

Public Meeting #1 July 20, 2016



Swann Street Storm Drainage Improvement Project – Phase 1



Introduction of Team Members



City of Raleigh Staff

- David Kiker, PE, Engineering Services
- Veronica High, PE, Engineering Services
- Carmela Teichman, Public Outreach & Education

WK Dickson Staff

- Scott Sigmon, PE
- Marc Horstman, PE



Presentation Overview



- Introduce Team Members
- Summarize Project Goals
- Historical Flooding
- Present Existing Conditions Findings
- Present Recommended Drainage Improvements
- Drainage Easements
- Proposed Schedule
- Questions/Answers/Break Out Sessions

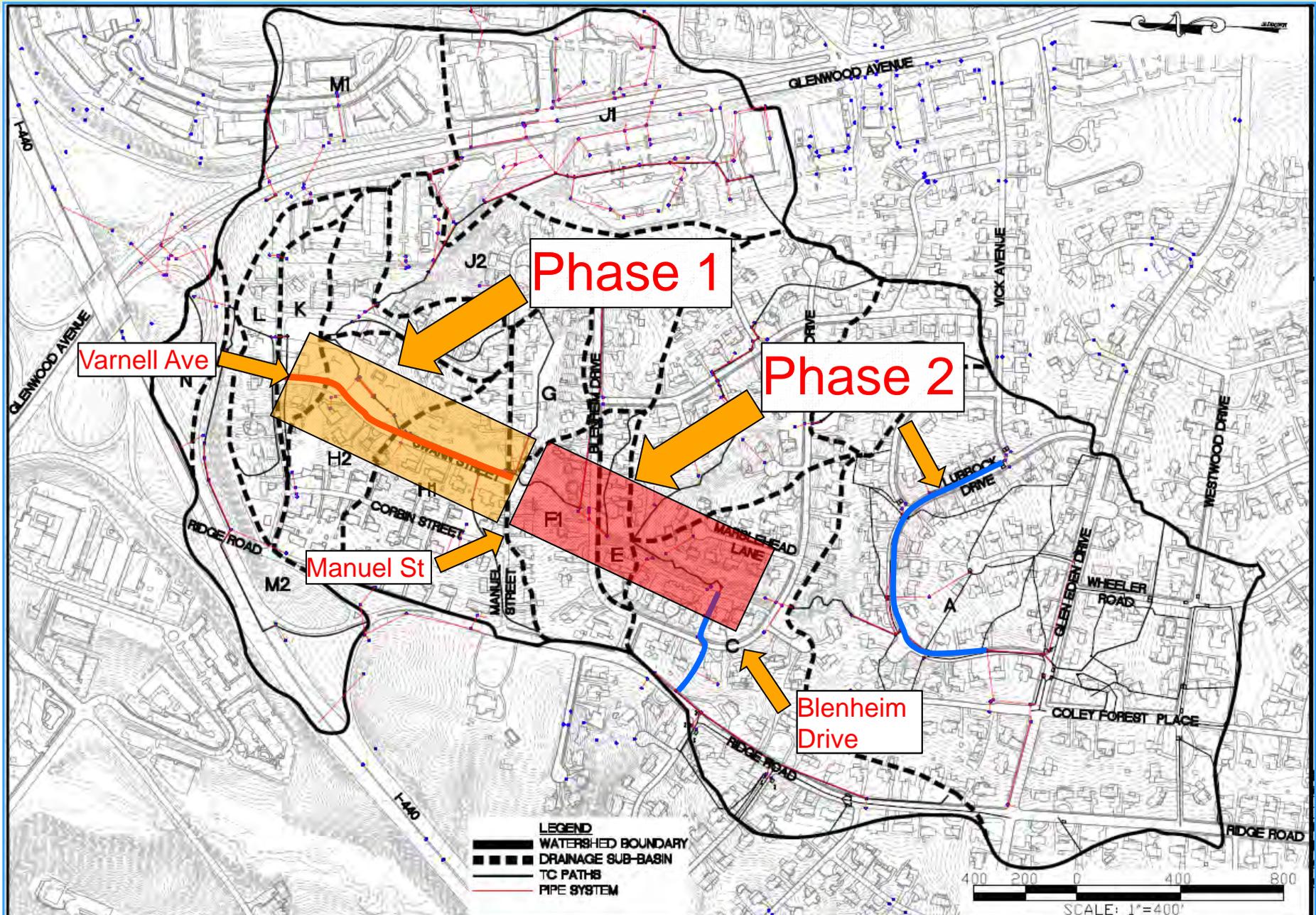
Project Goals



- Eliminate Roadway Flooding
- Minimize First Floor Flooding of Homes
- Improve Access to Homes
- Stabilize Banks of Main Channel



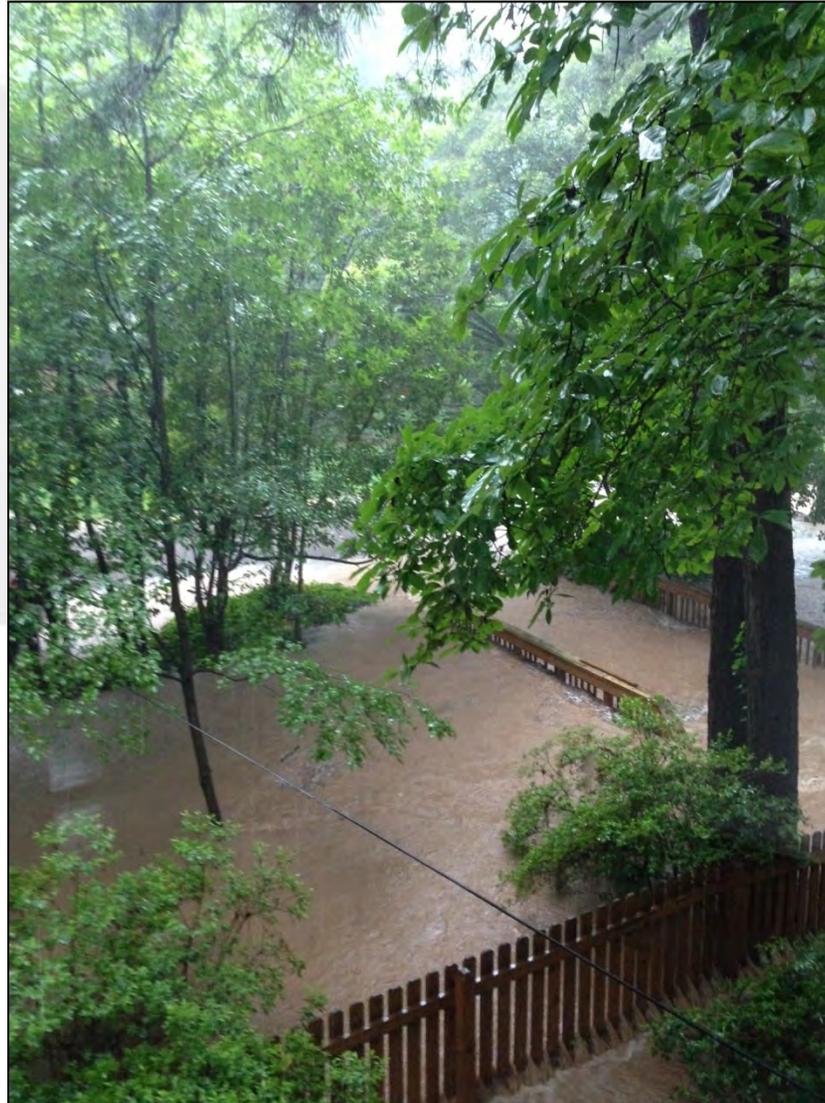
Study Area – Phased Project Approach



Historical Flooding & Erosion



3606 Swann Street – June 2013



Historical Flooding & Erosion



3700 Swann Street – June 2013



Historical Flooding & Erosion



3704 Swann Street – June 2013



Historical Flooding & Erosion



3708 Swann Street – June 2013



Historical Flooding & Erosion



3708 Swann Street – April 2016

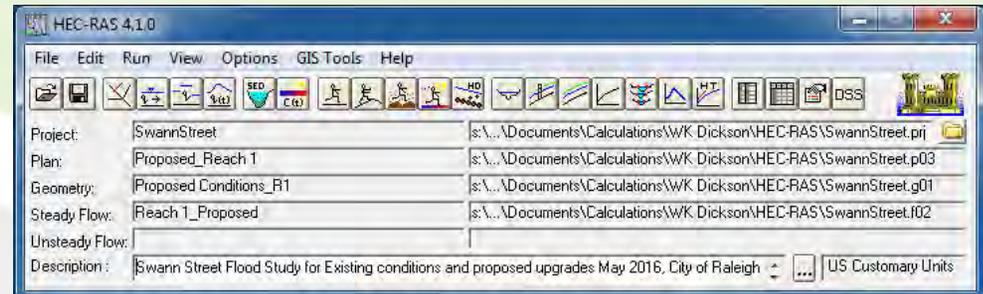


Existing Conditions Findings



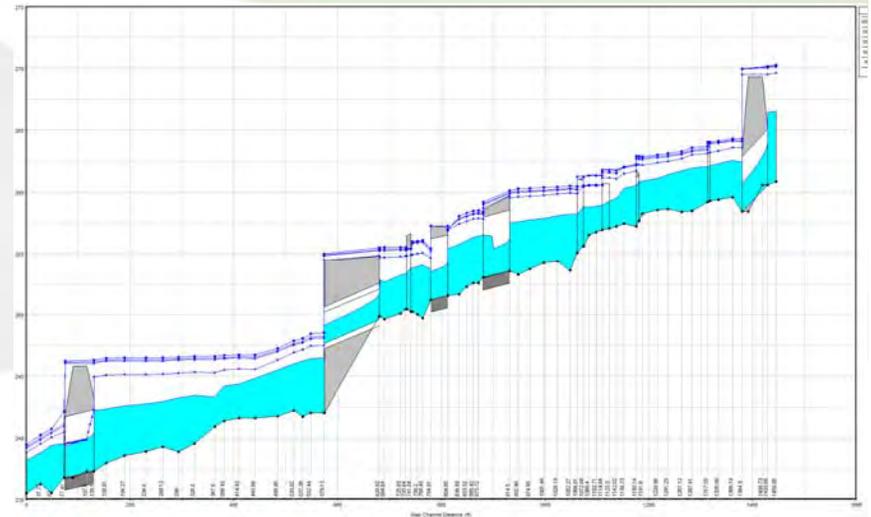
Hydrologic Models

- Rainfall Data
- Drainage Area
- Landuse
- Soils



Hydraulic Models – Primary System

- Field Surveyed Data
- Culvert Size, Length and Roughness
- Channel Size, Length and Roughness
- Peak Flows
- Starting Conditions



Hydraulic Models – Secondary System

- Pipe Size, Length and Roughness
- Peak Flows
- Starting Conditions

Existing Conditions Findings



Summary of Peak Flows

Road Name / Location	Storm Event				
	2-year (cfs)	10-year (cfs)	25-year (cfs)	50-year (cfs)	100-year (cfs)
U/S Manuel Street	135	218	257	269	290
D/S Manuel Street	135	218	257	269	290
3618 Swann Street Driveway Culvert	142	229	275	285	310
U/S Reach 2 confluence	149	238	292	306	340
U/S Varnell Avenue	189	284	353	372	416
D/S Varnell Avenue	187	293	357	378	426

Existing Conditions Findings



Road Name/Culvert/Bridge Size	Level of Service
Varnell Avenue – 60" RCP	5-Year LOS
Triple 36" RCPs at 3704 Swann	10-Year LOS
Bridge at 3700 Swann Street	10-Year LOS
60" RCP at 3618 Swann Street	2-Year LOS
48" RCP at 3618 Swann Street	< 2-Year LOS
Bridge at 3614 Swann Street	2-Year LOS
Bridge at 3606 Swann Street	< 2-Year LOS
Walkway Bridge at 3606 Swann Street	2-Year LOS
Walkway Bridge at 3600 Swann Street	10-Year LOS
Manuel Street – 54" RCP	5-Year LOS

Floodplain Mapping

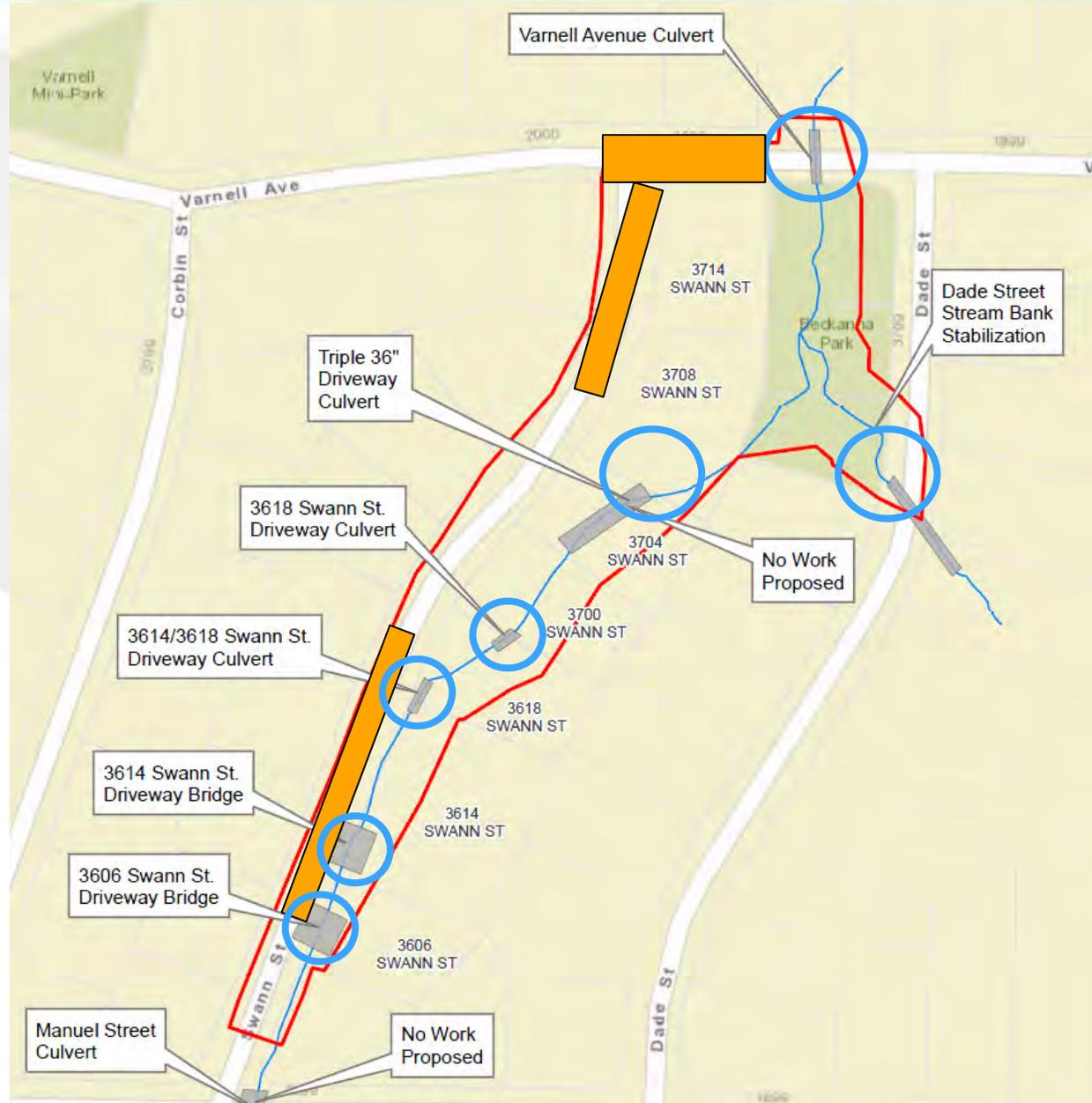


Recommended Drainage Improvements



<http://abc11.com/traffic>

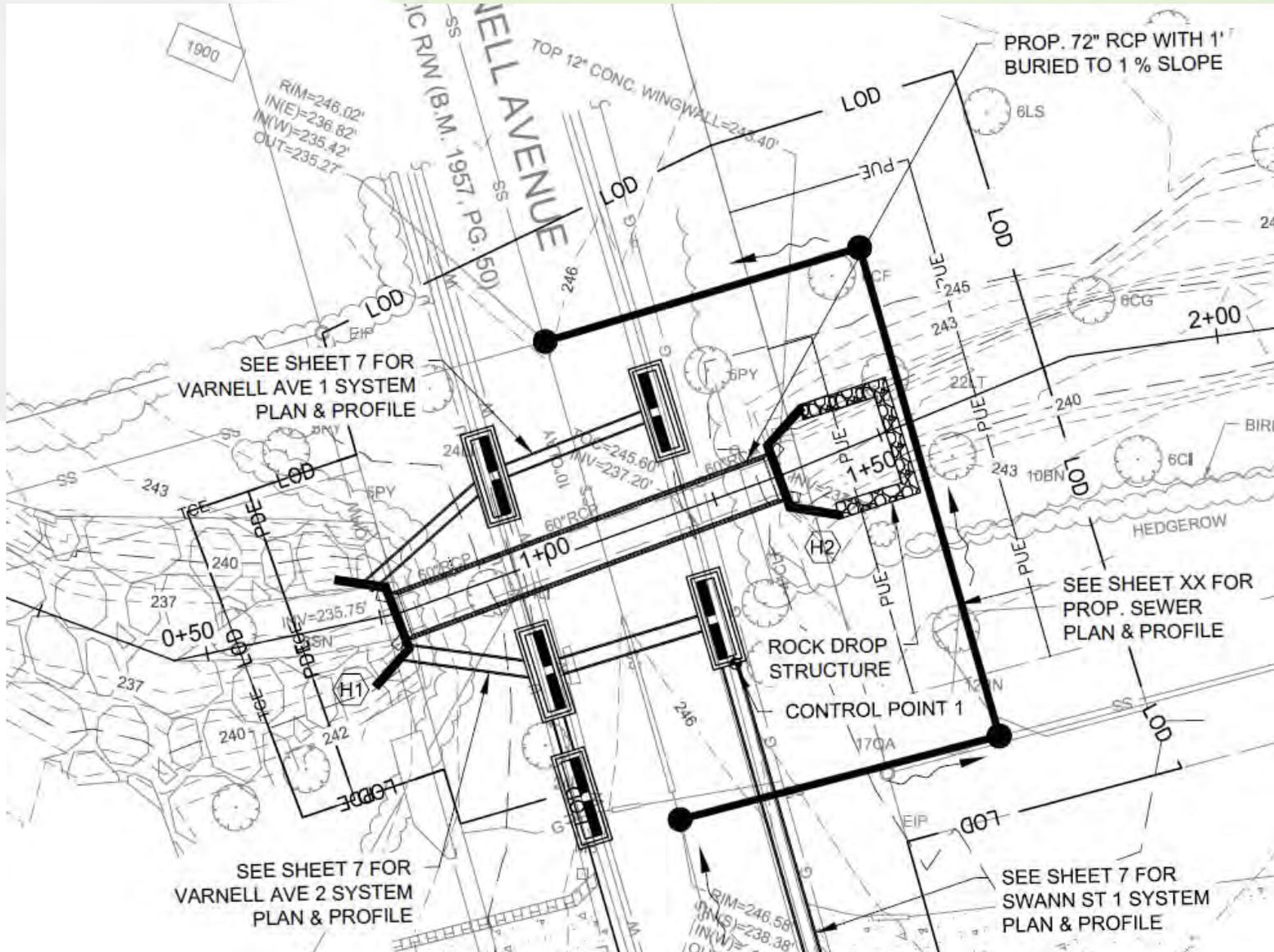
Recommended Drainage Improvements



Recommended Drainage Improvements



Varnell Avenue Upsizing (60" RCP to a 72" RCP)



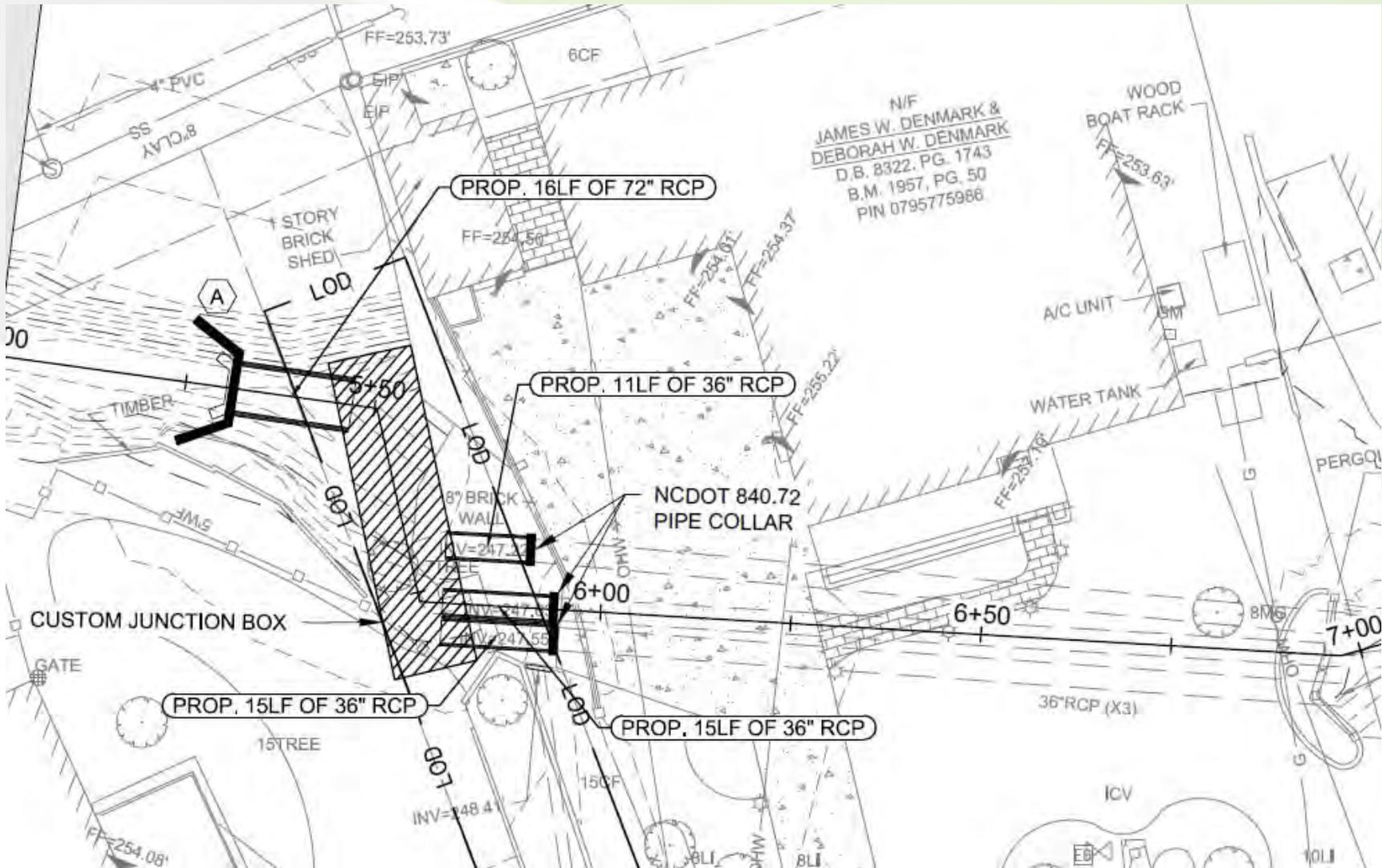
Recommended Drainage Improvements



Recommended Drainage Improvements



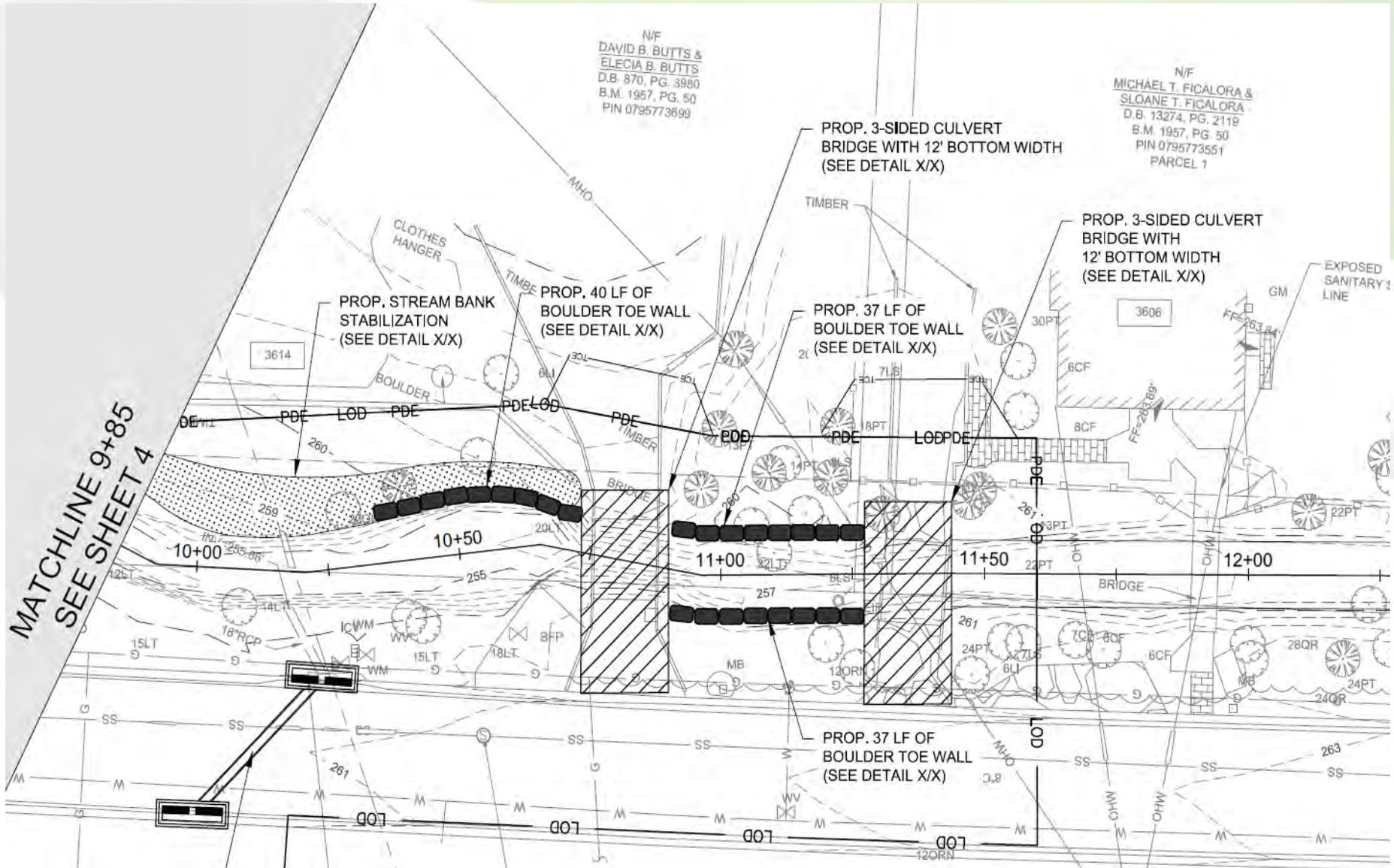
Triple 36" RCP Outfall Repairs



Recommended Drainage Improvements



3606/3614 Swann Street Driveway Bridges



Recommended Drainage Improvements



http://www.southroads.co.nz/assets/images/bridge_b.jpg



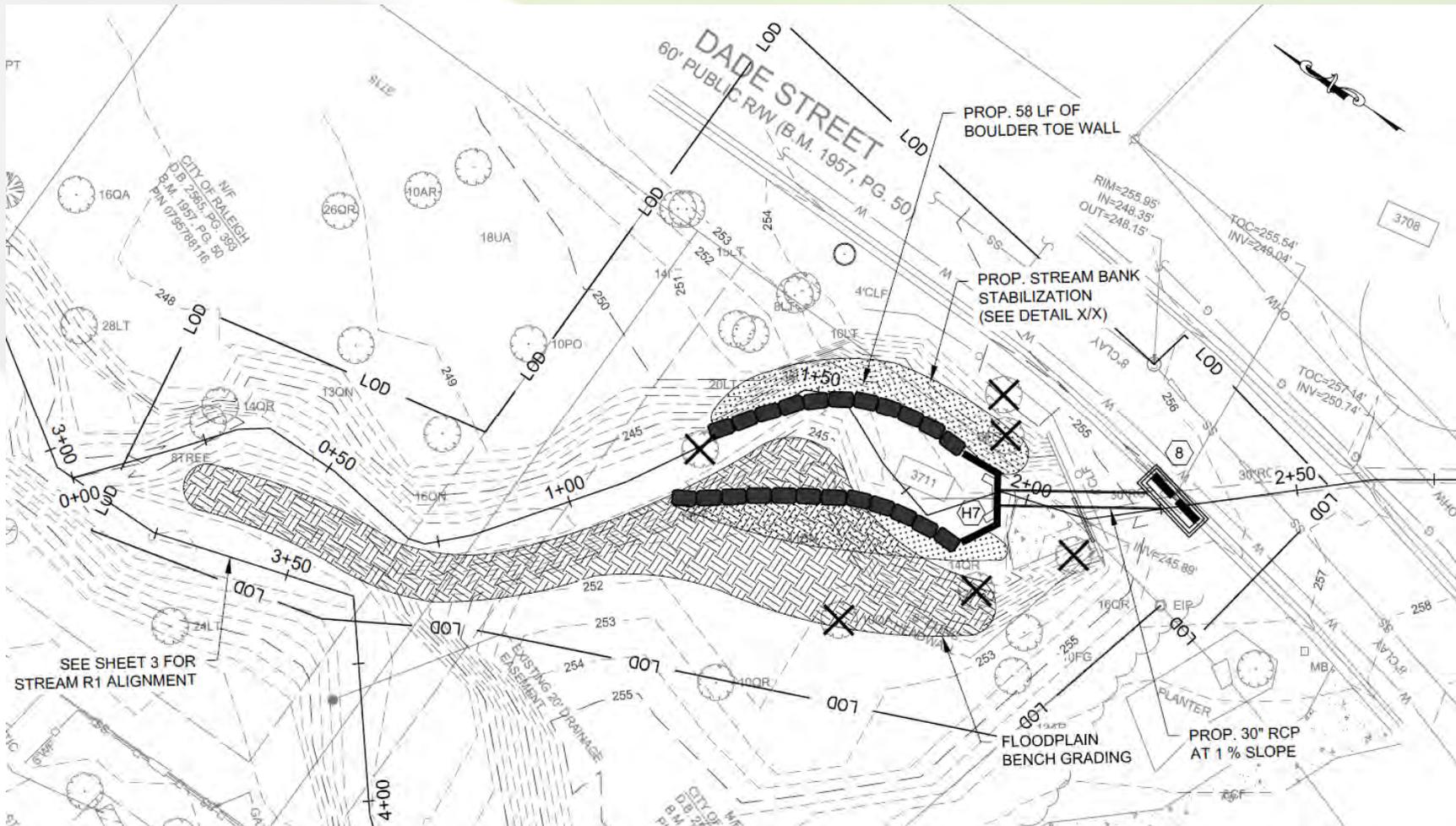
http://farm5.static.flickr.com/4104/4996264287_2f5fb875f5.jpg



Recommended Drainage Improvements



Dade Street Channel Improvements – Bid Alternate



Recommended Drainage Improvements



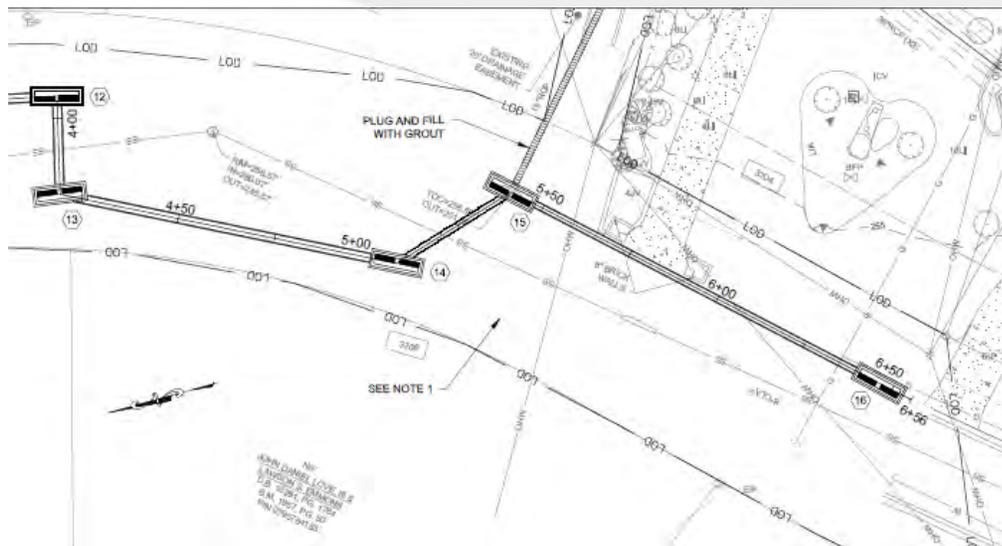
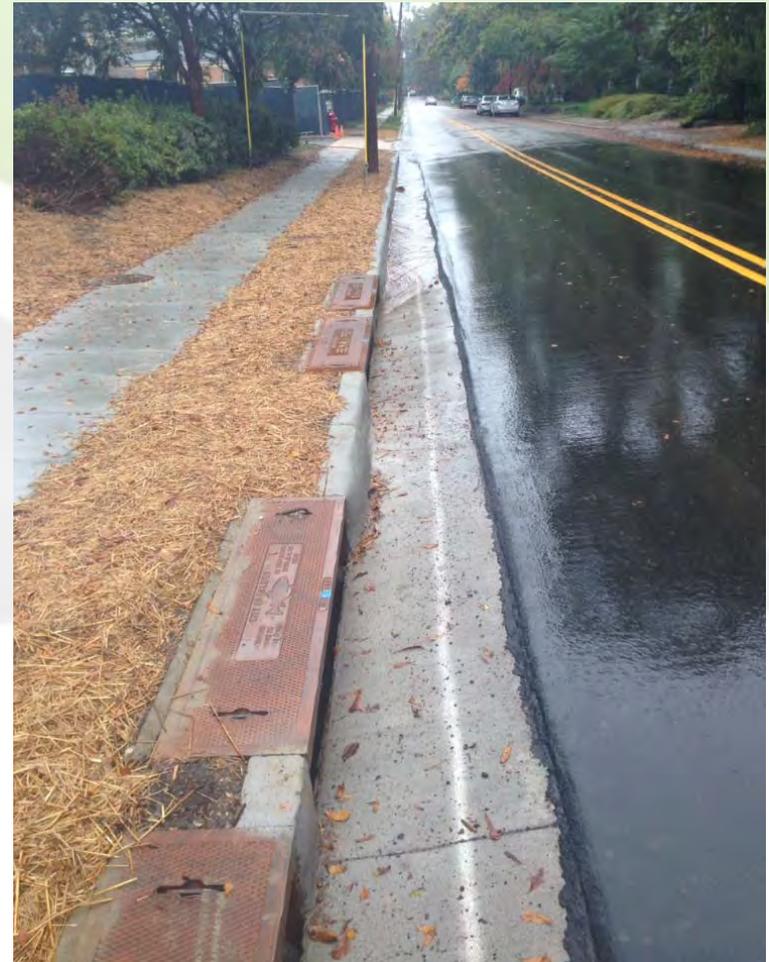
Dade Street Channel Improvements – Bid Alternate



Recommended Drainage Improvements



Optimized inlet installation



Easement Acquisition Process



Easement Definition:

Right granted from a property owner to another for a specific use of a portion of the owner's land. Utility operators (gas, electric, sewer, etc.) often have easements for the purpose of installing and maintaining their utility lines and structures. As with most utility easements, storm drainage easements are permanent and run with the land (i.e., survive any sale of the property). They generally require the property owner to give up certain rights, such as building permanent structures (additions, decks, certain types of fences, etc.) within the easement to allow for proper function of the system and unimpeded maintenance access.



- Grant Easements
- Fences
- Exemptions
- Stormwater to Facilitate

Schedule



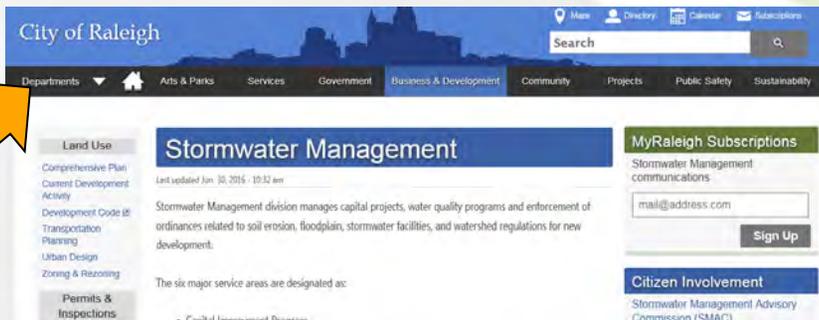
Task	Date
Contract Signed	March 1, 2016
Field Survey Collected	April 26, 2016
Draft Engineering Report Submitted to City	June 8, 2016
30% Design Plans Submitted to City	June 23, 2016
Conduct Public Meeting	July 20, 2016
Complete 70% Design Plans	February 2017
Acquire Easements	March – June 2017
Secure Environmental Permits	June 2017
Finalize Design Plans	October 2017
Relocate Private Utilities	Nov 2017 – April 2018
Prepare Project For Bid	January 2018
Council Approval of Bid	July 3, 2018
Begin Construction	August 2018

Website



City's Website:

<http://www.raleighnc.gov/>



- Choose Departments
- Choose Engineering Services

Bottom of Page Go to Projects:

- ▶ Citizen Assistance- We Are Here To Help
- ▶ Rates and Fees
- ▶ Development, Permits and Stormwater Inspections
- ▶ Projects
- ▶ Stormwater Quality

Website



Inside Projects Go to Learn More About Projects:

▼ Projects

The Stormwater Infrastructure improvement program includes the design and construction of infrastructure projects including upgrading or replacing drainage systems, improvements to existing lakes, stream restoration and water quality improvements, and planning studies.

- Capital Improvement Projects
- Water Quality Cost Share
- Drainage Assistance
- Green Infrastructure (GI) and/or Low Impact Development (LID)
- Watershed Studies

Veronica High, PE: Stormwater Infrastructure Program Manager

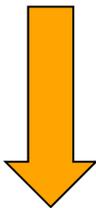
[Learn more about Projects](#)



Bottom of Page Go to CIP Projects:

▼ CIP Projects

Project	Type
Alexander Rd/McCarthy	Storm Drainage System
Audubon Drive	Storm Drainage System
Beechwood-Cypress	Storm Drainage System
Brentwood Today	Stream Stabilization
Brockton Dam	Lake & Dam Preservation
Crabtree Blvd. Culvert	Storm Drainage System



Scroll Down Until You Get to Swann Street Phase 1:

Website



City of Raleigh

Maps Directory Calendar Subscriptions

Search

Departments Arts & Parks Services Government Business & Development Community Projects Public Safety Sustainability

Land Use

- Comprehensive Plan
- Current Development Activity
- Development Code
- Transportation Planning
- Urban Design
- Zoning & Rezoning

Permits & Inspections

- Development Services Guide
- Construction Inspections
- Express Review
- Online Development Center

Business Services

- Become a City Vendor
- Bids & RFPs
- Business Assistance
- Economic Development

Development Resources

- Fee Schedule
- Forms Directory
- GIS Mapping
- Standard Detail Drawings

Swann Street Drainage Improvements Phase I

Last updated Jul. 06, 2016 - 9:40 am

Planning Design Construction Completed

Type Storm Drainage System
Budget \$300,000

Team

- Stormwater Management (Lead)
- WK Dickson



Current Activity

Topographic survey collected in March and April 2016. This data has been incorporated into modeling of primary and secondary drainage systems. Engineering consultant (WK Dickson) finalizing draft engineering evaluation including modeling, report and supporting calculations. City staff and WK Dickson conducted field meetings with property owners along Swann Street to solicit feedback with historical flooding. City staff and WK Dickson met the US Army Corps of Engineers permitting coordinator in the field to discuss options to stabilize channel banks and replace existing bridges or culverts.

Typical project design for a similar CIP project is 18-24 months. An aggressive schedule of 18 months was developed for this project and is currently being met. During this time construction documents are created along with all of the required public meetings, permitting, approvals, and easements required to release the documents for bid.

Maps & Plans

Drainage Area Map

Public Meeting Items

Public Meeting-July 20, 2016 at 6:30pm Glen Eden Neighborhood Center

Stormwater Projects

Current Projects

Departments & Divisions

Stormwater Management
Engineering Services

Contacts

David Kiker, PE

Questions??

