# PIATT COUNTY MONTICELLO ROAD COUNTY HIGHWAY 4 WHITETOPPING RUBBLIZATION

# THOSE INVOLVED

- Agency:  Piatt County
- Contractor:  Open Road Paving Company, LLC
- Sub-Contractor:  Antigo Construction Inc.
- Lead Consultant:  Fehr-Grahm & Associates
- Consultant:  Engineering and Research International, Inc.

# PROJECT SCOPE

- Original project was to add 4 foot  safety shoulders
- New drainage structures and upgrade ditches
- Existing 5 miles of 5 inch PCC Pavement Whitetopping placed in 2000 showing signs of distress

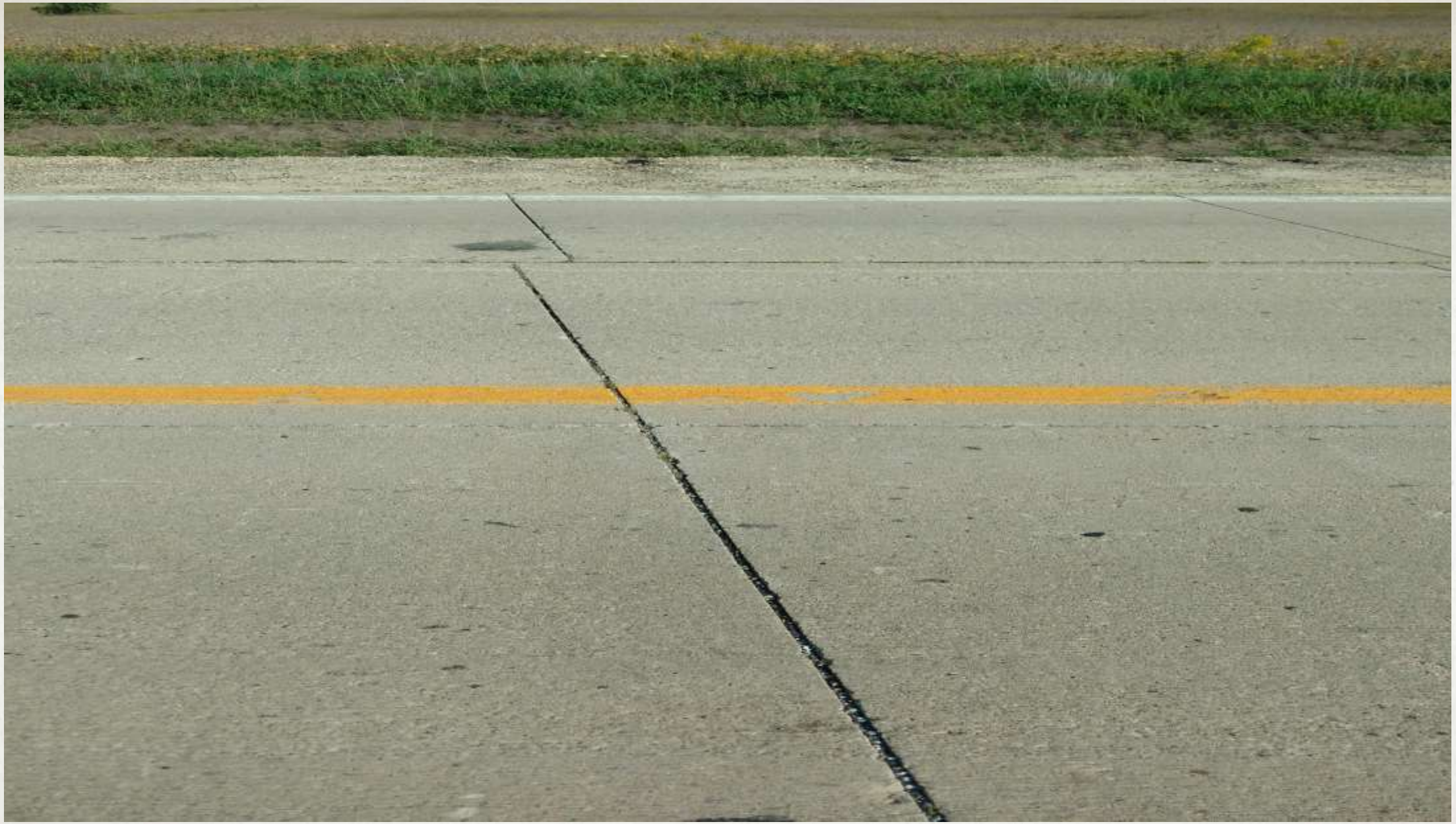


Figure 7.1a: Existing pavement elevation profiles and the cracked slab data, FAS Route 531, East Bound Lane

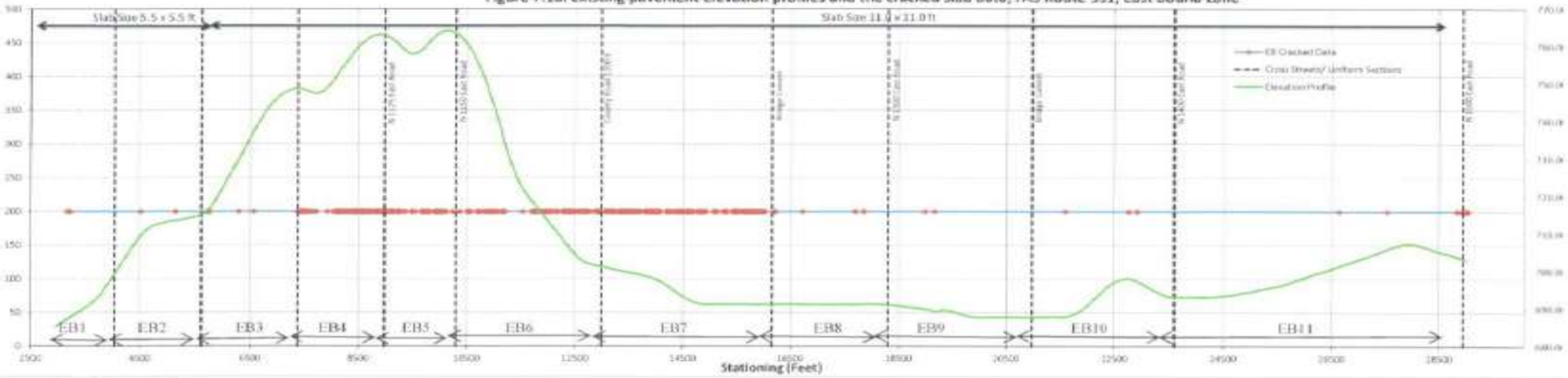
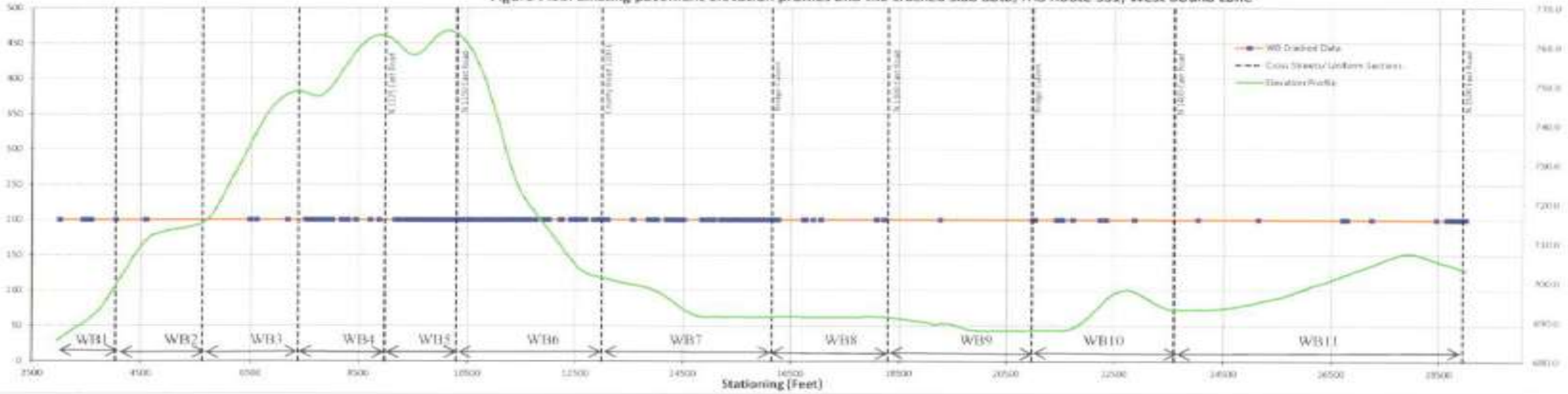



Figure 7.1b: Existing pavement elevation profiles and the cracked slab data, FAS Route 531, West Bound Lane



# PROJECT SCOPE

- Original project was to add 4 foot  safety shoulders
- New drainage structures and upgrade ditches
- Existing 5 miles of 5 inch PCC Pavement Whitetopping placed in 2000 showing signs of distress
- Decision was made to address failing PCC Pavement

# EXISTING CROSS SECTION

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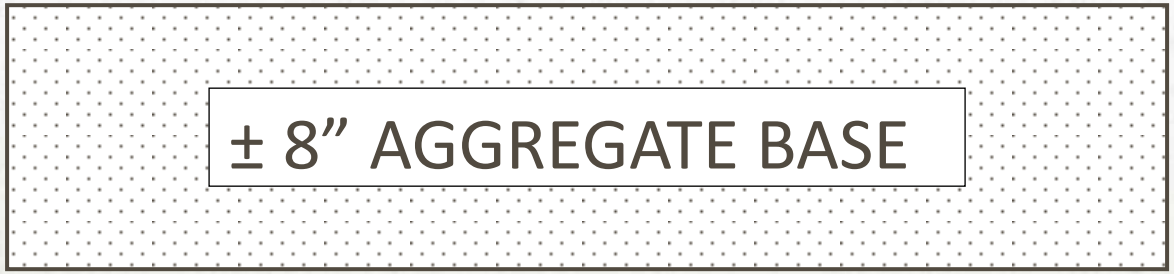

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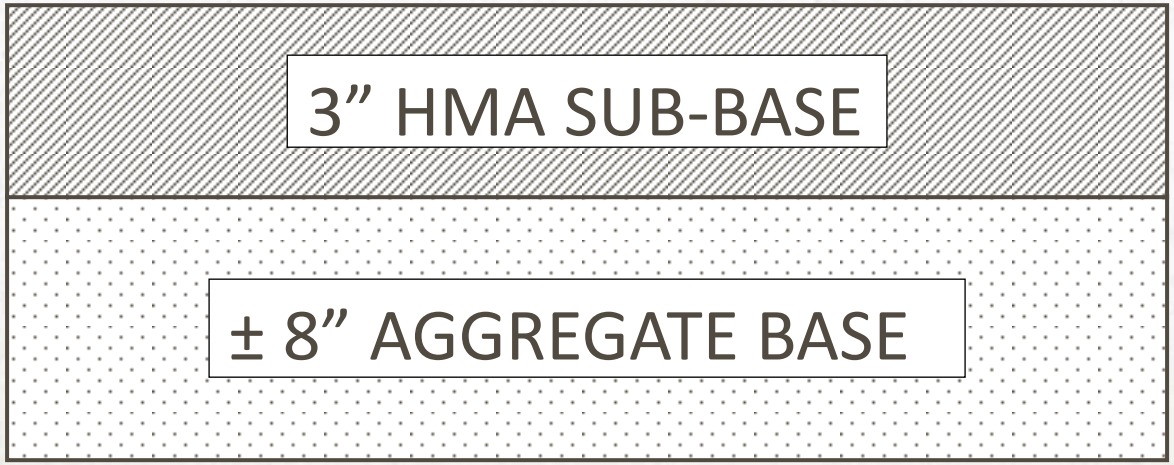

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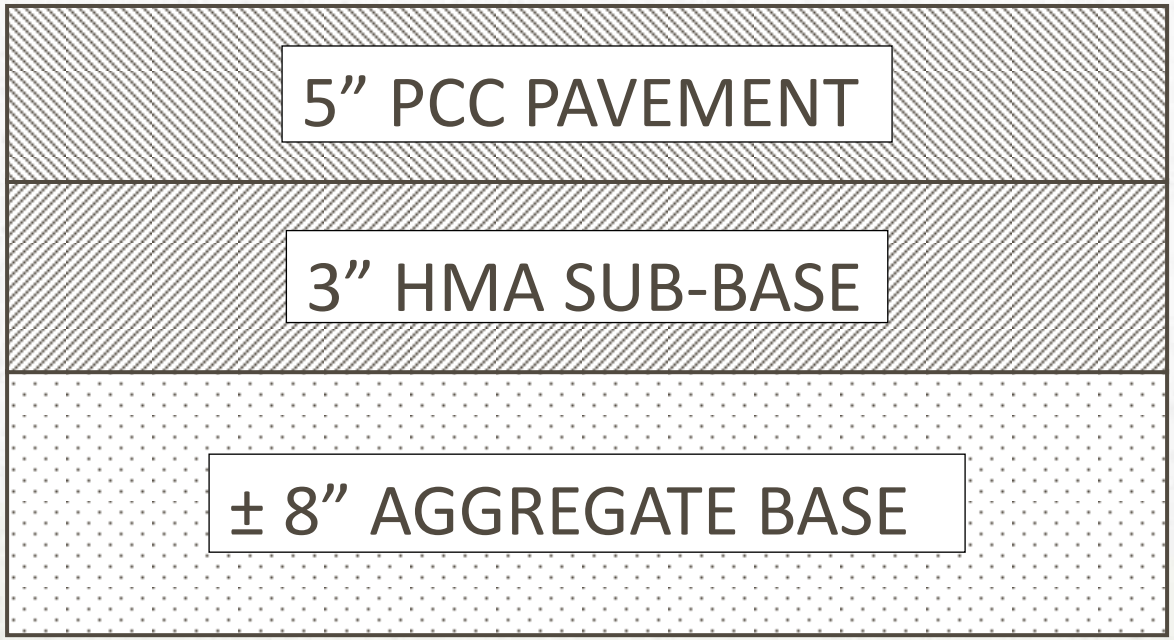

# REPLACEMENT OPTIONS

- Remove existing PCC Pavement and place new HMA directly over existing HMA Pavement

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- Remove existing PCC Pavement and place new HMA directly over existing HMA Pavement
- Remove existing PCC Pavement and existing HMA Pavement and place new PCC Pavement over Base Course (Rigid Pavement Design)

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- Remove existing PCC Pavement and place new HMA directly over existing HMA Pavement
- Remove existing PCC Pavement and existing HMA Pavement and place new PCC Pavement over Base Course (Rigid Pavement Design)
- Remove existing PCC Pavement and place new PCC Pavement over existing HMA Pavement (Whitetopping Pavement Design)

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- Remove existing PCC Pavement and place new HMA directly over existing HMA Pavement
- Remove existing PCC Pavement and existing HMA Pavement and place new PCC Pavement over Base Course (Rigid Pavement Design)
- Remove existing PCC Pavement and place new PCC Pavement over existing HMA Pavement (Whitetopping Pavement Design)
- Rubblize existing PCC Pavement and place new HMA over rubblized PCC Pavement

# MINIMUM THICKNESS REQUIRED

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| REMOVE PCC |
| --- |
| 7.75” HMA |

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| REMOVE PCC | REMOVE PCC & HMA |
|---|---|
| 7.75” HMA | 7.25” PCC (Rigid) |

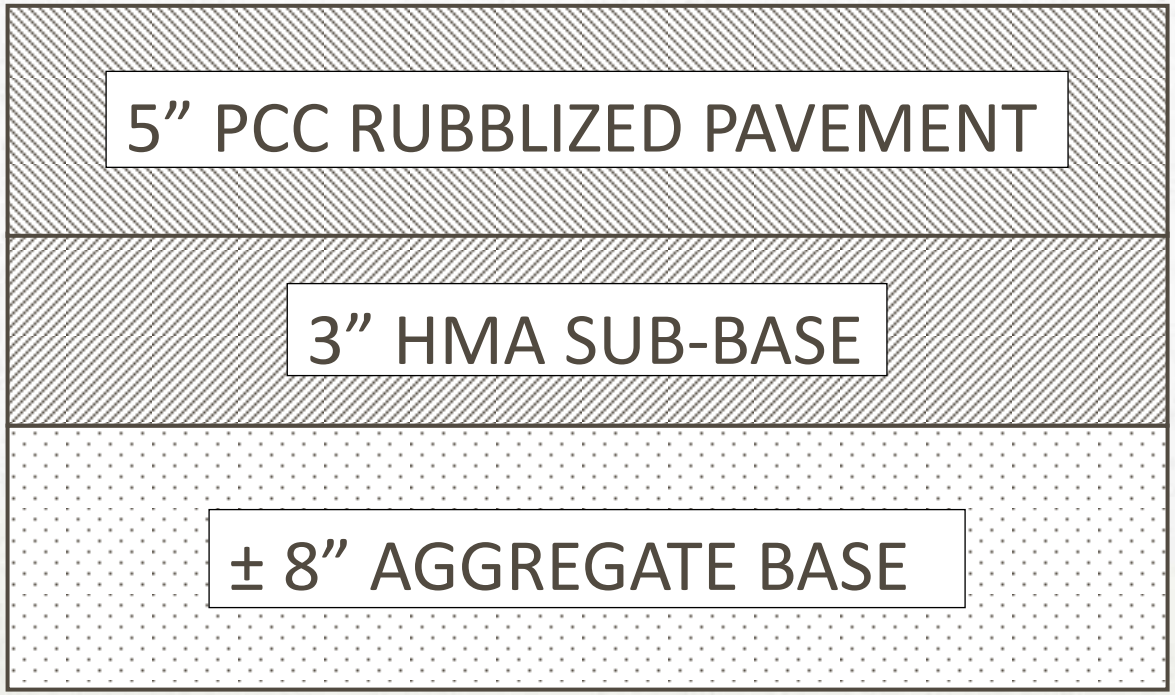
# MINIMUM THICKNESS REQUIRED

| REMOVE PCC | REMOVE PCC & HMA | REMOVE PCC |
|---|---|---|
| 7.75” HMA | 7.25” PCC (Rigid) | 9.00” PCC (Whitetopping) |

# MINIMUM THICKNESS REQUIRED

| REMOVE PCC | REMOVE PCC & HMA | REMOVE PCC | RUBBLIZE PCC |
|---|---|---|---|
| 7.75” HMA | 7.25” PCC (Rigid) | 9.00” PCC (Whitetopping) | 4.75” HMA |

# PROPOSED CROSS SECTION



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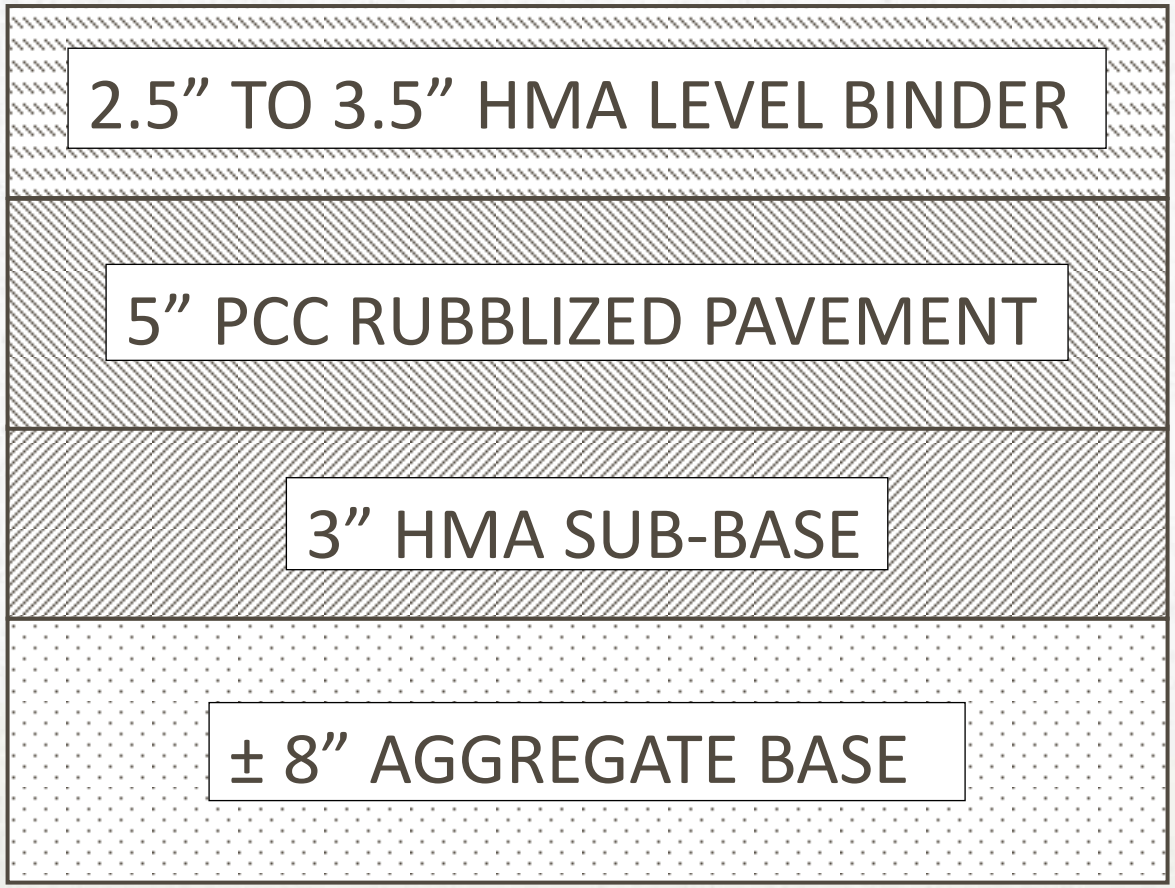
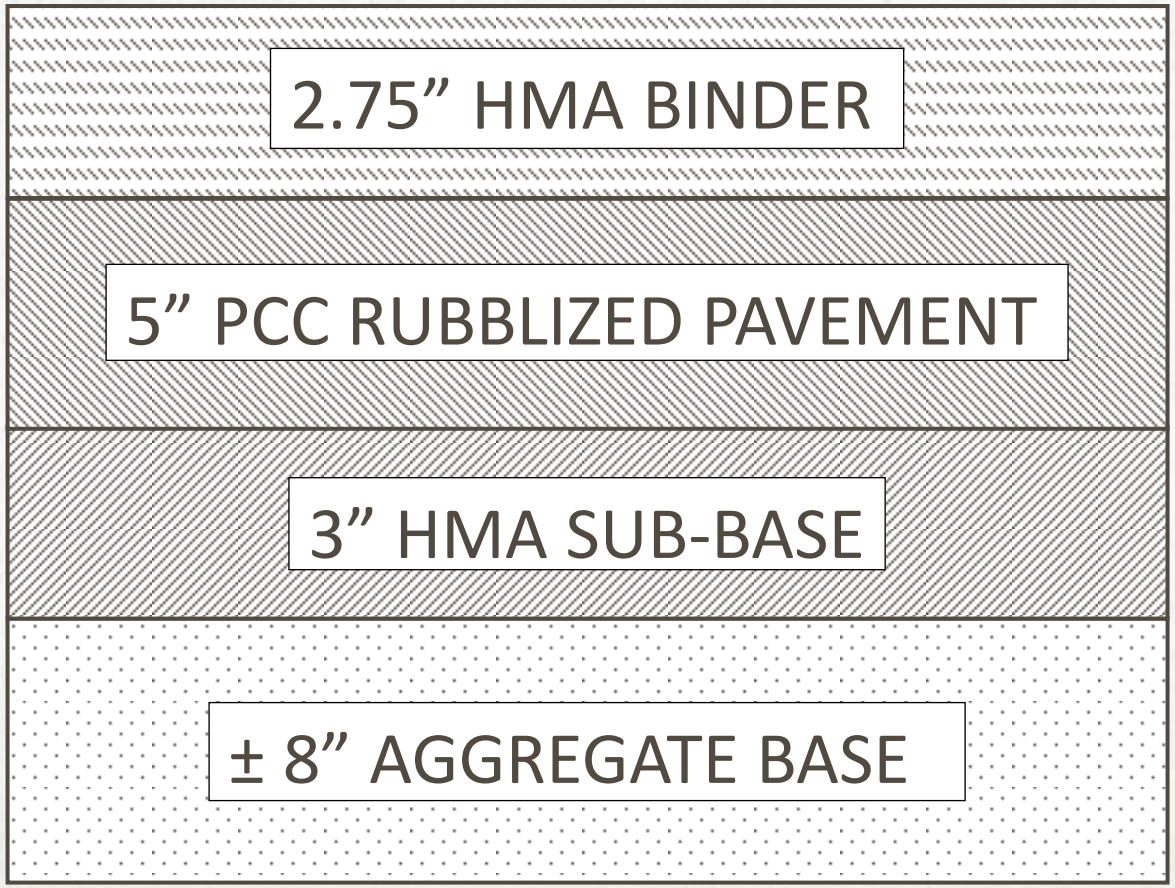


# HMA LEVEL BINDER

- 2.5” TO 3.5” thick depending on location
- To be placed full width in two separate but equal lifts
- IL 9.5 Fine Graded level binder
- PG 64-22
- N50
- Concerns over first lift thickness and eventual ride quality

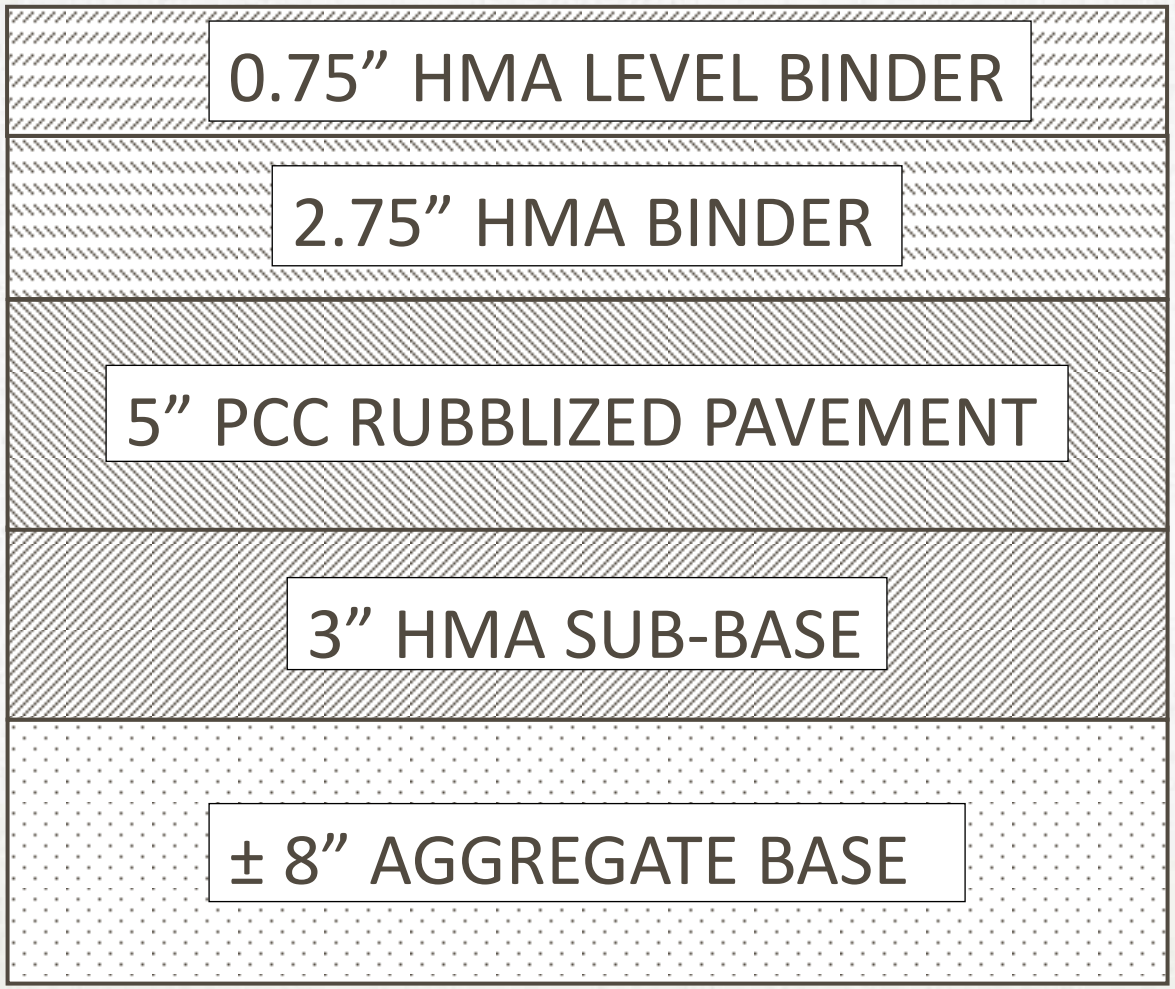
# PROPOSED CROSS SECTION



# HMA BINDER

- Single lift of Fine Graded Binder
- 2.75” Thick placed full width
- PG 58-28
- N50

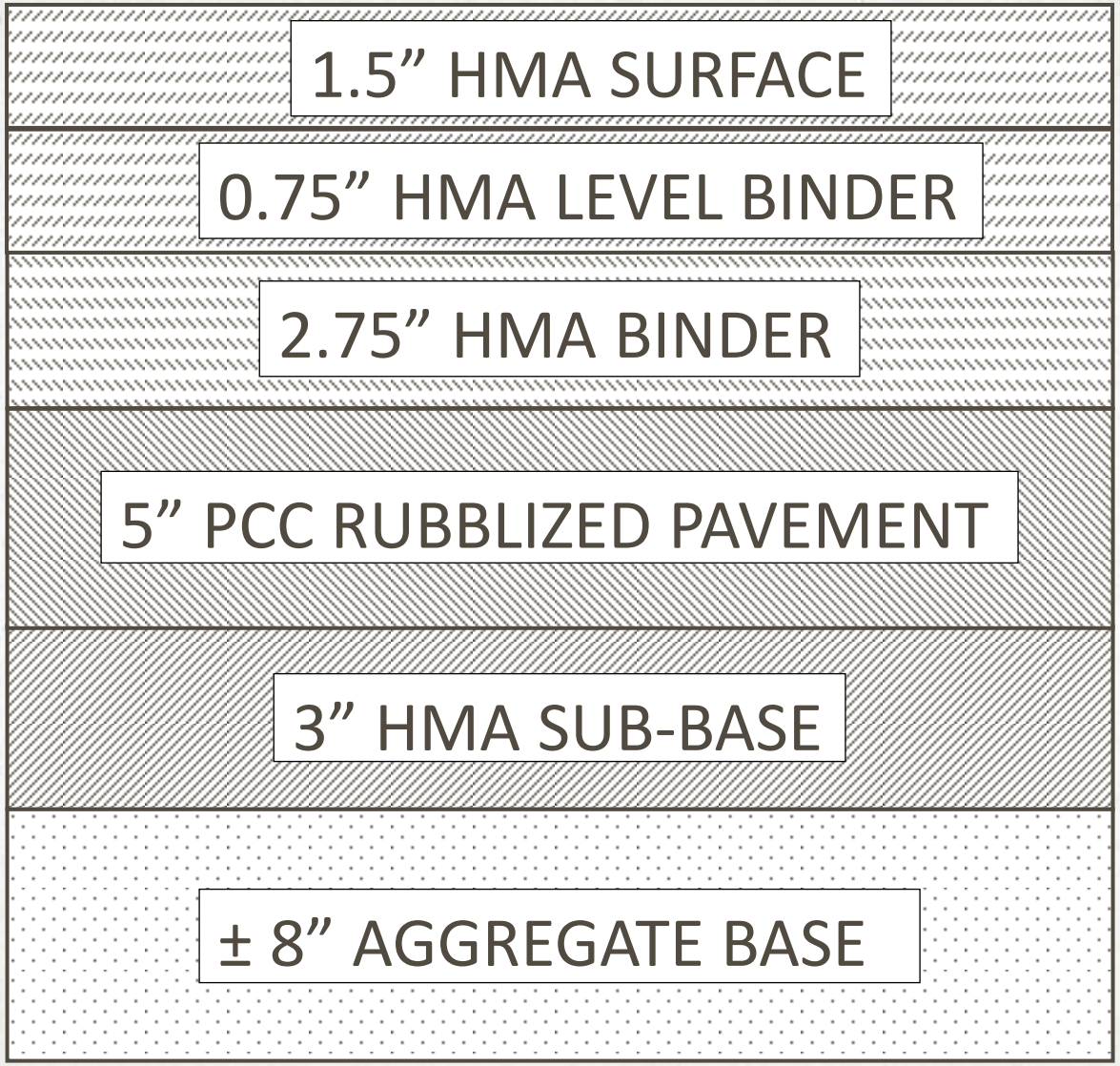
# PROPOSED CROSS SECTION



# HMA LEVEL BINDER

- 0.75” HMA Level Binder
- Placed full width
- IL 9.5 Fine Graded level binder
- PG 64-22
- N50

# FINAL CROSS SECTION



# HMA SURFACE

- 1.5” HMA Surface
- Placed full width
- IL 9.5
- PG 64-22
- N50

# RUBBLIZING EQUIPMENT

- Multi-head Breaker (MHB)
- Z-Pattern Steel Grid Roller
- Vibratory Steel Wheel Roller
- Pneumatic Tired Roller

# MULTI-HEAD BREAKER

- Self-contained, self-propelled MHB
- Hammer heads shall be mounted laterally in a single row or in pairs with half the hammers in a forward row and the remainder diagonally offset in a rear row
- Hammer drop height shall have the ability to be independently controlled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# Z-PATTERN STEEL GRID ROLLER

- Self-contained, self-propelled vibratory steel wheel roller with a Z-pattern grid cladding mounted transversely to the surface of the drum
- Minimum gross weight of 10 tons


BOMAG


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# VIBRATORY STEEL WHEEL ROLLER

- Minimum gross weight of 10 tons

# PNEUMATIC TIRED ROLLER

- Roller shall develop a compression of not less than 300 lb/in nor more than 500 lb/in of width of the tire tread in surface contact

# RUBBLIZING SPECIFICATIONS

- Upper half of the pavement shall be broken such that 75% of the pieces are a maximum of 3”
- Lower half of the pavement shall be broken such that 75% of the pieces are a maximum of 9”

# COMPACTION REQUIREMENTS

- Minimum of four passes with Z-pattern roller
- Minimum of four passes with a vibratory roller
- Minimum of two passes with a pneumatic-tired roller
- Minimum of two passes with a vibratory roller immediately prior to overlay


TIGO


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MHB BADGER
U.S. PATENT #5695254
EUR. PATENT # 0 858 532
Antigo
CONSTRUCTION INC.
ANTIGO, WISCONSIN
MASTER SWITCH
D8

# AWARDED COST

- Total awarded bid $4,853,677.40
- Concrete Rubblization bid $84,489.75 (62,585 SQ YD @$1.35)


SS-1H at 0.30 GAL/SQYD


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ALTORFER


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QUESTIONS?