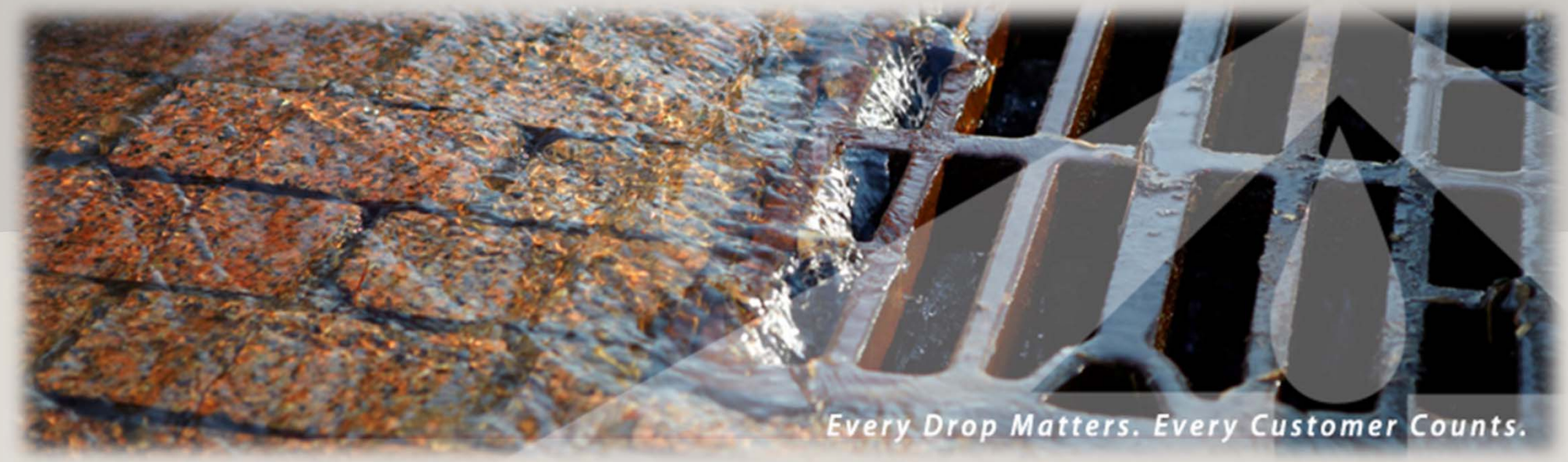
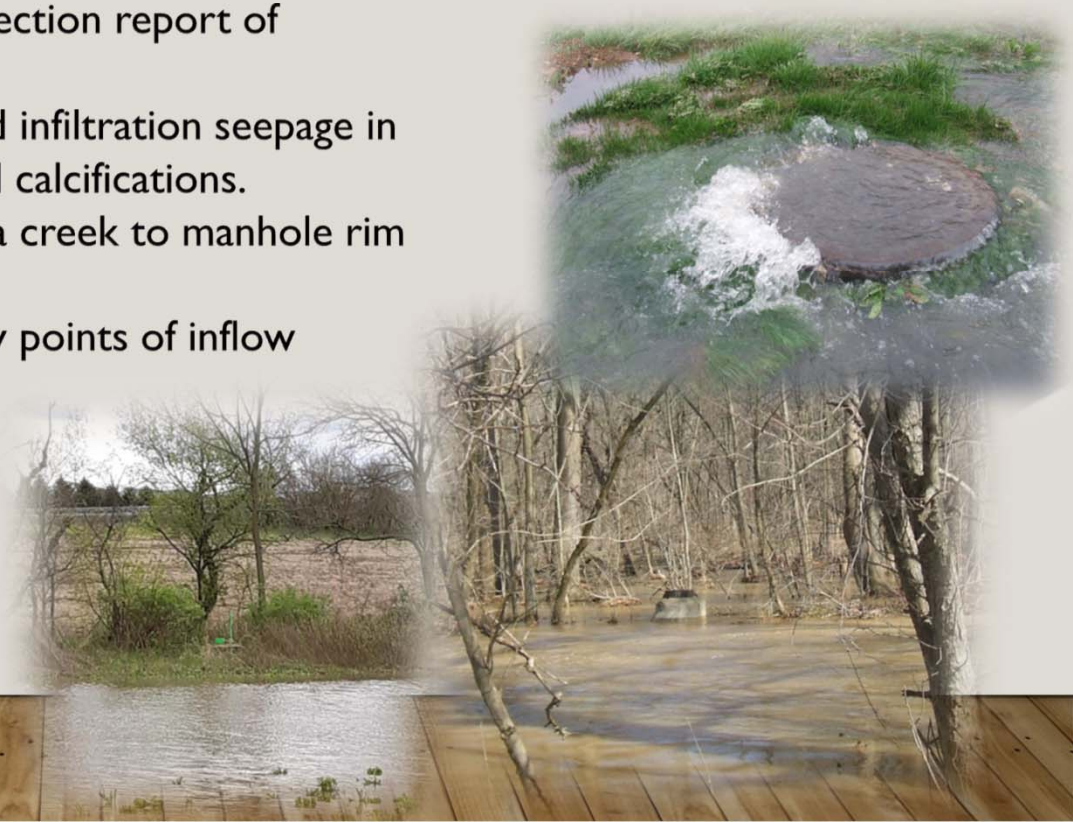


2020 WESTERN LEHIGH INTERCEPTOR MANHOLE REHABILITATION PROJECT

PROJECT HISTORY & CURRENT DEVELOPMENT

- In 2015, Arcadis develops a detailed manhole inspection report of roughly 530 manholes in the system.
- The report had indicated a presence of inflow and infiltration seepage in 176 manholes identified by findings of staining and calcifications.
- In 2019, the Capital Works department develops a creek to manhole rim elevation tool to further analyze the system.
- With this new approach, LCA was able to identify points of inflow leakage caused by flood water inundation.

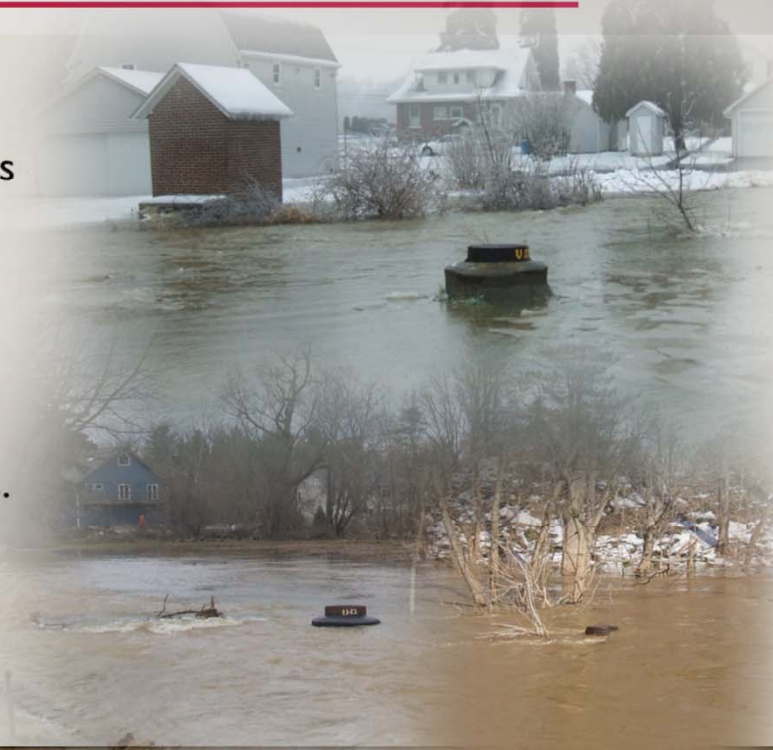


CAPITAL WORKS CREEK ELEVATION ANALYSIS

WHAT DID WE FIND IN THE ANALYSIS:

Our analysis indicated, by evaluating historic and real time changes of creek elevation since 2016. The following flooding events outlined below would have the potential impact to the system.

- With a 1 foot rise 3 manholes were inundated 71 times.
- With a 2 foot rise 31 manholes were inundated 38 times.
- With a 3 foot rise 92 manholes were inundated 20 times.
- With a 4 foot rise 197 manholes were inundated 10 times.



CATALOGING & PHOTO DOCUMENTING DEFICIENCIES

HERE ARE A FEW EXAMPLES OF OUR FINDINGS:

ID: L284

LOCATION: SPRING CREEK ROAD, LOWER MACUNGIE

IMPACT HEIGHT: 2 FOOT

CATALOGING & PHOTO DOCUMENTING DEFICIENCIES

HERE ARE A FEW EXAMPLES OF OUR FINDINGS:

ID: L281

LOCATION: SPRING CREEK ROAD, LOWER MACUNGIE

IMPACT HEIGHT: 2 FOOT

CATALOGING & PHOTO DOCUMENTING DEFICIENCIES

HERE ARE A FEW EXAMPLES OF OUR FINDINGS:

ID: L181

LOCATION: CHURCH STREET, ALBURTIS

IMPACT HEIGHT: 1 FOOT

PLANNED REPAIR & REHABILITATION PROCESSES

BY RAISING EXISTING STRUCTURE THAT ARE FLUSH WITH THE NATURAL GRADE.

BY INSTALLING NEW WATER TIGHT FRAMES AND COVERS

BY USE OF INJECTION GROUTING TO REMEDIATE ACTIVE POINTS OF INFILTRATION

PROJECT PRESENTATION CONCLUSION

QUESTIONS AND OR COMMENTS?