

# CHATHAM STORM DRAINAGE IMPROVEMENT PROJECT

PUBLIC MEETING

RECOMMENDED DESIGN ALTERNATIVE

TUESDAY, OCTOBER 29, 2019

## INTRODUCTION

### Storm Water Services

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### Engineering Consultant

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**THE ISAACS** GROUP  
CIVIL ENGINEERING DESIGN & LAND SURVEYING

## HOUSEKEEPING

- Thank you for coming, please make sure to sign the sign-in sheet
- Please take hand outs and business cards and fill out a customer service card
- We will go over the Chatham SDIP and talk about the the proposed improvements
- General Question and Answer period after presentation
- Please hold questions about your specific property until the breakout sessions
- If we are unable to answer your question tonight, please make sure we have your contact information so we can get back to you
- You can email any questions to Matthew Anderson ([MAnderson@CharlotteNC.gov](mailto:MAnderson@CharlotteNC.gov))

## MEETING PURPOSE

- Provide a summary of Charlotte-Mecklenburg Storm Water Services
- Provide a summary of the Chatham SDIP Existing Conditions
- Provide a summary of the Chatham SDIP Alternative Analysis
- Provide a summary of the Chatham SDIP Recommended Design Alternative Improvements





## AGENDA

- Charlotte-Mecklenburg Storm Water Services Summary
- Project Progress Summary
- Existing Conditions Analysis Summary
- Alternative Analysis Summary
- Recommended Design Alternative Summary
- Path Forward
- Questions and Comments
- Small Group Break-out Discussions



## Charlotte-Mecklenburg Storm Water Services Summary

1993 - Charlotte obtained and began to comply with a NPDES Phase I permit. Charlotte established a storm water utility with a fee structure to fund National Pollutant Discharge Eliminating System (NPDES) required measures and to address drainage issues.

*What the program includes:*

- Water Quality
- Maintenance
- **Capital Improvements**
- Education



## Chatham Storm Drainage Improvement Project Summary



- Requests for Service from Property Owners
- Inadequate/Undersized Infrastructure
- Channel Erosion
- Road Flooding
- Structure Flooding (Houses, Buildings, Sheds, etc.)
- Larger watershed-wide issues that cannot be managed by spot repairs or without potentially impacting downstream properties
- Storm Water Services determined issues needed to be addressed

## PLANNING PHASE

- Survey, Public Input & Questionnaires
  - Questionnaires issued Spring 2012
  - Survey Completed Summer 2012
  - Requests for Service have been on-going
- Existing Conditions Analysis
  - Initially Completed Summer 2014
  - Revised by The Isaacs Group in April 2016
  - Public Meeting held July 2014
- City Design Standard Alternative
  - Initially Completed Spring 2015/Revised by The Isaacs Group in July 2016
- Restructured City Design Standard Alternative
  - Completed by The Isaacs Group in March 2017



## PLANNING PHASE (Cont'd)

- Alternative Analysis
  - Completed by The Isaacs Group in June 2018
- Recommended Design Alternative
  - Completed by The Isaacs Group in September 2019
  - Public Meeting – Today – October 29, 2019





## EVALUATING ALTERNATIVES

### Types of Alternatives Considered

- Replacement of failing pipes
- Different culvert and pipe sizes
- Different culvert/pipe shapes and materials
- Environmental considerations
- Additional pipes and inlets
- New alignments
- Detaining water to reduce flow
- Stream stabilization
- Changing stream profiles

## EVALUATING ALTERNATIVES

Coming up with the “BEST” solutions

### PUBLIC SAFETY

IMPACTS



COST

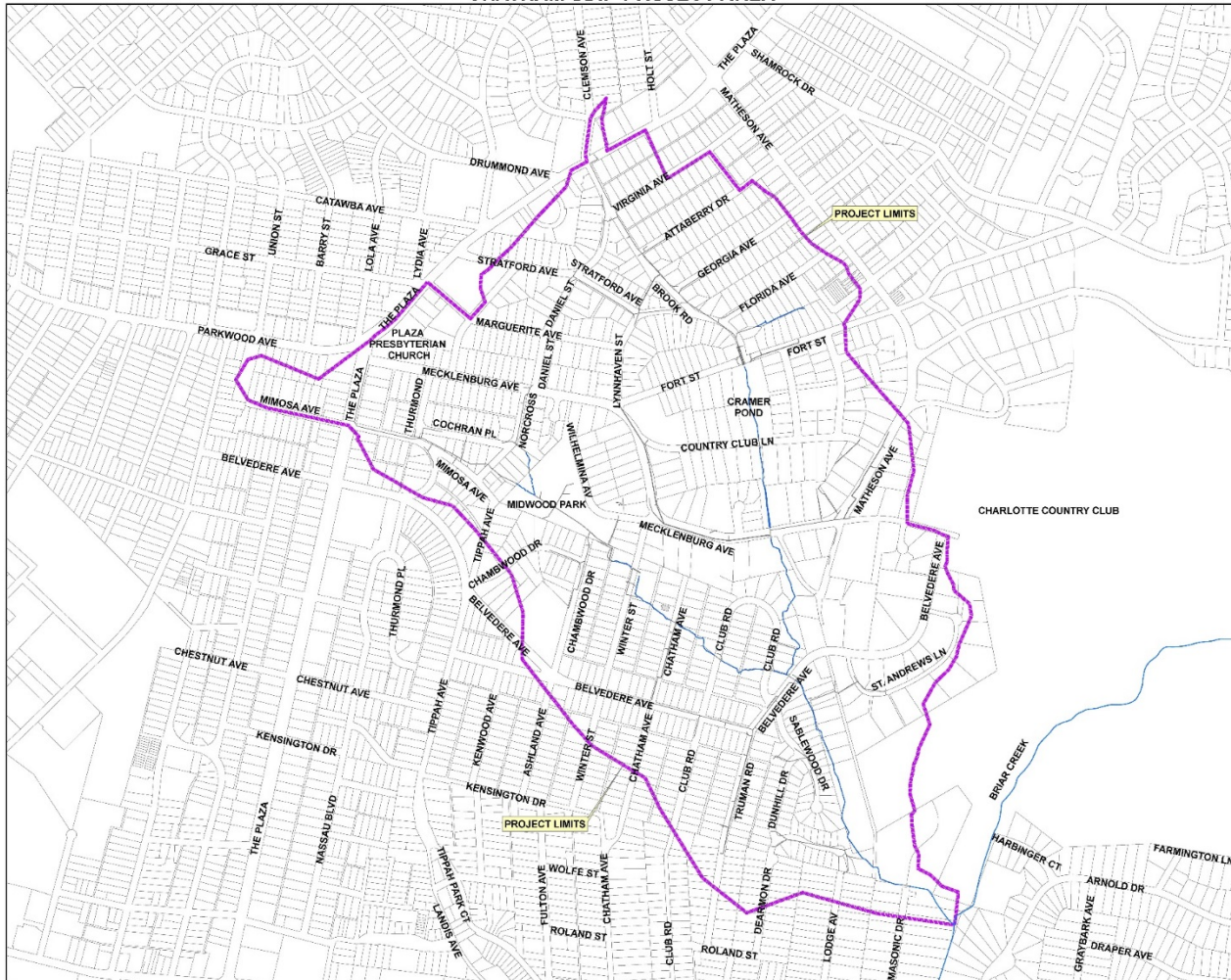
### PROJECT CONSTRAINTS

Technically Feasible

Constructible

Accepted by Federal and State Agencies

# CHATHAM SDIP-PROJECT AREA





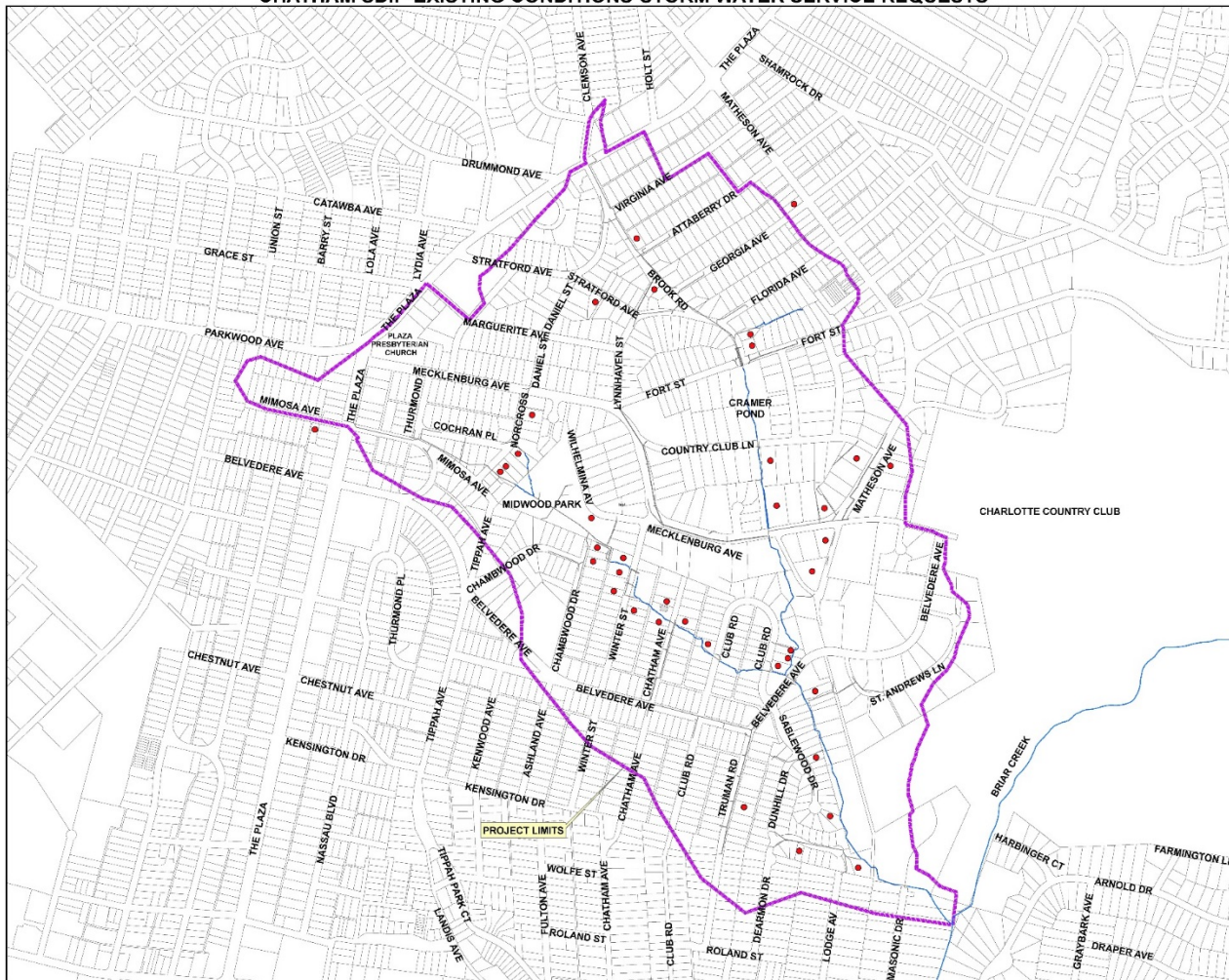




# CHATHAM SDIP SURVEY



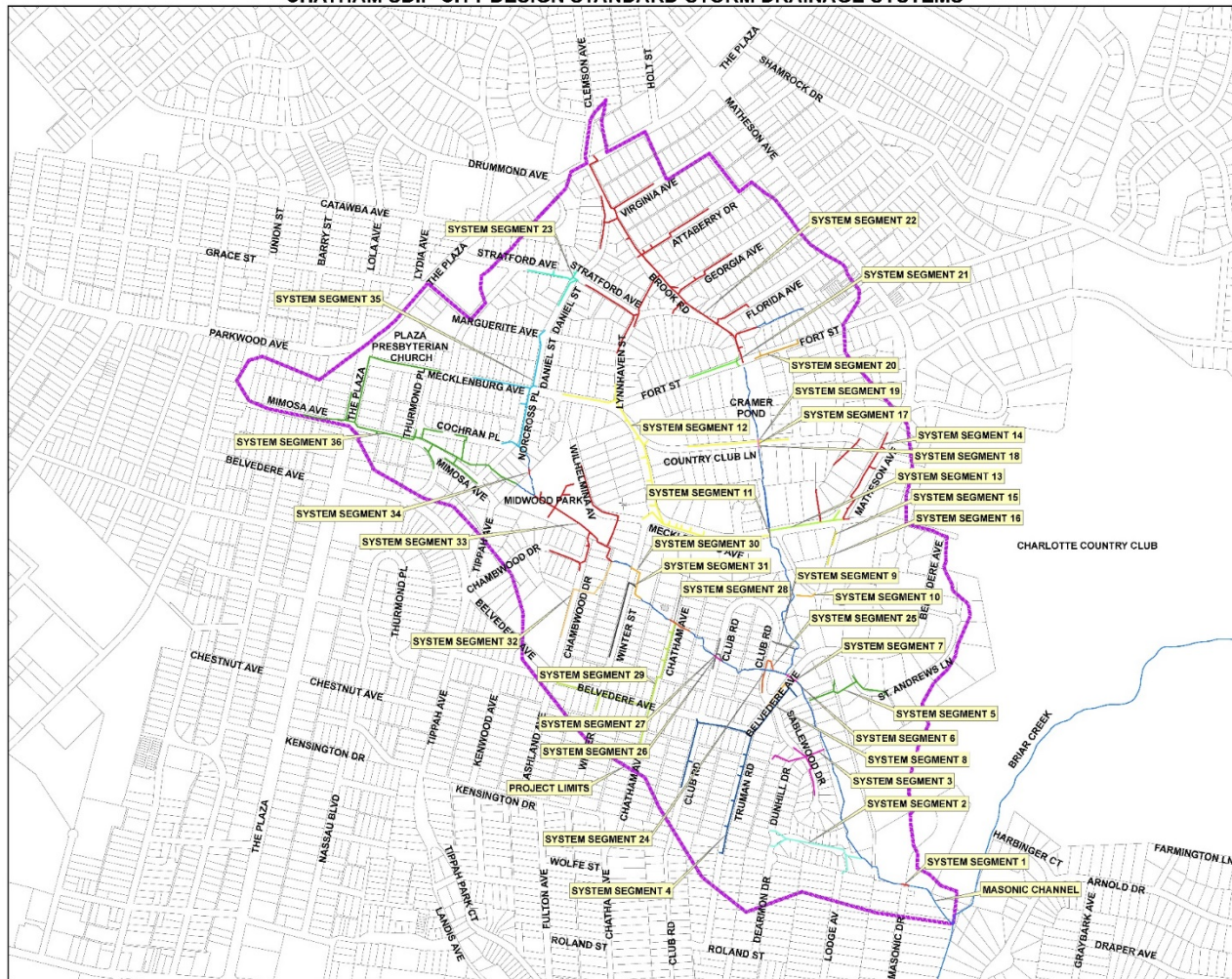
# CHATHAM SDIP-EXISTING CONDITIONS-STORM WATER SERVICE REQUESTS







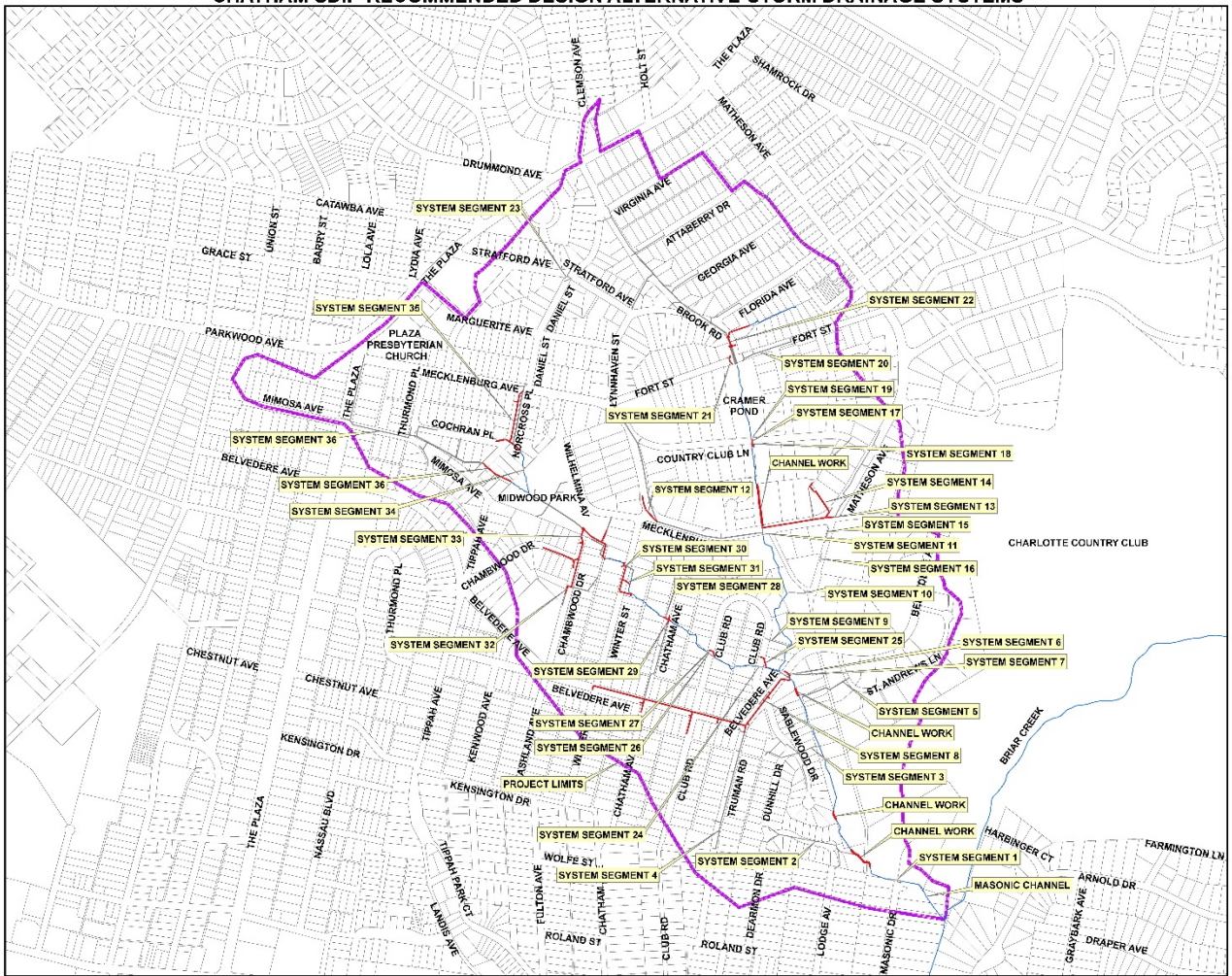
# CHATHAM SDIP-CITY DESIGN STANDARD-STORM DRAINAGE SYSTEMS







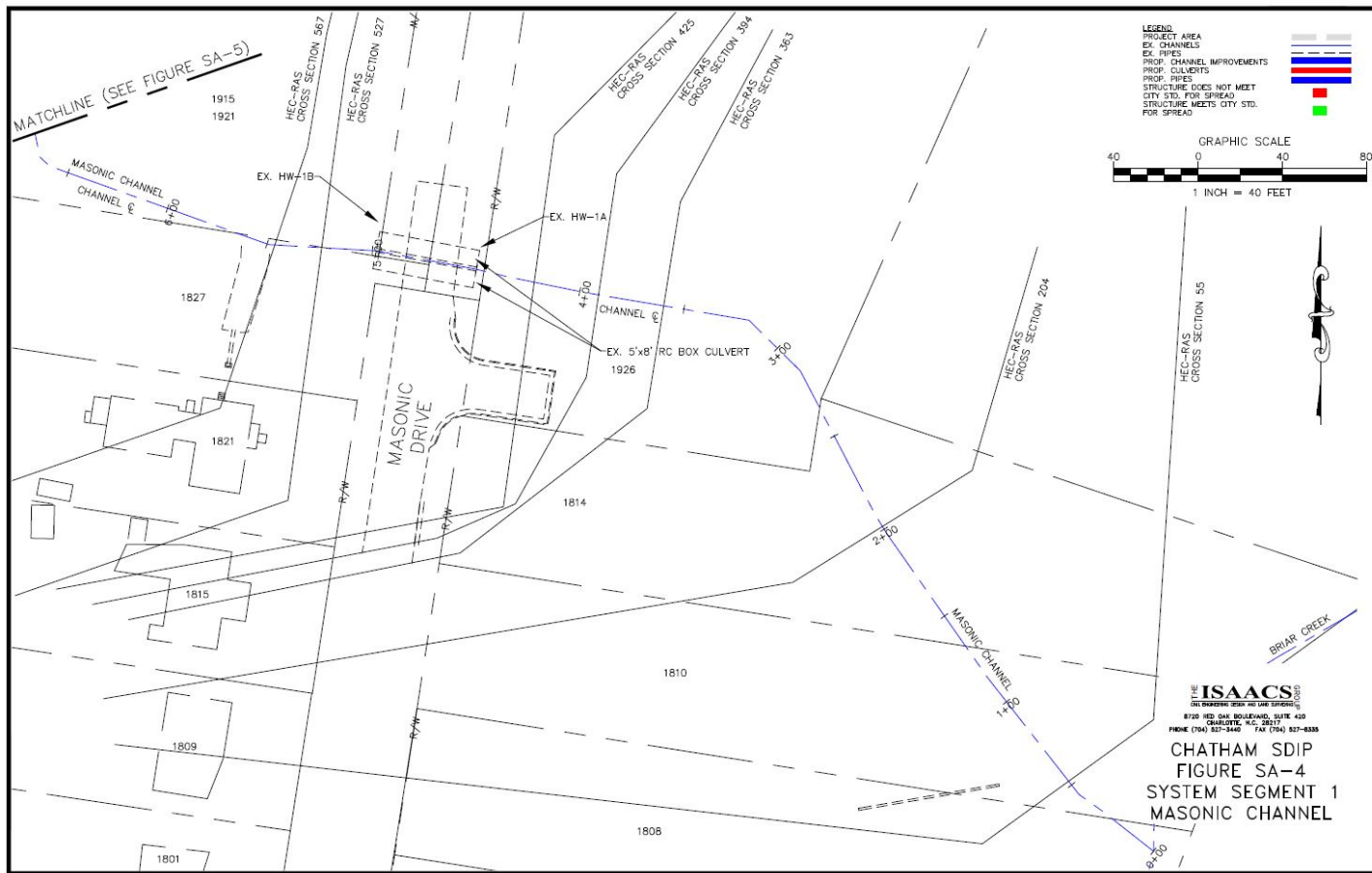
# CHATHAM SDIP-RECOMMENDED ALTERNATIVE STORM DRAINAGE SYSTEMS



- EXISTING PIPE/CULVERTS
- PROPOSED PIPE/CULVERT IMPROVEMENTS
- EXISTING CREEK/SIOPEN CHANNELS
- PROPOSED CREEK/SIOPEN CHANNEL IMPROVEMENTS





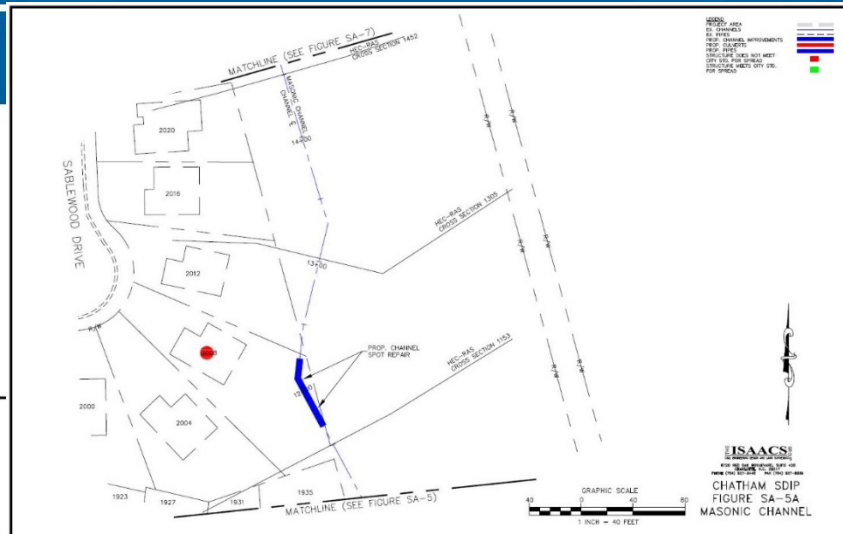


## MASONIC DRIVE CULVERT – SYSTEM SEGMENT 1

- EXISTING DUAL 8'X5' RCBC
- CULVERT NOT OVERTOPPED IN 25 YEAR STORM
- EXISTING CONDITIONS W/ ATTN.
- WITH UPSTREAM PROPOSED IMPROVEMENTS “NO WORSE”







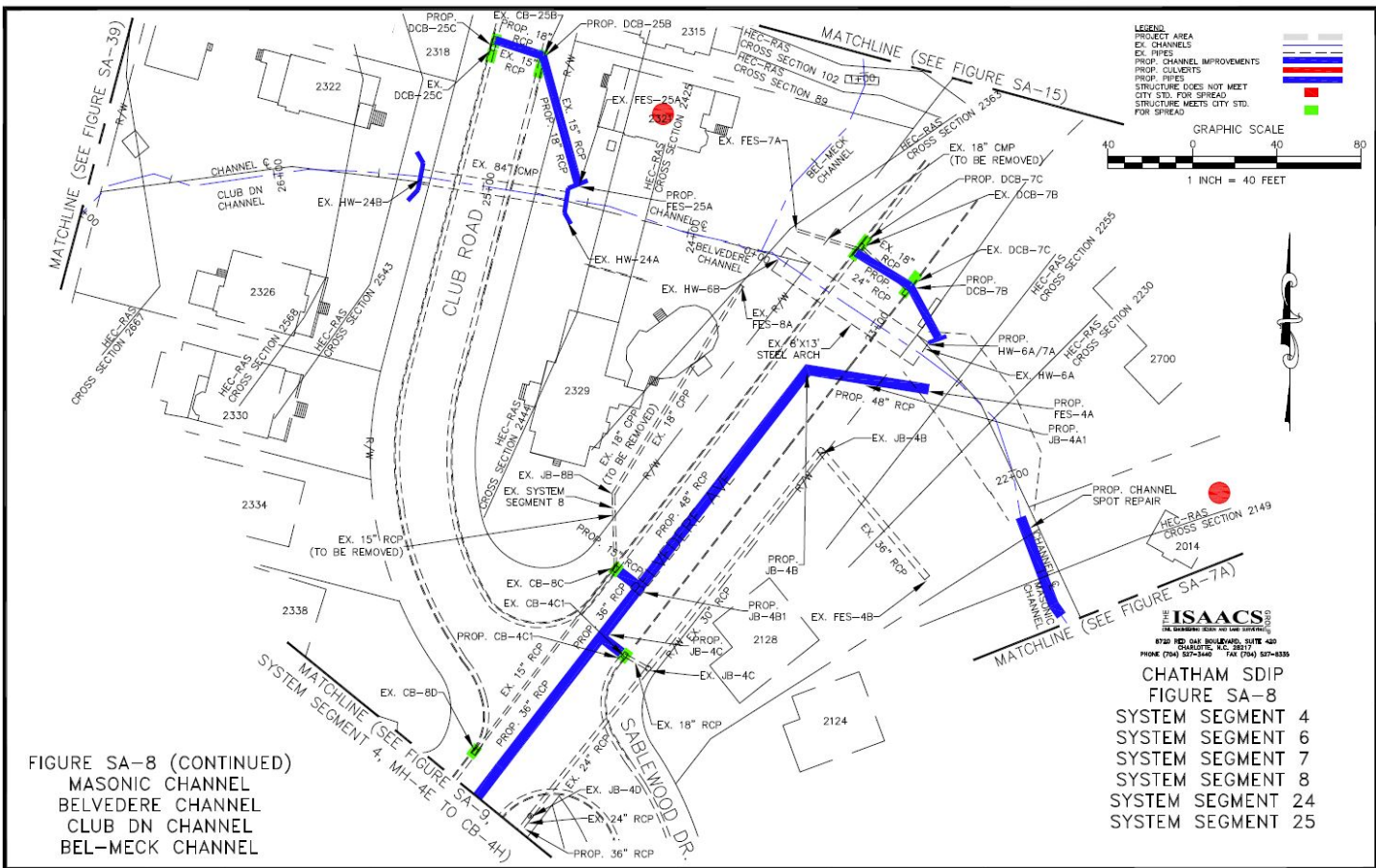
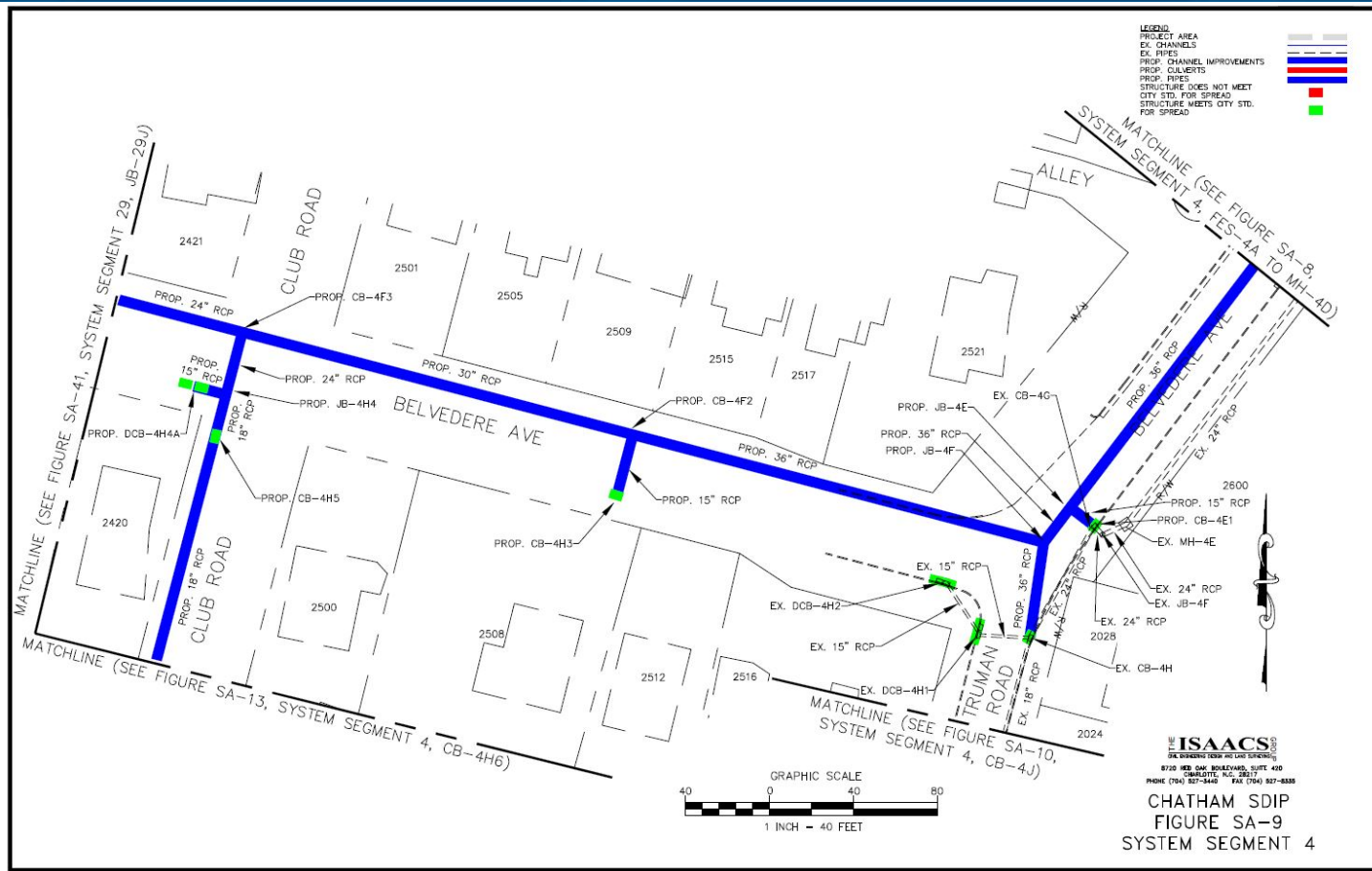


FIGURE SA-8 (CONTINUED)  
 MASONIC CHANNEL  
 BELVEDERE CHANNEL  
 CLUB DN CHANNEL  
 BEL-MECK CHANNEL

## BELVEDERE AVE CULVERT – SYSTEM SEGMENT 6

- MAINTAINS EXISTING 13'X8' STEEL ARCH CULVERT
- ENDWALL REPLACEMENT – UP AND DOWNSTREAM

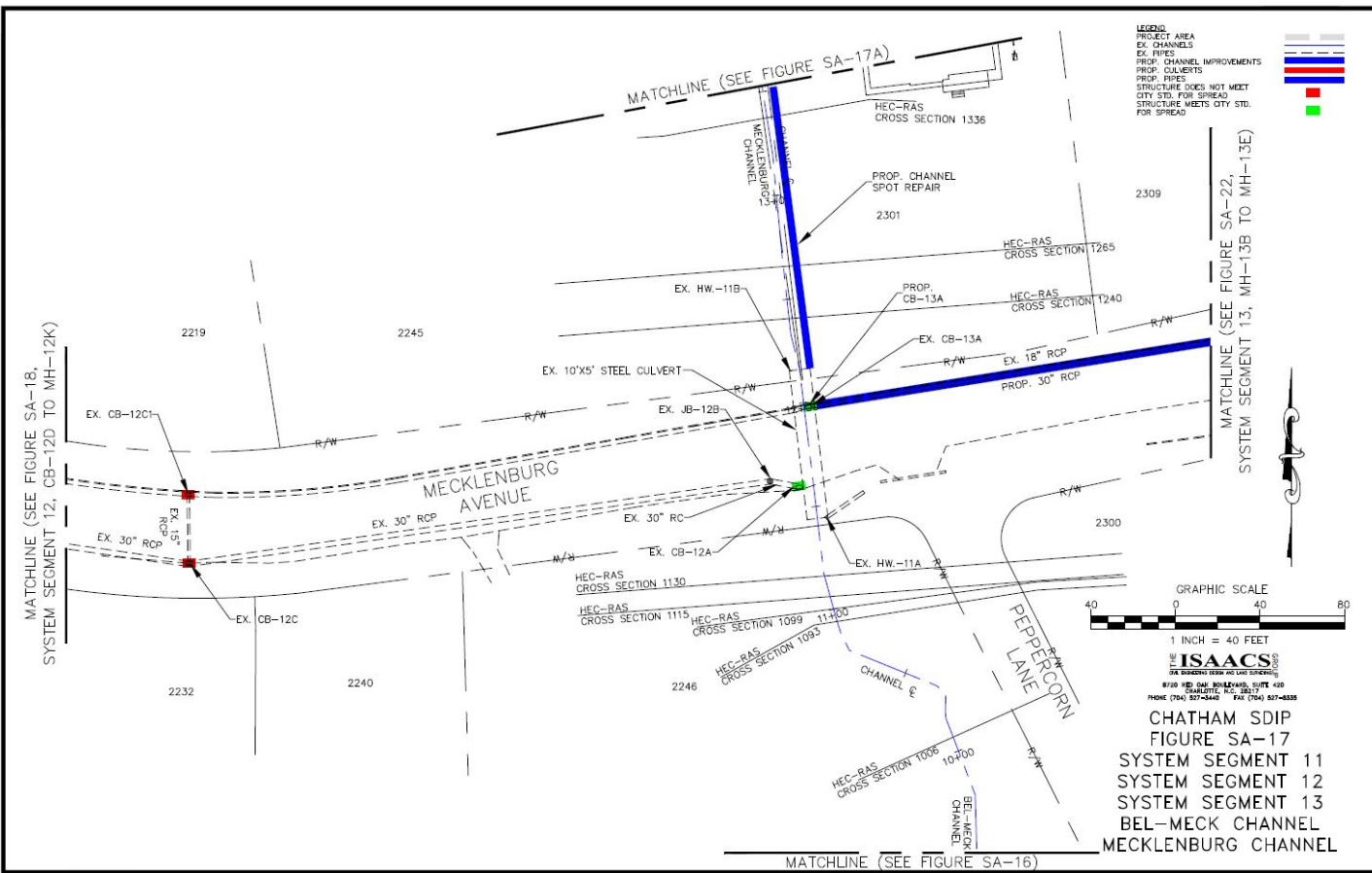




## BELVEDERE AVE - SYSTEM SEGMENT 4

- SYSTEM RE-ALIGNMENT AVOID UTILITIES
- SYSTEM SEGMENT 29 TIED TO SYSTEM SEGMENT 4
- DIVERTS FLOW OFF OF CHATHAM CHANNEL
- HELPS MAINTAIN EXISTING CULVERTS AT CLUB RD AND BELVEDERE AVE

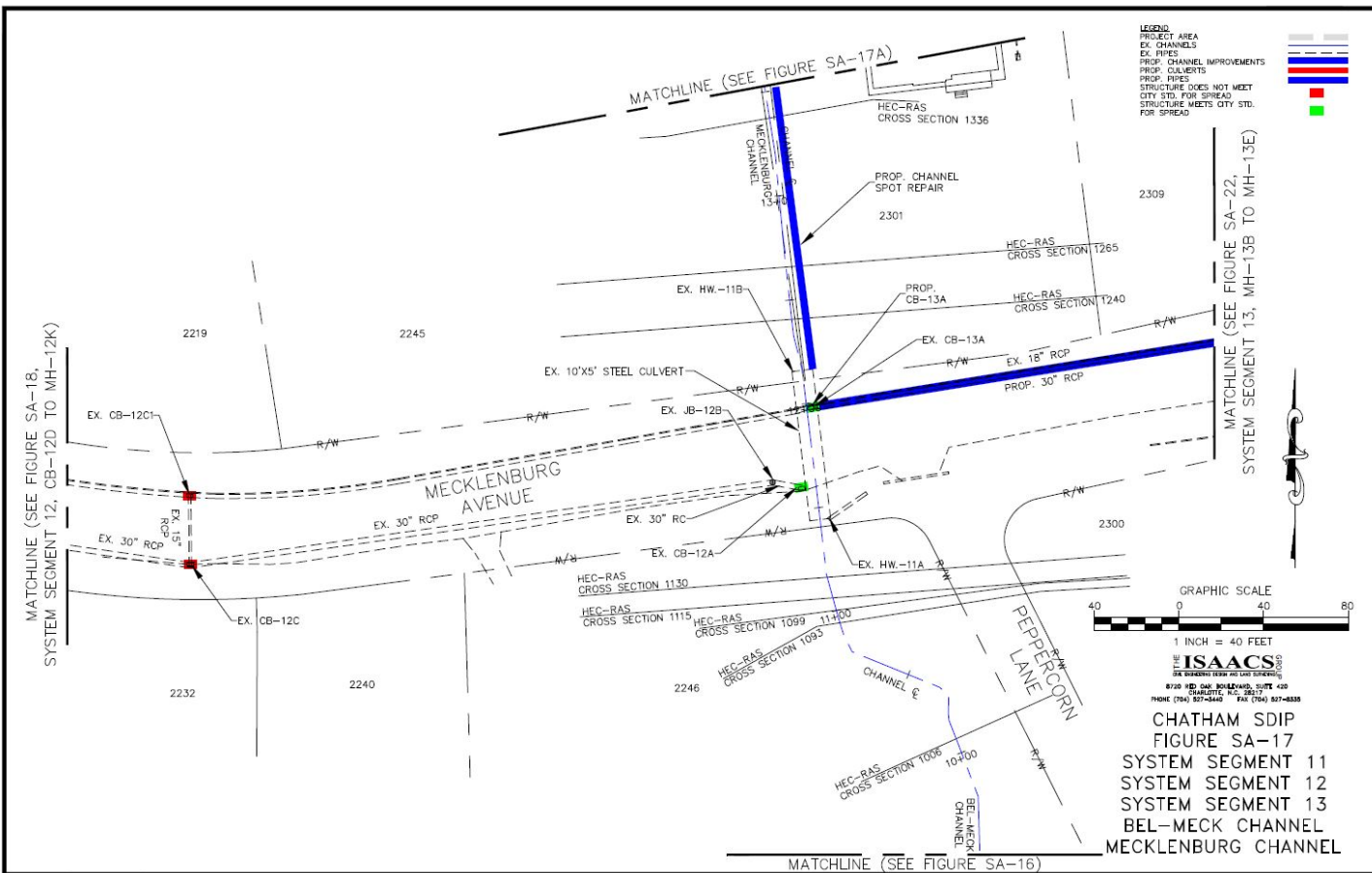




## MECKLENBURG CHANNEL

- PROPOSED CHANNEL WORK AT 2301 MECKLENBURG AVE TO ADDRESS EROSION

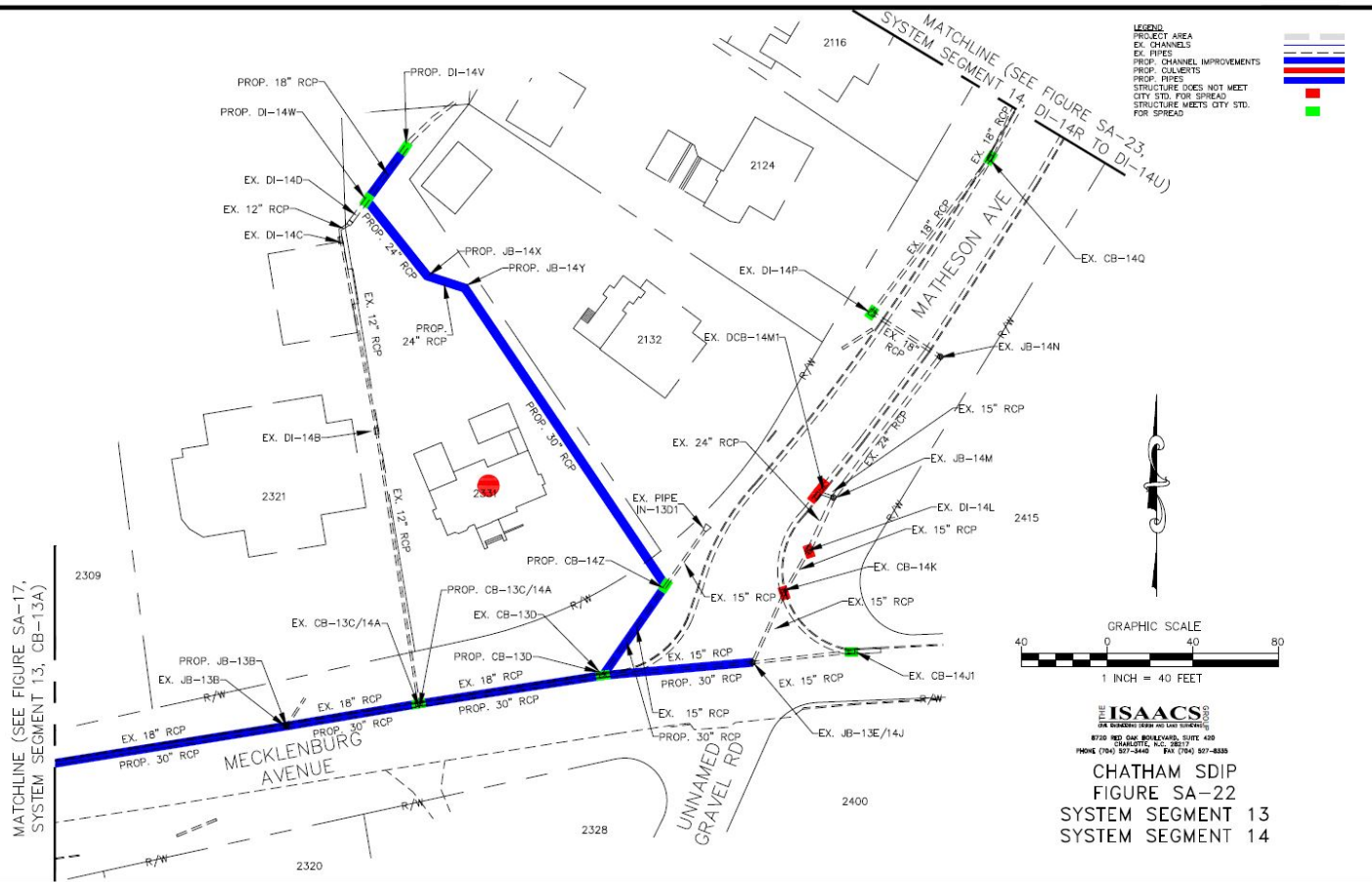




## MECKLENBURG AVE CULVERT – SYSTEM SEGMENT 11

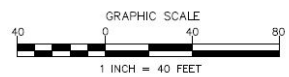
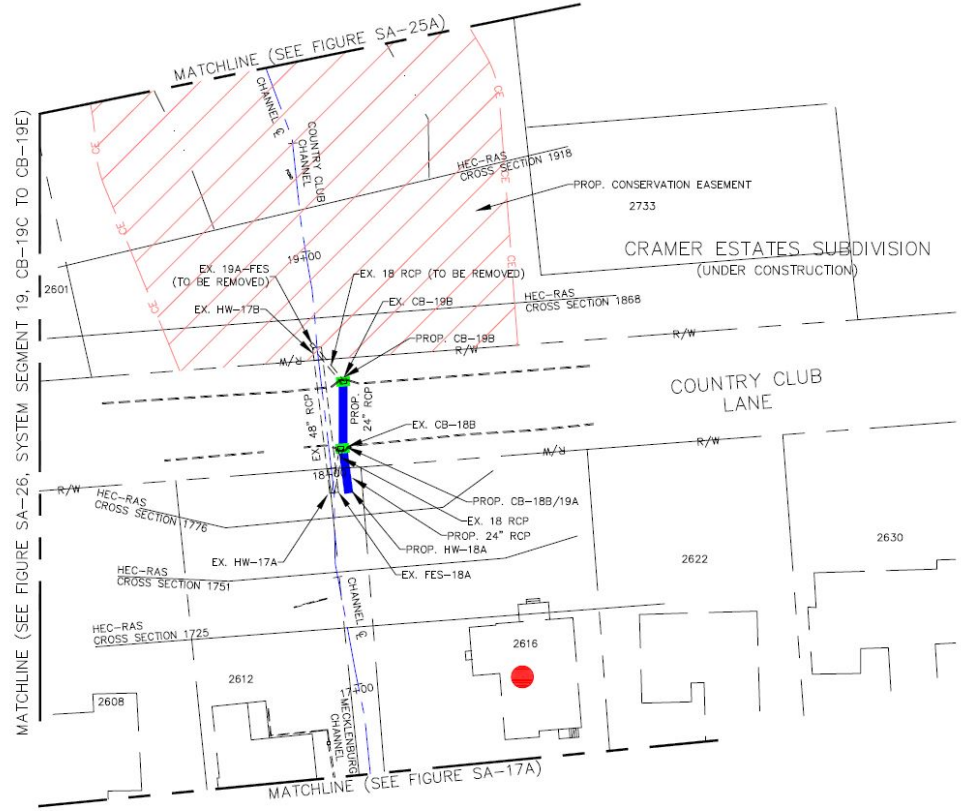
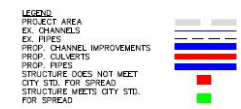
- MAINTAINS EXISTING STEEL ELLIPTICAL 10'X5' CULVERT





## SYSTEM SEGMENTS 13 & 14 AT MECKLENBURG AVE AND MATHESON AVE

- PROPOSED SYSTEM AT 2331 MECKLENBURG AVE
- UPSIZING SYSTEM SEGMENT 13 ALONG MECKLENBURG AVE

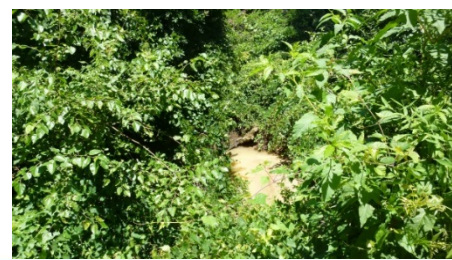


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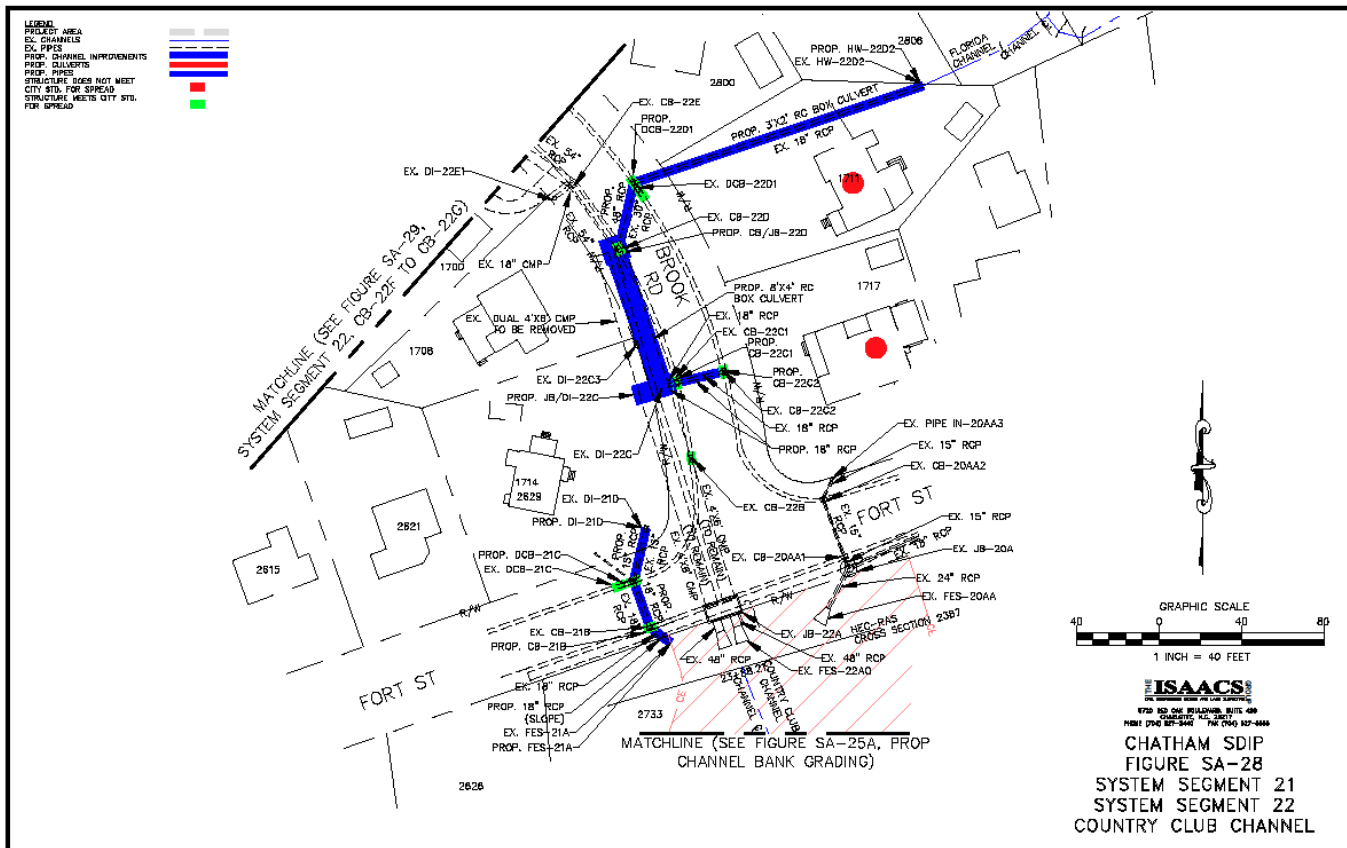
**CHATHAM SDIP**  
**FIGURE SA-25**  
 SYSTEM SEGMENT 17  
 SYSTEM SEGMENT 18  
 SYSTEM SEGMENT 19  
 MECKLENBURG CHANNEL  
 COUNTRY CLUB CHANNEL

## COUNTRY CLUB LANE CULVERT – SYSTEM SEGMENT 17

- MAINTAINS EXISTING 48” RCP
- POND ATTENUATION BASED ON CRAMER ESTATES SUBDIVISION DESIGN
- HELPS REDUCE FLOW AND MAINTAIN EXISTING CULVERT







## BROOK ROAD - SYSTEM SEGMENT 22

- EXISTING DUAL 48" OUTLET PIPES, JB, AND DUAL 4'X6' CMPs MAINTAINED
- AVOIDS PERMITTING AT CRAMER POND
- IMPROVEMENTS START AT JB/DI 22C REDUCING IMPACTS AT BROOK ROAD
- SYSTEM UPSIZED TO MEET REDUCED CITY STANDARDS





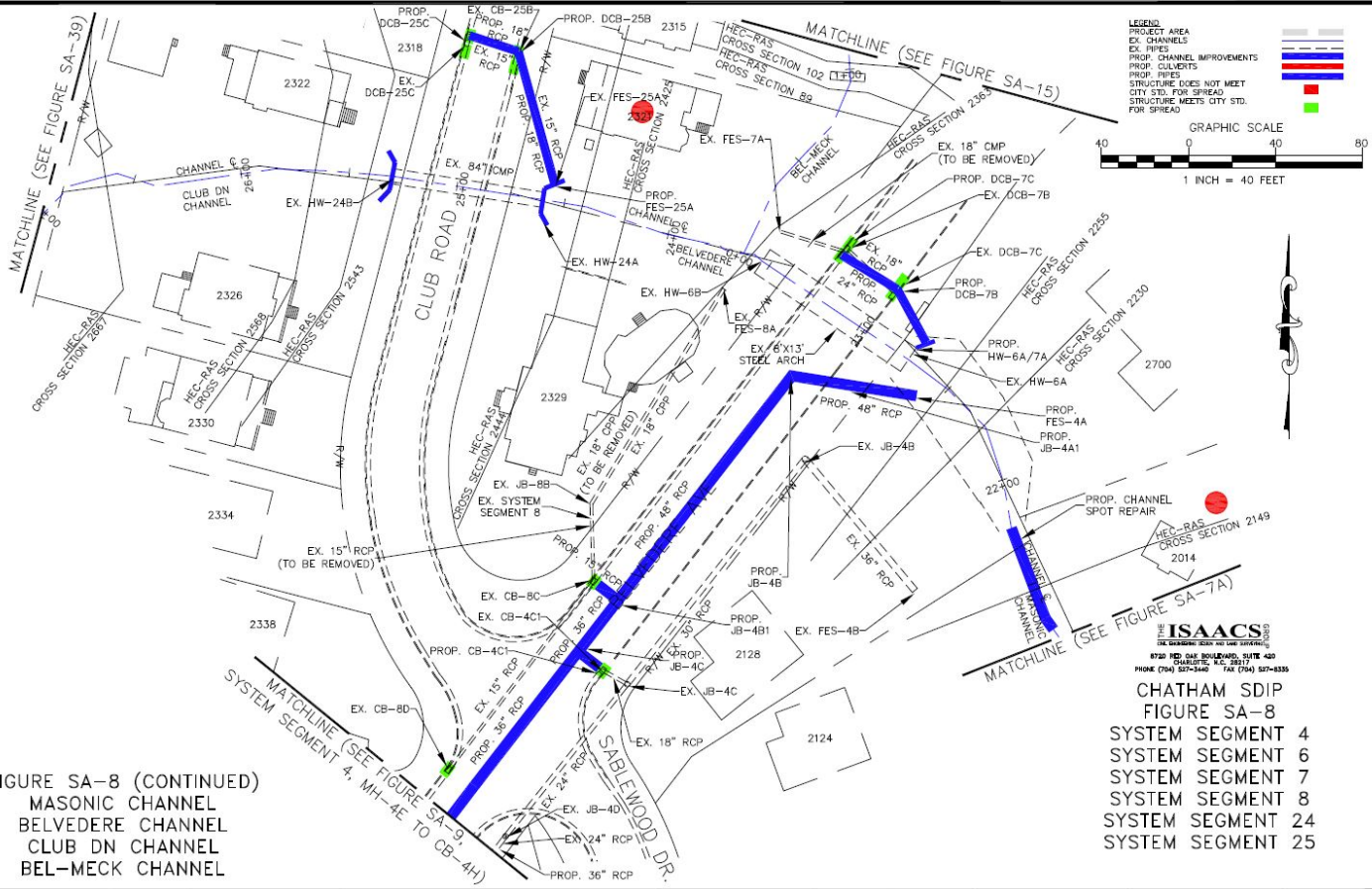


FIGURE SA-8 (CONTINUED)  
 MASONIC CHANNEL  
 BELVEDERE CHANNEL  
 CLUB DN CHANNEL  
 BEL-MECK CHANNEL

**LEGEND**

- PROJECT AREA
- EX. CHANNELS
- EX. PIPES
- PROP. CHANNEL IMPROVEMENTS
- PROP. CULVERTS
- PROP. PIPES
- STRUCTURE DOES NOT MEET CITY STD. FOR SPREAD
- STRUCTURE MEETS CITY STD. FOR SPREAD

**GRAPHIC SCALE**  
 1 INCH = 40 FEET

### CLUB ROAD DN CULVERT – SYSTEM SEGMENT 24

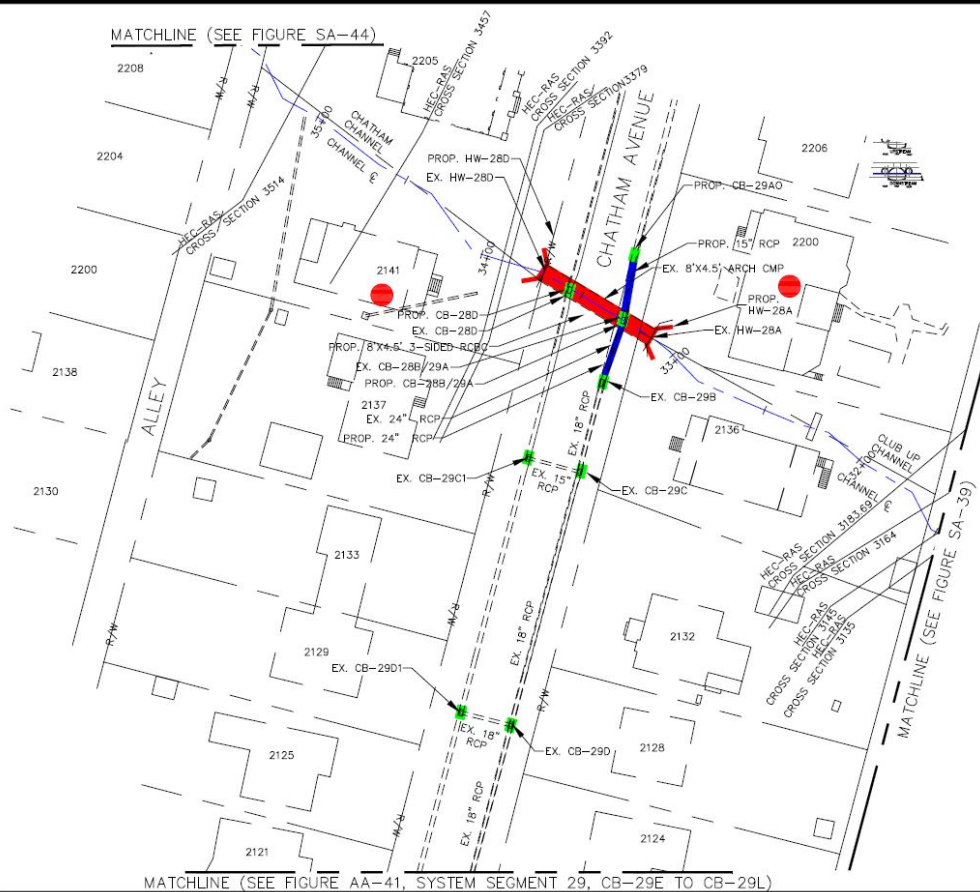
- MAINTAINS EXISTING 84" CMP
- BELVEDERE DIVERSION AND POND ATTENUATION HELPS MAINTAIN CULVERT FUNCTION

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CHATHAM SDIP  
 FIGURE SA-8  
 SYSTEM SEGMENT 4  
 SYSTEM SEGMENT 6  
 SYSTEM SEGMENT 7  
 SYSTEM SEGMENT 8  
 SYSTEM SEGMENT 24  
 SYSTEM SEGMENT 25








**LEGEND**

- PROJECT AREA
- EX. CHANNELS
- EX. PIPES
- PROP. CHANNEL IMPROVEMENTS
- PROP. CULVERTS
- PROP. PIPES
- STRUCTURE DOES NOT MEET CITY STD. FOR SPREAD
- STRUCTURE MEETS CITY STD. FOR SPREAD




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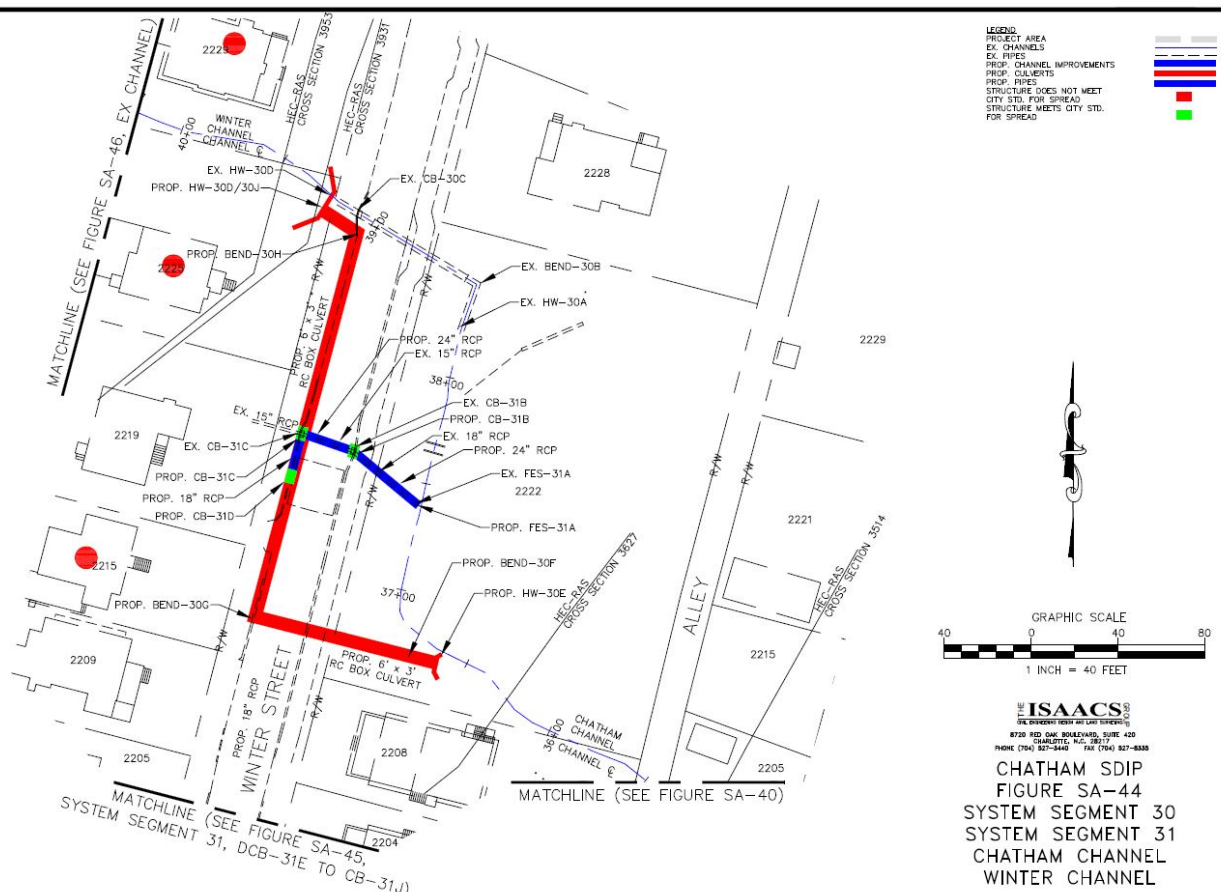
CHATHAM SDIP  
FIGURE SA-40  
SYSTEM SEGMENT 28  
SYSTEM SEGMENT 29  
CLUB UP CHANNEL  
CHATHAM CHANNEL

## CHATHAM AVE CULVERT – SYSTEM SEGMENT 28

- REPLACED W/ 8'X4.5 3-SIDED RCBC
- BELVEDERE FLOW DIVERSION HELPED REDUCE RCBC SIZE
- SYSTEM SEGMENT 29 ON CHATHAM AVE TIED TO SYSTEM SEGMENT 28



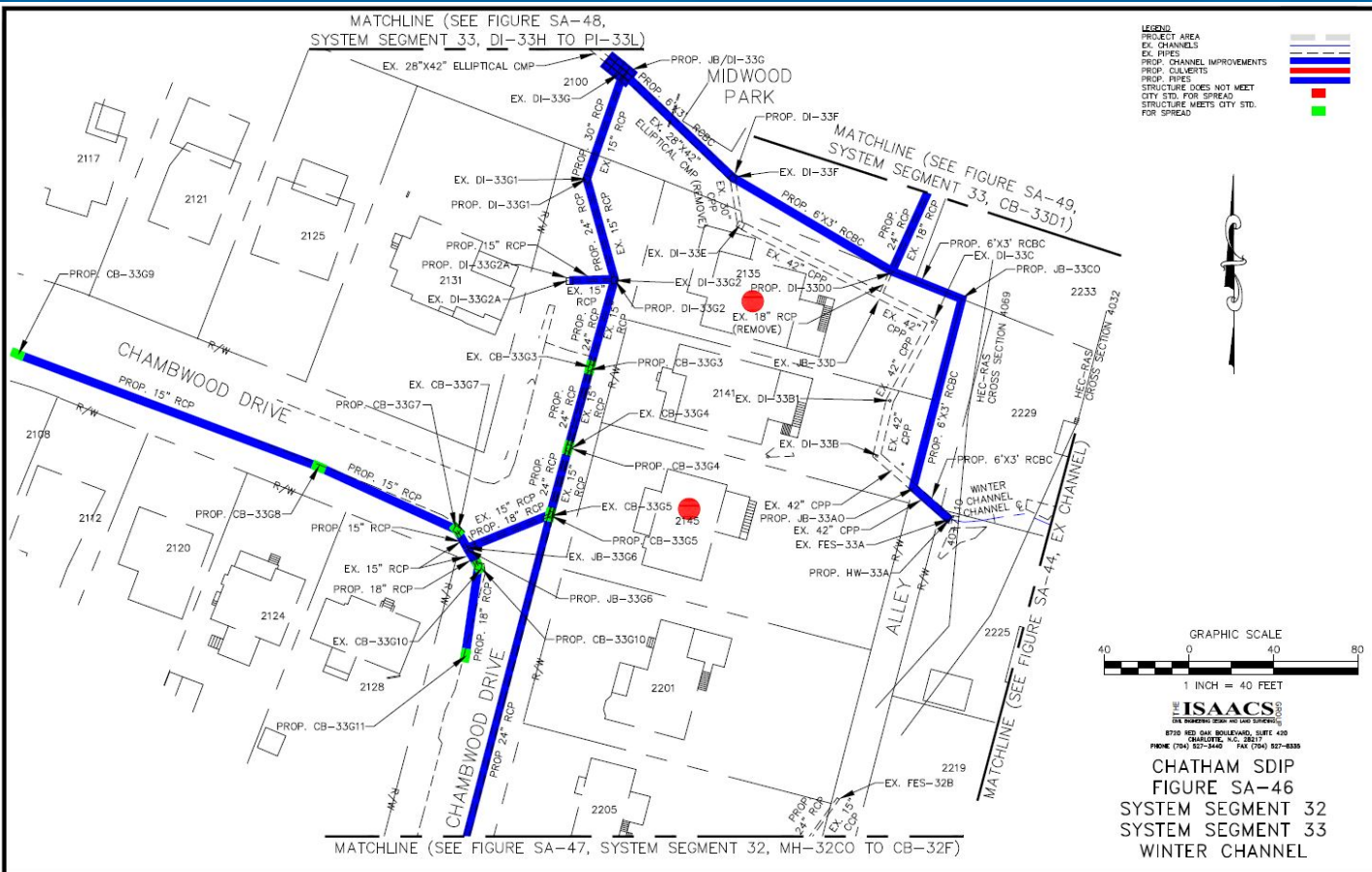




## WINTER STREET CULVERT – SYSTEM SEGMENT 30

- MAINTAINS EXISTING 36" RCP
- SUPPLEMENTED WITH 6'X3' RCBC BYPASS SYSTEM
- HOUSE AT 2222 WINTER STREET HELPED BY THIS





## MIDWOOD PARK – SYSTEM SEGMENT 32 & 33

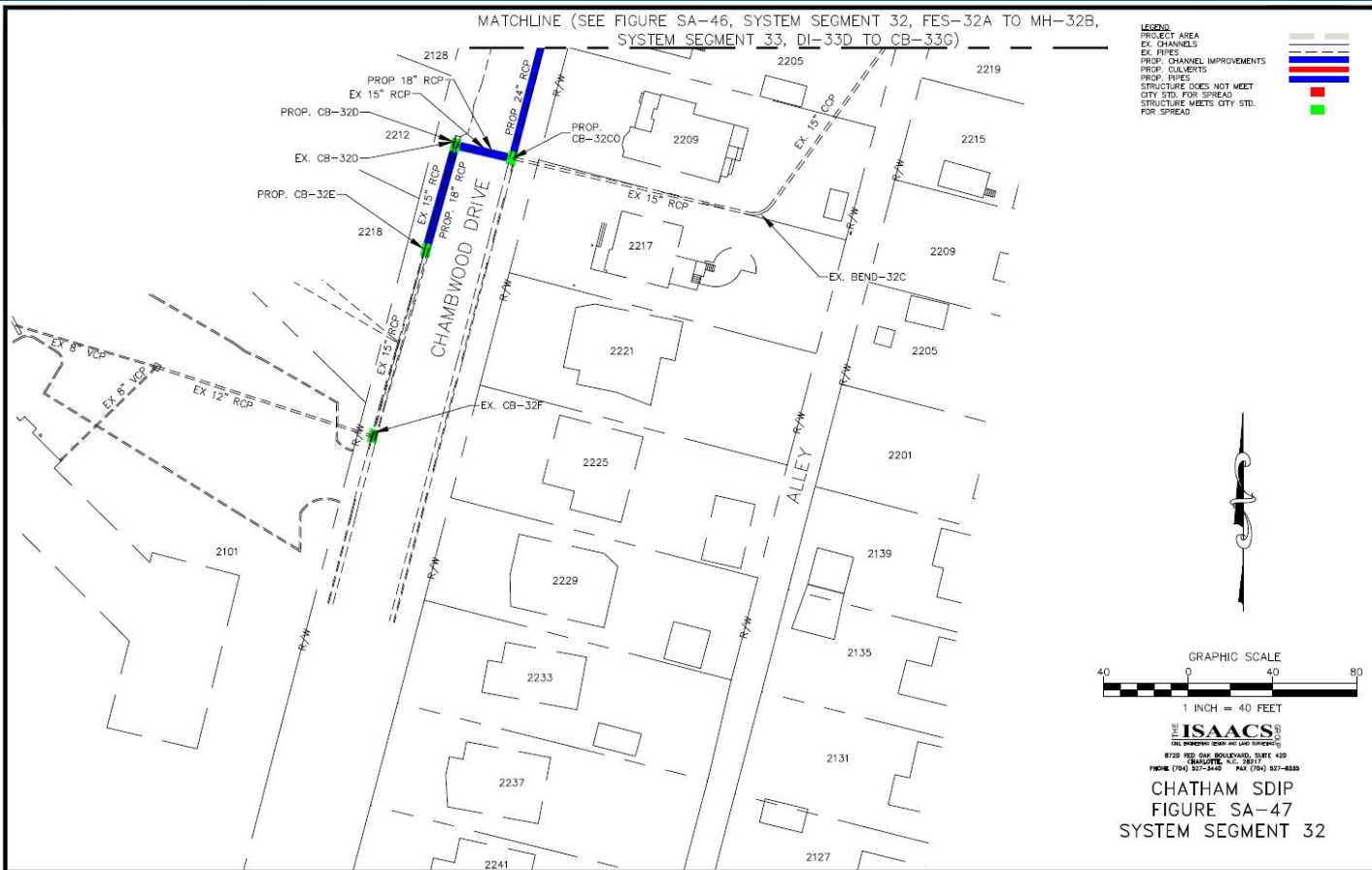
- SYSTEM SEGMENT 32 TIED TO SYSTEM SEGMENT 33 ON CHAMBWOOD DRIVE
- PLACES SYSTEM COMPLETELY IN RIGHT-OF-WAY
- SYSTEM SEGMENT 33 RE-ALIGNED TO AVOID 2135 CHAMBWOOD DRIVE
- EXISTING SYSTEM AT 2135 CHAMBWOOD DRIVE MAINTAINED FOR LOCAL DRAINAGE





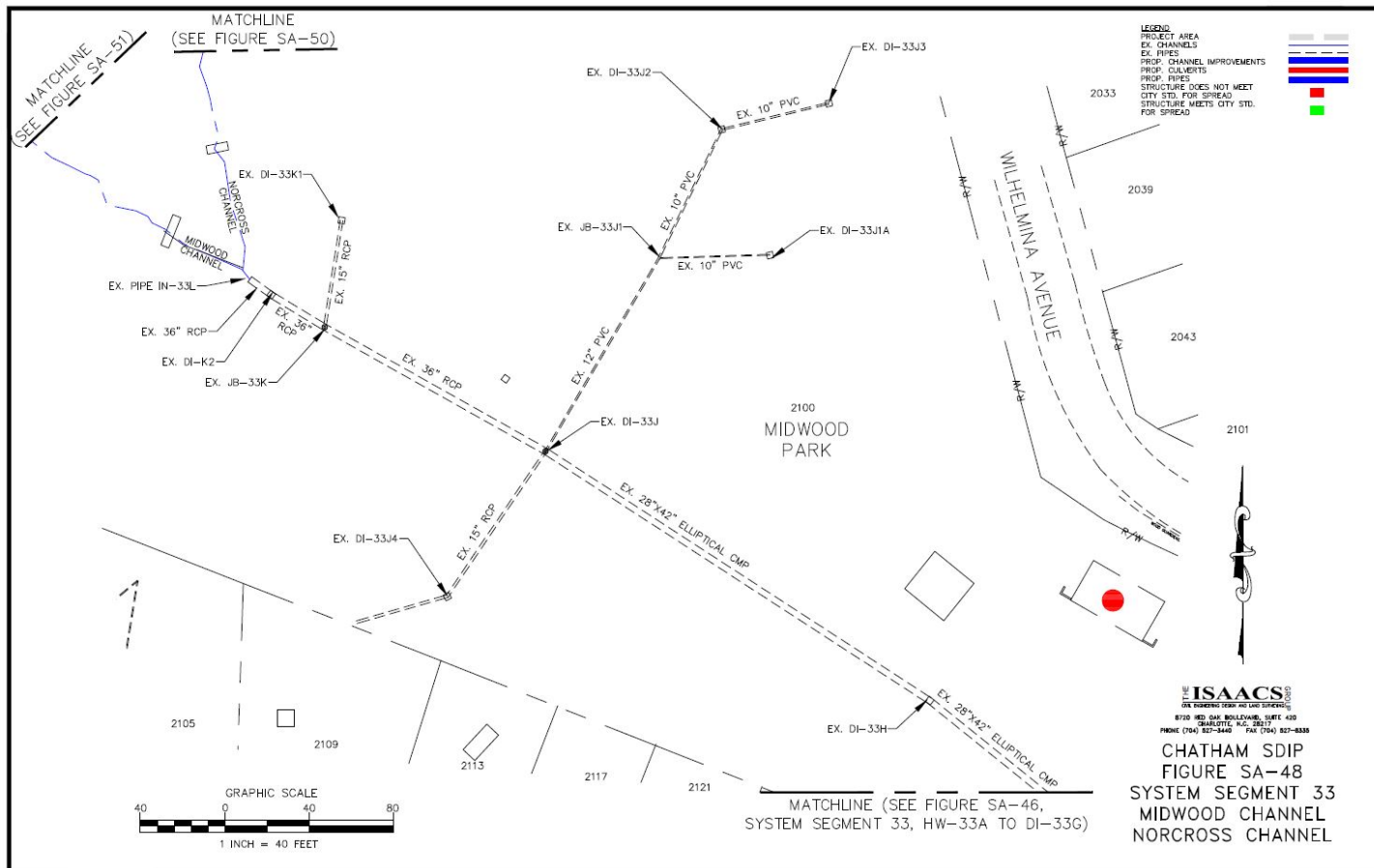
## MIDWOOD PARK – SYSTEM SEGMENT 32 & 33

- DI 33G – INLETS ADDED TO INTERCEPT OVERLAND FLOW
- AMPHITHEATER



## MIDWOOD PARK – SYSTEM SEGMENT 32 & 33

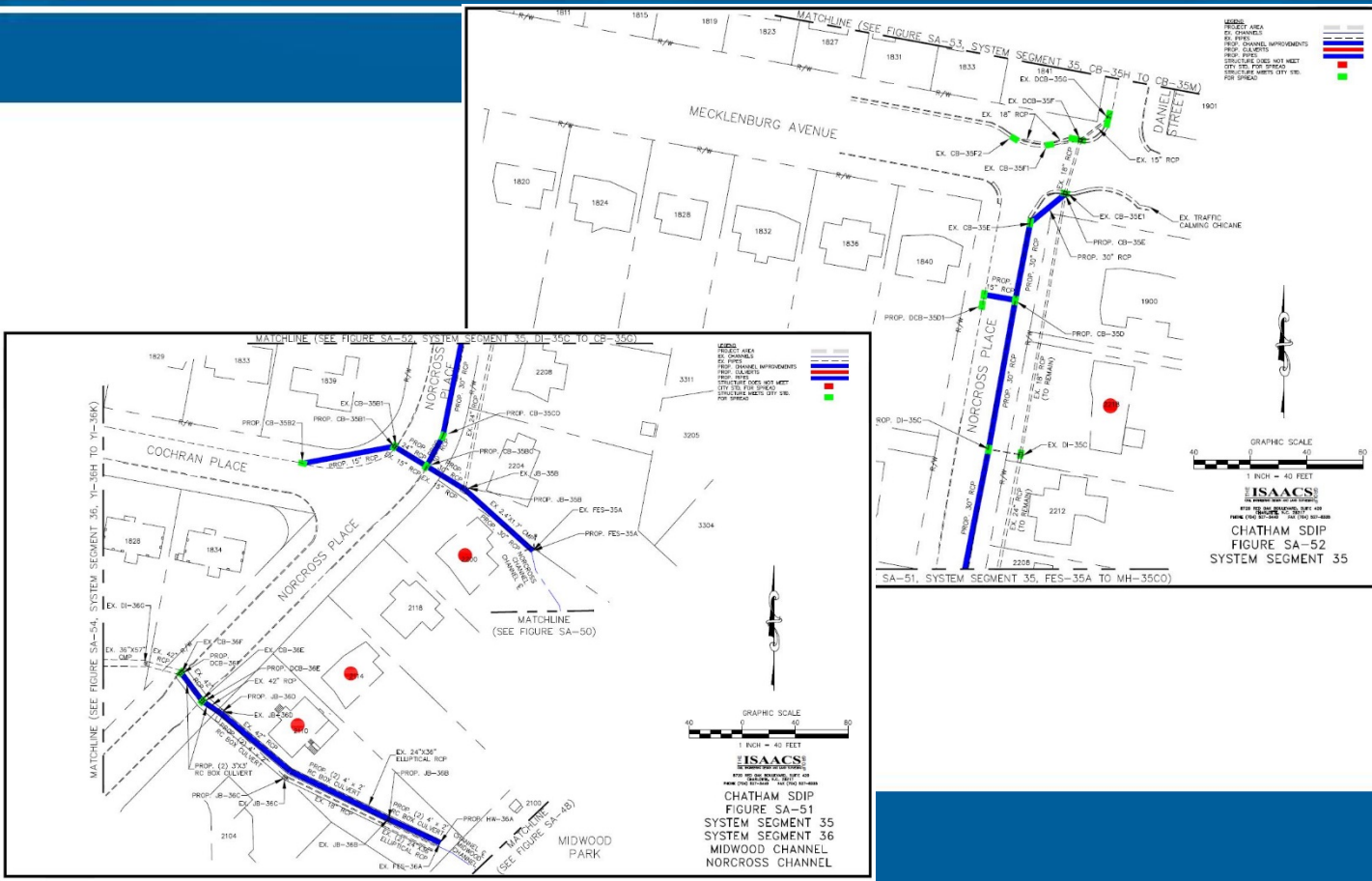
- SYSTEM SEGMENT 32 TIED TO SYSTEM SEGMENT 33 ON CHAMBWOOD DRIVE



## MIDWOOD PARK – SYSTEM SEGMENT 32 & 33

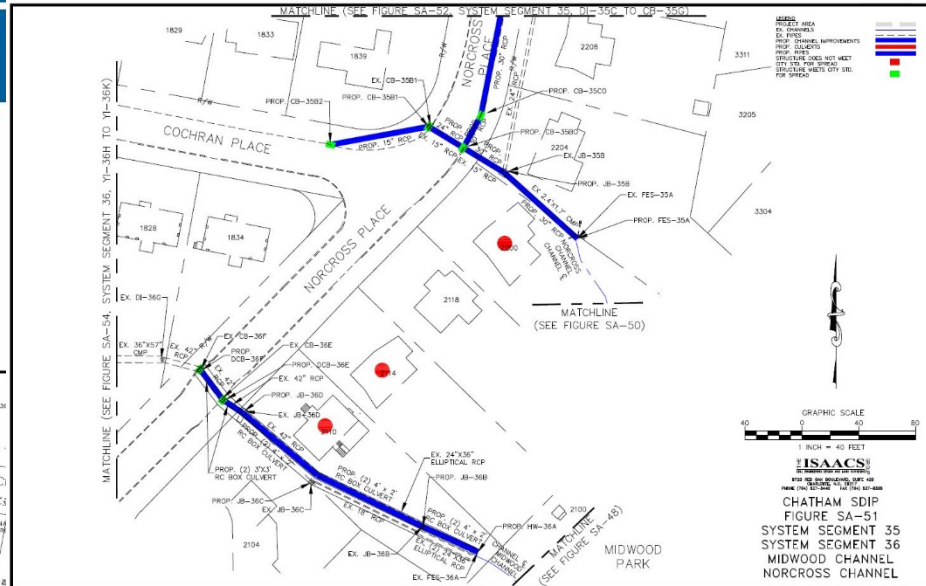
- SYSTEM SEGMENT 33 UPSIZED TO CAPTURE 100 YEAR STORM EVENT
- OVERLAND FLOW THROUGH MIDWOOD PARK INTERCEPTED AT DI 33G WITH MULTIPLE DROP INLETS OR SLAB TYPE CATCH BASINS
- EXISTING SYSTEM UPSTREAM OF DI 33G MAINTAINED





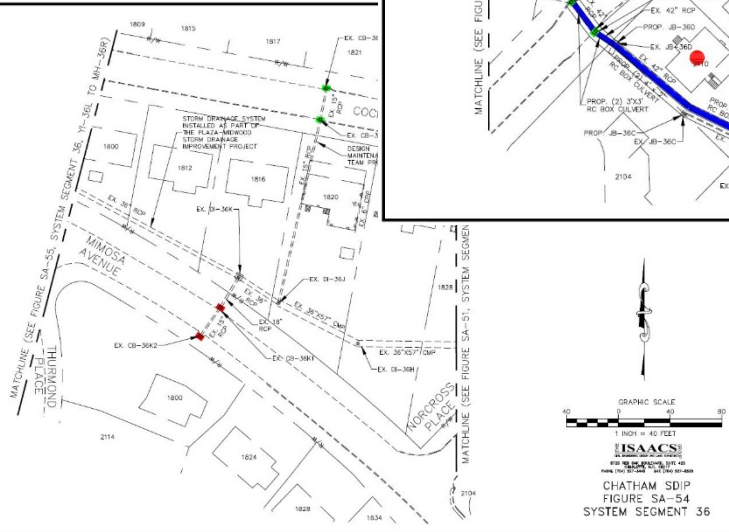
## NORCROSS PLACE – SYSTEM SEGMENT 35

- SYSTEM RE-ALIGNED TO NORCROSS PLACE UP TO MECKLENBURG AVE
- SYSTEM UPSIZED
- EXISTING SYSTEM MAINTAINED FOR LOCAL DRAINAGE



## NORCROSS PLACE, MIMOSA AVE, AND THE PLAZA – SYSTEM SEGMENT 36

- SYSTEM UPSIZED TO NORCROSS PLACE
- EXISTING SYSTEM IN REAR YARDS ON COCHRAN PLACE MAINTAINED



# CHATHAM SDIP

## RECOMMENDED DESIGN ALTERNATIVE



## PATH FORWARD

- Additional information obtained during this meeting will be considered and incorporated into the proposed alternatives, where applicable
- The alternative will be finalized
- Design Phase will begin
- Another public meeting will be held once the City has produced plans that are approximately 70% complete



## DESIGN PHASE

- Preliminary Design
- 401/404 Permitting
- Easement Acquisition
- Final Design



## DESIGN PHASE

- Drainage system layout & location
- Additional field survey if needed
- Utility coordination & design
- Geotechnical investigations
- Traffic control plans
- Erosion control plans
- Permits
- Easement acquisition
- Public meeting



## QUESTIONS OR COMMENTS?





## BREAK OUT SESSIONS

Thank you for coming to the meeting!  
Have a wonderful evening!

For more information please visit the Charlotte  
Mecklenburg Storm Water Services website at:  
<https://charlottenc.gov/StormWater/Projects/Pages/Chatham.aspx>

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