Report with the 2 and 2 in Art 2 land 1.7 gray appear for some growth in the flow of support for the posteron repression of the posteron repression of the control of the			
Jack Anaeya upin y SP minh both on lift loop shall be prouded at each contex of the hoppe. 1.32 Additional reinforcement or both the traite and outside of the body is required to appoint the down brackets. 1.32 Fort Steet to include a world on box section that will allow the unit to be installed in dump look year OSSDMP C18/Horn electronic property of the control of the contro	1.18	Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel	yes
1.20 An exposure 5.20 includes to collisions with a contract of the larguer of the down branches. 1.21 Prior of the body shall be diffed to accept MOOT furnished rubber bumpers, location to be determined at preconstruction meeting. 1.22 Prior of the body shall be diffed to accept MOOT furnished rubber bumpers, location to be determined at preconstruction meeting. 1.23 Prior if bert to furnished a collection of the collection with the collection of the col			yes
1.22 Control of the provision of the control of the times and countries of the body in required to support had down transfers your provisions of the control of the provision of			
1.22 Control of the provision of the control of the times and countries of the body in required to support had down transfers your provisions of the control of the provision of	1.20	A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper	yes
Proof of the body shall be defined as accept MDDT furnished nabber bumpers, location to be determined at preconstruction meeting 2.13 Force deer to include a welder in low section that will allow the unit to be invalided in the proof of the control of the section of the proof of the control of the proof of the proo			yes
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1.23 From Sheet to include a wedded in loss section that will allow the unit to be installed in dump body sec 0+350MP (Cyll ford to telescope) when the scheme constructive of 6 min is 5 min v. St. inch v. St. i		Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting	, 65
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3.0 Conveyor: Shall be maximum 24 inches wide, with heavy duty type 201 stainless steel bolt in chain shields over the chain strands, exposing only the drag bars to the material 3.2 Conveyor chain shall be 65x4 the extreated 2.25 pitch, self-cleaning, pintle-type with .224 inch link thickness, 15/32 inch diameter pins and a minimum average tensile strength of 26,000 pounds, manufactured in the USA 3.3 3.3 3.3 3.4 3.5 3.5 3.6 3.7 3.6 3.7 3.7 3.5 3.8 3.8 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9	2.4	Feed gate shall be adequately braced with a 24 inch embossment just above the door opening	yes
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7.9 A shear key inside the gear box is NOT acceptable yes	7.7	Gearbox driveshaft shall not extend beyond case opposite the drive motor	yes
7.9 A shear key inside the gear box is NOT acceptable yes	7.8	A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft	yes
	7.9	A shear key inside the gear box is NOT acceptable	
END OF SPECIFICATION			,
		END OF SPECIFICATION	L

	Specification # 60-11SSUBHDMP.C19 Hopper Box Material Spreader 11 Foot and Distribution Systems	
24	All items are sifted and formished by the Carterator shall be now af the latest model in surrout moderation and shall include all	Contractor Specification Compliance
	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	
	Referenced Make and Model: Monroe/MCV-132-84-50 or equal	Make and Model: Monroe MCV132-85-
	Contractor to identify proposed make and model	50/201- CHAIN- NO DOGHOUSE
1.0	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements:	
	MDOT will install this slide in type hopper box material spreader on a 44,000 GVW single axle truck with 11 foot dump box and a	
	closed center load sensing hydraulic system	yes
1.2	Spreader Body:	
	Spreader body length shall be 11 feet	yes
1.4	Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends	yes
1.5	Spreader shall be of modular, slot and tab design	yes
	Spreader hopper is approximate 5.8 cubic yard capacity	yes
	Spreader overall width shall be approximately 84 inches	yes
	Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel	yes
1.9	Longitudinal support members shall be 7 gauge type 201 stainless steel	yes
1.10	Longitudinal shall have a 24 inch bolt on replaceable rear tail section	yes
	Tail section and the mating longitudinal shall have $rak{1}{2}$ inch flanges reinforced with $rak{1}{2}$ inch triangular gussets	yes
	Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel	yes
	Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor	yes
1.14	The eight (8) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks	yes
1.15	End panels shall slope inward 25° on front panel and 20° on back panel	ves
	Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel	yes
	Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch	yes
	Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel	yes
	Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center	yes
	beam	
	A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper	yes
1.21	Additional reinforcement on both the inside and outside of the body is required to support hold down brackets	yes
1.22	Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting	yes
	Two (2) hold down brackets constructed of 6 inch x 5 inch x ¼ inch stainless steel plate with a 3 inch tall piece of 5 inch stainless steel	
	channel welded to the center shall be welded to the body centered 16 inches back of front bulkhead on the sloped surface centered	
1.24	3 inches below the breakline, one (1) each side Spreader shall be equipped with a bolt-in conveyor floor of 7 gauge type 201 stainless steel supported with a combination of 10	yes
1.24	gauge angles, 7 gauge flat bar, and 7 gauge formed channel	yes
1.25		
1 26	A wiper belt shall be at the rear most end of the floor to direct material into the center region of the chute assembly	yes
1.27	Wiper belt in the front to prevent material leakage	yes
1.27	Long sills shall be slotted each end with openings at the extreme ends for ease of idler and drive sprocket shaft replacement	yes
1.28	Long sills shall have an additional 2 inch x 2 inch x ¼ inch stainless steel angle welded to the bottom of each side to support the cross	
	auger	yes
	Feed Gate Opening:	yes
2.1	A 10 gauge type 201 stainless steel feed gate approximately 12 inch x 18 inch with a ruler, shall be provided in the unloading end of	
	the box with a heavy duty screw type mechanism with ½ inch stainless steel handle which shall regulate material discharge	yes
2.2		
2.2	The crank handle shall be extended so that it is not more than 72 inches from the ground with the V box installed	yes
	Crank handle screw type mechanism shall be located on the passenger's side of spreader	yes
	Feed gate shall be adequately braced with a 24 inch embossment just above the door opening	yes
	Conveyor: Conveyor shall be maximum 24 inches wide, with heavy duty type 201 stainless steel bolt in chain shields over the chain strands,	
	exposing only the drag bars to the material	yes
3.2	Conveyor chain shall be 667XH heat treated 2.25 pitch, self-cleaning, pintle-type with .224 inch link thickness, 15/32 inch diameter	
3.3	pins and a minimum average tensile strength of 26,000 pounds, manufactured in the USA	yes
3.3	Eight tooth cast iron sprockets with 1-½ inch drive and idler shafts, and four (4) bolt relubable flange bearings shall be provided	yes
3.4		
	Cross bars ½ inch x 1-½ inch x 18-¾ inches shall be positioned on approximately 2-¼ inch centers, welded top and bottom	yes
	Overall chain width shall not exceed 22-¼ inches	yes
3.6	A heavy duty, spring loaded, idler adjustment assembly (sufficient to carry the extra load or weight of the conveyor chain with added cross bars), shall provide 9 inches of travel for proper conveyor chain tension. Spring must be rated at a minimum of 708 PSI and be 6	
	inches long 2.187 inch OD	yes
3.7	Adjuster screw shall be a minimum of ¾ inch stainless steel	yes
3.8	Adjuster shall be extended so the adjustment can be made at the rear of the spreader with jam nuts at the rear	yes
	Welds and Fasteners:	yes
4.1	Hopper shall be robotically welded	yes

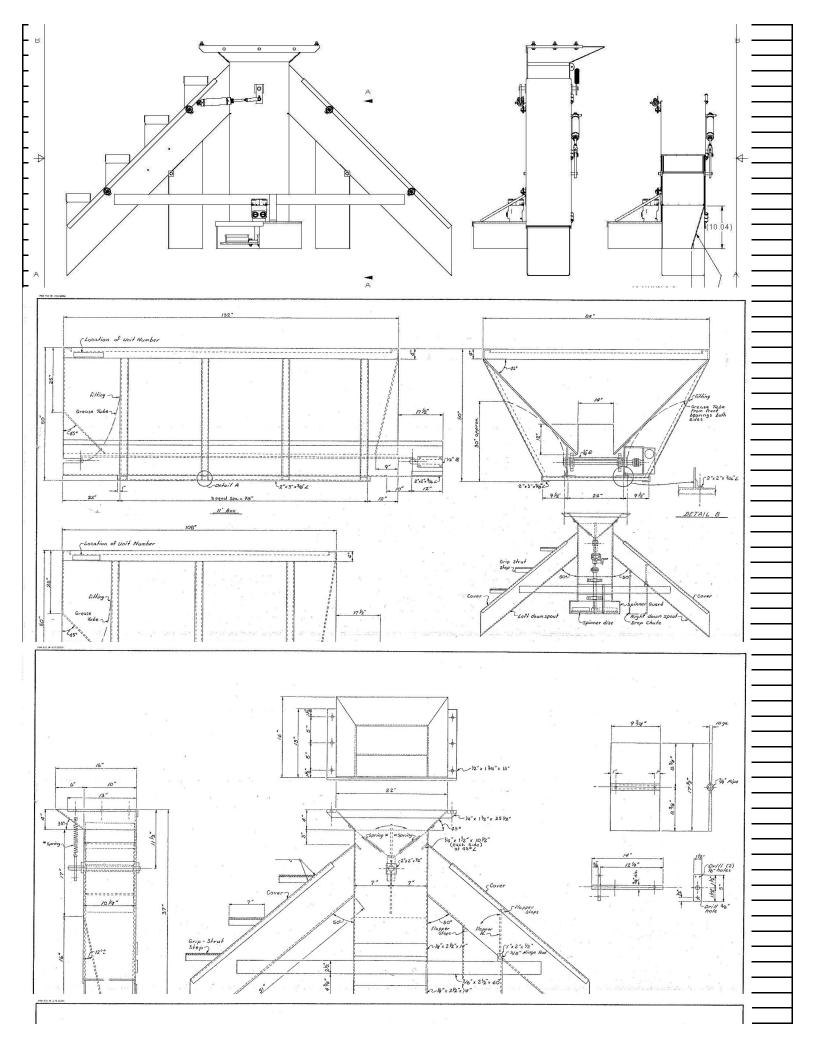
		1
	All welds shall be continuous, inside and outside and cleaned of weld slag and spatter	yes
	Bolts on the spreader body shall all be 201 stainless steel	yes
	Grease tubes:	
	Grease tubes shall be provided from the front to the rear of the spreader body for ease of lubrication of front conveyor bearings (both sides)	yes
5.2	Grease hoses shall be SAE107 Hytron hose rated at 3000 psi maximum work pressure	yes
	Hydraulic Motors:	
		ves
6.2	Spirite instance in an area of the spiritual and spiritual specific	ves
6.3	opinic also mis situit se accigned for stocking rotation	Most recent MDOT orders included a 2.5 CID
		hi pressure motor. Monroe standard is 6.3
	Conveyor drive motor shall be 12.1 CID and equipped with a Hall effect type speed sensor that produces 100 or more pulses per revolution	CID. MDOT choice of 2.5, 6.5, or 12.1 CID motors
7.0		
7.0	Gear Reduction Conveyor Drive: Gear reduction shall be approximately 50:1 with hardened, precision-machined, worm type gear with tapered roller bearings on the	YES
′.1	output shaft	YES
7.2	Gear case shall be oil tight, equipped with filler, drain, and oil level drain plugs	YES
7.3	Gear case will be vented	YES
7.4	Conveyor motor shall be mounted directly to the gear case	YES
7.5	Conveyor drive motor shall be positioned on the forward side of the gearbox	YES
-		
	enset Bear on mounting place shall be imministrative type 202 stallness steel.	YES
7.7	Gearbox driveshaft shall not extend beyond case opposite the drive motor	YES I
7.8	A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft	YES I
7.9	A shear key inside the gear box is NOT acceptable	YES
	END OF SPECIFICATION	
	Specification # 60-14SSDMP.C19 Hopper Box Material Spreader 14 Foot and Distribution Systems	
25	All itams specified and furnished by the Contractor shall be now of the latest model in surrent production and shall include all	Contractor Specification Compliance
	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	
	Referenced Make and Model: Monroe/MCV-168-84-56 or equal	Make and Model: Monroe MCV168-85-
	Contractor to identify proposed make and model	56/201- CHAIN- DOGHOUSE
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	
1.0	Basic Requirements:	
	MDOT will install this slide in type hopper box material spreader on a 64,000 GVW tandem axle truck with 14 fort dump box and a	
	closed center load sensing hydraulic system	YES
1.2	Spreader Body:	
1.2	Spreader Body: Spreader body length shall be 14 feet	YES
-	Spreader body length shall be 14 feet	YES YES
1.3	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends	YES
1.3 1.4 1.5	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design	YES YES
1.3	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design	YES
1.3 1.4 1.5 1.6 1.7	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches	YES YES
1.3 1.4 1.5 1.6 1.7	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity	YES YES
1.3 1.4 1.5 1.6 1.7	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches	YES YES YES YES
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1.3 1.4 1.5 1.6 1.7 1.8 1.9	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section	YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets	YES YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section	YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ¼ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor	YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ¼ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a	YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks	YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ¼ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ¼ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ½ inch	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ¼ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ¼ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ½ inch	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ½ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ½ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20 1.21	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ¼ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ½ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper Additional reinforcement on both the inside and outside of the body is required to support hold down brackets	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20 1.21 1.22	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper Additional reinforcement on both the inside and outside of the body is required to support hold down brackets Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting Front sheet to include a welded in box section that will allow the unit to be installed in dump body spec 04-SSDMP.C19(front telescoping hoist)	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20 1.21 1.22	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader hopper is approximate 9.2 cubic yard capacity Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ¼ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch Top of body shall be strengthened by flanging the edges to form a 2 linch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper Additional reinforcement on both the inside and outside of the body is required to support hold down brackets Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting Front sheet to include a welded in box section that will allow the unit to be installed in dump body spec 04-SSDMP.C19(front telescoping hoist)	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20 1.21 1.22	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ½ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper Additional reinforcement on both the inside and outside of the body is required to support hold down brackets Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting Front sheet to include a welded in box section that will allow the unit to be installed in dump body spec 04-SSDMP.C19(front telescoping hoist)	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20 1.21 1.22 1.23	Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45") to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25" on front panel and 20" on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall be ton a longitudinal stainless steel angle of 2 inch x 3 inch x ½ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper Additional reinforcement on both the inside and outside of the body is required to support hold down brackets Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting Front sheet to include a welde	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20 1.21 1.22 1.23	Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ¼ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper Additional reinforcement on both the inside and outside of the body is required to support hold down brackets Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting Front sheet to include a welded in box section that will allow the unit to be installed in dump body spec 04-SSDMP.C19(front telescoping	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20 1.21 1.23 1.24	Spreader overall height shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper Additional reinforcement on both the inside and outside of the body is required to support hold down brackets Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting Front sheet to include a welded in box section that will allow the unit to be installed in dump body	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20 1.21 1.22 1.23	Spreader overall height shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ½ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper Additional reinforcement on both the inside and outside of the body is required to support hold down brackets Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting Front sheet to include a welded in box section that will allow the unit to be installed in dump body spec 04-SSDMP.C19(front telescoping	YES YES YES YES YES YES YES YES
1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10 1.11 1.12 1.13 1.14 1.15 1.16 1.17 1.18 1.19 1.20 1.21 1.22 1.23 1.24	Spreader overall height shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends Spreader shall be of modular, slot and tab design Spreader hopper is approximate 9.2 cubic yard capacity Spreader overall width shall be approximately 84 inches Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal support members shall be 7 gauge type 201 stainless steel Longitudinal shall have a 24 inch bolt on replaceable rear tail section Tail section and the mating longitudinal shall have ½ inch flanges reinforced with ¼ inch triangular gussets Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a manner to allow future installation of two (2) 180 gallon liquid tanks End panels shall slope inward 25° on front panel and 20° on back panel Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch Top of body shall be strengthened by flanging the edges to form a 2 inch x 1 inch channel Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center beam A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper Additional reinforcement on both the inside and outside of the body is required to support hold down brackets Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting Front sheet to include a welded in box section that will allow the unit to be installed in dump body	YES YES YES YES YES YES YES YES

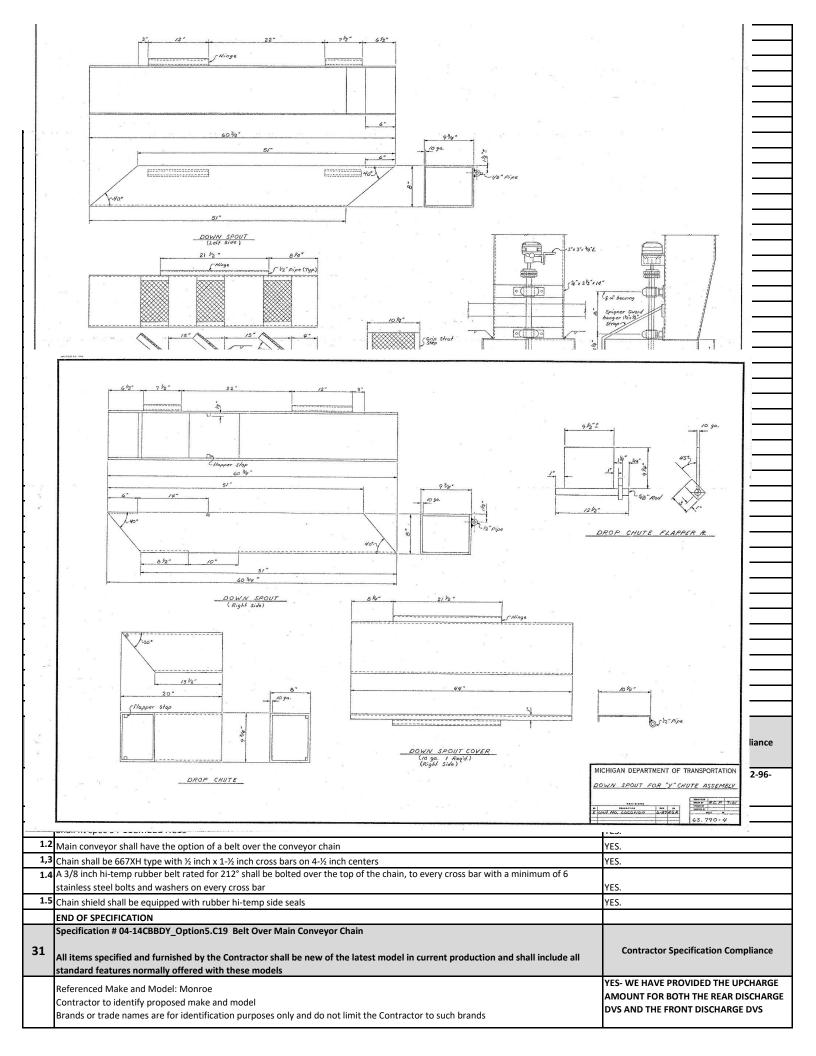
1.29		
1.29		VEC
	Long sills shall be slotted each end with openings at the extreme ends for ease of idler and drive sprocket shaft replacement Long sills shall have an additional 2 inch x 2 inch x 1/4 inch stainless steel angle welded to the bottom of each side to support the cross	YES
	auger	YES
1 20		11.5
2.1	Feed Gate Opening:	
	A 10 gauge type 201 stainless steel feed gate approximately 12 inch x 18 inch with a ruler, shall be provided in the unloading end of	
	the box with a heavy duty screw type mechanism with ½ inch stainless steel handle which shall regulate material discharge	YES
2.2	the box with a newy daty serew type mechanism with 72 men stanness steel handle which shall regulate material discharge	1123
	The crank handle shall be extended so that it is not more than 72 inches from the ground with the V box installed	YES
	Crank handle screw type mechanism shall be located on the passenger's side of spreader	YES
	Feed gate shall be adequately braced with a 24 inch embossment just above the door opening	YES
	Conveyor:	
	Conveyor shall be maximum 24 inches wide, with heavy duty type 201 stainless steel bolt in chain shields over the chain strands,	VEC
	exposing only the drag bars to the material Conveyor chain shall be 667XH heat treated 2.25 pitch, self-cleaning, pintle-type with .224 inch link thickness, 15/32 inch diameter	YES
	pins and a minimum average tensile strength of 26,000 pounds, manufactured in the USA	YES
3.3	pins and a minimum average tensile strength of 20,000 pounts, manadetarea in the OSA	11.5
	Eight tooth cast iron sprockets with 1-½ inch drive and idler shafts, and four (4) bolt relubable flange bearings shall be provided	YES
3.4		
	Cross bars ½ inch x 1-½ inch x 18-¾ inches shall be positioned on approximately 2-¼ inch centers, welded top and bottom	YES
	Overall chain width shall not exceed 22-¼ inches	YES
	A heavy duty, spring loaded, idler adjustment assembly (sufficient to carry the extra load or weight of the conveyor chain with added	
	cross bars), shall provide 9 inches of travel for proper conveyor chain tension. Spring must be rated at a minimum of 708 PSI and be 6	
	inches long 2.187 inch OD	YES
	Adjuster screw shall be a minimum of ¾ inch stainless steel	YES
	Adjuster shall be extended so the adjustment can be made at the rear of the spreader with jam nuts at the rear	YES
		ILJ
	Welds and Fasteners:	
	Hopper shall be robotically welded	
4.2	All welds shall be continuous, inside and outside and cleaned of weld slag and spatter	YES
4.3	Bolts on the spreader body shall all be 201 stainless steel	YES
5.0	Grease tubes:	
	Grease tubes shall be provided from the front to the rear of the spreader body for ease of lubrication of front conveyor bearings	
	(both sides)	YES
5.2	Grease hoses shall be SAE107 Hytron hose rated at 3000 psi maximum work pressure	YES
	Hydraulic Motors:	
	Spinner motors shall be manufacturers standard for the spreader capacity specified	YES
6.3	Spinner disc fins shall be designed for clockwise rotation	YES Most recent MDOT orders included a 2.5 CID
0.3		hi pressure motor. Monroe standard is 6.3
	Conveyor drive motor shall be 12.1 CID and equipped with a Hall effect type speed sensor that produces 100 or more pulses per	CID. MDOT choice of 2.5, 6.5, or 12.1 CID
	revolution	motors
	Gear Reduction Conveyor Drive:	
7 1	Gear reduction shall be approximately 50:1 with hardened, precision- machined, worm type gear with tapered roller bearings on the	
	output shaft	
	Gear case shall be oil tight, equipped with filler, drain, and oil level drain plugs	VFS
		YES
7.2		YES
7.2 7.3	Gear case will be vented	YES YES
7.2 7.3 7.4	Gear case will be vented Conveyor motor shall be mounted directly to the gear case	YES YES YES
7.2 7.3 7.4 7.5	Gear case will be vented Conveyor motor shall be mounted directly to the gear case Conveyor drive motor shall be positioned on the forward side of the gearbox	YES YES
7.2 7.3 7.4 7.5	Gear case will be vented Conveyor motor shall be mounted directly to the gear case	YES YES YES
7.2 7.3 7.4 7.5 7.6	Gear case will be vented Conveyor motor shall be mounted directly to the gear case Conveyor drive motor shall be positioned on the forward side of the gearbox	YES YES YES
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7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9	Gear case will be vented Conveyor motor shall be mounted directly to the gear case Conveyor drive motor shall be positioned on the forward side of the gearbox Offset gearbox mounting plate shall be minimum ¼ inch type 201 stainless steel Gearbox driveshaft shall not extend beyond case opposite the drive motor A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft A shear key inside the gear box is NOT acceptable	YES YES YES YES YES YES
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7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9	Gear case will be vented Conveyor motor shall be mounted directly to the gear case Conveyor drive motor shall be positioned on the forward side of the gearbox Offset gearbox mounting plate shall be minimum ½ inch type 201 stainless steel Gearbox driveshaft shall not extend beyond case opposite the drive motor A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft A shear key inside the gear box is NOT acceptable END OF SPECIFICATION Specification # 60-14SSUBHDMP.C19 Hopper Box Material Spreader 14 Foot and Distribution Systems All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	YES YES YES YES YES YES YES YES YES
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7.2 7.3 7.4 7.5 7.6 7.7 7.8 7.9 26 1.0 1.1 1.2 1.3 1.4	Gear case will be vented Conveyor motor shall be mounted directly to the gear case Conveyor drive motor shall be positioned on the forward side of the gearbox Offset gearbox mounting plate shall be minimum ¼ inch type 201 stainless steel Gearbox driveshaft shall not extend beyond case opposite the drive motor A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft A shear key inside the gear box is NOT acceptable END OF SPECIFICATION Specification # 60-14SSUBHDMP.C19 Hopper Box Material Spreader 14 Foot and Distribution Systems All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/MCV-168-84-56 or equal Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands Basic Requirements: MDOT will install this slide in type hopper box material spreader on a 64,000 GVW tandemm axle truck with 14 foot dump box and a closed center load sensing hydraulic system Spreader Body: Spreader body length shall be 14 feet Spreader overall height shall be approximately 50 inches without extensions or splices, one piece sides and ends	YES YES YES YES YES YES YES YES YES Contractor Specification Compliance Make and Model: MCV168-85-56/201- CHAIN-NO DOGHOUSE YES YES YES
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	Spreader body and vertical bracing shall be 10 gauge type 201 stainless steel	YES
1.9	Longitudinal support members shall be 7 gauge type 201 stainless steel	YES
	Longitudinal shall have a 24 inch bolt on replaceable rear tail section	YES
1.11	Tail section and the mating longitudinal shall have ¼ inch flanges reinforced with ¼ inch triangular gussets	YES
1.12	Bolts to secure tail section to longitudinal must be minimum ½ inch stainless steel	YES
	Body sides shall have adequate pitch (approximately 45°) to insure free flow of material to the conveyor	YES
1.14	The ten (10) vertical braces shall be placed on approximate 24 inch centers, welded to the hopper sides and cross-members, in such a	YES
1.15	manner to allow future installation of two (2) 180 gallon liquid tanks	VEC
	End panels shall slope inward 25° on front panel and 20° on back panel	YES
1.16	Lateral cross-members shall be 3 inch x 1-1/4 inch x 39 inch x 7 gauge type 201 stainless steel	YES
1.17	Cross-members shall set on a longitudinal stainless steel angle of 2 inch x 3 inch x ¼ inch	YES
1.18	Top of body shall be strengthened by flanging the edges to form a 2 inch x $f 1$ inch channel	YES
1.19	Hopper shall have a 2 inch x 2 inch x 7 gauge upper cross angle that ties the sides together and provides support for top screen center	YES
	beam	
1.20	A heavy duty 5/8 inch bolt on lift loop shall be provided at each corner of the hopper	YES
1.21	Additional reinforcement on both the inside and outside of the body is required to support hold down brackets	YES
1.22	reduction removement on both the mode and outside of the body to required to support from down brackets	YES
	Front of the body shall be drilled to accept MDOT furnished rubber bumpers, location to be determined at preconstruction meeting	. 25
1.23	Two (2) hold down brackets constructed of 6 inch x 5 inch x ¼ inch stainless steel plate with a 3 inch tall piece of 5 inch stainless steel	
	channel welded to the center shall be welded to the body centered 16 inches back of front bulkhead on the sloped surface centered	
	3 inches below the breakline, one (1) each side	YES
1.24	Spreader shall be equipped with a bolt-in conveyor floor of 7 gauge type 201 stainless steel supported with a combination of 10	
L	gauge angles, 7 gauge flat bar, and 7 gauge formed channel	YES
1.25		
	A wiper belt shall be at the rear most end of the floor to direct material into the center region of the chute assembly	YES
1.26	Wiper belt in the front to prevent material leakage	YES
1.27		
	Long sills shall be slotted each end with openings at the extreme ends for ease of idler and drive sprocket shaft replacement	YES
1.28	Long sills shall have an additional 2 inch x 2 inch x ¼ inch stainless steel angle welded to the bottom of each side to support the cross	
	auger	YES
2.0	Feed Gate Opening:	
2.1		
	A 10 gauge type 201 stainless steel feed gate approximately 12 inch x 18 inch with a ruler, shall be provided in the unloading end of	
	the box with a heavy duty screw type mechanism with ½ inch stainless steel handle which shall regulate material discharge	YES
2.2		
	The crank handle shall be extended so that it is not more than 72 inches from the ground with the V box installed	YES
2.3	Crank handle screw type mechanism shall be located on the passenger's side of spreader	YES
2.4	Feed gate shall be adequately braced with a 24 inch embossment just above the door opening	YES
3.0	Conveyor:	
	Conveyor shall be maximum 24 inches wide, with heavy duty type 201 stainless steel bolt in chain shields over the chain strands,	
3.1	exposing only the drag bars to the material	YES
3.2	Conveyor chain shall be 667XH heat treated 2.25 pitch, self-cleaning, pintle-type with .224 inch link thickness, 15/32 inch diameter	
	pins and a minimum average tensile strength of 26,000 pounds, manufactured in the USA	YES
3.3		
	Eight tooth cast iron sprockets with 1-½ inch drive and idler shafts, and four (4) bolt relubable flange bearings shall be provided	YES
3.4		
	Cross bars ½ inch x 1-½ inch x 18-¾ inches shall be positioned on approximately 2-¼ inch centers, welded top and bottom	YES
3.5	Overall chain width shall not exceed 22-¼ inches	YES
	A heavy duty, spring loaded, idler adjustment assembly (sufficient to carry the extra load or weight of the conveyor chain with added	
1	cross bars), shall provide 9 inches of travel for proper conveyor chain tension. Spring must be rated at a minimum of 708 PSI and be 6	
<u></u>	inches long 2.187 inch OD	YES
3.7	Adjuster screw shall be a minimum of ¾ inch stainless steel	YES
3.8	Adjuster shall be extended so the adjustment can be made at the rear of the spreader with jam nuts at the rear	YES
	Welds and Fasteners:	
		VEC
	Hopper shall be robotically welded	YES
4.2	All welds shall be continuous, inside and outside and cleaned of weld slag and spatter	YES
	Bolts on the spreader body shall all be 201 stainless steel	YES
	Grease tubes:	YES
5.1	Grease tubes shall be provided from the front to the rear of the spreader body for ease of lubrication of front conveyor bearings	
	(both sides)	YES
5.2	Grease hoses shall be SAE107 Hytron hose rated at 3000 psi maximum work pressure	YES
	Hydraulic Motors:	YES
6.1	Spinner motors shall be manufacturers standard for the spreader capacity specified	YES
6.2		YES
6.3	Spinner disc fins shall be designed for clockwise rotation	Most recent MDOT orders included a 2.5 CID
6.3		hi pressure motor. Monroe standard is 6.3
1	Conveyor drive motor shall be 12.1 CID and equipped with a Hall effect type speed sensor that produces 100 or more pulses per	CID. MDOT choice of 2.5, 6.5, or 12.1 CID
1	revolution	motors
7.0		
	Gear Reduction Conveyor Drive: Gear reduction shall be approximately 50:1 with hardened, precision-machined, worm type gear with tapered roller bearings on the	
/.1		YES
7.3	output shaft Gear case shall be oil tight, equipped with filler, drain, and oil level drain plugs	YES

7.4 Conveyor motor shall be mounted directly to the gear case 7.5 Conveyor drive motor shall be positioned on the forward side of the gearbox 7.6 Offset gearbox mounting plate shall be minimum ¼ inch type 201 stainless steel 7.7 Gearbox driveshaft shall not extend beyond case opposite the drive motor 7.8 A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft 7.9 A shear key inside the gear box is NOT acceptable 8. END OF SPECIFICATION 8. Specification # 04-11-14CBBDY-Option1.C19 Reversing Rear Cross Auger with Side Spinner 8. All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models 8. Referenced Make and Model: Monroe/MS969 or equivalent. 9. Contractor to identify proposed make and model 9. Brands or trade names are for identification purposes only and do not limit the Contractor to such brands 9. Auger trough shall be constructed of 7 gauge type 201 stainless steel 1. Auger trough shall be constructed of 7 gauge type 201 stainless steel with ½ inch type 201 stainless steel end plates 9. Auger trough shall be constructed of 7 gauge type 201 stainless steel with ½ inch type 201 stainless steel end plates 9. Auger trough shall be constructed of 7 gauge type 201 stainless steel with ½ inch type 201 stainless steel end plates 9. Auger trough shall be constructed of 7 gauge type 201 stainless steel with ½ inch type 201 stainless steel end plates 9. Auger housing shall include a three (3) piece hinged lid 9. Yes 1. Auger trough shall be made to fit to the discharge trough on the combination body 9. Yes 1. Auger housing shall include a three (3) piece hinged lid 1. All three (3) section covers shall open and close independently of each other and center section shall be the width of the combination body yes 1. All three (3) section covers shall open and close independently of each other and center section shall be the width of the combination body	7.3	Gear case will be vented	VEC
1.3 Consequence of the moder shall be positioned on the Provised side of the pearston. 1.5 A Continge growth on morther glists also the minimum kin of the position services of the Continuence of the Cont			YES
1.76 Other gention mounting piets shall be minimum in sinch type 201 staniens steel 155			
7.79 (account of metabolish that in not entous beyond case apposite the drive motor (%) (%) (%) (%) (%) (%) (%) (%) (%) (%)			YES
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179 A live lety middle the gene pool is NOT acceptable 180 O 59 PECINCATION 180 SECRICIATION 60-51-14 CREBENT-Option 1.19 Reversing Rear Cross Auger with Side Spinner 180 SECRICIATION 60-51-14 CREBENT-Option 1.19 Reversing Rear Cross Auger with Side Spinner 180 SECRICIATION 60-51-14 CREBENT-Option 1.19 Reversing Rear Cross Auger with Side Spinner 180 SECRICIATION 60-51-14 CREBENT SECRICIATION	7.8	A coupling with a ½ inch shear bolt shall be provided between the gear box and the conveyor drive shaft	YES
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Brands or trade names are for identification purposes only and do not limit the Contractor to such brands application		·	
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yes	1 0		
	1.0	Duble nequirements.	yes

1.1		NO- NO LONGER USING SELF LEVELLING MOUNTS BUT USING TWO 00183957-B STAINLESS STEEL TUBULAR MOUNTING BRACKETS THAT MOUNT ON TOP OF THE WING BRACKETS. A 00183960 IS OPTIONED
1.2	Cross auger shall be of modular design, self-leveling, and mounted to the rear of the combination body	ON THE PRICE SHEET
	Cross auger shall be constructed of 201 stainless steel	yes
	Auger trough shall be 12 inches wide minimum	yes
	The auger trough shall be made to fit to the discharge trough on the combination body	yes
	Trough side and end panels shall be ¼ inch and bottom panel shall be 7 gauge type 201 stainless steel	yes
1.6	Side delivery unit shall be equipped with an air operated diverter chute to direct the flow of material to either the cross auger or the	yes
1.7	center spinner Center opening to the auger shall be fitted with a guard 12 gauge sheet and ¼ inch stainless steel rods	yes
1.8		yes
1.9	Trought shall middle terrorable dovers of 10 Bauge type 201 stammess steel on each end	yes
1.5	Trough shall include removable chutes on each discharge end of 10 gauge type 201 stainless steel with hinged door with handle	yes
1.10	24 inch poly spinner assembly shall be center mounted below trough	yes
	Spinner chute and diverter door shall be 7 gauge type 201 stainless steel	yes
	Diverter door shall be activated by a 2 inch diameter by 2 inch stroke air cylinder	yes
1.13	Spinner assembly shall have three (3) adjustable hinged deflectors of 7 gauge type 201 stainless steel surrounding the spinner disc to	yes
	regulate spread pattern	
1.14	Deflectors shall be adjustable without use of tools	yes
	Spinner assembly with hub shall have a 3.0 CID top mounted hydraulic motor	yes
1.16	Side delivery unit shall be equipped with swivel type mounting brackets and 2 inch tubular inserts for mounting to the combination	yes
	body	
	Auger shall be 9 inch diameter with continuous one way flighting	yes
	Flighting shall be 5/16 thick minimum on outer edge, welded to a 2-7/8 inch OD schedule 40 pipe	yes
	Auger motor shall be directly coupled to the auger shaft with a stainless steel coupler	yes
	Auger shall be driven by a 9.9 CID direct drive hydraulic motor mounted on right hand side	yes
1.21	Drive motor shall have 5/8 inch O-ring ports	yes
1.22	Idler end of auger shall have 1-1/2 inch shaft and be supported by a heavy duty 1-1/2 inch sealed, self-aligning, re-lubable four (4)	yes
1 22	bolt flange bearing	lues .
	All bearings shall be equipped with grease zerks	yes
	Exposed end of shaft opposite drive motor shall have a stainless steel cover	yes
1.25	All 201 stainless steel parts shall be in bare condition	yes
	END OF SPECIFICATION	
29	Specification # 60-11_14MSDMP-Option3.C19 "Y" Chute Distributor All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	Contractor Specification Compliance
29	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/or equivalent. Contractor to identify proposed make and model	Contractor Specification Compliance Make and Model: Monroe Y chute assembly part no 00100666-A FOR MILD STEEL AND 00100666-E FOR STAINLESS STEEL
29	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models Referenced Make and Model: Monroe/or equivalent. Contractor to identify proposed make and model Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	Make and Model: Monroe Y chute assembly part no 00100666-A FOR MILD STEEL AND
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	Basic Requirements:	
1.1	Shall fit Spec 04-14CMBBDY. C19	YES.
_	Main conveyor shall have the option of a belt over the conveyor chain	YES.
	Chain shall be 667XH type with ½ inch x 1-½ inch cross bars on 4-½ inch centers	YES.
	A 3/8 inch hi-temp rubber belt rated for 212° shall be bolted over the top of the chain, to every cross bar with a minimum of 6	11.5.
	stainless steel bolts and washers on every cross bar	YES.
1.5	Chain shield shall be equipped with rubber hi-temp side seals	YES.
	END OF SPECIFICATION	
	Specification # 04-11_14CBBDY_Option6.C19 Salt Slurry Generator	
32		Contractor Specification Compliance
32	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all	Contractor Specification compilative
	standard features normally offered with these models	140ND05 TAN 04T5 440NDT5D D0115D
	Referenced Make and Model: Monroe/SSG-DVS or equivalent. Contractor to identify proposed make and model	MONROE TAILGATE MOUNTED ROLLER MILL- PART NO 00167887
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	IVILL- PART NO 00107887
	Basic Requirements:	
	Unit shall consist of upper chute assembly with guard, roller mill main frame assembly, spinner assembly with shield and spray	
	nozzles	YES
1.2	Upper chute shall be 10 gauge type 201 stainless steel with 3/8 inch reinforced hinge plates	YES
1,3	Upper chute shall have hinges, pins, winch and slide rail assembly to allow chute raising for load dumping	YES
1.4	Upper chute assembly shall be designed for tailgate mounting on combination body	YES
1.5		YES
	Upper chute to include fiberglass Nema rated enclosure to house the air pressure regulator and air valve assembly	lune.
	Pressure regulator shall be manually adjustable from 0-140 psi	YES
1.7	Air valve shall be electronically activated via a switch in cab of truck (switch supplied by MDOT)	YES
	Upper chute shall be continuously welded 100% throughout	YES
1.9	Upper chute shall bolt directly to the roller mill main frame using stainless steel hardware	YES
1.10	Roller mill main frame shall be ,250 inch and .375 inch type 201 stainless steel	YES
1.11	Roller mill shall incorporate a slide mechanism for roller engagement	YES
1.12		YES
4.43	Roller slide engagement shall be activated by 4 inch x 4 inch double acting cylinder with a maximum 200psi rating	vec.
	Cylinder shall have a stainless steel rod and aluminum body	YES
	Idler side of rollers shall be 1-3/4 inch shaft mounted to a 1-3/4 inch relubable bearing assembly	YES
	Drive side of rollers shall be direct coupled to the Parker motors	YES
	Rigid set roller shall be driven by a 6 ci 4 bolt Parker motor with a 1 inch drive shaft and coupler	YES
_	Engagement roller shall be driven by a 10 ci 4 bolt Parker motor with a 1 inch drive shaft	YES
	Drive motors shall be plumbed in series	YES
1.19	Roller shall be 9 inch diameter and 10 inches in overall length of chrome silicone alloy steel and hardened by heat treating to 53-60	YES
1 20	Rockwell C specifications	YES
	Rollers shall have a minimum of four (4) teeth per inch set at .08516 depth	YES
	Rolls shall be balanced to reduce vibration and prevent premature wear	YES
	Complete spinner frame shall bolt directly to the roller mill with stainless steel hardware	YES
	Spinner disc shall be 18 inches in diameter of molded poly	
	Spinner shall have a 1 inch diameter hub bolted directly to the spinner motor	YES
1.25	Spinner assembly to have locking rotational adjustment to change spinner's dispersion pattern of granular output	YES
1.26	Mounted on spinner guard shall be three (3) fan nozzles of 3 gpm capacity to fully encapsulate the granular product with the liquid	YES
	injection of up to 60-90 gallons per ton	
1.27		YES
	Entire assembly shall be easily raised a minimum of 18 inches to allow for dumping of loaded material without creating interference	
	Slide assembly shall be manufactured from type 201 stainless steel structural tube	YES
1.29	Winch, cable and pulleys shall be rated for 1,200 pounds	YES
	END OF SPECIFICATION	
	Specification # 65-HHLF.C19 Hydraulic Hook Lift Assembly	
33	All the control of the state of	Contractor Specification Compliance
	All items specified and furnished by the Contractor shall be new of the latest model in current production and shall include all standard features normally offered with these models	
	Referenced Make and Model: Swaploader/SL-412 Hydraulic Hook Lift or equal	Make and Model: Swaploader SL-412
	Contractor to identify proposed make and model	
	Brands or trade names are for identification purposes only and do not limit the Contractor to such brands	
	Basic Requirements:	
1.1	Chassis will be 64,000 GVW tandem axle, cab, and chassis. Chassis measurements of approx. 218 inch W.B., 136 inch CT., and 192	
	inch C.E.	yes
-	Minimum 40,000 pounds lifting and dumping capacity with the gross weight evenly distributed on the body.	yes
1.3	Hook lift shall be able to handle sub frame mounted bodies with lengths of 12' – 15' with the optimum body length being 12' – 14'	yes
L 1 4	Minimum lifting and dumping capacity (40,000#) of the hook lift hoist must be achieved for all stated body lengths	yes
		, 63
1.4		
	Hook lift hoist shall have a minimum of 60 degree dump angle.	yes
1.5	Hook lift hoist shall have a minimum of 60 degree dump angle. Hook lift hoist (fixed jib 61 3/4" hook height) not to exceed 4,780 pounds.	yes yes- not fixed- it rotates to be 61.75" or

		T .
	Hook lift hoist (adjustable jib 53 7/8" or 61 3/4" hook height) not to exceed 4,930 pounds.	yes
1.8	Sub frame mounted bodies shall be supported with a pair of 7-1/4" min. diameter outside flanged rollers at the rear of the hoist, and	yes
	be adjustable to accommodate bodies with outside sub frame rail widths of 40-1/2" or 41-5/8".	
	The hook to rear roller dimension to be 143.5" in length.	yes
1.10	Hook lift shall be capable of being mounted to a truck chassis with an "effective" cab-to-trunnion of 102" - 114" with 114" being the	yes(effective CT would be the available
	optimum dimension for weight distribution and stability	frame behind the combination tanks)
	Operation:	
2.1	The hook lift telescopic jib shall be capable of hydraulically sliding the body horizontally on the chassis to adjust for weight	yes
	distribution while remaining in the body locks of the hoist and without lifting the body rails off the hoist frame. Tilting or articulating	
<u></u>	jib designs are not acceptable	
2.2	Hook lift hoist shall have a dual rear pivot section incorporated into the hoist design to allow for both a true dump truck operation,	yes
	with the body secured to the hook lift via body locks during the entire dump cycle, and providing increased mounting leverage	
2.2	through the mount cycle. Hook lift jib to cycle rearward, to the A-frame lifting bar, by means of double articulating hinge points (dual rear pivot) incorporated	luce
2.3	into the hoist mechanism	yes
2.4	Hook lift body shall lock into a common rigid full-length frame to support the body when in a dump mode. This must be accomplished	ves
	by mechanical operated latches, which secure the mast lock without relying on gravity or hydraulic operated locks to accomplish	,
	, and the second to determine	
2.5	Must have a jib lockout valve to prevent operation of the jib while in a dump mode.	yes
	Hook lift shall be designed to function through all modes (load, unload and dump) without the use of breakaway tabs and/or	yes
	proximity switches	ľ
3.0	Hydraulic Cylinders:	
	All hydraulic cylinders shall be double acting with polished nitrided cylinder rods. Unpolished nitrided or chrome cylinder rods are	yes
	not acceptable	
3.2	Dual dump/lift cylinders to be a minimum 6" diameter bore with 56" stroke and 3" diameter rods.	yes
3.3	Dump/lift cylinders must have dual integral counterbalance valves. No external or remote mount (connected by steel lines)	yes
	counterbalance valve configurations to be accepted.	
3.4	Dump/lift cylinders must include 3" diameter spherical bearings on both end mounts to ensure flexibility and longevity of the	yes
	cylinders	
	Telescopic jib cylinder shall be a minimum 4" diameter bore with 30" stroke and 2-1/2" diameter rod	yes
3.6	Telescopic jib cylinder must have a single integral counterbalance valve. No external or remote mount (connected by steel lines)	
<u> </u>	counterbalance valve configurations to be accepted	yes
	Hydraulic System:	
	Note Items 4.2-4.4 through will normally not be required for MDOT applications	yes
	Direct mount gear type pump, 22.3 GPM at 1500 RPM, with a 3,500 PSI maximum system operating pressure	yes- applicable but not included
4.3	30 gallon oil reservoir tank (minimum) is to have a sight gauge to indicate fluid level with integral thermometer. Must have a 100	
	mesh suction strainer with bypass relief	yes- applicable but not included
	Must contain a return filter assembly; with replaceable 10 micron filter cartridge.	yes- applicable but not included
4.5	High-pressure hoses to be SAE 100R2 type AT, or equivalent, rated for 3,500 PSI (minimum) working pressure with JIC 37 degree	
<u> </u>	swivel fittings	yes- applicable but not included
4.6	Hydraulic fittings are to be SAE O-ring boss or IIC 27 degree tune wherever possible. Metric fittings are not acceptable	Ves
17	Hydraulic fittings are to be SAE O-ring boss or JIC 37 degree type wherever possible. Metric fittings are not acceptable Control valve to be stackable type with JIC 37 degree fittings, and contain an integral 3,500 PSI relief valve cartridge	yes
4./	Control valve to be stackable type with the 57 degree littings, and contain an integral 3,300 PSI feller valve cartriage	yes- applicable but not included
4.8	Dual control levers, cable or air operated, mounted in the truck cab. Controls are to be spring centering type for safe operation	7-55 applicable but not included
	= 1 2 2 2 2 2 2 2	yes- applicable but not included
4.9	Hook lift hydraulic system shall be designed to allow for ease of integration into a Central Hydraulic package through maximum	
	system operating pressures not to exceed 3,500 PSI.	yes- applicable but not included
5.0	Mainframe Design:	
	The overall height of the hook lift mainframe assembly to be 11".	yes
	The mainframe of the hoist is to be constructed of a "Z" rail configuration.	yes
5.3	The "Z" rail mainframe is to be a maximum of 10-1/2' in height and constructed of 1/4" thick A572 50 KSI steel	
	The hoist "Z" rail mainframe is to be a maximum of 10-1/Z in neight and constructed of 1/4 thick A572 50 KSI steel The hoist "Z" rail mainframe assembly to include a minimum of 6 (3 per side) 11-3/4" x 2-3/4" x 1/2" nylatron wear pads. The	yes
5.4	nylatron pads allow the bodies to slide back and forth horizontally on the "Z" rail of the hoist with ease	
	myracion pago anow the bodies to since back and for thi horizontally off the 12 Tail of the HOISE With ease	yes
5.5		,
	Metal to metal contact (direct contact of the body sub frame rail on the hoist mainframe rail) will not be allowed.	yes
6.0	Jib Hook Design:	
	Fixed Jib:	yes
	Vertical jib to be constructed of a 9" x 9" x 1/2" wall square tube of A500 50 KSI steel.	yes
	The fixed jib hook height shall be 61-3/4", as measured from the bottom of the sub frame long rails to the bottom of the A-frame lift	,,
 ~.	bar.	yes
c.	The fixed 61-34" jib hook shall be able to pick up a body 22-1/2" below the grade of the A-frame lift bar (presumes a 41" truck frame	
	height as loaded/unloaded on a level surface	yes
d.	Jib hook to be permanently welded to jib	
6.2	Adjustable Jib:	yes
	•	
a.	The adjustable jib hook must be adjustable to either 53-7/8" or 61-3/4" hook height	yes
a.	•	
a.	The adjustable jib hook must be adjustable to either 53-7/8" or 61-3/4" hook height With the jib hook height set at the 61-3/4" position, the hook lift shall be able to pick up a body 23-1/2 below the grade of the A-	yes
a. b.	The adjustable jib hook must be adjustable to either 53-7/8" or 61-3/4" hook height With the jib hook height set at the 61-3/4" position, the hook lift shall be able to pick up a body 23-1/2 below the grade of the A- frame lift bar	yes

6.3	Both positions presume a 41" truck frame height as loaded / unloaded on a level surface	yes
6.4		
	Both the fixed or adjustable jib hook to be designed to secure the body to the hoist without the need for a hook latch assembly	yes
	Pins:	
7.1	All hook lift pins to be constructed of high-strength CFR steel bar	yes
	All pinned connections to be greaseable to lubricate and flush out all contaminates	yes
7.3	Permanently lubed pins are not acceptable	yes
8.0	Hook Lift Hoist Body Locks:	
	Hook lift hoist to have passive integral slide through body locks to secure the body latch plates of the body, to the hook lift hoist, in	
	both the dump and transport positions	yes
8.2	The hook lift hoist body locks shall accommodate different length bodies and allow for weight distribution changes while remaining in	
	the body locks of the hoist, when in the transport mode	yes
8.3	The hook lift hoist body lock assembly must be a bolt-on design	yes
	Prong style body locks are not acceptable	yes
	Sub frame:	ves
	The A-frame of the body shall be designed to allow the hook lift operator to approach and load the body on the truck chassis frame	
	from an angle	yes
9.2	The sub frame mounted body shall have integral slide through latch plates installed on the outside of each long rail to secure the	
	body to the hook lift hoist in both the dump and transport positions	yes
9.3	Slide through latch plates on the sub frame long rails to be a minimum of 24" in length to allow the body to slide forward and back	
	norizontally while remaining fully engaged in the hoist body locks	yes
10.0	Swap Loader Sub Frame:	
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		diam'r.
		9
	Note that the same of the same	
	PAGE STATE OF THE PAGE STATE O	
10.1	Swaploader sub frame to fit 400 Swap Loader series unit	yes
	Swaploader sub frame to fit 400 Swap Loader series unit Unit shall be galvanized coated	yes
10.2	·	ĺ
10.2 10.3	Unit shall be galvanized coated	yes yes
10.2 10.3 10.4	Unit shall be galvanized coated All welds shall be continuous	yes
10.2 10.3 10.4	Unit shall be galvanized coated All welds shall be continuous Frame shall be 182 inches long x 41 1/2 inches	yes yes
10.2 10.3 10.4	Unit shall be galvanized coated All welds shall be continuous Frame shall be 182 inches long x 41 1/2 inches	yes yes yes NO- 3/8" X 3" X 6" FORMED CHANNEL WITH
10.2 10.3 10.4 10.5	Unit shall be galvanized coated All welds shall be continuous Frame shall be 182 inches long x 41 1/2 inches	yes yes yes NO- 3/8" X 3" X 6" FORMED CHANNEL WITH A 20 IN LONG REINFORCMENT INSIDE THE CHANNEL AT THE FRONT FRONT DIAGONAL BRACES/GUSSETS ARE
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	-	
10.11	The front of the frame shall be constructed with two (2) pieces of 6 inch x 2 1/4 inch by 1/4 steel box channel. The channels shall be	
	welded at an angle that allows them to fit to an $111/4$ inch x 15 inch x $101/2$ inch c channel at the top.	
	The uprights shall have 1/4 inch gussets welded on the inside and outside where they connect to the long sills	No- front A frame is constructed of 3/8"
		formed channel. The a frame also has a 1/4"
		reinforcment plate welded acress the back
		side of it to prevent the hook from accidently
		hitting the front of the V box if the operator
		misjudges the location when loading.
10.12	The front of the frame shall have a 41 1/2 inch piece of 6 inch x 2 1/4 inch steel box channel welded to the uprights and the top of	NO- 6" STRUCTURAL FRONT CHANNEL IS
	both long sills	INSTALLED
10.13	The 11 1/4 inch channel shall have a hole sized to accommodate a 2 1/2 bar that is bent at an angle that allows it to be hooked by the	
	jib hook of the jib arm	yes
10.14	The 2 1/2 inch bar shall have 5 inch diameter gussets continuously welded to the outside of the 11 1/4 inch angle and the 2 1/4 inch	
	bar shall be continuously welded to the 5 inch gusset as well as the inside of the channel	yes
10.15	There shall be six (6) mounting brackets on the inside of each long sill, these shall be 8 1/4 inch's x 4 3/4 inch x 1/4 inch steel with the	
	8 1/4 inch x 2 1/4 inch portion welded to the top of the longsills and they shall have 2 inch angles welded down each side along the	no- Brackets are integrated into the
	long sill.	construction of the subframe longitudial.
10.16	The brackets shall have two (2) 5/8 holes located 3 1/2 inch from the outside of the long sill, 5 1/2 inch on center on each bracket	
		yes
10.17	The first bracket shall be located 30 1/2 inch's from the rear of the long sills, the remaining brackets shall be located 24 inch's on	
	center from the first bracket	yes
	END OF SPECIFICATION	

ADDENDUM FOR ADDIONAL SPECIFICATIONS ON OPTIONAL PRICING SUBMITTED ON SCHEDULE B **PRICING**

1 OPTIONAL TANK FOR WESTERN STAR APPLICATION- DOES NOT INCLUDE MOUNTING BRACKET

optional pricing for combination tank to fiit Western Star Chassis: Because of chassis configuration, this combination tank does not include a valve enclosure. Part no 00187678 20 GAL/30 GAL TANK KIT INCLUDES THE FOLLOWING: TANK IS PAINTED BLACK, TANK IS 46 LONG, 40 TALL, 21 WIDE, LOW OIL SENDING UNIT IN THE OIL TANK-24" UNIT, 3 PSI CAP FOR HYD TANK, LENS TYPE FILTER MOUNTED IN THE TANK WITH A SPARE ELEMENT, 3" SUPPLY PORT MOUNTED IN THE HYD TANK, FUEL TANK INCLUDES A CLEANOUT FOR THE CENTER BAFFLED ARE ABOVE THE SUMP, 3 PORTED SUMP FOR ENGINE SUPPLY AND RETURN MOUNTED IN THE BOTTOM OF THE TANK, MOUNTING BRACKETS AND BUBBER BUSHINGS SUPPLIED WITH THE TANKS, SUPPLY WITH TWO SPARE FILTER ELEMENTS, SUPPLY WITH Bypass switch shall be Force America PS-25-WP, SUPPLY WITH LOW OIL SENSOR PART NUMBER 248896, FUEL SENSOR ISSPRO NUMBER RA9536ISSLP, FILTER KIT NO IS 00187682 INCLUDES 2 SPARE FILTER ELEMENTS AND A 3" X 2" SUCTION STRAINER

yes

Optional pricing for prewet systems for various applications

Hydraulic drven prewet system for rear discharge combination bodies includes the followling: 00017232 PUMP WITH DJ RATE SENSOR, 00065210 NOZZLE KIT, 05050320 BULK FILL KIT, 00185532 FLUSHER KIT, 00020043 QUICK CONNECT KIT, 00188379-C

- 4.1 ENCLOSURE MOUNTING KIT, 00185534 CROSS OVER KIT RDS/DVS, TWO 00012641-B 100 GAL LIQUID TANKS WITH SS MOUNTS Hydraulic drven prewet system for front and rear discharge combination bodies includes the followling: 00017232 PUMP WITH DJ RATE SENSOR, , 05050320 BULK FILL KIT, 00185532 FLUSHER KIT, 00020043 QUICK CONNECT KIT , 00188379-C ENCLOSURE MOUNTING KIT, 00185534 CROSS OVER KIT RDS/DVS, TWO 00012641-B 100 GAL LIQUID TANKS WITH SS MOUNTS, 00065211
- 4.2 NOZZLE KIT W 6 NOZZLES AND DIVERTER. Electric pump driven prewet system for rear discharge combination bodies includes the following: 2019 PRICING INCLUDES THE **FOLLOWING**

00188374 CLOSED LOOP BASE KIT W/ PLUMBING KIT, 6 GPM ELECTRIC PUMP W/ 14" x 12" x 5" ENCLOSURE AND PLUMBING KIT FOR DICKEY JOHN FLOWMETER *DOES NOT INCLUDE CONTROLLER OR HARNESS* 00188379-C STAINLESS STEEL MOUNTING BRACKST FOR PREWET SYSTEM, 00012641-C TANK KIT: 100 GAL, 5" LID, 201 STAINLESS STEEL HDW, 00065210 NOZZEL KIT, ELECTRIC UNIT, 2 GPM, 3 NOZZELS, 00185534 CROSS OVER KIT

00185532 FLUSH KIT, MTE PRE-WET SYSTEM 12VDC & HYDRAULIC, 05050320 BULK FILL KIT, MTE PRE-WET SYSTEM 12VDC & 4.3 HYDRULIC, 00020043 QUICK DISCONNECT KIT

Electric pump driven prewet system for front and rear discharge combination dump bodies includes the following: 2019 PRICING INCLUDES THE FOLLOWING

00188374 CLOSED LOOP BASE KIT W/ PLUMBING KIT, 6 GPM ELECTRIC PUMP W/ 14" x 12" x 5" ENCLOSURE AND PLUMBING KIT FOR DICKEY JOHN FLOWMETER *DOES NOT INCLUDE CONTROLLER OR HARNESS* 00188379-C STAINLESS STEEL MOUNTING BRACKST FOR PREWET SYSTEM, 00012641-C TANK KIT: 100 GAL, 5" LID, 201 STAINLESS STEEL HDW, 00185534 CROSS OVER KIT, 00065211 NOZZLE KIT W 6 NOZZLES AND DIVERTER.

00185532 FLUSH KIT, MTE PRE-WET SYSTEM 12VDC & HYDRAULIC, 05050320 BULK FILL KIT, MTE PRE-WET SYSTEM 12VDC &

4.4 HYDRULIC, 00020043 QUICK DISCONNECT KIT Hydraulic driven prewet system to fit Slide in V boxes including the following: 00017232 PUMP WITH DJ RATE SENSOR, 00065210 NOZZLE KIT, 05050320 BULK FILL KIT, 00190327 FLUSHER KIT, 00020043 QUICK CONNECT KIT, 00185531 CROSS OVER KIT V BOX SPREADER, 00056496-B TWO 100 GAL LIQ TANKS W/ NEW STYLE MOUNT BRACKETS TO FIT V BOX

Electric drieven prewet system to fit slide in V box spreaders includes the following: 00188374 CLOSED LOOP ELECTRIC BASE KIT W/ PLUMBING KIT 6GPM ELECRIC PUMP W/ ENCLOSURE AND PLUMBING KIT TO BE USED IN CONJUNCTION W/ DICKEY JOHN FLOW METER, INCLUDES 14" X 12" X 5" ENCLOSURE, *DOES NOT INCLUDE CONTROLLER OR HARNESS*, 00020043 QUICK DISCONNECT KIT, 00185531 CROSS OVER KIT, 1 1/4" HOSE, 05050320 BULK FILL KIT, MTE PRE-WET SYSTEM, 00190327 FLUSH KIT, 00056496IB TANK KIT, MV/MSV, (2) 100 GAL, POLY, 1TK, 304, STD TANK, M-DOT, 00065210 NOZZEL KIT, ELECTRIC UNIT, 2 GPM, 3 NOZZELS.

4.7 installation of prewt system on DVS bodies or V box spreaders

FLIP UP SPINNER OPTION

yes

YES

YES

YES

YES

Flip up spinner for DVS combination bodies includes the following- part number 00050733-L Includes a 24"

poly spinner disc with adjustable inside delfectors, 3.2 cid spinner motor, hinged lid, and comes with a 00050708 winch kit with brake

V BOX OPTIONS

22.1 assembly

VIOITOE THOUSE IVICV 106-64-30/20155 WILL DEIL OVER CHAIN - PAIL THO UO164406-D THICHUSES THE TOHIOWING, 14 FT V BOA SPREADER

INCLUDES THE FOLLOWING

HI TEMP BELT OVER CHAIN

56" SIDE HEIGHT/84" WIDTH

10 GA 201 OR 304 HOPPER, 7 GA 201 OR 304 LONGITUDINAL

1/4" 201 OR 304 SS REPLACEABLE FLOOR

FORMED CHAIN SHIELDS WITH RUBBER SIDE SEALS

INCLUDES DOGHOUSE CUTOUT FOR TELESCOPIC HOIST

STRUCTURAL C CHANNEL CROSSS MEMBERS

INSTALL HOPPER HOLD DOWN BRACKETS ON THE SIDE OF THE V BOX

00058885I FRONT BEARING GREASE EXTENSION KIT TO REAR

26.1 00034163IB SLACK ADJUSTERS TO THE REAR

INJOING MODE INICV108-84-30/2015S WILLI QUAL AUGES PAKT INO UO183132-B INCIQUES LITE TO HOWING:

10 GA HOPPER SHELL WITH 7 GA LONGITUDINAL CONSTRUCTED OF TYPE

201 STAINLESS STEEL

REPLACEABLE AUGER TROUGH

DUAL AUGERS WITH STEP FLIGHTING AND INVERTED V

PLANETARY GEAR BOXES WITH DIRECT MOUNTED MOTORS

APPLICATION RATE SENSOR IN ONE MOTOR

FRONT REARING GREASE EXTENSIONS TO THE REAR

STANDARD TOP GRATE WITH HYDRAULIC INTERLOCK KIT

USE CHANNEL TYPE CROSS MEMEBERS UNDER THE V BOX AS WELL AS A

ANGULAR SUPPORT THAT GOES FRONT TO BACK ON EACH SIDE OF THE

BODY.

INSTALL TOP SCREENS WITH DISCONNECT

INSTALL DOGHOUSE TO FIT DUMP WITH TELESCOPIC CYLINDER

AUGER MOTORS

ves

yes

26.2 ARE MOUNTED AT THE REAR

YES

ATTACHEMENT OPTIONS

Mounting tube for MS9612 installation on a DVS body is the mounting bracket that bolts to the rear hitch plate. It is reversible for unit that have either right or left hand mounted wings. For units with dual wings, no bracket will be needed. For units with no wings,

28.1 2 units will be needed. Part number is 00183960

Option for MS9612 cross auger with necessary mounting bracket to fit a MCV slide in V box spreader including the following:

00188376-C WITH 00190365-C DROP CHUTE FROM V BOX

UPDATED IN 2018 WITH 9 CID DRIVE MOTOR

MS9612 CROSS AUGER ASSEMBLY INCLUDES THE FOLLOWING

9" AUGER

ONE WAY FLIGHTING- NO REVERSE FLIGHTING

CENTER SPINNER WITH24" POLY SPINNER DISC

MOTOR MOUNTED ON THE CURB SIDE

MOUNTING BRACKETS TO FIT V BOX

28.2 DROP CHUTES EACH SIDE YES

SWAPLOADER V BOX OPTION

10 GA HOPPER SHELL WITH 7 GA LONGITUDINAL CONSTRUCTED OF TYPE

201 STAINLESS STEEL

REPLACEABLE AUGER TROUGH

DUAL AUGERS WITH STEP FLIGHTING

PLANETARY GEAR BOXES WITH DIRECT MOUNTED MOTORS

APPLICATION RATE SENSOR IN ONE MOTOR

FRONT BEARING GREASE EXTENSIONS TO THE REAR

USE CHANNEL TYPE CROSS MEMEBERS UNDER THE V BOX AS WELL AS A

ANGULAR SUPPORT THAT GOES FRONT TO BACK ON EACH SIDE OF THE

1/2" PIPE GROUP DOWN THE SIDE OF BODY FOR REAR SPINNER AND CROSS AUGER

AUGER MOTORS ARE MOUNTED IN THE FRONT

OVER AUGERS BOLT TOP SCREENS- NO

33.2 INTERLOCK **PLOW OPTIONS** INVERTED V

YES

Monroe model MP36-60-12-CT. Expressway plow includes the following: CENTER HEIGHT IS 36", DISCHARGE HEIGHT ON EACH END IS 60' MOLDBOARD LENGTH IS 12 FT. 3/16" ROLL FORMED MOLDBOARD SEVEN 1PC 1/2" FLAME CUT TAPERED RIBS **DUAL COMPRESSION TRIP ASSEMBLIES** TWO 4" X 10" DOUBLE ACTING CYLINDER W/CUSHION VALVE 34" HUSTING HITCH STRESS PROOF MACHINED AND PLATED PINS ALL COMPONENTS AND MOLDBOARD 100% CONTINUOUSLY WELDED MOLDBOARD SHOT BLASTED AND POWDER COATED ORANGE ON FRONT, BLACK ON REAR PUSHFRAME AND COMPONENTS SHOT BLASTED AND POWDER COATED BLACK 34" HUSTING HITCH (INSTALLED) STANDARD **RUBBER SNOW DEFLECTOR** 4" POWER REVERSE CYLINDERS SNOW WHEEL MOUNTING BRACKETS WITH 6509 ADJUSTABLE SNOW WHEELS YES 34 PAINT FRONT OF MOLDBOARD ORANGE, BACK OF MOLDBOARD BLACK. INIOHIDE HIQUEI HO INFHORTZ-ISCI-ZIVIE FART INC. QUOZSHSS HICCODES THE FOLLOWING 14 REVERSIBLE PLOW, MP48R12-ISCT-ME2, 10 GA, HHL 48" TALL, 12' LONG W/ INTEGRAL SHIELD 10 GAUGE ROLL FORMED MOLDBOARD **DUAL MOUSE EARS** SIX (6) 1 PIECE 1/2" FLAMECUT TAPERED RIBS 6-ATTACH POINT PUSHFRAME **DUAL COMPRESSION TRIP ASSEMBLIES** TWO (2) 4"x10" DOUBLE ACTING CYLINDER W/ CUSHION VALVE **HUSTING HITCH LIFT** STRESS PROOF MACHINED AND PLATED PINS ALL COMPONENTS & MOLDBOARD 100% CONTINUOUSLY WELDED MOLDBOARD SHOTBLASTED & POWDER COATED ORANGE PUSHFRAME & COMPONENTS SHOTBLASTED & POWDER COATED BLACK INCLUDES 00059130I DEFLECTOR KIT INCLUDES 00069489I 34" HUSTYING HITCH KIT YFS 35 00148092 SNOW WHEEL KIT WITH 6509 SNOW WHEELS INICIDENCE ONE WAT, LEFT DISCHARGE FIALD ANGLE, NO TRIF FLOW INICULE INFFRASH-7.1-12INT-LITS/10 INCLUDES טעו עוטוע TRIP 3/16 MOLDBOARD **MOLDBOARD LENDTH IS 178' DISCHARGE HEIGHT IS 73"** LEFT HAND DISCHARGE, FIXED ANGLE, HEAVY DUTY PUSH FRAME W/3" OFFSET NOSE HEIGHT IS 34" STEEL DEFLECTOR 38 DEGREE ATTACK ANGLE 3/8 LANDSLIDE PLATE NOSE GAURD 3/16" BRAKE FORMED MOLDBOARD 12' X 8" X 5/8" CUTTING EDGE TO INCLUDE PLOW PORTION OF A 34" HUSTING HITCH BOOMERANGE ADJUSTABLE 2" X 6" X 16" CAST SHOES MOLDBOARD AND PUSH FRAME ARE CONTINUOUS WELDED 1 PIECE FLAME CUT RIBS MOLDBOARD POWDER COATED ORANGE WITH BACK SIDE BLACK 36 MOLDBOARD IS OFF SET TO THE LEFT 3" YES