



**US Army Corps
Of Engineers**
Wilmington District

PUBLIC NOTICE

Issue Date: December 28, 2012
Comment Deadline: January 28, 2013
Corps Action ID #: SAW-2012-01562

The Wilmington District, Corps of Engineers (Corps) has received an application from Charlotte-Mecklenburg Storm Water Services seeking Department of the Army authorization to impact 1,302 linear feet of stream channel associated with the Parkwood Storm Drainage Improvement Project, between East 13th and East 15th Streets, in Charlotte, Mecklenburg County, North Carolina.

Specific plans and location information are described below and shown on the attached plans. This Public Notice and all attached plans are also available on the Wilmington District Web Site at <http://www.saw.usace.army.mil/missions/RegulatoryPermitProgram.aspx>

Applicant: Charlotte-Mecklenburg Storm Water Services
Attn: Mr. Isaac Hinson
600 East Fourth Street
Charlotte, North Carolina 28202

AGENT: Carolina Wetland Services
550 E. Westinghouse Blvd.
Charlotte, North Carolina 28273

Authority

The Corps will evaluate this application and decide whether to issue, conditionally issue, or deny the proposed work pursuant to applicable procedures of Section 404 of the Clean Water Act (33 U.S.C. 1344).

Location

The project area encompasses a portion of the Parkwood Neighborhood in Charlotte, North Carolina. The project is located northeast of East Brookshire Freeway between East 13th and East 15th Streets (Figures 1). The project area contains unnamed tributaries to Little Sugar Creek. Little Sugar Creek is a tributary that ultimately drains into the Catawba River. The Catawba River is located in the Santee watershed and eventually drains to the Atlantic Ocean. Specifically, the Catawba River joins the Santee-Cooper River in South Carolina before entering the Atlantic Ocean. The Catawba River is considered Section 10 navigable water at the Mountain

Island Lake Dam on Lake Wylie in Mecklenburg County which is located several miles downstream from the project site. The project site coordinates are 35.232098°N and -80.825858°W.

Existing Site Conditions

The project area is approximately 117 acres in size. The current land use for the project area consists of residential streets, commercial properties, and city streets with small adjacent wooded areas. Typical on-site vegetation includes willow oak (*Quercus phellos*), Bradford pear (*Pyrus calleryana*), kudzu (*Puereria lobata*), broomsedge (*Andropogon virginicus*), and Virginia plantain (*Plantago virginica*). An aerial photograph of the project area is attached (Figure 3).

According to the Soil Survey of Mecklenburg County, on-site soils consist of a variety of non-hydric and hydric soils to include Cecil-Urban land complex (CuB), Monacan loam (MO), and Urban land (Ur). Monacan soils (MO) are listed in the North Carolina Hydric Soils List for Mecklenburg County as having hydric inclusions. This soil type exhibits inclusions (pockets) of hydric soils, but are generally not entirely hydric in nature. Approximately five percent of the project area is comprised of these soil types.

A portion of the project located downstream (south) of North Davidson Street is located within the 100-year FEMA floodplain (Figure 5, attached). A Mecklenburg County Floodplain Development Permit will be required for the portions of the project located within the 100-year floodplain.

The results of the on-site field investigation conducted by Carolina Wetland Services indicate that there are three jurisdictional stream channels (Streams A, B, and C) located within the project area (Figure 6, attached). On-Site jurisdictional waters include Little Sugar Creek and unnamed tributaries to Little Sugar Creek. Little Sugar Creek is located in the Santee River basin (HU# 03050103). Little Sugar Creek is rated “Class C Waters” by the North Carolina Division of Water Quality (NCDWQ). On-Site jurisdictional waters of the U.S. total approximately 3,800 linear feet (0.84 acres). No wetlands were identified within the project limits. On-Site jurisdictional waters are summarized in Table 1 below.

Table 1. Summary of On-Site Jurisdictional Waters

Jurisdictional Feature	Jurisdiction		SCP No.	NCDWQ Steam Classification Score	USACE Stream Assessment Score	Approx. Length Linear Feet (lf)	Approx Acreage (ac.)
	USACE/EPA Rapanos Classification	Intermittent/Perennial					
Stream A	RPW	Perennial	SCP1	40.5	54	676	0.31
Stream B	RPW	Perennial	SCP2	35	37	2,731	0.50
Stream C	Seasonal RPW	Intermittent	SCP3	24.5	31	393	0.03
On-Site Total:						3,800	0.84

A geomorphic survey and analysis was performed which included cross sectional surveys, and photographic documentation of the stream within the project area. Channel profile and pattern were derived from surveyed data collected. This data was used to classify each reach using the Rosgen Level I system. The locations of the stream cross-sections are shown on Figure 7 (attached).

Three reaches were assessed using Rosgen Level I Classification methods. Reach 1 was classified as a combination of Rosgen G and F type channels. Reach 1 is approximately 666 linear feet in length and is located between North Davidson Street and Belmont Avenue. Based on field evaluation this stream reach exhibits the characteristics of a Rosgen G type channel upstream of North Alexander street and a Rosgen F type channel downstream of North Alexander Street. The stream channel lacks sinuosity and is deeply entrenched. Mean bankfull width and depth for this reach are 20.25 feet and 1.45 feet, respectively. The average flood prone width for this reach is approximately 35 feet. This reach displays bank height ratios of between 1.69 and 3.03, and entrenchment ratios of between 1.39 and 2.17.

Reaches 2 and 3 were classified as Rosgen G type channels. Reach 2 is approximately 359 linear feet in length and is located between North Caldwell Street and North Davidson Street. Based on field evaluation, this stream reach exhibits the characteristics of a Rosgen G type channel. The stream channel lacks sinuosity and is deeply entrenched. Typical bankfull width and depth for this reach are 12.5 feet and 1.66 feet, respectively. The average flood prone width for this reach is approximately 24.5 feet. This reach displays bank height ratios of between 2.18 and 4.34, and entrenchment ratios of between 1.6 and 1.76.

Reach 3 is approximately 470 linear feet in length and is located between the Norfolk Southern Railroad line and North Brevard Street. Based on field evaluation this stream reach exhibits the characteristics of a Rosgen G type channel. The stream channel lacks sinuosity and is deeply entrenched. Mean bankfull width and depth for this reach are 13.3 feet and 1.62 feet, respectively. The average flood prone width for this reach is approximately 18.35 feet. This reach displays bank height ratios of between 3.86 and 6.22, and entrenchment ratios of between 1.19 and 1.58.

Applicant's Stated Purpose

The purpose of this project is to reduce structure and street flooding throughout the Parkwood neighborhood and to address channel erosion problems within the project area. Specifically, this project will reduce flooding, dissipate high velocity storm flows at outfalls, reduce storm-induced erosion downstream of culverts and will bring this storm water system up to city design standards to address these issues.

Project Description

The overall project will involve the replacement of existing culverts, bridge removal, installation of rip rap aprons, stream relocation, and stream enhancement. Stream B upstream of North Brevard Street and downstream of North Davidson Street will be enhanced by laying back the banks and installing bankfull benches to provide improved bank stability. The stream banks will

be planted with native woody vegetation to provide bank stability. This will also result in reduced sediment input to the stream. The existing stream channel will be realigned upstream of Belmont Avenue to eliminate the sharp, unstable bend located south of North Alexander Street and to create an improved entry to the new Belmont Avenue culvert. The realignment of the stream channel will result in filling approximately 240 linear feet of the existing channel and creating approximately 215 linear feet of new stable stream channel. The relocated channel has been designed with natural channel design techniques and, when compared to the existing channel, will provide improved habitat and floodplain access. Proposed impacts to Jurisdictional Waters of the U.S. are shown on Figure 11 (attached).

Unavoidable impacts to Jurisdictional Waters of the U.S. total 1,302 linear feet of temporary and permanent stream impacts. These impacts include 707 linear feet of permanent impacts and 595 linear feet of temporary impacts. An additional 215 linear feet of new stream channel will also be created (Figure 11, attached). Impacts to jurisdictional waters are summarized in Tables 2 and 3, below.

Table 2. Proposed Impacts to Jurisdictional Waters of the US

Jurisdictional Feature	Intermittent / Perennial	Impact Type	Plan Sheet No.	Station No.	Total Impact (Temp. and Perm.) Length(lf)	Approx. Acreage (ac.)
Perennial RPW Stream B	Perennial	Rip rap apron	4	18+78 to 19+26	48 lf (Permanent)	0.012
		Culvert Replacement	4	19+26 to 20+05	21 lf Net Impact (Permanent)	0.005
		Rip rap apron	4	20+05 to 20+35	30 lf (Permanent)	0.007
		Stream Relocation	4	20+35 to 22+50	240 lf (Permanent) (25 lf Net Loss)	0.066 (0.007)
		Enhancement (bankfull benching and live staking)	4 & 5	22+50 to 25+44	294 lf (Temporary)	N/A
		Rip rap apron	5	25+44 to 25+92	48 lf (Permanent)	0.011
		Culvert Replacement	5	25+92 to 26+65	22 lf Net Impact (Permanent)	0.005
		Rip rap apron	5	26+65 to 26+87	22 lf (Permanent)	0.005
		Rip rap apron	6	29+82 to 30+30	48 lf (Permanent)	0.011
		Culvert Replacement	6	30+30 to 30+90	0 lf Net Impact	0
		Rip rap apron	6	30+90 to 31+22	32 lf (Permanent)	0.007
		Rip rap apron	6	31+74 to 32+22	48 lf (Permanent)	0.011
		Culvert Replacement	6	32+22 to 33+17	10 lf Net Impact (Permanent)	0.002
		Rip rap apron	6	33+17 to 33+32	15 lf (Permanent)	0.003
		Rip rap apron	7	34+15 to 34+55	40 lf (Permanent)	0.009
		Culvert Replacement	7	34+55 to 36+26	65 lf Net Impact (Permanent)	0.015
Rip rap apron	7	36+26 to 36+44	18 lf (Permanent)	0.004		

		Enhancement (bankfull benching and live staking)	7 & 8	36+44 to 39+45	301 lf (Temporary)	N/A
Stream Impacts (Total)					1,302 lf	0.173 ac.
Stream Enhancement Impacts (Temporary)					595 lf	N/A
Stream Impacts (Permanent)					707 lf	0.173 ac.
New (relocated) Stream Channel Created					215 lf	0.049 ac.
Net Permanent Impact to Stream Channel					492 lf	0.124 ac.

Table 3. Summary of Project Impacts

Impact Type	Impact Length (linear feet)
Culvert	118 lf
Rip Rap Apron	349 lf
Stream Relocation (240 lf of old channel filled, 215 lf of new channel created)	25 lf
Stream Enhancement	(595 lf)

Due to the poor quality of the jurisdictional streams in the project area and the stream enhancement work being conducted, the applicant is proposing that the project be considered self-mitigating since the project will have an overall positive impact on the quality of Perennial Stream B. There are a total of 707 linear feet of permanent impacts proposed. This includes the 240 linear feet of channel to be relocated. Approximately 595 linear feet of stream enhancement is proposed and an additional 215 linear feet of stable stream channel will be constructed as part of the relocation. The relocated stream channel will be constructed using natural channel design principles. The stream design will maintain a low flow channel and will incorporate bankfull benching, in-stream structures and planting with native woody plant species. In total, 810 linear feet of Perennial Stream B will be enhanced.

Other Required Authorizations

This notice and all applicable application materials are being forwarded to the appropriate State agencies for review. The Corps will generally not make a final permit decision until the North Carolina Division of Water Quality (NCDWQ) issues, denies, or waives State certification required by Section 401 of the Clean Water Act (PL 92-500). The receipt of the application and this public notice combined with appropriate application fee at the North Carolina Division of Water Quality central office in Raleigh will constitute initial receipt of an application for a 401 Water Quality Certification. A waiver will be deemed to occur if the NCDWQ fails to act on this request for certification within sixty days of the date of the receipt of this notice in the NCDWQ Central Office. Additional information regarding the Clean Water Act certification may be reviewed at the NCDWQ Central Office, 401 Oversight and Express Permits Unit, 512 North Salisbury Street in Raleigh, North Carolina. All persons desiring to make comments regarding the application for certification under Section 401 of the Clean Water Act should do so

in writing delivered to the North Carolina Division of Water Quality (NCDWQ), 1650 Mail Service Center, Raleigh, North Carolina 27699-1650 Attention: Ms. Cyndi Karoly by January 28, 2013.

Essential Fish Habitat

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The Corps' initial determination is that the proposed project will not adversely impact EFH or associated fisheries managed by the South Atlantic or Mid Atlantic Fishery Management Councils or the National Marine Fisheries Service.

Cultural Resources

The Corps has consulted the latest published version of the National Register of Historic Places and is not aware that any registered properties, or properties listed as being eligible for inclusion therein are located within the project area or will be affected by the proposed work. Presently, unknown archeological, scientific, prehistoric, or historical data may be located within the project area and/or could be affected by the proposed work.

Endangered Species

The Corps has reviewed the project area, examined all information provided by the applicant and consulted the latest North Carolina Natural Heritage Database. Based on available information, the Corps has determined pursuant to the Endangered Species Act of 1973, that the proposed project will have no effect on federally listed endangered or threatened species or their formally designated critical habitat.

Evaluation

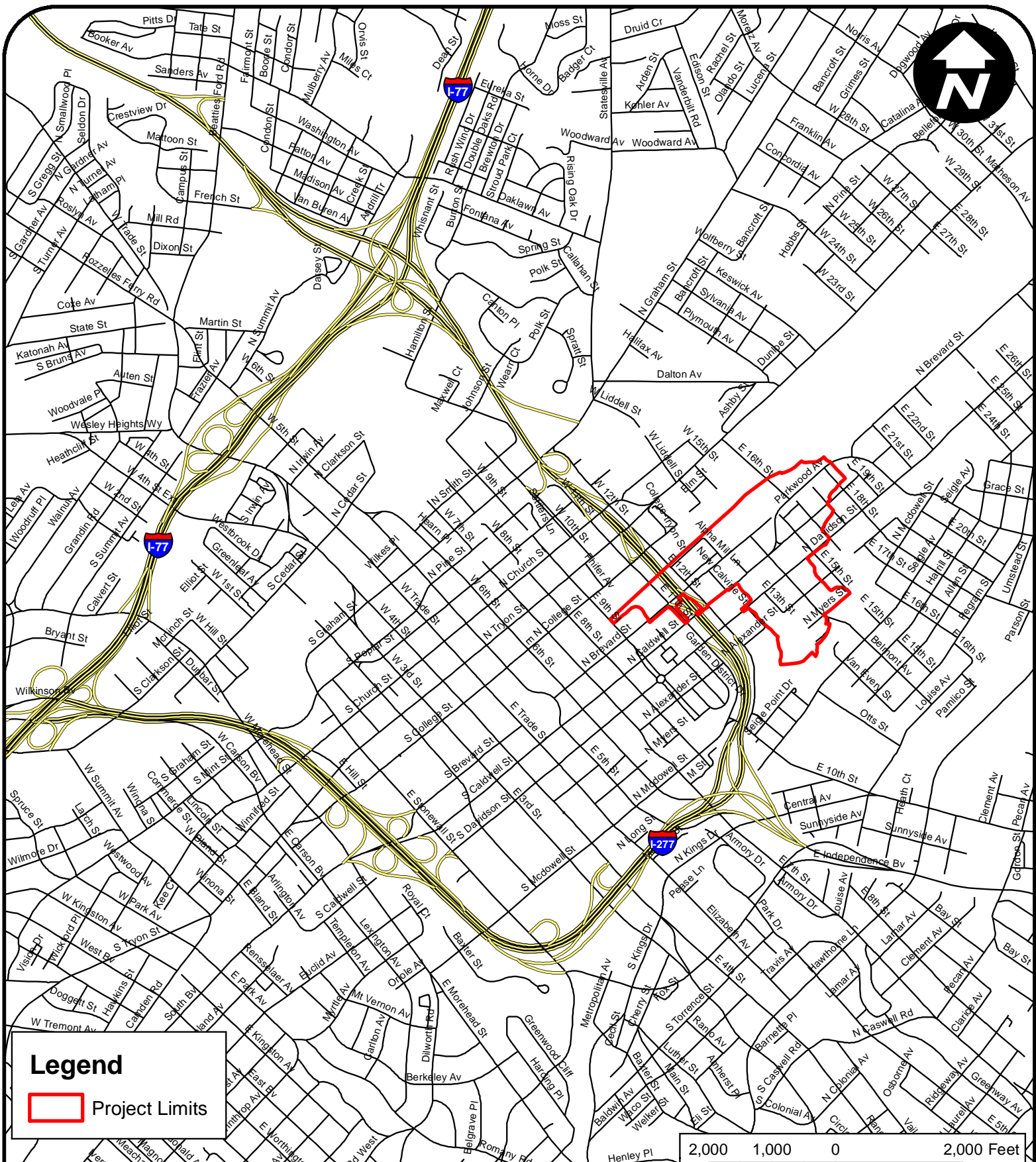
The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values (in accordance with Executive Order 11988), land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving the discharge of dredged or fill materials in waters of the United States, the evaluation of the impact of the activity on the public interest will include application of the Environmental Protection Agency's 404(b)(1) guidelines.

Commenting Information

The Corps of Engineers is soliciting comments from the public; Federal, State and local agencies and officials, including any consolidate State Viewpoint or written position of the Governor; Indian Tribes and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment (EA) and/or an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA). Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing shall be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

Written comments pertinent to the proposed work, as outlined above, will be received by the Corps of Engineers, Wilmington District, until 5pm, January 28, 2013. Comments should be submitted to Ms. Amanda Jones, Asheville Regulatory Field Office, 151 Patton Avenue, Room 208, Asheville, North Carolina, 28801-5006.



REFERENCE: BACKGROUND GIS LAYERS PROVIDED BY MECKLENBURG COUNTY GIS DEPARTMENT, DATED 2007.

FIGURE NO.
1 of 11

Vicinity Map

Parkwood SDIP
Charlotte, North Carolina
CWS Project No. 2011-2877



SCALE: **1" : 2,000'**

CWS PROJECT NO:
2011-2877

APPLICANT NO:

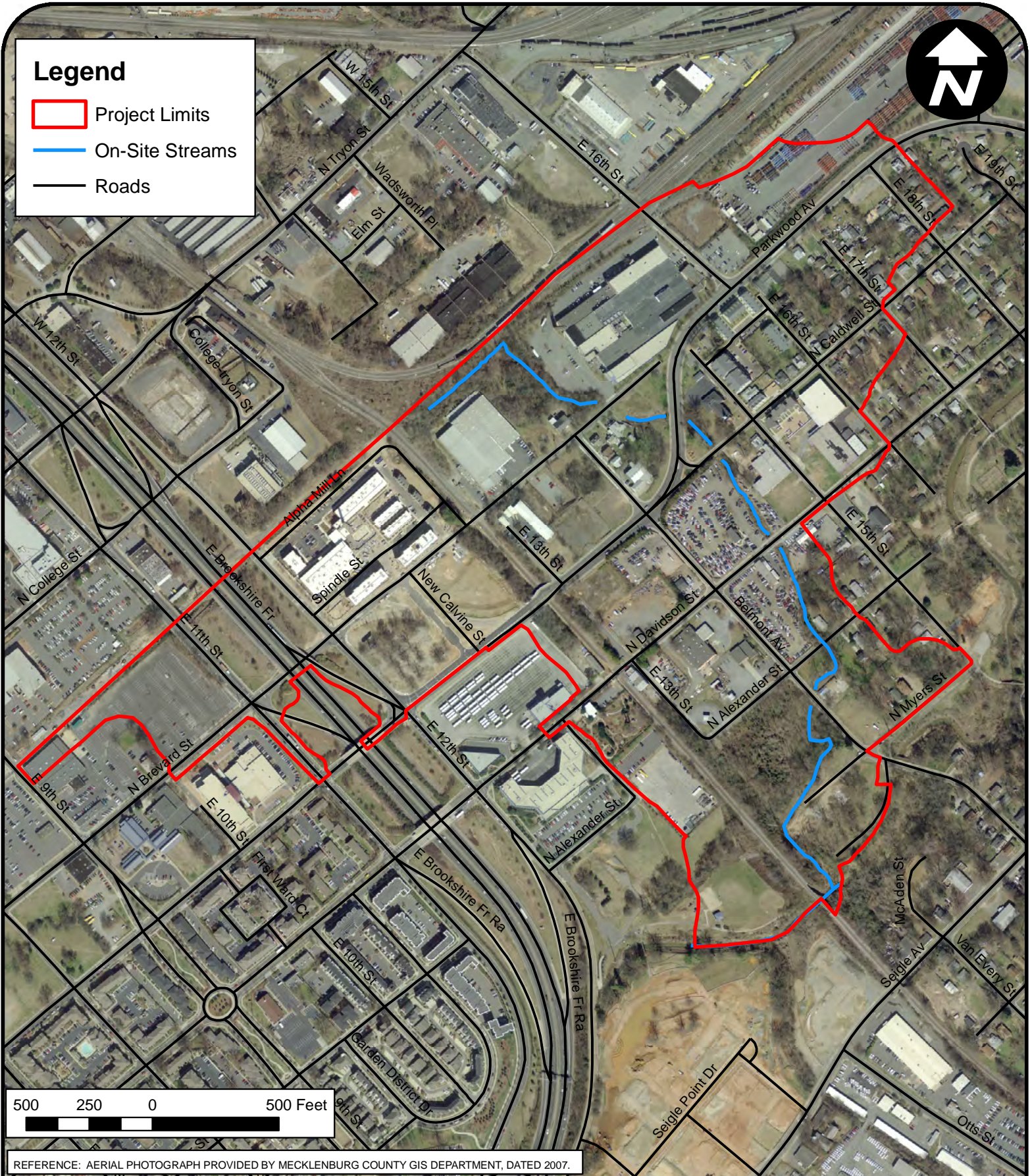
DATE: **11-26-12**

DRAWN BY: **TJB**

CHECKED BY: **GCA**

Legend

- Project Limits
- On-Site Streams
- Roads



REFERENCE: AERIAL PHOTOGRAPH PROVIDED BY MECKLENBURG COUNTY GIS DEPARTMENT, DATED 2007.

FIGURE NO.

Aerial Photograph

3 of 11

Parkwood SDIP
Charlotte, North Carolina
CWS Project No. 2011-2877



SCALE: 1" : 500'

CWS PROJECT NO:
2011-2877

APPLICANT NO:

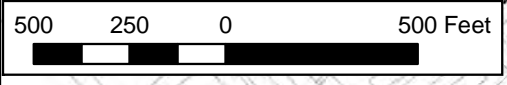
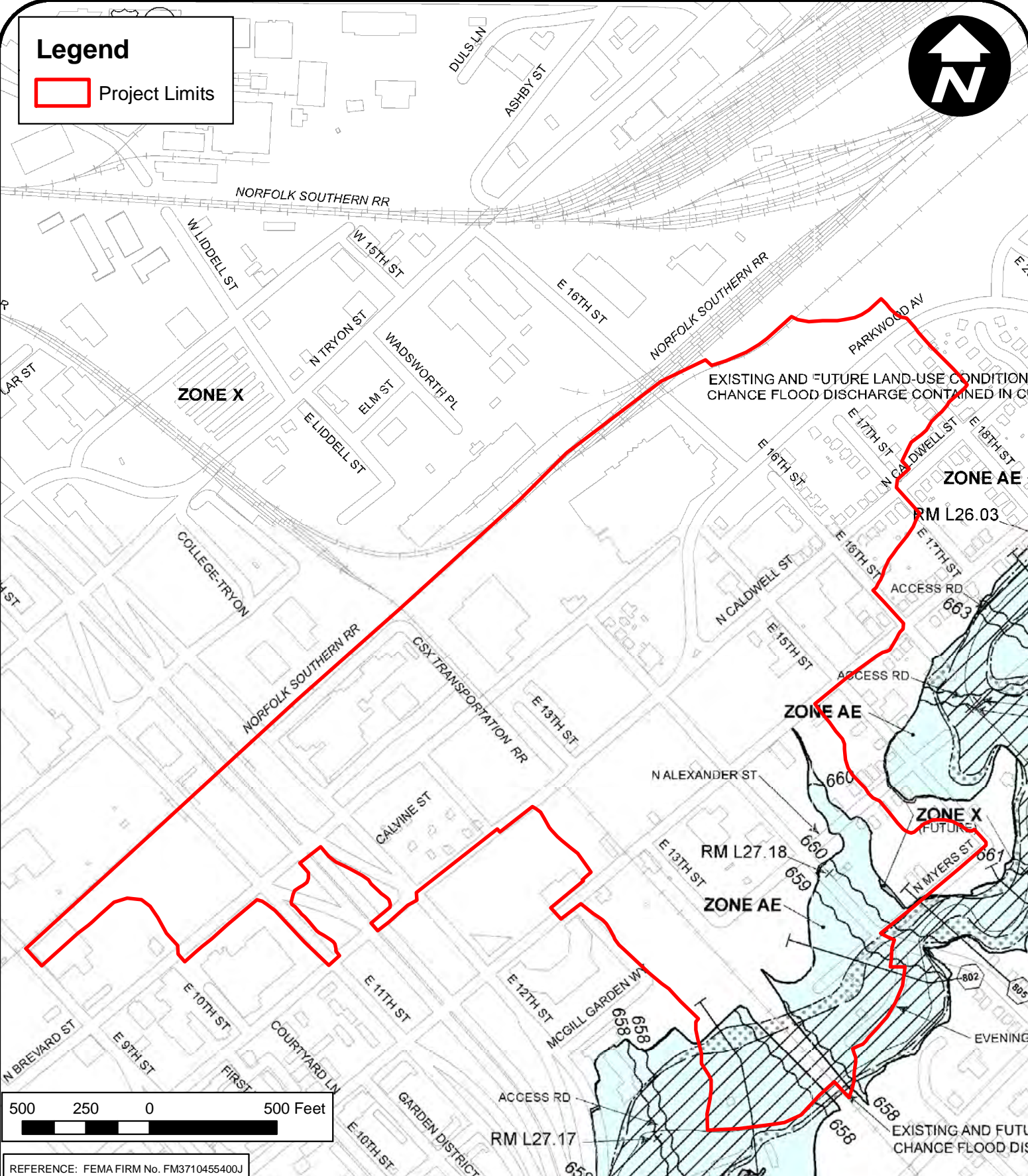
DATE: 11-20-12

DRAWN BY: TJB

CHECKED BY: GCA

Legend

 Project Limits



REFERENCE: FEMA FIRM No. FM3710455400J

FIGURE NO.
5 of 11

FEMA Floodplain Map

Parkwood SDIP
Charlotte, North Carolina
CWS Project No. 2011-2877



SCALE: 1" : 500'

CWS PROJECT NO:
2011-2877

APPLICANT NO:

DATE: 11-20-12

DRAWN BY: TJB

CHECKED BY: GCA

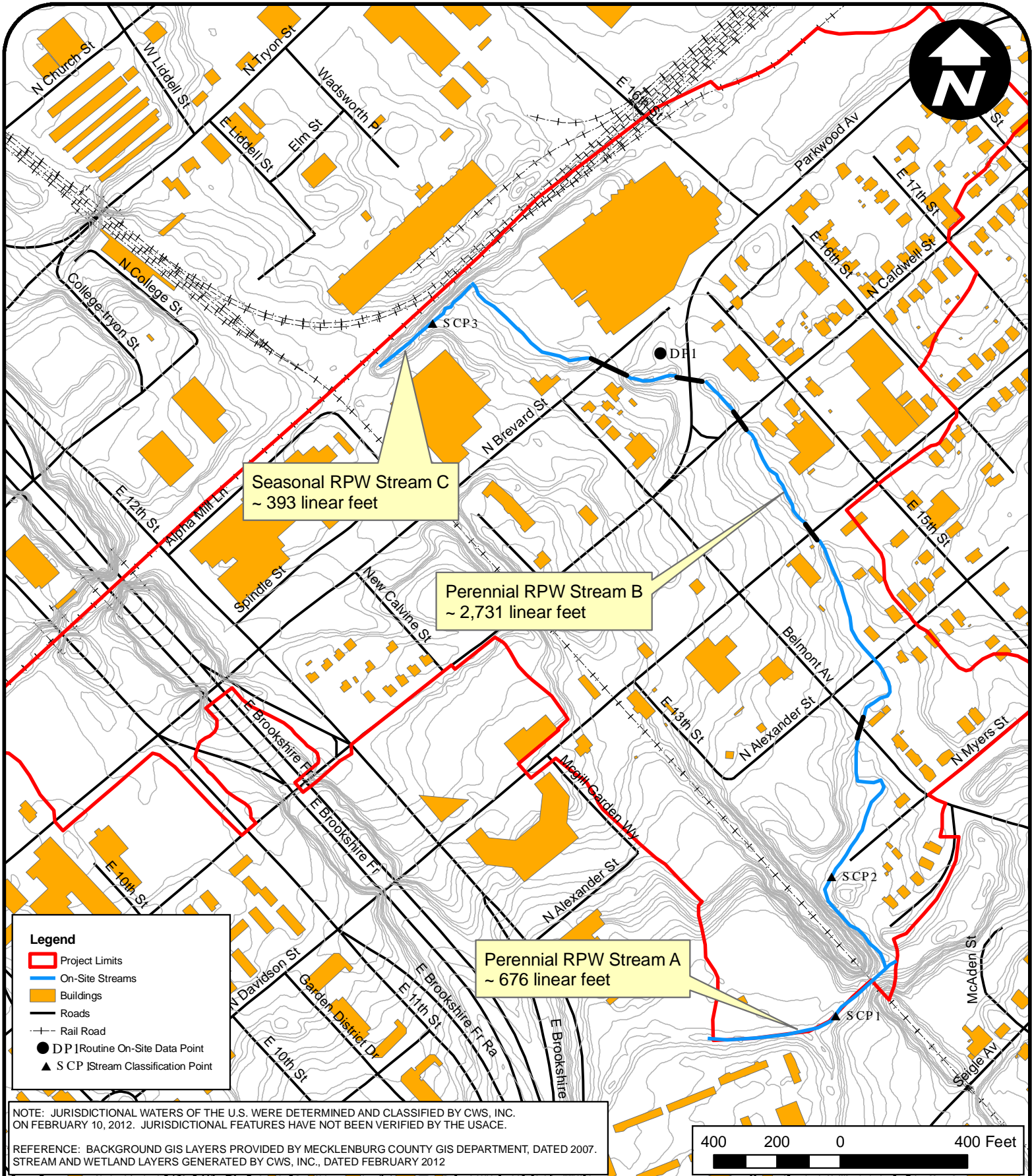


FIGURE NO.

6 of 11

Approximate Jurisdictional Boundary Map

Parkwood SDIP
Charlotte, North Carolina
CWS Project No. 2011-2877



WWW.CWS-INC.NET

SCALE: 1" : 400'

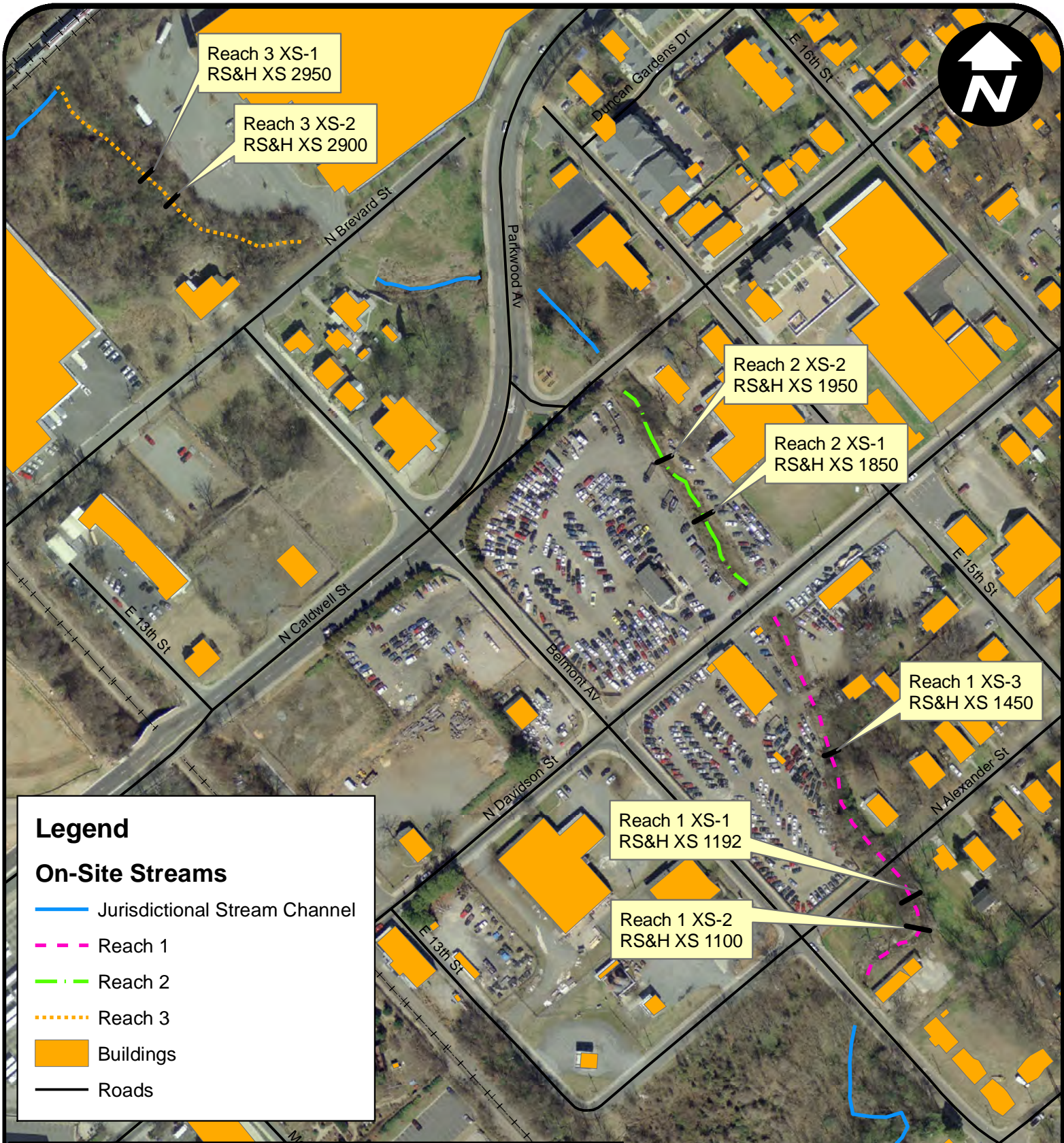
CWS PROJECT NO:
2011-2877

APPLICANT NO:

DATE: 11-20-12

DRAWN BY: TJB

CHECKED BY: GCA



Legend

On-Site Streams

- Jurisdictional Stream Channel
- - - Reach 1
- - - Reach 2
- - - Reach 3
- Buildings
- Roads

NOTE: JURISDICTIONAL WATERS OF THE U.S. WERE DETERMINED AND CLASSIFIED BY CWS, INC. ON FEBRUARY 10, 2012. JURISDICTIONAL FEATURES HAVE NOT BEEN VERIFIED BY THE USACE.

REFERENCE: BACKGROUND GIS LAYERS PROVIDED BY MECKLENBURG COUNTY GIS DEPARTMENT, DATED 2007. STREAM AND WETLAND LAYERS GENERATED BY CWS, INC., DATED FEBRUARY 2012

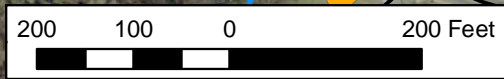
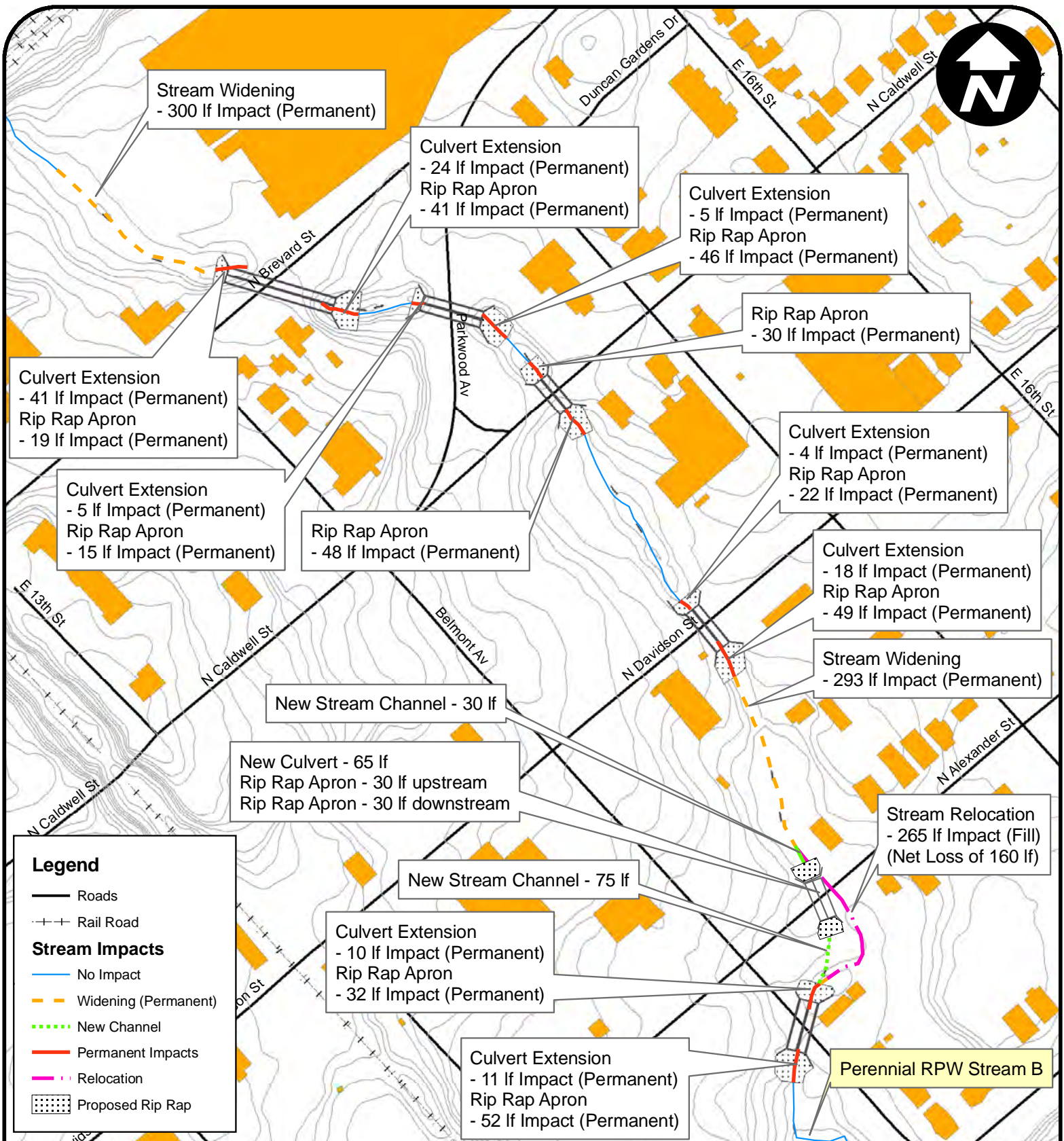


FIGURE NO. 7 of 11	Cross Section Locations Parkwood SDIP Charlotte, North Carolina CWS Project No. 2011-2877	 WWW.CWS-INC.NET	SCALE: 1" : 200' CWS PROJECT NO: 2011-2877 APPLICANT NO:	DATE: 11-20-12 DRAWN BY: TJB CHECKED BY: GCA
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NOTE: JURISDICTIONAL WATERS OF THE U.S. WERE DETERMINED AND CLASSIFIED BY CWS, INC. ON FEBRUARY 10, 2012. JURISDICTIONAL FEATURES HAVE NOT BEEN VERIFIED BY THE USACE.

REFERENCE: BACKGROUND GIS LAYERS PROVIDED BY MECKLENBURG COUNTY GIS DEPARTMENT, DATED 2007. STREAM AND WETLAND LAYERS GENERATED BY CWS, INC., DATED FEBRUARY 2012

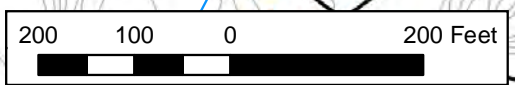


FIGURE NO.
9 of 11

Project Alternative 1 - Impacts

Parkwood SDIP
Charlotte, North Carolina
CWS Project No. 2011-2877



SCALE: 1" : 200'
CWS PROJECT NO: 2011-2877
APPLICANT NO:

DATE: 11-20-12
DRAWN BY: TJB
CHECKED BY: GCA



Stream Widening
- 300 If Impact (Permanent)

Culvert Extension
- 24 If Impact (Permanent)
Rip Rap Apron
- 41 If Impact (Permanent)

Culvert Extension
- 5 If Impact (Permanent)
Rip Rap Apron
- 46 If Impact (Permanent)

Rip Rap Apron
- 30 If Impact (Permanent)

Culvert Extension
- 41 If Impact (Permanent)
Rip Rap Apron
- 19 If Impact (Permanent)

Culvert Extension
- 5 If Impact (Permanent)
Rip Rap Apron
- 15 If Impact (Permanent)

Rip Rap Apron
- 48 If Impact (Permanent)

Culvert Extension
- 4 If Impact (Permanent)
Rip Rap Apron
- 22 If Impact (Permanent)

Culvert Extension
- 18 If Impact (Permanent)
Rip Rap Apron
- 49 If Impact (Permanent)

Stream Widening
- 261 If Impact (Permanent)

Culvert
- 321 If Impact (Permanent)

Rip Rap Apron - 32 If Impact (Permanent)

Culvert Extension
- 11 If Impact (Permanent)
Rip Rap Apron
- 52 If Impact (Permanent)

Legend

- Roads
- +- Rail Road

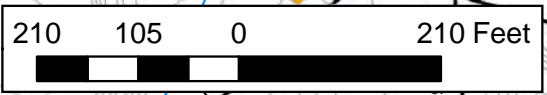
Stream Impacts

- No Impact
- - Widening (Permanent)
- Permanent Impacts

Proposed Rip Rap

NOTE: JURISDICTIONAL WATERS OF THE U.S. WERE DETERMINED AND CLASSIFIED BY CWS, INC. ON FEBRUARY 10, 2012. JURISDICTIONAL FEATURES HAVE NOT BEEN VERIFIED BY THE USACE.

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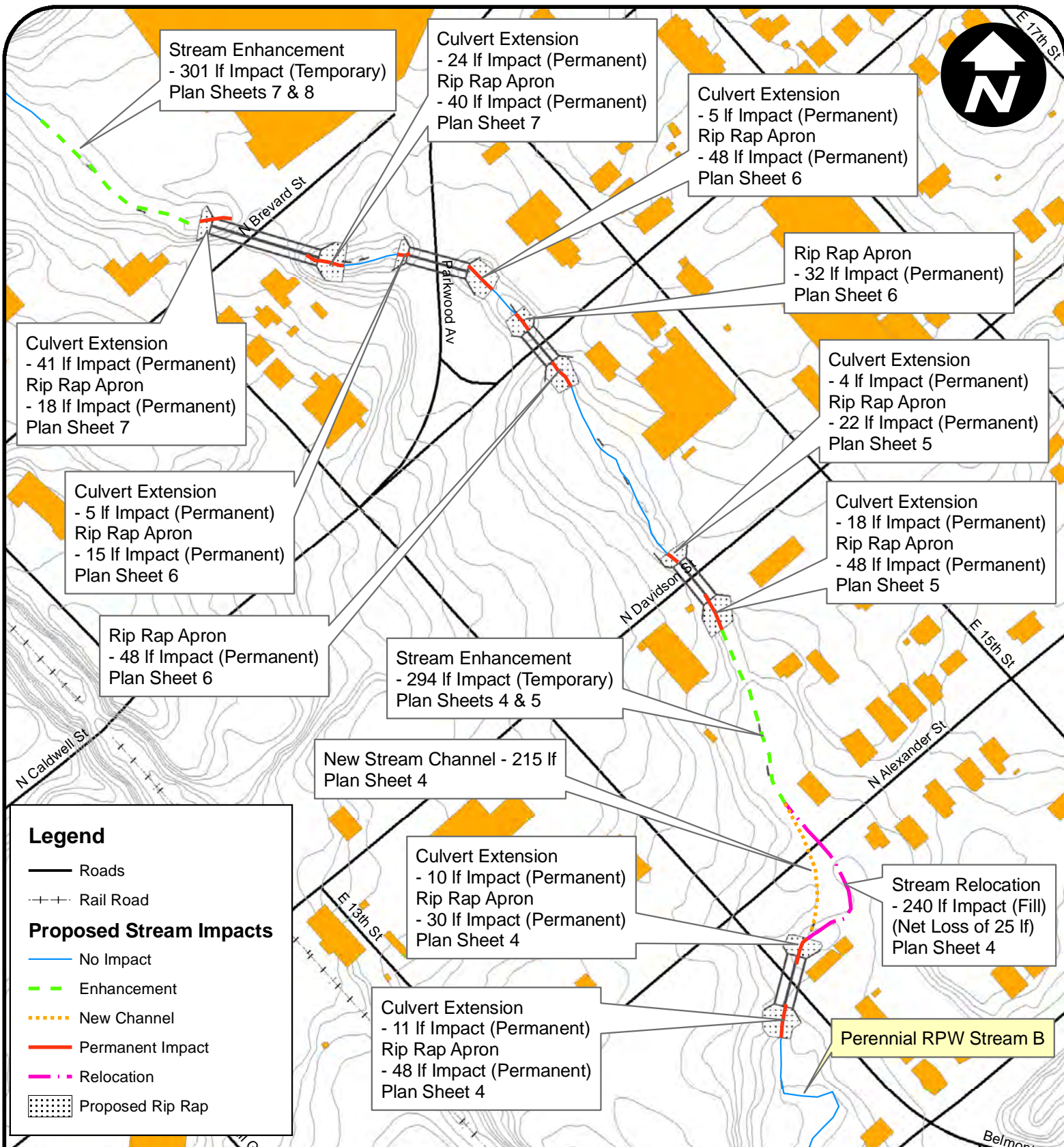


Project Alternative 2 - Impacts

Parkwood SDIP
Charlotte, North Carolina
CWS Project No. 2011-2877



SCALE: 1" : 200'	DATE: 11-20-12
CWS PROJECT NO: 2011-2877	DRAWN BY: TJB
APPLICANT NO:	CHECKED BY: GCA



Stream Enhancement
- 301 lf Impact (Temporary)
Plan Sheets 7 & 8

Culvert Extension
- 24 lf Impact (Permanent)
Rip Rap Apron
- 40 lf Impact (Permanent)
Plan Sheet 7

Culvert Extension
- 5 lf Impact (Permanent)
Rip Rap Apron
- 48 lf Impact (Permanent)
Plan Sheet 6

Rip Rap Apron
- 32 lf Impact (Permanent)
Plan Sheet 6

Culvert Extension
- 41 lf Impact (Permanent)
Rip Rap Apron
- 18 lf Impact (Permanent)
Plan Sheet 7

Culvert Extension
- 4 lf Impact (Permanent)
Rip Rap Apron
- 22 lf Impact (Permanent)
Plan Sheet 5

Culvert Extension
- 5 lf Impact (Permanent)
Rip Rap Apron
- 15 lf Impact (Permanent)
Plan Sheet 6

Culvert Extension
- 18 lf Impact (Permanent)
Rip Rap Apron
- 48 lf Impact (Permanent)
Plan Sheet 5

Rip Rap Apron
- 48 lf Impact (Permanent)
Plan Sheet 6

Stream Enhancement
- 294 lf Impact (Temporary)
Plan Sheets 4 & 5

New Stream Channel - 215 lf
Plan Sheet 4

Culvert Extension
- 10 lf Impact (Permanent)
Rip Rap Apron
- 30 lf Impact (Permanent)
Plan Sheet 4

Stream Relocation
- 240 lf Impact (Fill)
(Net Loss of 25 lf)
Plan Sheet 4

Culvert Extension
- 11 lf Impact (Permanent)
Rip Rap Apron
- 48 lf Impact (Permanent)
Plan Sheet 4

Perennial RPW Stream B

Legend

- Roads
- - - Rail Road

Proposed Stream Impacts

- No Impact
- - - Enhancement
- - - New Channel
- Permanent Impact
- - - Relocation
- ▒ Proposed Rip Rap

NOTE: JURISDICTIONAL WATERS OF THE U.S. WERE DETERMINED AND CLASSIFIED BY CWS, INC. ON FEBRUARY 10, 2012. JURISDICTIONAL FEATURES HAVE NOT BEEN VERIFIED BY THE USACE.

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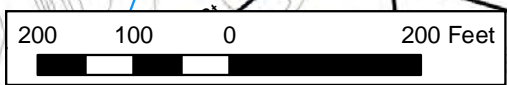


FIGURE NO.
11 of 11

**Proposed Impacts
(Alternative 3)**
Parkwood SDIP
Charlotte, North Carolina
CWS Project No. 2011-2877



SCALE: 1" : 200'
CWS PROJECT NO: 2011-2877
APPLICANT NO:

DATE: 11-20-12
DRAWN BY: TJB
CHECKED BY: GCA

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 Planting Plans P1 - P3
 Erosion Control N/A
 Channel Cross Sections XS1 - XS10
 Utility Plans N/A

TOTAL SHEETS 40



VICINITY MAP
NTS

PROJECT SITE

**Construction Plans of Proposed
 PARKWOOD PHASE 1 STORM DRAINAGE IMPROVEMENTS PROJECT**

Project No. 671-10-016

Project Features:
 Storm Drainage, Channel Improvements, Sanitary
 Sewer Relocations, Water Line Relocations,
 Pavement, Curb and Gutter, Sidewalk,
 Traffic Control and Erosion Control



LOCATION MAP
NTS



PLANS PREPARED BY:

RS&H
 IMPROVING YOUR WORLD
 © 2012 REYNOLDS, SMITH AND HILLS INC.
 RS&H Architects-Engineers-Planners, Inc.
 8008 Corporate Center Drive, Suite 410
 Charlotte, NC 28226-4489
 Phone: 704-752-0610
 NC License No. F-0493 www.rsandh.com

The project shall be constructed in accordance with North Carolina Department of Transportation Standard Specifications for Roads and Structures dated January 2012, Work Area Traffic Control Handbook dated 2006, and as amended by the contract provisions and these plans.

2012 STANDARD SPECIFICATIONS



PE SEAL

Record Drawings

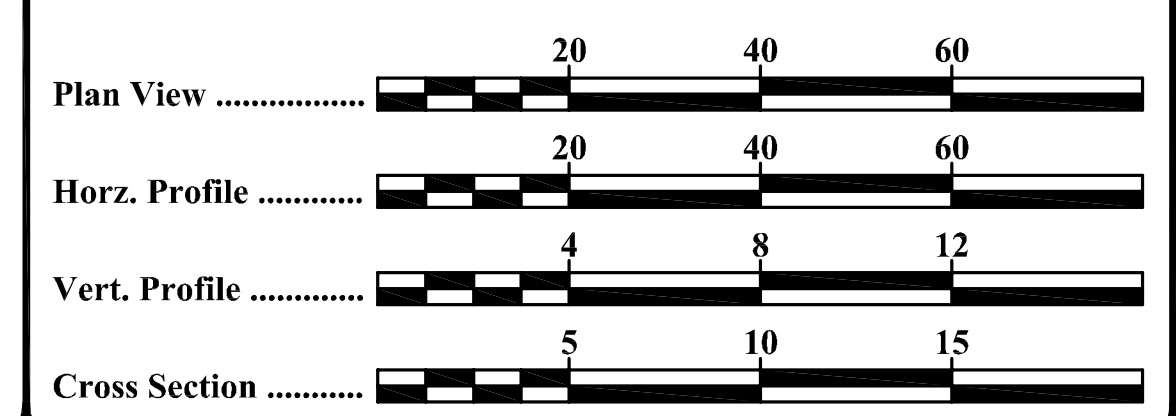
CONVENTIONAL SIGNS

Proposed Right of Way	PROP. ROW	---
Existing Property Line		---
Existing Right of Way	R/W	---
Existing C/A Line	C/A LINE	---
Existing Structures		---
Railroad Tracks		---
Proposed Edge of Pavement		---
Existing Fence.....	x	---
Proposed Fence	x	---
Slope Stake Line	C F	---
Temporary Construction Easement	e e	---
Proposed Sidewalk/Utility Easement	SUE SUE	---
Existing Storm Drainage Easement	SDE SDE	---
Proposed Storm Drainage Easement	SDE SDE	---
Proposed Sanitary Sewer Easement	SSE	---
Proposed Permanent Utility Easement	PUE PUE	---
Existing Gas Line	G G	---
Existing Water Line	W W	---
Existing Sanitary Sewer	SS SS	---
Existing Underground Telecommunications	T T	---
Existing Underground Electric	UE UE	---
Existing Overhead Electric	OE OE	---
Existing Storm Drainage		---
Proposed Storm Drainage		---
Existing Tree		---
Existing Water Meter		---
Existing Water Valve		---
Existing Gas Valve		---
Existing Sanitary Sewer Manhole		---
Proposed Sanitary Sewer Manhole		---
Existing Storm Drain Manhole		---
Proposed Storm Drain Manhole		---
Existing Telephone Manhole		---
Existing Catch Basin		---
Proposed Catch Basin		---
Existing Light Pole		---
Proposed Light Pole		---
Existing Utility Pole		---
Guy Wire		---
Proposed Utility Pole		---
Iron Pin		---
Existing Fire Hydrant		---
Proposed Fire Hydrant		---
Existing Drop Inlet.....		---
Proposed Drop Inlet.....		---
Accessible Ramp		---
Tree Protection		---
Existing Guardrail		---
Proposed Guardrail		---
Silt Fence		---
Proposed Curb & Gutter, Conc. Drive, Sidewalk		---
Proposed Reinforced Concrete Sidewalk.....		---
Proposed Asphalt Pavement		---
Proposed Rip Rap		---
Proposed Gravel		---
Proposed Asphalt Drive		---
Proposed Full Depth Pavement		---
Proposed Asphalt Removal.....		---

Note: Permanent Utility Easements for poles and down guys are not included at this time. Any PUE will be coordinated subsequent to this submittal.

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GRAPHIC SCALES



RECOMMENDED FOR CONSTRUCTION

Contract Administration	
Storm Water	
Landscape Management	
CDOT - Design	
CDOT - Implementation	
CMU	
Storm Water Project Manager	

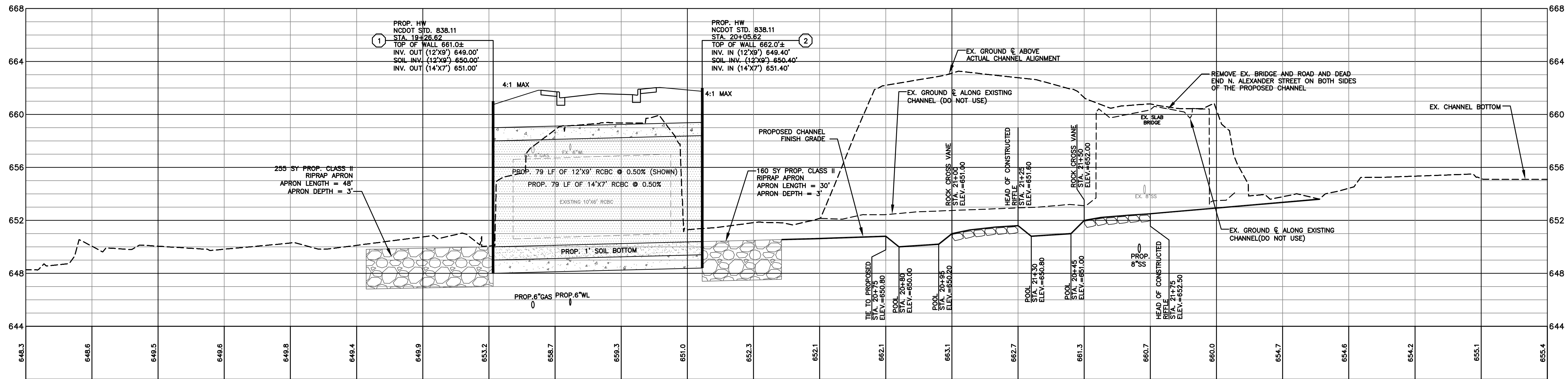


Bid Set No.

APPROVED _____
 CITY ENGINEER DATE

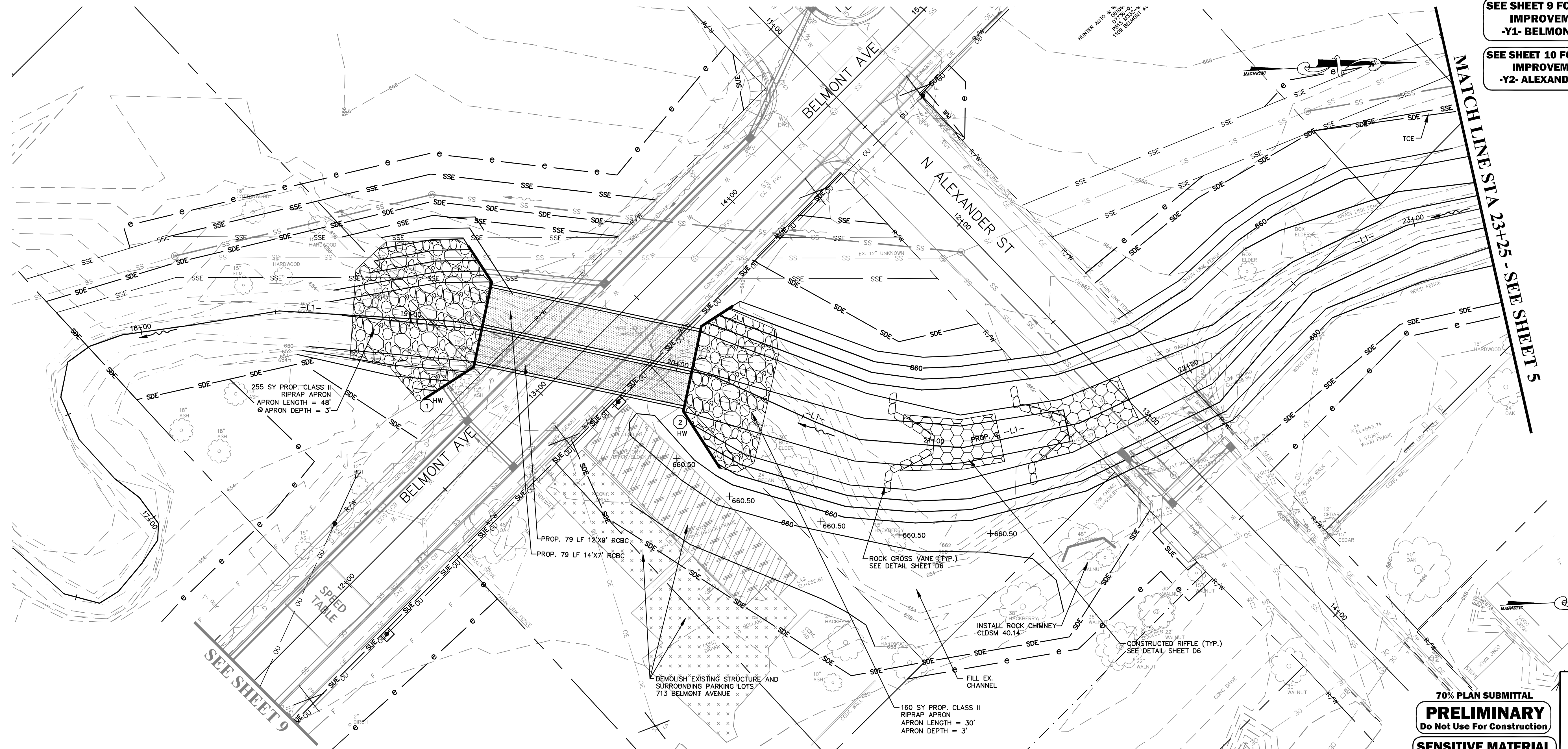
Project Name: Parkwood Phase 1 Storm Drainage Improvements Project Project Number: 671-10-016

-L1- CHANNEL ALIGNMENT



MATCH LINE STA 23+25 - SEE SHEET 5

CHANNEL IMPROVEMENTS



Tuesday, December 04, 2012 3:14:20 PM BY: PETERS, EDITH

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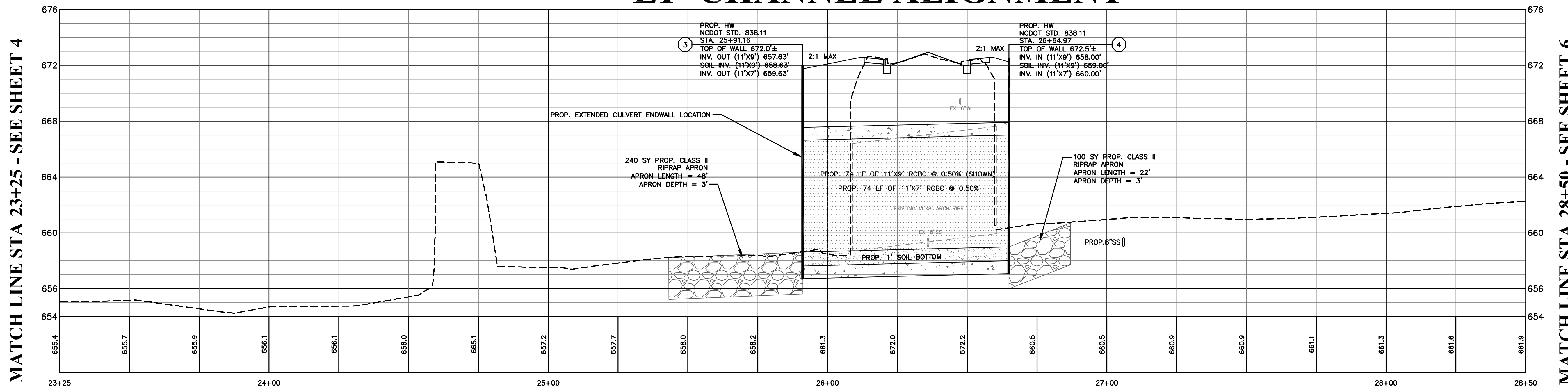
NO.	DATE	BY	DESCRIPTION



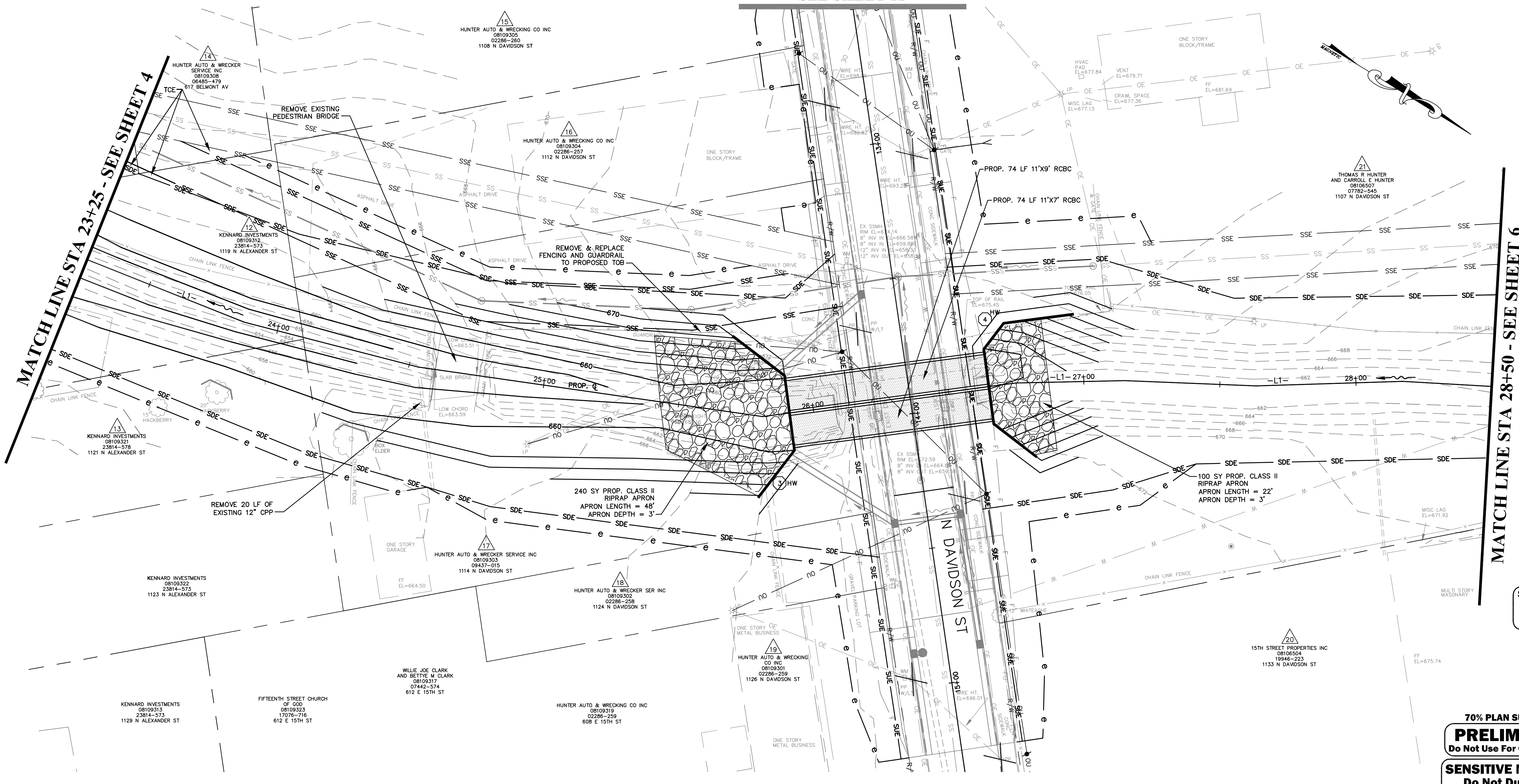
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PARKWOOD PHASE 1	1"=4'
STORM DRAINAGE	SCALE
IMPROVEMENTS PROJECT	
-L1-	
CHANNEL ALIGNMENT	
STA 16+00 TO STA 23+25	
SHEET 4	OF 22

-L1- CHANNEL ALIGNMENT



CHANNEL IMPROVEMENTS SEE SHEET 11



SEE SHEET 11 FOR ROADWAY IMPROVEMENTS TO -Y3- DAVIDSON STREET

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NO.	DATE	BY	DESCRIPTION



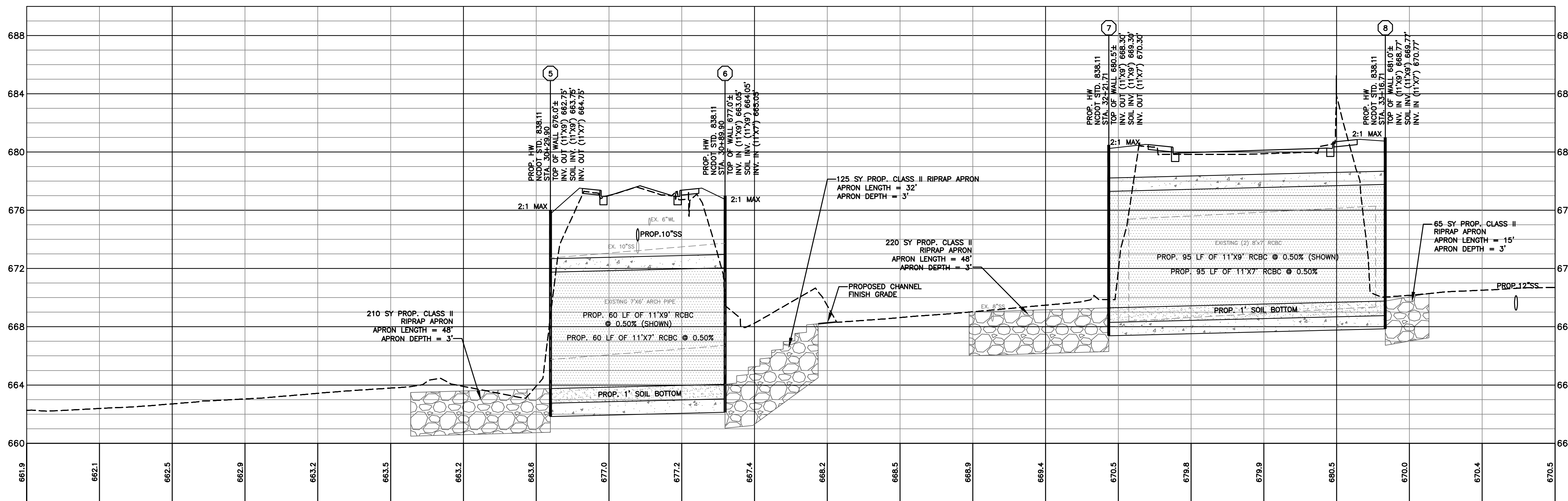
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PARKWOOD PHASE 1 STORM DRAINAGE IMPROVEMENTS PROJECT	EGP PREPARED BY KJH	WAW CHECKED BY 11-30-12	DATE
SHEET 5			
OF 22			

-L1-
CHANNEL ALIGNMENT
STA. 23+25 TO STA. 28+50

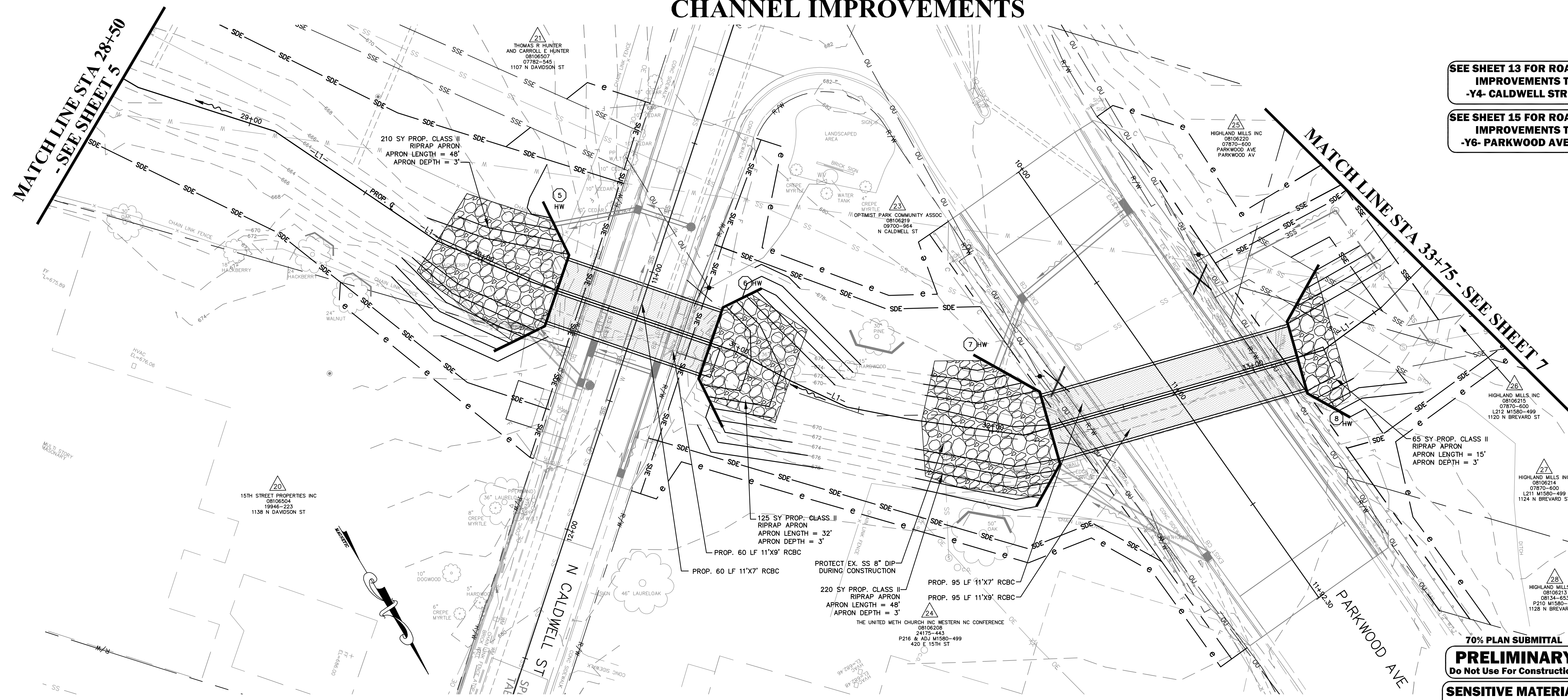
-L1- CHANNEL ALIGNMENT

MATCH LINE STA 28+50 - SEE SHEET 5



MATCH LINE STA 33+75 - SEE SHEET 7

CHANNEL IMPROVEMENTS



SEE SHEET 13 FOR ROADWAY IMPROVEMENTS TO -Y4- CALDWELL STREET

SEE SHEET 15 FOR ROADWAY IMPROVEMENTS TO -Y6- PARKWOOD AVENUE

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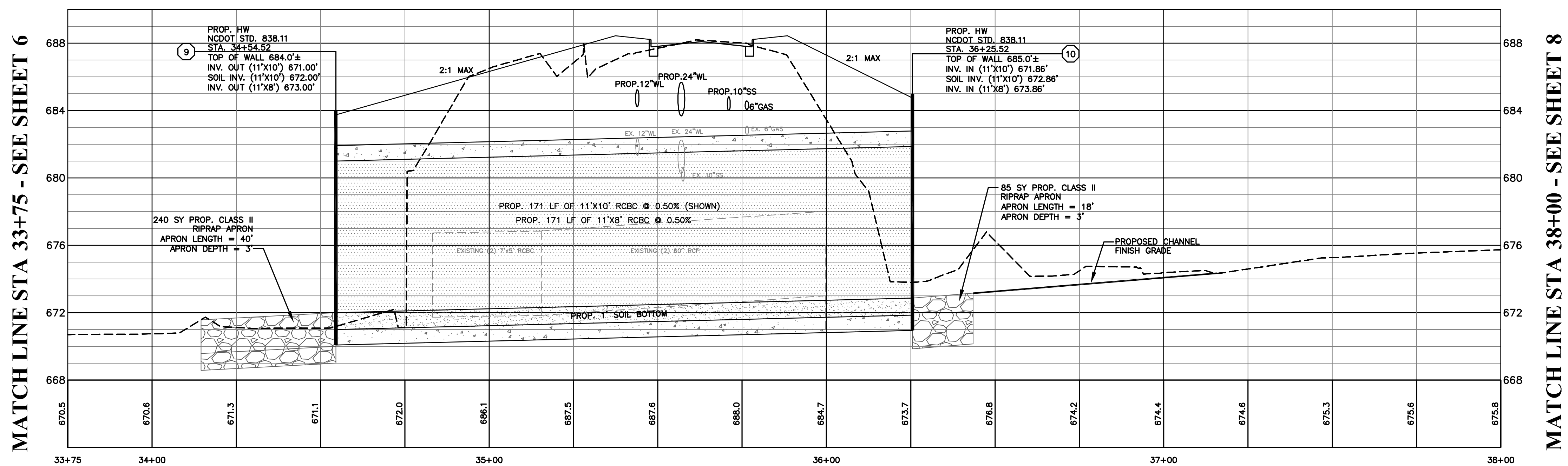
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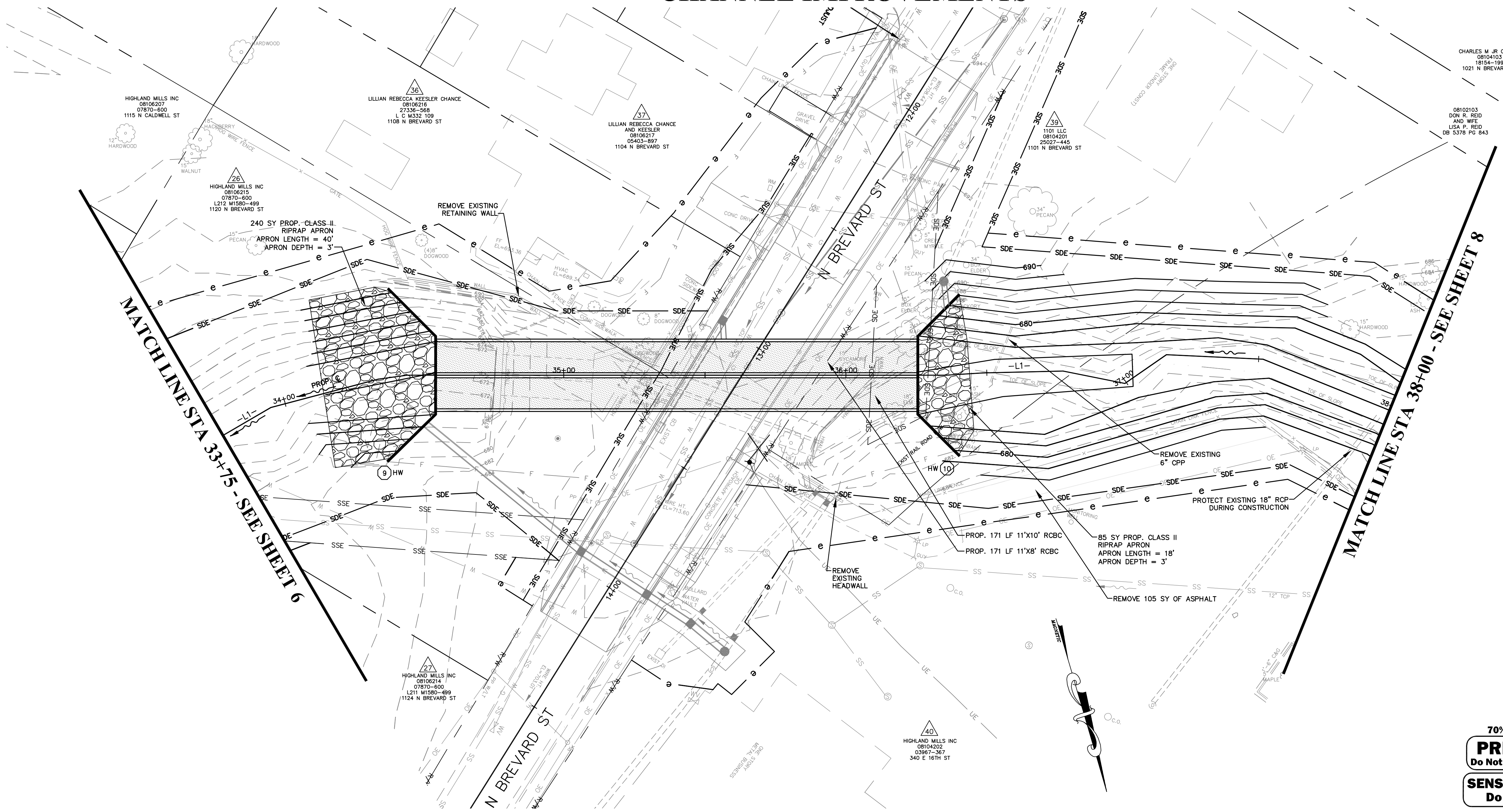
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		EGP	WAW	CHECKED BY
		KJH		11-30-12
				DATE

PARKWOOD PHASE 1	6
STORM DRAINAGE IMPROVEMENTS PROJECT	
-L1- CHANNEL ALIGNMENT	22
STA 28+50 TO STA 33+75	

-L1- CHANNEL ALIGNMENT



CHANNEL IMPROVEMENTS



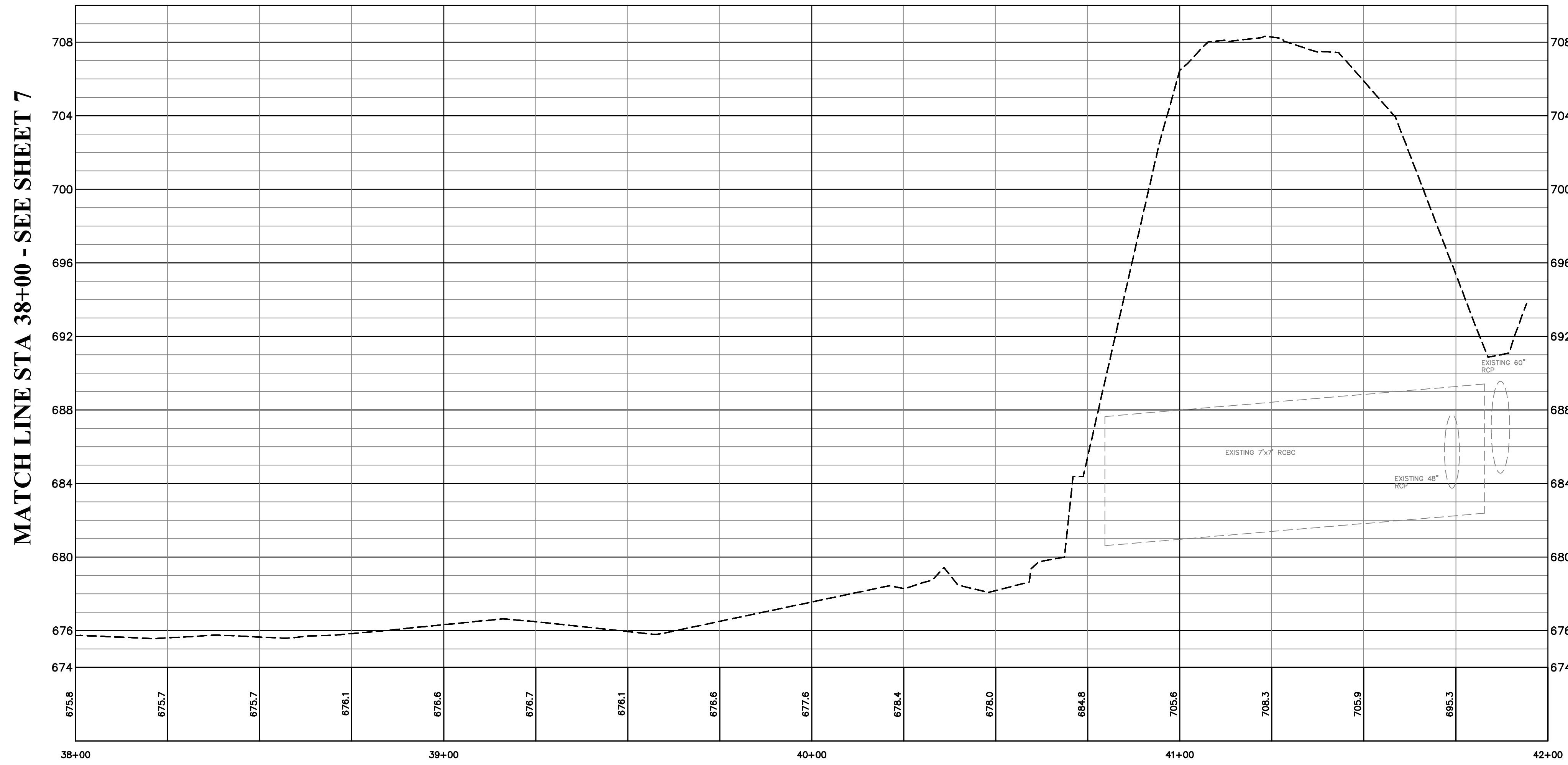
SEE SHEET 18 FOR ROADWAY IMPROVEMENTS TO -Y9- BREVARD STREET

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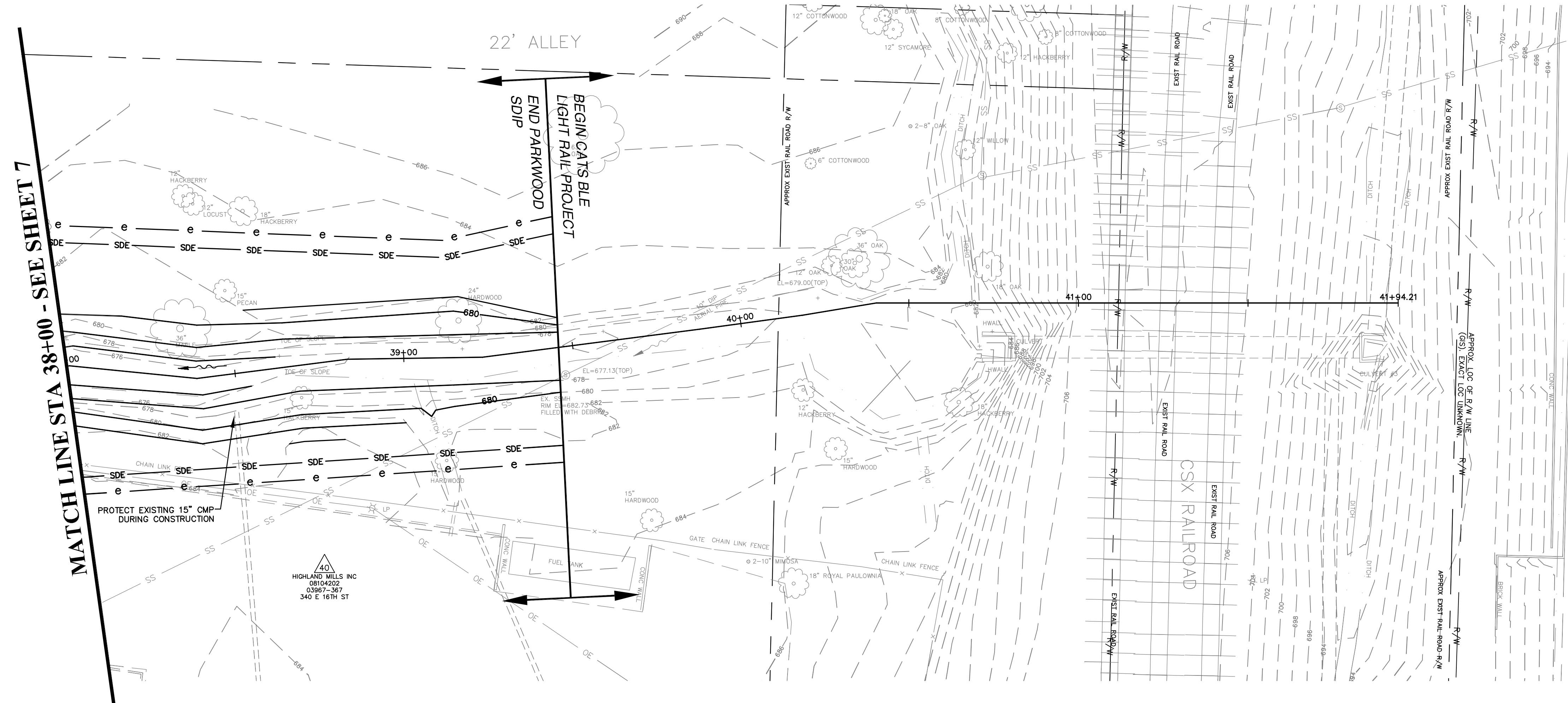
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NO.	DATE	BY	DESCRIPTION
JOB NO.	SCALE	EGP	DATE
671-10-016	1"=20' H, 1"=4' V		
PARKWOOD PHASE 1 STORM DRAINAGE IMPROVEMENTS PROJECT		PREPARED BY KJH	CHECKED BY WAW DATE 11-30-12
SHEET	OF	APPROVED BY	
7	22	-L1- CHANNEL ALIGNMENT STA 33+75 TO STA 38+00	

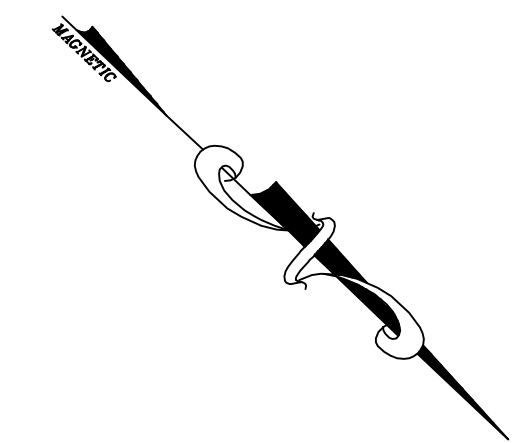
-L1- CHANNEL ALIGNMENT



CHANNEL IMPROVEMENTS



**CSX RAILROAD CULVERTS
TO BE CONSTRUCTED BY OTHERS**



08102103
DON R. REID
AND WFE
LSA P. REID
DB 5376 PG 843

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MATCH LINE STA 38+00 - SEE SHEET 7

MATCH LINE STA 38+00 - SEE SHEET 7



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PARKWOOD PHASE 1 STORM DRAINAGE IMPROVEMENTS PROJECT	EGP PREPARED BY KJH	WAW CHECKED BY 11-30-12	DATE
SHEET 8			
OF 22			
-L1- CHANNEL ALIGNMENT STA. 38+00 TO STA 41+94.21			