



## Concrete Cylinder Test Report

### PROJECT INFO

ASTM C31, ASTM C39, AASHTO T23, AASHTO T22, ASTM C172, AASHTO R60

|                          |                               |                   |                         |
|--------------------------|-------------------------------|-------------------|-------------------------|
| Client                   | HRC                           | Date Of Placement | 06/09/2020              |
| Project Name             | HMA Resurfacing 20+ Locations | Specimen Type     | Concrete Cylinder       |
| Project Number           | 2019086C                      | Contractor        | merlo                   |
| Project Location         | Detroit, MI                   | Concrete Supplier | Superior Materials, LLC |
| MDOT Job Number          | 205935A, 207914A              | Field Tested By   | Ryan Castillo           |
| MDOT Control Section     | 82000                         | Date Issued       | 07/10/2020              |
| Results Recorded In      | English Units                 |                   |                         |
| Supplier Mix Description | Structure Adjustment          |                   |                         |

### DESIGN PARAMETER

|                                   |                   |                |      |                                    |
|-----------------------------------|-------------------|----------------|------|------------------------------------|
| Mix Design Number                 | 0674 P155E7CQA032 |                |      |                                    |
| Design Compressive Strength (psi) | 3500              |                |      |                                    |
| Air (% Max)                       | 8.5               | Slump (in Max) | 3.00 | Unit Weight (lbs/ft <sup>3</sup> ) |
| Air (% Min)                       | 5.5               | Slump (in Min) | 1.50 |                                    |

### TESTING DATA

| Placed 56.00 +/- yds <sup>3</sup> /ft <sup>3</sup> of concrete at the following location: Pouring curb on Spinoza Dr between Joy rd and Tireman. |           |                      |                           |                                              |               |                          |                       |                   |                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------|---------------------------|----------------------------------------------|---------------|--------------------------|-----------------------|-------------------|-------------------------------------------------------------------------|
| Time Tested                                                                                                                                      | Truck Num | Slump ASTM C143 (in) | Air ASTM C231 or C173 (%) | Unit Weight ASTM C138 (lbs/ft <sup>3</sup> ) | Air Temp (°F) | Mix Temp ASTM C1064 (°F) | Concrete Cylinder Set | Water Added (gal) | Cumulative Concrete Placed At Test (yds <sup>3</sup> /ft <sup>3</sup> ) |
| 8:40 AM                                                                                                                                          | 3201      | 2.00                 | 5.50                      | 0.0                                          | 67            | 84                       | 1                     | 0                 | 1                                                                       |

### MATERIAL DATA

| Concrete Cylinder Set | Concrete Cylinder Num | Diameter (in) | X-Sec Area (in <sup>2</sup> ) | Weight (lbs) | Fracture Type     | Capping Process | Age Of Concrete Cylinder (Days) | Date Tested | Total Load At Failure (lbs) | Cumulative Strength (psi/mpa) |
|-----------------------|-----------------------|---------------|-------------------------------|--------------|-------------------|-----------------|---------------------------------|-------------|-----------------------------|-------------------------------|
| 1                     | 78217                 | 4.00          | 12.57                         | 8.63         | 5-(Edge)          | Unbonded Cap    | 28                              | 07/07/2020  | 73190                       | 5820                          |
| 1                     | 78218                 | 4.00          | 12.57                         | 8.66         | 2-(Cone/Vertical) | Unbonded Cap    | 28                              | 07/07/2020  | 71630                       | 5700                          |

**Average 28 Day Compressive Strength (psi): 5760**

\*Cylinders tested with Unbonded Caps followed ASTM C1231, cylinders tested with Bonded Caps followed ASTM C617.

\*All Air Content % tests were performed per C231 unless otherwise noted in the remarks.

\*Inspector was notified of non-conformance items, if any.

\*Average Compressive Strength results did meet project specifications.

|                      |                    |
|----------------------|--------------------|
| Remarks:             |                    |
| Results Reported To: | HRC(Kevin Surhigh) |
| Report Approved By:  | Brian Gondek       |



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| MDOT Control Section     | 82000                         | Date Issued       | 07/10/2020              |
| Results Recorded In      | English Units                 |                   |                         |
| Supplier Mix Description | Structure Adjustment          |                   |                         |

### DESIGN PARAMETER

|                                   |                   |                |      |                                    |
|-----------------------------------|-------------------|----------------|------|------------------------------------|
| Mix Design Number                 | 0674 P155E7CQA032 |                |      |                                    |
| Design Compressive Strength (psi) | 3500              |                |      |                                    |
| Air (% Max)                       | 8.5               | Slump (in Max) | 3.00 | Unit Weight (lbs/ft <sup>3</sup> ) |
| Air (% Min)                       | 5.5               | Slump (in Min) | 1.50 |                                    |

### TESTING DATA

|        |       |                                                                              |                                                        |
|--------|-------|------------------------------------------------------------------------------|--------------------------------------------------------|
| Placed | 56.00 | +/- yds <sup>3</sup> /ft <sup>3</sup> of concrete at the following location: | Pouring curb on Spinoza Dr between Joy rd and Tireman. |
|--------|-------|------------------------------------------------------------------------------|--------------------------------------------------------|

| Time Tested | Truck Num | Slump ASTM C143 (in) | Air ASTM C231 or C173 (%) | Unit Weight ASTM C138 (lbs/ft <sup>3</sup> ) | Air Temp (°F) | Mix Temp ASTM C1064 (°F) | Concrete Cylinder Set | Water Added (gal) | Cumulative Concrete Placed At Test (yds <sup>3</sup> /ft <sup>3</sup> ) |
|-------------|-----------|----------------------|---------------------------|----------------------------------------------|---------------|--------------------------|-----------------------|-------------------|-------------------------------------------------------------------------|
| 3:00 PM     | 6356      | 3.00                 | 7.60                      | 0.0                                          | 87            | 89                       | 2                     | 0                 | 52                                                                      |

### MATERIAL DATA

| Concrete Cylinder Set | Concrete Cylinder Num | Diameter (in) | X-Sec Area (in <sup>2</sup> ) | Weight (lbs) | Fracture Type     | Capping Process | Age Of Concrete Cylinder (Days) | Date Tested | Total Load At Failure (lbs) | Cumulative Strength (psi/mpa) |
|-----------------------|-----------------------|---------------|-------------------------------|--------------|-------------------|-----------------|---------------------------------|-------------|-----------------------------|-------------------------------|
| 2                     | 78219                 | 4.00          | 12.57                         | 8.46         | 5-(Edge)          | Unbonded Cap    | 28                              | 07/07/2020  | 59780                       | 4760                          |
| 2                     | 78220                 | 4.00          | 12.57                         | 8.40         | 2-(Cone/Vertical) | Unbonded Cap    | 28                              | 07/07/2020  | 63560                       | 5060                          |

**Average 28 Day Compressive Strength (psi): 4910**

\*Cylinders tested with Unbonded Caps followed ASTM C1231, cylinders tested with Bonded Caps followed ASTM C617.

\*All Air Content % tests were performed per C231 unless otherwise noted in the remarks.

\*Inspector was notified of non-conformance items, if any.

\*Average Compressive Strength results did meet project specifications.

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|----------------------|--------------------|
| Remarks:             |                    |
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