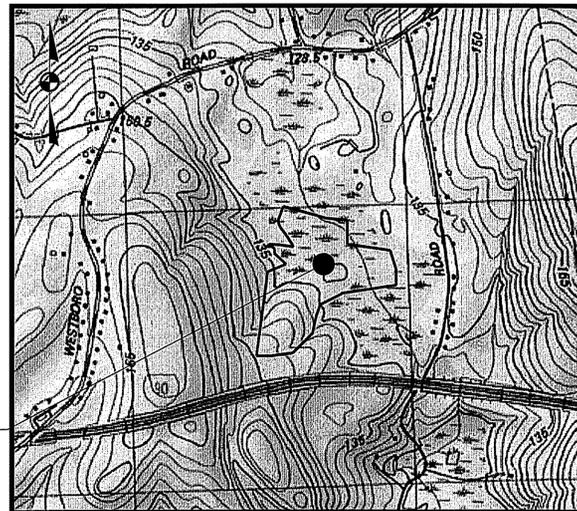


# Definitive Conventional Subdivision Plans

June 10, 2016 (Revised October 11, 2016)

## Estates at Bull Meadow

North Grafton, Massachusetts 01536



PROJECT SITE

SCALE: 1"=1000'±  
ZONING DISTRICT: R40

**Applicant:**  
Bull Meadow, LLC.  
2 Rachel Road  
Boylston, MA 01505  
(978)833-4747

**Record Owner:**  
Bull Meadow, LLC.  
Mr. Gordon Lewis, Manager  
2 Rachel Road  
Boylston, MA 01505  
(978) 833-4747

**Civil Engineer:**  
McCarty Engineering, Inc.  
42 Jungle Road  
Leominster, MA 01453  
(978) 534-1318

**Surveyor:**  
Whitman & Bingham Associates, LLC.  
510 Mechanic Street  
Leominster, MA 01453  
(978) 537-5296

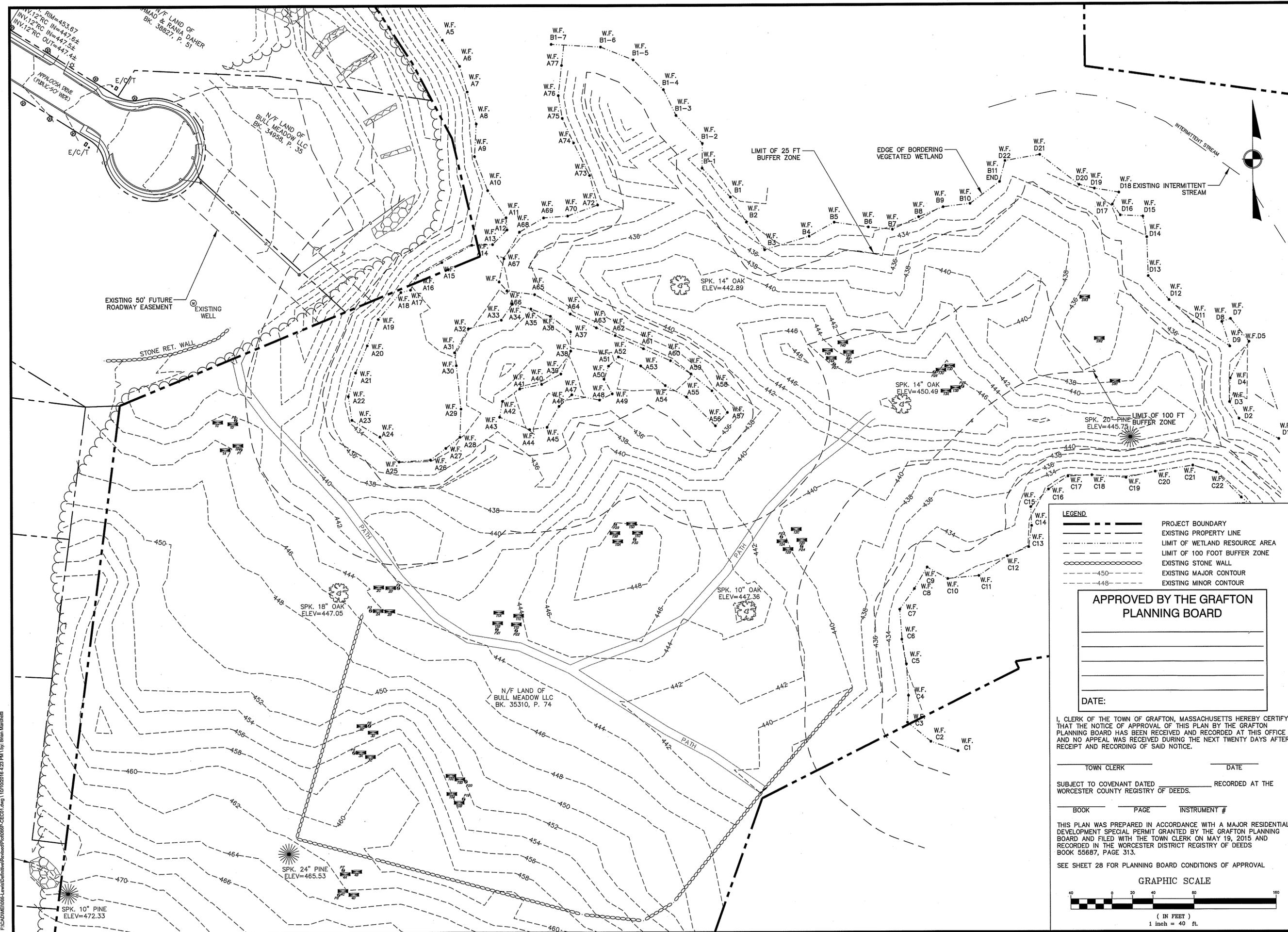
**Wetland Consultant:**  
EcoTec, Inc.  
102 Grove Street  
Worcester, MA 01605  
(508)752-9494

### Sheet Sheet Title

Sheet	Sheet Title
	Cover Sheet
1	Existing Conditions Survey (1 of 2)
2	Existing Conditions Survey (2 of 2)
3	Lotting Plan (1 of 4)
4	Lotting Plan (2 of 4)
5	Lotting Plan (3 of 4)
6	Lotting Plan (4 of 4)
7	Overall Subdivision Plan (1 of 3)
8	Layout and Materials Plan (2 of 3)
9	Layout and Materials Plan (3 of 3)
10	Grading and Drainage Plan (1 of 2)
11	Grading and Drainage Plan (2 of 2)
12	Utility Plan (1 of 2)
13	Utility Plan (2 of 2)
14	Roadway and Utility Profiles (1 of 4)
15	Roadway and Utility Profiles (2 of 4)
16	Roadway and Utility Profiles (3 of 4)
17	Roadway and Utility Profiles (4 of 4)
18	Water Main Extension Plan
19	Erosion Control Plan (1 of 2)
20	Erosion Control Plan (2 of 2)
21	Wetland Crossing and Replication Plan
22	Construction Phasing Plan
23	Construction Details (1 of 4)
24	Construction Details (2 of 4)
25	Construction Details (3 of 4)
26	Construction Details (4 of 4)
27	Stormtech Detail Sheet
28	Conditions of Approval



10/11/2016



**NOT FOR CONSTRUCTION**  
 THESE PLANS WERE PREPARED FOR THE PURPOSE OF OBTAINING STATE AND LOCAL PERMITS AND ARE NOT INTENDED TO BE USED AS CONSTRUCTION DOCUMENTS.

PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
 Designed By: BRM  
 Checked By: TSK/ML

- LEGEND**
- PROJECT BOUNDARY
  - - - EXISTING PROPERTY LINE
  - - - - - LIMIT OF WETLAND RESOURCE AREA
  - - - - - LIMIT OF 100 FOOT BUFFER ZONE
  - EXISTING STONE WALL
  - - - - - EXISTING MAJOR CONTOUR
  - - - - - EXISTING MINOR CONTOUR

**APPROVED BY THE GRAFTON PLANNING BOARD**

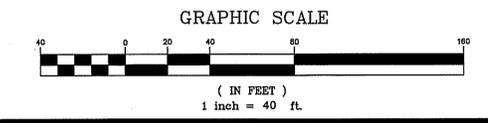
DATE: \_\_\_\_\_

I, CLERK OF THE TOWN OF GRAFTON, MASSACHUSETTS HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE GRAFTON PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE NEXT TWENTY DAYS AFTER RECEIPT AND RECORDING OF SAID NOTICE.

TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_  
 SUBJECT TO COVENANT DATED \_\_\_\_\_ RECORDED AT THE WORCESTER COUNTY REGISTRY OF DEEDS.  
 BOOK \_\_\_\_\_ PAGE \_\_\_\_\_ INSTRUMENT # \_\_\_\_\_

THIS PLAN WAS PREPARED IN ACCORDANCE WITH A MAJOR RESIDENTIAL DEVELOPMENT SPECIAL PERMIT GRANTED BY THE GRAFTON PLANNING BOARD AND FILED WITH THE TOWN CLERK ON MAY 19, 2015 AND RECORDED IN THE WORCESTER DISTRICT REGISTRY OF DEEDS BOOK 55687, PAGE 313.

SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



**McCarty Engineering, Inc.**  
 Civil Engineers  
 42 Jungle Road, Leominster, MA 01453  
 phone: (978) 534-1318 fax: (978) 840-6907  
 www.mccartydb.com

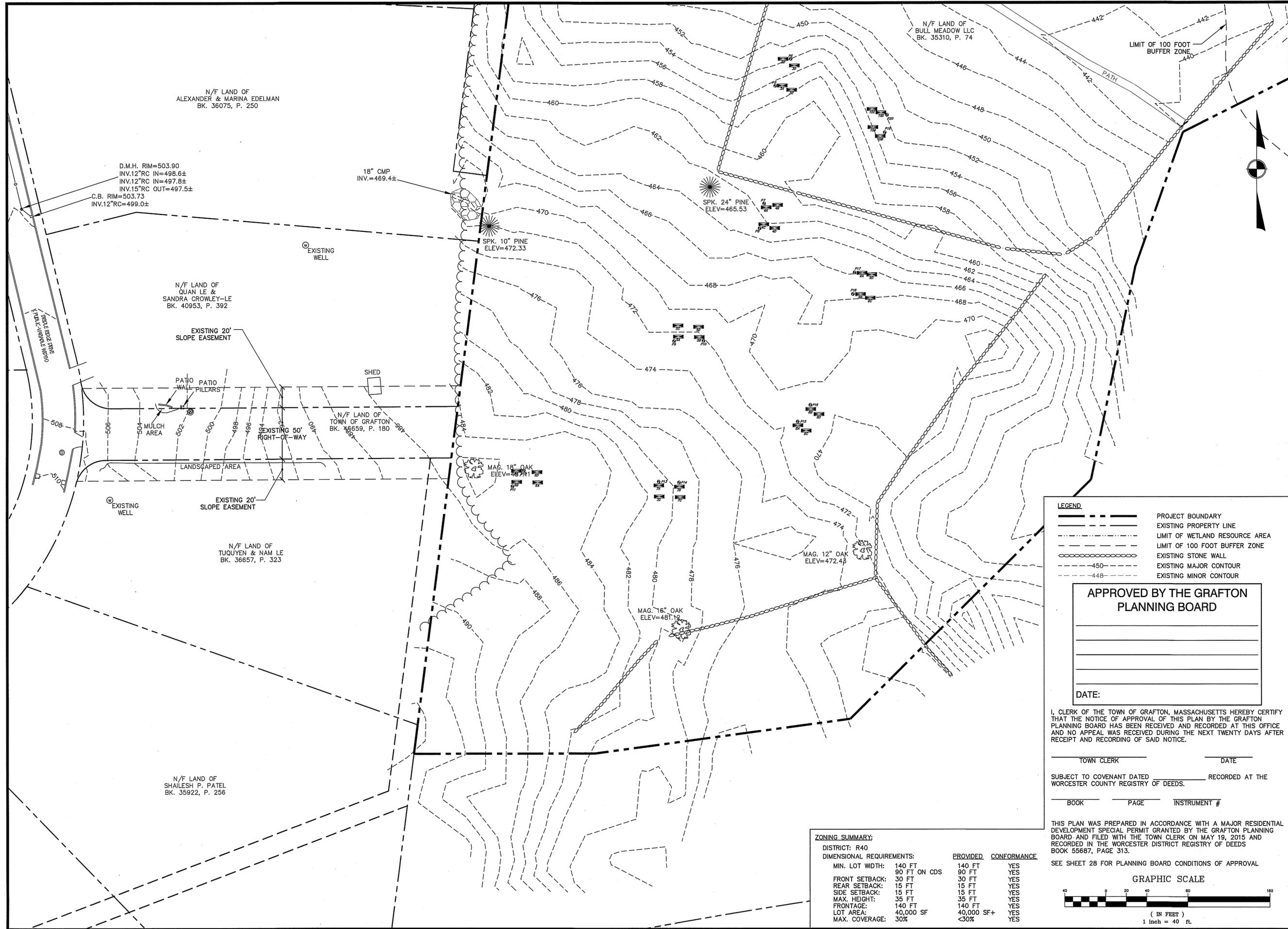
Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**N. Grafton, MA 01536**

Sheet Title  
**Existing Conditions**  
**Survey**  
**(1 of 2)**

Job No: 066  
 File Name: 066P-CBC01  
 Date: June 10, 2016  
 Scale: 1"=40'  
 Sheet No. **1**  
 OF 28

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PREPARED FOR:  
 BULL MEADOW LLC,  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
 Designed By: BRM  
 Checked By: JSZ

- LEGEND**
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  - LIMIT OF WETLAND RESOURCE AREA
  - LIMIT OF 100 FOOT BUFFER ZONE
  - EXISTING STONE WALL
  - 450 EXISTING MAJOR CONTOUR
  - 448 EXISTING MINOR CONTOUR

**APPROVED BY THE GRAFTON PLANNING BOARD**

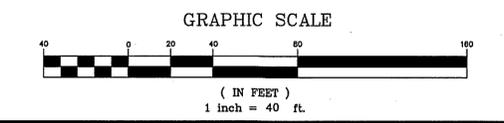
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**ZONING SUMMARY:**

DISTRICT: R40

DIMENSIONAL REQUIREMENTS:	PROVIDED	CONFORMANCE
MIN. LOT WIDTH:	140 FT	YES
FRONT SETBACK:	90 FT ON CDS	YES
REAR SETBACK:	30 FT	YES
SIDE SETBACK:	15 FT	YES
MAX. HEIGHT:	35 FT	YES
FRONTAGE:	140 FT	YES
LOT AREA:	40,000 SF	YES
MAX. COVERAGE:	30%	YES

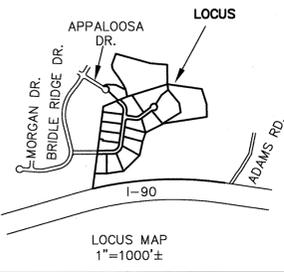
F:\CAD\ME066-Lewis\Definitive\Revised\Plan\066P-CEC02.dwg 11/10/2016 4:27 PM by: Justin Lendar

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 42 Jungle Road, Leominster, MA 01453  
 phone:(978) 534-1318 fax: (978) 840-6907  
 www.mccartydb.com

Project Name  
**Estates at Bull Meadow  
 Definitive Plan  
 N. Grafton, MA 01536**

Sheet Title  
**Existing Conditions  
 Survey  
 (2 of 2)**

Job No: 066  
 File Name: 066P-CEC02  
 Date: June 10, 2016  
 Scale: 1"=40'  
 Sheet No. **2**  
 OF 28



P.B. 784, P. 109



APPROVED BY THE GRAFTON  
PLANNING BOARD DATE: \_\_\_\_\_

- NOTES:
- OWNER/APPLICANT: BULL MEADOW, LLC  
BK. 53605, P. 383  
BK. 35310, P. 74  
BK. 34958, P. 35
  - PLAN REFERENCES: P.B. 750, P. 55  
P.B. 784, P. 109  
P.B. 799, P. 108  
P.B. 911, P. 97
  - THE SUBJECT PREMISES IS GRAPHICALLY SITUATED IN THE R-40 ZONING DISTRICT WITH THE FOLLOWING MINIMUM DIMENSIONAL REQUIREMENTS:  
MINIMUM LOT AREA: 40,000 S.F.  
MINIMUM LOT FRONTAGE: 140 FT.  
MINIMUM FRONT SETBACK: 30 FT.  
MINIMUM SIDE SETBACK: 15 FT.  
MINIMUM REAR SETBACK: 15 FT.
  - THE SUBJECT PREMISES IS NOT GRAPHICALLY SITUATED IN THE 100-YEAR FLOOD HAZARD ZONE PER FLOOD INSURANCE RATE MAPS 25027C0831F AND 25027C0832F DATED JULY 16, 2014.
  - OPEN SPACE PARCELS A AND B ARE NOT TO BE CONSIDERED BUILDING LOTS, NO FURTHER BUILDING MAY OCCUR WITHOUT FURTHER APPROVAL BY THE PLANNING BOARD PURSUANT TO THE SUBDIVISION CONTROL LAW.
  - SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL.

Ⓞ DENOTES GRANITE BOUND TO BE SET

I HEREBY CERTIFY THAT NO NOTICE OF APPEALS WAS RECEIVED DURING THE TWENTY DAYS NEXT AFTER THE RECEIPT AND RECORDING OF THE NOTICE FROM THE GRAFTON PLANNING BOARD OF THE APPROVAL OF THIS PLAN.

TOWN OF GRAFTON CLERK \_\_\_\_\_ DATE \_\_\_\_\_



I CERTIFY THAT THIS PLAN MEETS WITH REGULATIONS OF REGISTERS OF DEEDS

ESTATES AT BULL MEADOW  
DEFINITIVE SUBDIVISION PLAN OF LAND

IN GRAFTON, MA

PREPARED FOR

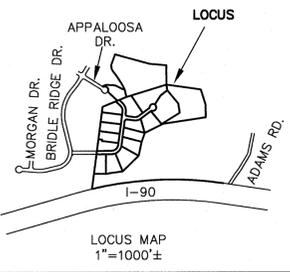
BULL MEADOW, LLC

JUNE 10, 2016

REVISED 10-11-16



WHITMAN & BINGHAM ASSOCIATES, LLC  
REGISTERED PROFESSIONAL ENGINEERS & LAND SURVEYORS  
510 MECHANIC STREET - LEOMINSTER, MASSACHUSETTS 01453



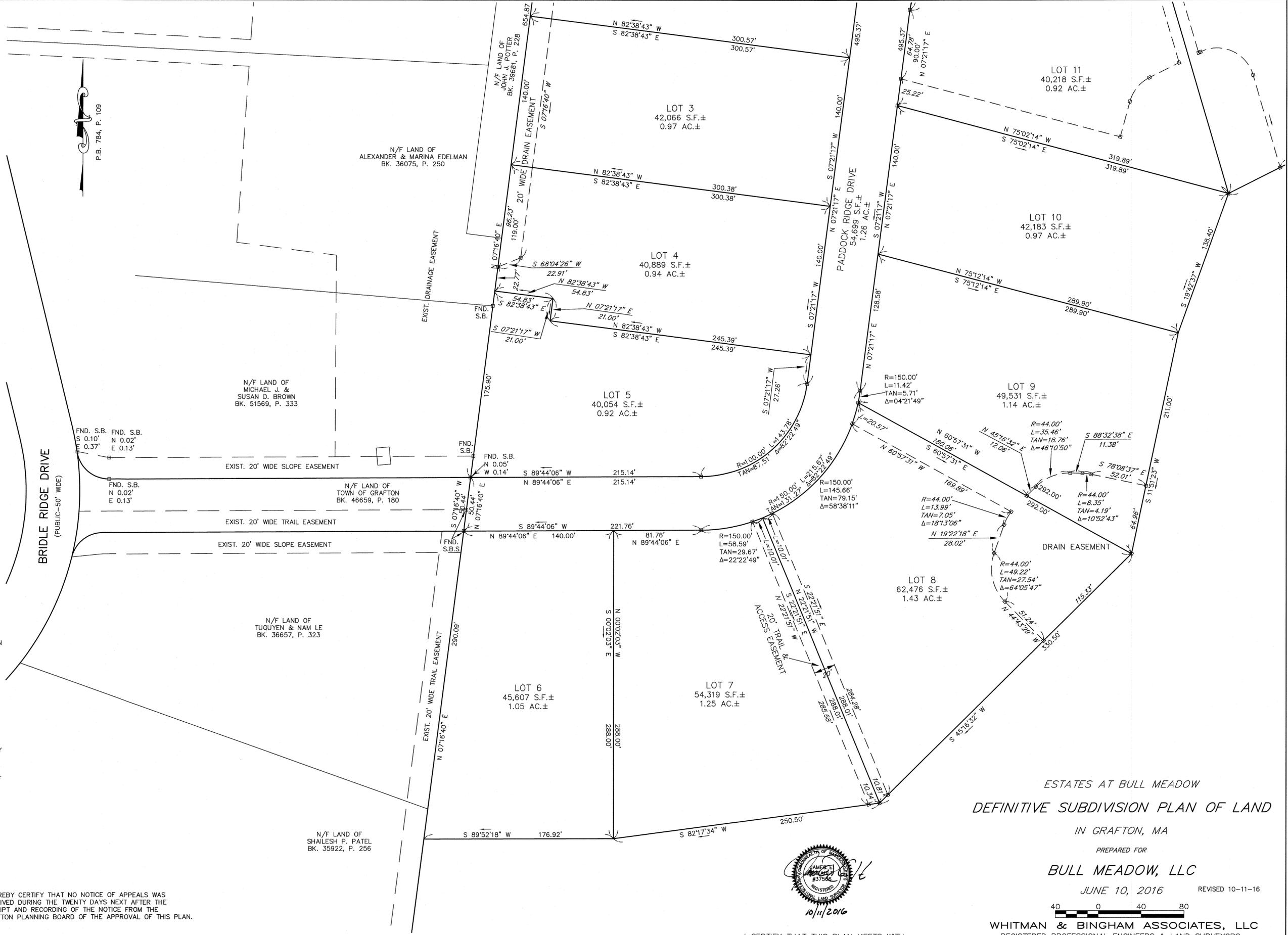
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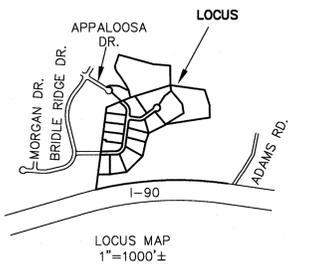
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ESTATES AT BULL MEADOW  
DEFINITIVE SUBDIVISION PLAN OF LAND  
IN GRAFTON, MA

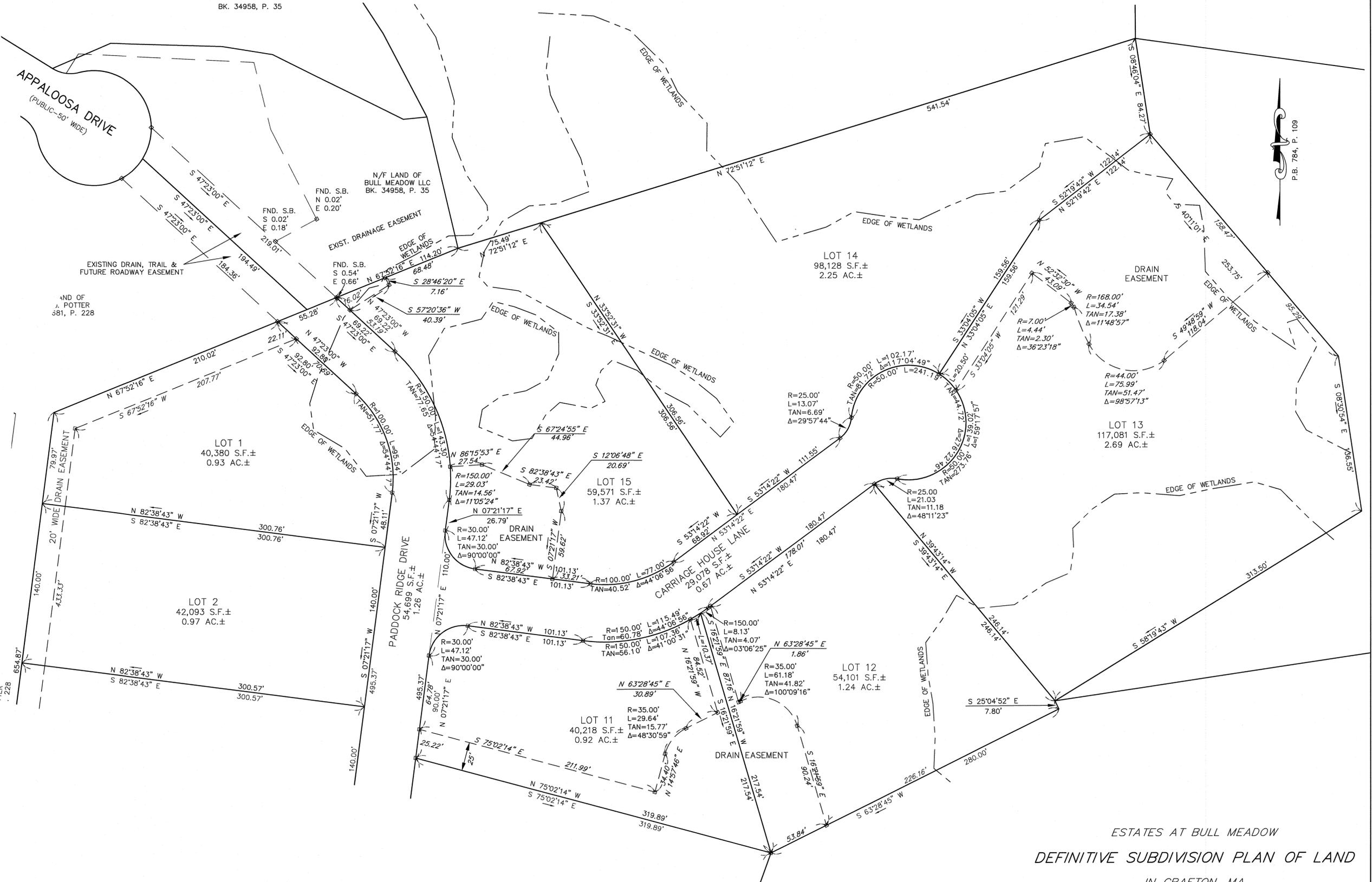
PREPARED FOR  
BULL MEADOW, LLC  
JUNE 10, 2016



WHITMAN & BINGHAM ASSOCIATES, LLC  
REGISTERED PROFESSIONAL ENGINEERS & LAND SURVEYORS  
510 MECHANIC STREET - LEOMINSTER, MASSACHUSETTS 01453



BK. 34958, P. 35



APPROVED BY THE GRAFTON PLANNING BOARD DATE: \_\_\_\_\_

- NOTES:
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BK. 53605, P. 383  
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TOWN OF GRAFTON CLERK \_\_\_\_\_ DATE \_\_\_\_\_



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ESTATES AT BULL MEADOW  
DEFINITIVE SUBDIVISION PLAN OF LAND

IN GRAFTON, MA

PREPARED FOR

**BULL MEADOW, LLC**

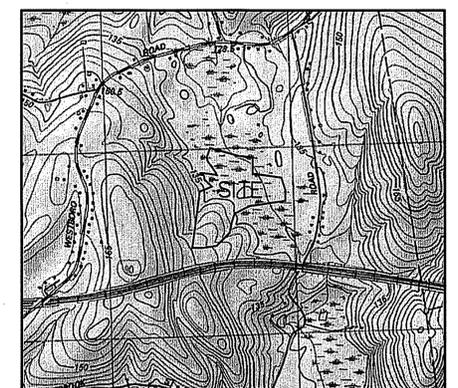
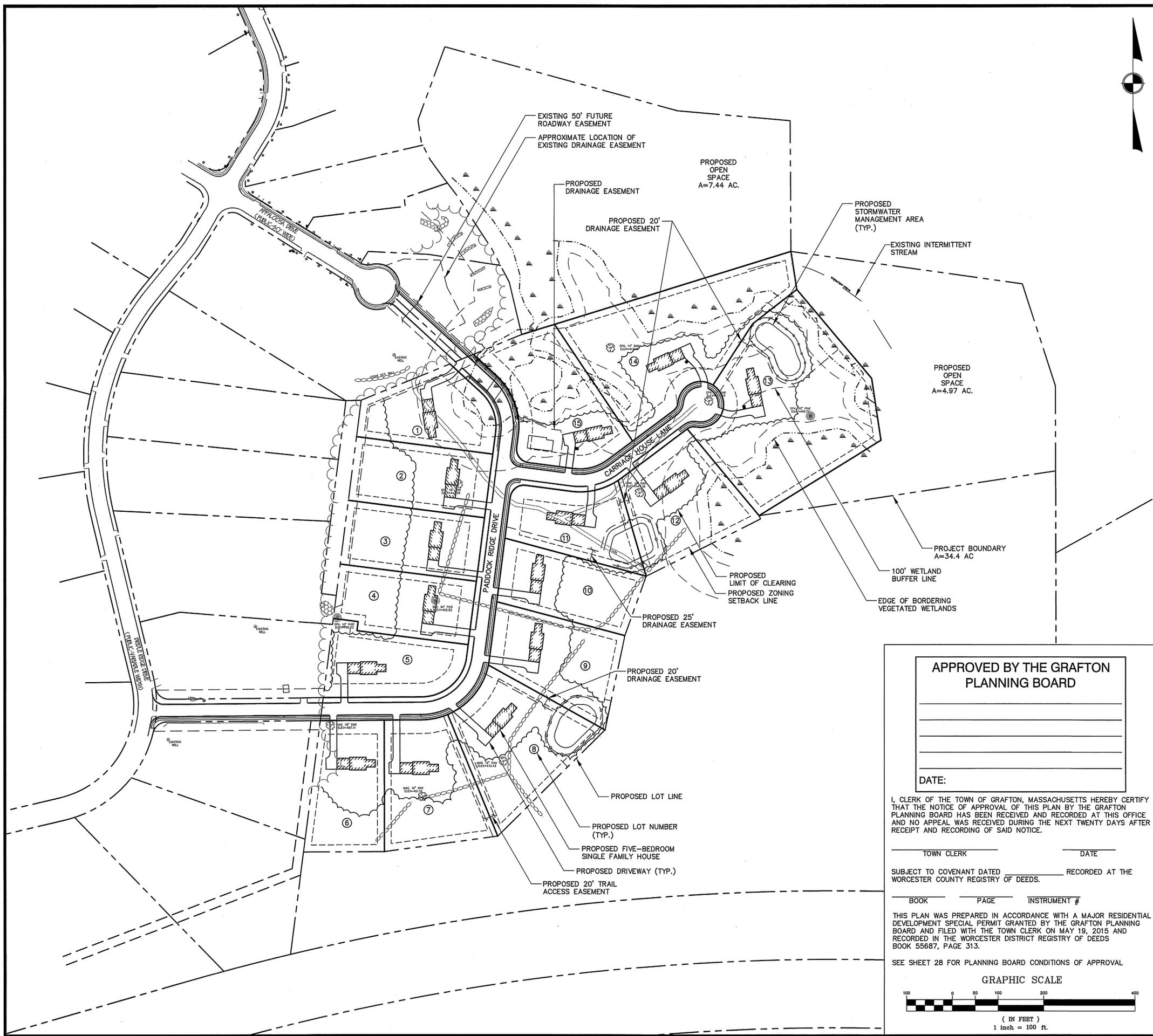
JUNE 10, 2016

REVISED 10-11-16



**WHITMAN & BINGHAM ASSOCIATES, LLC**  
REGISTERED PROFESSIONAL ENGINEERS & LAND SURVEYORS  
510 MECHANIC STREET - LEOMINSTER, MASSACHUSETTS 01453





**LOCUS PLAN**

1"=1,500 FT.±

- NOTES:**
1. WETLAND DELINEATION SHOWN WAS COMPLETED BY ECOTEC, INC. ON NOVEMBER 13, 2013 AND WAS GPS LOCATED ON DECEMBER 12, 2013 BY WHITMAN & BINGHAM ASSOCIATES.
  2. THE PROPOSED SUBDIVISION WILL BE SERVICED BY DOMESTIC WATER AND FIRE PROTECTION. A NEW DUCTILE IRON WATER SERVICE WILL BE EXTENDED FROM THE INTERSECTION OF OLD WESTBORO ROAD AND BRIDLE RIDGE DRIVE APPROXIMATELY 2,500 LF TO THE END OF THE CUL-DE-SAC ON APPALOOSA DRIVE.

**LEGEND:**

① PROPOSED LOT NUMBER

**ZONING SUMMARY:**

DISTRICT: R40

DIMENSIONAL REQUIREMENTS:	PROVIDED	CONFORMANCE
MIN. LOT WIDTH:	140 FT	140 FT YES
FRONT SETBACK:	90 FT ON CDS	90 FT YES
REAR SETBACK:	30 FT	30 FT YES
SIDE SETBACK:	15 FT	15 FT YES
MAX. HEIGHT:	35 FT	35 FT YES
FRONTAGE:	140 FT	140 FT YES
LOT AREA:	40,000 SF	40,000 SF+ YES
MAX. COVERAGE:	30%	<30% YES

**DESIGN FEATURES:**

LENGTH OF ROADWAY:	2,125 FT.
ROAD A	1,660 FT.
ROAD B	465 FT.
NUMBER OF LOTS:	15
ON-SITE SEPTIC SYSTEMS:	YES
TOWN WATER:	YES

**RECORD OWNERS:**

BULL MEADOW, LLC.  
2 RACHEL ROAD  
BOYLSTON, MA 01505  
PARCEL ID: 110/31.0-0000-0123.0  
BOOK 34958, PAGE 35

BULL MEADOW, LLC.  
2 RACHEL ROAD  
BOYLSTON, MA 01505  
PARCEL ID: 110/32.0-0000-0005.A  
BOOK 35310, PAGE 74

MassDOT  
10 PARK PLAZA  
BOSTON, MA 02116  
PARCEL ID: 110/31.0-0000-0100.0  
BOOK 3919, PAGE 318

MassDOT  
10 PARK PLAZA  
BOSTON, MA 02116  
PARCEL ID: 110/32.0-0000-0100.0  
BOOK N/A, PAGE N/A

TOWN OF GRAFTON  
30 PROVIDENCE ROAD  
GRAFTON, MA 01519  
PARCEL ID: 110/31.0-0000-0214.B  
BOOK 46659, PAGE 180

NOT FOR CONSTRUCTION  
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PREPARED FOR:  
BULL MEADOW, LLC.  
2 RACHEL ROAD  
BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS

Professional Engineer Seal for Brian R. Marchetti, No. 46279, State of Massachusetts. Signature and date: 10/11/2016.

Drawn By: BRM, Designed By: BRM, Checked By: JSR

**APPROVED BY THE GRAFTON PLANNING BOARD**

DATE: \_\_\_\_\_

I, CLERK OF THE TOWN OF GRAFTON, MASSACHUSETTS HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE GRAFTON PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE NEXT TWENTY DAYS AFTER RECEIPT AND RECORDING OF SAID NOTICE.

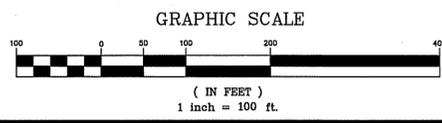
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SUBJECT TO COVENANT DATED \_\_\_\_\_ RECORDED AT THE WORCESTER COUNTY REGISTRY OF DEEDS.

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Civil Engineers  
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Project Name  
**Estates at Bull Meadow**  
Definitive Plan  
N. Grafton, MA 01536

Sheet Title  
**Overall Conventional**  
Subdivision Plan  
(1 of 3)

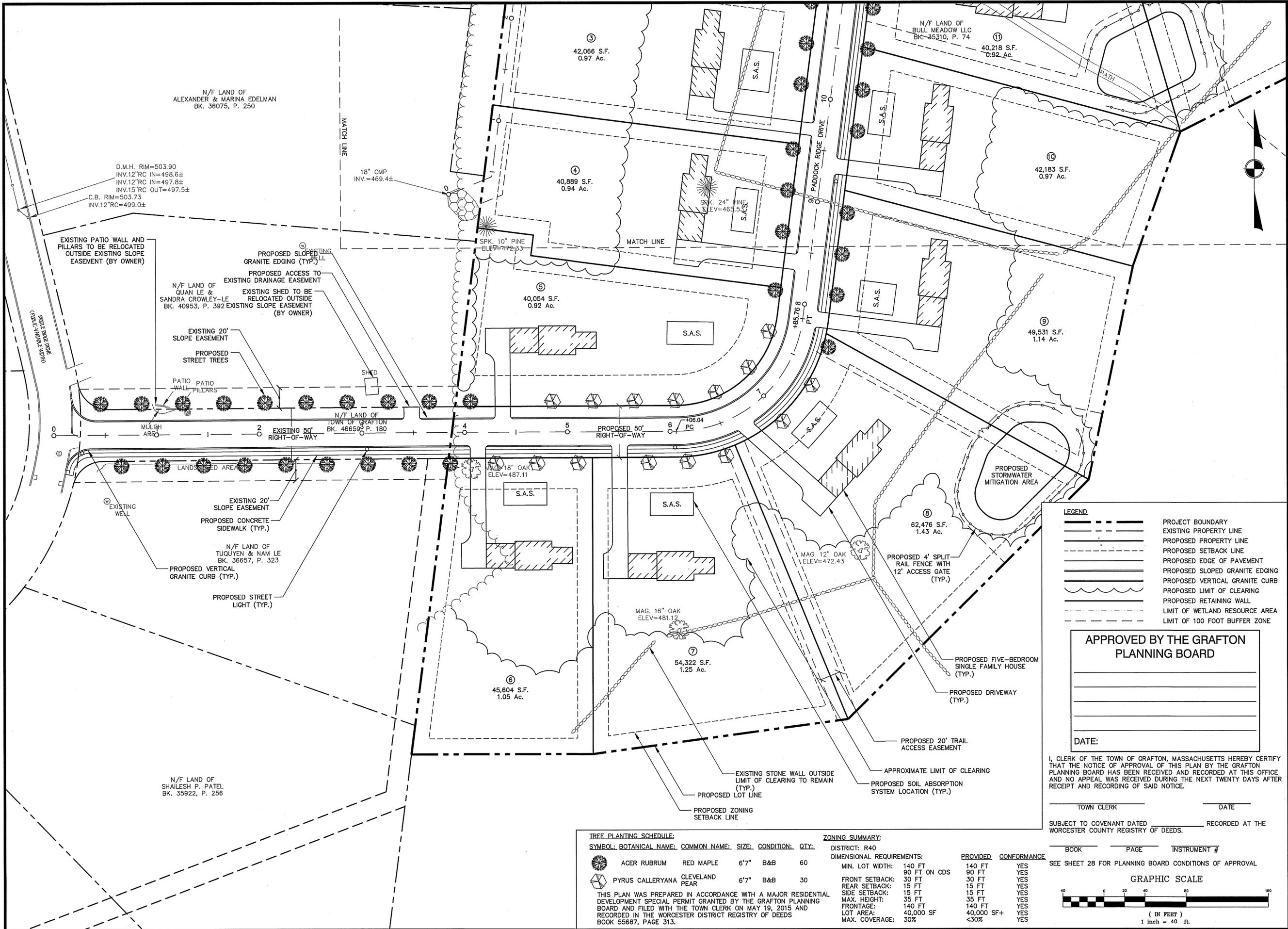
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File Name: 066P-CSP01  
Date: June 10, 2016  
Scale: 1"=100'

Sheet No.  
**7**  
OF 28

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**LEGEND**

	PROJECT BOUNDARY
	EXISTING PROPERTY LINE
	PROPOSED PROPERTY LINE
	PROPOSED SETBACK LINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED SLOPED GRANITE EDGING
	PROPOSED VERTICAL GRANITE CURB
	PROPOSED LIMIT OF CLEARING
	PROPOSED RETAINING WALL
	LIMIT OF WETLAND RESOURCE AREA
	LIMIT OF 100 FOOT BUFFER ZONE

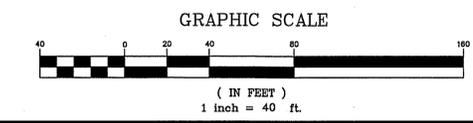
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BOOK \_\_\_\_\_ PAGE \_\_\_\_\_ INSTRUMENT # \_\_\_\_\_  
 SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



TREE PLANTING SCHEDULE:						ZONING SUMMARY:				
SYMBOL:	BOTANICAL NAME:	COMMON NAME:	SIZE:	CONDITION:	QTY:	DISTRICT:	DIMENSIONAL REQUIREMENTS:			
	ACER RUBRUM	RED MAPLE	6"7"	B&B	60	R40	MIN. LOT WIDTH:	140 FT	140 FT	YES
	PYRUS CALLERYANA	CLEVELAND PEAR	6"7"	B&B	30		FRONT SETBACK:	90 FT ON CDS	90 FT	YES
							REAR SETBACK:	30 FT	30 FT	YES
							SIDE SETBACK:	15 FT	15 FT	YES
							MAX. HEIGHT:	35 FT	35 FT	YES
							FRONTAGE:	140 FT	140 FT	YES
							LOT AREA:	40,000 SF	40,000 SF+	YES
							MAX. COVERAGE:	30%	<30%	YES

THIS PLAN WAS PREPARED IN ACCORDANCE WITH A MAJOR RESIDENTIAL DEVELOPMENT SPECIAL PERMIT GRANTED BY THE GRAFTON PLANNING BOARD AND FILED WITH THE TOWN CLERK BY THE GRAFTON PLANNING BOARD AND RECORDED IN THE WORCESTER DISTRICT REGISTRY OF DEEDS BOOK 55687, PAGE 313.

PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
 Designed By: BRM  
 Checked By: *BRM*

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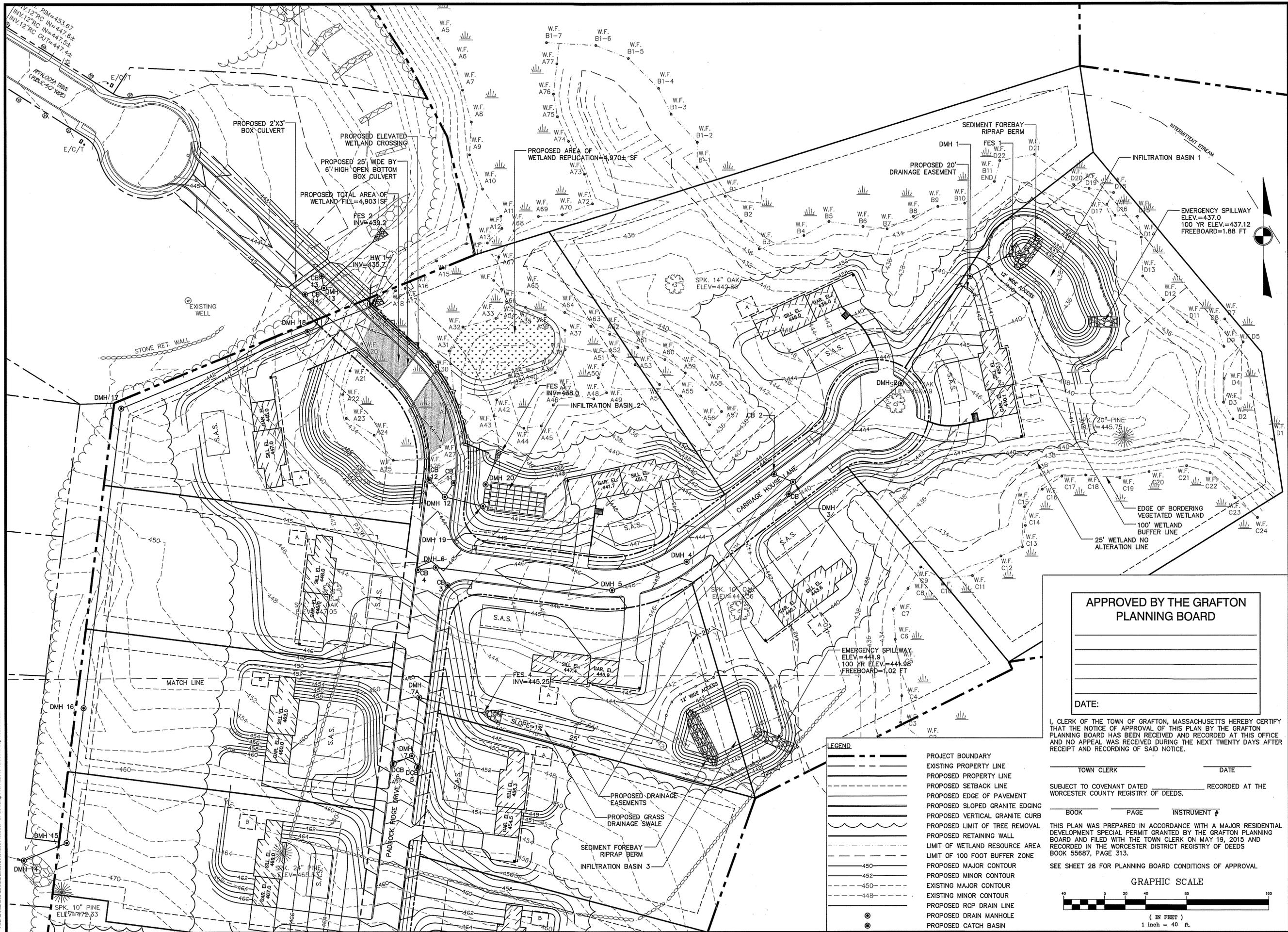
Project Name  
**Estates at Bull Meadow**  
 Definitive Plan  
 N. Grafton, MA 01536

Sheet Title  
**Layout and Materials**  
 Plan  
 (3 of 3)

Job No: 066  
 File Name: 066P-CMA02  
 Date: June 10, 2016  
 Scale: 1"=40'  
 Sheet No. **9**  
 OF 28

F:\CAD\ME066-Layout\Definitive\Revised\Photos\066-CMA02.dwg, 11/01/2016 9:42 AM by: Justin Lachar

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PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
 Designed By: BRM  
 Checked By: JSK

APPROVED BY THE GRAFTON PLANNING BOARD

DATE: \_\_\_\_\_

I, CLERK OF THE TOWN OF GRAFTON, MASSACHUSETTS HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE GRAFTON PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE NEXT TWENTY DAYS AFTER RECEIPT AND RECORDING OF SAID NOTICE.

TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_

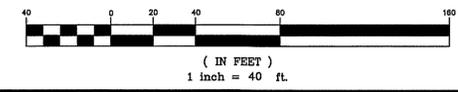
SUBJECT TO COVENANT DATED \_\_\_\_\_ RECORDED AT THE WORCESTER COUNTY REGISTRY OF DEEDS.

BOOK \_\_\_\_\_ PAGE \_\_\_\_\_ INSTRUMENT # \_\_\_\_\_

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SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL

GRAPHIC SCALE



- LEGEND
- PROJECT BOUNDARY
  - EXISTING PROPERTY LINE
  - PROPOSED PROPERTY LINE
  - PROPOSED SETBACK LINE
  - PROPOSED EDGE OF PAVEMENT
  - PROPOSED SLOPED GRANITE EDGING
  - PROPOSED VERTICAL GRANITE CURB
  - PROPOSED LIMIT OF TREE REMOVAL
  - PROPOSED RETAINING WALL
  - LIMIT OF WETLAND RESOURCE AREA
  - LIMIT OF 100 FOOT BUFFER ZONE
  - PROPOSED MAJOR CONTOUR
  - PROPOSED MINOR CONTOUR
  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - PROPOSED RCP DRAIN LINE
  - PROPOSED DRAIN MANHOLE
  - PROPOSED CATCH BASIN

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 Civil Engineers  
 42 Jungle Road, Leominster, MA 01453  
 phone:(978) 534-1318 fax: (978) 840-6907  
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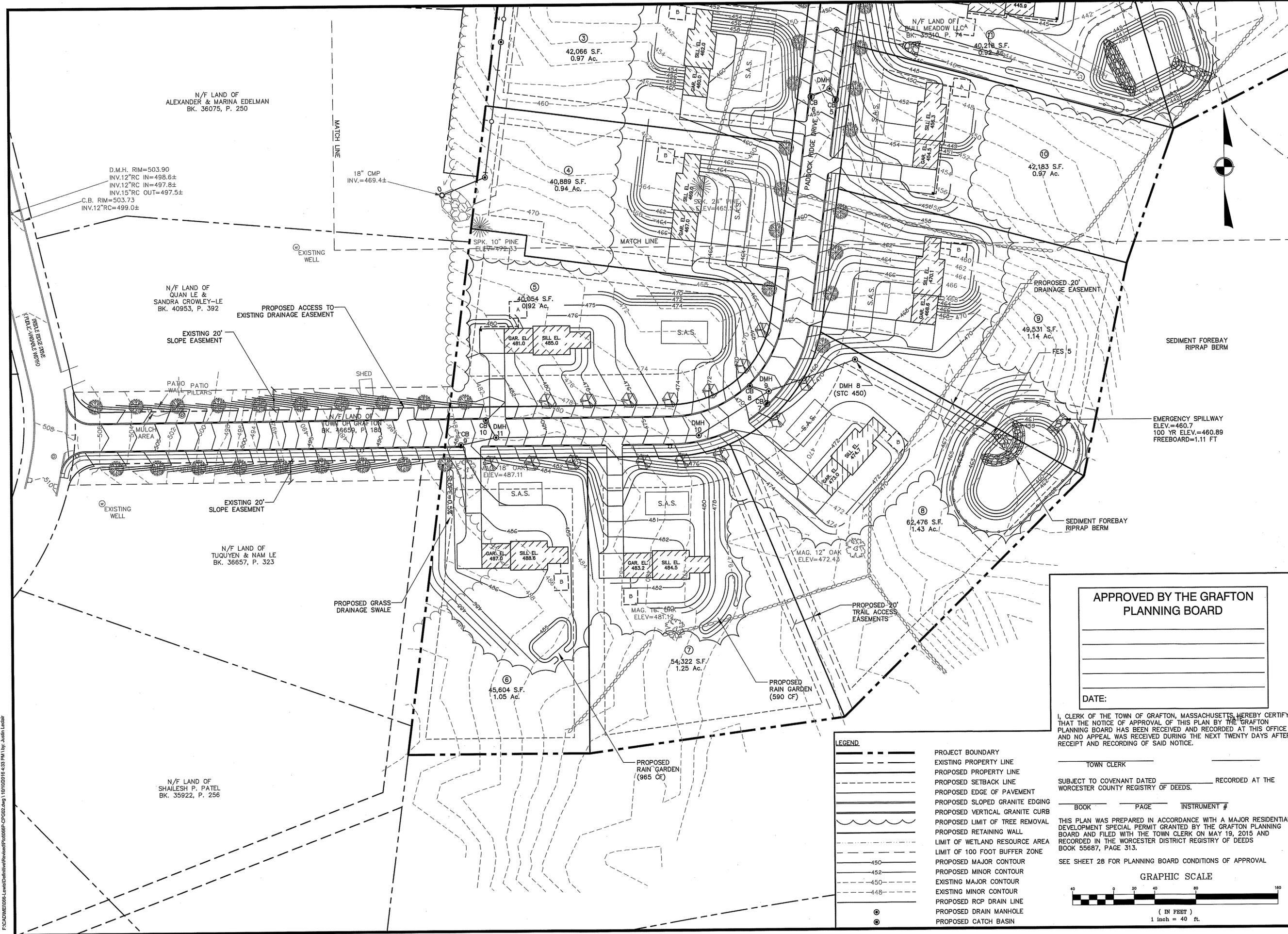
Project Name  
**Estates at Bull Meadow  
 Definitive Plan  
 N. Grafton, MA 01536**

Sheet Title  
**Grading and  
 Drainage Plan  
 (1 of 2)**

Job No: 066  
 File Name: 066P-CPG01  
 Date: June 10, 2016  
 Scale: 1"=40'

Sheet No.  
**10**  
 OF 28

**NOT FOR CONSTRUCTION**  
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PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	TOWN COMMENTS	Revision
1	10/11/2016	TOWN COMMENTS	



Drawn By: BRM  
 Designed By: BRM  
 Checked By: DKM

**APPROVED BY THE GRAFTON PLANNING BOARD**

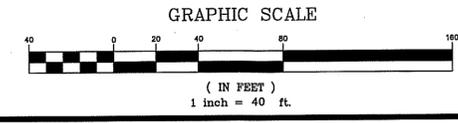
DATE: \_\_\_\_\_

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TOWN CLERK \_\_\_\_\_  
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 BOOK \_\_\_\_\_ PAGE \_\_\_\_\_ INSTRUMENT # \_\_\_\_\_

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SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



- LEGEND**
- PROJECT BOUNDARY
  - EXISTING PROPERTY LINE
  - PROPOSED PROPERTY LINE
  - PROPOSED SETBACK LINE
  - PROPOSED EDGE OF PAVEMENT
  - PROPOSED SLOPED GRANITE EDGING
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  - EXISTING MAJOR CONTOUR
  - EXISTING MINOR CONTOUR
  - PROPOSED RCP DRAIN LINE
  - PROPOSED DRAIN MANHOLE
  - PROPOSED CATCH BASIN

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 42 Jungle Road, Leominster, MA 01453  
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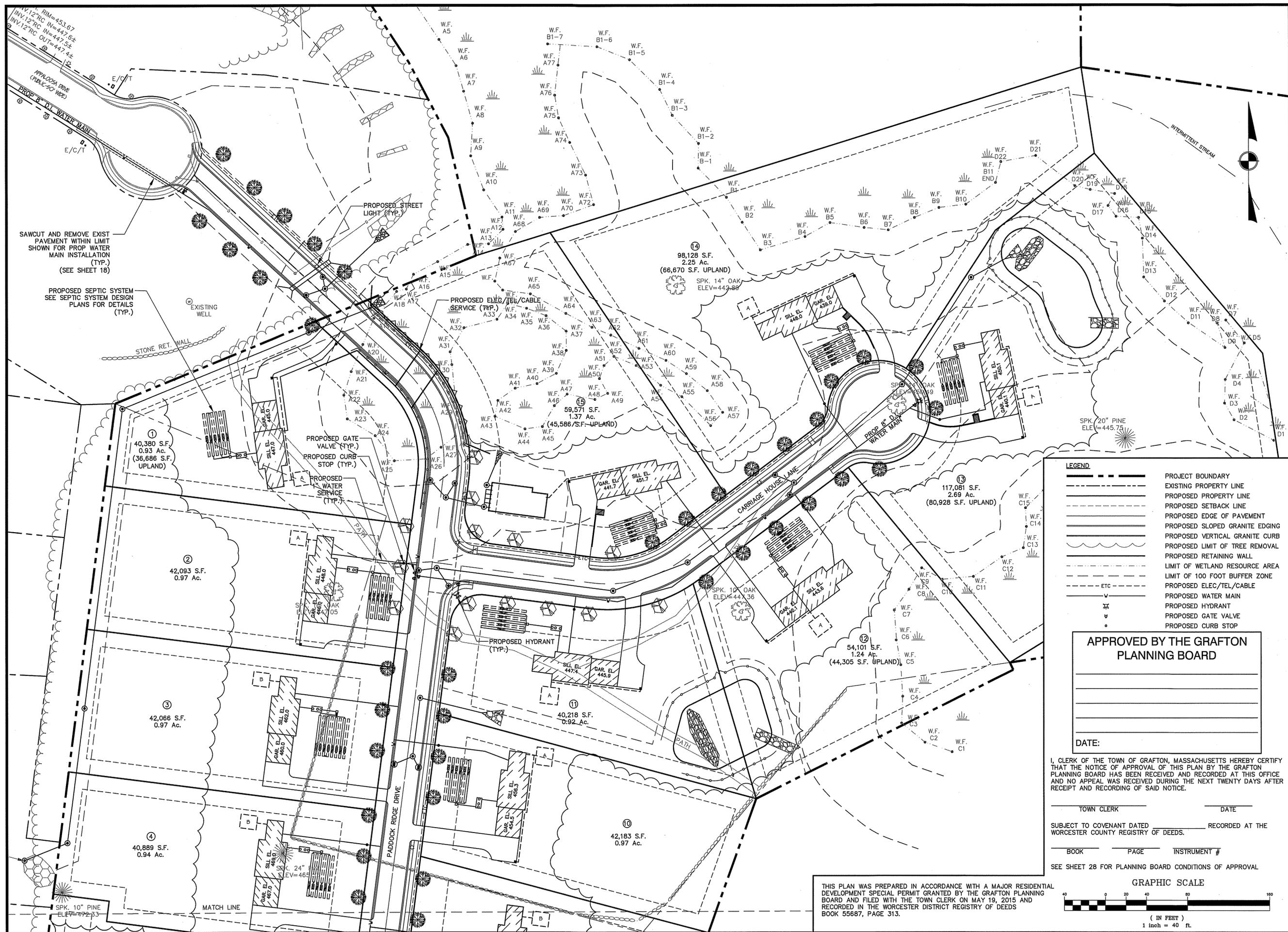
Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**Grafton, MA 01519**

Sheet Title  
**Grading and**  
**Drainage Plan**  
**(2 of 2)**

Job No: 066  
 File Name: 066P-CPG02  
 Date: June 10, 2016  
 Scale: 1"=40'

Sheet No.  
**11**  
 OF 28

NOT FOR CONSTRUCTION  
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SAWCUT AND REMOVE EXIST PAVEMENT WITHIN LIMIT SHOWN FOR PROP WATER MAIN INSTALLATION (TYP.) (SEE SHEET 18)

PROPOSED SEPTIC SYSTEM SEE SEPTIC SYSTEM DESIGN PLANS FOR DETAILS (TYP.)

EXISTING WELL

STONE RET. WALL

PROPOSED STREET LIGHT (TYP.)

PROPOSED GATE VALVE (TYP.)

PROPOSED CURB STOP (TYP.)

PROPOSED WATER SERVICE (TYP.)

PROPOSED ELEC./TEL./CABLE SERVICE (TYP.)

PROPOSED HYDRANT (TYP.)

1  
40,380 S.F.  
0.93 Ac.  
(36,686 S.F. UPLAND)

2  
42,093 S.F.  
0.97 Ac.

3  
42,066 S.F.  
0.97 Ac.

4  
40,889 S.F.  
0.94 Ac.

14  
98,128 S.F.  
2.25 Ac.  
(66,670 S.F. UPLAND)

15  
59,571 S.F.  
1.37 Ac.  
(45,586 S.F. UPLAND)

3  
117,061 S.F.  
2.69 Ac.  
(80,928 S.F. UPLAND)

12  
54,101 S.F.  
1.24 Ac.  
(44,305 S.F. UPLAND)

11  
40,218 S.F.  
0.92 Ac.

10  
42,183 S.F.  
0.97 Ac.

**LEGEND**

	PROJECT BOUNDARY
	EXISTING PROPERTY LINE
	PROPOSED PROPERTY LINE
	PROPOSED SETBACK LINE
	PROPOSED EDGE OF PAVEMENT
	PROPOSED SLOPED GRANITE EDGING
	PROPOSED VERTICAL GRANITE CURB
	PROPOSED LIMIT OF TREE REMOVAL
	PROPOSED RETAINING WALL
	LIMIT OF WETLAND RESOURCE AREA
	LIMIT OF 100 FOOT BUFFER ZONE
	PROPOSED ELEC./TEL./CABLE
	PROPOSED WATER MAIN
	PROPOSED HYDRANT
	PROPOSED GATE VALVE
	PROPOSED CURB STOP
	ETC

APPROVED BY THE GRAFTON PLANNING BOARD

DATE:

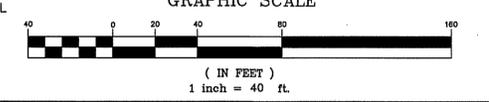
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PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
 Designed By: BRM  
 Checked By: *BRM*

McCarty Engineering, Inc.  
 Civil Engineers  
 42 Jungle Road, Leominster, MA 01453  
 phone: (978) 534-1318 fax: (978) 840-6907  
 www.mccartydb.com

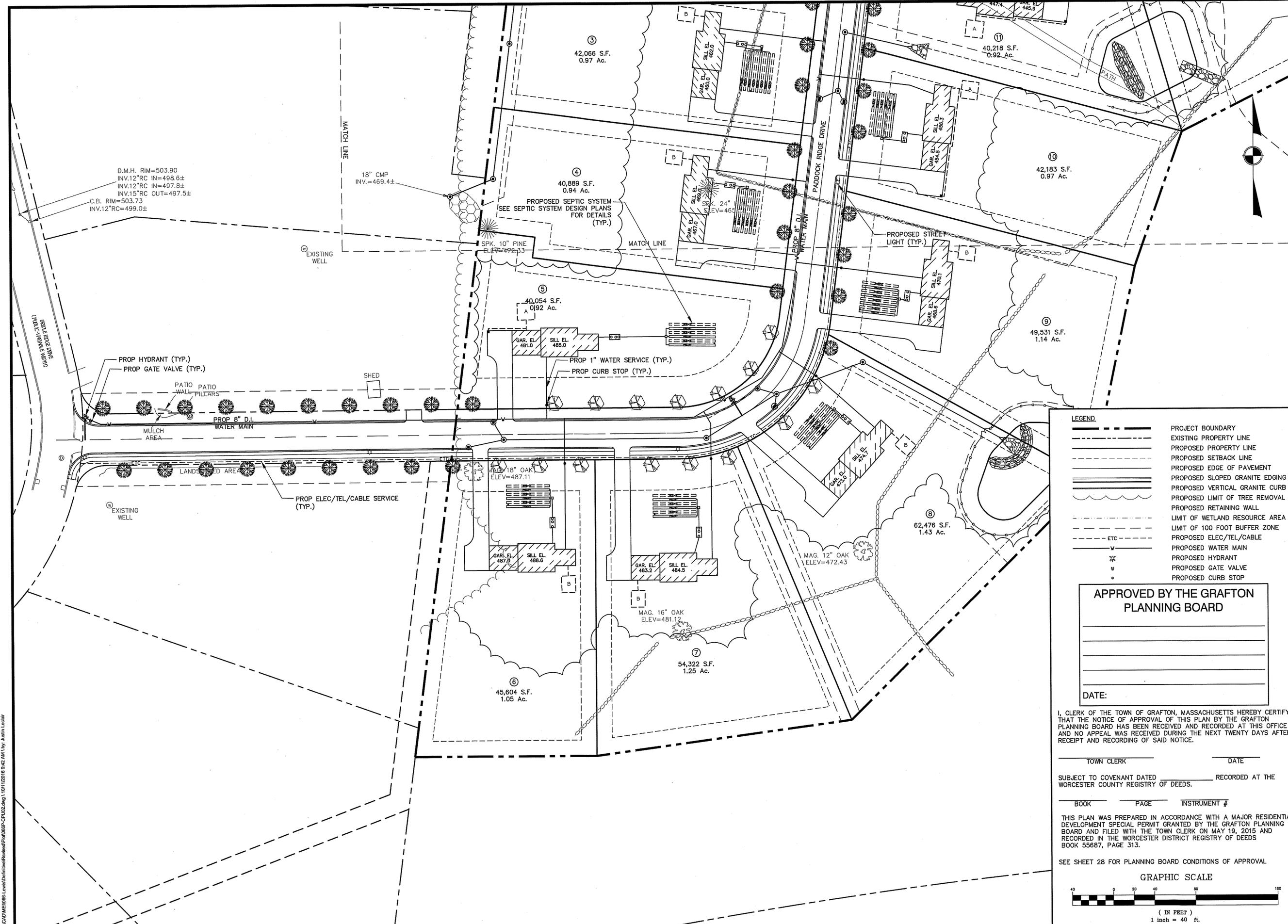
Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**N. Grafton, MA 01536**

Sheet Title  
**Utility Plan**  
**(1 of 2)**

Job No: 066  
 File Name: 066P-CPU01  
 Date: June 10, 2016  
 Scale: 1"=40'  
 Sheet No. **12**  
 OF 28

F:\CAD\066-Lewis\Definitive\066P-CPU01.dwg, 1/10/11/2016 9:42 AM by: Justin Leslar

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  - - - LIMIT OF 100 FOOT BUFFER ZONE
  - - - PROPOSED ELEC./TEL./CABLE
  - - - ETC
  - PROPOSED WATER MAIN
  - PROPOSED HYDRANT
  - PROPOSED GATE VALVE
  - PROPOSED CURB STOP

**APPROVED BY THE GRAFTON PLANNING BOARD**

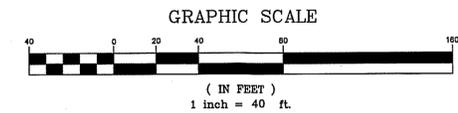
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SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
 Designed By: BRM  
 Checked By: *BRM*

**McCarty Engineering, Inc.**  
 Civil Engineers  
 42 Jungle Road, Leominster, MA 01453  
 phone: (978) 534-1318 fax: (978) 840-6907  
 www.mccartydb.com

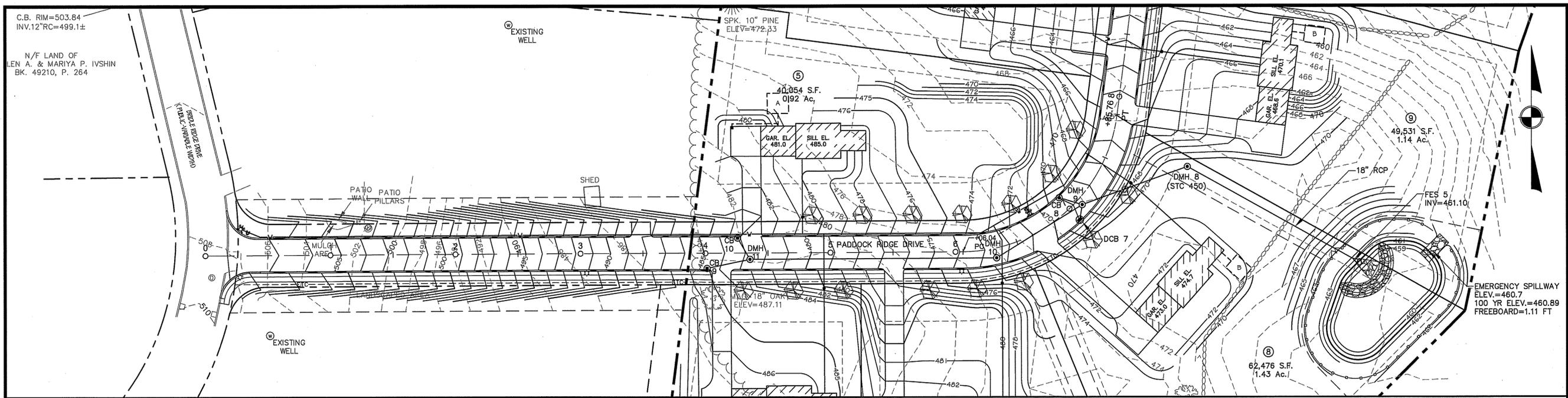
Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**N. Grafton, MA 01536**

Sheet Title  
**Utility Plan**  
 (2 of 2)

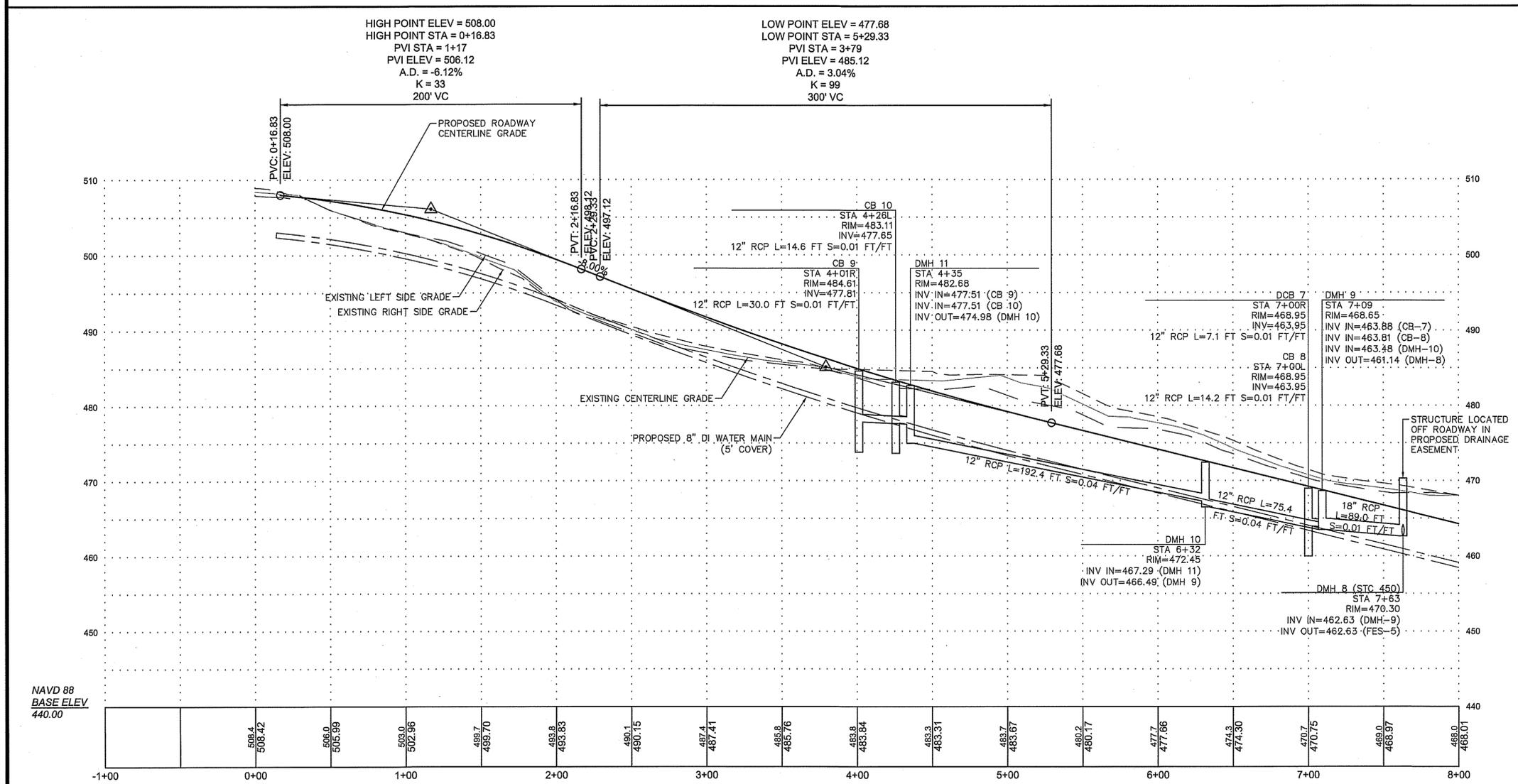
Job No: 066  
 File Name: 066P-CPU02  
 Date: June 10, 2016  
 Scale: 1"=40'

Sheet No.  
**13**  
 OF 28

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PADDOCK RIDGE DRIVE PLAN  
SCALE: 1"=40'



PADDOCK RIDGE DRIVE PROFILE  
VERT. SCALE: 1"=8'  
HOR. SCALE: 1"=40'

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PREPARED FOR:  
BULL MEADOW, LLC.  
2 RACHEL ROAD  
BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
Designed By: BRM  
Checked By: TSCM

APPROVED BY THE GRAFTON PLANNING BOARD

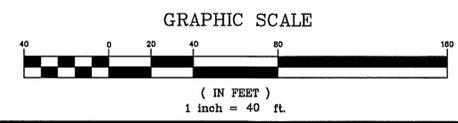
DATE: \_\_\_\_\_

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SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



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phone:(978) 534-1318 fax: (978) 840-6907  
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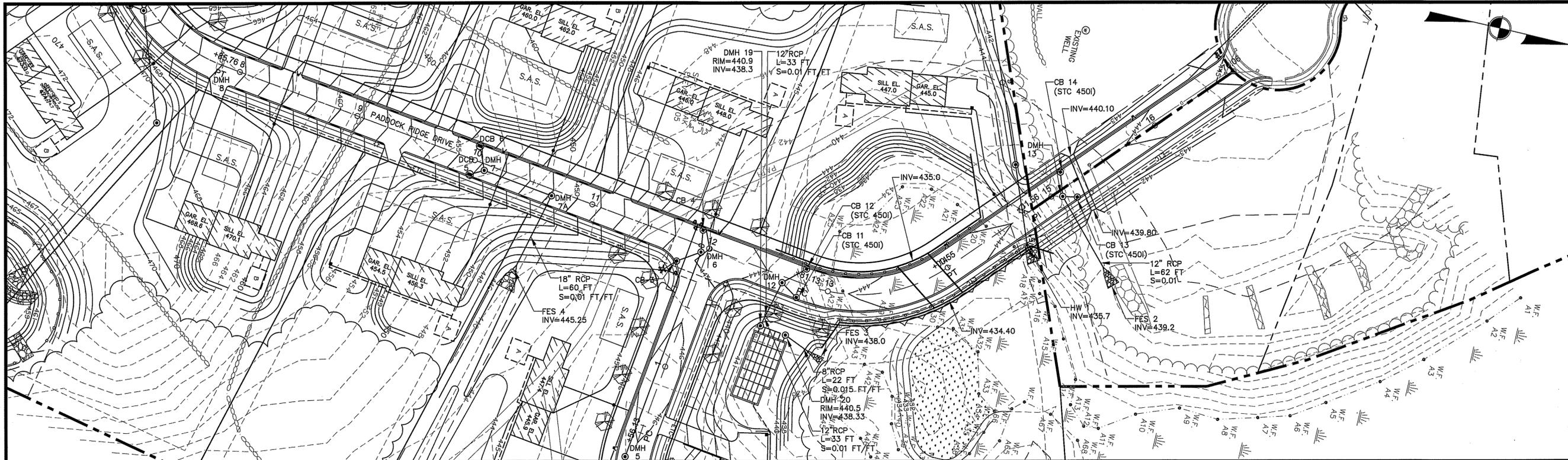
Project Name  
Estates at Bull Meadow  
Definitive Plan  
N. Grafton, MA 01536

Sheet Title  
Roadway and  
Utility Profile  
(1 of 4)

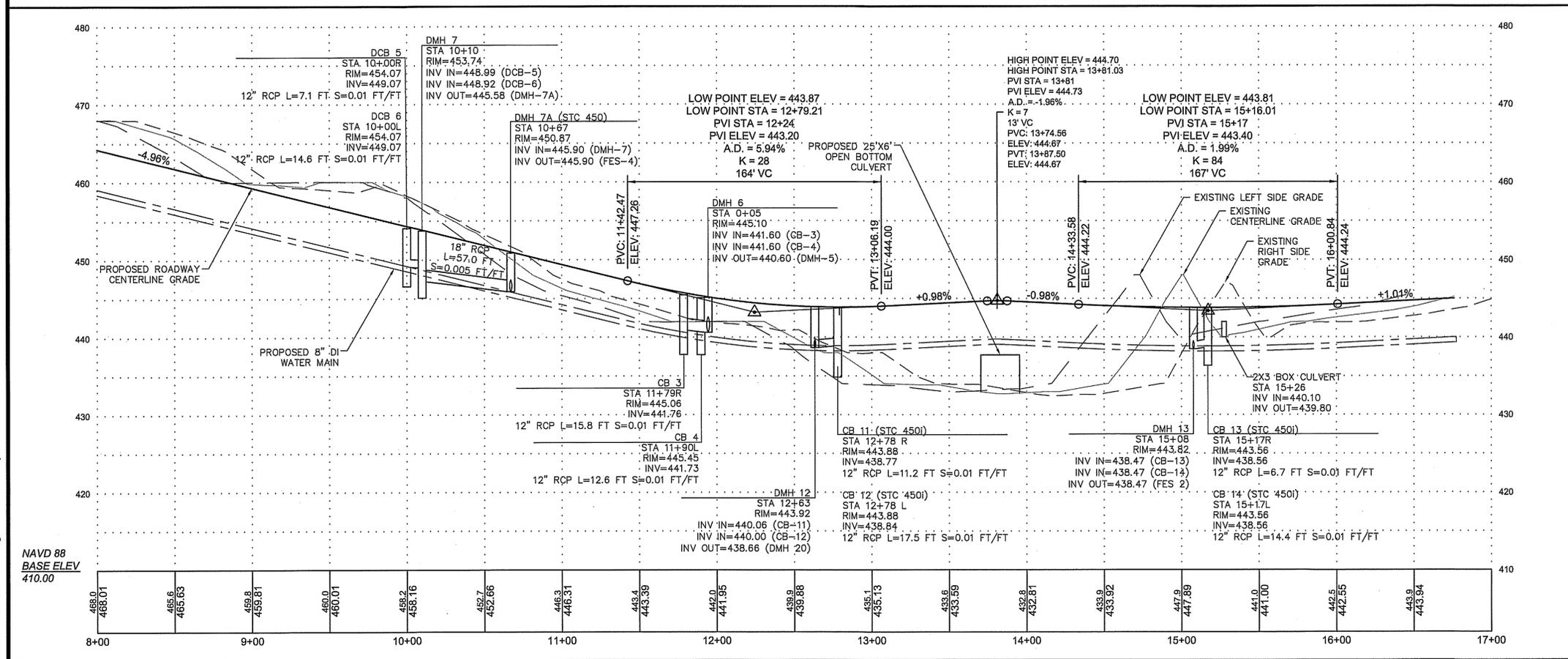
Job No: 066  
File Name: 066P-CPF01  
Date: June 10, 2016  
Scale: 1"=40'

Sheet No.  
**14**  
OF 28

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PADDOCK RIDGE DRIVE PLAN  
SCALE: 1"=40'



PADDOCK RIDGE DRIVE PROFILE  
VERT. SCALE: 1"=8'  
HOR. SCALE: 1"=40'

GENERAL NOTES:  
1. THE 12" RCP PIPE BETWEEN CB 11, CB 12 AND DMH 20 SHALL BE CLASS V RCP.

APPROVED BY THE GRAFTON  
PLANNING BOARD

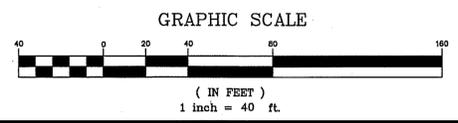
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PREPARED FOR:  
BULL MEADOW, LLC.  
2 RACHEL ROAD  
BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



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Designed By: BRM  
Checked By: TSM

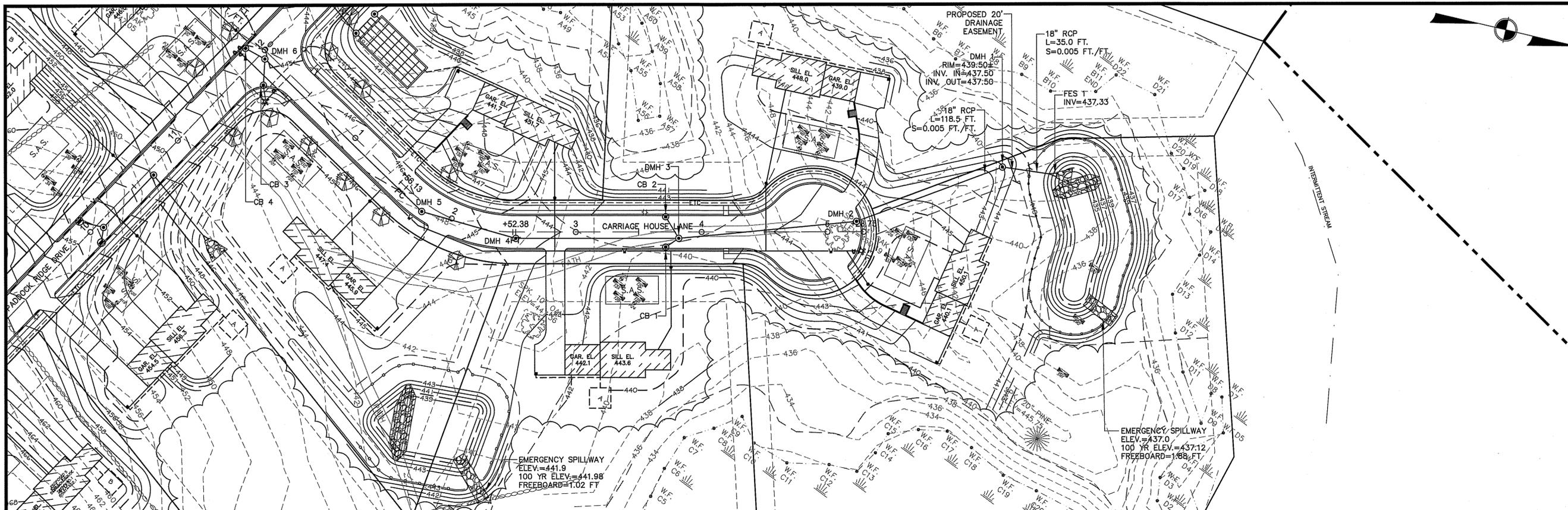
McCarty Engineering, Inc.  
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phone: (978) 534-1318 fax: (978) 840-6907  
www.mccartydb.com

Project Name  
Estates at Bull Meadow  
Definitive Plan  
N. Grafton, MA 01536

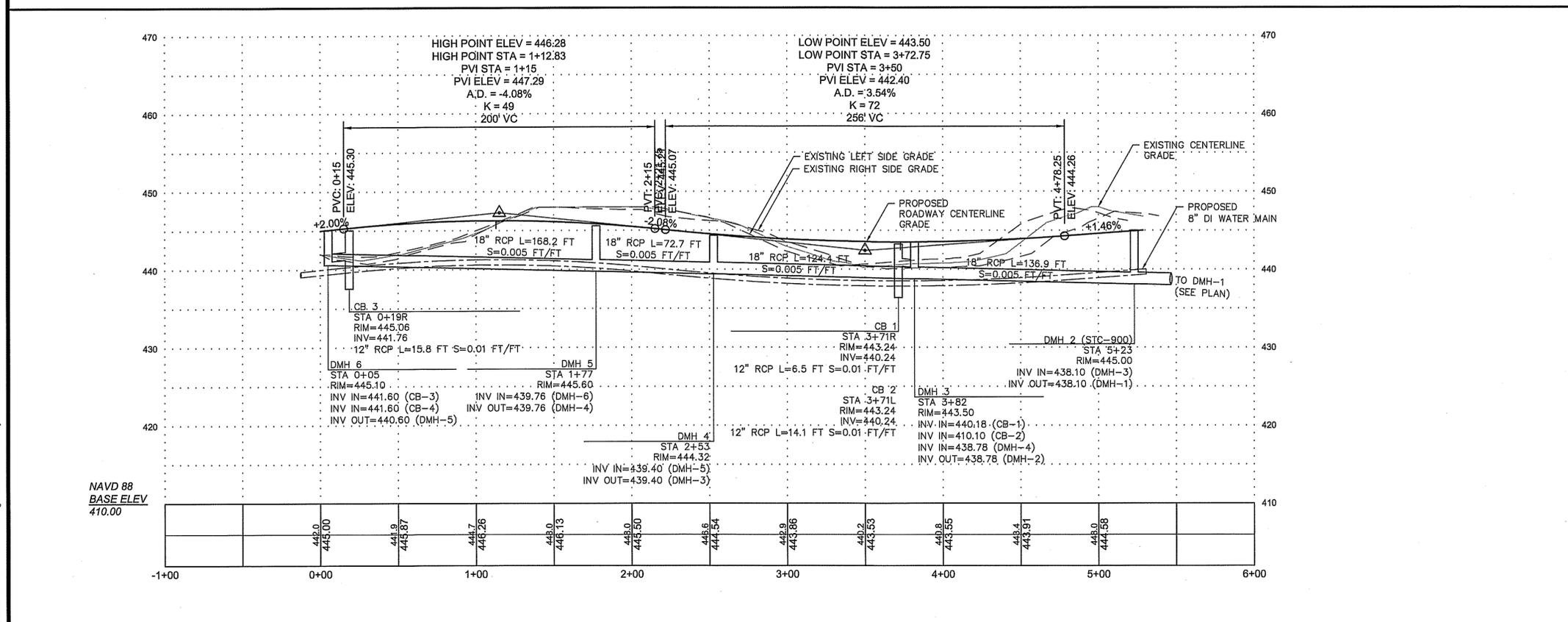
Sheet Title  
Roadway and  
Utility Profile  
(2 of 4)

Job No: 066  
File Name: 066P-CPF02  
Date: June 10, 2016  
Scale: 1"=40'  
Sheet No: 15  
OF 28

F:\CAD\ME1056-Lewis\BullMeadow\Revised\066P-CPF02.dwg, 1/10/12/16 6:41 AM by: Justin Luchini



CARRIAGE HOUSE LANE PLAN  
SCALE: 1"=40'



CARRIAGE HOUSE LANE PROFILE  
VERT. SCALE: 1"=8'  
HOR. SCALE: 1"=40'

GENERAL NOTES:  
1. THE 24" RCP PIPE BETWEEN DMH 6 AND INFILTRATION BASIN 1 SHALL BE CLASS V RCP.

APPROVED BY THE GRAFTON PLANNING BOARD

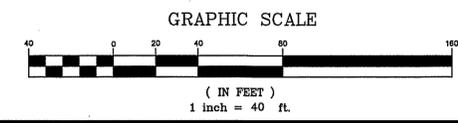
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PREPARED FOR:  
BULL MEADOW, L.L.C.  
2 RACHEL ROAD  
BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
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Checked By: *BRM*

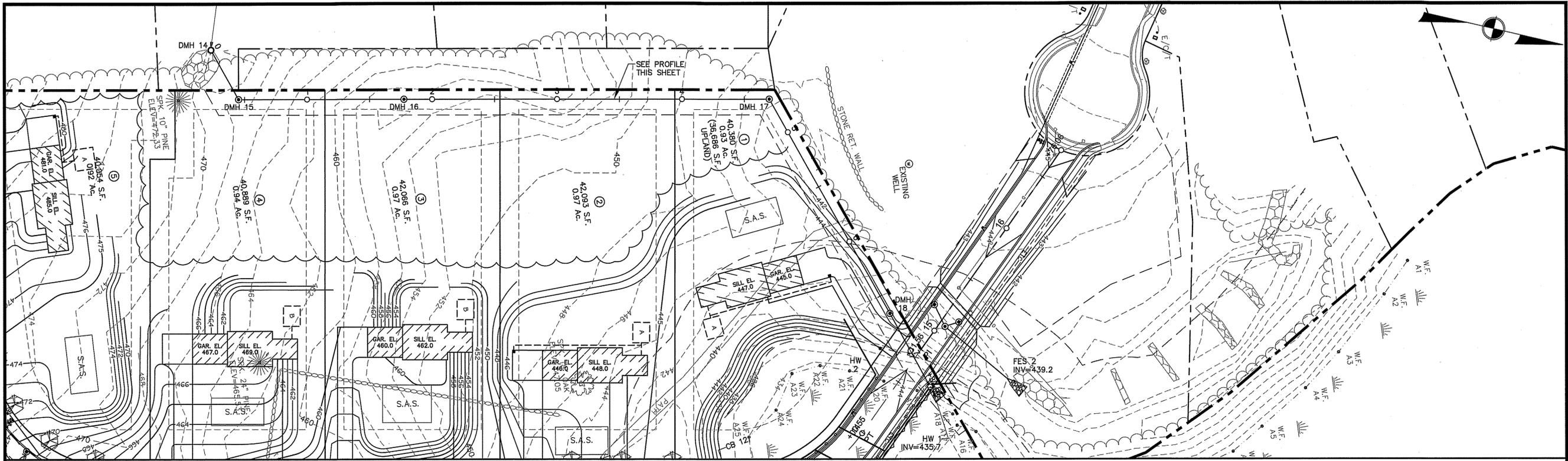
McCarty Engineering, Inc.  
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phone: (978) 534-1318 fax: (978) 840-6907  
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Project Name  
Estates at Bull Meadow  
Definitive Plan  
N. Grafton, MA 01536

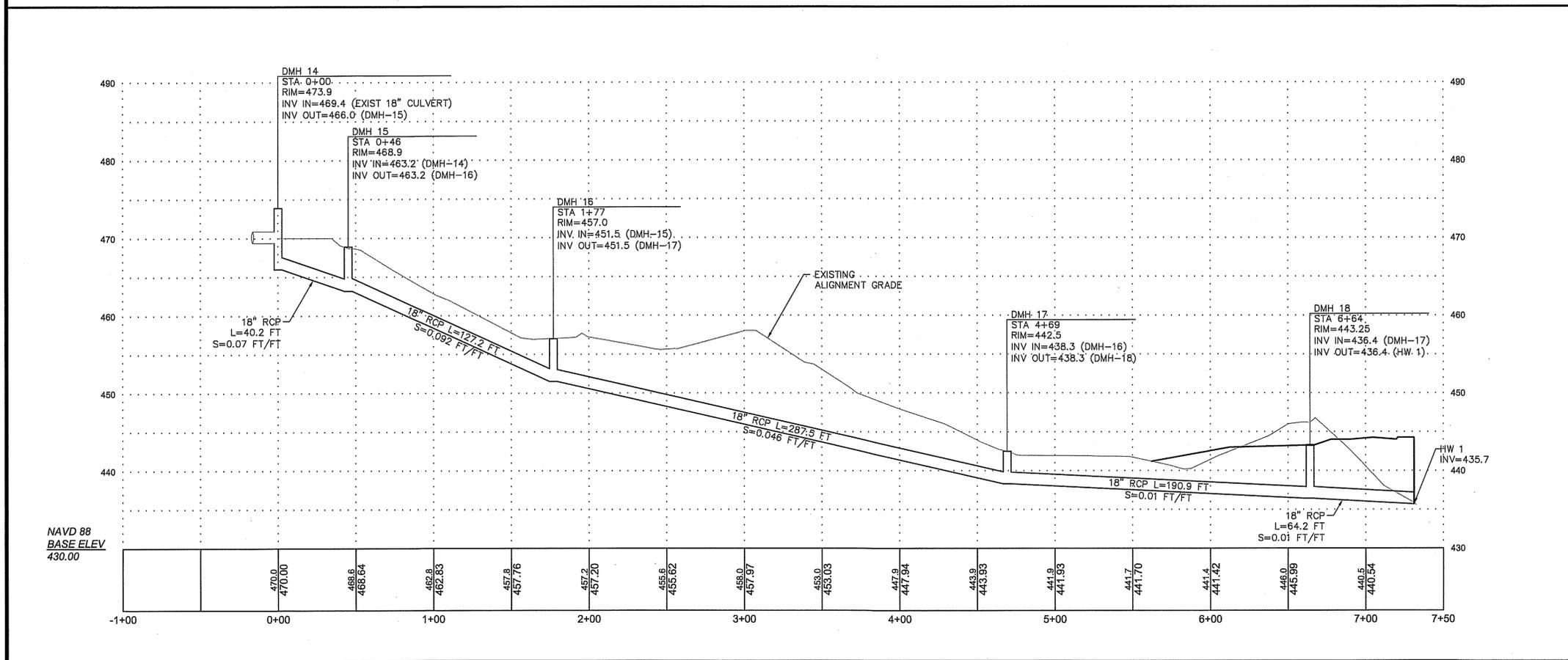
Sheet Title  
Roadway and  
Utility Profile  
(3 of 4)

Job No: 066  
File Name: 066P-CPF03  
Date: June 10, 2016  
Scale: 1"=40'  
Sheet No. 16  
OF 28

F:\CAD\ME\066-Levels\Drawings\Revised\066P-CPF03.dwg, 10/11/2016 9:41 AM, by: Justin.Ledwith



CROSS COUNTRY DRAIN PLAN  
SCALE: 1"=40'



CROSS COUNTRY DRAIN PROFILE  
VERT. SCALE: 1"=8'  
HOR. SCALE: 1"=40'

APPROVED BY THE GRAFTON  
PLANNING BOARD

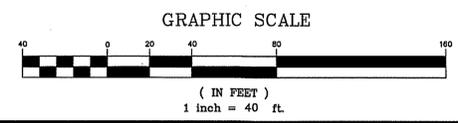
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SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



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PREPARED FOR:  
BULL MEADOW, LLC.  
2 RACHEL ROAD  
BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
Designed By: BRM  
Checked By: *TSK*

McCarty Engineering, Inc.  
Civil Engineers  
42 Jungle Road, Leominster, MA 01453  
phone: (978) 534-1318 fax: (978) 840-6907  
www.mccartydb.com

Project Name  
Estates at Bull Meadow  
Definitive Plan  
N. Grafton, MA 01536

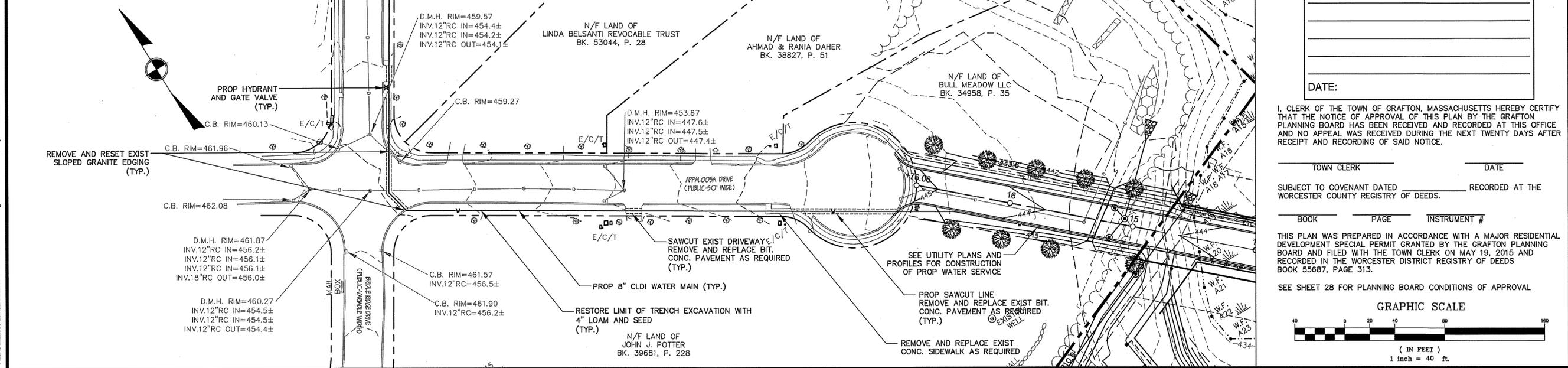
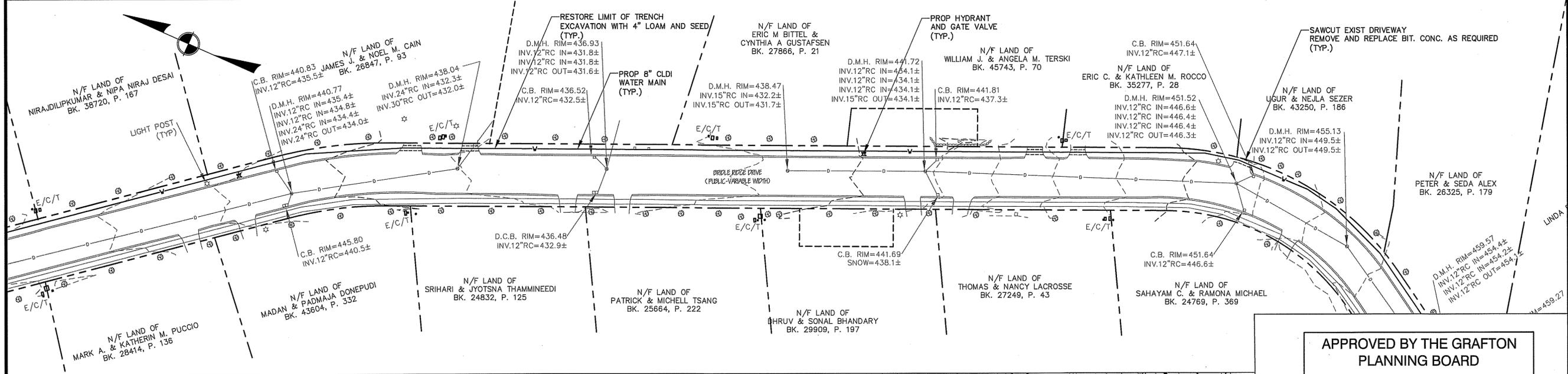
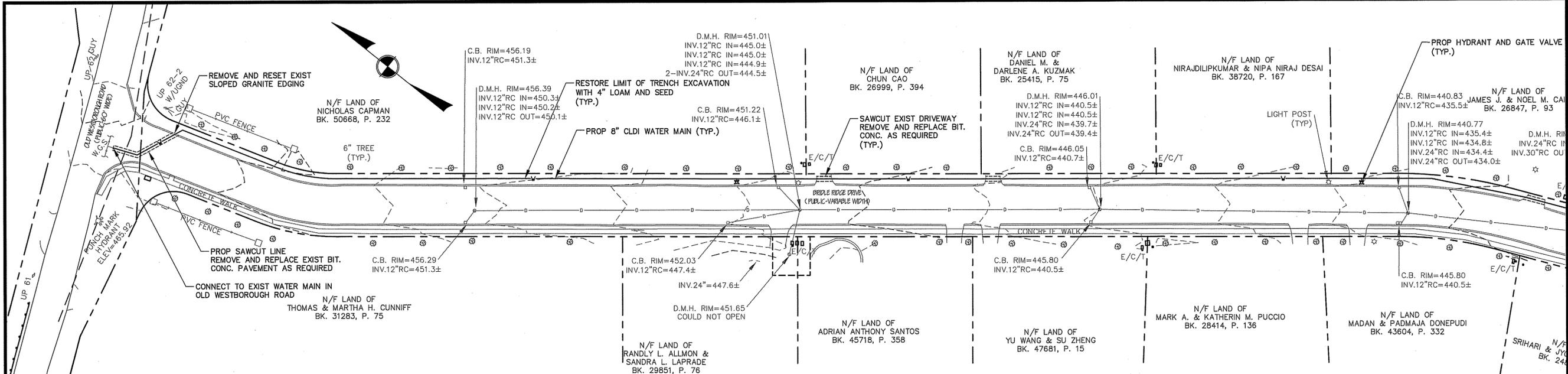
Sheet Title  
Roadway and  
Utility Profile  
(4 of 4)

Job No: 066  
File Name: 066P-CPF04  
Date: June 10, 2016  
Scale: 1"=40'

Sheet No.  
**17**  
OF 28

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PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision
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**APPROVED BY THE GRAFTON PLANNING BOARD**

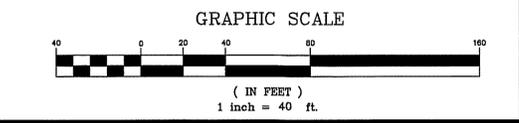
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TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_  
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 BOOK \_\_\_\_\_ PAGE \_\_\_\_\_ INSTRUMENT # \_\_\_\_\_

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SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



Brian R. Marchetti  
 CIVIL ENGINEER  
 No. 46279  
 REGISTERED PROFESSIONAL ENGINEER

Drawn By: BRM  
 Designed By: BRM  
 Checked By: BRM

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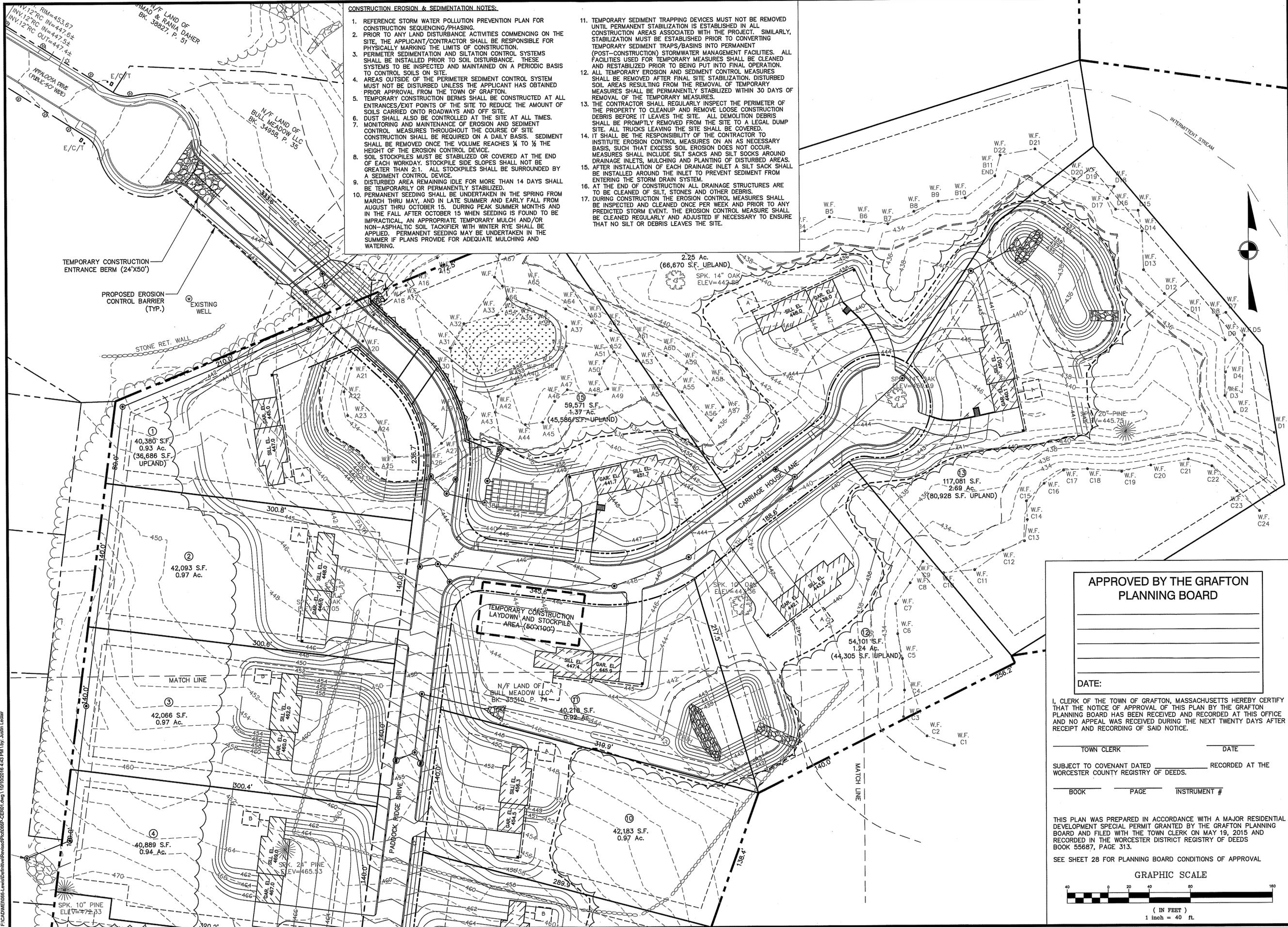
Project Name  
**Estates at Bull Meadow  
 Definitive Plan  
 N. Grafton, MA 01536**

Sheet Title  
**Water Main  
 Extension  
 Plan**

Job No: 066  
 File Name: 066P-CPU03  
 Date: June 10, 2016  
 Scale: 1"=120'

Sheet No. **18**  
 OF 28

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**CONSTRUCTION EROSION & SEDIMENTATION NOTES:**

1. REFERENCE STORM WATER POLLUTION PREVENTION PLAN FOR CONSTRUCTION SEQUENCING/PHASING.
2. PRIOR TO ANY LAND DISTURBANCE ACTIVITIES COMMENCING ON THE SITE, THE APPLICANT/CONTRACTOR SHALL BE RESPONSIBLE FOR PHYSICALLY MARKING THE LIMITS OF CONSTRUCTION.
3. PERIMETER SEDIMENTATION AND SILTATION CONTROL SYSTEMS SHALL BE INSTALLED PRIOR TO SOIL DISTURBANCE. THESE SYSTEMS TO BE INSPECTED AND MAINTAINED ON A PERIODIC BASIS TO CONTROL SOILS ON SITE.
4. AREAS OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST NOT BE DISTURBED UNLESS THE APPLICANT HAS OBTAINED PRIOR APPROVAL FROM THE TOWN OF GRAFTON.
5. TEMPORARY CONSTRUCTION BERMS SHALL BE CONSTRUCTED AT ALL ENTRANCES/EXIT POINTS OF THE SITE TO REDUCE THE AMOUNT OF SOILS CARRIED ONTO ROADWAYS AND OFF SITE.
6. DUST SHALL ALSO BE CONTROLLED AT THE SITE AT ALL TIMES.
7. MONITORING AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE COURSE OF SITE CONSTRUCTION SHALL BE REQUIRED ON A DAILY BASIS. SEDIMENT SHALL BE REMOVED ONCE THE VOLUME REACHES 1/4 TO 1/2 THE HEIGHT OF THE EROSION CONTROL DEVICE.
8. SOIL STOCKPILES MUST BE STABILIZED OR COVERED AT THE END OF EACH WORKDAY. STOCKPILE SIDE SLOPES SHALL NOT BE GREATER THAN 2:1. ALL STOCKPILES SHALL BE SURROUNDED BY A SEDIMENT CONTROL DEVICE.
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PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	TOWN COMMENTS	Revision
1	10/11/2016	TOWN COMMENTS	



*Brian R. Marchetti* 10/11/2016

Drawn By: BRM    Designed By: BRM    Checked By: *BRM*

**APPROVED BY THE GRAFTON PLANNING BOARD**

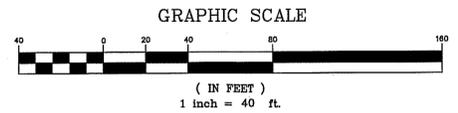
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SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



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Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**N. Grafton, MA 01536**

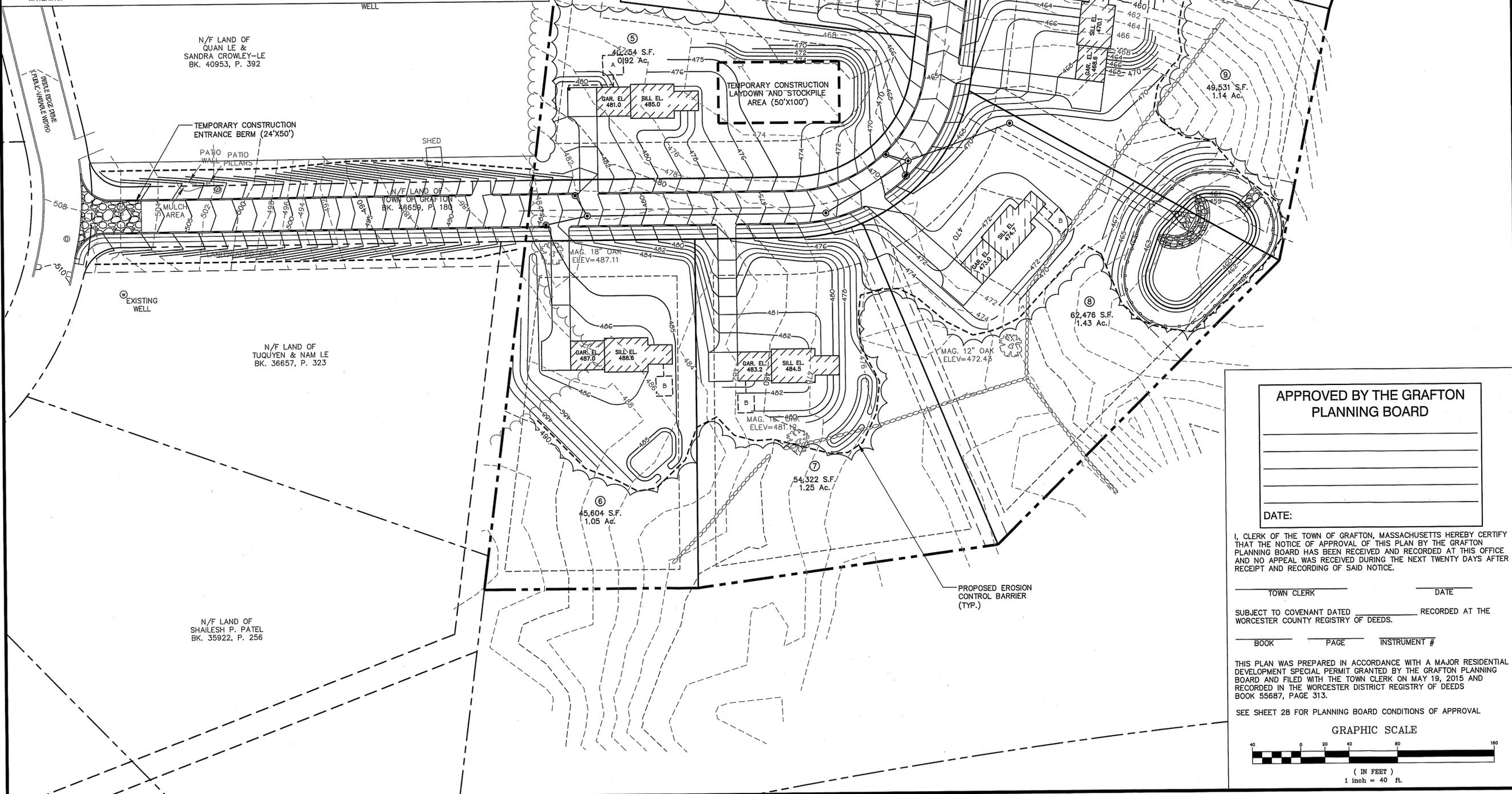
Sheet Title  
**Erosion Control Plan**  
**(1 of 2)**

Job No: 066    Sheet No.  
 File Name: 066P-CER01    **19**  
 Date: June 10, 2016  
 Scale: 1"=40'    OF 28

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PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01605

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
 Designed By: BRM  
 Checked By: *BM*

**APPROVED BY THE GRAFTON PLANNING BOARD**

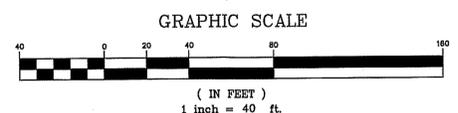
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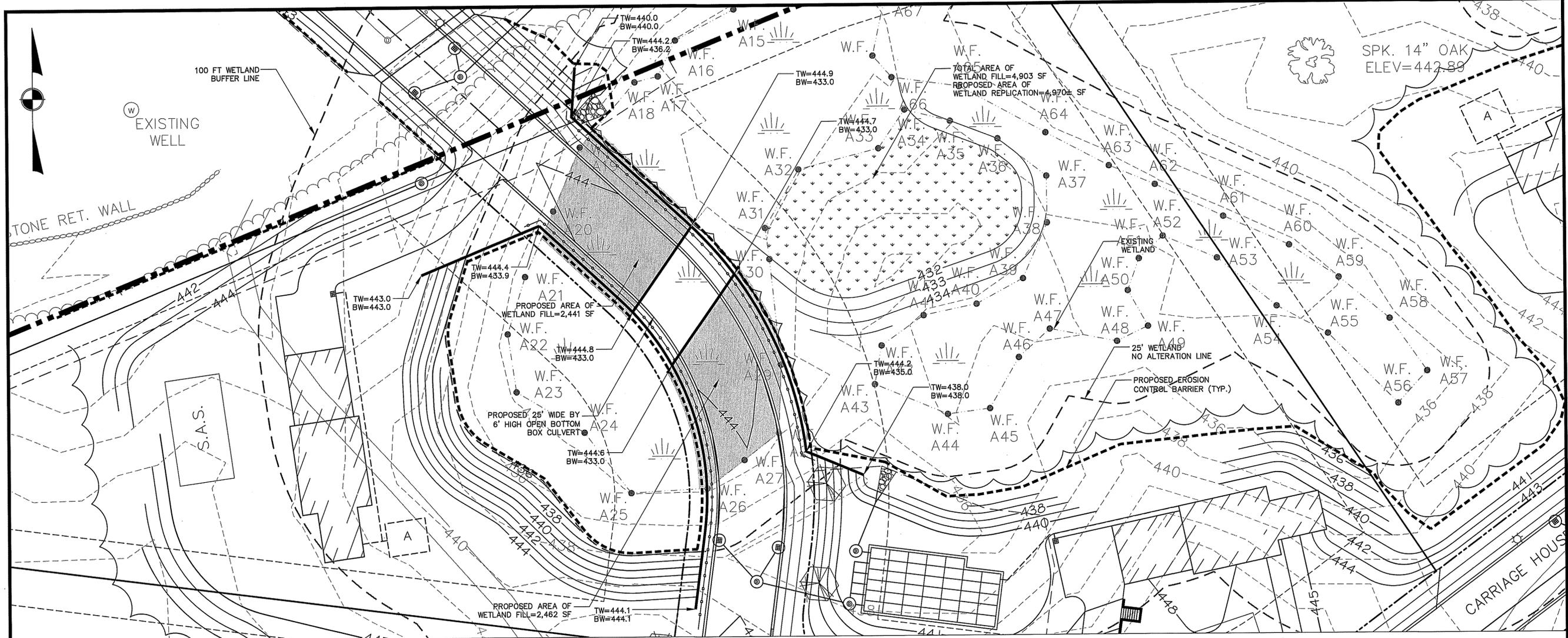
Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**N. Grafton, MA 01536**

Sheet Title  
**Erosion Control Plan**  
**(2 of 2)**

Job No: 066  
 File Name: 066P-CER02  
 Date: June 10, 2016  
 Scale: 1"=40'

Sheet No.  
**20**  
 OF 28

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PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision



*B. Marchetti 10/11/2016*

Drawn By: JLL    Designed By: BRM    Checked By: TSCM

**BORDERING VEGETATED WETLAND REPLICATION CONSTRUCTION PROTOCOL:**

- THE FOLLOWING PROTOCOL CONFORMS TO THE GENERAL STANDARDS IN THE MA WETLANDS PROTECTION ACT REGULATIONS AT 310 CMR 10.55(4)(b)
- THE WETLAND BOUNDARIES (I.E., DOWNGRADIENT EDGES OF THE WETLAND REPLICATION AREA) WILL BE MARKED IN THE FILED.
- PRIOR TO THE START OF EARTH-MOVING ACTIVITIES IN THE REPLICATION AREA, AN EROSION CONTROL BARRIER OF PROPERLY INSTALLED SILTATION FENCE (I.E., THE BOTTOM FEW INCHES OF THE SILTATION FENCE INSTALLED IN A NARROW, TRENCH AND THE TRENCH FILLED WITH SOIL AROUND THE SILTATION FENCE) WILL BE INSTALLED ALONG THE WETLAND BOUNDARIES BETWEEN THE WETLAND AND THE WETLAND REPLICATION AREA. THE WETLAND REPLICATION AREA WILL THEN BE CLEARED AND GRUBBED, WITH THE EXCEPTION OF THE TREES THAT HAVE BEEN MARKED TO BE SAVED.
- THE PROPOSED FINAL GRADE OF THE REPLICATION AREA SHOULD APPROXIMATE THE ELEVATION OF THE ADJACENT WETLAND AREAS (430±), AS NOTED ON THE SITE PLANS. THE REPLICATION AREA WILL BE EXCAVATED TO A DEPTH OF 12 INCHES BELOW THE PROPOSED FINAL GRADE. THE EXCAVATION AND PLANTING WORK WILL BE CLOSELY SUPERVISED BY A QUALIFIED WETLAND SCIENTIST. MINOR MODIFICATIONS TO THE PROPOSED GRADING MAY BE MADE IN THE FILE BY THE WETLAND SCIENTIST IN RESPONSE TO OBSERVED SUBSURFACE HYDROLOGIC CONDITIONS. ALL EXCAVATED MATERIAL WILL BE DISPOSED OF AWAY FROM ALL WETLAND RESOURCE AREAS.
- EXISTING TOPSOIL WITHIN THE IMPACT AREA WILL BE EXCAVATED, STOCKPILED AND KEPT MOIST BY WATERING AND/OR COVERING OR IMMEDIATELY TRANSPORTED TO THE REPLICATION AREA.
- RELOCATED WETLAND TOPSOIL WILL BE SUPPLEMENTED WITH A 1:1 MIXTURE OF HIGH QUALITY, LOAMY TOPSOIL AND LEAF MOLD COMPOST, AS NECESSARY, TO APPROXIMATE 12 INCHES IN THICKNESS THROUGHOUT THE REPLICATION AREA. THE SUBSTRATE WILL BE ROUGHLY GRADED TO PROVIDE AN APPROPRIATE MICROTOPOGRAPHY. A MINIMUM OF 4 INCHES OF LOAMY TOPSOIL WILL BE APPLIED TO THE SIDE-SLOPES OF THE WETLAND REPLICATION AREA. THE SIDE-SLOPES SHOULD BE STABILIZED AS NECESSARY TO PREVENT EROSION.
- AN EROSION CONTROL BARRIER COMPRISING ONLY TOED-IN SILTATION FENCE WILL BE PROPERLY INSTALLED BETWEEN THE COMPLETED REPLICATION AREA AND THE ADJACENT UPLAND SIDE SLOPES.
- PLANTING WILL BE DONE ONLY DURING THE BEGINNING (APRIL 15 THROUGH JUNE) OR END (SEPTEMBER 1 TO NOVEMBER 15) OF THE GROWING SEASON. PLANTING IN THE MID-GROWING SEASON IS ONLY ACCEPTABLE IF IRRIGATION IS PROVIDED. THE PLANTINGS AND SEED MIXTURE IDENTIFIED IN THE TABLE BELOW WILL BE PLANTED IN THE REPLICATION AREA UNLESS THE HERBACEOUS LAYER CAN BE TRANSPLANTED INTO THE REPLICATION AREA.
- THE REPLICATION AREA WILL BE MULCHED WITH 1 TO 2 INCHES OF LEAF COMPOST OR WEED FREE STRAW TO PROVIDE FOR TEMPORARY EROSION CONTROL AND MOISTURE RETENTION.
- THE SIDE-SLOPES OF THE WETLAND REPLICATION AREA WILL BE SEEDED WITH A GRASS/WILDFLOWER OR CONSERVATION MIXTURE DESIGNED TO PROVIDE PERMANENT COVER. AFTER SEEDING, THE SIDE-SLOPES WILL BE MULCHED WITH A THIN LAYER OF STRAW TO PROVIDE FOR TEMPORARY EROSION CONTROL.
- THE REPLICATION AREAS WILL BE INSPECTED, BY A QUALIFIED WETLAND SCIENTIST, AT THE END OF EACH GROWING SEASON FOR A MINIMUM OF TWO YEARS OR UNTIL SUCH TIME AS THE REQUIRED 75% OF THE VEGETATIVE COVER WITH THE WETLAND SPECIES HAS BEEN ESTABLISHED. WRITTEN RESULTS OF THESE INSPECTIONS WILL BE SUBMITTED TO THE CONSERVATION COMMISSION.
- AFTER THE WETLAND REPLICATION AREA HAS BECOME VEGETATIVELY STABILIZED AND FOLLOWING APPROVAL OF THE ISSUING AUTHORITY, THE SILTATION FENCE AND ALL WOODEN STAKES WILL BE REMOVED AND DISPOSED OF PROPERLY.

**PLANTING PLAN FOR WETLAND REPLICATION AREA:**

SPECIES: SIZE: SPACING:	NUMBER:
SAPPLINGS; 6 TO 8' HEIGHT, CONTAINER OR BALLED, BURLAPPED; 15' ON-CENTER AVERAGE	
RED MAPLE (ACER RUBRUM)	22
SHRUBS; 2.5 TO 3' IN HEIGHT, CONTAINER, 6' ON-CENTER AVERAGE SPACING	138 TOTAL*
HIGHBUSH BLUEBERRY (VACCINIUM CORYMBOSUM)	
ARROW-WOOD (VIBURNUM DENTATUM)	
WINTERBERRY (ILEX VERTICILLATA)	
SILKY DOGWOOD (CORNUS AMOMUM)	
HERBACEOUS	
NEW ENGLAND WETLAND PLANTS, NEW ENGLAND WETMIX (OR EQUIVALENT)	2.0 LBS.

- DEPENDING UP AVAILABILITY FROM LOCAL NURSERY STOCK, AT LEAST THREE (3) OF THE LISTED SPECIES WILL BE SELECTED, WITH A LEAST FORTY (40) SPECIMENS OF EACH SELECTED SPECIES PLANTED, FOR A TOTAL.

**WETLAND CROSSING SEQUENCE OF WORK:**

- INSTALL EROSION CONTROL BARRIER (ECB) AT LOCATION SHOWN ON PLAN.
- INSTALL ADDITIONAL ECB PROTECTION THROUGH SECTION OF WETLAND AT PROPOSED CULVERT.
- CLEAR TREES IN WORK AREA WITHOUT CROSSING EQUIPMENT OVER THE SECTION OF WETLAND TO REMAIN.
- ALL WORK IS TO BE ACCESSED FROM EITHER SIDE OF THE PROPOSED CROSSING. ONLY FOOT TRAFFIC IS PERMITTED IN RESOURCE AREA.
- REMOVE & DISPOSE STUMPS.
- STRIP & STOCKPILE WETLAND SOILS TO BE USED IN REPLICATION AREA. IF WITHIN 100FT WETLAND BUFFER STOCKPILE SHOULD BE SURROUNDED IN HAYBALES & COVERED IN 4 MIL POLY.
- FORM & POUR CONCRETE FOOTING FOR OPEN BOTTOM CULVERT.
- INSTALL CULVERT & ANCHOR TO FOOTING.
- PREPARE CRUSHED STONE BASE FOR PRECAST CONCRETE BLOCK RETAINING WALLS.
- IF DEWATERING IS REQUIRED:
  - USE ELECTRIC SUBMERSIBLE PUMP.
  - USE SUFFICIENT HOSE LENGTHS TO PUMP TO TEMP DRAINAGE SWALE.
  - CONSTRUCT 10X10X1' APRON OF 6-12" RIP RAP AT DISCHARGE POINT.
  - PERIODICALLY INSPECT DISCHARGE POINT & SWALE FOR BULDDUP OF SEDIMENT.
- INSTALL PRECAST CONCRETE BLOCK WALLS.
- IMPORT, PLACE, & COMPACT STRUCTURAL FILL BETWEEN WALLS.
- CONTINUE WITH WALL CONSTRUCTION & FILL PLACEMENT TO SUBGRADE.
- INSTALL TEMPORARY FENCE AT TOP OF WALL.
- INSTALL UTILITIES IN CROSSING AREA.
- INSTALL GRAVEL FOR ROADWAY BASE.
- INSTALL BINDER COURSE OF PAVEMENT.
- INSTALL GRANITE CURBING.
- CONSTRUCT CONCRETE SIDEWALK.
- INSTALL GUARDRAIL & FENCING.
- LOAM & HYDROSEED SHOULDERS.
- PROCEED WITH CONSTRUCTION OF WETLAND REPLICATION AREA.

APPROVED BY THE GRAFTON PLANNING BOARD

DATE: \_\_\_\_\_

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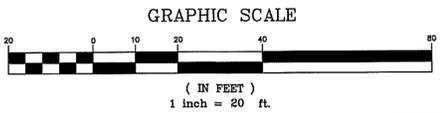
TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_

SUBJECT TO COVENANT DATED \_\_\_\_\_ RECORDED AT THE WORCESTER COUNTY REGISTRY OF DEEDS.

BOOK \_\_\_\_\_ PAGE \_\_\_\_\_ INSTRUMENT # \_\_\_\_\_

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SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



F:\CAD\ME1066-Lewin\Definitive\Review\Photos\06P-WRA01.dwg 11/01/2016 10:00 AM 1 by: Brian Marchetti

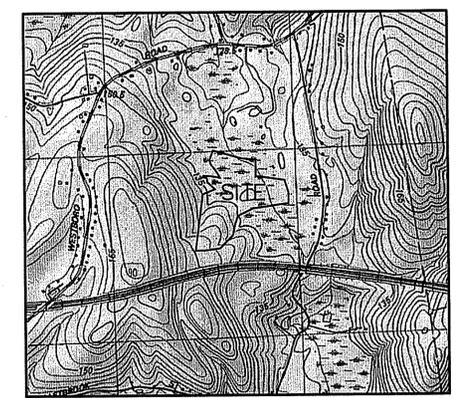
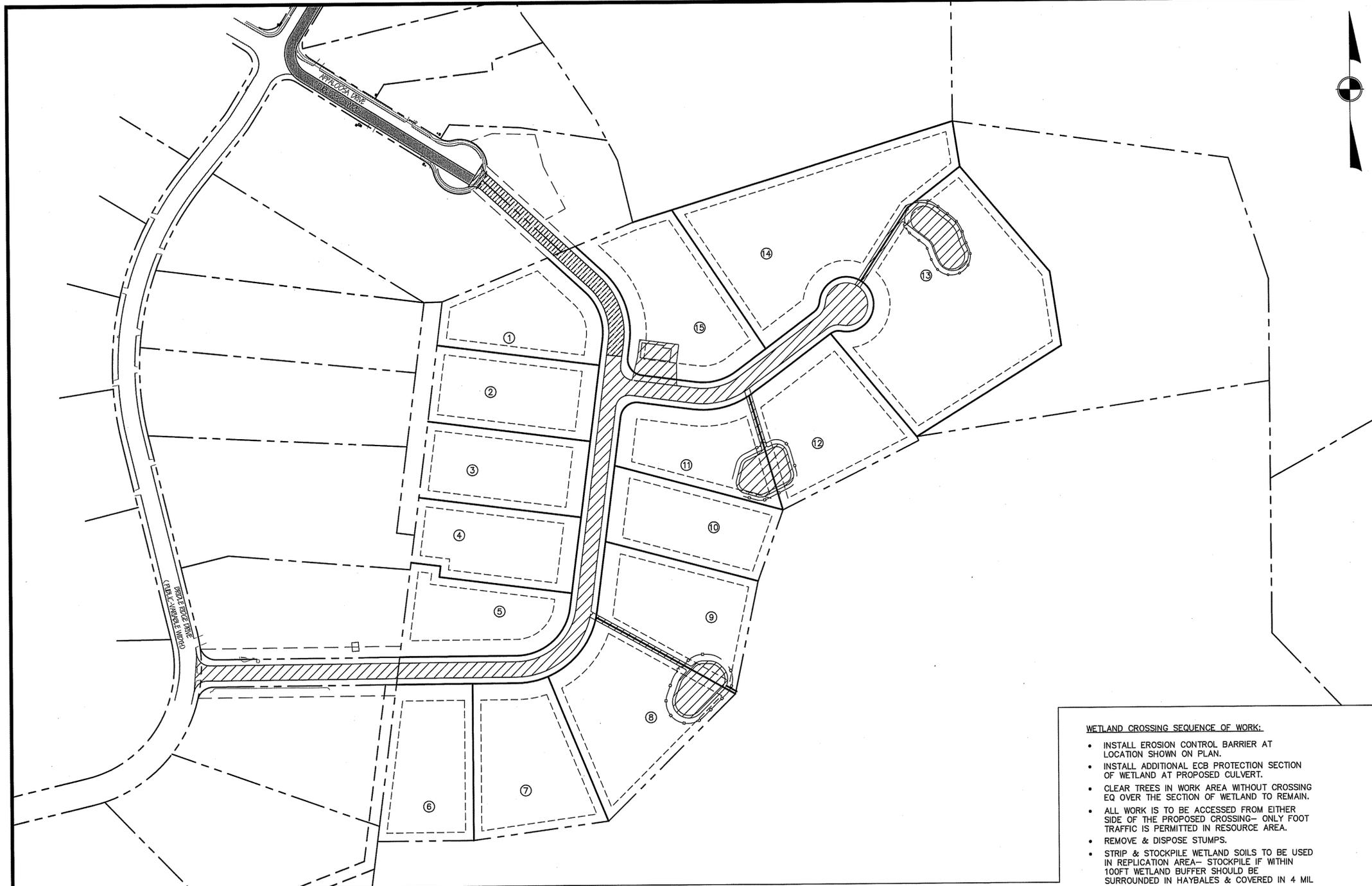
**McCarty Engineering, Inc.**  
 Civil Engineers

42 Jungle Road, Leominster, MA 01453  
 phone:(978) 534-1318 fax: (978) 840-6907  
 www.mccartyeng.com

Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**N. Grafton, MA 01536**

Sheet Title  
**Wetland Crossing**  
**&**  
**Replication Area Plan**

Job No: 066    Sheet No.  
 File Name: 066P-WRA01    **21**  
 Date: October 11, 2016  
 Scale: 1"=20'    OF 28



**LOCUS PLAN**  
1"=1,500 FT.±

- LEGEND:**
- ① PROPOSED LOT NUMBER
  - PHASE 1 WATERLINE EXTENSION TO OLD WESTBOROUGH RD.
  - PHASE 2 ROADWAY/DRAINAGE/UTILITY CONSTRUCTION
  - PHASE 3 WETLAND CROSSING



**SEQUENCE OF WORK, SUBDIVISION CONSTRUCTION:**

- LIMIT OF CLEARING TO BE MARKED OUT FOR ENTIRE PROJECT.
- CUT TREES & CHIP - CHIPS TO BE HAULED OFF SITE.
- INSTALL EROSION CONTROL BARRIER AND CONSTRUCTION ENTRANCE.
- REMOVE & DISPOSE STUMPS. STUMPS CAN BE GROUND ON-SITE AND GRINDING TO BE HAULED OFF SITE. WHOLE STUMPS CAN BE HAULED OFFSITE TO A DISPOSAL FACILITY.
- STRIP AND STOCKPILE TOP & SUBSOIL. MAINTAIN A STOCKPILE ON SITE, OUTSIDE OF THE 100 FT BUFFER ZONE, SUFFICIENT TO LOAM LOTS AND DISTURBED AREAS AT THE COMPLETION OF CONSTRUCTION. EXCESS LOAM CAN BE HAULED OFF SITE.
- COMPLETE ROUGH GRADING OF THE SITE TO ESTABLISH SUBGRADE. INFILTRATION BASINS 1,2,3,4 SHALL BE ESTABLISHED TO WITHIN 1FT OF FINISH GRADE. CONSTRUCT TEMPORARY SWALES AS NEEDED TO DIRECT RUNOFF TO THE INFILTRATION BASINS. BASINS SHOULD BE MONITORED THROUGHOUT THE CONSTRUCTION PROCESS TO ENSURE THAT THEY DO NOT BECOME SILTED UP.
- INSTALL STORMWATER DRAINAGE SYSTEMS STARTING WITH CROSS COUNTRY DRAINAGE THAT PICKS UP DISCHARGE FROM THE NORTH GRAFTON ESTATES DETENTION BASIN. ONCE CROSS COUNTRY DRAIN IS COMPLETE, DRAINAGE IMPROVEMENTS SHOULD BE INSTALLED STARTING AT THE INFILTRATION BASINS AND WORKING UPSTREAM. AS EACH CATCHBASIN IS INSTALLED, IT SHOULD BE EQUIPPED WITH A CATCHBASIN INLET FILTER. FILTERS SHOULD BE INSPECTED REGULARLY & CLEANED AS NEEDED.
- INSTALLATION OF WETLANDS CROSSING: SEE SEPARATE SCOPE OF WORK ON WETLAND CROSSING AND REPLICATION AREA PLAN.
- INSTALLATION OF WATER MAINS & SERVICE STUBS.
- INSTALLATION OF ELECTRIC CONDUIT.
- INSTALLATION OF ROADWAY GRAVEL.
- INSTALLATION OF BINDER COURSE OF PAVEMENT.
- INSTALLATION OF CURBING.
- ONCE BINDER COURSE OF PAVEMENT & CURBS ARE INSTALLED, WORK CAN PROCEED ON THE INDIVIDUAL HOUSE LOTS.
- TYPICAL HOUSE LOT SEQUENCED:
  - LOTS WERE CLEARED, STUMPED & STRIPPED AS PART OF ROADWAY CONSTRUCTION SEQUENCE.
  - EXCAVATE FOR FOUNDATIONS.
  - FORM & POUR CONCRETE FOUNDATION.
  - EXCAVATE PIT FOR WASHOUT OF TRUCK TOOLS & EQUIPMENT.
  - BACKFILL FOUNDATION.
  - SUB-GRADING OF LOT.
  - HOUSE CONSTRUCTION: FRAME, ROOF, SIDE, INTERIOR CONSTRUCTION ETC.
  - INSTALLATION OF SEPTIC SYSTEM.
  - INSTALLATION OF WATER SERVICE.
  - INSTALLATION OF UNDERGROUND ELECTRIC SERVICE.
  - INSTALLATION OF GAS SERVICE.
  - FINAL GRADING OF LOT.
  - INSTALLATION OF GRAVEL FOR DRIVEWAY.
  - INSTALLATION OF HARDSCAPES (WALKWAYS, PATIOS, ETC.).
  - PAVE BINDER COURSE OF DRIVEWAY.
  - LOAM & LANDSCAPE INSTALLATION.
  - INSTALLATION OF TOP COAT OF DRIVEWAY.
  - HYDROSEED.
- INSTALLATION OF CONCRETE SIDEWALKS.
- FINAL SHAPING OF INFILTRATION BASINS, INSTALLATION OF FOREBAYS, ETC.
- INSTALLATION OF STREET TREES.
- INSTALLATION OF FENCING.
- INSTALLATION OF SCREENED LOAM ON ALL REMAINING DISTURBED AREAS.
- CLEAR ALL CATCHBASIN SUMPS & FILTERS.
- CLEAN & INSPECT ALL ROADWAY SURFACES.
  - CUT & PATCH ANY DAMAGED SECTIONS OF BINDER.
- SAWCUT CONTROL JOINTS WHERE NEW ROADS MEET EXISTING ROADS.
- INSTALLATION OF TOP COURSE OF PAVEMENT & SIGNAGE.
- PREPARE AS-BUILT PLANS.

**WETLAND CROSSING SEQUENCE OF WORK:**

- INSTALL EROSION CONTROL BARRIER AT LOCATION SHOWN ON PLAN.
- INSTALL ADDITIONAL ECB PROTECTION SECTION OF WETLAND AT PROPOSED CULVERT.
- CLEAR TREES IN WORK AREA WITHOUT CROSSING EQ OVER THE SECTION OF WETLAND TO REMAIN.
- ALL WORK IS TO BE ACCESSED FROM EITHER SIDE OF THE PROPOSED CROSSING- ONLY FOOT TRAFFIC IS PERMITTED IN RESOURCE AREA.
- REMOVE & DISPOSE STUMPS.
- STRIP & STOCKPILE WETLAND SOILS TO BE USED IN REPLICATION AREA- STOCKPILE IF WITHIN 100FT WETLAND BUFFER SHOULD BE SURROUNDED IN HAYBALES & COVERED IN 4 MIL POLY.
- FORM & POUR CONCRETE FOOTING FOR OPEN BOTTOM CULVERT.
- INSTALL CULVERT & ANCHOR TO FOOTING.
- PREPARE CRUSHED STONE BASE FOR PRECAST CONCRETE BLOCK RETAINING WALLS.
- NOTE IF DEWATERING IS REQUIRED:
  - USE ELECTRIC SUBMERSIBLE PUMP.
  - USE SUFFICIENT HOSE LENGTHS TO PUMP TO TEMP DRAINAGE SWALE.
  - CONSTRUCT 10X10X1" APRON OF 6-12" RIP RAP AT DISCHARGE POINT.
  - PERIODICALLY INSPECT DISCHARGE POINT & SWALE FOR BUILDUP OF SEDIMENT.
- INSTALL PRECAST CONCRETE BLOCK WALLS.
- IMPORT, PLACE, & COMPACT STRUCTURAL FILL BETWEEN WALLS.
- CONTINUE WITH WALL CONSTRUCTION & FILL PAVEMENT TO SUBGRADE.
- INSTALL TEMPORARY FENCE AT TOP OF WALL.
- INSTALL UTILITIES IN CROSSING AREA.
- INSTALL GRAVEL FOR ROADWAY BASE.
- INSTALL BINDER COURSE OF PAVEMENT.
- INSTALL GRANITE CURBING.
- CONSTRUCT CONCRETE SIDEWALK.
- INSTALL GUARDRAIL & FENCING.
- LOAM & HYDROSEED SHOULDERS.
- PROCEED WITH CONSTRUCTION OF WETLAND REPLICATION AREA.

**APPROVED BY THE GRAFTON PLANNING BOARD**

DATE: \_\_\_\_\_

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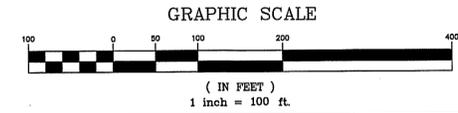
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SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL



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PREPARED FOR:  
BULL MEADOW, LLC.  
2 RACHEL ROAD  
BOYLSTON, MA 01505

No.	Date	Revision



*Brian Marchetti* 10/11/2016

Drawn By: JLL    Designed By: BRM    Checked By: TSKM

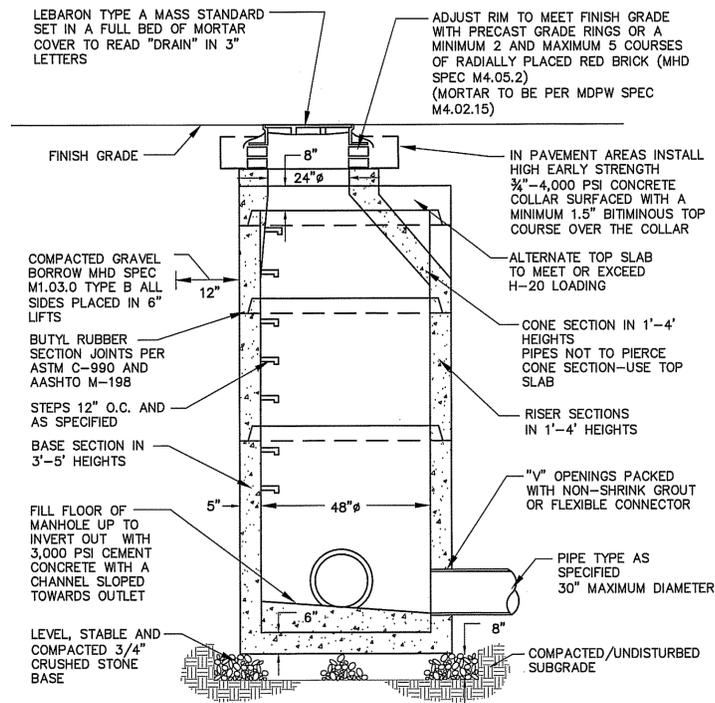
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Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**N. Grafton, MA 01536**

Sheet Title  
**Construction Phasing**  
**Plan**

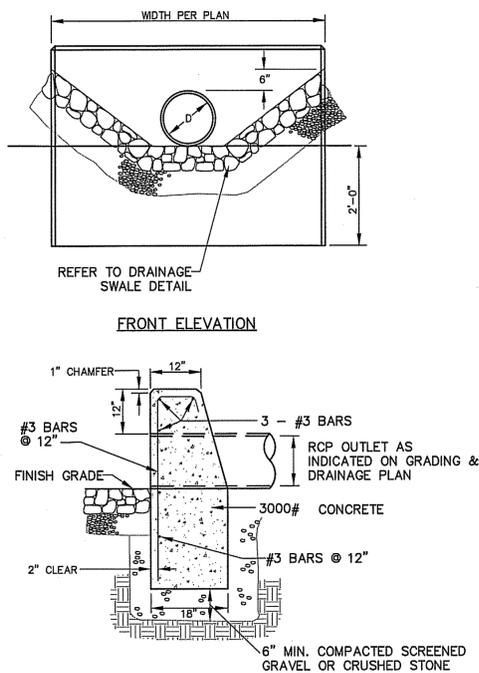
Job No: 066    Sheet No:  
File Name: 066P-CSPF01    **22**  
Date: October 11, 2016  
Scale: 1"=100'    OF 28



- NOTES:
- EXCAVATION TO ALLOW FOR FREE TRAVEL OF COMPACTION EQUIPMENT
  - ALL COMPACTION TO A MINIMUM 95 PERCENT DRY DENSITY DETERMINED BY ASTM D1557
  - ALL PRECAST TO MEET OR EXCEED ASTM C-478 AND ASSHTO M 199 SPECIFICATIONS
  - REINFORCED STEEL TO MEET OR EXCEED ASTM A185 AND H-20 LOADING REQUIREMENTS
  - ALL PRECAST CONCRETE TO BE 4,000 PSI MINIMUM AND MEET ASTM C-478 (6.1)
  - IF NO STEPS ARE SPECIFIED THAN AS THE LOCAL MUNICIPALITY REQUIRES OR IF NO MUNICIPALITY REQUIREMENTS THEN COPOLYMER POLYPROPYLENE COATED REINFORCED PER ASTM C-478 AND OSHA (STD 1-1.9)
  - CONTRACTOR TO CONFIRM WITH CITY OR TOWN DPW THAT BRICK INVERTS ARE NOT A REQUIREMENT
  - FILL ALL INTERNAL AND EXTERNAL HOLES WITH NON-SHRINK GROUT

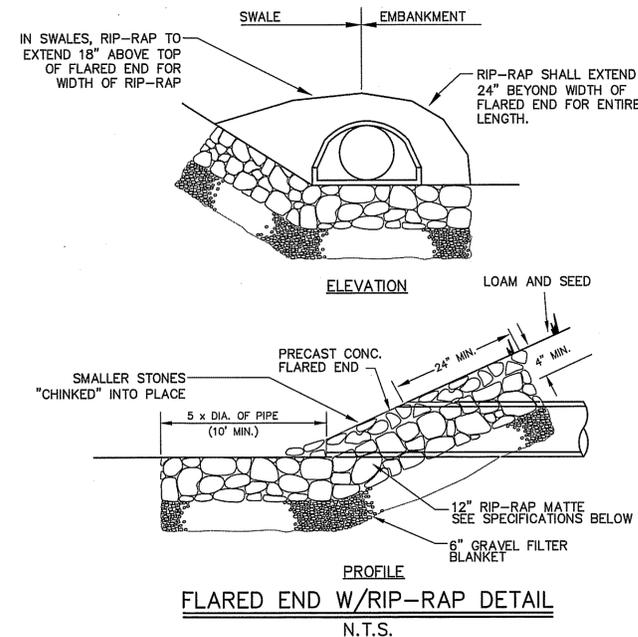
**PRECAST CONCRETE DRAIN MANHOLE DETAIL**

N.T.S.



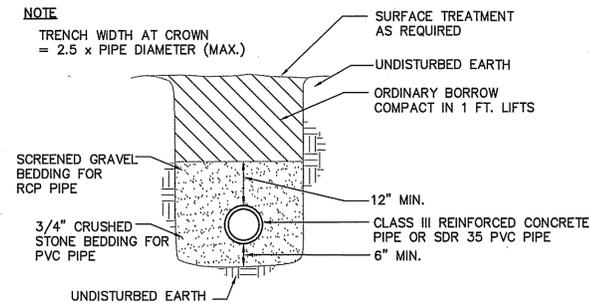
**HEADWALL DETAIL**

N.T.S.



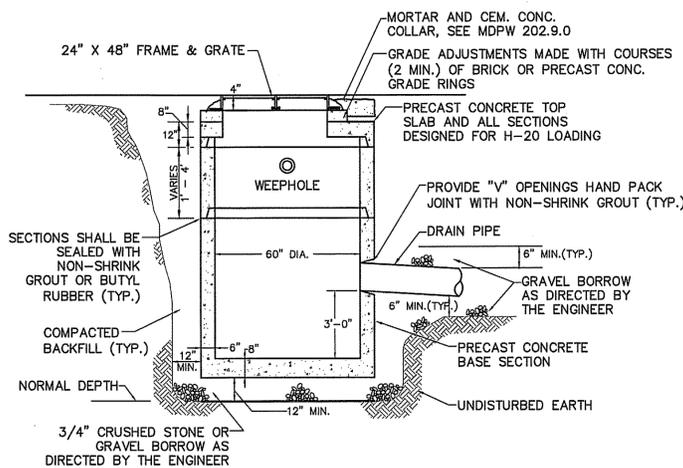
**NOTE**

TRENCH WIDTH AT CROWN = 2.5 x PIPE DIAMETER (MAX.)



**DRAIN PIPE TRENCH DETAIL**

N.T.S.

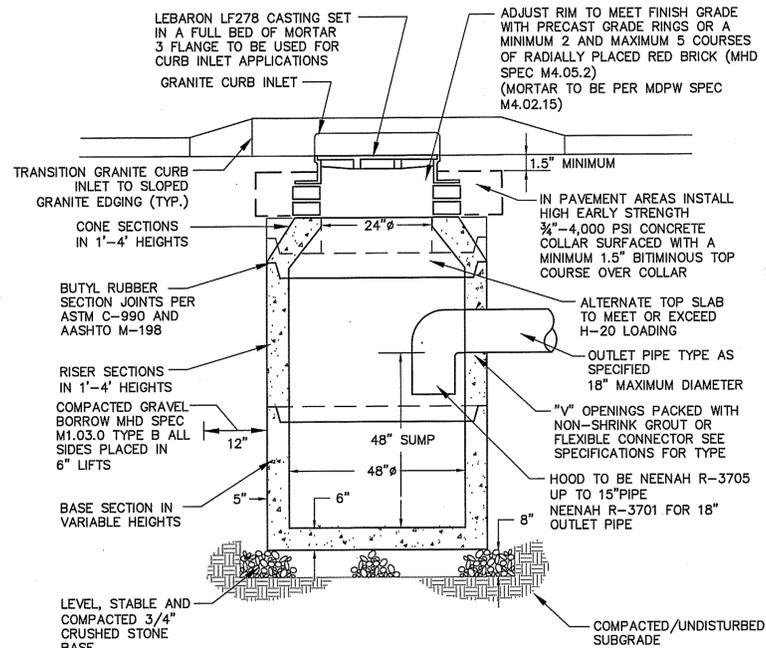


**NOTES:**

- CATCH BASIN SHALL BE PRECAST CEMENT CONCRETE MANUFACTURED IN ACCORDANCE WITH ASTM C-478 DESIGNED FOR H-20 LOADING.
- DRAIN PIPE FOR LATERAL CONNECTIONS SHALL BE INSTALLED AND TEMPORARILY PLUGGED AS REQUIRED OR DIRECTED.
- SEE GENERAL PLANS FOR PIPE SIZE, LINE AND GRADE.
- BACKFILL MATERIAL SHALL CONSIST OF SUITABLE EXCAVATED MATERIAL AND/OR GRAVEL BORROW AS DIRECTED BY THE ENGINEER.
- INSTALL FRAME & GRATE WITH 24" SIDE ALONG CURB INLET.

**PRECAST CONCRETE DOUBLE CATCH BASIN DETAIL**

N.T.S.



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  - REINFORCED STEEL TO MEET OR EXCEED ASTM A185 AND H-20 LOADING REQUIREMENTS
  - ALL PRECAST CONCRETE TO BE 4,000 PSI MINIMUM AND MEET ASTM C-478 (6.1)
  - ALL INTERIOR HOLES TO BE SEALED WITH NON-SHRINK GROUT
  - MIN. STRUCTURE DEPTH SHALL BE 7.5 FT.

**PRECAST CONCRETE CATCH BASIN DETAIL**

N.T.S.

**NOT FOR CONSTRUCTION**

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PREPARED FOR:  
BULL MEADOW, LLC.  
2 RACHEL ROAD  
BOYLSTON, MA 01505

No.	Date	TOWN COMMENTS	Revision
1	10/11/2016		



Drawn By: BRM  
Designed By: BRM  
Checked By: *[Signature]*

**APPROVED BY THE GRAFTON PLANNING BOARD**

DATE:

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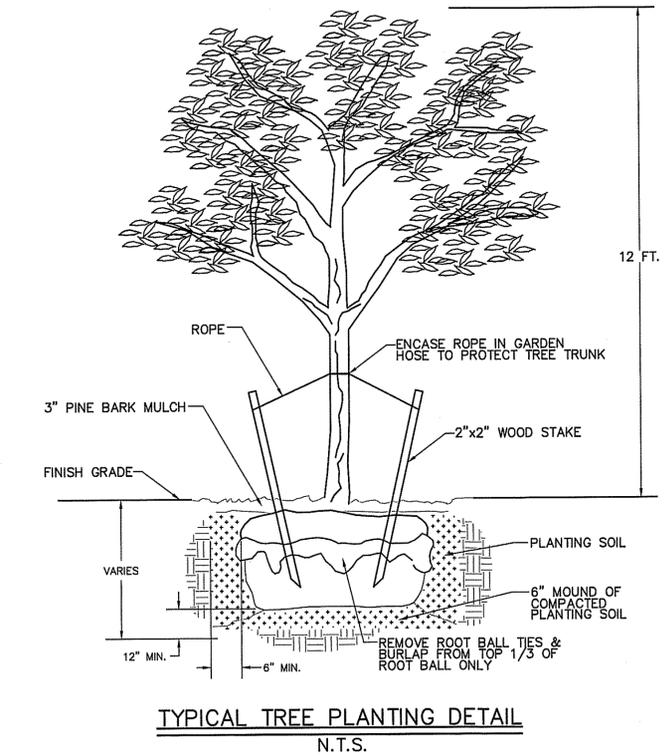
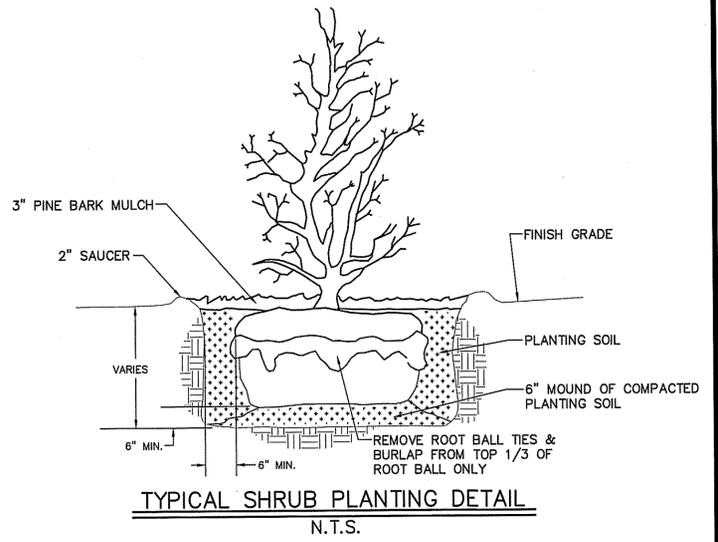
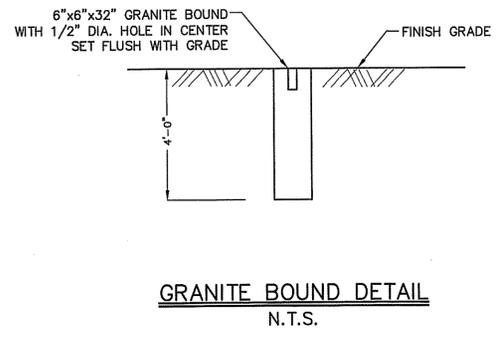
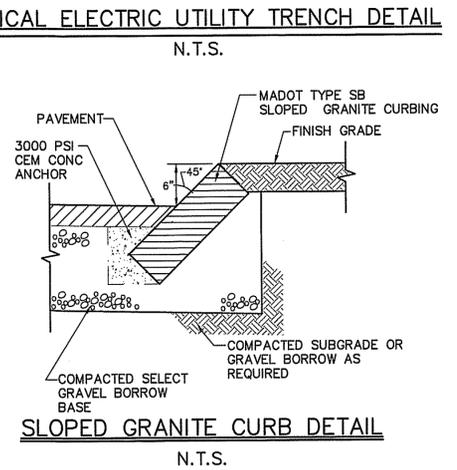
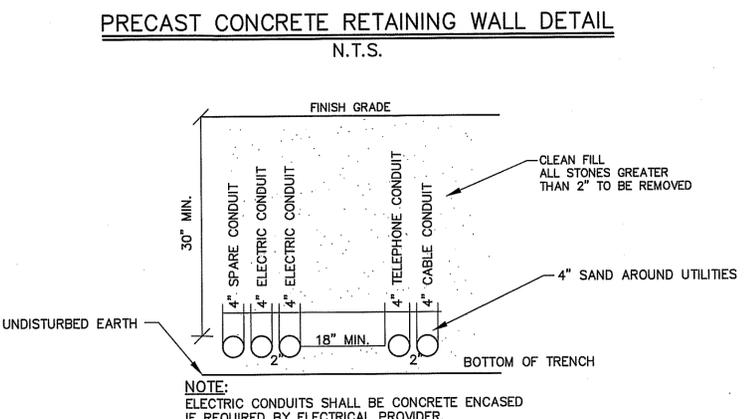
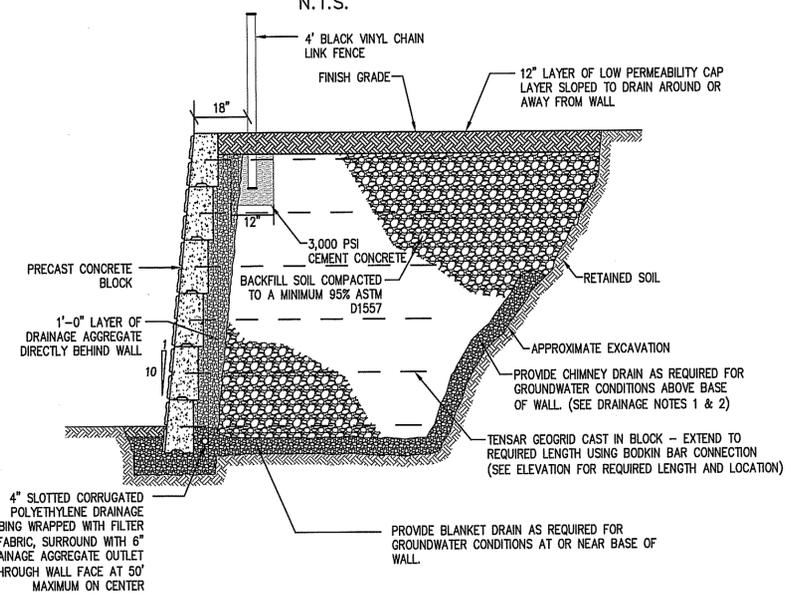
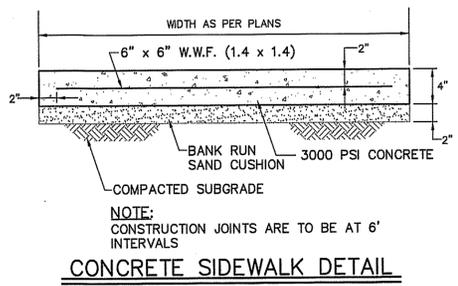
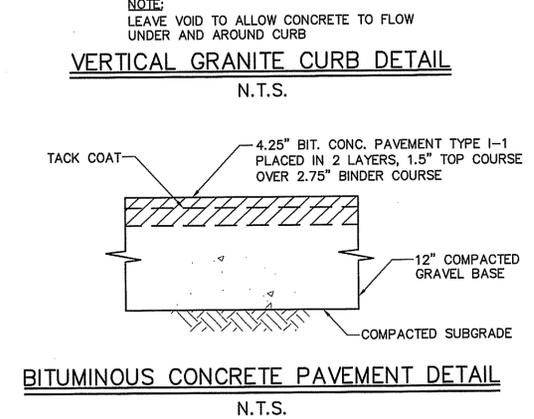
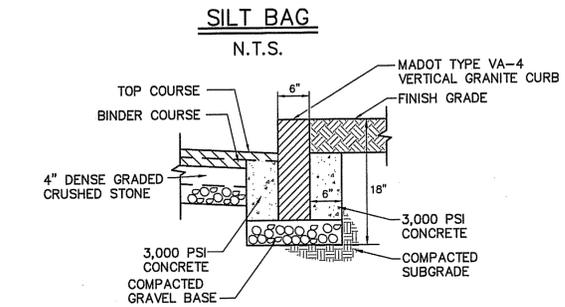
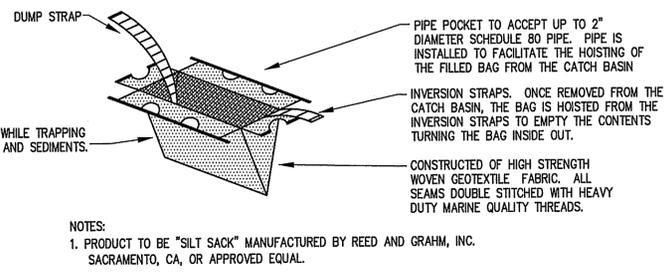
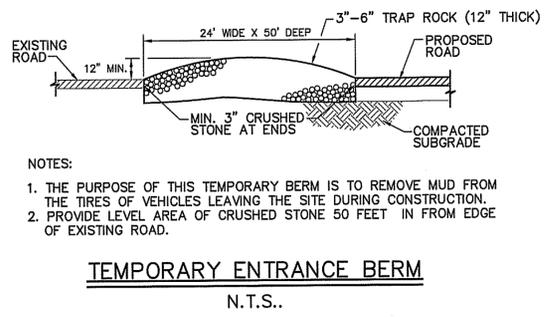
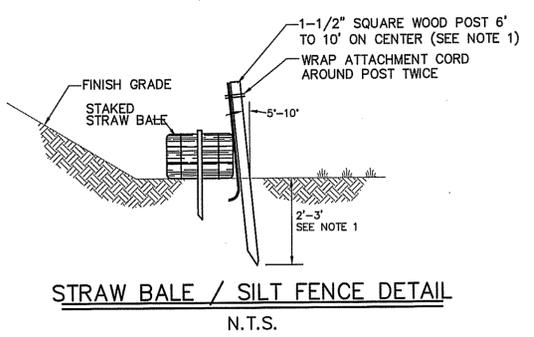
Project Name  
**Estates at Bull Meadow**  
Definitive Plan  
N. Grafton, MA 01536

Sheet Title  
**Construction Details**  
(1 of 4)

Job No: 066  
File Name: 066P-CDT01  
Date: June 10, 2016  
Scale: AS SHOWN

Sheet No.  
**23**  
OF 28

**NOTES:**  
 1. DEPTH MAY VARY WITH TRIBUTARY AREA: 2 FT. FOR 100 SF/LF FENCE; 3 FT. FOR 500 SF/LF FENCE, UNLESS POST IS TO BE SET IN PEAT THEN 3 FT. OR DEPTH POSSIBLE BY PUSHING BY HAND SHALL BE REQUIRED.  
 2. STRAW WATTLES MAY BE USED A SUBSTITUTE TO STAKED STRAWBALES WITH PRIOR APPROVAL OF THE LOCAL CONSERVATION COMMISSION.



**APPROVED BY THE GRAFTON PLANNING BOARD**

DATE: \_\_\_\_\_

TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_

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PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: BRM  
 Designed By: BRM  
 Checked By: JSC

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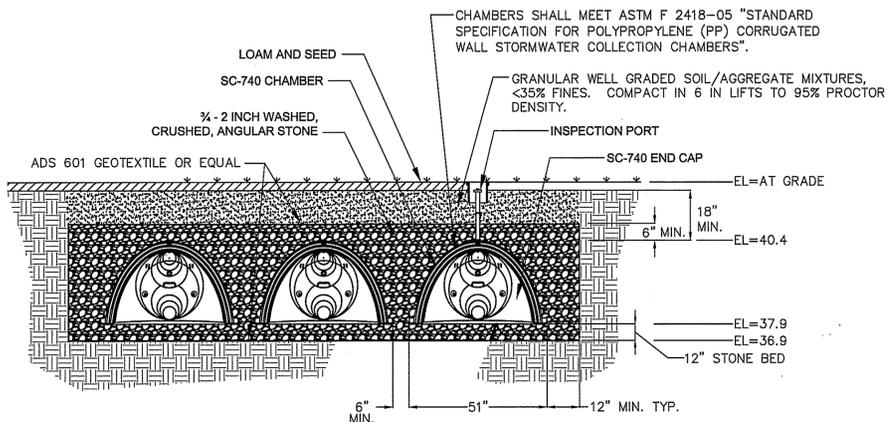
Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**N. Grafton, MA 01536**

Sheet Title  
**Construction Details**  
 (2 of 4)

Job No: 066  
 File Name: 066P-CDT02  
 Date: June 10, 2016  
 Scale: AS SHOWN

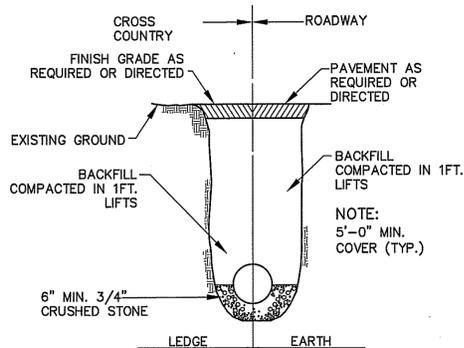
Sheet No.  
**24**  
 OF 28

F:\CAD\ME\066-Levin\066Final\Review\066P-CDT02.dwg 10/11/2016 10:05 AM 1 by: Justin Leslie



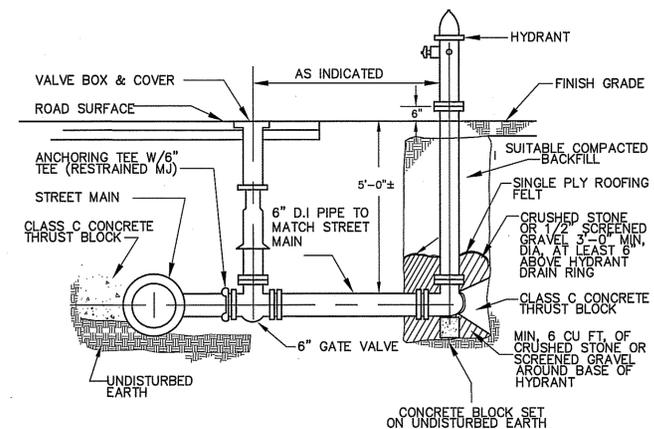
NOTES:  
TYPE A = 8 CHAMBERS  
TYPE B = 6 CHAMBERS

**SC-740 DRY WELL**  
N.T.S.

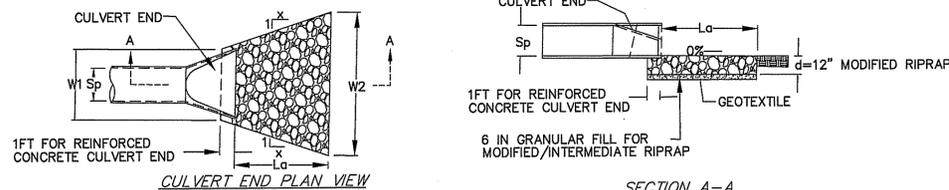


NOTE:  
BACKFILL MATERIAL SHALL CONSIST OF EXCAVATED MATERIAL AND/OR GRAVEL BORROW AS DIRECTED BY THE ENGINEER.

**TYPICAL WATER MAIN TRENCH DETAIL**  
N.T.S.



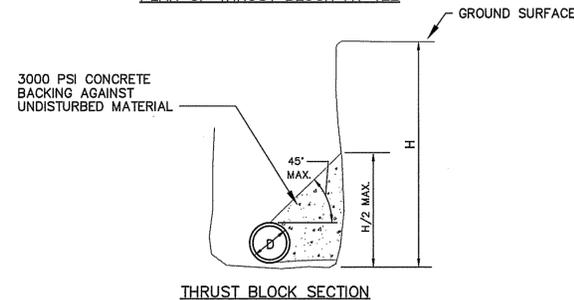
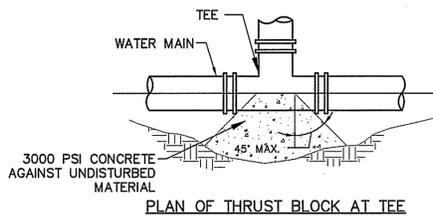
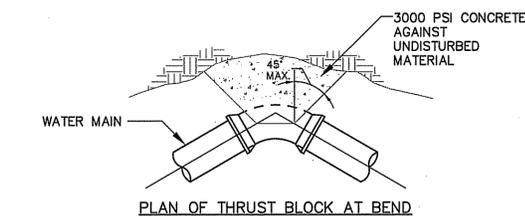
**HYDRANT CONNECTION DETAIL**  
N.T.S.



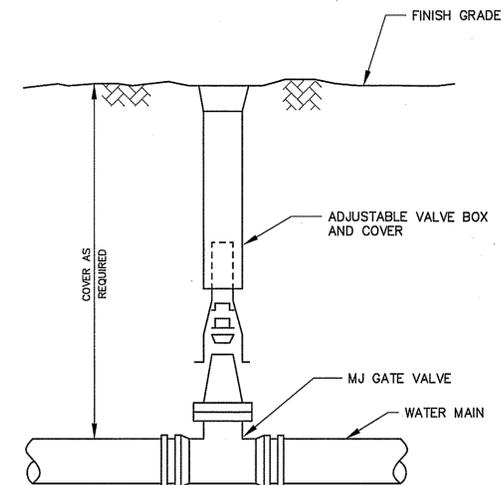
APRON SIZING CRITERIA

TYPE A RIPRAP APRON	X	W1	W2
	3	3Sp	3Sp+0.7Lg

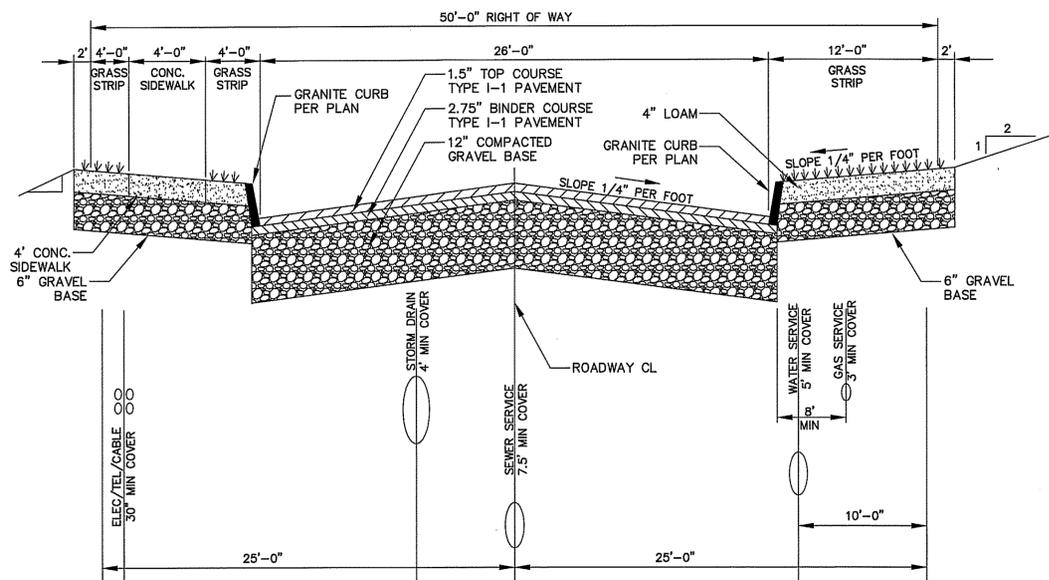
**RAP OUTLET PROTECTION (TYPE A)**  
N.T.S.



**WATER MAIN THRUST BLOCK DETAIL**  
N.T.S.

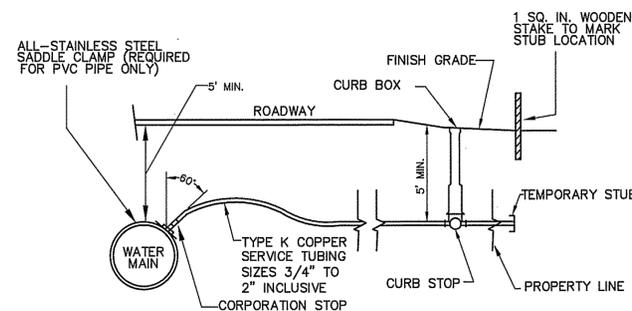


**BURIED GATE VALVE DETAIL**  
N.T.S.



NOTES:  
1. GAS SERVICE IS NOT INCORPORATED INTO THE DESIGN OF THIS SUBDIVISION.  
2. SEWER SERVICE IS NOT INCORPORATED INTO THE DESIGN OF THIS SUBDIVISION. THE PROPOSED LOTS WILL BE SERVICED BY INDIVIDUAL SEPTIC SYSTEMS.

**MINOR STREET B STANDARD CROSS-SECTION**  
N.T.S.



NOTE:  
TUBING, CORPORATION COCK & CURB STOP SHALL BE AS REQUIRED.

**WATER SERVICE DETAIL**  
N.T.S.

APPROVED BY THE GRAFTON PLANNING BOARD

DATE:

I, CLERK OF THE TOWN OF GRAFTON, MASSACHUSETTS HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE GRAFTON PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE NEXT TWENTY DAYS AFTER RECEIPT AND RECORDING OF SAID NOTICE.

TOWN CLERK \_\_\_\_\_ DATE \_\_\_\_\_

SUBJECT TO COVENANT DATED \_\_\_\_\_ RECORDED AT THE WORCESTER COUNTY REGISTRY OF DEEDS.

BOOK \_\_\_\_\_ PAGE \_\_\_\_\_ INSTRUMENT # \_\_\_\_\_

THIS PLAN WAS PREPARED IN ACCORDANCE WITH A MAJOR RESIDENTIAL DEVELOPMENT SPECIAL PERMIT GRANTED BY THE GRAFTON PLANNING BOARD AND FILED WITH THE TOWN CLERK ON MAY 19, 2015 AND RECORDED IN THE WORCESTER DISTRICT REGISTRY OF DEEDS BOOK 55687, PAGE 313.

SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL

NOT FOR CONSTRUCTION  
THESE PLANS WERE PREPARED FOR THE PURPOSE OF OBTAINING STATE AND LOCAL PERMITS AND ARE NOT INTENDED TO BE USED AS CONSTRUCTION DOCUMENTS.

PREPARED FOR:  
BULL MEADOW, LLC.  
2 RACHEL ROAD  
BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



*Brian R. Marchetti* 10/11/2016

Drawn By: BRM  
Designed By: BRM  
Checked By: TSKM

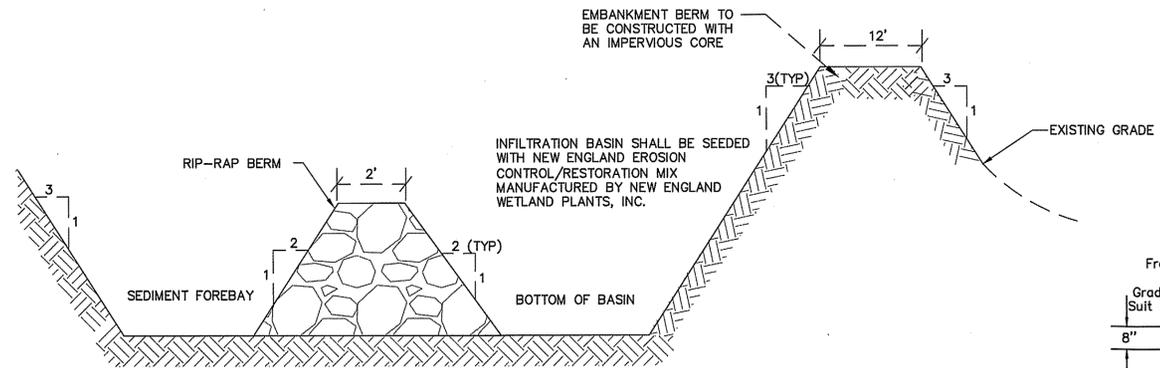
McCarty Engineering, Inc.  
Civil Engineers  
42 Jungle Road, Leominster, MA 01453  
phone: (978) 534-1318 fax: (978) 840-6907  
www.mccartydb.com

Project Name  
Estates at Bull Meadow  
Definitive Plan  
N. Grafton, MA 01536

Sheet Title  
Construction Details  
(3 of 4)

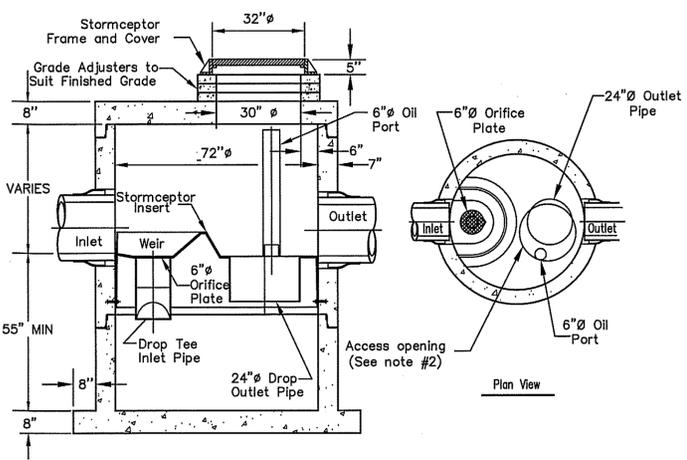
Job No: 066  
File Name: 066P-CDT03  
Date: June 10, 2016  
Scale: AS SHOWN

Sheet No.  
**25**  
OF 28



NOTE:  
 1. SEAL AROUND OUTLET PIPE WITH IMPERVIOUS BARRIER  
 2. A 6" PERFORATED UNDERDRAIN SHALL BE INSTALLED IN EACH INFILTRATION BASIN WITH A 6" VALVE THAT SHALL BE EASILY ACCESSIBLE AND SHALL REMAIN CLOSED DURING NORMAL OPERATION. THE UNDERDRAIN SHALL OUTLET IN THE RIP RAP MAT AS SHOWN ON THE GRADING AND DRAINAGE PLANS.

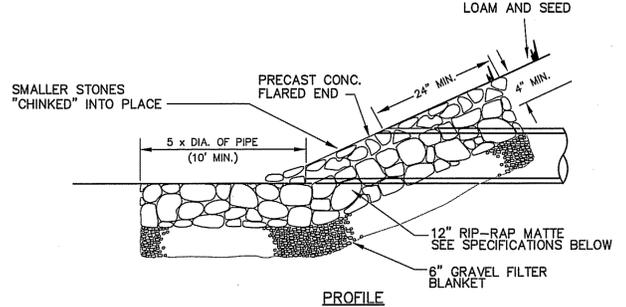
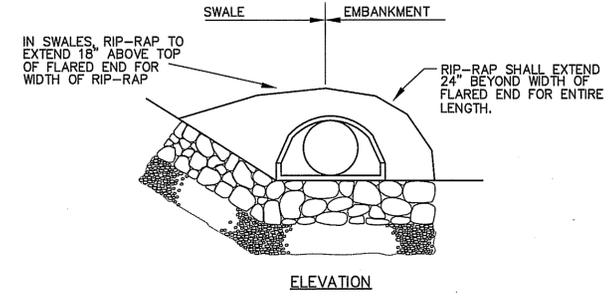
**CROSS-SECTION OF TYPICAL INFILTRATION BASIN DETAIL**  
 N.T.S.



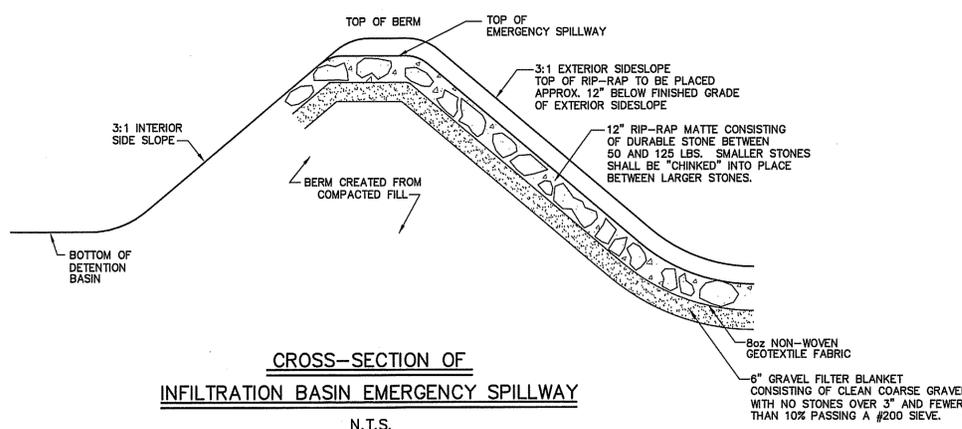
**SECTION THRU CHAMBER**

NOTES:  
 1. THE USE OF FLEXIBLE CONNECTION IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.  
 2. THE COVER SHOULD BE POSITIONED OVER THE INLET DROP PIPE AND THE OIL PORT.  
 3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.  
 4. CONTACT A CONCRETE PIPE DIVISION REPRESENTATIVE FOR FURTHER DETAILS NOT LISTED ON THIS DRAWING.

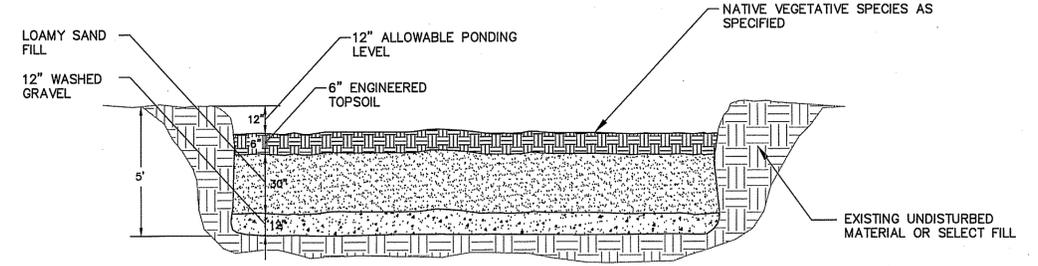
**STC 900 WATER QUALITY UNIT**  
 N.T.S.



**FLARED END W/RIP-RAP DETAIL**  
 N.T.S.



**CROSS-SECTION OF INFILTRATION BASIN EMERGENCY SPILLWAY**  
 N.T.S.



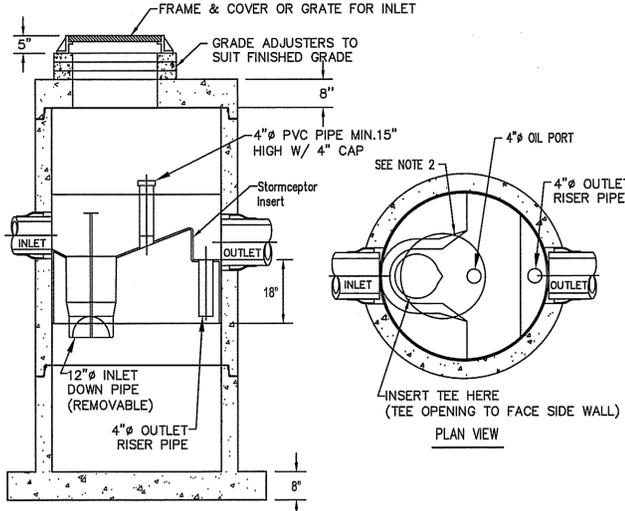
NOTES:  
 1. ENGINEERED TOPSOIL SHALL BE COMPOSED OF 50% SAND, 30% LOAM AND 20% COMPOST.  
 2. VEGETATION WITHIN RAIN GARDENS AND BIOTENTION BASINS MUST BE ABLE TO TOLERATE EXPECTED POLLUTANT LOADINGS, HIGHLY VARIABLE MOISTURE CONDITIONS AND PONDING WATER FLUCTUATIONS.

THE FOLLOWING SPECIES ARE RECOMMENDED FOR USE IN RAINGARDENS. MIXTURE OF PLANTINGS SHOULD BE CHOSEN TO MIMIC APPEARANCE OF ADJACENT WETLAND AREAS. THE NUMBER OF PLANTS REQUIRED VARIES WITH THE SIZE OF THE RAIN GARDEN BEING PROPOSED. ONCE THE GRADING OF THE RAINGARDEN IS COMPLETE AND THE FILL IS PLACED WITHIN IT, A LANDSCAPE ARCHITECT SHALL MAKE A SITE INSPECTION TO ADVISE THE CONTRACTOR ON THE NUMBER, SIZE, AND PLACEMENT OF THE PLANTINGS.

- TREES:**  
 ACER RUBRUM  
 BETULA NIGRA  
 LARIX LARCINA  
 LIQUIDAMBAR STYRACIFLUA  
 NYSSA SYLVATICA  
 SAMBUCUS CANADENSIS
- RED MAPLE**  
 RIVER BIRCH  
 EASTERN LARCH  
 SWEETGUM  
 BLACK GUM  
 AMERICAN ELDERBERRY
- SHRUBS/GROUND COVER:**  
 AMELANCHIER CANADENSIS  
 ARONIA ARBUTIFOLIA  
 CORNUS SERICEA  
 HAMAMELIS VIRGINIANA  
 LLEX GLABRA  
 LLEX VERTICILLATA  
 KALMIA LATIFOLIA  
 VACCINIUM CORYMBOSUM  
 VIBURNUM DENTATUM
- SHADBLOW SERVICEBERRY**  
 RED CHOKEBERRY  
 RED TWIG DOGWOOD  
 WITCH HAZEL  
 INKBERRY  
 WINTERBERRY  
 MOUNTAIN LAUREL  
 HIGHBUSH BLUEBERRY  
 ARROWWOOD

- HERBACEOUS:**  
 NEW ENGLAND WETLAND PLANTS -  
 ACORUS CALAMUS  
 CAREX PENDULA  
 EUPATORIUM MACULATUM  
 IRIS SIBERICA  
 IRIS VERSICOLOR  
 LOBELIA CARDINALIS  
 OSMUNDA REGALIS  
 OSMUNDA CINNAMOMEA
- WETLAND SEED MIX  
 SWEET FLAG  
 DROOPING SEDGE  
 JOE PYE WEED  
 SIBERIAN IRIS  
 BLUE FLAG IRIS  
 CARDINAL FLOWER  
 ROYAL FERN  
 CINNAMON FERN

**RAIN GARDEN DETAIL**



NOTES:  
 1. THE USE OF FLEXIBLE CONNECTION IS RECOMMENDED AT THE INLET AND OUTLET WHERE APPLICABLE.  
 2. THE COVER SHOULD BE POSITIONED OVER THE INLET DROP PIPE AND THE OIL PORT.  
 3. THE STORMCEPTOR SYSTEM IS PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.  
 4. CONTACT A CONCRETE PIPE DIVISION REPRESENTATIVE FOR FURTHER DETAILS NOT LISTED ON THIS DRAWING.

**STC 450 WATER QUALITY UNIT**  
 N.T.S.

**APPROVED BY THE GRAFTON PLANNING BOARD**

DATE: \_\_\_\_\_

I, CLERK OF THE TOWN OF GRAFTON, MASSACHUSETTS HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE GRAFTON PLANNING BOARD HAS BEEN RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE NEXT TWENTY DAYS AFTER RECEIPT AND RECORDING OF SAID NOTICE.

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PREPARED FOR:  
 BULL MEADOW, LLC.  
 2 RACHEL ROAD  
 BOYLSTON, MA 01505

No.	Date	Revision
1	10/11/2016	TOWN COMMENTS



Drawn By: \_\_\_\_\_  
 BRM

Designed By: \_\_\_\_\_  
 BRM

Checked By: \_\_\_\_\_  
 TSM

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 42 Jungle Road, Leominster, MA 01453  
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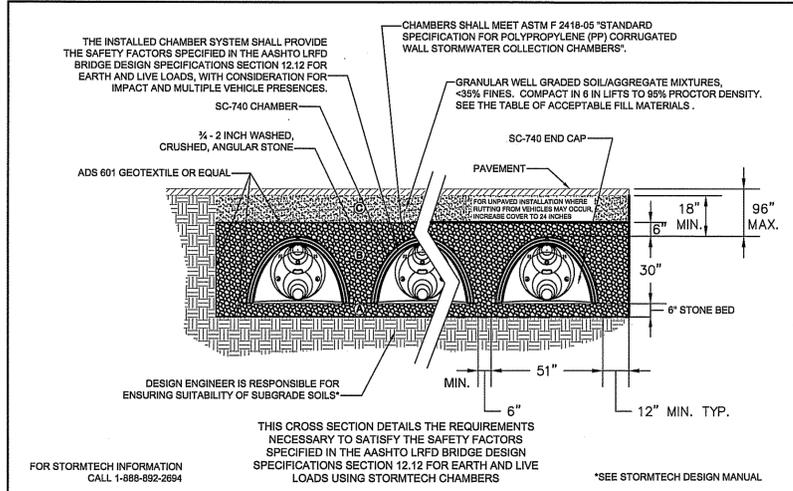
Project Name  
**Estates at Bull Meadow**  
**Definitive Plan**  
**N. Grafton, MA 01536**

Sheet Title  
**Construction Details**  
**(4 of 4)**

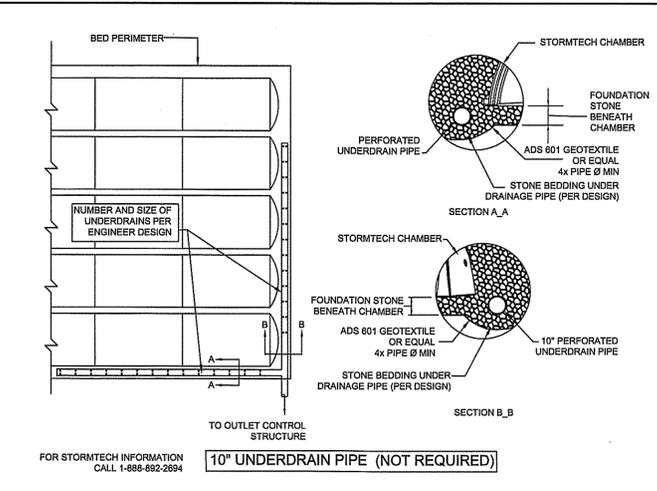
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 Date: June 10, 2016  
 Scale: AS SHOWN

Sheet No.  
**26**  
 OF 28

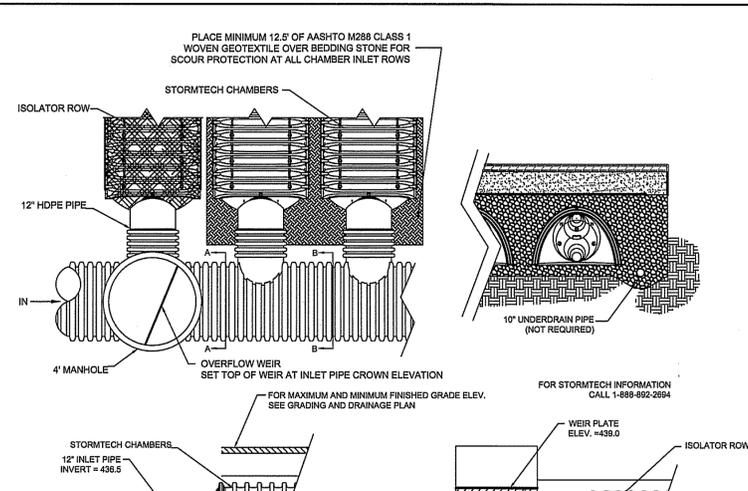
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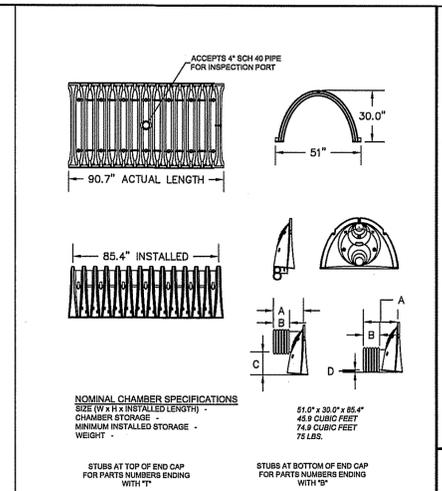
**SC-740 TYPICAL CROSS SECTION**



**STORMTECH UNDERDRAIN DETAIL**



**STORMTECH ELEVATIONS**



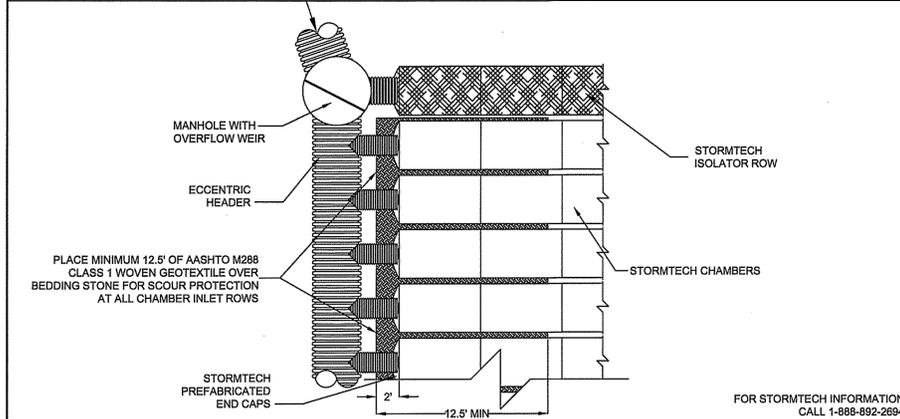
**TECHNICAL DETAILS**

**ACCEPTABLE FILL MATERIALS  
STORMTECH SC-740 CHAMBER SYSTEMS**

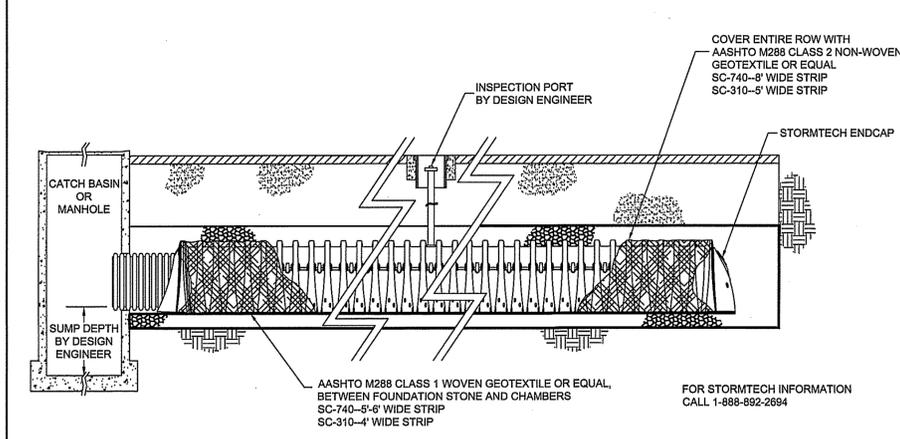
MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION	AASHTO M145 DESIGNATION	COMPACTION/DENSITY REQUIREMENT
FILL MATERIAL FROM 18" TO GRADE ABOVE CHAMBERS	ANY SOIL/ROCK MATERIALS, NATIVE SOILS OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	N/A	PREPARE PER ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
FILL MATERIAL FROM 6" TO 18" ELEVATION ABOVE CHAMBERS (24" FOR UNPAVED INSTALLATIONS)	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 76, 8, 89, 9, 10	A-1, A-2, A-3	COMPACT IN 6" LIFTS TO A MINIMUM 95% STANDARD PROCTOR DENSITY. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 LBS. DYNAMIC FORCE NOT TO EXCEED 20,000 LBS.
EMBEDMENT STONE SURROUNDING AND TO A 6" ELEVATION ABOVE CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 3/4 - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	NO COMPACTION REQUIRED
FOUNDATION STONE BELOW CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 3/4 - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY

PLEASE NOTE: THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE WASHED CRUSHED ANGULAR. FOR EXAMPLE, THE STONE MUST BE SPECIFIED AS WASHED, CRUSHED, ANGULAR NO. 4 STONE.

**STORMTECH ACCEPTABLE FILL MATERIALS**



**STORMTECH ISOLATOR™ ROW MANIFOLD DETAIL**

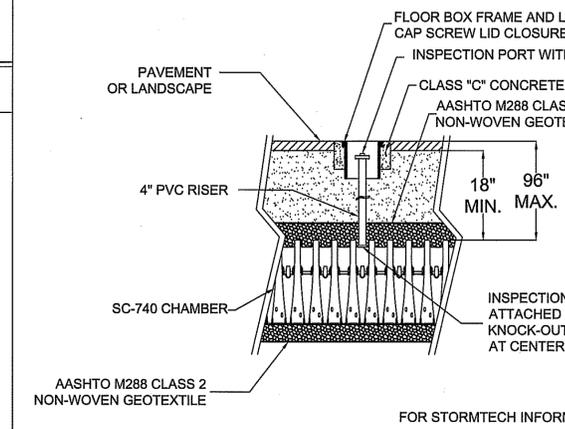


**STORMTECH ISOLATOR™ ROW DETAIL**

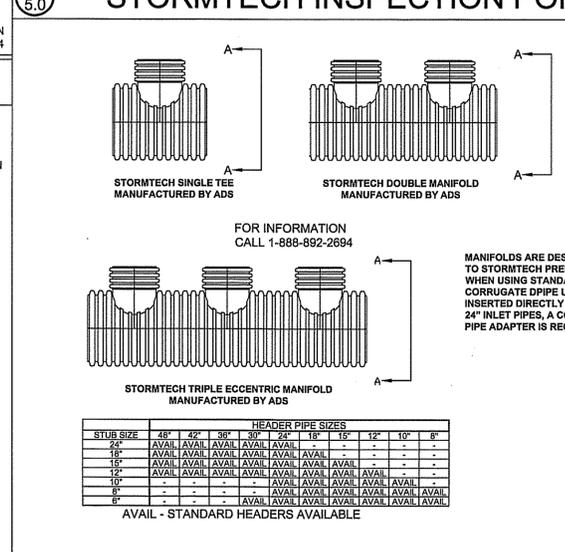
**NOTES:**

- ALL DESIGN SPECIFICATIONS FOR STORMTECH CHAMBERS SHALL BE IN ACCORDANCE WITH THE STORMTECH DESIGN MANUAL.
- THE INSTALLATION OF STORMTECH CHAMBERS SHALL BE IN ACCORDANCE WITH THE LATEST STORMTECH INSTALLATION INSTRUCTIONS.
- THE CONTRACTOR IS ADVISED TO REVIEW AND UNDERSTAND THE INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION. CALL 1-888-892-2694 OR VISIT [WWW.STORMTECH.COM](http://WWW.STORMTECH.COM) TO RECEIVE A COPY OF THE LATEST STORMTECH INSTALLATION INSTRUCTIONS.
- CHAMBERS SHALL MEET THE DESIGN REQUIREMENTS AND SAFETY FACTORS SPECIFIED IN SECTION 12.12 OF THE LATEST EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

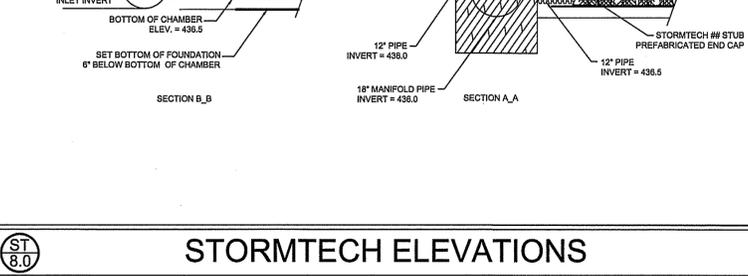
FOR STORMTECH INFORMATION CALL 1-888-892-2694



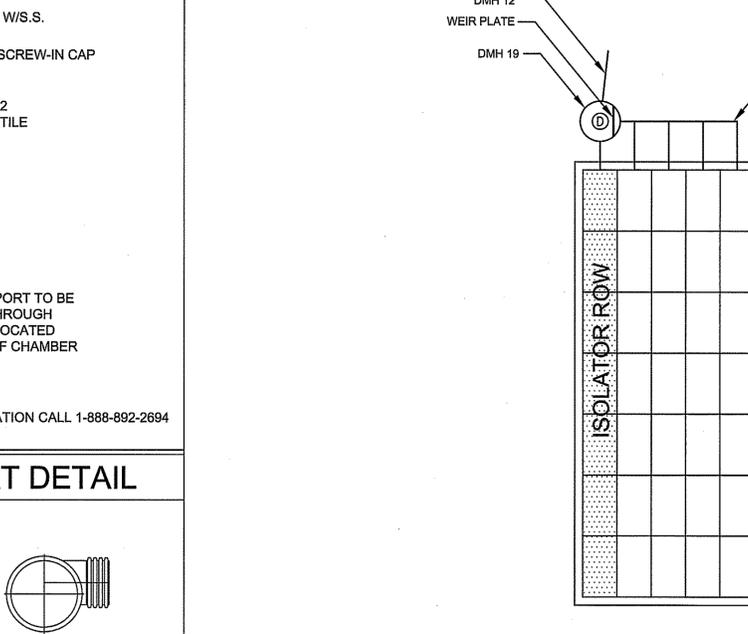
**STORMTECH INSPECTION PORT DETAIL**



**ADS MANIFOLD DETAILS**



**STORMTECH SC-740 CHAMBER LAYOUT**



**UNDERGROUND INFILTRATION BASIN (SC-740 - 40 CHAMBERS)**

SCALE: 1"=10'

**GENERAL NOTES:**  
SEE SHEET 28 FOR PLANNING BOARD CONDITIONS OF APPROVAL

CHAMBERS SHALL MEET THE DESIGN REQUIREMENTS AND SAFETY FACTORS SPECIFIED IN SECTION 12.12 OF THE LATEST EDITION OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS LOADS SHALL BE CALCULATED IN ACCORDANCE WITH SECTION 3 AND SHALL INCLUDE H20 DESIGN TRUCK, IMPACT FACTOR, MULTIPLE PRESENCE, AND LANE LOAD.

**STORMTECH SC-740 CHAMBER LAYOUT**



**PROJECT NAME**  
Estates at Bull Meadow  
N. Grafton, MA 01536

This drawing was prepared to support the design engineer for the proposed conversion. It is the ultimate responsibility of the design engineer to assure that the stormwater system's design is in full compliance with all applicable laws and regulations. It is the design engineer's responsibility to ensure that the StormTech products are designed in accordance with StormTech minimum requirements. StormTech LLC does not approve plans, sizing, or system designs. The design engineer is responsible for all design decisions.

REVISIONS	DATE



**DRAWING TITLE**

Stormtech  
Infiltration Basin  
Details

STORMTECH SC-740 CHAMBER DETAIL SHEET	
SAVED AS	068-C0706
DRAWN BY	JLL
CHECKED BY	BRM
SCALE	NTS
DATE	10/11/2016
PROJECT NO.	068
DRAWING NO.	27 of 28



