Southeast Arizona Citizens Forum

Design Services for the Rehabilitation of International Outfall Interceptor in Santa Cruz County, Arizona

International Boundary and Water Commission

United States Section

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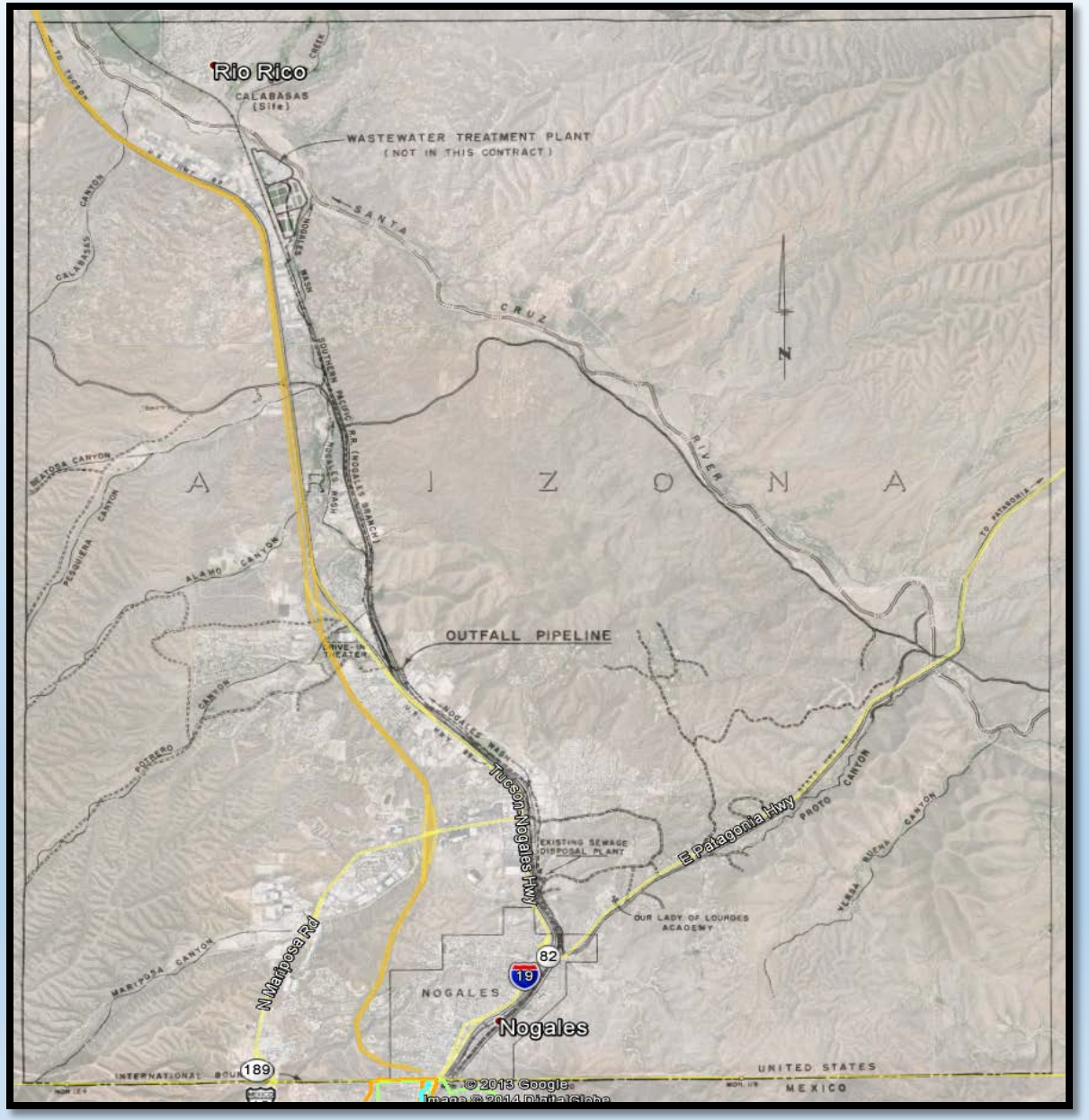
Presentation Topics

- Description of International Outfall Interceptor (IOI)
- Current Study
- Current Study's Recommendations
- USIBWC and City of Nogales, Arizona's plan and mitigation efforts
- Open discussion and questions

Existing Nogales IOI Alignment

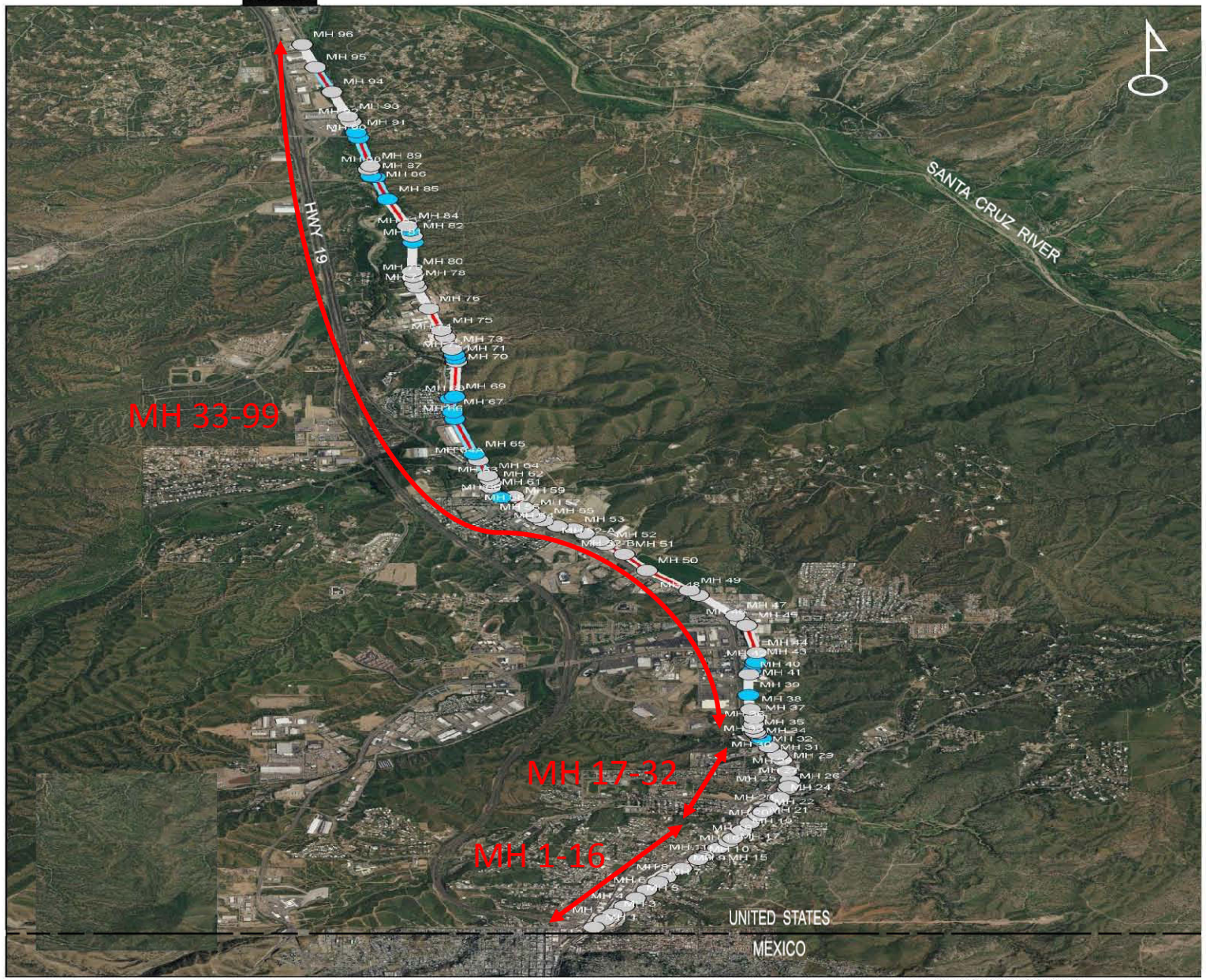


Description of IOI

- Trunk Sewer Transmission Line from International Boundary to the NIWTP
  - Approximately 9 miles long
  - 99 Manholes
  - Infrastructure Varies from 24 inch diameter RCP to 42 inch diameter RCP
  - Manholes 1-16 within closed underground box culvert (Morley Tunnel)
  - Manholes 17-32 within concrete trapezoidal section (Nogales Wash)
  - Manholes 33-99 meanders within or beside the Nogales Wash

Nogales and Rio Rico, Arizona

International Outfall Interceptor



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0 2,500 5,000 10,000 Feet

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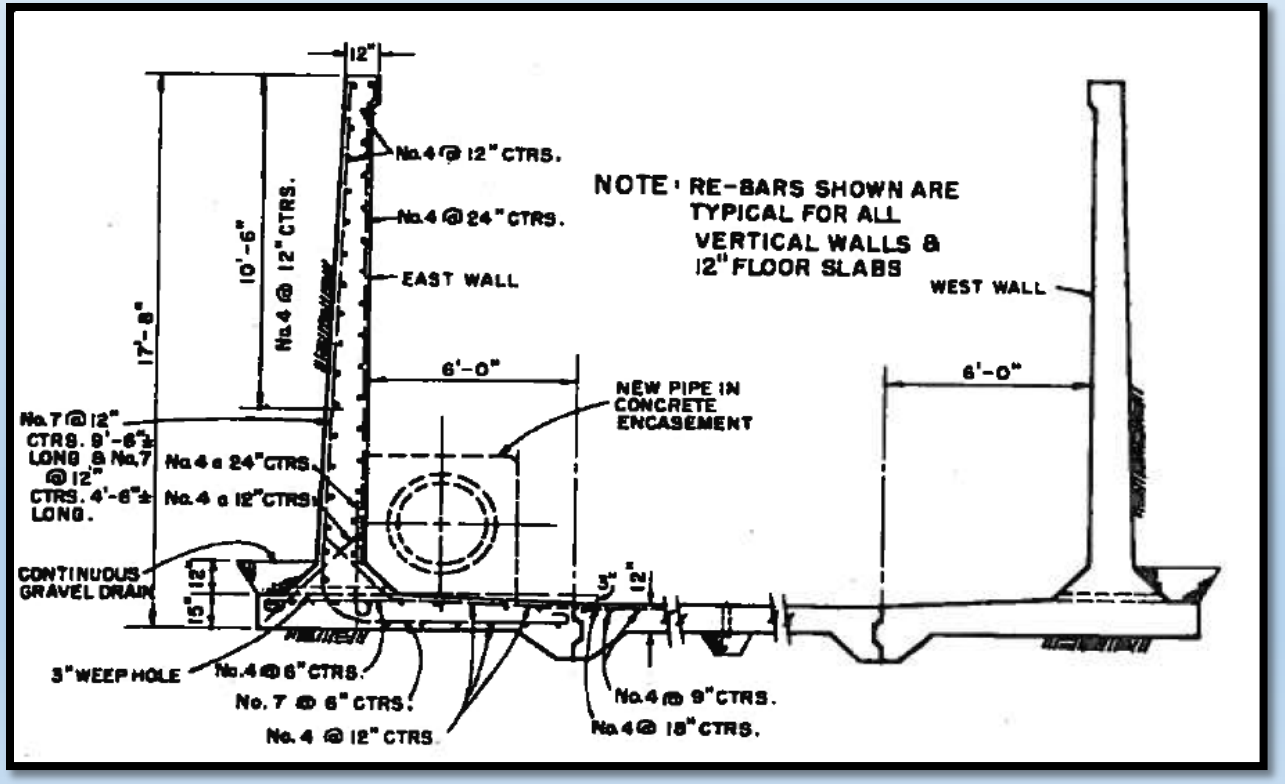
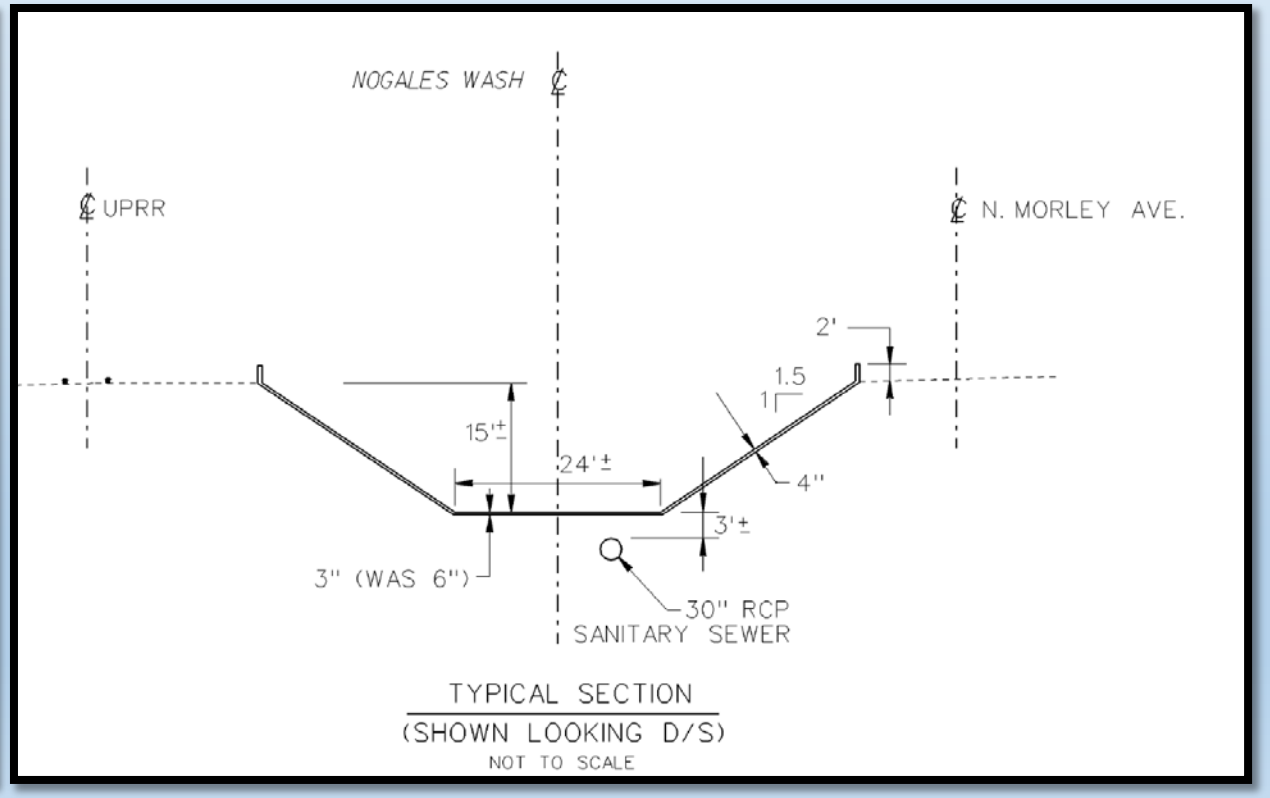
*Compromised locations are approximate

IOI in Covered Underground Box Culvert

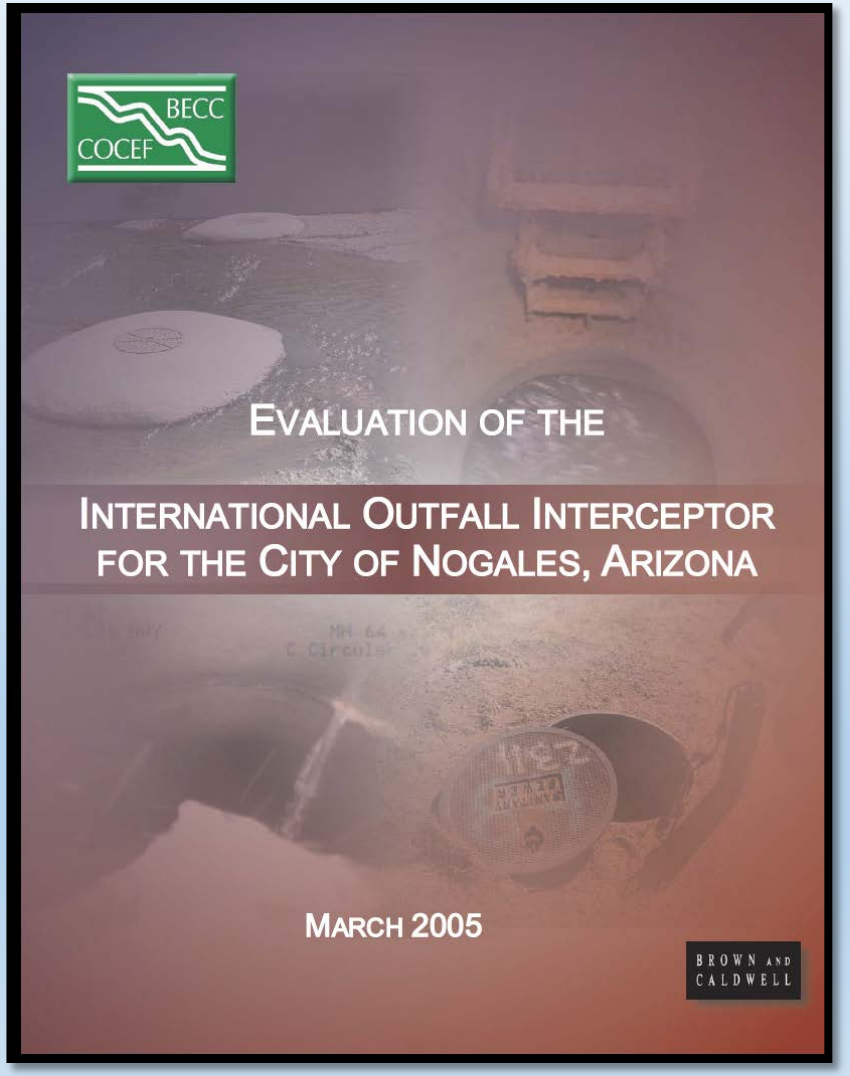


IOI in Concrete Trapezoid Channel



IOI along the Nogales Wash

Current Study

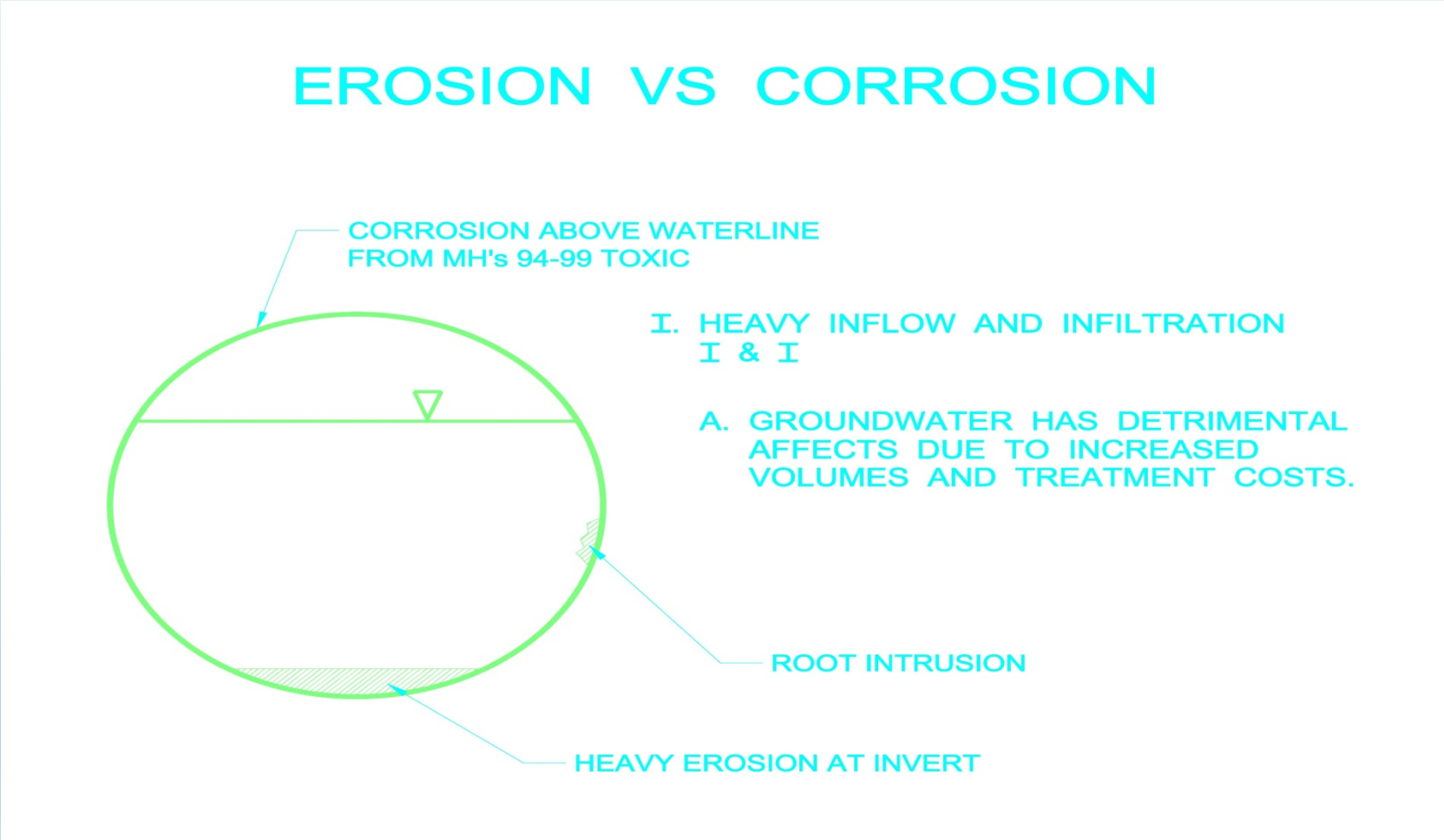


Brown and Caldwell 2005 Study Funded by BECC

- **FINDINGS:**

- Existing condition of pipeline
- Pipeline is over 40 years old, (Typ. Lifespan of pipe is 50 years)
- Certain sections of the IOI have experienced significant deterioration
- Erosion of invert is a major concern
- Corrosion is occurring near treatment plant

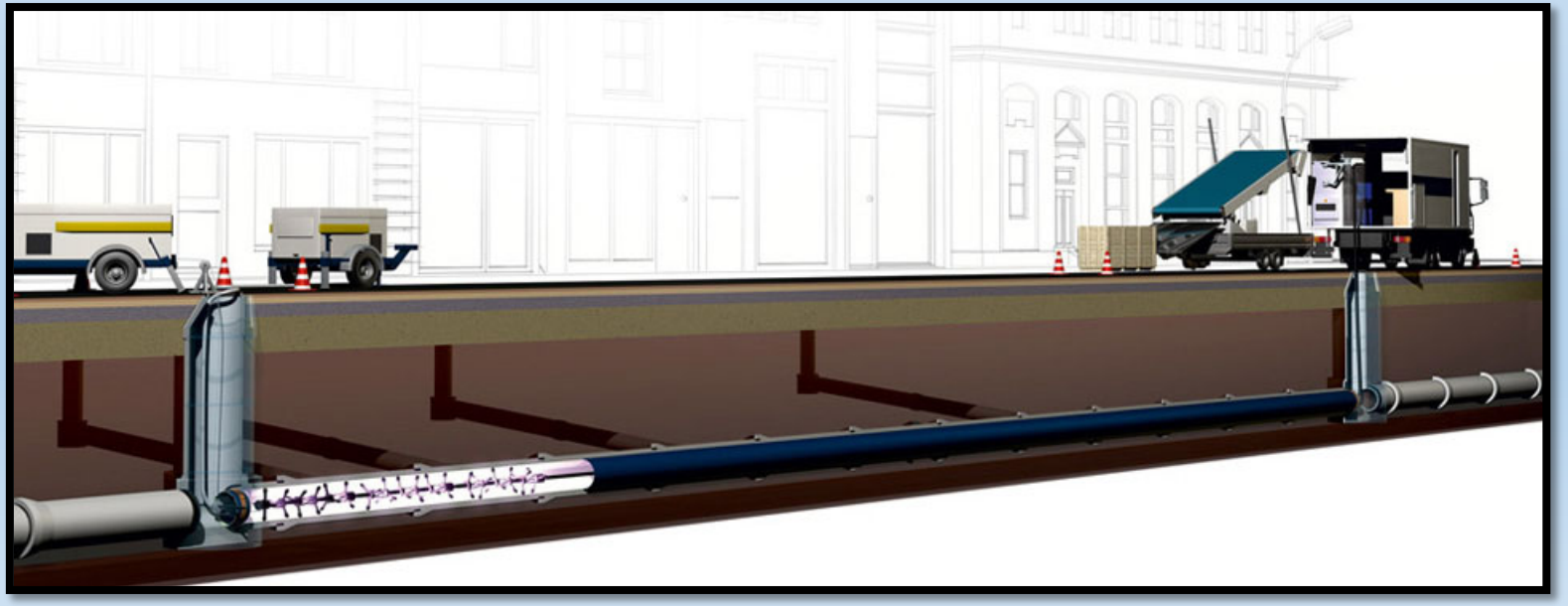
Erosion of bottom of pipe due to excessive velocities of solids



Recommendations

- Assessment Program
  - Re-inspect every two or three years
- Rehabilitation
  - Slip Lining
  - Cured-In-Place Pipe (CIPP) – resin filled polyester tube is inserted into pipe and inflated with water or steam and cured-in-place
- Replacement
  - Open Cut Complete replacement of existing pipe

Rehabilitation Approaches



USIBWC's and City of Nogales' Plan and Migration Efforts

- July 11, 2013, Meeting with City of Nogales, Arizona (CON) staff and USIBWC staff to discuss proposal to develop engineering construction documents for the rehabilitation of Nogales International Outfall Interceptor (IOI).

Outcome

- USIBWC and CON will collaborate on the development of Scope Of Work (SOW)
- Cost sharing will be included as part of the agreement (in kind services will be considered as contribution)
- CON will be directly involved in the review and concurrence of the plan development
- USIBWC and CON will have a 100% plan set upon completion of contract

Timeline for Rehabilitation of Nogales International Outfall Interceptor Scope of Work

- July 11, 2013, Meeting with City of Nogales, Arizona staff and USIBWC staff to discuss proposal to develop engineering construction documents for the rehabilitation of Nogales International Outfall Interceptor (IOI).
- November 8, 2013, USIBWC provided the City of Nogales (CON) a Draft Scope of Work for review and comment.
- November 20, 2013, Coordination meeting was held between CON and USIBWC in order to review the SOW and refine the specifications and requirement of the project.
- November 27, 2013, CON provided comments to USIBWC's SOW for the Nogales IOI rehabilitation project.
- Early January 2014, CON provided additional comments to the SOW from ADEQ
- Late January 2014, USIBWC completed the SOW for the engineering services request for construction document development.
- USIBWC expects to award the contract in the 2nd Quarter of 2014.

Expected Goals

- Develop a construction plan, complete with standards, specifications, and estimate, ready for bidding.
- Recommended design will be based on most cost effective approach
  - Slip Lining
  - Cured-In-Place Pipe (CIPP)
  - Replacement
- Recommended construction sequence
  - priority phase construction
  - “one shot” construction

Task Items in Nogales IOI Rehabilitation Contract

- Finding and recommendations from 2005 BECC study will be the basis for construction plan design.
- Consultant will conduct a visual assessment prior to plan development. (validation of recommendations)
- IOI Design must adhere to local, state, and federal regulations.
- Agency Coordination; ADEQ, Santa Cruz County, etc..
- Environmental Consideration
- Data Collection; Survey, Geotech study, utility location, etc..
- Preparation of Design Summary Reports, Technical Memorandum, Cost Analysis of Alternatives, etc..
- Stakeholder Meetings; DHS, CON, San Cruz County, ADEQ, railroad, etc..
- Maintenance Plan

Questions or Comments?