

TOWN OF EXETER

CAPITAL IMPROVEMENT PROGRAM

2017-2022





Town of Exeter, New Hampshire

2017 - 2022 CIP Project Request Form

Date Submitted: 6/29/2016

First Year Funding is Requested: FY17

Project Title: Court St. Bridge/Culvert Replacement

Project Type: Roads/Sidewalks

Project Cost: \$1,381,000

Department: Public Works

Contact Name: Jennifer Perry

Project Ranking: 1 of 6

Useful Life (Years): 75

Master Plan (Y/N): NO

Growth Related (Y/N): YES

Service Related (Y/N): YES

Externally Mandated (Y/N): NO



Check all that apply

2017 - 2022 Source of Funding

- ☐ GO Bond/Borrowing
- ☐ Grants
- ☒ Taxes
- ☐ Water Fees
- ☐ Sewer Fees
- ☐ Impact Fees
- ☐ Revolving Funds
- ☐ Other

Project Benefits

- ☒ Reduces Liability
- ☒ Health or Safety
- ☐ Reduces Long Term Debt
- ☐ Other: _____

Project Description

1. General Project Description: This project will replace the large roadway culverts on Court Street, which consist of triple 51" metal arch culverts (1965) that carry Little River under Court Street. The Linden Street culvert replacement project was approved for FY15 and was replaced in summer 2015.

Over the years, flow through the culverts has eroded areas on the pipe floor, leaving the earth exposed. As water flows through these damaged areas soil under the culvert is experiencing significant undermining. Culvert walls are experiencing rusting and pitting with some sag in the crown (roof). A consultant prepared an evaluation of the existing conditions, probable fixes and associated costs in 2012. An updated cost estimate was recently prepared by the consultants based on final design plans for the replacement.

2. Rationale: Design funds of \$150,000 were approved in March 2013. The engineering contract was signed in May 2014 for the design of both Court Street and Linden Street Little River crossings. Geotechnical evaluations and borings were performed in summer 2014. The consultant performed hydrologic and hydraulic (H&H) calculations for sizing the river crossings by modifying the H&H work performed on the Exeter River for the Great Dam project. Final design was completed 2015. The Linden Street culvert was replaced in summer 2015. The Court Street culvert is now scheduled to follow in 2017.

3. Cost Estimate: The opinions of probable project costs have been developed by the consultant in June 2015 subsequent to geotechnical testing (borings), utility evaluations and final design. The cost presented below replaces preliminary estimates originally developed in 2012. The Court Street structure will be prestressed concrete box beams on piles. The Court Street bridge will span 55 feet and include the replacement of the 10 inch diameter water main \$45,000 and rehabilitation of the retaining wall on the northwest corner.

Estimated Start Date: May 2017

Estimated Completion Date: October 2017

Total Capital Cost by Fiscal Year					
FY17	FY18	FY19	FY20	FY21	FY22
\$1,381,000	\$0	\$0	\$0	\$0	\$0
Operating Budget Impact by Fiscal Year					
Total Operating Expense (estimated) by Fiscal Year					
\$0	\$0	\$0	\$0	\$0	\$0

Salaries & Wages:	
Employees Benefits:	
Expenses:	\$1,381,000
Other:	
Total:	
Estimated Project Cost:	\$1,381,000
Estimated Fiscal Capital Cost	
\$1,381,000	

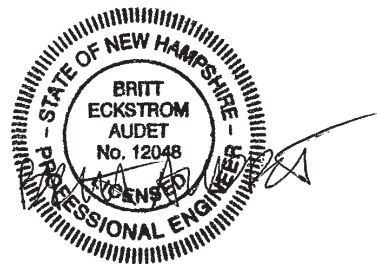
**Town of Exeter, NH
Linden Street & Court Street
Culvert Replacement Project**

**NEW HAMPSHIRE WETLANDS BUREAU
STANDARD DREDGE AND FILL
PERMIT APPLICATION**

November 2014

Prepared for:

Town of Exeter
Public Works Department
13 Newfields Road
Exeter, NH 03833



Prepared by:



35 Bow Street
Portsmouth, NH 03801
(603) 431-6196 · Fax (603) 431-5376



THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES
LAND RESOURCES MANAGEMENT

WETLANDS BUREAU

29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

Phone: (603) 271-2147 Fax: (603) 271-6588

<http://des.nh.gov/organization/divisions/water/wetlands>



PERMIT APPLICATION

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

1. REVIEW TIME:

Indicate your Review Time below. Refer to Guidance Document A for instructions.

☒ Standard Review (Minimum, Minor or Major Impact)

☐ Expedited Review (Minimum Impact)

2. PROJECT LOCATION:

Separate applications must be filed with each municipality that jurisdictional impacts will occur in.

ADDRESS: **Linden Street & Court Street**

TOWN/CITY: **Exeter**

TAX MAP: **Maps 82, 83 & 95**

BLOCK: **N/A**

LOT: **ROW**

UNIT:

USGS TOPO MAP WATERBODY NAME: **Little River**

☐ NA

STREAM WATERSHED SIZE: **15.7 mi²**

☐ NA

LOCATION COORDINATES (If known): **Linden 42.9723, -70.9596 Court: 42.9726, -70.9510**

☒ Latitude/Longitude ☐ UTM ☐ State Plane

3. PROJECT DESCRIPTION:

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

The Town of Exeter is seeking to replace two existing crossings of the Little River. The Linden Street crossing consists of two 12'-10" by 8'- 4" steel plate arch culverts that were built in 1967. The Court Street crossing consists of three 14'-0" by 9'- 8" that were built in 1965. The existing culverts are deteriorating and need to be replaced. The proposed replacement structure will be a single span bridge at each crossing. Approximately 2,850 sq. ft. of wet land impacts are proposed at the Linden Street crossing for removal of the existing culverts and regrading around the proposed wing walls. Approximately, 4,650 sq. ft. of wetland impacts are proposed at the Court Street crossing for removal of the existing culverts and regrading around the proposed wing walls.

4. RELATED PERMITS, ENFORCEMENT, EMERGENCY AUTHORIZATION, SHORELAND, ALTERATION OF TERRAIN, ETC...

None

5. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB ____ - **14-2008 and 14-2033** .

b. ☐ Designated River the project is in ¼ miles of: _____ ; and
date a copy of the application was sent to Local River Advisory Committee: Month: ____ Day: ____ Year: ____

☒ NA

E. Project Need and Minimization & Avoidance

The Linden Street crossing over the Little River is a causeway like structure built in 1967 with a total length of 50 feet measured along the road. The river meanders upstream of the crossing and turns right as it flows through two Corrugated Metal Pipe (CMP) arch culverts, each with a 12.8-foot span and 8.3-foot rise. The CMP culverts are separated by 3.5 feet of fill with stone and cast-in-place concrete infill headwalls between the arches. The structure is listed in poor condition and is currently on the Municipal Red List of structures that require replacement. Heavy rusting over time has resulted in section loss of the structural metal pipe arches to the extent that holes and severe pitting can be observed in the lower section of the side walls along the water line.

The Court Street Culvert crosses the Little River approximately a half mile downstream of the Linden Street Culvert. The structure was built in 1965 and is of similar construction to the Linden Street crossing with one 14.1 by 8.75-foot and two 12.8 by 8.3-foot CMP culverts and a total length of 85 feet measured along the road. The sidewalk at the Court Street Culvert runs along the downstream (east) side of the roadway and is approximately 5 feet wide with granite curbing. Including the sidewalk, the roadway has an overall width of 39 feet. The Court Street Culvert is not presently on the Municipal Red List, however its condition is borderline and near Red List status. Despite the higher condition rating, the Court Street Culvert was observed by CMA Engineers to be in similar condition to the Red List Linden Street culvert. The Court Street Culvert is also currently classified as hydraulically deficient.

The Town is proposing to replace the Linden Street crossing in 2015 and the Court Street crossing in 2016 with single span bridges. The projects are being permitted together due to their geographic location and similar construction methods.

See Attachment A – Minor & Major 20 questions on the following page.



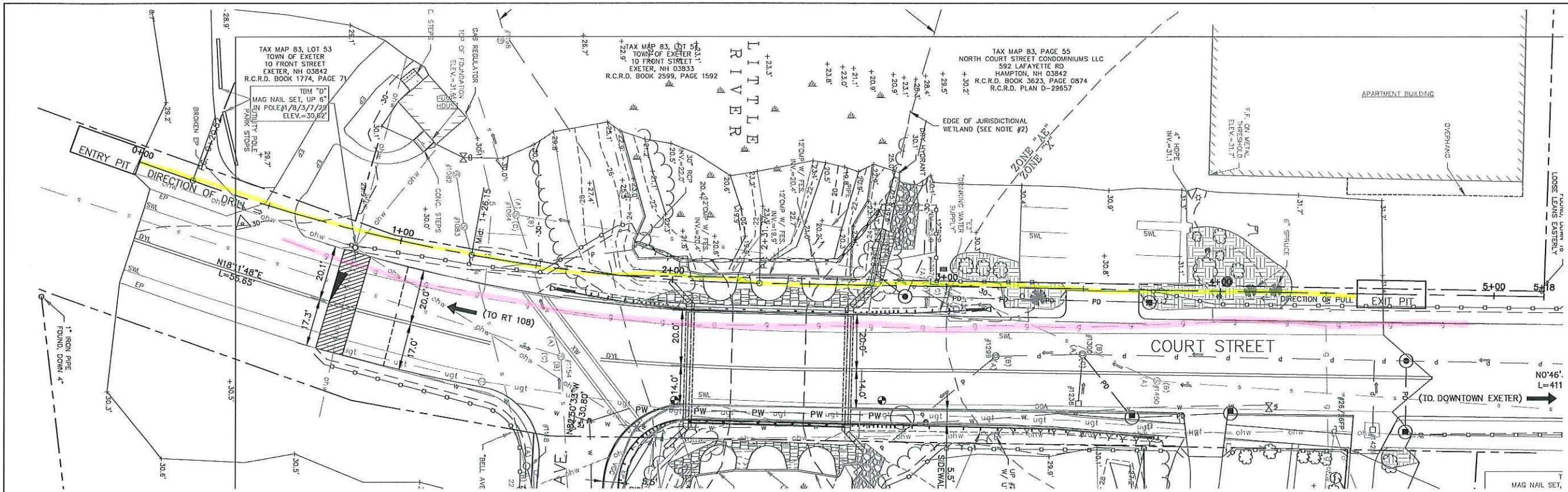
COURT STREET HDD
COURT STREET
EXETER, NH

INDEX OF SHEETS		
NUMBER	NAME	TITLE
1	T01	COVER SHEET
2	C01	GENERAL NOTES
3	C02	HDD PLAN AND PROFILE
4	D01	BORING LOGS B-1
5	D02	BORING LOGS B-2
6	D03	HDD WORKSPACE PLAN



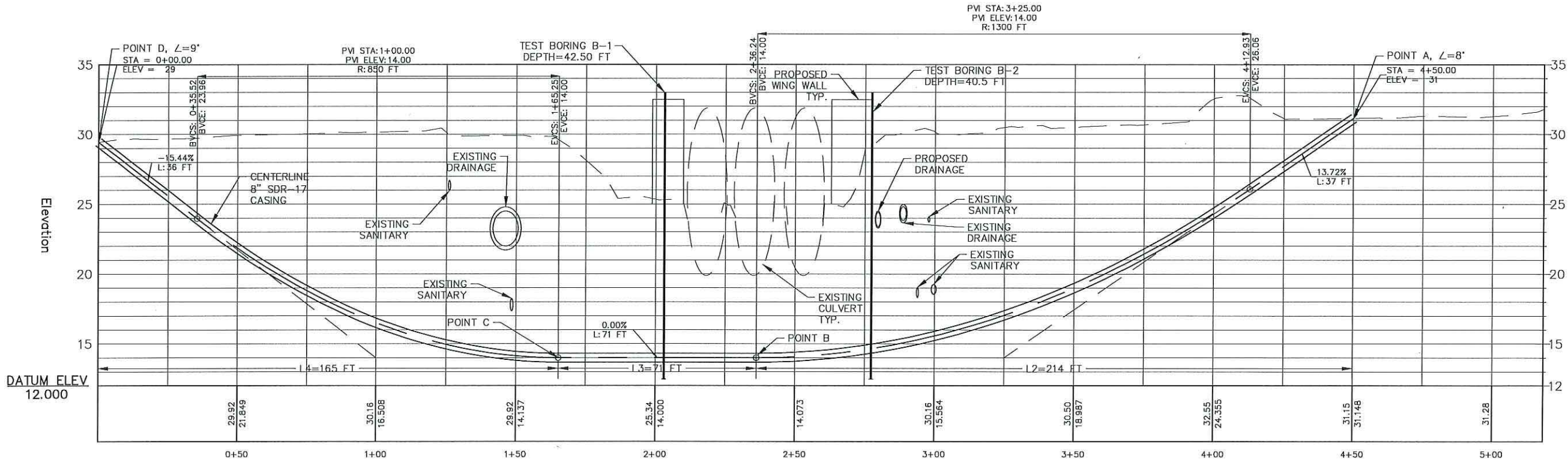
LOCUS
SCALE: NTS

P R E L I M I N A R Y				
ISSUE STATUS	DATE	REVIEWED	CHECKED	APPROVED
25% SUBMISSION				
50% SUBMISSION				
75% SUBMISSION				
90% SUBMISSION				
ISSUED FOR BID				
ISSUED FOR CONSTRUCTION				
AS CONSTRUCTED				
FILE NAME: HDD-001.DWG				T01
PLOT DATE: 12/12/2016 3:42 PM				SHEET 1 OF 6



HDD ALIGNMENT PLAN
 HORIZONTAL SCALE: 1"=20'

new
 existing



HDD PROFILE
 HORIZONTAL SCALE: 1"=20'
 VERTICAL SCALE: 1"=4'

PRELIMINARY

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Boring No. B-1
Station 12+04, 12.9 Right

TEST BORING LOG

CMA Engineers, Inc. Civil/Environmental Engineers 35 Bow Street Portsmouth, NH 03801 Phone: 603.431.6196 Fax: 603.431.5376			PROJECT		Test Boring Number B-1	
			Description: Court St. Bridge		Sheet 1 of 2	
			Location: Exeter, NH			
			Notes:			
			Contractor: Great Works Pump & Test Boring, Inc.		Date: July 7, 2014	
CMA Engineer: Bob Grillo			Equipment: Acker Track Rig		Ground Elevation: 31.5' +/-	
File Number: #923			Operator: Peter Michaud		Weather: Sun 80F	
Depth	Sample No. Depth (ft)	Blow Count	Sample Descriptions and Classifications		Remarks	
1	S-1 0.5' - 2.5'	9	Brown Sand and Gravel, trace silt. Fill. Dry.		4" Asphalt Cobble at 1'	
2		10				
3		16				
4		16				
5	S-2 5' - 7'	7	Brown Sandy Clay. Roots and organics. Fill. Moist.		Groundwater Encountered at 8.0'	
6		2				
7		1				
8		1				
9	S-3 5' - 7'					
10		8				
11		8				
12		5				
13	S-4 13' - 15'	4	Gray Medium Sand, trace silt. Wood fragments. Fill.		Change to Silty Clay at 12.5' Solid stem augers to 10' 4" Casing to 13'. Drive and wash drilling.	
14		WOH / 2'				
15						
16						
17	T-1 15' - 17'		440 psf			
18	Vane Shear 17' - 17.75'					
19	Vane Shear 17.75' - 18.5'					
20						
21	Vane Shear 20' - 20.75'		450 psf			
22	Vane Shear 20.75' - 21.5'					
23						
24						
25	S-2	10	Gray Fine to Medium Sand, some silt, little gravel. Moist.		Change to Sand at 23.7'	
		8				

BOTTOM OF SUB ABUTMENT
ABUTMENT A (EL. 25.13)

Boring No. B-1
(Continued)

TEST BORING LOG

CMA Engineers, Inc. Civil/Environmental Engineers 35 Bow Street Portsmouth, NH 03801 Phone: 603.431.6196 Fax: 603.431.5376			PROJECT Description: Court St. Bridge Location: Exeter, NH Notes: Contractor: Great Works Pump & Test Boring, Inc.	Test Boring Number B-1 Sheet 2 of 2 Date: July 7, 2014
CMA Engineer: Bob Grillo			Equipment: Acker Track Rig	Ground Elevation: 31.5' +/-
File Number: #923			Operator: Peter Michaud	Weather: Sun 80F
Depth	Sample No. Depth (ft)	Blow Count	Sample Descriptions and Classifications	Remarks
26	S-5 25' - 27'	9	Gray Clayey Fine to Medium Sand, trace gravel and cobbles.	
27		10		
28				
29				
30	S-6 30' - 32'	5	Gray Clayey Fine to Medium Sand, trace gravel and cobbles.	
31		7		
32		6		
33		6		
34	S-7 35' - 37'		Same, some gravel.	
35		13		
36		7		
37		10		
38	S-8 40' - 42'	15	Same	Cobbles encountered 37.5' to 38.5'
39				
40		18		
41		15		
42		11		Refused to drilling tools at 42.5'. Roller bit drilled to 45' through rock.
43		18		
44				
45				
46				
47				
48				
49				
50				

P R E L I M I N A R Y

						PRJ MANAGER: MARK D. WOOD PRJ ENGINEER: DAVID B. HOGUE PRJ NAME: COURT STREET HDD PRJ NUMBER: 5232 PRJ MILESTONE: PRELIMINARY PRJ PHASE: DESIGN			CLIENT INFORMATION  Northern Utilities, Inc.			SHEET TITLE BORING LOGS			 1800 Providence Highway Walpole, MA 02081 781.829.0524 processpipelineservices.com		
						DESIGNED BY: MDW -- DRAFTED BY: DBH 12/12/16 CHECKED BY: SMR -- APPROVED BY: MDW --			DESIGN MANAGER: T. BICKFORD DESIGN ENGINEER: M. DUPUIS ACTIVATION ORDER:			REVIEWED BY: -- CHECKED BY: -- APPROVED BY: --			PROJECT NAME COURT STREET HDD		
									PROJECT LOCATION COURT STREET EXETER, NEW HAMPSHIRE			FILE NAME: HDD-001.DWG PLOT DATE: 12/12/2016 3:42 PM PLOT SCALE: NTS			SIZE 22X34		
REV BY DATE DESCRIPTION DWG NO. REFERENCE DRAWINGS SEAL AND SIGNATURE															SHEET D01		
															REV A		
															SHEET: 4 OF 6		

Boring No. B-2
Station 12+79, 10.9' Right

TEST BORING LOG

CMA Engineers, Inc. Civil/Environmental Engineers 35 Bow Street Portsmouth, NH 03801 Phone: 603.431.6196 Fax: 603.431.5376			PROJECT	Test Boring Number
			Description: Court St. Bridge Location: Exeter, NH Notes:	B-2
CMA Engineer: Bob Grillo			Contractor: Great Works Pump & Test Boring, Inc.	Sheet 1 of 2
File Number: #923			Equipment: Acker Track Rig Operator: Peter Michaud	Date: July 7, 2014
			Ground Elevation: 31.5' +/-	
			Weather: Sun 80F	
Depth	Sample No. Depth (ft)	Blow Count	Sample Descriptions and Classifications	Remarks
1	S-1 0.5' - 2.5'	8	Brown Sand and Gravel, trace silt. Dry. Fill	4" Asphalt
2		14		
3		15		
4		13		
5	S-2 5' - 7'	5	Same	Solid Stem Augers to advance boring
6		5		
7		6		
8		5		
9	S-3 10' - 12'	2	Gray Silty Clay overlaying Gray Fine to Medium Sand, trace silt fill.	Groundwater at 8.0'
10		2		
11		9		
12		7		
13	S-4 12' - 14'	3	12" Gray Sand, trace silt. Wood Fragments. Fill.	Change to Silty Clay at 12.5'
14		3		
15	S-5 15' - 17'	4	12" Gray Silty Clay	Change to Soft Silty Clay at 15.2'
16		2		
17		1		
18		1/12"		
19	Rock Core-1 19' - 22.5'		Gray Silty Clay	Change to Sand at 19'
20				
21				
22				
23	S-6 24' - 26'		Gray Fine to Coarse Sand, little silt and gravel	Cored through boulder
24		3		
25		6		
		15		
		12		

BOTTOM OF STUB ABUTMENT
ABUTMENT B (EL. 25.13)

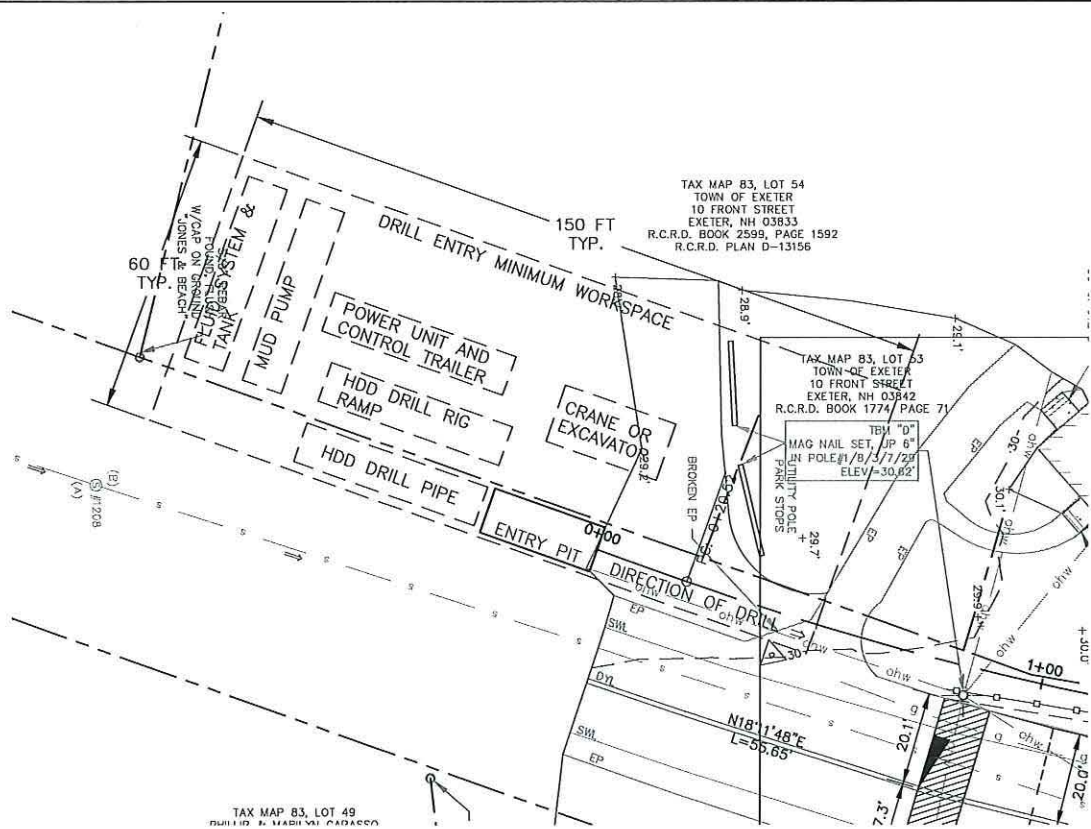
Boring No. B-2
(Continued)

TEST BORING LOG

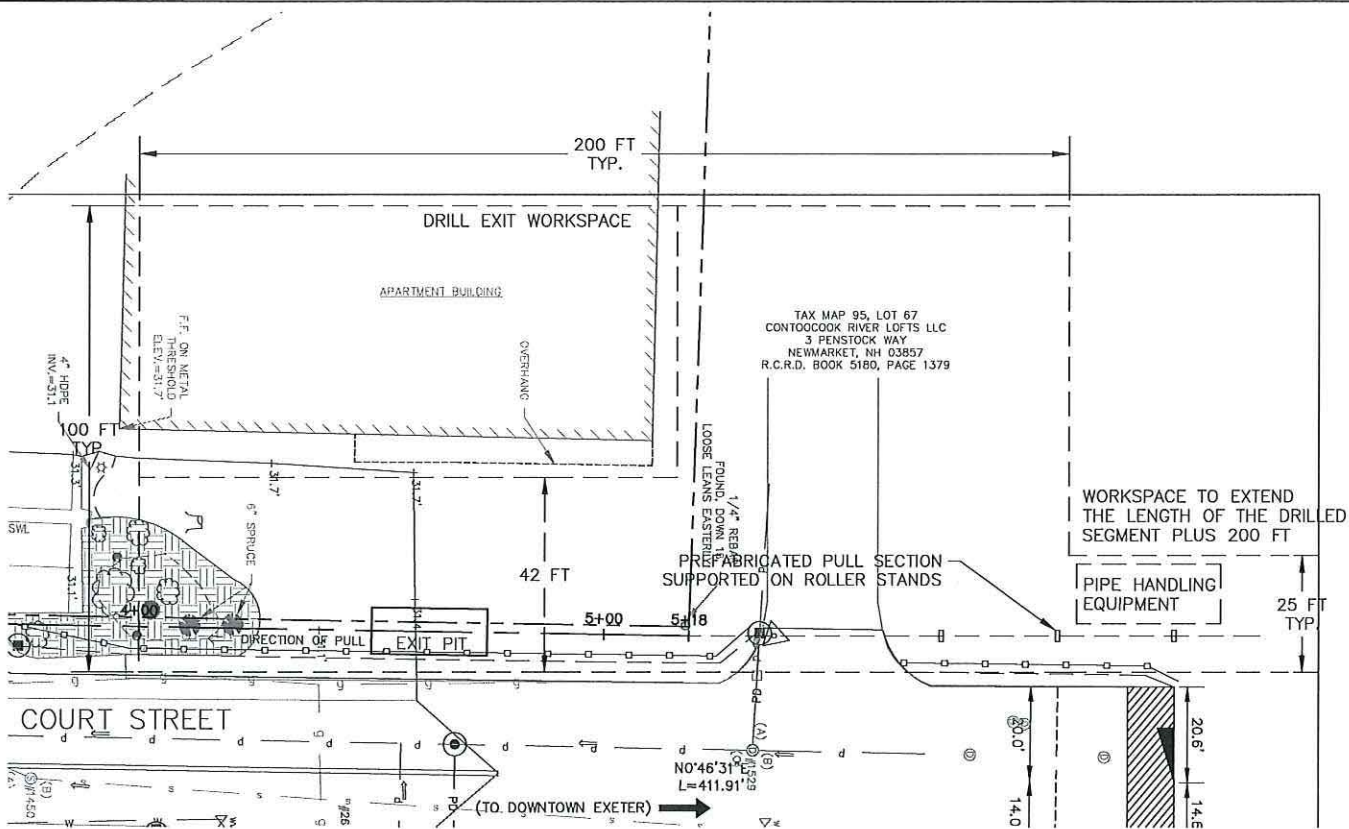
CMA Engineers, Inc. Civil/Environmental Engineers 35 Bow Street Portsmouth, NH 03801 Phone: 603.431.6196 Fax: 603.431.5376			PROJECT	Test Boring Number
			Description: Court St. Bridge Location: Exeter, NH Notes:	B-2
CMA Engineer: Bob Grillo			Contractor: Great Works Pump & Test Boring, Inc.	Sheet 2 of 2
File Number: #923			Equipment: Acker Track Rig Operator: Peter Michaud	Date: July 7, 2014
			Ground Elevation: 31.5' +/-	
			Weather: Sun 80F	
Depth	Sample No. Depth (ft)	Blow Count	Sample Descriptions and Classifications	Remarks
26	S-7 31' - 33'		Gray Clayey Sand, little gravel.	Cobbles encountered from 29.5' - 30' Could not advance casing through cored boulder. Borehole collapsed. Pushed s.s. sampler to 31'. Refusal to drilling tools at 40.5'. Roller bit drilled to 41.5' through rock.
27				
28				
29				
30				
31		11		
32		14		
33		24		
34		30/5"		
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P R E L I M I N A R Y

												PRJ MANAGER: MARK D. WOOD PRJ ENGINEER: DAVID B. HOGUE PRJ NAME: COURT STREET HDD PRJ NUMBER: 5232 PRJ MILESTONE: PRELIMINARY PRJ PHASE: DESIGN				CLIENT INFORMATION  Unitil Northern Utilities, Inc.				SHEET TITLE BORING LOGS				 PROCESS PIPELINE SERVICES 1800 Providence Highway Walpole, MA 02081 781.829.0524 processpipeline.com																											
												DESIGNED BY: MDW - 12/12/16				DESIGN MANAGER: T. BICKFORD				REVIEWED BY:								PROJECT NAME COURT STREET HDD				PROJECT LOCATION COURT STREET EXETER, NEW HAMPSHIRE				FILE NAME: HDD-001.DWG				SIZE: 22X34				SHEET: 002				REV: A			
												DRAFTED BY: DBH				DESIGN ENGINEER: M. DUPUIS				CHECKED BY:																PLOT DATE: 12/12/2016 3:42 PM				PLOT SCALE: NTS				SHEET: 5 OF 6							
												CHECKED BY: SMR				ACTIVATION ORDER:				APPROVED BY:																															
REV	BY	DATE	DESCRIPTION				DWG NO.	REFERENCE DRAWINGS				SEAL AND SIGNATURE																																							



DRILL ENTRY WORKSPACE
HORIZONTAL SCALE: 1"=20'



DRILL EXIT WORKSPACE
HORIZONTAL SCALE: 1"=20'

P R E L I M I N A R Y
