John R. Jurgensen
HEAVY HIGHWAY

June 15, 2026

Chase P. Wells, P.E.
ODOT Central Office l Div. of Construction Mgmt.
1980 W. Broad Street, Columbus, Ohio 43223

Re: CLAIM NO. 06-233008-01
FAY-SR 435-1.52, PID 117955
RAMP D CRACKED CONCRETE STEP 3

Mr. Wells,

EXECUTIVE SUMMARY

The District Dispute Resolution Committee's denial of John R. Jurgensen's ("JRJ") claim during the Step 2 process is based upon an unsupported conclusion and ignores ODOT's flexural strength testing in violation of ASTM standards. ODOT conducted the testing in seconds, instead of minutes, resulting in inflated strength values. Based on those strength values, ODOT directed Ramp D be opened to heavy truck traffic, and that caused the cracks. JRJ's testing demonstrated the concrete strength was likely much lower when ODOT directed the pavement to be opened to traffic. ODOT's theory regarding batching variations conflicts with crack locations. In fact, the alleged varied batched concrete cracked less than the perfect concrete. ODOT must take responsibility for its testing failure.

The available evidence demonstrates that:

a. ODOT directed JRJ to design and construct the Project in accordance with ODOT's design, ODOT's approved Maintenance of Traffic Plan ("MOT Plan"), ODOT's approved subgrade stabilization requirements, and ODOT's approved concrete mix designs;

b. ODOT reviewed, accepted, and approved JRJ's Released-for-Construction plans, including the ODOT provided pavement thickness and structural section for Ramp D;

c. ODOT elected to perform and take full responsibility for all concrete testing on the Project (including flexural strength testing);

d. ODOT controlled when the pavement placed by JRJ was opened to traffic;

- **e.** ODOT’s concrete testing violated ASTM standards, producing artificially inflated tests results that led ODOT to open Ramp D prematurely to heavy traffic which caused the cracking;

- **f.** Despite ODOT’s assertions to the contrary, the alleged batching deviations were minor and have not been correlated to crack locations on Ramp D;

- **g.** Replacement panels constructed using a different concrete mix subsequently developed similar cracking, demonstrating it is the heavy truck traffic ODOT prematurely allowed on Ramp D and ODOT’s design that caused the cracking;

- **h.** Similar batching variability existed elsewhere on the Project without similar distress;

- **i.** ODOT has not established any engineering basis demonstrating that the cited batching deviations were capable of producing the observed cracking pattern;

- **j.** ODOT’s original pavement design contained multiple incorrect design inputs later acknowledged by ODOT;

- **k.** Corrected pavement design calculations indicate a pavement thickness requirement greater than the 10-inch section specified by ODOT in the Contract;

- **l.** ODOT’s conclusion that areas paved with a roller-screed paver performed worse than those areas paved with a slip-form paver is unfounded;

- **m.** JRJ’s use of the roller-screed roller was in accordance with industry standards and pursuant to ODOT’s express consent;

- **n.** ODOT Daily Work Reports (“DWR’s”) confirm that JRJ performed concrete pavement operations on the Project in compliance with the Contract and in a good workmanlike manner.

Accordingly, the evidence does not support ODOT's conclusion that JRJ or its suppliers caused the pavement distress.

Per ODOT CMS 108.02.G.3 – Dispute Resolution and Administrative Claims Process, JRJ is escalating this claim to Step 3. JRJ disputes the direction from the Step 2 denial letter to remove and replace cracked portions of Ramp D at no cost to the department.

This letter provides supplemental formal notice that:

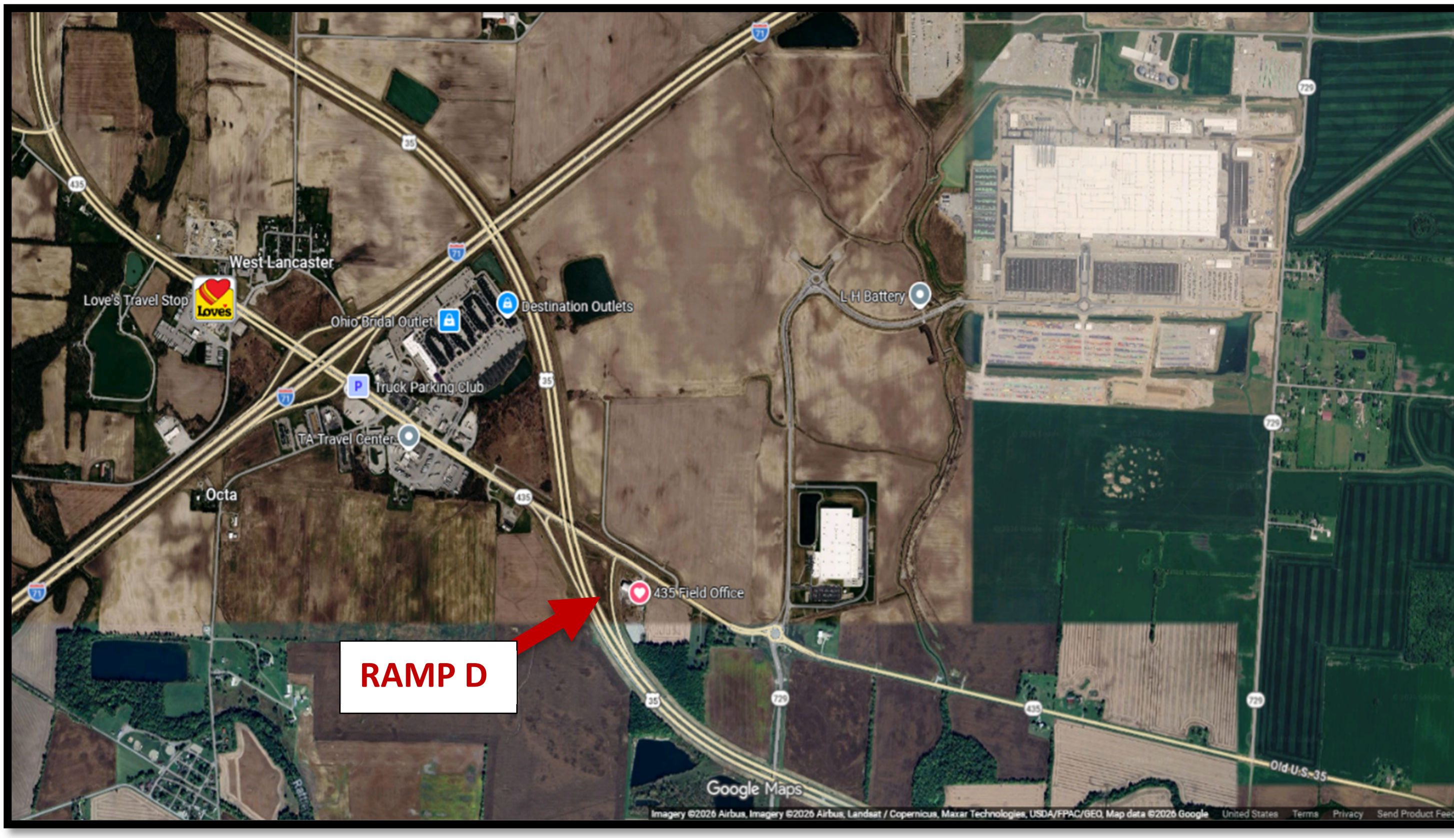
1. ODOT controlled the testing and acceptance of the concrete pavement placed by JRJ through testing, sampling, and breaking beams to measure flexural strength. ODOT’s testing violated ASTM standards, producing artificially inflated test results that led ODOT to direct JRJ to open Ramp D prematurely to heavy traffic which caused the cracking.

2. The Contract Documents, including ODOT-furnished design build scope, pavement sections and specifications for the Project, contained significant design deficiencies that were not apparent to JRJ and that led to the cracking and distress now observed in the concrete pavement. JRJ reasonably relied upon ODOT's prescribed pavement section, which was incorporated into JRJ's approved Released-for-Construction plans, and constructed the work in full compliance with those requirements. The resulting pavement distress is therefore also attributable to defects in the ODOT-furnished design rather than any failure of materials, workmanship, or construction means and methods. The cracking developed weeks to months after ODOT opened the pavement to traffic, further confirming that the distress is structural and design-related rather than construction-related.

Ultimately, JRJ performed construction of the Project and Ramp D in a good workmanlike manner and ODOT *has not* and *cannot* prove otherwise. As a result, JRJ respectfully requests that the Step 2 denial be reversed, that responsibility for the Ramp D pavement distress be assigned to causes other than contractor workmanship or materials, and that JRJ be compensated for costs incurred and to be incurred in addressing the cracked pavement panels.

PROJECT DESCRIPTION AND INFORMATION

ODOT and JRJ entered into a design-build contract (the "Contract") whereby JRJ served as the General Contractor for ODOT Project No. 23-3008 in Fayette County, OH (the "Project"). The scope of work on the Project included: (1) adding through and turn lanes on the IR 71 ramps and the US 35 to SR 435 ramp; (2) adding turn lanes to SR 435 at various locations and to widen the route from two to four lanes from the SR 435 to the US 35 ramp (preexisting four lane section) to SR 729; (3) adding a roundabout at the intersection of SR 435 to SR 729; and (4) adding a new signal at the US 35 to the SR 435 ramp. The Project included two interim completion dates, one for the IR-71 ramps, September 15, 2024, and one for the rest of the Project (except permanent signal work), November 1, 2024. JRJ completed each section of the Project on time and in a good workmanlike manner.



a. ODOT Provided the Project's Design and Directed JRJ to Follow it

In a design build contract, typically, JRJ would have been responsible for the design, however, here, **ODOT provided the design and directed JRJ to follow it**. In fact, pursuant to the Contract, ODOT directed JRJ to design and construct the Project in accordance with ODOT's design, ODOT's MOT Plan, ODOT's approved subgrade stabilization requirements, and ODOT's approved concrete mix designs. Specifically, ODOT required JRJ to follow its Design Build Scope of Services ("DBOS") that was included in Addendum 8 to the Contract where ODOT specifically dictated the pavement sections for each area of the Project. *See* Exhibit A, Addendum 8, DBSOS 13.3.[1]

[1] ODOT's DBSOS noted the potential for high sulfate content in Ramp D's soils and required four samples of this area before developing the cement stabilization mix. One of the samples collected from Ramp D showed sulfates of 2960ppm near the 3000ppm limit; however, ODOT directed JRJ's team to proceed with cement stabilization and not to perform undercut and replacement of Ramp D soils. *See* Email from Joe Brubaker on 6.7.2024. (Exhibit B).

13.3 Proposed Build-ups

The QC/QA designation shall be added if any single concrete pavement pay item exceeds 10,000 square yards (8500 square meters). The QC/QA designation shall be added to all concrete pavement items if any single item meets the threshold.

Unless otherwise noted, shoulders shall be the same material and buildup as mainline.

US-35 Exit Ramp to SR-435 (Ramp D)

Item 452 - 10" Non-Reinforced Concrete Pavement, Class QC 1P

Item 304 - 6" Aggregate Base

SR-435 - Widening/Full-Depth Pavement in Concrete Section at 71 Interchange

Item 452 - 10.5" Non-Reinforced Concrete Pavement, Class QC 1P

Item 304 - 6" Aggregate Base

I-71/SR-435 Ramps (Ramp NW, Ramp EN, Ramp WS)

ODOT CHANGED TO 11" 452 NON-REINFORCED CONCRETE PAVEMENT

- Lanes

Item 451 - 9" Reinforced Concrete Pavement, Class QC 1P

Item 304 - 6" Aggregate Base

- Shoulders

Item 452 - 9" Non-Reinforced Concrete Pavement, Class QC 1P

Item 304 - 6" Aggregate Base

*The existing right shoulder on Ramp EN & Ramp NW is composed of concrete and asphalt.

Because ODOT directed how traffic was to be maintained in each section of the Project, JRJ incorporated ODOT's MOT Plan in its Buildable Units 4 & 5. *See* "BU4 – 1-71 & SR435 West final ODOT approved plans RFC documents 3.12.2024" and "BU5 – SR435 East, Roundabout, and US35 Ramp D final ODOT approved plans RFC documents 5.30.2024." Not only did ODOT provide the Project's design, MOT Plan, subgrade stabilization requirements, and approved concrete mix designs, ODOT also elected to take full responsibility for all concrete testing on the Project.

b. ODOT Took Full Responsibility for all Concrete Testing on the Project

Important to this instant dispute, the Contract required JRJ to perform compaction testing and cement mix design testing for the Project. **ODOT, however, elected to perform and take full responsibility for all concrete testing on the Project**. As a result, as JRJ placed the concrete for the Project, ODOT made beams for strength testing. Subsequently, ODOT broke the beams and informed JRJ's Superintendent of the strength results. ODOT then dictated when JRJ could open the pavement to traffic based upon these strength results. It was not until just prior to the Step 2 Hearing that ODOT made these tests available for JRJ to review. And although ODOT made some tests available for JRJ's review, ODOT only provided strength testing results for just seven beam breaks. Significantly, as will be demonstrated below, these tests were done incorrectly by ODOT.

c. After ODOT Directed the Pavement be Opened to Heavy Highway Truck Traffic, Mid-Panel Cracking was Observed on Ramp D

During the course of the Project and after opening the pavement to heavy highway truck traffic at ODOT's express direction in 2024, mid-panel cracking was observed in several panels of the concrete at the US-35 Exit Ramp to SR-435, hereafter referred to as "Ramp D." In an effort to avoid any conflict with ODOT and to avoid the imposition of any liquidated damages, JRJ removed and replaced several sections of cracked panels. *See* ODOT's pour tracking for dates and panels affected. (See Exhibit N). JRJ replaced these panels in 2024 with QCMS concrete supplied by Ernst Concrete, the material supplier for the entire Project. ("Ernst"). Again, just as before, ODOT took full responsibility for testing this concrete. The mid-panel cracking continued. And in September of 2025, JRJ again agreed to remove and replace additional sections of cracked concrete panels on Ramp D, some of which were previously replaced by JRJ in 2024.

As of October 2025, ODOT recorded approximately 40 12'X15' panels with cracking on Ramp D roughly 20% of the total panels installed. Recent observations, however, show there are far more cracked panels now on Ramp D. To date, ODOT and JRJ have agreed to participate in the claims process before fixing any additional panels.

Overall, JRJ performed its scope of work in a workmanlike manner and in accordance with the ODOT's design. ODOT knows this. ODOT's own Transportation Manager 3, Joseph Brubaker in the Step 1 discussion stated, "JRJ did everything correct" on the Project. In fact, the evidence supports such a finding. As will be demonstrated below, the evidence shows JRJ nor its subcontractors caused the distress to Ramp D. Instead, it was ODOT's deficient design and ODOT's deficient testing of the concrete that led to the cracks observed on Ramp D.

ARGUMENT

a. ODOT's Post-Construction Pavement Design Review Raises Legitimate Questions Regarding ODOT's Design Adequacy

Ramp D was designed and constructed in accordance with the DBSOS provided by ODOT in Addendum 8. However, unlike a typical design-build contract, ODOT's Contract Documents prescribed a pavement section consisting of 10 inches of non-reinforced concrete pavement over 6 inches of aggregate base and stabilized subgrade. JRJ relied upon these contract requirements and constructed the pavement in accordance with the plans, specifications, and pavement section provided by ODOT in lieu of providing a design for review and approval. At no time during construction did ODOT direct JRJ to review the contractually provided pavement design, or to increase pavement thickness, modify the pavement structure, or otherwise deviate from the design criteria incorporated into the Contract Documents.

Following the discovery of widespread mid-panel cracking, ODOT undertook a review of the original pavement design assumptions and identified several design input parameters that were potentially incorrect or inconsistent with the conditions ultimately found. These issues included revisions to functional classification, directional distribution, truck percentages, lane factors, load transfer assumptions, and stabilized subgrade properties. Using these revised design assumptions, ODOT prepared additional pavement design calculations which resulted in a calculated pavement thickness of approximately 10.5 inches[2].

This recalculated pavement thickness with the corrected design assumptions exceeded the 10-inch pavement section prescribed in the Contract Documents. The importance of this recalculation is that it demonstrates ODOT's own post-construction engineering review identified conditions under which a pavement section greater than the contract-required 10-inch thickness would be warranted. Accordingly, the existence of ODOT's own revised calculations creates a legitimate engineering concern regarding whether the originally prescribed pavement section provided adequate structural capacity for the loading conditions experienced by Ramp D.

Ultimately, the existence of ODOT's own recalculated pavement thicknesses demonstrates ODOT's plans contained design deficiencies. And at a minimum, these findings and the evidence below prevent a conclusion that the cracking can be attributed solely to contractor-related concrete production issues.

b. ODOT Step 2 Evaluation – Roller-Screed Placement and Non-Compliant Concrete

In ODOT's Step 2 Decision, District 6 focused on two QC1P (JMF C750291P1A) concrete roller screed placements occurring on August 20, 2024, and September 10, 2024, both of which experienced consistent mid-panel cracking throughout the placements. District 6 concluded that there *"does appear to be strong correlations between the roller-screed placements, the non-compliance concrete supplied, and the operational factors, namely the MOT phasing. While we note the strong correlation,* ***we cannot definitely point to these factors as the true cause of the cracking experienced."***

Firstly, JRJ's plan for concrete and use of roller screeds were approved by ODOT through the submittal process and was continually noted as conforming to ODOT specifications by ODOT's inspectors in the Daily Work Reports ("DWR"s). **Secondly**, the limited data demonstrates that there is no correlation between the allegedly out-of-tolerance concrete loads and the amount of cracking that subsequently occurred. In fact, the only factual correlation rebuts ODOT's findings as the data shows that areas with a higher percentage of out-of-tolerance concrete experienced less cracking, and vice versa.

Conversely, a review of ODOT's flexural strength testing procedures identified that ODOT incorrectly performed flexural strength testing by loading beams within seconds in lieu of 125 psi/min and 175psi/min[3], which caused the samples to crack at higher stresses and produced artificially elevated early-strength results. These test results led to the authorization from ODOT to open the lanes to traffic (prematurely based on false data), ultimately causing widespread consistent mid-panel cracking in the pavement due to the early traffic load.

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[2] *See* ODOT's revised AASHTO 93 Pavement Design for Ramp and Mainline traffic

[3] Per ASTM C293/293M

Furthermore, ODOT-directed testing and acceptance procedures contradict ODOT Construction and Materials Specifications ("CMS") in several areas including but not limited to opening to traffic procedures and testing laboratory requirements.

Provided below are the details that outline JRJ's rationale and position:

i. Project Concrete Pavement Quantities

There is a total 10,334 sy of concrete pavement on the project which is made up of 3,956 sy of 10" for Ramp D (BU5 plans), 3,349 sy of 10.5" for SR435 widening (BU4 plans), and 3,029 sy of 11" for I-71 ramp widening sections (BU4 plans). *See* below for more details on each pavement type.

ITEM#	Description	Client Bid #	Units	Quantity	Unit Price	Total
11010	10.5" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	452	SY	3349	$ 184.23	$ 617,002.09
11020	10" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC 1P	452	SY	3956	$ 172.05	$ 680,626.15
11030	11" CONCRETE PAVEMENT, CLASS QC 1P	452	SY	3029	$ 191.52	$ 580,101.07

ii. Roller Screed vs Slip Form Paver Discussion

ODOT's Step 2 conclusion that areas paved with a roller screed paver performed worse than those areas paved with a slip form paver is unfounded. In fact, the only areas of cracking on new concrete pavement on the 11" I-71 Ramp concrete is where ODOT directed the JRJ team to tie the new concrete into the existing cracking concrete. Further, prior to use of roller screeds on the Project, JRJ provided all information requested by ODOT, including information related to the operational layout for pavement areas, details of the roller screed, concrete pavement placement operational process details, and confirmation of specification and standard drawing adherence[4]. ODOT then approved JRJ's plan for concrete finishing and use of the roller screeds.

In addition to the approval of use by ODOT, ODOT inspectors' continually noted conformance in ODOT inspector Daily Work Reports ("DWR"), see ODOT's comments on JRJ operations below:

[4] *See* 5.8.24 email to Joe Brubaker **EXHIBIT J**

AWP Report

DWR DATE	Inspector	DWR Remarks Type	Remarks
5/9/2024	Brandon Bagheri	General Comments	Contractor performing proof roll on area between Allen Rd. and ramp c. Using Challenger tractor model MT665B pulling proof roller with JRJ equipment #13009. Weigh slip for the empty proof roller showing 20,890lbs and it is loaded with 14 concrete weights that are 2'x2'x6'. Inspector estimated each of these blocks to be .89CY with an estimate of 3800-4000lbs per block. Combined weight of proof roller to be estimated between 69,000-71,000lbs. Based on soil type in the area contractor is believed to meet spec of 35 ton proof roll. Proof roll done in presence of the inspector and no deflection or rutting present in proof roll where cement stabilization is performed. Very little deflection in area where undercut was performed and no visible rutting left as proof roller passes. This crew is then installing the underdrain for this area. Existing underdrain ties into catch basin by ramp c, contractor tying new underdrain into existing underdrain. Crew 2 begins excavation for areas 2 and 3 in order to install catch basins and storm sewer in the area to be widened for proposed right turn lane. Using PC238 and JD550 dozer, contractor dug out bottom of existing ditch and hauled to lay down yard. They then are stripping the topsoil and piling it at top of ditch before tracking it in to use for the proposed ditch after storm sewer is installed. JRJ sanitary force main crew on site continuing installation of sanitary sewer. Pipe is to be set with a minimum 48" cover over 12" pipe. Depth of trench will be 5'6" at a minimum so contractor opting to use their trench box rather than benching the trench. Using pc360 with 72" tooth bucket and laser to get to required depth, contractor laid both 6" and 12" sanitary force main pipe from pipe sta 42+48 to 43+60 . The pipe is bedded with 6" of #57 stone and laborers using shovels to work stone under haunch of the pipe as it is backfilled in lifts and compacted with walk behind vibratory tamper to get 12" of coverage over the top of the 12" pipe. contractor is then placing backfill material in lifts 8"-12" and compacting with Hamm sheep foot vibratory roller. Pipe is SDR-21 [illegible] Concrete Crew on site tonight at 9pm to begin work on ramp A extension, JMF- C7502901P1A. Concrete arrived on site at 10:05pm and tested by inspector on site. First truck tested for air and cylinders 1A thru 1C and beam 1 created. Second and third loads also tested for air for verification and then inspector tested every 50 yards after third truck. Beam 2 and 3 created at middle and end of ramp per contractors request for extra possible breaks if needed. Contractor is using concrete chutes on trucks to place concrete evenly across width of pour while keeping chutes low to allow for minimal fall from chute to ground. One laborer with backpack vibrator consolidating concrete evenly across entirety of placed concrete. Backpack vibrator failed and contractor switched to using electric powered vibrator and generator with one laborer helping to move generator and cord along so as to not hold up the pouring process. Contractor finishing the surface with a single barrel roller that is powered by hydraulic pump and maneuvered by two laborers. Pour started at bottom of ramp and finished at the top of the ramp. Roller screed was spinning in a manner to work concrete up ramp and leaving an even surface behind it. Contractors then bull floating and edging before tinning longitudinally. After tinning contractor is using mechanical pump to spray cure the surface. Surface with cure has total coverage and is free of any streaking or bare spots. Contractor then sawing to a depth of 1/3 the thickness of the pad. During sawing some of the cure was removed by work boot prints. Contractor resprayed cure on these areas to repair coverage .
	Michael Justice	Equipment	Komatsu 360. 544 john deere loader hamm roller.john deere 410k backhoe.kw water truck. kw dump truck.broom tractor.
	Michael Justice	General Comments	digging in the force main .no pumping water today.spending most of the day trying to locate fiber line and electric line.
5/10/2024	Brandon Bagheri	General Comments	Pipe crew performing air test on 6" and 12". Both pipes passed air test and were well withing limits for leakage. Concrete crew sawing concrete poured hours prior to a depth of 1/3T for the 11-12"- thickness. Inspector che[illegible] random areas to ensure correct saw depth. Storm crew is digging out ditch in area 3 to install 18" type c storm sewer and install catch basin [illegible]+75. catch basin is bedded in 57's and is temporarily backfilled to fill hole for the weekend. Contractor is opting to use band[illegible]stead of concrete collars for the storm sewer where plastic pipe is meeting plastic pipe per odot specs. Prior to backfilling [illegible]tractor is mortaring around pipe inlets to the catch basin.
	Michael Justice	Equipment	Komatsu 360. 544 john deere loader hamm roller.john deere 410k backhoe.kw [illegible]er truck. kw dump truck.broom tractor.
	Michael Justice	General Comments	digging for the force main .still trying to locate fiber wire and electric .one [illegible] both are incased in concrete so its very slow digging.air testing the force main today .

Concrete Crew on site tonight at 9pm to begin work on ramp A extension, JMF- C7502901P1A. Concrete arrived on site at 10:05pm and tested by inspector on site. First truck tested for air and cylinders 1A thru 1C and beam 1 created. Second and third loads also tested for air for verification and then inspector tested every 50 yards after third truck. Beam 2 and 3 created at middle and end of ramp per contractors request for extra possible breaks if needed. Contractor is using concrete chutes on trucks to place concrete evenly across width of pour while keeping chutes low to allow for minimal fall from chute to ground. One laborer with backpack vibrator consolidating concrete evenly across entirety of placed concrete. Backpack vibrator failed and contractor switched to using electric powered vibrator and generator with one laborer helping to move generator and cord along so as to not hold up the pouring process. Contractor finishing the surface with a single barrel roller that is powered by hydraulic pump and maneuvered by two laborers. Pour started at bottom of ramp and finished at the top of the ramp. Roller screed was spinning in a manner to work concrete up ramp and leaving an even surface behind it. Contractors then bull floating and edging before tinning longitudinally. After tinning contractor is using mechanical pump to spray cure the surface. Surface with cure has total coverage and is free of any streaking or bare spots. Contractor then sawing to a depth of 1/3 the thickness of the pad. During sawing some of the cure was removed by work boot prints. Contractor resprayed cure on these areas to repair coverage .

Contemporaneous ODOT DWRs[5] confirm JRJ performed concrete pavement operations in compliance with Contract documents, plans, specifications, and standard drawings. JRJ reviewed the ODOT DWRs for the Project and identified 409 concrete-related DWR remark blocks across the 250-page report. Of those, 362 describe normal concrete construction, testing, or acceptance-related operations, while 47 contain some adverse or issue-related language. The adverse items are isolated and generally concern discrete issues such as plant delays, load rejection, equipment/mechanical issues, removal/repair notes, or later crack/claim documentation, rather than a repeated pattern of inspector-documented non-compliant concrete workmanship.

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[5] *See* ODOT DWR highlighted concrete review for full 233008 DWR report

The DWRs repeatedly document ODOT's observation of correct forming, dowel and basket installation, concrete placement, vibration, roller screed and slip-form operations, finishing, tining, curing/sealing, saw cutting, and acceptance testing. The Ramp D entries specifically document JRJ's correct air testing, beam/cylinder preparation, dowel installation, form setting, concrete vibrator use, roller screed/slip-form placement, finishing, tining, curing/sealing, and relief saw cutting. The significance of this record is straightforward, if ODOT's inspectors observed deficient forming, improper consolidation, unacceptable finishing, inadequate curing, deficient saw-cutting, or other workmanship issues during Ramp D concrete placement, those observations should have been documented in the DWRs. The available inspection records do not show a consistent contemporaneous pattern of such deficiencies. *See* DWR Analysis Summary Table below.

DWR Analysis Summary Table

Category	DWR blocks	Normal/compliance descriptions	Adverse/issue language
Concrete placement / paving	306	269	3
Forming / prep	104	91	13
Reinforcing / dowels / baskets	67	52	
Vibration / consolidation	91	78	13
Screed / paver method	98	90	4
Finishing / tining / edging	165	137	
Curing / sealing	82	66	
Saw cutting / joints	80	60	
Testing / acceptance	158	137	
Damage to existing pavement	2		2
Schedule / Weather Issues	15		15
Mechanical Issue	12		12

Larger format of data included as **Exhibit K**.

Ultimately, the use of the roller screed paver was reviewed and approved by ODOT, and daily DWRs did not note any observations of JRJ's non-complaince to Project contractural requirements. Therefore, the DWR record supports JRJ's position that Ramp D was constructed under ODOT observation and acceptance, and that ODOT's later causation theory should not be based on generalized workmanship concerns that were not documented in the daily inspection record at the time of construction.

iii. Batching Tolerance Discussion

In its January 7, 2026 letter, Ernst presented a more in-depth discussion on the lack of impact that the out of tolerance concrete loads had on the ramp cracking and that is incorporated by reference:

Ernst Concrete noted that the approved QC1P mix used on Project 233008 was developed to satisfy ODOT's performance requirements for strength, permeability, air entrainment, and aggregate quality. The specific cementitious content utilized in the mix was selected by Ernst Concrete and was not prescribed by ODOT. Multiple cementitious combinations could have been utilized and approved provided the resulting concrete met the required performance criteria.

As ODOT continues to move toward performance-based specifications rather than prescriptive mix requirements, the primary purpose of the batching tolerances contained in Table 499.06-1 is to promote production consistency. Accordingly, minor deviations from target cementitious contents are not, by themselves, evidence of deficient concrete where the required performance characteristics are achieved.

The project data demonstrates that the QC1P concrete met the applicable performance requirements, including air entrainment, strength, and permeability. While approximately half of the Ramp D loads were batched slightly outside the Table 499.06-1 tolerances, the deviations were generally minor, with most consisting of slight over-batching rather than under-batching.

More importantly, comparison of the batching records with the crack map demonstrates no identifiable relationship between the locations of the alleged batching deviations and the locations of the observed cracking. Mid-panel cracking occurred in areas containing concrete batched within tolerance as well as areas containing concrete batched slightly outside the tolerance range. Likewise, certain placements exhibiting similar or greater batching deviations experienced little or no cracking.

The available data therefore does not support a conclusion that the minor batching deviations identified by ODOT caused the widespread cracking observed within Ramp D. Rather, the evidence demonstrates that no correlation exists between the batching deviations and the distress pattern relied upon by ODOT in its Step 2 determination.

. The cracking that the ramp experienced was consistently mid-panel cracking, but the batching data demonstrates minimal variable batching results throughout a placement – Approximately 61 out of 117 QC1P concrete loads provided by Ernst Concrete slightly exceeded the +/- 1% Batching Tolerances set out in Table 499.06-1 for cement and cumulative cementitious (slag) powders. Of the 61 out of tolerance loads, Ernst noted that the data demonstrated that:

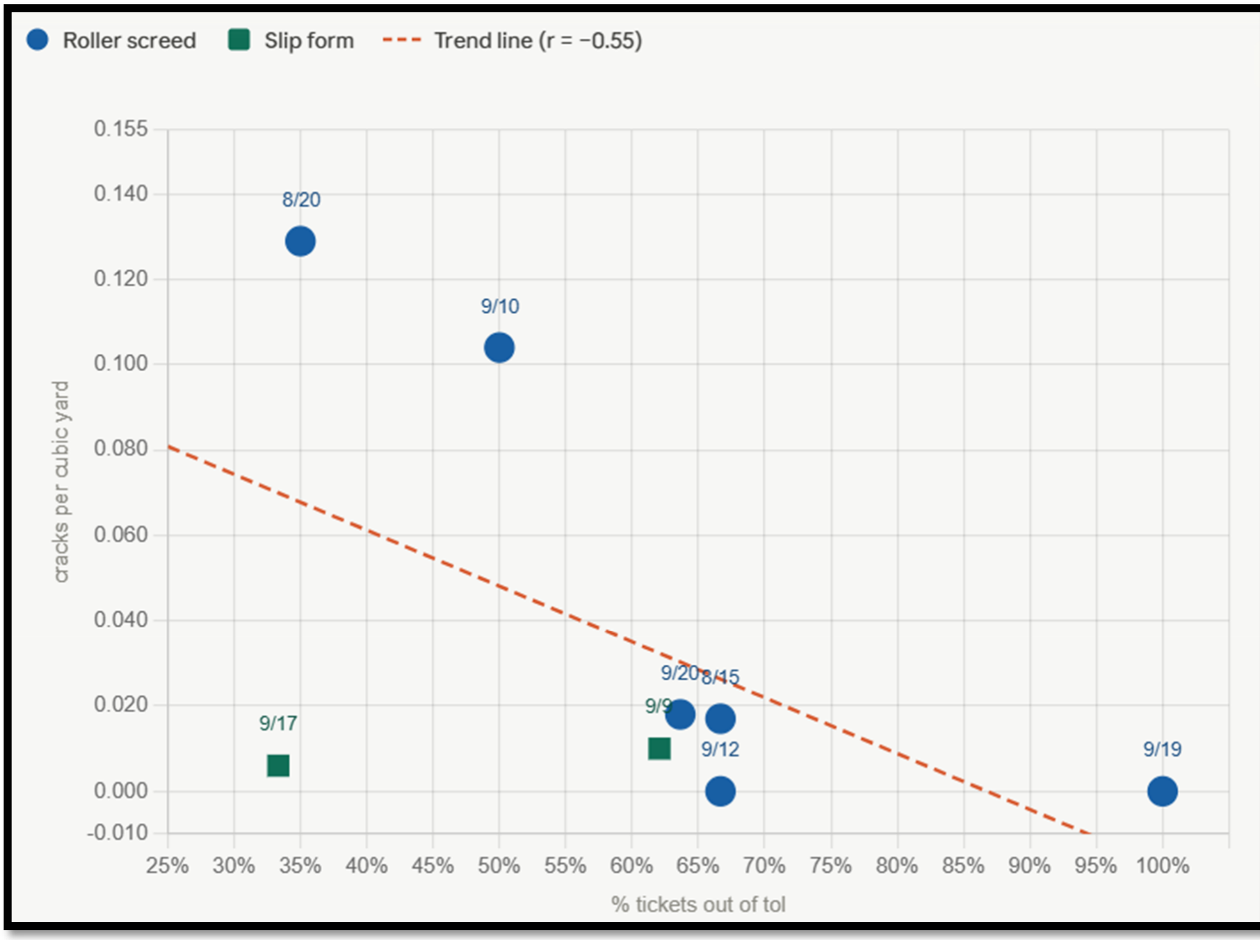
- 49 of those loads were slight overweighs with only 8 of those loads at or exceeding 102% of target (or roughly 11 lbs/cy)

- 12 of those loads were slight underweights, with all underweights except for one being at 98.5% or higher. The underweights averaged only 2 lbs/cy.

Looking at the data as a whole, it is quite evident that concrete batched within tolerances also experienced cracking while some loads outside of tolerances did not crack. There is no visible pattern suggested that under or over tolerance panels are the cause of the cracks.

In its decision, ODOT District 6 included the out of tolerance concrete as a potential contributing factor (along with roller screed placement and MOT phasing). When reviewing the data that ODOT presented at the Step 2 Conference, ODOT's crack data actually shows a negative correlation between out of tolerance concrete and subsequent cracking – i.e. concrete with higher % of out of tolerance loads had the least amount of cracking per cubic yard and concrete with the lower % of out of tolerance loads had the most amount of cracking per cubic yard[6].

[6] It should be noted that the QC1P crack data spreadsheet that ODOT presented at the Step 2 conference was different than the crack data spreadsheet ODOT used in its Step 1 Decision dated December 3, 2025. This negative correlation first became apparent based on review of the crack data presented at the Step 2 conference.



ODOT Comparison of Out of Tolerance Tickets and Cracks

	Placement Date	PCJFM	Yardage	Number of Tickets	Total Number of cracks	Current Cracks After Repairs	Placement	Location	Tickets out of Spec 499.06-1 Agg.	Tickets out of Spec 499.06-1 Cement	Tickets out of Spec 499.06-1 Pozzolan (cumulative)	% Tickets Out Of Tol	Cracks Per Cubic Yard
Day 1	8/15/2024	C750291P1A	60	6	1	0	Roller Screed	Upper Left Shoulder	0	0	4	66.67%	0.017
Day 2	8/20/2024	C750291P1A	210	21	27	11	Roller Screed	Upper Left Drive Lane	0	0	7	33.33%	0.129
Day 3	9/9/2024	C750291P1A	290	29	3	3	Slip Form	Lower Drive Lane	0	0	18	62.07%	0.010
Day 4	9/10/2024	C750291P1A	240	24	25	23	Roller Screed	Upper Right Drive Lane	0	0	12	50.00%	0.104
Day 5	9/12/2024	C750291P1A	60	6	0	0	Roller Screed	Right Turn	0	0	4	66.67%	0.000
Day 8	9/17/2024	C750291P1A	180	18	1	1	Slip Form	Right Shoulder	0	1	6	33.33%	0.006
Day 9	9/19/2024	C750291P1A	23	3	0	0	Roller Screed	Left Shoulder	0	1	3	100.00%	0.000
Day 10	9/20/2024	C750291P1A	110	11	2	2	Roller Screed	Right Lane	0	2	7	63.64%	0.018

Larger format of data included as **Exhibit O**.

As shown, the two placements that ODOT is focusing on for cracking (the August 20, 2024, and September 10, 2024 placements) had the least percentage of out of tolerance loads (50% or less). In contrast, the roller screed placements of August 15, 2024, September 20, 2024, September 12, 2024, and September 19, 2024, had a higher percentage of out of tolerance loads (60% or above) <u>but had less cracking per cubic yard</u>. This data demonstrates that **<u>there is no correlation</u>** between the out of tolerance loads and presence of cracking. In fact, the data suggest that if there is a correlation, it is a negative correlation – i.e. the higher % of out of tolerance loads for a placement resulted in lower cracking per yard.

c. ODOT Flexural Testing Methodology Discussion

i. ODOT Flexural Testing Methodology and ASTM Requirements

During construction, ODOT directed JRJ to keep one active lane of traffic available on Ramp D throughout the Project. As previously discussed, ODOT assumed responsibility for all concrete testing on this Project, which included early beam testing, to determine if the concrete met the required flexural strength to open lanes for heavy highway truck traffic. Per the Project requirements, newly placed concrete sections could be opened to unrestricted traffic as early as 5 days of placement provided the concrete had achieved 600 psi flexural strength. ODOT CMS Section 451.17 Opening to Traffic states:

> *When 7 days have elapsed, the Contractor may use the completed pavement for traffic, including construction traffic. If a modulus of rupture of 600 psi (4.2 MPa) has been attained, the Contractor may open the pavement to traffic when 5 days have elapsed.*

Where modulus of rupture is defined in the ODOT Pavement Design Manual ("PDM") under the Rigid Pavement Design Section 301.1 as:

> *Modulus of rupture, as determined under a breaking load, measures the flexural strength or extreme fiber stress, of the concrete slab. There are many ways to determine the modulus of rupture and each way will give slightly different results, however, each method can be correlated to the measure defined for use in the AASHTO/ODOT method. The modulus of rupture used in ODOT's pavement design method is the 28-day, third-point loading test as defined by ASTM C 78. All rigid pavement designs should use a modulus of rupture of 700 psi, as shown in Figure 301-1. Average values obtained through beam breaks performed as part of C&MS requirements for opening to traffic should not be used directly for design purposes, as this test is defined by ASTM C 293 as center-point loading, and is generally done as early as 5 days.*

Early age beam testing for flexural strengths was performed by ODOT using a portable multi-stroke hand-pump center point loading beam breaker. This beam breaker apparatus is custom fabricated in-house by ODOT itself. ASTM C293/C293M-15 provides the accepted testing standard and methodology when using a center point beam breaker. Beam results using a center point loading method are generally accepted as <u>less accurate</u> than a 3-Point loading method performed via ASTM C78/78M[7]. In fact, ASTM C293, Section 3.2 states:

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[7] It should be further noted that the ASTM committee withdrew the ASTM C293 center point test method effective January of 2025.

> *The results of this test method (center point loading) may be used to determine compliance with specifications or as a basis for proportioning, mixing and placement operations.*[8] *This test method produces values of flexural strength significantly higher than Test Method C78/78M.*

Section 4 of the ASTM C293 testing standard (Apparatus) provides that, "Hand operated testing machines having pumps that do not provide a continuous loading to failure in one stroke are not permitted." The described apparatus that is not permitted per ASTM C293 is what ODOT used.

Furthermore, ASTM C293/293M, Section 6 sets out the accepted method of loading the beam and states:

> *Load the specimen continuously and without shock. The load shall be applied at a constant rate to the breaking point. Apply the load so that the maximum stress on the tension face increases at a rate between 0.9 and 1.2 MPa/min [125 and 175 psi/min].*

In addition to using a non-permitted apparatus, ODOT also did not follow the method of loading and loaded the specimen way too quickly.

Section 455.02 of the ODOT CMS also requires the documentation of the name and accreditation of the AASHTO accredited laboratory to be used for testing fresh and hardened concrete properties for structures or pavements as well as the calibration records of test equipment to be used on the project.

ii. Calibration Records of Hand Operated Apparatus by ODOT

ODOT relied on flexural beam breaks to determine whether recently placed Ramp D pavement had achieved sufficient strength to be opened to traffic. These beam breaks were performed using an ODOT hand operated center-loading hydraulic beam breaker.

Although contradictory to ODOT's CMS requiring ASTM C293 conformance, ODOT Supplement 1023 governs making and testing concrete beams using this equipment. The Supplement states that the beam breaker is designed to test 6 in. x 6 in. x 40 in. concrete beams and indicate flexural strength directly on the dial in pounds per square inch. Because the dial reading is used directly as flexural strength, calibration and proper operation of the beam breaker are essential to the reliability of the reported test result.

The calibration log provided by ODOT for Beam Breaker ID No. 301659 shows calibration entries dated February 6, 2023, January 31, 2025, and January 29, 2026. The log does not show a calibration entry for the entire calendar year of 2024. The Ramp D beam breaks at issue occurred in August and September 2024. Therefore, the testing relied upon by ODOT to open Ramp D to traffic appears to have been performed during a period for which ODOT has not provided a contemporaneous 2024 calibration record for the beam breaker.

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[8] Note that this ASTM does not say that this method is appropriate for strength acceptance

AASHTO requires flexural testing equipment to be calibrated at least once every 12 months, and states that testing apparatuses must be recalibrated or verified whenever the equipment is relocated, repaired, or undergoes substantial maintenance. As such, if the dial or beam breaker was not calibrated during the relevant year and if it was not recalibrated when it was brought to the Project Site, the reported flexural strength values by the apparatus cannot be independently verified from the documents provided.

iii. Project Flexural Testing Methodology by ODOT

On the week of February 16, 2026, JRJ received the requested additional ODOT data regarding concrete testing on the Project. This information included core strength testing as well as photos and videos of the beam breaks.

These videos showed significant issues with the beam testing that was performed. The videos show beams being loaded in 5-10 seconds as much as 730 psi, which is significantly faster than ASTM C293/293M requires[9]. The quick loading permits a higher load on the beam before it breaks. (**See Exhibits Q, R, S, T**). In addition, the videos show that ODOT personnel used a hand pump which fails to provide continuous pressure in one stroke and is not permitted by ASTM C293. The combination of these factors canshock-load the beam specimen giving a false higher than actual reading for the specimen's flexural strength.

Tom Rozsits, P.E., is the Executive Director of Ohio Concrete, which is the state association of the ready-mix concrete industry in Ohio. He summarizes his concerns regarding ODOT's in-house custom-built beam breaking equipment and methodology as follows:

> *I placed a message out to several industry professionals on the subject of using non-standardized equipment and procedures for flexural strength testing. Here is a summary of the responses and the discussions highlight significant concerns regarding the reliability and validity of ODOT's portable field flexural beam testing procedures. ASTM flexural testing methods such as ASTM C78 and ASTM C293 use different loading configurations that are not directly comparable with ODOT's customized- specialty single-point field applied beam breaks. Concerns are that hand- pump portable testing equipment introduces shock loading and cannot achieve the continuous, uniform load application required by ASTM standards. Industry testing professionals further noted that flexural beam testing is inherently variable and highly sensitive to factors such as moisture condition, handling, and testing procedures, with variability potentially exceeding 25–30% even under controlled laboratory conditions. As a result, the consensus was that portable field equipment not meeting ASTM loading requirements should not be relied upon for opening to traffic strength, and that flexural beam testing should*

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[9] The ODOT specification required 600 psi flex before opening to traffic. At the rate required in ASTM C293, this beam break test should have taken approximately 4 minutes to complete. Even if you allow for a standard that permits loading a beam to 50% of anticipated strength and then proceeding at the 125 to 175 psi/min rate, the test should have taken over 2 minutes at an absolute minimum.

instead be conducted in certified laboratories using calibrated, full-sized stationary testing equipment.

iv. The Project's Flexural Strength Results by ODOT

As stated previously, ODOT is focused on two QC1P concrete placements that occurred on August 20, 2024 (upper left lane) and September 10, 2024 (upper middle traffic lane abutting and tied together with the August 20, 2024 pour). For the August 20, 2024, placement, ODOT made two beam specimens and performed beam breaks five days later on August 25, 2024. This testing resulted in purported flexural strengths results of 550 psi and 740 psi which ODOT averaged for a 645 PSI flexural strength.[10] With this information, JRJ was directed by ODOT to open the August 20, 2024 pour to heavy truck traffic on August 27, 2024 – *just seven days after placement*.

Subsequently, while proof rolling subgrade for the following phase, cracking was observed by ODOT in the August 20, 2024 pour as early as September 3, 2024 (*See* page 3 of ODOT's Step 2 Response). Thereafter, QC1P concrete was placed for the connected lane on September 10, 2024 which ODOT also similarly performed beam testing resulting in a flexural strength of 720 psi in 6-days.

Ernst has compiled all ODOT's testing information on **Exhibit U**.

v. Information Supporting Conclusion that ODOT's Early Strength Results Were Falsely High

The beam testing process and methodology by ODOT were not performed in compliance with ASTM C293, creating false results higher than actual strength results. The approved concrete mix at issue – QC1P (JMF C750291P1A) – is rated to achieve 4,000 psi compressive strength in 28-days (580 psi flexural). In order for this mix design to be approved for use by ODOT, the mix design has to achieve 120% of design strength – 4,800 psi (or 654 psi flexural) in 28 days. Typically, concrete will meet 65% to 70% of it's design strength in 7 days, 80% to 85% in 14 days, 90% to 98% in 28 days, and will continue to cure in the following months. Therefore, the 5-day/6-day flexural strengths of 750 psi and 720 psi reported by ODOT on the Project is striking as those values are significantly higher than the expected 28-day strength approval requirements for the same mix.

To further confirm its theory, Ernst recently conducted testing of the same JMF mix design QC1P mix at 4" slump (roller screed) and 2" slump (slip form)[11]. Ernst's own flexural results of the same QC1P mix at the same 4" roller screed slump resulted in strengths of 400 psi at 5-days and

[10] ODOT only provided one CA-C1 Concrete Control Test Form for August 20, 2024, which did not denote any beams being made. ODOT provided break information for two beam breaks on a separate spreadsheet via email dated 2.18.26 – 550 psi and 750 psi. At the Step 2 hearing, ODOT personnel stated that the two beam breaks were from different loads which ODOT then averaged to arrive at a 645 psi flex result (actually 650 psi flex based on data supplied by ODOT).

[11] Bowser Morner conducted the QC1P flexural strength tests using the 3-point loading method per ASTM C78.

530 psi at 7-days – which fall well below the results that ODOT purportedly obtained for the same mix at the same slump. ***See* Exhibit V.**

Ernst then compared those QC1P results to its historical data and found that QC1P concrete has averaged 507 psi flexural at 7 days and would not typically achieve 600 psi flexural strength until closer to 14 days. ***See* Exhibit W.**

In reviewing ODOT's core strength testing performed 500 days later at closeout, the core results from the same September 10, 2024 placement indicate that the 500-day old concrete has essentially the same or less strength as it purportedly had at only 5-days. ***See* Exhibit X**. As indicated previously, concrete continues to gain strength over time, and therefore, the strength data provided by ODOT seems implausible.

QC1P/QC1 Strength Result Comparison

ODOT 23-3008

Mix	Source		Age - 1 Day	Age - 3 Day	Age - 5 Day	Age - 7 Day	Age - 14 Day	Age - 28 Day	Age - 500 Days
QC1P Roller 4"	ODOT 8.20.24 Placement				550				
QC1P Roller 4"	ODOT 8.20.24 Placement				750				
QC1P Roller 4"	ODOT 9.10.24 Placement - (6 Day)				720				
QC1P Roller 4"	ODOT 9.10.24 Placement - Core 500 Days								739
QC1P Roller 4"	ODOT 9.10.24 Placement - Core 500 Days								695
QC1P - Roller 4"	Ernst Test 4.21.26			335	400	530			
QC1P/QC1	Ernst Historical Avg					507	604	665	
QC1P - Slip 2"	ODOT 9.9.24 Placement (4 Day)				750				
QC1P - Slip 2"	ODOT 9.9.24 Placement - Core 500 Days								959
QC1P - Slip 2"	Ernst Test 4.21.26			530	455	740			

Yellow	ODOT Flexural Beam Strengths on Project
Blue	ODOT Core Results Project @ 500 Days
Pink	Ernst Recent QC1P Mix Testing
Green	Ernst Historical QC1 Strength Data

Conversion Table of Flexural PSI to Compressive PSI

Flexural PSI	Compressive PSI
350	1,877
400	2,293
450	2,737
500	3,205
550	3,698
600	4,213
650	4,751
700	5,310
750	5,888
800	6,487

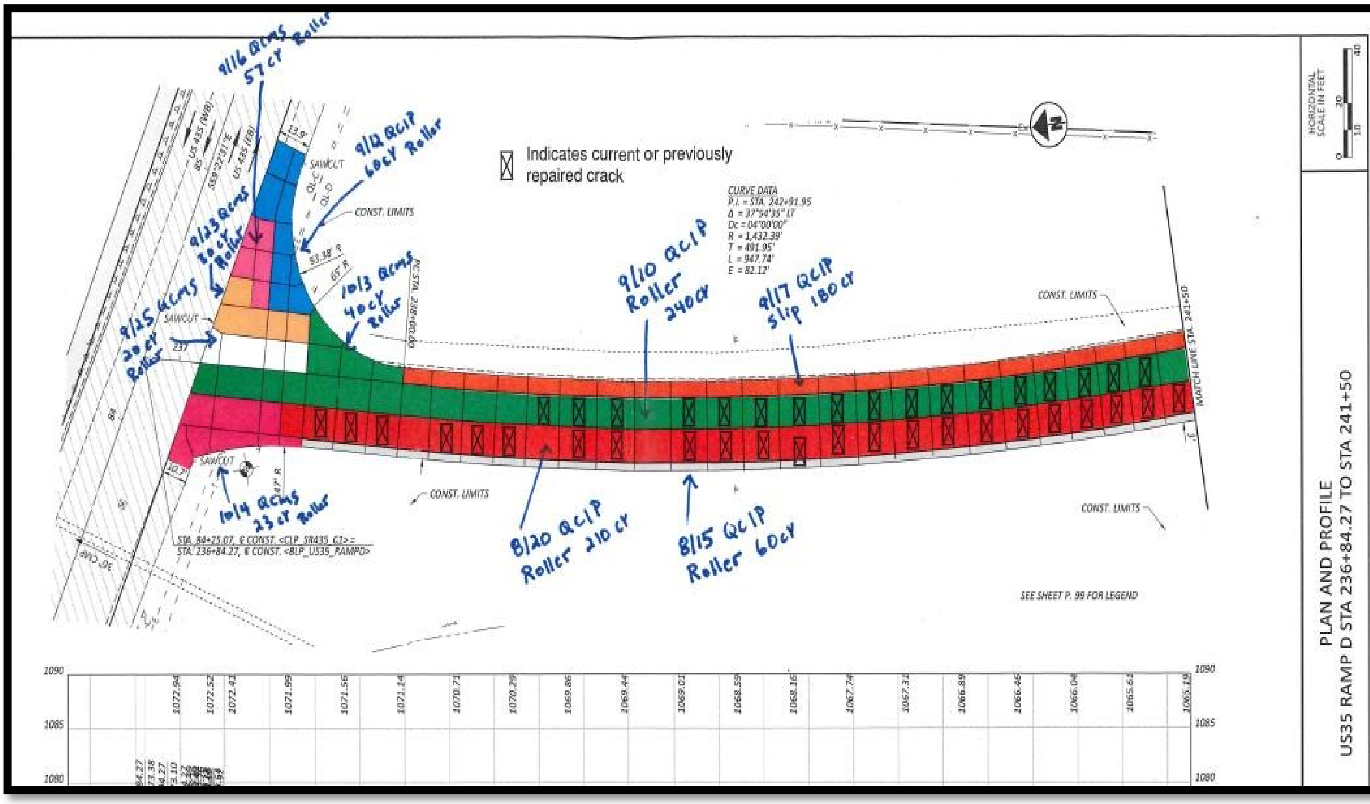
Based on ACI 330 recommended by American Concrete Pavement Association

See larger version of the above as **Exhibit Y.**

Ultimately, these comparisons demonstrate clearly that ODOT's early strength beam results on this Project are artificially high – as one would expect from the flawed testing methodology. The artificially high-test data then led to the pavements being opened to traffic before the slabs were able to reach adequate strength, resulting in the mid-panel cracks.

vi. Additional Impact on September 10, 2024, Placement

The September 10, 2024 pour also involved the QC1P mix placed by roller screed which showed a high level of correlation of the same mid-panel cracking from the August 20, 2024 pour, essentially mirroring the same mid-panel crack. *See* the ODOT Crack Map below showing August 20 pour (red) and September 10 pour (dark green).



The mirror cracking, or sympathy cracking, on the September 10, 2024 pour is likely the result of the stresses created by the heavy truck traffic on the August 20 pour. These two pours are tied together with #5 tie bars 24" in length spaced at 30" intervals. During the September 10, 2024 placement, heavy truck traffic was using the adjacent 8/20 pavement to maintain the single lane of traffic required by the Project. As the August 20 pavement flexed with the heavy truck traffic at the control joints and the mid-panel cracks (which were seen as early as September 3), similar stresses and movement were created in the freshly placed September 10 concrete pavement which resulted in the mirrored cracking.

vii. Conclusion

ODOT relied on their hand operated apparatuses' data of bream breaks using ASTM C293 methods to determine opening strength and authorize traffic on Ramp D. Even if performed perfectly, ASTM C293 test method produces values of flexural strength significantly higher than Test Method C78/78M which leads to unreliable flexural strength data. Furthermore, putting aside the fact that the ODOT hand operated apparatus do not conform to applicable ASTM requirements for flexural strength testing, if the apparatus was not contemporaneously calibrated and if the hydraulic loading rate was not controlled in accordance with applicable testing requirements, the resulting flexural strength values cannot be treated as conclusive evidence of actual pavement strength at the time traffic was permitted, even though ODOT alone authorized loading of the concrete pavement.

ADDITIONAL COMPENSATION REQUEST

Total cost of removal and replacement of all cracked concrete panels will be determined after final tabulation of cracked panels. To date JRJ has incurred additional costs of $179,700.74 and JRJ expects additional removal and replacement operations to cost $320 / sy. *See* Step 2 documentation for cost analysis from 2025 work. Final Cost will be determined by extent of remove and replacement panels but based on recent observations with a range of 1,200 -1,600 sy, this cost will range from $563,700.74 to $691,700.74.

CLOSING STATEMENT

The record developed through the Step 1, Step 2, and Step 3 processes does not support ODOT's conclusion that JRJ or its suppliers caused the distress observed on Ramp D.

The evidence establishes that JRJ constructed the pavement for the Project and Ramp D in accordance with the Contract, ODOT's design, ODOT's approved MOT Plan, ODOT's approved subgrade stabilization requirements, and ODOT's approved concrete mix designs. The evidence further establishes that ODOT performed and took full responsibility for all concrete testing on the Project, including the concrete testing of Ramp D. The evidence also demonstrates ODOT alone controlled when the pavement placed by JRJ, including the pavement placed by JRJ on Ramp D, could be opened to traffic. Most significantly, the evidence demonstrates the testing ODOT performed violated ASTM standards and produced artificially inflated test results that led ODOT to open Ramp D prematurely to heavy highway truck traffic which caused the cracking on Ramp D.

Further evidence demonstrates that the original pavement design contained multiple incorrect design inputs that were later acknowledged by ODOT. In fact, ODOT's own post-construction engineering review identified multiple revised pavement design inputs and produced pavement thickness calculations exceeding the 10-inch section prescribed in the Contract Documents. Further, ODOT has not established a reliable engineering correlation between the alleged batching deviations and the widespread cracking observed throughout Ramp D. In addition, replacement panels constructed using different concrete mixtures later exhibited similar distress, further undermining the theory that isolated batching variations were the root cause of the failures.

Finally, ODOT's suggestion that JRJ's use of roller screeds contributed to the observed pavement distress is not supported by the project record. The project team utilized roller screed finishing methods on more than 82% of the concrete pavement constructed on Project 233008, including 100% of the concrete pavement placed on the I-71 ramps and SR-435 pavement sections. Those pavement sections have not exhibited the widespread mid-panel cracking observed on Ramp D. If the use of roller screeds were a primary cause of the distress, similar cracking would reasonably be expected throughout the numerous project pavement sections constructed using the same equipment, methods, personnel, materials, and ODOT oversight. The fact that the distress is isolated to Ramp D while the vast majority of roller screed-finished pavement remains crack-free demonstrates that the construction method itself cannot reasonably be identified as the cause of the observed cracking.

The contemporaneous Project record is equally important. ODOT's DWR's contain hundreds of references to correct concrete pavement operations and repeatedly document correct forming, reinforcement placement, vibration, paving, finishing, curing, saw cutting, testing, and acceptance activities which demonstrate JRJ performed the concrete pavement operations in compliance with the Contract. The DWR's do not establish a recurring pattern of deficient workmanship or non-compliant concrete pavement construction. Rather, the DWR's document a Project that was constructed under ODOT observation and was performed in a good workmanlike manner.

The evidence demonstrates that multiple plausible causes exist for the observed distress, including, but certainly not limited to, pavement design inadequacy by ODOT, inaccurate testing and opening-strength determinations by ODOT, and premature traffic loading by ODOT. What the evidence does not demonstrate is that JRJ's workmanship or the minor batching variations identified by ODOT were the sole or proximate cause of the cracking.

Because ODOT furnished the design criteria, specified the pavement section, directed the stabilization approach, performed the acceptance testing, authorized opening the pavement to traffic, and accepted the completed work, ODOT cannot shift responsibility to JRJ without proving JRJ's performance or the performance of its subcontractors caused the distress. And here, the record before the Director does not support such a finding.

Accordingly, JRJ respectfully requests that the Step 2 denial be reversed, that responsibility for the Ramp D pavement distress be assigned to causes other than contractor workmanship or materials, and that JRJ be compensated for costs incurred and to be incurred in addressing the cracked pavement panels.

Respectfully submitted,

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