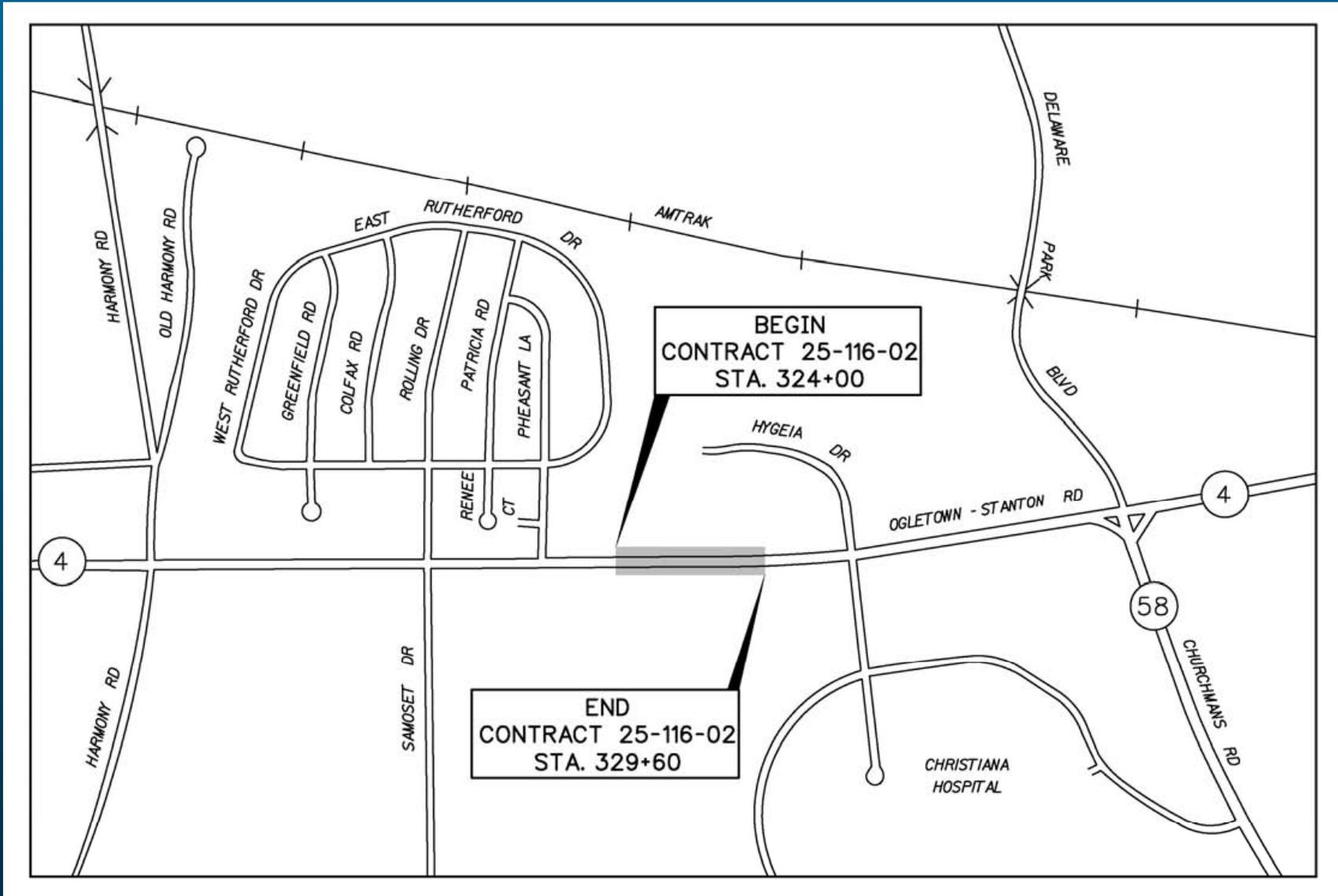


**SR 4**  
**48" CMP Replacement**  
**Contract No. 25-116-02**

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**Carey Webb – RK&K**  
**Tom Brooks – DeIDOT**  
**Herb Monsalud - DeIDOT**  
**Eastern States Construction**

# Project Location



# Project Location



# Hospital SWM Pond



# Hospital Spillway



# SR 4



# Project History

- Originally part of FY2002 Sidewalks & Bus Stops project
- Project included:
  - 5' wide sidewalk from Pheasant Lane to Hygeia Drive
  - Guardrail with maintenance pavement behind sidewalk
  - Modular Block Retaining Wall and Doghouse Headwall around existing 48" CMP
- During construction of project in Fall 2003, Contractor and DeIDOT reported extensive corrosion of 48" CMP and halted construction around this pipe
- DeIDOT videoed pipe and decided to move forward with a complete culvert replacement

# Existing 48" Pipe Condition



# Existing 48" Pipe Outfall



# Project Timeline

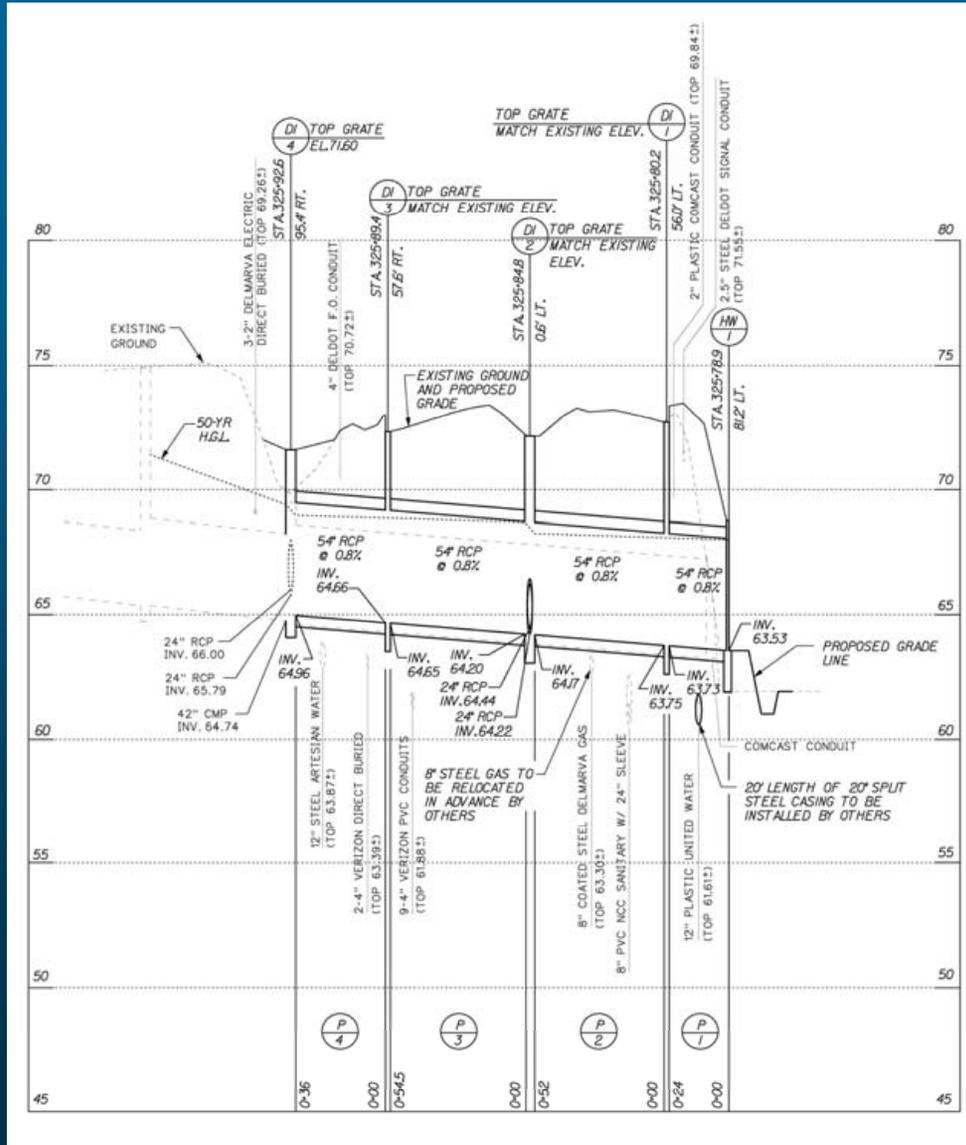
- Fall 2003 - Sidewalk construction halted due to extensive pipe corrosion
- Fall 2003 - DeIDOT videoed pipe and decided to move forward with a complete culvert replacement
- Spring 2004 - RK&K begins work on stand-alone plan set to replace culvert
- Sept. 2005 - Project put on hold due to shift in DeIDOT funding
- Aug. 2006 - Project funding back on-track
- Sept. 2007 - RK&K resubmits Final Construction Plans for DeIDOT review
- Dec. 2007 - RK&K re-resubmits Final Construction Plans after DeIDOT revises M.O.T. strategy
- March 2008 - RK&K submits PS&E Plans to DeIDOT
- June 2008 - Contract awarded to Eastern States
- Jan. 2009 - Construction substantially complete

# Project Background

- State Route 4
  - Dual highway
  - Full outside shoulders, 4' wide median shoulders
  - 32' wide grass median
  - Widened to current typical section in early to mid 80's
- 48" CMP
  - Roughly 25 years old
  - Serves as outfall for Hospital SWM pond, also takes roadway, ditch, and median runoff
  - Even during no precipitation, always constant flow in pipe – roughly 0.6 cfs
  - Roughly 170' of pipe replacement



# Proposed Pipe Replacement



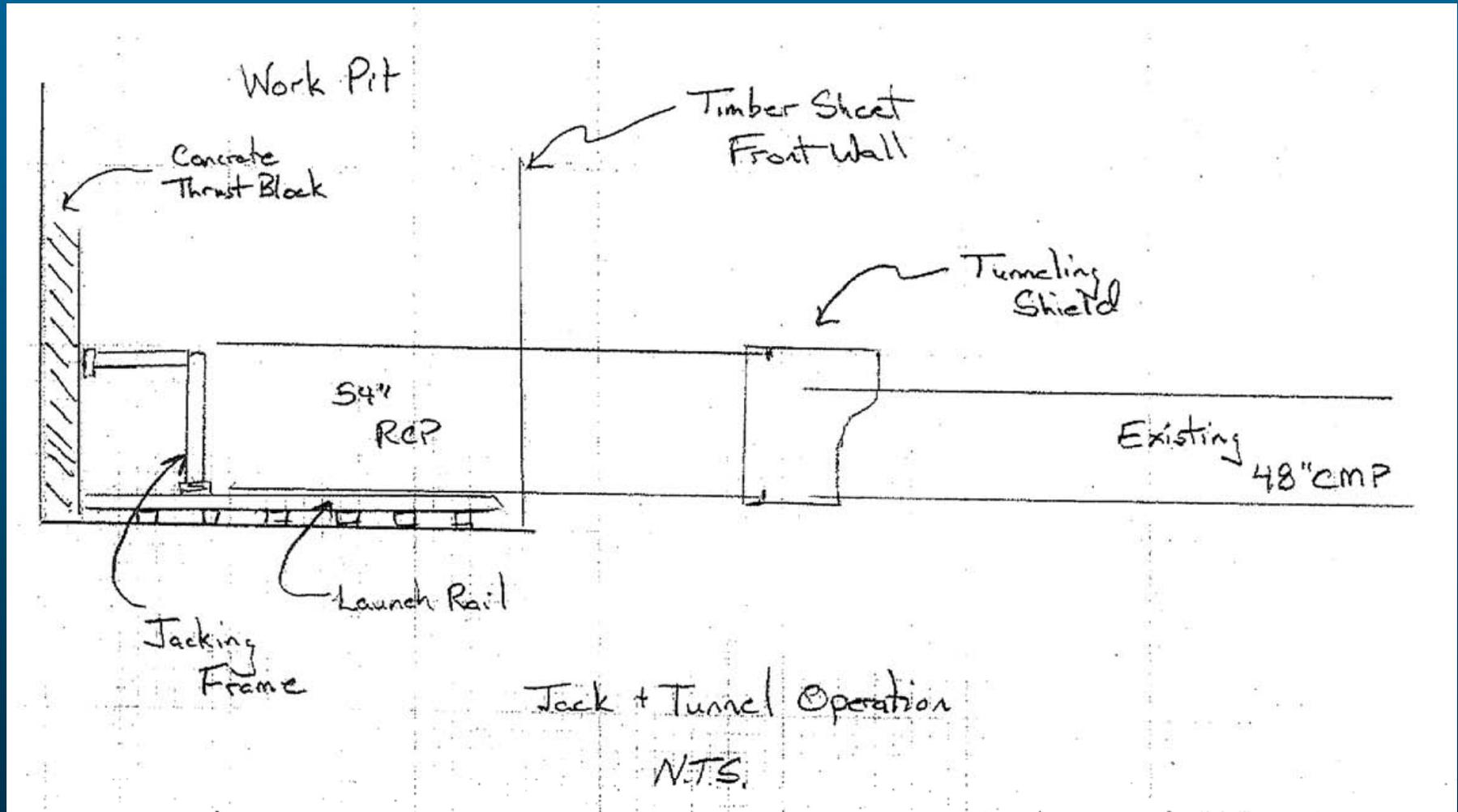
# Contract Award

- Engineer's Estimate \$974,891.26
- Five Bidders
- Bids Ranged from \$695,326.49 to \$1,099,308
- Low Bidder Eastern States Construction Services
- Contract Awarded June 16, 2008

# Value Engineering Proposal

- Value Engineering Proposal Submitted by Eastern States
- Jack & Tunnel Method Proposed In Lieu of Open Cutting Per Plan
- Advantages
  1. **Cost Savings - \$126,330 split between DeIDOT and Contractor**
  2. **Reduced M.O.T. and No Lane Shifts = Increased Work Zone Safety**
  3. **No Supporting of Existing Utilities Required**
  4. **Same Contract Duration (75 Days)**
- Once VEP is accepted, only need 6 weeks to mobilize and begin construction

# Value Engineering Proposal



# Cutting Existing Pipe



# Jacking Frame



# Tunneling Shield



# Jacking Operation



# Jacking Operation



# Jacking Operation



# 48" Pipe Removal



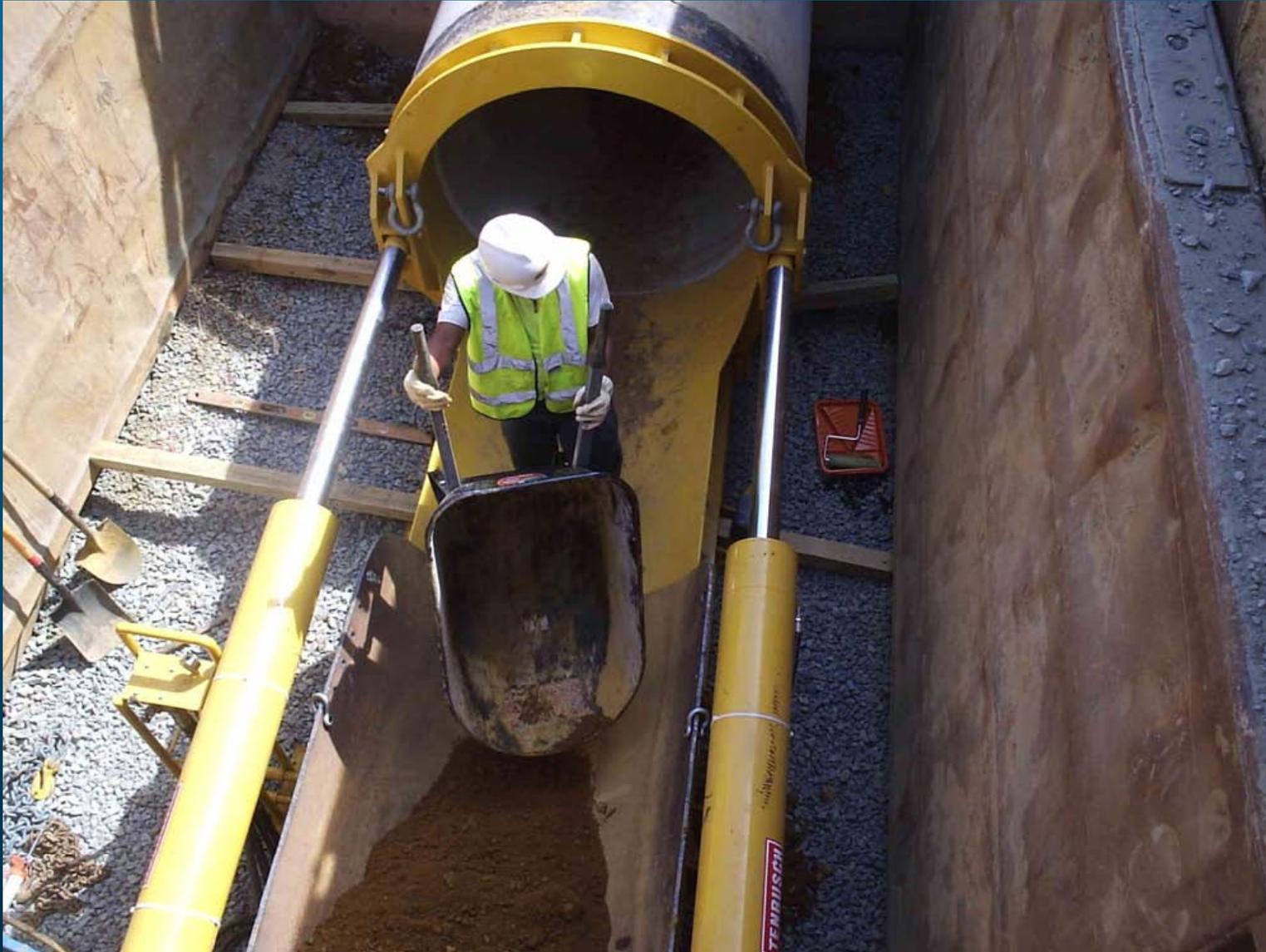
# Tunneling Operation



# Tunneling Operation



# Tunneling Operation



# Tunneling Operation



# Jacking Operation



# Grouting Operation



# Jacking Pit Restoration



# Completion of 54" RCP



# Before - Existing 48" CMP



# After – 54” RCP



# Before – Existing CMP End Section



# After – 54” RCP Headwall



# Before – Stream Outfall



# After – Stream Outfall



# Before – No Sidewalk



# After – Completed Sidewalk



# Before – No Sidewalk



# After – Completed Sidewalk



# QUESTIONS ?