

FEBRUARY 28, 2011

BASEMENT FLOODING

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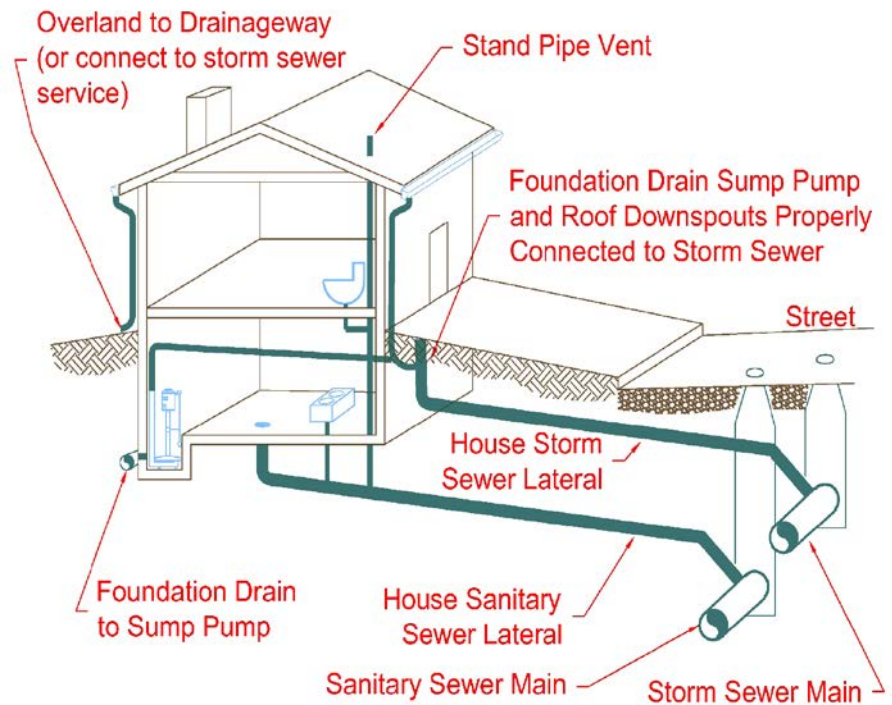
FEBRUARY 28, 2011 RAIN EVENT

- OVER 2" OF RAIN
- ABOUT 10" OF SNOW MELT
- MAJOR STREET FLOODING
 - HOLLYWOOD
 - DUNFORD
 - HILLIARD/HORSESHOE
 - CANTERBURY/STRAWBERRY
 - BRADLEY / LINCOLN
 - COLUMBIA / FIRST
 - CLAGUE / QUAIL HOLLOW
 - BRETTON WOODS SUBDIVISION



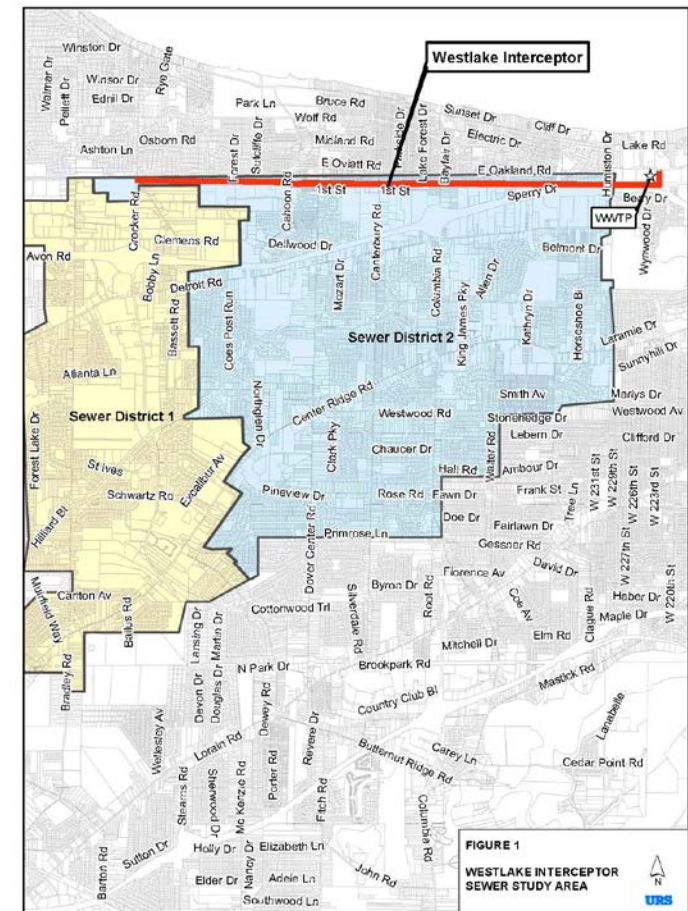
HOUSE PLUMBING

- STORM SEWER
 - DOWNSPOUTS
 - FOUNDATION DRAIN
 - SUMP PUMP
- SANITARY SEWER
 - SHOWERS
 - SINKS
 - TOILETS
 - WASHING MACHINE



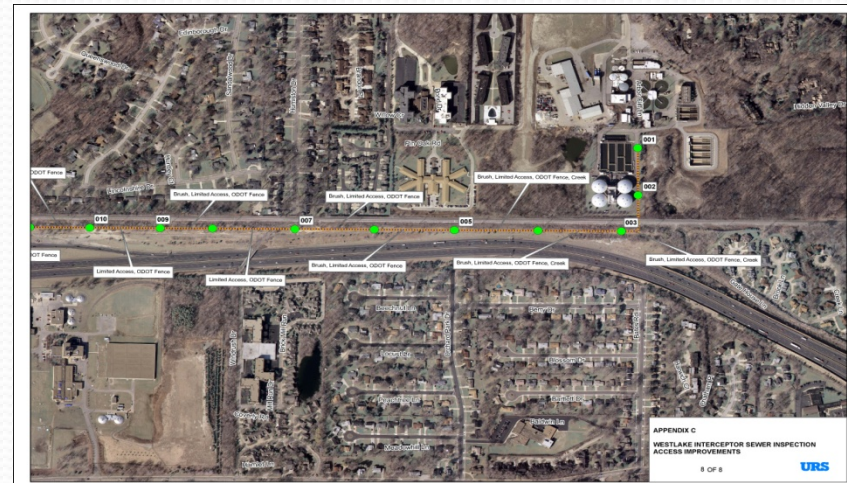
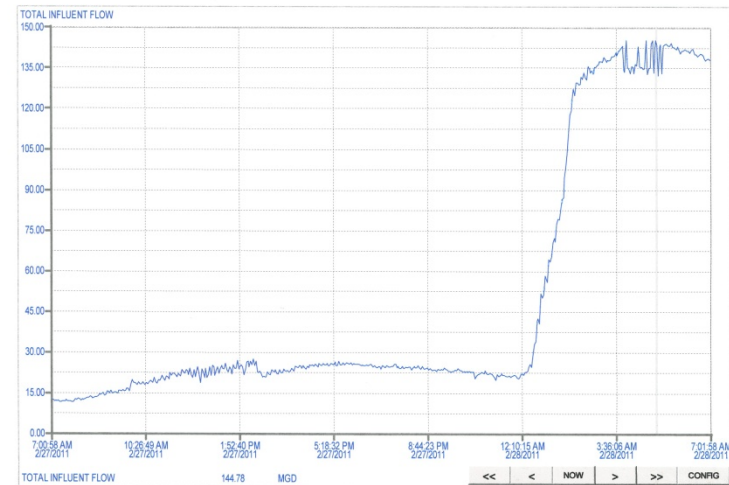
CITY'S SANITARY SYSTEM

- SANITARY INTERCEPTOR
 - ALONG RR TRACKS
- 142 MILES OF SANITARY SEWER
- MAJOR TRUNK LINES
 - CROCKER
 - CAHOON
 - DOVER CENTER
 - CANTERBURY
 - COLUMBIA
 - CLAGUE



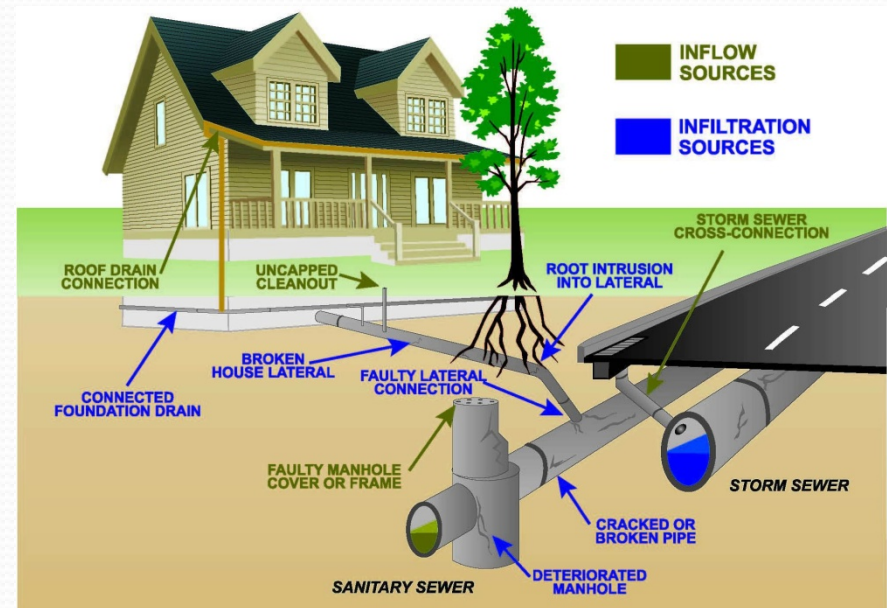
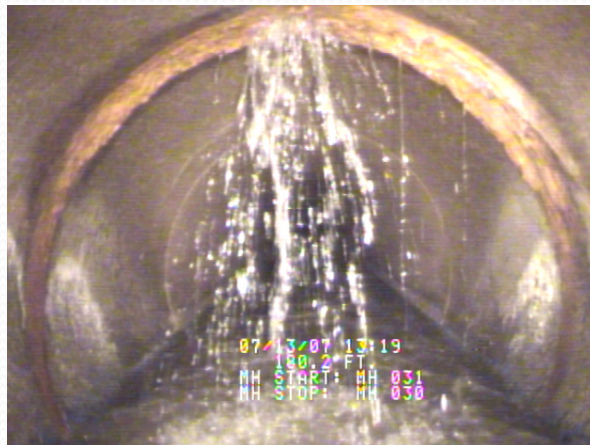
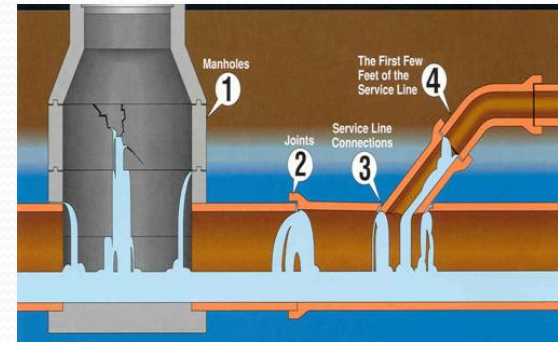
WASTE WATER TREATMENT PLANT

- FOUR CITIES
 - WESTLAKE
 - BAY VILLAGE
 - ROCKY RIVER
 - FAIRVIEW PARK
- AVERAGE FLOW RATE
 - WESTLAKE 5 MGD
 - TOTAL PLANT 13 MGD
- 2-28-11 FLOW RATE
 - TOTAL PLANT 170 MGD
 - RECORD FLOW RATE
 - 82 MILLION GALLONS TREATED IN 24 HOURS



SANITARY INFILTRATION & INFLOW

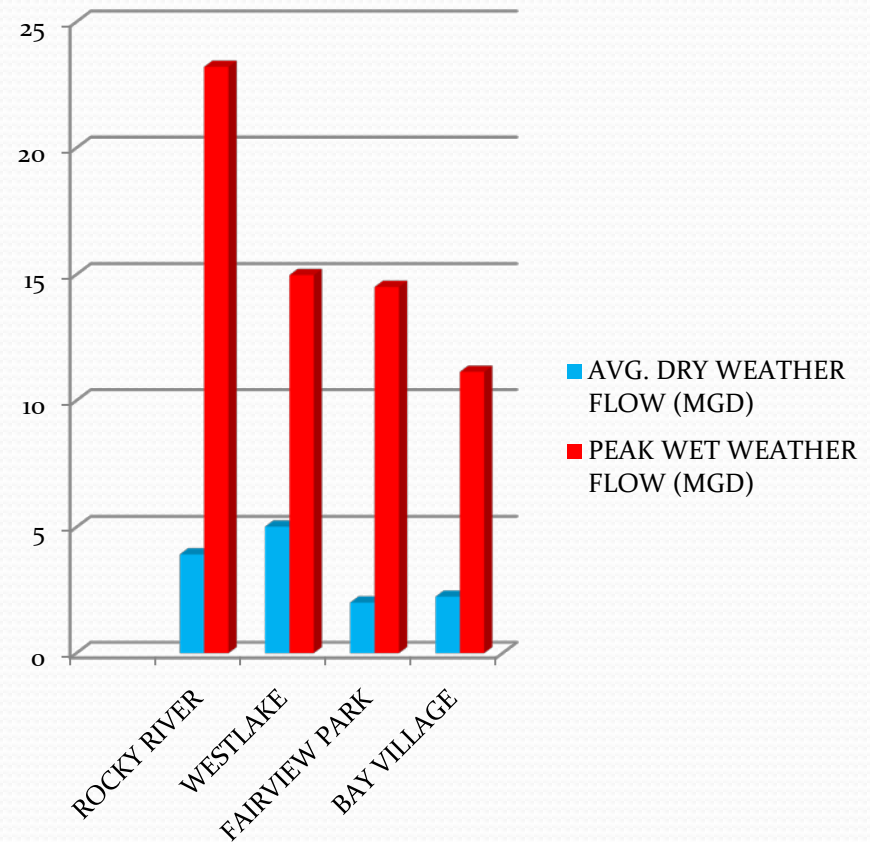
- SOURCES OF STORM WATER IN SANITARY MAIN
 - CROSS-CONNECTIONS
 - INFILTRATION
 - INFLOW
 - COMBINED SEWER



SANITARY FLOW INCREASE

- URS GENERATED REPORT FOR I/I IN
 - 2009 VARIOUS MINOR RAIN EVENTS ANALYZED

CITY	AVG. DRY WEATHER FLOW (MGD)	AVG. PEAK WET WEATHER FLOW (MGD)	% INCREASE FROM I/I
ROCKY RIVER	3.92	23.22	592%
WESTLAKE	5.02	14.98	298%
FAIRVIEW PARK	2.01	14.51	722%
BAY VILLAGE	2.24	11.14	497%

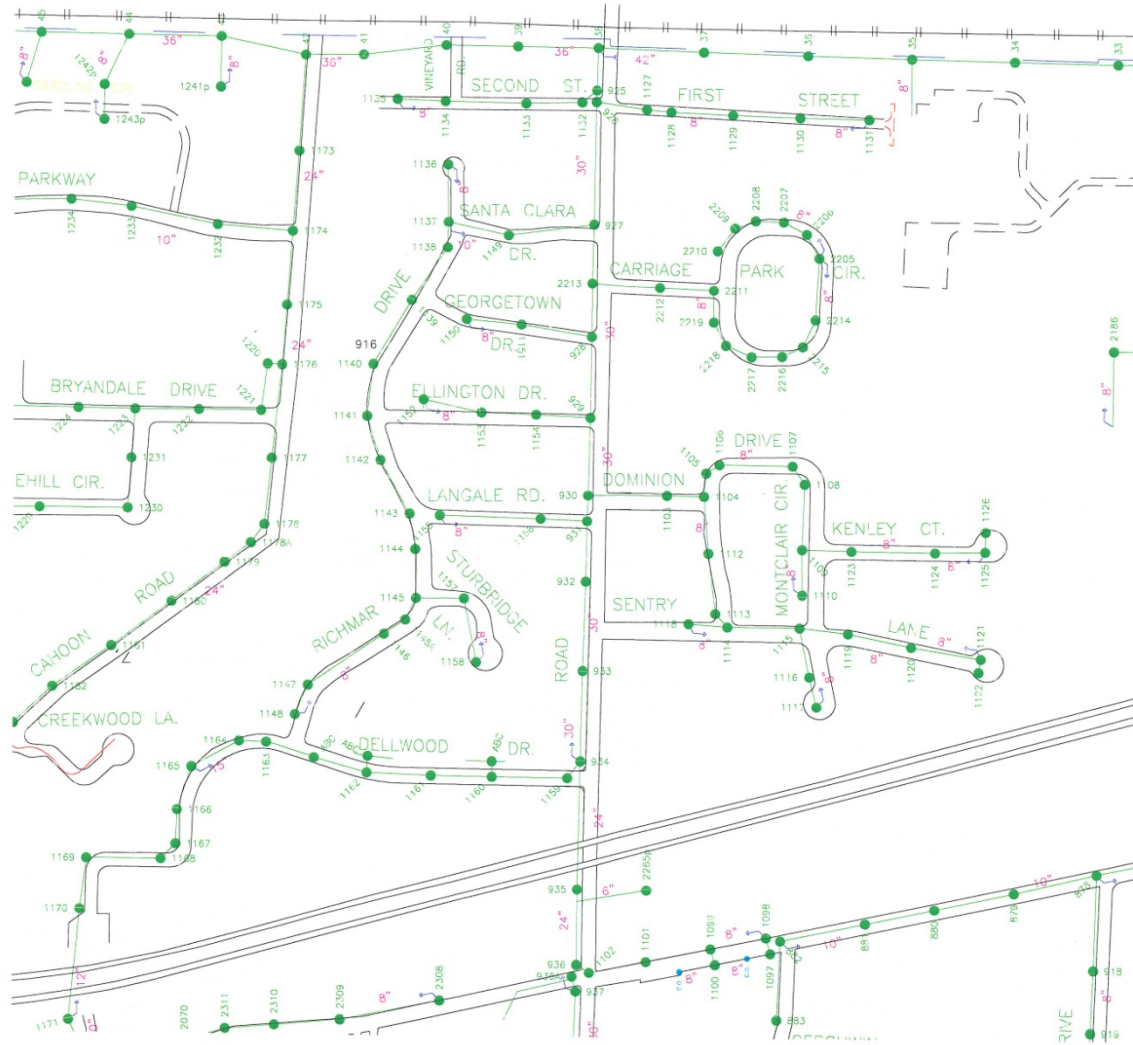


SANITARY INTERCEPTOR SURCHARGE

- HIGH FLOWS AT THE WWTP PLANT FROM I/I.
- INTERCEPTOR SURCHARGED
 - 6 HOURS
- MAJOR TRUNK LINES SURCHARGED AS WELL
 - DOVER CENTER
 - CROCKER RD (CEDARWOOD)

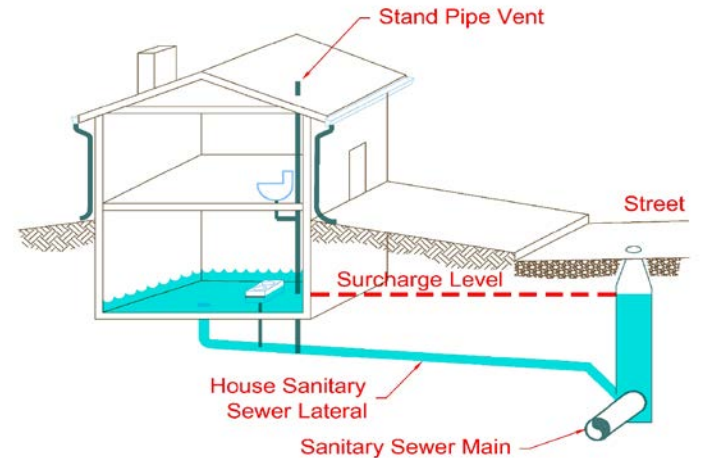


LOWER DOVER SANITARY



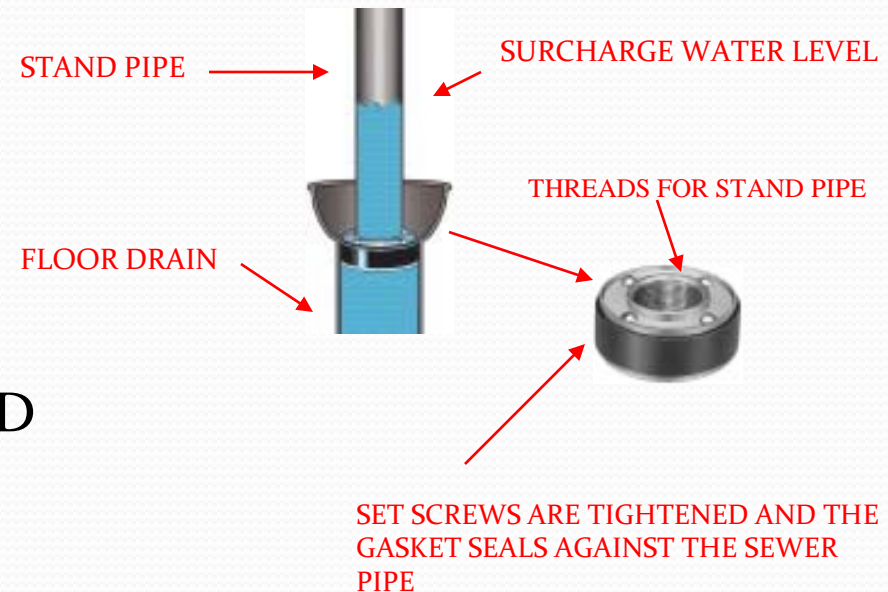
SANITARY SEWER BACK-UP

- RESULTS FROM THE SANITARY SEWER BEING SURCHARGED.
- WATER FROM THE SANITARY SEWER BACKS UP THRU THE CONNECTION AND FLOODS THE BASEMENT:
 - FLOOR DRAINS
 - BASEMENT TOILET
 - BASEMENT SHOWER



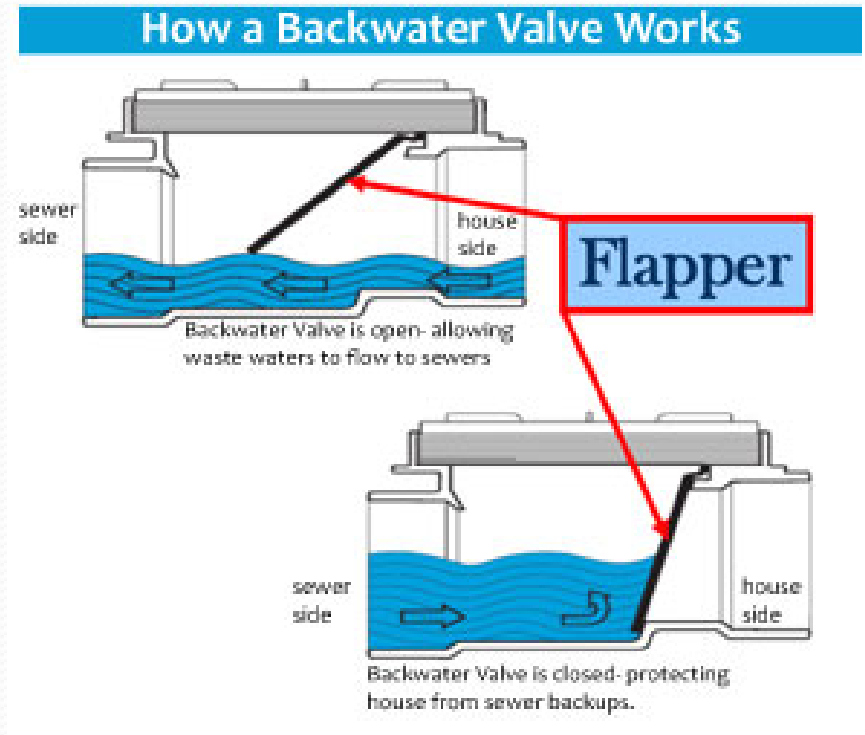
STAND PIPE

- INSTALLED WITHIN FLOOR DRAIN
- HEIGHT OF THE STAND PIPE IS DICTATED BY PREVIOUS FLOODING
- ALLOWS WATER TO SEEK THE SURCHARGED ELEVATION
- ALL SANITARY FACILITIES NEED TO BE PROTECTED
- IF SANITARY PIPE IS DAMAGED BELOW THE SLAB THIS WILL NOT STOP SEWAGE BACK-UP.
- FLOOD GUARD BRAND
 - Plumbingsupply.com



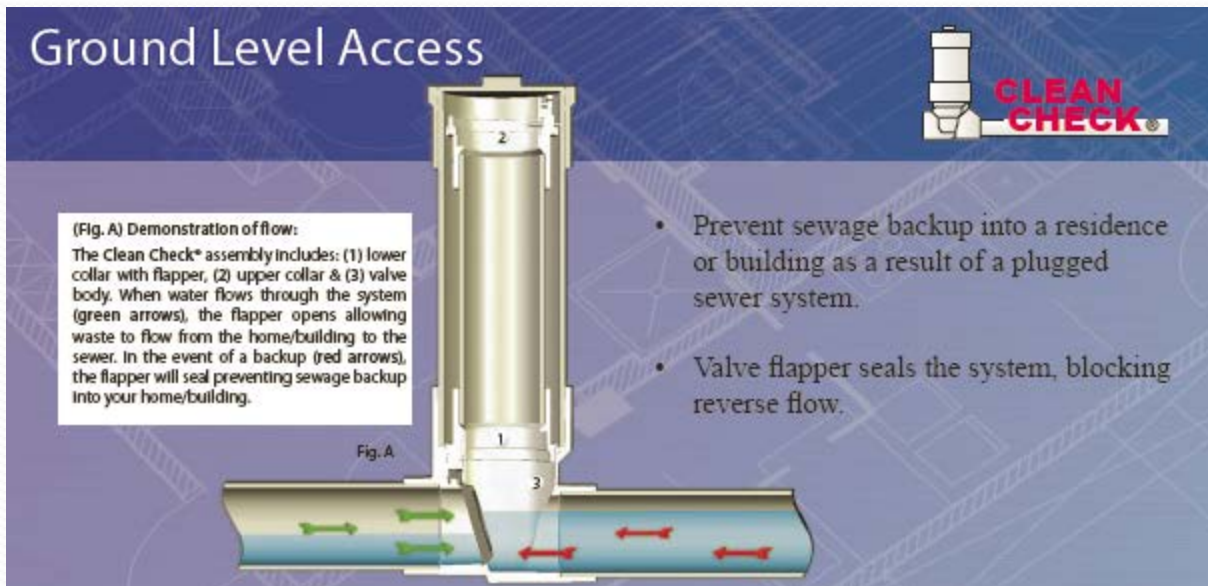
BACKWATER VALVE

- PROTECTS THE HOUSE FROM SANITARY BACKUP BY THE USE OF A FLAPPER VALVE
- PRESSURE RATING SHOULD BE REVIEWED -50 PSI MIN.
- TYPES
 - INTERNAL
 - EXTERNAL
 - DELLWOOD
 - SEVERAL INSTALLED WITH POSITIVE RESULTS

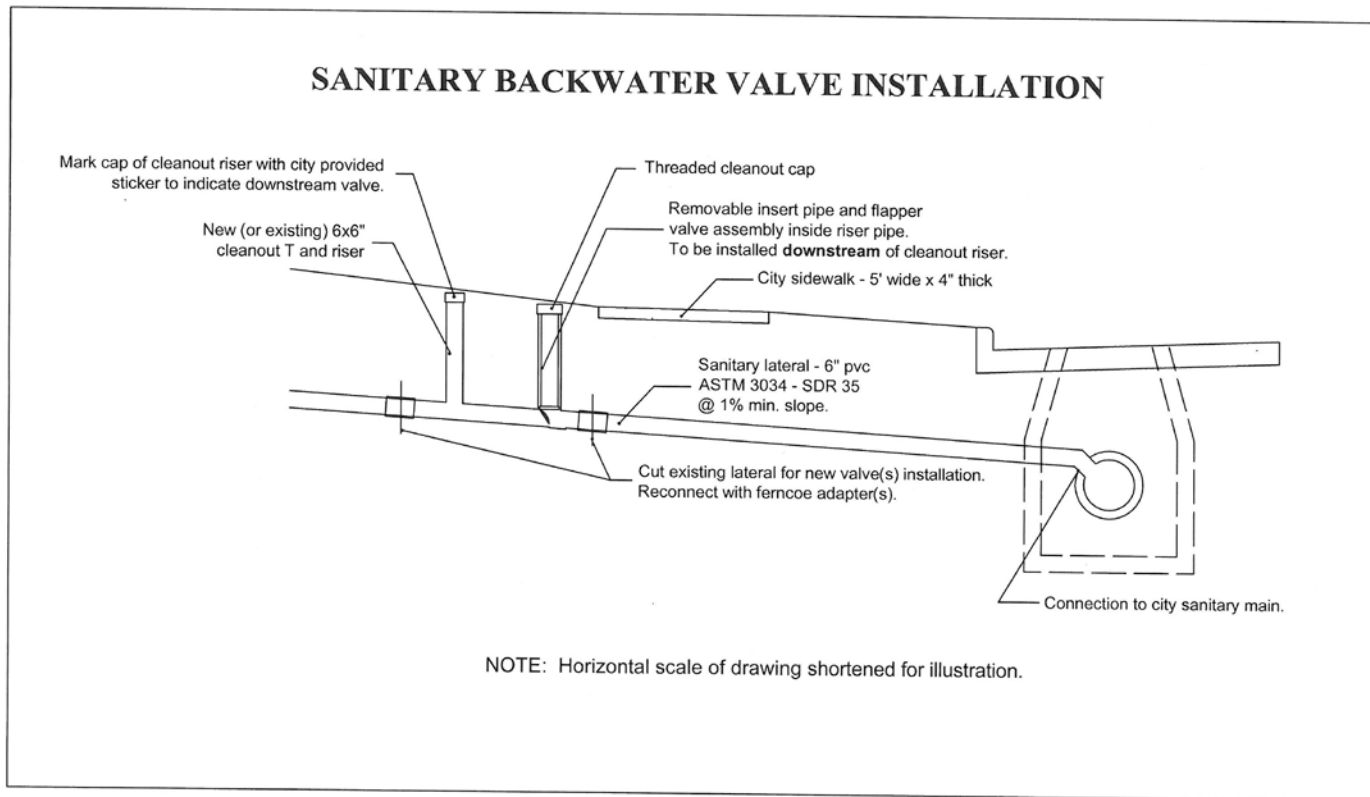


EXTERNAL BACKWATER VALVE

- BENEFITS
 - FLAPPER ACCESSED THRU RISER, MH NOT REQUIRED
 - PIPES UNDER THE HOUSE NOT SUBJECTED TO PRESSURE
- BRANDS
 - CLEAN CHECK (75 PSI MODEL AVAILABLE IN 4 MONTHS)
 - CANPLAS (CURRENT MODEL IS RATED AT 60 PSI)

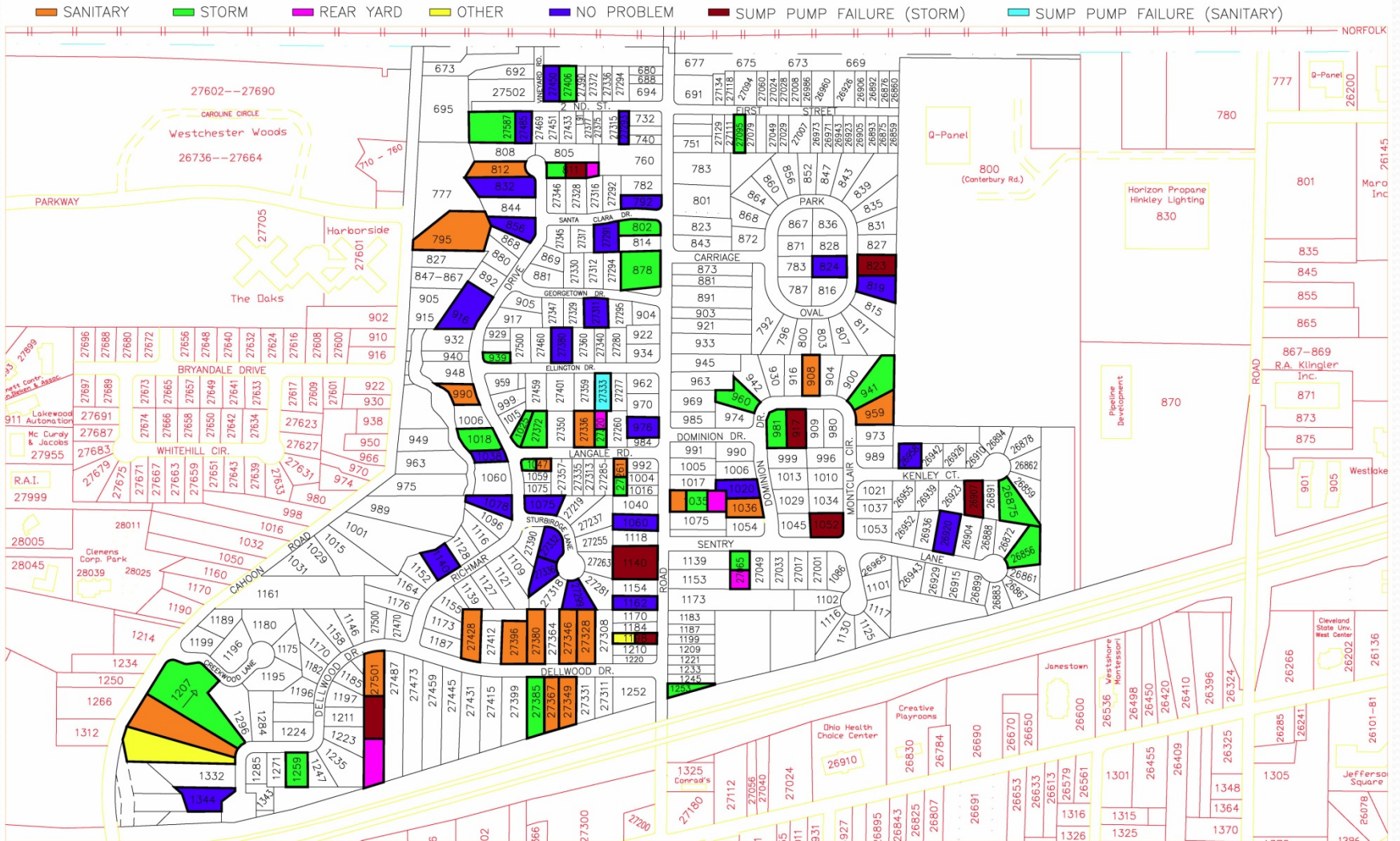


EXTERNAL BACKWATER VALVE



2008 BASEMENT FLOODING

ADDRESS MAP – THE CITY OF WESTLAKE



2011 BASEMENT FLOODING

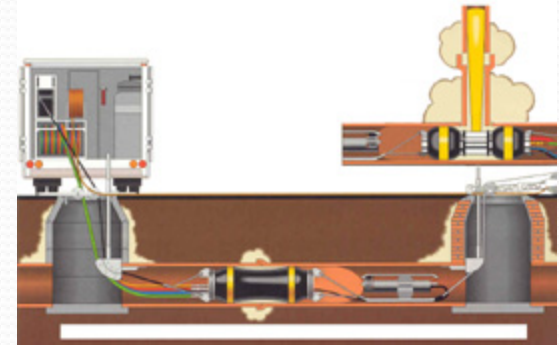
CITY OF WESTLAKE, OHIO- 2/28/2011 RAIN EVENT

Sanitary Surchage Storm Surchage To Be Determined



SANITARY IMPROVEMENTS-I/I

- KING JAMES SUBDIVISION
 - \$340,000 50 HOMES
- SALEM-RADCLIFFE SUBDIVISION
 - \$300,000 46 HOMES
- BERKELEY ESTATES
 - \$630,000 87 HOMES
- CANTERBURY-SOUTH OF WESTWOOD
 - \$1,300,000 136 HOMES
- SANITARY CCTV INVESTIGATION
 - \$30,000 18,000 L.F.
- SANITARY FLOW METERING
 - \$50,000 15 LOCATIONS
- INTERCEPTOR
 - \$1,600,000
 - MAJORITY STRUCTURAL



FUTURE PROJECTS

- WESTHILL / ALLEN
 - \$500,000 57 HOMES
- WWTP HYDRAULIC STUDY
- CORNWELL / BONNIE BANK
- CITY WIDE FLOW METERING FOR EACH TRIBUTARY AREA
- MANHOLE REHABILITATION-FLOOD PLAINS



THE END

- QUESTIONS OR COMMENTS

