U.S. 18 – 4” PCC Unbonded Overlay

2-Lane Roadway Overlayed Under Traffic
Chickasaw / Fayette County, Iowa

National Concrete Consortium
Rapid City, South Dakota
September 13, 2011

By: Dale S Harrington P.E - Representing the CP Tech Center .

Iowa Department of Transportation

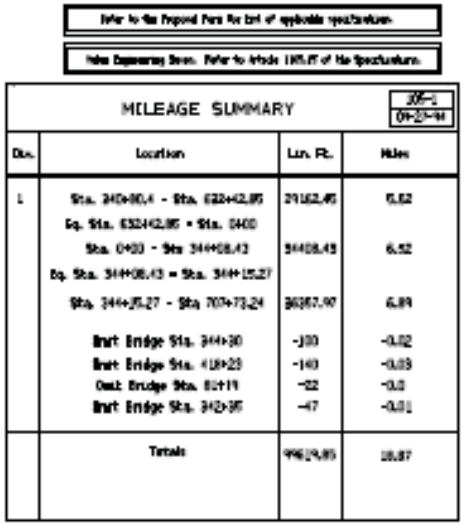
Highway Division

Plans of Proposed Improvement on the

Primary Road System - Chickasaw / Fayette County

4" PCC UNBONDED OVERLAY

US 18 From Fredericksburg E. to West Union

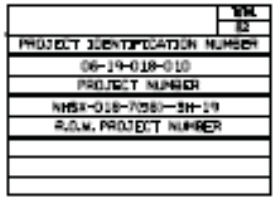


Refer to the Proposal Form for list of applicable specifications

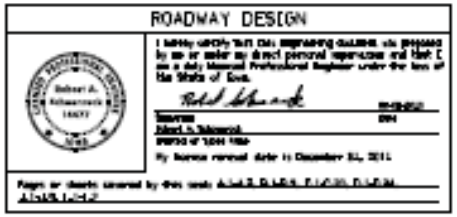
Refer to Supplementary Specs. Refer to Article 1105.01 of the Specifications

MILEAGE SUMMARY

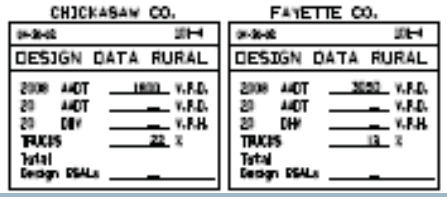
Dir.	Location	Len. Ft.	Miles
1	Sta. 340+80.4 - Sta. 632+42.85	29162.45	5.52
	Eq. Sta. 632+42.85 = Sta. 0400		
	Sta. 0400 - Sta. 344+08.43	34408.43	6.52
	Eq. Sta. 344+08.43 = Sta. 344+15.27		
	Sta. 344+15.27 - Sta. 709+73.24	36557.97	6.89
	Bmt Bridge Sta. 344+30	-130	-0.02
	Bmt Bridge Sta. 418+23	-143	-0.03
	Omit Bridge Sta. 601+19	-122	-0.0
	Bmt Bridge Sta. 342+95	-47	-0.01
	Totals	99879.85	18.87



PROJECT IDENTIFICATION NUMBER
06-19-018-010
PROJECT NUMBER
NHSX-018-7(58)--3H-19
R.O.W. PROJECT NUMBER



ROADWAY DESIGN



CHICKASAW CO.

DESIGN DATA RURAL

2008 ADT 1800 V.P.D.
20 ADT ___ V.P.D.
20 DHV ___ V.P.H.
TRUCKS 22 %
Total Design ESALs ___

FAYETTE CO.

DESIGN DATA RURAL

2008 ADT 3050 V.P.D.
20 ADT ___ V.P.D.
20 DHV ___ V.P.H.
TRUCKS 18 %
Total Design ESALs ___

FINAL BID COPY 10/19/10

- Late Start Date - April 14, 2011
- Number of working days - 120
- Number of Bidders - 6
- Bid range $8.48 million to 10.51 million
- Prime Contractor - Manatts, Inc., Brooklyn, Iowa

DESIGN TEAM LEADER

Dave Skogenboe
515-239-1612
800 Lincoln Way
Ames, Iowa 50010

PROJECT OBJECTIVE DESCRIPTION

a. Place unbonded PCC overlay while staging traffic through the project with the aid of a pilot car.
b. All preliminary work is to be included in stages one to two prior to overlay paving.
c. Transition pavement is required at the BOP, EOP and four bridge sites.
d. Microsurfacing to be removed on the west portion (BOP to County W-14 by milling.
e. Four paved side roads are affected by the overlay work.

SIGNIFICANT CONTRACT ITEMS

a. Patches by count - 651 PCC patches, 4-30 foot in length
b. Longitudinal subdrains - 113 locations with lengths of 250-540 feet
c. Temporary barrier rail - 6 locations (BOP, 4 bridges and EOP)
d. Temporary traffic signals, bridge approach and railing rehabilitation - 4 bridge locations
e. Shoulder improvement and drainage work - 223 locations

MAJOR CONTRACT QUANTITIES (TOTAL CONTRACT ITEMS)

a. Slipform 9.5 inch class 3 durability pavement ..... 6,623 sy
b. Concrete Furnish ..... 48,605 cy
c. Concrete Place ..... 350,267 sy
d. Surface preparation ..... 94,681 sy
e. Granular shoulder material, placed ..... 67,741 tons
f. Shoulder strengthening (PCC or HMA) ..... 3,993 sy
g. Patches full depth repair ..... 4,337 sy
h. Patches by count ..... 651 each
i. Class 13 widening excavation ..... 12,894 sy
j. Pavement Scarification ..... 169,982 sy
k. Granular surfacing ..... 2055 tons
l. Longitudinal subdrain ..... 48,422 LF
m. Pavement removal ..... 23,858 sy
n. Temporary barrier rail ..... 5,720 LF
o. Longitudinal joint repair ..... 10,920 LF

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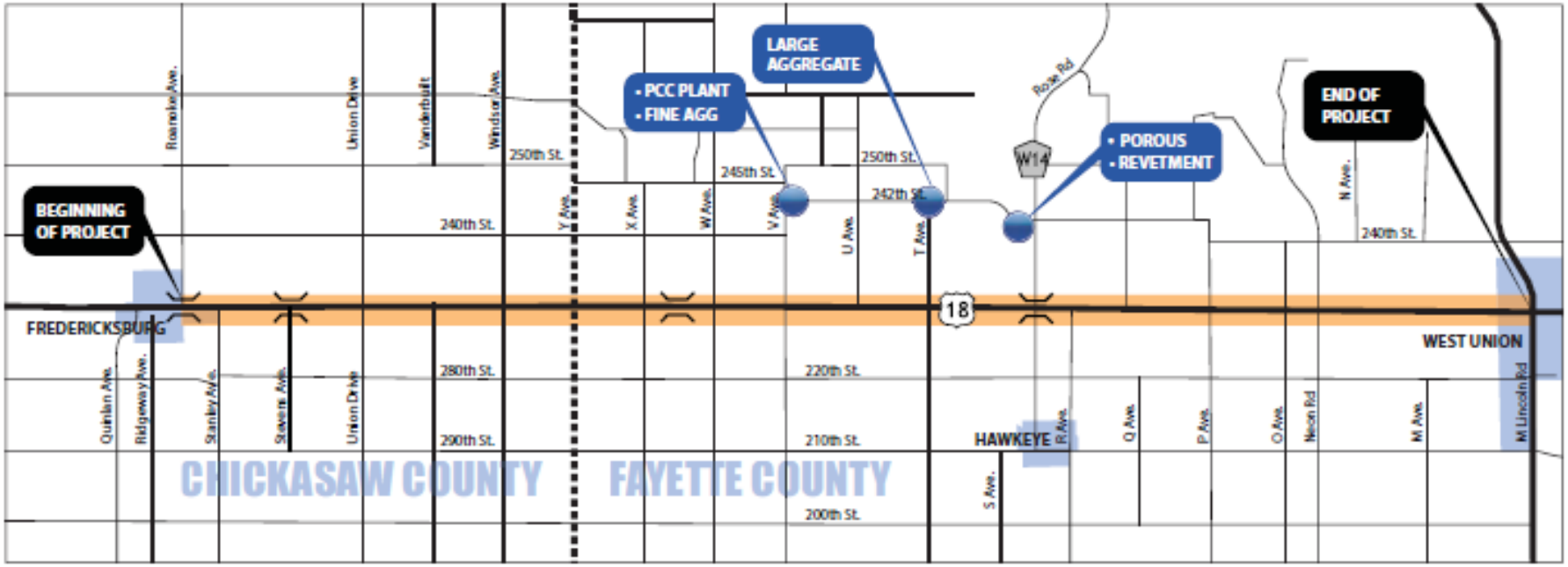
BEGINNING OF PROJECT
• PCC PLANT
• FINE AGG
LARGE AGGREGATE
• POROUS
• REVETMENT
END OF PROJECT
FREDERICKSBURG
WEST UNION
HAWKEYE
CHICKASAW COUNTY
FAYETTE COUNTY
18
W14
Roanoke Ave.
Union Drive
Vanderbilt
Windsor Ave.
Y Ave.
X Ave.
W Ave.
V Ave.
U Ave.
T Ave.
S Ave.
R Ave.
Q Ave.
P Ave.
O Ave.
Neon Rd
M Ave.
N Ave.
M Lincoln Rd
Quinlan Ave.
Ridgeway Ave.
Stanley Ave.
Stevens Ave.
Union Drive
Rose Rd
250th St.
245th St.
242nd St.
240th St.
280th St.
290th St.
220th St.
210th St.
200th St.

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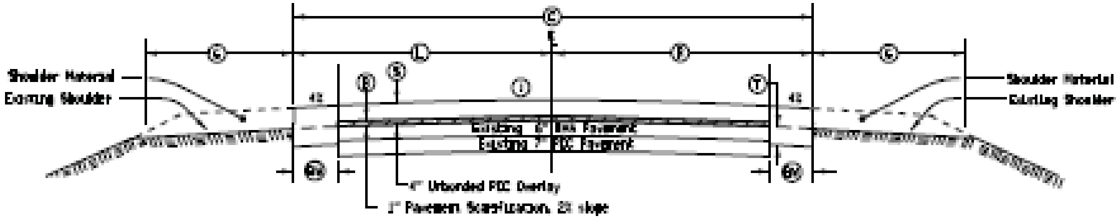
PCC Overlay



1. Finished slope to be 2%.
   Refer to cross-section listing of superelevated curves and Standard Road Plans for additional requirements through superelevated curves.
2. Shoulder is assumed to be 1" lower than existing pavement. Class 13 trench width is 6'.
3. Width includes 24" wide existing pavement.
4. Provide a vertical edge. Incidental to Class 13 Excavation.
5. Per side per station.

* Sta. 632+42.85 BK = Sta. 0+00 AH
** Sta. 344+08.43 BK = Sta. 344+35.27 AH

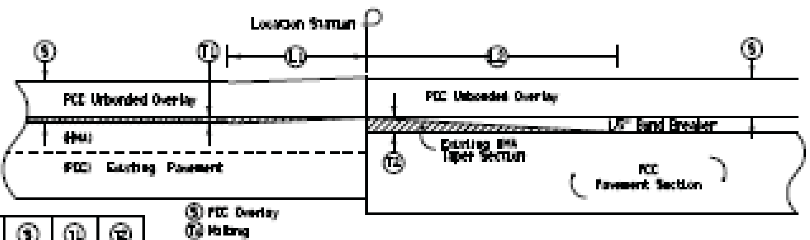
Location			(S)	(E)	(C) (3)	(L)	(R)	Overlay Quantities (2) Per Station			(T)	(BW)	(G)	Granular Shoulder (5)	Remarks
Road Identification	Station To Station		Inches	Inches	Feet	Feet	Feet	Class 13 (4) Cu. Yds.		PCC Overlay Sq. Yds.	Inches	Feet	Feet	Tons	
US 18	346+53.4	410+15	4	1	32	16	16	12.95		49.38	4	4	6	31.90	
US 18	410+15	74+60 *	4	1	32	16	16	12.95		49.38	4	4	6	31.90	
US 18	82+00	99+42.9	4	1	32	16	16	12.95		49.38	4	4	6	31.90	
US 18	99+42.9	100+42.9	Var.	1	32	16	16	12.95		54.32	4	4	6	33.11	
US 18	100+42.9	108+68.8	4	1	32	16	16	12.95		49.38	4	4	6	31.90	
US 18	108+68.8	129+18.8	Var.	1	32	16	16	12.95		54.32	4	4	6	33.11	
US 18	129+18.8	343+28.5 **	4	1	32	16	16	12.95		49.38	4	4	6	31.90	
US 18	343+55.5	708+55.24 **	4	1	32	16	16	12.95		49.38	4	4	6	31.90	

TYPICAL CROSS SECTION
PCC OVERLAY WITH BASE WIDENING

7202A
Modified

Posted Speed Limit (mph)	Taper Rate (ft per inch)
45 or More	50
35 to 45	25
Under 35	10 *

* Based on turning movements on side roads and intersections.



Location Station	(L1) Feet	(L2) Feet	(S) Inches	(T1) Inches	(T2) Inches
323+00	100	150	4	1	1.5
252+00	100	150	4	1	1.5

DETAILS OF TRANSITION
FROM PCC OVERLAY OVER
EXISTING HMA TO OVERLAY
OVER EXISTING PCC PAVEMENT

PROJECT STAGING

STAGE I (CHANGE IN PATCHING TIMING)

a. Maintain through traffic at all times.
b. Patch between BOP and EOP.(entire length of project)
c. Construct subdrains, culvert work, foreslope flatting, ditch reshaping and erosion control from BOP to EOP

STAGE II

a. Maintain through traffic at all times and use TBR/signals where necessary.
b. Place shoulder strengthening, TBR and signals, attenuators, and flood lights at four bridge locations and EOP.
c. Reconstruct bridge approaches, ½ at a time and place temporary HMA wedges

STAGE III

a. Maintain through traffic at all times from W-14 to EOP with pilot car.
b. Close county roads as required to place PCC overlay
c. Prepare base for overlay between W-14 and EOP.
d. Place PCC overlay one lane at a time, shoulder, mark lines as noted and open to traffic between W-14 and EOP.

STAGE IV

a. Maintain through traffic at all times from BOP to W-14 with pilot car.
b. Mill microsurfacing between BOP and W-14.

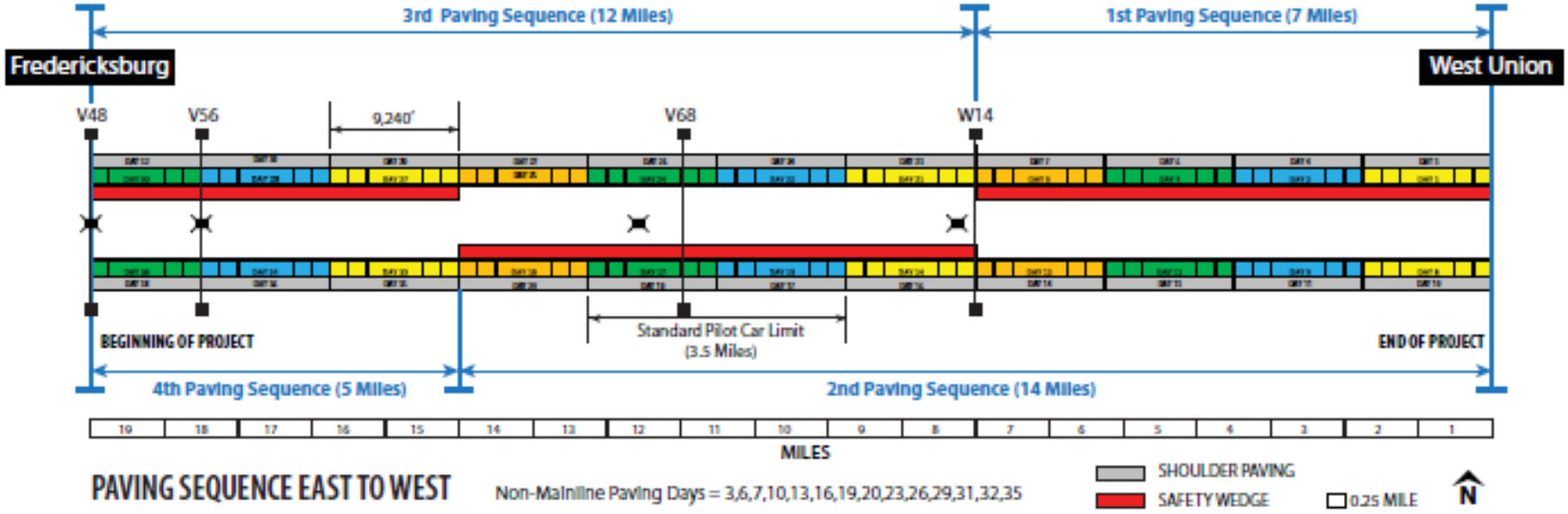
STAGE V

a. Maintain through traffic at all times from BOP to W-14 with pilot car.
b. Close Co Road V-68 and reconstruct tie in areas.
c. Close other county roads as required to place PCC overlay.
d. Place PCC overlay one lane at a time, shoulder, mark lines as noted and open to traffic between BOP and W-14.

STAGE VI

a. Maintain through traffic on US 18 at all times.
b. Construct right turn lanes at V-68 and W-14.
c. Remove and replace paved entrances
d. Place rumble strips from BOP to EOP

PAVING STAGING



PAVING SEQUENCE EAST TO WEST

Non-Mainline Paving Days = 3,6,7,10,13,16,19,20,23,26,29,31,32,35

SHOULDER PAVING
SAFETY WEDGE
0.25 MILE
N

PAVING WITH MACHINE CONTROL WITHOUT CENTERLINE STRING LINE

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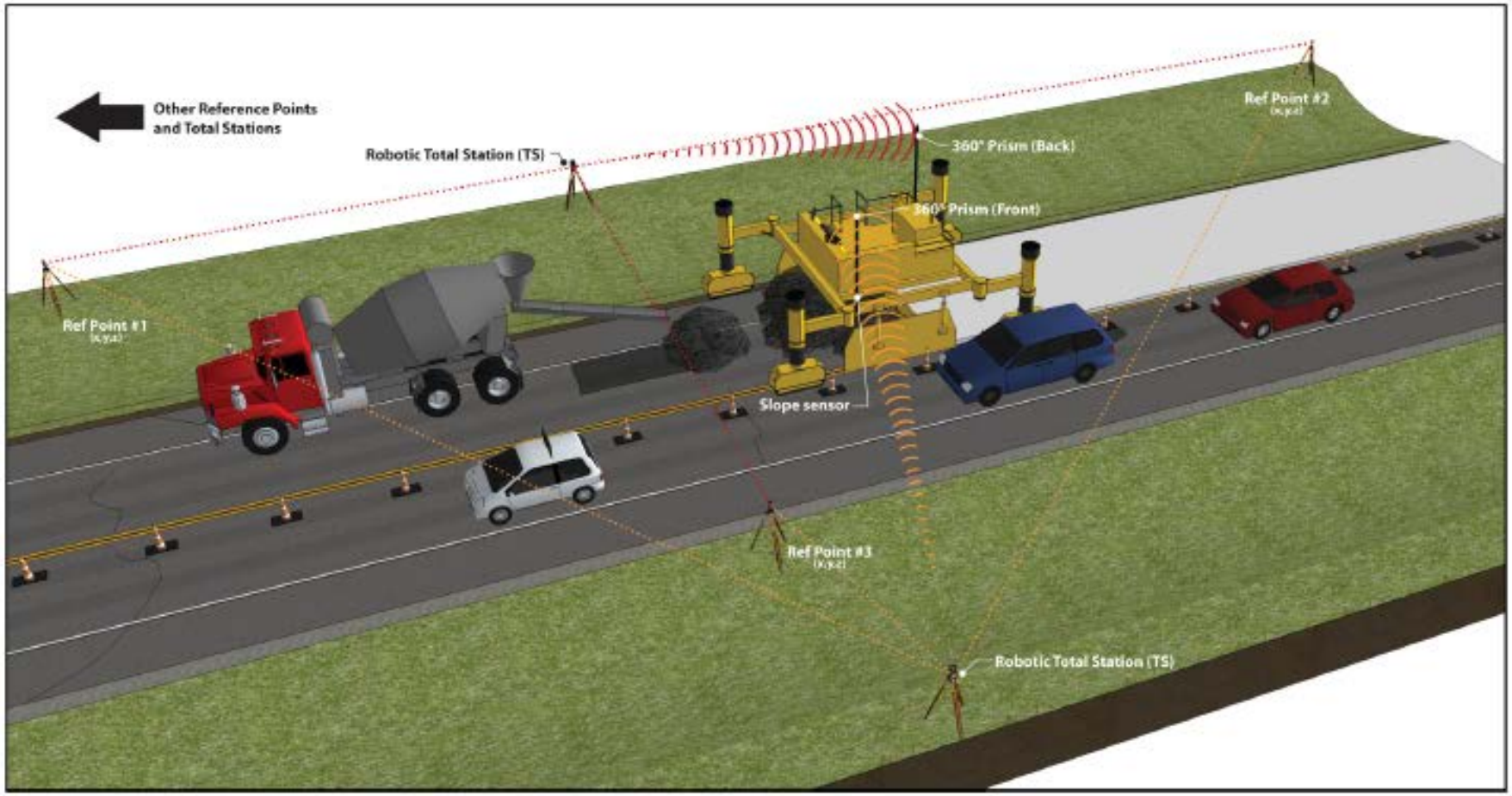

STRINGLESS MACHINE CONTROL

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Thank You

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