



April 24, 2015

Ringgold School District  
400 Main Street  
New Eagle, PA 15067

ATTENTION: Mr. Randall Skrinjorich  
Director of Operations and Financial Services

SUBJECT: Structural Monitoring Letter #4  
Ringgold Middle School  
6023 State Route 88  
Finleyville, PA 15332  
WBCM Project No.: 2013.0546.000.0308

Dear Mr. Skrinjorich:

This letter is in regard to the above referenced project and, in particular, to the fourth monitoring site visit of this building via our latest agreement. On March 9, 2015, WBCM visited the school to monitor the previously established monitoring locations that had been established during the April 2009 condition assessment review, additional monitoring points established in the four (4) monitoring site visits during the two (2) years that followed, and the additional monitoring points established during the June 27, 2011 thru July 1, 2011 site visits. The photo numbers and/or monitoring points referred to in this letter refer to the photos and/or monitoring points noted in our July 15, 2011 "Structural Condition Assessment/Evaluation Report".

The restoration work done during the summer of 2009 addressed several structural items and also addressed several exterior envelop items. The structural items addressed were the re-building of a new reinforced block bearing wall between the cafeteria and the kitchen; tying masonry walls together in the gymnasium and kitchen storage area; welding various roof joists to supporting steel; tying together the kitchen, cafeteria, and music roof area roof joists to the load bearing masonry walls; tying together the stair roofs to the stair masonry walls; reinforcing various stair roof joists, reinforcing various columns, and performing concrete grade beam restoration/rock removal in the vicinity of 1<sup>st</sup> floor joists that were accessible in various crawl space locations. In addition, several interior masonry joints were re-pointed (such as the load bearing masonry wall in the auditorium stage area). The exterior envelop items included re-pointing masonry joints and re-caulking masonry walls/precast exposed aggregate concrete panels along with the replacement of several exterior concrete slabs-on-grade.

During the fall of 2011, additional restoration work was done to address several structural items. The items addressed were the addition of stair wall bracing, welding roof joists to supporting roof beams, reattach roof joist bridging, add wall support at gymnasium, and rebuilding a cafeteria floor joist bearing support located within the crawl space.

During the summer of 2012, additional restoration work was done to address several structural items. The items addressed were reinforcing and/or bracing several 1<sup>st</sup> to 2<sup>nd</sup> floor columns.

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During the summer of 2014, additional restoration work was done in the cafeteria. This work removed portions of the existing concrete floor and part of an existing grade beam. The work effort, which was limited to the floor area approximated between column lines 1-2 and B-D, was required due to the significant vertical upward movement of the structural floor system above the existing crawl space as well as the grade beam along column line C and approximately between column lines 1-2 that had significant cracks.

The measurements taken during this monitoring site visit did indicate that between November 2014 and March 2015 the building is still moving. During this four (4) month time frame, the majority of the measurements taken indicate either no movement or movements of 1/16". However, there were several floor areas where the floor measurements indicated movements greater than had been previously recorded. Those areas, which will be discussed later, included Corridor "B" (showing the most movement), Corridor "A", Classrooms A-17/A-15/A-14/A-6, and Classroom E-20.

The areas showing movement are, for the most part, the same areas of the building previously reported as moving. This report will be broken into three (3) areas of observations. Those areas are those noted and shown in the various photos identified as being monitored in the July 15, 2011 report; column plumbness for those columns identified on drawing CAR-1 of the July 15, 2011 report; and floor elevations for those areas also identified on drawing CAR-1. While WBCM has continued to monitor this building via the monitoring points noted in the July 15, 2011 report, measurement notations on various wall, column, and ceiling areas are also noted. The intent of displaying these measurements is so the school district could self-monitor if desired. The July 15, 2011 report has photos and locations of those areas where measurements could be reviewed. It should be noted that several of the monitoring notations either continue or are either being painted over or washed off. While these various points are being reset to represent their previous locations/notations, it is preferable if these points would be left alone.

It should also be noted that the Ringgold Maintenance Department (RMD) established several years ago (prior to February 2009), various monitoring points in five (5) areas. Those areas being the cafeteria, the kitchen, room E-16, the intersection of corridor "A" and "C", and the intersection of corridor "D" and "E". It is my understanding that the purpose of establishing these points was to address concerns that the school is continually moving. As part of our monitoring, these points are also being monitored.

**MONITORING PHOTOS:**

The monitoring points shown in the various photos indicated that there is some movement occurring in some areas. However, the majority of these monitoring points indicated no additional movement and in those areas that did indicate additional movement; the movement was 1/16" or less. In the monitoring time frame from November 2014 and March 2015, the aggregate movement of various points has not been more than (+/-) 1/16".

**COLUMN PLUMBNESS:**

There are seven (7) columns that have been monitored since November 2009. Those columns are three (3) in corridor "D" that are identified as DC.1, DC.2, and DC.3; two (2) in corridor "C" that are identified as CC.1 and CC.2; and two (2) in corridor "B" identified as BC.1 and BC.2.

In November 2010, two (2) additional columns were added to those being monitored. They are in room A-19 (identified as A19.1) and room A-18 (identified as A18.1). In May 2011, another column in corridor "C" was added and identified as CC.3. In November of 2011, another eleven (11) columns were added to those being already monitored. They are located in rooms D-8 (identified as D8.1 and D8.2), A-19 (identified as A19.2), A-18 (identified as A18.2), A-15 (identified as A15.1), room A-11 (identified as A11.1), room A-3 (identified as A3.1 and A3.2), room A-2 (identified as A2.1), room E-16 (identified as E16.1), and room E-12 (identified as E12.1). In May 2012, one (1) additional column was added to those being monitored. The column is in room E-22 (identified as E22.1). Whether noted or not, all measurements are approximate.

ROOM D-8:

D8.1: Although its lateral movement has either remained unchanged or showed a decrease variation of 1/16", it was tied to the existing exterior wall per the May 2012 monitoring recommendations.

D8.2: Although its lateral movement has varied, the readings are either a 1/16" or 1/8" larger than in November 2011. In the May 2012 monitoring recommendations, this column was slated to be braced and has been done. The readings taken November 4, 2014 indicated no lateral movement change in the N-S direction and an increase of 1/16" in the E-W direction when compared to the May 2014 reading. This increase results in the column being back at the November 11, 2013 location. The readings between November 2014 and March 2015 indicated no change.

CORRIDOR "D":

DC.1: Since November 2009, its lateral movement has been varying but has been either equal to or less than its original reading. In the past four (4) months, the column movement remained unchanged.

DC.2: Since November 2009, its lateral movement has been pretty constant but has been either less than or equal to its original reading. In the past four (4) months, no change occurred.

DC.3: Since November 2009, its lateral movement has been pretty constant. Between November 2013 and May 2014, the lateral movement increased a 1/16" and between May 2014 and November 2014, the column movement decreased 1/16" and is at its November 2009 location. The readings between November 2014 and March 2015 indicated no change.

ROOM A-19:

A19.1: The lateral movement of this column, which was reinforced during the summer of 2009, has since November 2010 varied between (+) 1/16" to (-) 1/8" in the E-W direction from its original reading and (-) 1/8": max in the N-S direction from its original reading. Since November 2012, the readings in both directions have been unchanged.

A19.2: The lateral movement of this column in the E-W direction has moved from being plumb to being 3/16" out of plumb at the November 2012 reading to 1/8" at the May 2013 reading and in the N-S direction has decreased a 1/16" as compared to November 2011. In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been done. This column is unchanged since May 2013.

ROOM A-18:

A18.1: Since November 2010, the lateral movement of this column increased 1/8" between November 2010 and May 2011, decreased 1/16" in November 2011, and has remained unchanged since November 2011. In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been reinforced.

A18.2: Since November 2011, the lateral movement of this column has decreased 1/4" in the E-W direction and 1/16" in the N-S direction. In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been reinforced. Between May 2013 and May 2014, the column lateral movement decreased 1/16" in the E-W direction and increased a 1/16" in the N-S direction to its November 2011 position. Since May 2014, the column has remained unchanged in both directions.

ROOM A-15:

A15.1: Since November 2011, the lateral movement of this column that increased 1/16" in the E-W direction has decreased 1/16" thereby returning to its November 2011 position. The lateral movement in the N-S direction has remained unchanged. In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been reinforced. Since November 2012, no change has occurred.

ROOM A-11:

A11.1: Since November 2011, the lateral movement of this column has continued to decrease in the E-W direction and in the N-S direction has either remained unchanged or has decreased 1/16". In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been reinforced. Between November 2013 and May 2014, the lateral movement has decreased 1/16" in the E-W direction and increased 1/16" in the N-S direction to its November 2011 position. Since May 2014, the column has remained unchanged.

ROOM A-3:

A3.1: In a three (3) month period between November 2011 and February 2012, the lateral movement in the E-W direction increased 1/2". However, since then, the column in that direction has remained unchanged. In the N-S direction, the lateral movement has decreased 1/8" between November 2011 and May 2013. In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been reinforced. Since May 2013, no change has occurred.

A3.2: Between November 2011 and November 2013, the lateral movement in both directions has increased 1/16" although the column has moved back to its original position (November 2011) at the May 2013 reading. In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been reinforced. Between May 2013 and November 2013, the lateral movement in the E-W direction increased 1/16" and between November 2013 and May 2014, the lateral movement in the E-W direction increased 1/16" and decreased 1/8" in the N-S direction. Between May 2014 and November 2014, the column remained unchanged in the E-W direction and increased 1/16" in the N-S direction. Since November 2014, the column has remained unchanged.

ROOM A-2:

A2.1: Since November 2011, the lateral movement in the E-W direction has increased  $1/16''$  but has remained the same between November 2012 and May 2014. Between May 2014 and November 2014, the column lateral movement in the E-W direction decreased  $1/16''$  and is at its November 2011 location. The lateral movement in the N-S direction has been more cyclic. Since November 2011, the lateral movement has increase  $1/8''$  (November 2013) and has decreased  $3/16''$  (May 2012). Since May 2014, the lateral movement is  $1/16''$  greater than its initial November 2011 reading.

CORRIDOR "C":

CC.1: The lateral movement of this column, which was reinforced during the summer of 2009, has fluctuated since November 2009 by increasing  $1/16''$  or decreasing  $1/8''$ . At this point in time, it is at the same position it was in November 2009. Since May 2014, the lateral movement has remained unchanged.

CC.2: The lateral movement of this column, which was reinforced during the summer of 2009, has fluctuated since November 2009 by increasing  $3/16''$  (November 2011) or decreasing  $1/8''$  (November 2010). At the February 2012 reading, it is  $1/16''$  more than it was November 2009. However, since February 2012, the readings have remained unchanged.

CC.3: The lateral movement of this column, which was reinforced during the summer of 2009, has remained unchanged since May 2011.

CORRIDOR "B":

BC.1: The lateral movement of this column since November 2009 has increased  $1/8''$  (May 2011) but has remained unchanged since May 2011.

BC.2: The lateral movement of this column since November 2009 has fluctuated by increasing either a  $1/8''$  or a  $1/16''$  with it being a  $1/16''$  more than it was in November 2009. Since July 2012, no change occurred.

ROOM E-22:

E22.1: The lateral movement of this column since May 2012 has either remained unchanged (N-S direction) or has decreased a maximum of  $1/8''$  (E-W direction). In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been reinforced. Between November 2014 and March 2015, the N-S lateral movement increased a  $1/16''$  but is still a  $1/16''$  less than the initial May 2012 reading.

ROOM E-16:

E16.1: The lateral movement of this column has fluctuated since its initial November 2011 reading by moving (+/-)  $1/16''$  in the E-W direction and (-)  $3/16''$  to (+)  $1/16''$  in the N-S direction. In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been reinforced. In the six (6) month period between November 2013 and May 2014, the lateral movement decreased  $1/16''$  in the E-W direction and unchanged in the N-S direction. Between May 2014 and November 2014, the E-W lateral movement increased  $1/16''$  to its November 2013 position while the N-S lateral movement

remained unchanged. Between November 2014 and March 2015, the column readings have remained unchanged.

**ROOM E-12:**

**E12.1:** The lateral movement of this column in the E-W direction, which decreased 3/16" between November 2011 and February 2012, had remained unchanged until November 2013 when the movement increased 1/16". The readings in the N-S direction when compared to the November 2011 readings have moved (+) 1/8" to (-) 1/16". Although the lateral movement in the N-S direction had been unchanged since November 2012, between May 2014 and November 2014, it decreased 1/8". Between November 2014 and March 2015, the lateral movement in the E-W direction has remained unchanged and increased 1/8" in the N-S direction that corresponds to its May 2014 reading. In the May 2012 monitoring recommendations, this column was slated to be reinforced and has been reinforced.

**FLOOR ELEVATIONS:**

There are nineteen (19) locations that have been monitored since April 2009. Those locations are three (3) in corridor "B" that are identified as MP #1, MP #2, and MP #3; four (4) in the cafeteria that are identified as MP #4, MP #5, MP #6, and MP #7; three (3) in the kitchen that are identified as MP #8, MP #9, and MP #10; one (1) in the teacher's lounge that is identified as MP #11; and three (3) in corridor "C" that are identified as MP #12, MP #13, and MP #14; two (2) in corridor "A" that are identified as MP #15 and MP #16; and three (3) in corridor "D" identified as MP #17, MP #18, and MP #19.

In November 2010, six (6) additional locations were added to those being monitored. They are all in room D-8 and identified as MP #20 thru MP #25. In July 2011, another sixty-one (61) locations were added to those being already monitored. They are located in corridor "B" (identified as #1 thru #9), cafeteria (identified as #1 thru #6), room E-16 (identified as #1 thru #9), corridor "C" (identified as #1 thru #7), room E-20 (identified as #1), E-22 (identified as #1 thru #7), corridor "E" in the vicinity of corridor "D" (identified as #1 thru #5), corridor "D" (identified as #1 and #6 with #1 being common to both corridors "D" and "E"), room A-17 (identified as #1), room A-14 (identified as #1 thru #3), room A-15 (identified #1 thru #10), room A-6 (identified as #1), and room A-2 (identified as #1). In November 2011, a monitoring point in the office and in front of the vault was added (identified #1). Whether noted or not, all elevation changes are approximate.

The cafeteria monitoring points established April 2009 and supplemented in July 2011 were removed for the floor renovation that took place during the summer of 2014.

**CORRIDOR "B":**

Two (2) of the original three (3) monitoring points between April 2009 and November 2009 moved approximately 5/16" with the third moving approximately 7/16". Between November 2009 and July 2011 when nine (9) additional floor monitoring points were added, these original three (3) monitoring points moved to within approximately 1/4", 1/8", and 5/16" from its original April 2009 location.

Comparing the July 2011 location to the May 2014 location, the approximate variations in vertical position are 3/16" (one location), 1/4" (two locations), 1/8" (3 locations), 1/16" (3 locations), and no



difference (3 locations). Between November 2013 and May 2014, six (6) monitoring points changed  $1/16''$ . It should be noted that the adjacent masonry wall and floor areas show no signs of distress. During the six (6) month period between May and November 2014, nine (9) points remained unchanged, two (2) decreased in elevation approximately  $1/16''$ , and one (1) monitoring point (at the intersection of Corridors "B"/"E") could not be read. However, between November 2014 and March 2015, the "interior" floor areas in the vicinity of Column Lines AC.2/AC.3 and towards Corridor "E" indicates a decrease in floor elevations between  $5/16''$  and  $9/16''$  while the monitoring points adjacent to the masonry wall between the corridor and the auditorium indicates a decrease in floor elevations between  $5/8''$  and  $9/16''$ . It should be noted that no cracking in this masonry wall was observed. The monitoring point at the intersection of Corridors "B" and "E" indicated a decrease in floor elevation of  $3/4''$ . Due to its distance from the column with the level, this point is the most difficult to obtain. While the movement might appear significant, adjacent construction did not appear to be affected and until this March reading, this point had moved approximately  $3/16''$  between April 2009 and May 2014. No reading was taken of this monitoring point in November 2014. It will be of interest to review the May 2015 readings of these monitoring points.

However, there is still the same floor area joint that is east of the center courtyard column that is raised about  $3/16''$ . If this joint becomes a tripping hazard, the joint should be ground smooth.

#### CAFETERIA:

During the summer of 2014, the portion of the elevated structural floor that had moved upward (and being monitored) was removed along with a section of a supporting grade beam that was cracked due to its upward movement. As a result of this restoration, all floor monitoring points were lost and nine (9) new monitoring points were established in the new floor area. In addition, the partial removal of an existing grade beam that supported column C-2 resulted in this column lowering approximately  $7/8''$  and is marked on the column. Between November 2014 and March 2015; three (3) points were unchanged, three (3) increased  $1/16''$ , one (1) increased  $1/8''$ , and two (2) decreased  $1/8''$ .

#### KITCHEN:

While the three (3) original monitoring points since April 2009 to May 2013 have moved  $5/16''$  (MP #8),  $3/16''$  (MP #9), and  $1/4''$  (MP #10), these changes have not induced cracks or any noticeable effects. Since July 2011 when additional points were added within the school, two (2) of these points have moved approximately  $1/8''$  and the third point approximately  $1/16''$ . Between November 2013 and May 2014, two (2) monitoring points changed  $1/16''$  and the third was unchanged. From May 2014 to March 2015, all three (3) monitoring points are unchanged.

The monitoring of the points established by the RMD has shown movements since April 2009 of between  $3/16''$  to less than  $1/16''$ . The various elevation notations are noted on the wall areas near the cafeteria/kitchen door, the locker room wall, and the sink wall nearest the locker room.

TEACHER'S LOUNGE:

The only monitoring point (near the door adjacent to the women's room) that was established in April 2009 has moved approximately 3/16" with any change being no more than at approximately 1/16" increments. Between November 2013 and March 2015, the monitoring point raised 1/8".

ROOM E-16:

Since July 2011 when the location points were added, no point has moved more than approximately 1/8" (3 locations between February 2012 and May 2012) at any time and only three (3) points have moved approximately 1/8" (net) during this time. Between November 2013 and May 2014, one (1) monitoring point changed approximately 1/8", three (3) monitoring points changed 1/16", and five (5) remained unchanged. Between May 2014 and November 2014, one monitoring point changed 1/16" and the other points remained unchanged. Between November 2014 and March 2015; three (3) points increased 1/16", one (1) decrease 1/16", and the remaining five (5) were unchanged.

The monitoring of the points established by the RMD continues to have minor movements which seem to correlate with seasonal changes. The movements noted to date have been approximately (+/-) 1/16".

CORRIDOR "C":

Since April 2009, one (1) of the original three (3) monitoring points has moved approximately 3/8", one (1) has moved approximately 5/16", and one (1) has moved approximately 3/16". Since July 2011 when additional points were added within the school, these same original points moved a net gain of approximately 1/16" (two points) or 1/8" (one point). These changes have not induced cracks or any noticeable effects.

Of the seven (7) monitoring points added in July 2011, three (3) moved for a net gain of approximately 1/16", one (1) approximately 1/8", and three (3) showed no change between July 2011 and March 2015.

Between November 2013 and May 2014, the monitoring points were unchanged; and between May 2014 and November 2014, one monitoring point changed 1/16" and the other points remained unchanged. Between November 2014 and May 2015; one (1) monitoring point changed (+) 1/16", one (1) changed (-) 1/16", and the other eight (8) were unchanged.

ROOM E-20:

The monitoring point established in July 2011 and had remained unchanged, showed a 1/4" lowering (decrease) of the floor.

ROOM E-22:

The seven (7) monitoring points established in July 2011 have moved no more than approximately 1/16" except one (1) point that has moved approximately 1/8" in approximately 1/16" increments. Between November 2013 and May 2014, three (3) monitoring points changed 1/16" and the remaining four (4) points are unchanged. Between May 2014 and November 2014, three (3) monitoring points changed



1/16" and the remaining four (4) points remained unchanged. Two (2) of the monitoring points that changed are at the November 2013 elevation and the third is 1/16" higher than before. Between November 2014 and March 2015, three (3) monitoring points moved (+/-) 1/16".

ROOM D-8:

Six (6) monitoring points were established in November of 2010. Since that time, one (1) point in the floor has cyclically moved approximately 1/8" in approximately 1/16" increments and is within approximately a 1/16" of its November 2010 location. The other points either remained unchanged or changed approximately 1/16". Between November 2013 and May 2014, two (2) monitoring points changed 1/16". Between May 2014 and November 2014, three (3) of the previously unchanged points are 1/16" higher than in May 2014 and the other points are unchanged. Between November 2014 and March 2015, two (2) points moved (+/-) 1/16".

INTERSECTION AREA OF CORRIDORS "D" and "E":

Five (5) monitoring points were established in July 2011. One (1) monitoring point has moved approximately 1/8" (in approximately 1/16" increments) and the remaining points have moved approximately 1/16". Between May 2013 and November 2013, one (1) monitoring point changed 1/16" and another monitoring point changed 1/8". Between November 2013 and May 2014, the monitoring point that previously had changed 1/8", decreased 1/16" and the remaining four (4) points were unchanged. Between May 2014 and March 2015, all points remained unchanged.

CORRIDOR "D":

The original three (3) monitoring points that were set in April 2009 have moved approximately 1/8" (MP #17), 1/8" (MP #18), and 1/8" (MP #19) between April 2009 and July 2011. In July 2011, two (2) additional monitoring points were added. Both of these monitoring points have moved approximately 1/8" and are within 1/16" of the July 2011 reading. In this same time frame, original monitoring points MP #17 and MP #18 are at the July 2011 reading and MP #19 that had moved approximately 3/16" between July 2011 and November 2013 remained unchanged. Due to the difficulty of locating MP #17, this point that has previously moved 1/8" since April 2009, is no longer being monitored. Since May 2014, one (1) monitoring point moved downward 1/16" to its November 2013 location and one (1) monitoring point moved downward 1/16" from its November 2013/May 2014 location. Between November 2014 and March 2015 there were no changes.

INTERSECTION AREA OF CORRIDORS "A" and "D":

In April 2009, two (2) monitoring points were set. Between April 2009 and May 2013, these two (2) points have cyclically moved approximately 1/4" (MP #15) and 3/16" (MP #16). In July 2011 when additional monitoring points were added in other areas of the school, these points had cyclically moved approximately 1/4" and 3/16" respectively. The point that had moved approximately 1/4" between April 2009 and July 2011 has remained unchanged. The other point moved back approximately 1/8" in the next 6 months and since has been moving at approximately 1/16" increments so that it is within approximately 1/16" of its April 2009 reading. These two (2) monitoring points, which had been unchanged since November 2012, moved downward approximately 5/16".

ROOM A-17:

The monitoring point that was established July 2011 and that has shown no change moved approximately 1/16" between July 2012 and November 2012 and remained unchanged between November 2012 and May 2014. Between May 2014 and November 2014, this point moved up 1/16" and between November 2014 and March 2015 moved down 1/4" and is now approximately 1/8" lower than at the initial reading in July 2011.

ROOM A-14:

Three (3) monitoring points were established in July 2011. Two (2) points have moved approximately 1/8" at approximately 1/16" increments and the third point has moved approximately 1/16". Between November 2013 and May 2014, the three (3) monitoring points remained unchanged. Sometime between May 2014 and November 2014, the existing floor crack being monitored was covered with some type of black rubber strip. The measurements taken from the top of this strip. It appears as if the monitoring points remained unchanged. However, between November 2014 and March 2015, two (2) points moved down 5/16" and one (1) point moved down 3/16".

ROOM A-15:

Ten (10) monitoring points were established in July 2011. Since then, four (4) have moved approximately 1/8" and the remainder have moved approximately 1/16". The difference in elevation between the July 2011 reading and the May 2013 reading is approximately 1/8" (3 locations), 1/16" (5 locations), and no change (2 locations). Between May 2013 and November 2013, five (5) monitoring points changed 1/16". Between November 2013 and May 2014, seven (7) monitoring points were unchanged and three (3) changed approximately 1/16". Between May 2014 and November 2014, one (1) point changed 1/16" (back to its November 2012/May 2013 location). The remaining points are unchanged. Between November 2014 and March 2015: two (2) monitoring points moved down 3/8"; one (1) each moved down 5/16", 1/4", 3/16", 1/8", and 1/16"; and two (2) remained unchanged. As compared to the initial readings taken in July 2011; five (5) monitoring points are within 1/16" or less, two (2) are lower by a 1/4", one (1) is lower by 5/16", and one (1) is lower by 1/8".

ROOM A-6:

The monitoring point established in July 2011 and showed approximately 1/16" movement between November 2011 and February 2012 has remained unchanged until May 2014 when it increased 1/16" from the November 2013 reading. Although unchanged between May and November 2014, this point between November 2014 and March 2015 moved down 3/16".

ROOM A-2:

The monitoring point established in July 2011 that moved approximately 1/16" between November 2011 and February 2012 has remained unchanged since then.

Mr. Randall Skrinjorich

OFFICE VAULT:

The monitoring point established in November 2011 and located near the vault door showed an approximate 1/16" movement between November 2011 and February 2012 and has remained unchanged since then. The monitoring point was established when WBCM was informed that at one point in time, the vault door was difficult to open since the floor had risen shortly after this floor had been "flooded". This monitoring point, which is no longer visible and has shown little change, will after the May 2013 reading no longer be monitored unless conditions change.

Although this structure continues to move, based on our March 9, 2015 site visit, it is my opinion that the school is structurally safe. However, based on some floor readings, the May 2015 monitoring site visit should occur. Therefore, the date should be established as early as possible.

Should you have any questions or need further assistance, please contact me at (412) 221-5385.

Sincerely,

**WHITNEY BAILEY COX & MAGNANI, LLC**



Brian S. Channer, P.E.  
Senior Structural Engineer

cc: file  
Matt Franz (HHS DR Architects/Engineers)

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