AGENDA

Lexington Planning Board

Thursday, May 24, 2018
Hudson Room, Cary Memorial Building, 1605 Massachusetts Avenue
7:00 PM

Staff Reports

1. **General Update (as needed)**
2. **Hartwell Avenue Zoning Initiative Update**

Development Administration

1. **Balanced Housing Development Special Permit Application: 443 Lincoln Street**
2. **56 Webb Street: Preliminary Plan**
3. **PSDUP Sketch Decision: 7 Hartwell Avenue**

Board Administration

1. **Board Member Updates**
2. **Comprehensive Plan Update**
3. **Upcoming Meetings & Anticipated Schedule**
4. **Minutes**

Adjourn

Meeting broadcast by LexMedia

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

General Update (as needed)

PRESENTER:

Aaron Henry

ITEM NUMBER:

1

SUMMARY:

The general update is a standing agenda item providing the Planning Office staff the opportunity to update the community and Board on day-to-day matters.

SUGGESTED MOTION:

Staff's update requires no action on the part of the Board.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/24/2018

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Hartwell Avenue Zoning Initiative Update

PRESENTER:

Melisa Tintocalis, Economic Development Director

ITEM NUMBER:

SUMMARY:

Economic Development Director will provide an update to the Planning Board. A joint Planning Board/Board of Selectmen meeting to discuss the Hartwell Zoning Initiative is scheduled for Wednesday, May 30th (7PM) in Battin Hall, Cary Memorial Building.

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/24/2018

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Balanced Housing Development Special Permit Application: 443 Lincoln Street

PRESENTER:

ITEM NUMBER:

SUMMARY:

In addition to documents submitted by the applicant, backup materials include previously submitted review memos from Planning & Engineering staff.

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/24/2018

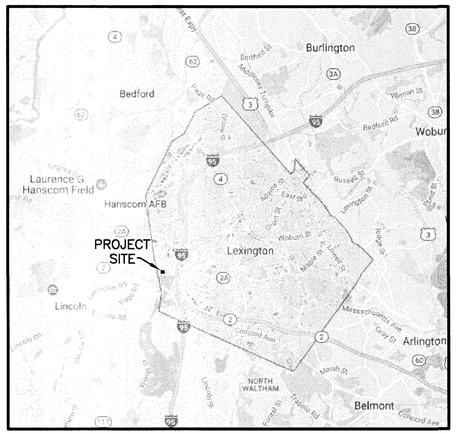
ATTACHMENTS:

Description	Type
Plan Set	Backup Material
Landscape Plan	Backup Material
Eversource Consent Letter	Backup Material
Project Narrative and Landscape Maintenance Plan	Backup Material
Stormwater Packet	Backup Material
Planning Staff Memo	Backup Material
Engineering Division Memo	Backup Material
Sewer Layout	Backup Material
Sewer Design Report	Backup Material

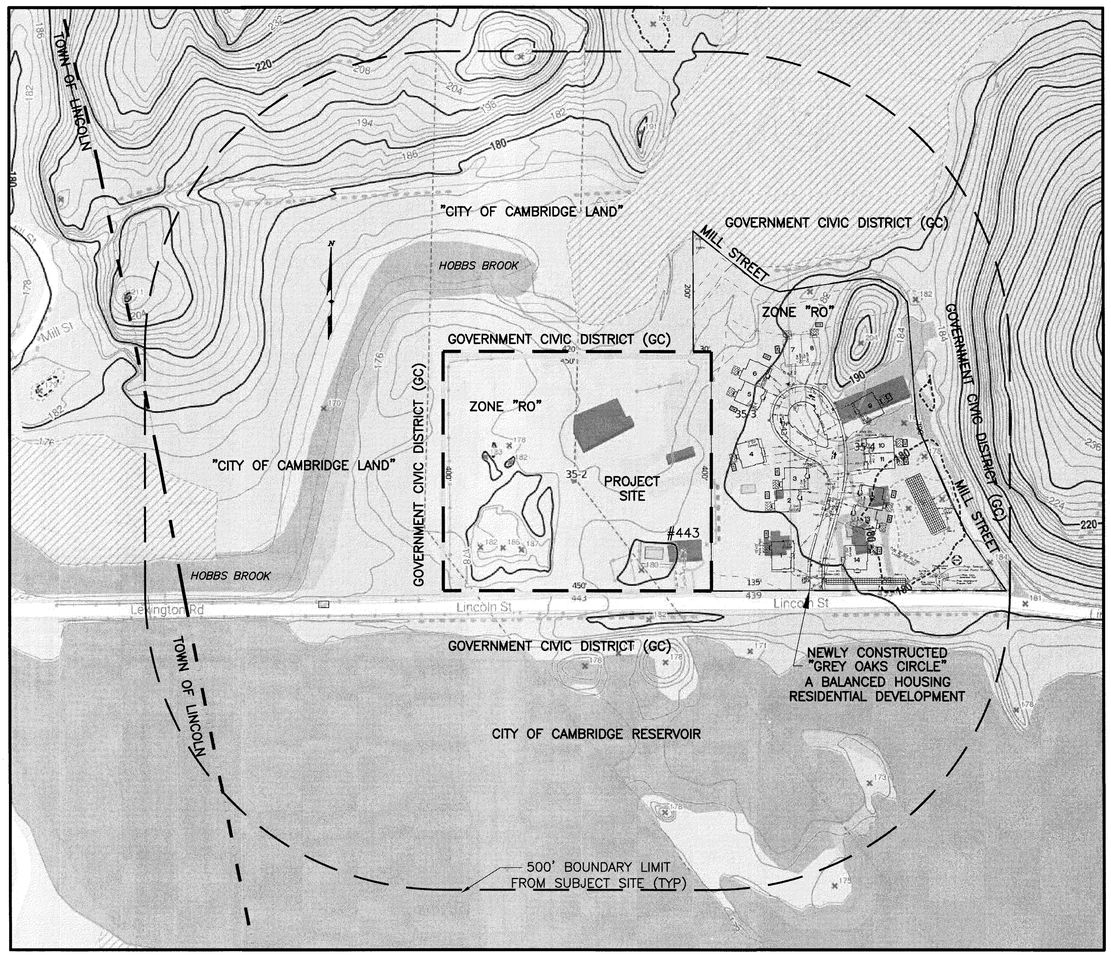
Sewer Hydraulic Report	Backup Material
05/16/2018 Response to Comments	Backup Material
NOI Timeline	Backup Material
Plans Updated 05/17/2018	Backup Material
Landscape Plan Updated 05/17/2018	Backup Material
Water Supply Detail	Backup Material

HOMES AT HOBBS BROOK

DEFINITIVE PLAN
BALANCED HOUSING RESIDENTIAL DEVELOPMENT
443 LINCOLN STREET
LEXINGTON, MASSACHUSETTS
FEBRUARY 20, 2018



TOWN LOCUS
SCALE: 1"=10,000'



LOCUS MAP
SCALE: 1"=120'

0 60 120 240 360 480 FT

SHEET INDEX

APPLICANT
SYMES DEVELOPMENT & PERMITTING, LLC
50 DODGE STREET
BEVERLY, MA 01915

LANDSCAPE ARCHITECT
JAMES EMMANUEL, ASSOCIATES
22 CARLTON ROAD
MARBLEHEAD, MA 01945

SURVEYOR/ENGINEER
STAMSKI AND MCNARY, INC.
1000 MAIN STREET
ACTON, MA 01720

COMMONWEALTH OF MASSACHUSETTS JOSEPH MARCH # 36363 PROFESSIONAL LAND SURVEYOR

COMMONWEALTH OF MASSACHUSETTS GEORGE DIMAKARAKOS CIVIL No. 41281 REGISTERED PROFESSIONAL ENGINEER

ATTORNEY
LATHAM LAW OFFICES, LLC
643 MAIN STREET
READING, MA 01867–3096

RECORD OWNER
THE GERTRUDE M. PIANTEDOSI TRUST
443 LINCOLN STREET
LEXINGTON, MA

REFERENCE
MIDDLESEX REGISTRY OF DEEDS
SOUTH DISTRICT
DEED BOOK 65347 PAGE 366
PLAN BOOK 239 PLAN 26
ASSESSOR'S MAP 35 PARCEL 2

ZONING DISTRICT
RO

DATUM
N.G.V.D. OF 1929

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- D — SUB-SURFACE DRAIN LINE
- 99 — EXISTING CONTOUR
- 95 — EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT

TEST PITS WERE PERFORMED ON DECEMBER 15, 2017
BY STAMSKI AND MCNARY, INC., RICHARD J. HARRINGTON, P.E., S.E. No. 1012

SOILS INFORMATION

TEST PIT: TP 17-1
ELEV.=175.1±

0"–12"	FILL: GRAVEL PARKING
12"–33"	FILL: GENERAL FILL
33"–72"	LAYER C1: MEDIUM SAND
72"–108"	LAYER C2: FINE SAND

WATER WEEPING @ 100"
MOTTLING OBSERVED @ 33"
E.S.H.G.W. ELEV =172.4'

TEST PIT: TP 17-2
ELEV.=174.7±

0"–66"	FILL
66"–120"	LAYER C: MEDIUM SAND

WATER WEEPING @ 84"
MOTTLING OBSERVED @ 66"
E.S.H.G.W. ELEV =169.2'

TEST PIT: TP 17-3
ELEV.=174.4±

0"–36"	FILL
36"–110"	LAYER C: MEDIUM SAND

WATER WEEPING @ 74"
MOTTLING OBSERVED @ 36"
E.S.H.G.W. ELEV =171.4'

TEST PIT: TP 17-4
ELEV.=175.4±

0"–10"	HORIZON A: SANDY LOAM
10"–24"	HORIZON B: LOAMY SAND
24"–40"	LAYER C1: MEDIUM SAND
40"–100"	LAYER C2: FINE SAND

WATER WEEPING @ 80"
MOTTLING OBSERVED @ 24"
E.S.H.G.W. ELEV =173.4'

TEST PIT: TP 17-5
ELEV.=177.3±

0"–12"	HORIZON A: SANDY LOAM
12"–14"	HORIZON B: LOAMY SAND
14"–40"	LAYER C1: MEDIUM SAND
40"–108"	LAYER C2: FINE SAND

WATER WEEPING @ NONE
MOTTLING OBSERVED @ 40"
E.S.H.G.W. ELEV =174.0'

TEST PIT: TP 17-6
ELEV.=176.4±

0"–12"	HORIZON A: SANDY LOAM
12"–24"	HORIZON B: LOAMY SAND
24"–40"	LAYER C1: MEDIUM SAND
40"–114"	LAYER C2: FINE SAND

WATER WEEPING @ NONE
MOTTLING OBSERVED @ 36"
E.S.H.G.W. ELEV =173.4'

TEST PIT: TP 17-7
ELEV.=179.0±

0"–9"	HORIZON A: SANDY LOAM
9"–20"	HORIZON B: LOAMY SAND
20"–34"	LAYER C: COARSE SAND

WATER WEEPING @ 34"
MOTTLING OBSERVED @ NONE
E.S.H.G.W. ELEV =176.2'

TEST PIT: TP 17-8
ELEV.=178.4±

0"–17"	HORIZON A: SANDY LOAM
17"–27"	HORIZON B: LOAMY SAND
27"–40"	LAYER C1: FINE SAND
40"–108"	LAYER C2: COARSE SAND

WATER WEEPING @ 50"
MOTTLING OBSERVED @ 50"
E.S.H.G.W. ELEV =174.2'

TEST PIT: TP 17-9
ELEV.=175.4±

0–36"	FILL: SANDY LOAM
36"–40"	HORIZON A: SANDY LOAM
40"–44"	HORIZON B: LOAMY SAND
44"–109"	LAYER C: MEDIUM SAND

WATER WEEPING @ 100"
MOTTLING OBSERVED @ 44"
E.S.H.G.W. ELEV =171.7'

TEST PIT: TP 17-10
ELEV.=175.9±

0"–30"	FILL: SANDY LOAM
30"–36"	HORIZON A: SANDY LOAM
36"–44"	HORIZON B: LOAMY SAND
44"–60"	LAYER C1: COARSE SAND
60"–120"	LAYER C2: MEDIUM SAND

WATER WEEPING @ 94"
MOTTLING OBSERVED @ 60"
E.S.H.G.W. ELEV =170.9'

UTILITY NOTE:

1. ALL UNDERGROUND UTILITIES SHOWN HERE WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD BEFORE DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORATION OR REPAIRING. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE CONTACTED INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN. SEE CHAPTER 370, ACTS OF 1963 MASS. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS THE APPROPRIATE PUBLIC UTILITY ENGINEERING DEPARTMENT MUST BE CONSULTED. DIG SAFE TELEPHONE No. 1–888–344–7233.

2. EXISTING TOPOGRAPHY & SITE FEATURES OBTAINED FROM AN ON THE GROUND FIELD SURVEY.

3. THE LOCUS PROPERTY IS NOT LOCATED WITHIN A FLOOD ZONE AS DEPICTED ON THE MOST RECENT FLOOD INSURANCE RATE MAP.

4. PROJECT SITE IS NOT HABITAT FOR RARE SPECIES OR RARE WILDLIFE.

5. EXISTING SEWER & WATER MAIN INFORMATION OBTAINED FROM TOWN OF LEXINGTON, MASSACHUSETTS ENGINEERING DIVISION; SEWER & WATER MAIN CONSTRUCTION AS–BUILT PLAN DATED SEPTEMBER 14, 2001; LINCOLN STREET (STA 9+13 TO 20+19) [R.S.708B].

SLOPE KEY:
- <15%
- 15% – 25%
- 25% – 40%
- 40% – 100%
- DIRECTION OF FLOW

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____ _____
_____ DATE
_____

0 20 40 80 160 FT
(5676 DEF BHD 2.dwg)

NO.	DATE	DESCRIPTION	BY	CHK'D

REVISIONS

GEORGE DIMAKARAKOS CIVIL No. 41281 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

JOSEPH MARCH No. 36384 REGISTERED LAND SURVEYOR
COMMONWEALTH OF MASSACHUSETTS

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

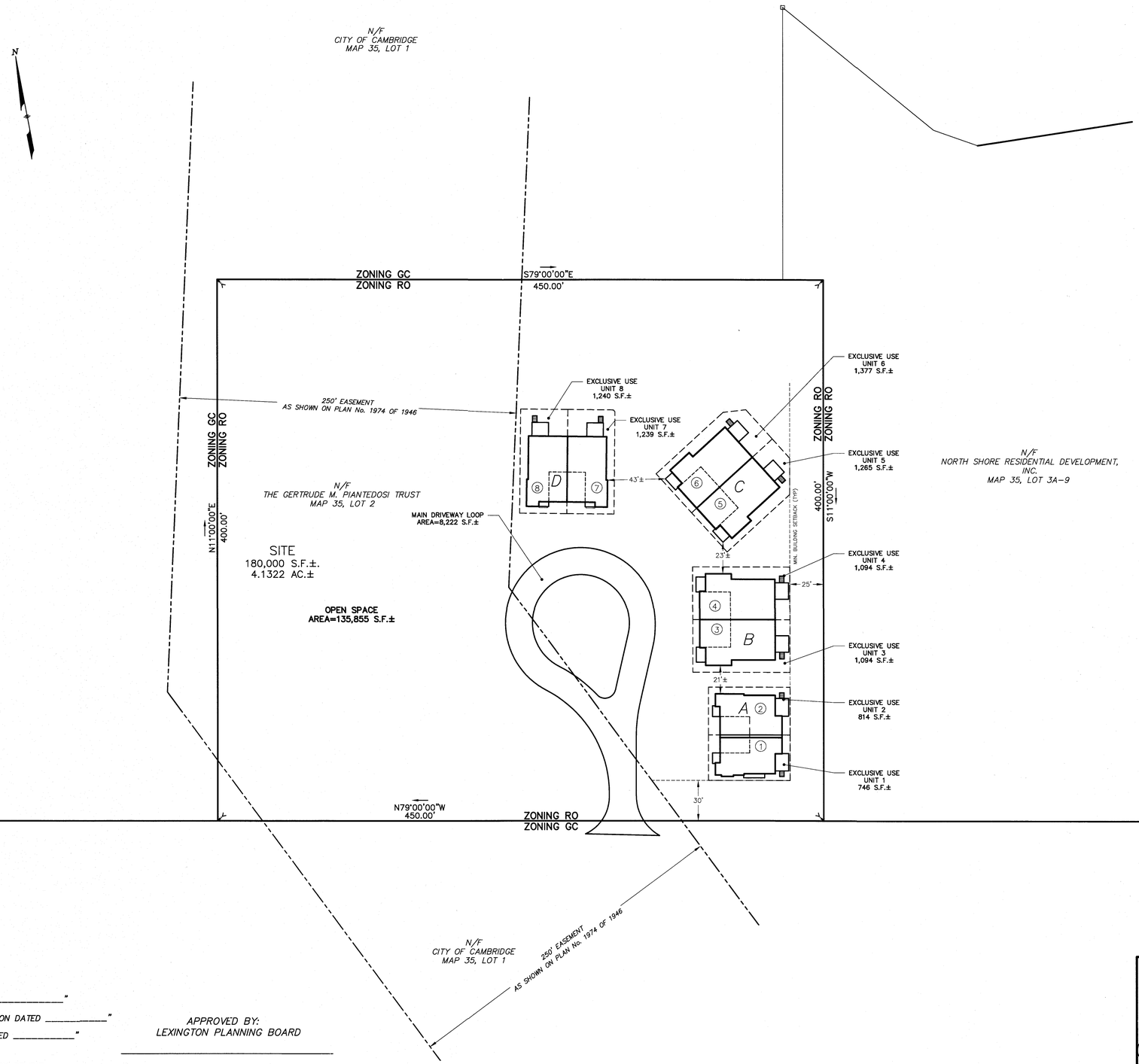
SITE ANALYSIS MAP

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT AND PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 2 OF 11 | PROJECT No. SM–5676



FOR REGISTRY OF DEEDS USE ONLY

I DECLARE, TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

JOSEPH MARCH, PLS — DATE

LEGEND:

N/F	NOW OR FORMERLY
OHW	OVERHEAD WIRES
	TREE
	TREE LINE
UP	UTILITY POLE
GG•	GAS GATE
G	GAS SERVICE (BURIED)
WG•	WATER GATE
W	WATER SERVICE (BURIED)
DMH	DRAIN MANHOLE
D	SUB-SURFACE DRAIN LINE
99	EXISTING CONTOUR
95	EXISTING CONTOUR
	LIGHTPOLE
	WETLAND FLAG
99X9	SPOT ELEVATION
	STONE WALL
	EDGE OF PAVEMENT
	PROPOSED PERVIOUS PAVEMENT

NOTE:

OPEN SPACE EXCLUDES BUILDINGS, EXCLUSIVE USE AREAS, AND THE MAIN DRIVEWAY LOOP.

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

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_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____ _____
DATE
_____
_____

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

GEORGE DIMAKARAKOS CIVIL No. 41281 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

JOSEPH MARCH # 36384 REGISTERED LAND SURVEYOR COMMONWEALTH OF MASSACHUSETTS

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

PROPERTY RIGHTS PLAN OF LAND

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 3 OF 11 PROJECT No. SM-5676

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- D — SUB-SURFACE DRAIN LINE
- 99 — EXISTING CONTOUR
- 95 — EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT
- PROPOSED PERVIOUS PAVEMENT

N

MEAN ANNUAL HIGH-WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 (RF 1-13) CONNECT RF 13 TO B26 ORAD ISSUED DEP#201-1038

N/F CITY OF CAMBRIDGE

MEAN ANNUAL HIGH WATER LINE, FLAGS B26-B32 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. (WF 1-24, 26 & 27) CONNECT WF 27 TO WF 11 ORAD ISSUED DEP#201-1038

HOBBS BROOK PERENNIAL

EDGE OF BORDERING VEGETATED WETLANDS, FLAGS 11-18 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

WF 25 REMOVED

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 ORAD ISSUED DEP#201-1038

MEAN ANNUAL HIGH-WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 ORAD ISSUED DEP#201-1038

200' RIVERFRONT AREA

100' BUFFER ZONE

SITE
180,000 S.F.±.
4.1322 AC.±

N11°00'00"E 400.00'

S79°00'00"E 450.00'

N79°00'00"W 450.00'

S11°00'00"W 400.00'

25' BUFFER

100' BUFFER ZONE

200' RIVERFRONT AREA

100' INNER RIPARIAN

50' BUFFER

LEVEL SPREADER (SEE DETAIL)

TREES

VISTA VIEW

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

EXISTING SERVICE SHOP TO BE RAZED

MEADOW

TURF

PATH

BASIN

OUTET STRUCTURE X174.8

INFILTRATION BASIN INV.=174.80

SEDIMENT FOREBAY

PROPOSED PATH

PROPOSED TREELINE

PROPOSED SLIDE GATE (SEE DETAIL)

PROPOSED TWO-FAMILY DWELLING (TYPICAL)

EXISTING DWELLING #443 TO BE RAZED

EXISTING TREES

REMOVE EXISTING FENCE ALONG ENTIRE LOT LINE

END STOCKADE FENCE

BEGIN STOCKADE FENCE

RAIL FENCE

PROTECTED LAND UNDER DECLARATION OF RESTRICTIVE COVENANT AREA = 43,318 S.F.±

EXCLUSIVE USE UNIT 18 5,175 S.F.±

EXCLUSIVE USE UNIT 20 4,088 S.F.±

EXCLUSIVE USE UNIT 16 4,638 S.F.±

EXCLUSIVE USE UNIT 9 1,179 S.F.±

EXCLUSIVE USE UNIT 7 2,408 S.F.±

EXCLUSIVE USE UNIT 5 3,372 S.F.±

EXCLUSIVE USE UNIT 3 4,900 S.F.±

BLDG 1 · BLDG 2 · BLDG 3 · BLDG 4 · BLDG 5 · BLDG 6 · BLDG 7 · BLDG 8 · BLDG 9

Roofed Porch · Deck · Driveway · Paved

PAVED SURFACE · LANDSCAPED AREA · VISITOR PARKING

GREY OAKS CIRCLE

S'TREET

TOTAL LOT AREA
200,544 S.F.±/4.604 AC±

LINCOLN STREET (PUBLIC — VARIABLE WIDTH)

EXISTING HYDRANT

8" GATE VALVE & BOX

8" DICL CAP & NIPPLE

FLUSHING CONNECTION

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

EXISTING 8" DICL WATER MAIN (APPROX)

EXISTING 15" PC200 PRESSURE SEWER

1 ½" PC200 PVC P.S. SERVICE STUB PLUGGED (TYP.)

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

TBM
BOLT ON BONNET
ELEV.=177.84

TBM
NAIL IN UP
ELEV.=180.39

EXISTING 2" X 1½" REDUCER

EXISTING 2" PC200 PVC PRESSURE SEWER

1" TYPE K COPPER WATER SERVICE W/CORPORATION STOP, COPPER TUBING, CURB STOP AND SERVICE BOX.

CAMBRIDGE RESERVOIR

N/F CITY OF CAMBRIDGE

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

PROPOSED PRIVATE DRIVEWAY

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ORAD ISSUED DEP#201-1038

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ORAD ISSUED DEP#201-1038

0 20 40 80 160 FT

(5676 DEF BHD 2.dwg)

TABLE OF DIMENSIONAL CONTROLS FOR BALANCED HOUSING SPECIAL PERMIT RESIDENTIAL DEVELOPMENT

TOTAL SITE AREA: 180,000 S.F.±

	ALLOWED	PROPOSED
MAXIMUM IMPERVIOUS SURFACE	31,355 S.F.	26,992 S.F.
MAXIMUM GROSS FLOOR AREA	28,800 S.F.	22,884 S.F.
MINIMUM COMMON OPEN SPACE	59,400 S.F.	135,855 S.F.

BUILDING SIZE (GFA)

UNIT #	G.F.A. PROPOSED (S.F.)
1	2,644±
2	2,583±
3	3,092±
4	3,092±
5	3,092±
6	3,092±
7	2,675±
8	2,675±

TOTAL: 22,884 S.F.

IMPERVIOUS AREAS:

ITEM	S.F.
DWELLING A FOOTPRINT:	2,639
DWELLING B FOOTPRINT:	3,459
DWELLING C FOOTPRINT:	3,459
DWELLING D FOOTPRINT:	2,910
MAIN DRIVE:	8,222
ASPHALT CURB:	554
DWELLING A DRIVE:	1,432
DWELLING B DRIVE:	1,280
DWELLING C DRIVE:	2,169
DWELLING D DRIVE:	868

TOTAL: 26,992 S.F.

HARDSCAPE AREAS:

PERVIOUS PAVERS

ITEM	S.F.
DWELLING A DRIVE:	413
DWELLING D DRIVE:	382
VISITOR PARKING:	782

TOTAL: 1,577 S.F.

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

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_____ TOWN CLERK _____ DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____ DATE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

GEORGE DIMAKARAKOS CIVIL No. 41281 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

JOSEPH MARCH # 36584 REGISTERED PROFESSIONAL LAND SURVEYOR COMMONWEALTH OF MASSACHUSETTS

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

SITE CONSTRUCTION PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC

SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 4 OF 11 | PROJECT No. SM-5676

AVERAGE EXISTING GRADE CALCULATION/BUILDING HEIGHT

UNIT	EXISTING GRADE ELEVATIONS AT BUILDING CORNERS 1	2	3	4	AVERAGE EXISTING GRADE	HIGHEST RIDGE	BUILDING HEIGHT
1	181.4	179.9	179.7	179.6	180.15	217.43	37.28
2	181.4	179.9	178.4	178.2	179.48	217.43	37.96
3	176.3	178.6	178.4	177.0	177.58	213.60	36.03
4	176.3	178.6	178.5	175.9	177.33	213.60	36.28
5	174.7	175.6	177.7	174.2	176.05	214.10	38.05
6	174.7	175.6	174.3	174.6	174.80	214.10	39.30
7	175.1	175.2	175.1	174.9	175.08	214.68	39.61
8	175.1	175.2	175.4	175.4	175.28	214.68	39.41

SITE CONSTRUCTION PLAN

UNIT	FFE	T.C.	G.F.	B.F.
1	184.33	183.25	182.58	176.90*
2	184.33	183.25	182.58	176.90*
3	184.33	183.25	182.58	176.90*
4	184.33	183.25	182.58	176.90*
5	184.83	183.75	183.08	177.40*
6	184.83	183.75	183.08	177.40*
7	184.83	183.75	183.08	177.40*
8	184.83	183.75	183.08	177.40*

* CRAWL SPACE – MAX HEIGHT = 6'-8"**
** MEASURED FROM BOTTOM JOIST TO BASEMENT FLOOR

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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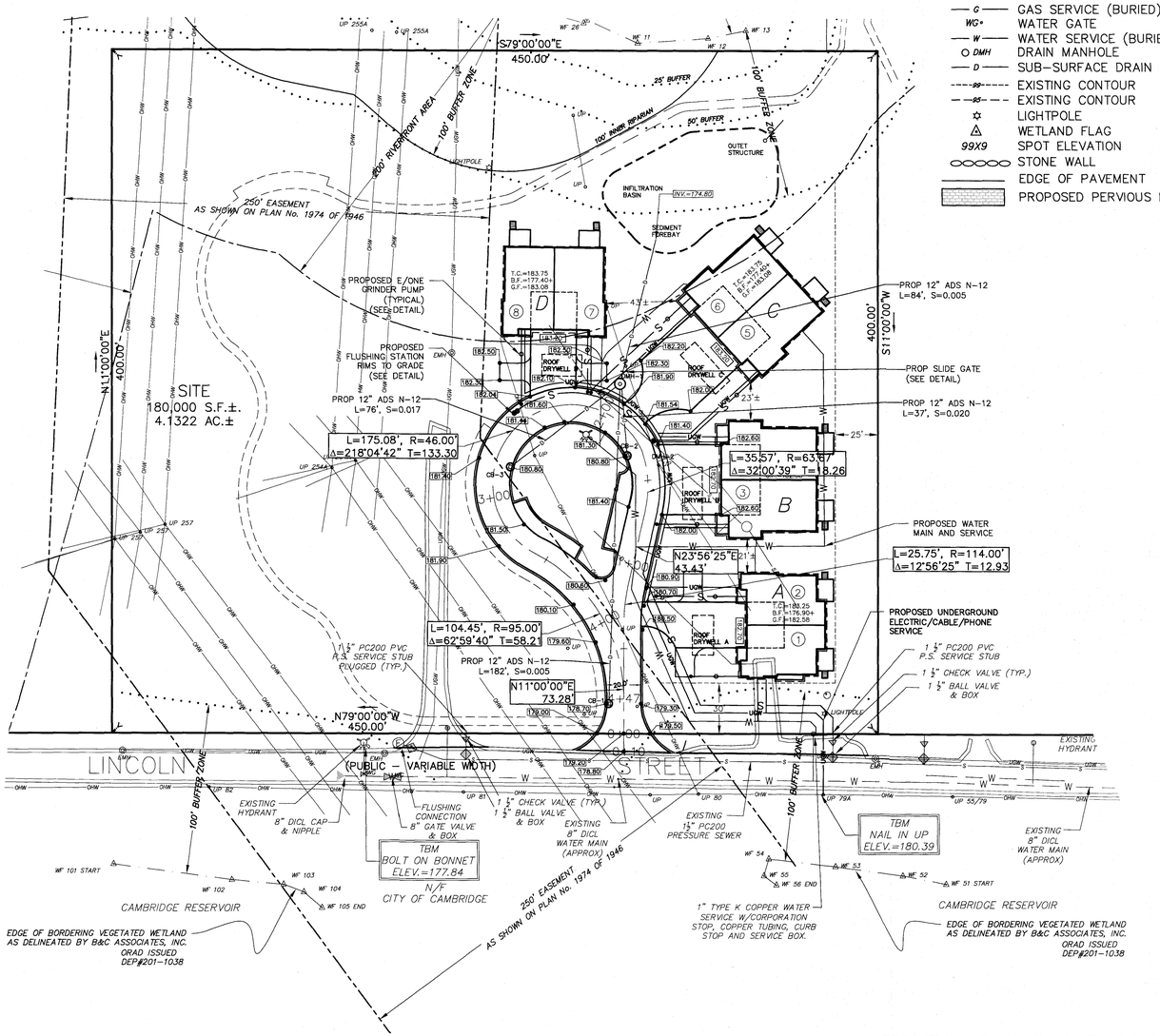
_____ _____
TOWN CLERK *DATE*

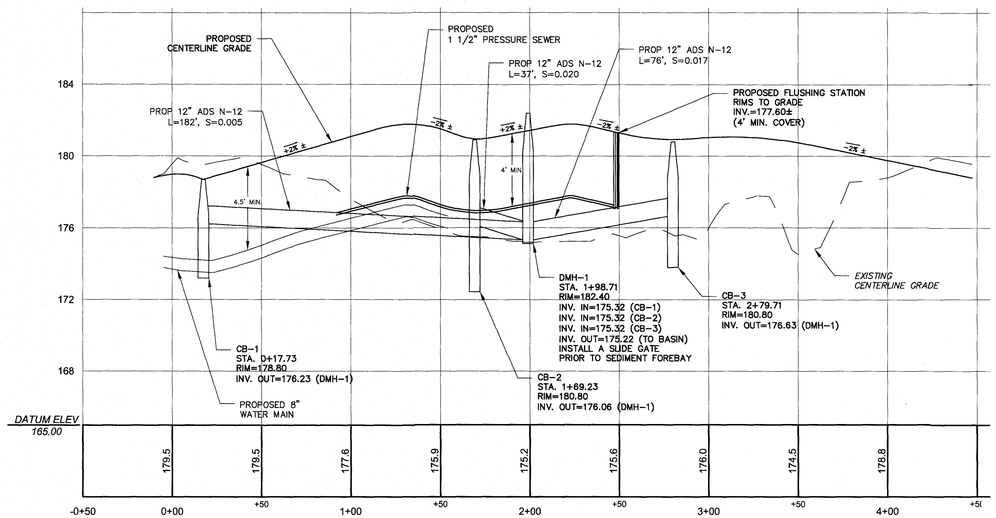
APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____ _____
DATE
_____
_____

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- D — SUB-SURFACE DRAIN LINE
- 99 — EXISTING CONTOUR
- 98 — EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT
- PROPOSED PERVIOUS PAVEMENT





PROFILE: SCALE: 1"= 40' H. 1"= 4' V.

PLAN:

0 20 40 80 160 FT

(5676 DEF BHD 2.dwg)

NO.	DATE	DESCRIPTION	BY	CHK'D
		REVISIONS		

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS GEORGE DIMARZAKOS CIVIL No. 41281 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS JOSEPH MARCH # 36384 PROFESSIONAL LAND SURVEYOR

PLAN AND PROFILE

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' *DATE: FEBRUARY 20, 2018*

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 5 OF 11 *PROJECT No. SM-5676*

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- D — SUB-SURFACE DRAIN LINE
- 99 — EXISTING CONTOUR
- 95 — EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT
- PROPOSED PERVIOUS PAVEMENT

MEAN ANNUAL HIGH-WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 (RF 1-13) CONNECT RF 13 TO B26 ORAD ISSUED DEP#201-1038

N/F CITY OF CAMBRIDGE

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. (WF 1-24, 26 & 27) CONNECT WF 27 TO WF 11 ORAD ISSUED DEP#201-1038

MEAN ANNUAL HIGH WATER LINE, FLAGS B26-B32 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

HOBBS BROOK PERENNIAL

EDGE OF BORDERING VEGETATED WETLANDS, FLAGS 11-18 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 ORAD ISSUED DEP#201-1038

MEAN ANNUAL HIGH-WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 ORAD ISSUED DEP#201-1038

200' RIVERFRONT AREA

100' BUFFER ZONE

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

PROTECTED LAND UNDER DECLARATION OF RESTRICTIVE COVENANT AREA = 43,318 S.F.±

S79°00'00"E 450.00'

25' BUFFER

COMMON OPEN SPACE

50' BUFFER

100' INNER RIPARIAN

100' RIVERFRONT AREA

100' BUFFER ZONE

OUTET STRUCTURE

INFILTRATION BASIN UNV.=174.80

SEDIMENT FOREBAY

COMMON OPEN SPACE 82,929± S.F.

PROPOSED 500 GALLON UNDERGROUND PROPANE TANK (TYPICAL)

PROPOSED E/ONE GRINDER PUMP (TYPICAL) (SEE DETAIL)

PROPOSED HYDRANT

PROPOSED FLUSHING STATION RIMS TO GRADE (SEE DETAIL)

SITE
180,000 S.F.±.
4.1322 AC.±

N11°00'00"E 400.00'

S11°00'00"W 400.00'

PROPOSED SLIDE GATE

PROPOSED WATER MAIN AND SERVICE

PROPOSED UNDERGROUND ELECTRIC/CABLE/PHONE SERVICE

1 ½" PC200 PVC P.S. SERVICE STUB (PLUGGED (TYP.)

PROPOSED PRESSURE SEWER LINE 1 1/2"

1 ½" PC200 PVC P.S. SERVICE STUB

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

N79°00'00"W 450.00'

LINCOLN STREET (PUBLIC - VARIABLE WIDTH)

100' BUFFER ZONE

EXISTING HYDRANT

8" DICL CAP & NIPPLE

FLUSHING CONNECTION 8" GATE VALVE & BOX

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

EXISTING 8" DICL WATER MAIN (APPROX)

EXISTING 12" PC200 PRESSURE SEWER

TBM BOLT ON BONNET ELEV.=177.84

N/F CITY OF CAMBRIDGE

TBM NAIL IN UP ELEV.=180.39

EXISTING 8" DICL WATER MAIN (APPROX)

EXISTING 2" X 1½" REDUCER

EXISTING 2" PC200 PVC PRESSURE SEWER

EXISTING HYDRANT

8" GATE VALVE & BOX

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

CAMBRIDGE RESERVOIR

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ORAD ISSUED DEP#201-1038

PROPOSED PRIVATE DRIVEWAY

1" TYPE K COPPER WATER SERVICE W/CORPORATION STOP, COPPER TUBING, CURB STOP AND SERVICE BOX.

CAMBRIDGE RESERVOIR

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ORAD ISSUED DEP#201-1038

EXCLUSIVE USE UNIT 18 5,175 S.F.±

EXCLUSIVE USE UNIT 20 4,058 S.F.±

EXCLUSIVE USE UNIT 16 4,636 S.F.±

EXCLUSIVE USE UNIT 17 5,508 S.F.±

EXCLUSIVE USE UNIT 9 1,179 S.F.±

EXCLUSIVE USE UNIT 11 3,407 S.F.±

EXCLUSIVE USE UNIT 9 1,028 S.F.±

EXCLUSIVE USE UNIT 7 2,408 S.F.±

EXCLUSIVE USE UNIT 5 3,372 S.F.±

EXCLUSIVE USE UNIT 3 4,900 S.F.±

GREY OAKS CIRCLE

MILL STREET

TOTAL LOT AREA
200,544 S.F.±/4.604 AC±

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____ _____
DATE
_____
_____

0 20 40 80 160 FT

(5676 DEF BHD 2.dwg)

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS
GEORGE DIMAKARAKOS
CIVIL
No. 41281
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
JOSEPH MARQIS
36384
PROFESSIONAL LAND SURVEYOR

SITE UTILITY PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING - PLANNING - SURVEYING

SHEET No. 6 OF 11 | PROJECT No. SM-5676

Plant Schedule

	Botanical Name	Common Name	Size
DECIDUOUS TREE OPTIONS:			
	Acer rubrum 'Red Sunset'	Red Sunset Maple	2-2.5"cal
	Ginko biloba 'Autumn Gold'	Maidenhair Tree	2-2.5"cal
	Ostrya virginiana	Hophornbeam	2-2.5"cal
	Tilia cordata 'Greenspire'	Greenspire Linden	2-2.5"cal
	Acer saccharum 'Green Mountain'	Sugar Maple	2-2.5"cal
EVERGREEN TREE OPTIONS:			
	Picea omorika	Serbian Spruce	8-10'
	Picea abies	Norway Spruce	8-10'
	Pinus thunbergii	Japanese Black Pine	8-10'
	Picea pungens 'Glauca'	Colorado Blue Spruce	8-10'
	Abies concolor	White Fir	8-10'
EVERGREEN OPTIONS:			
	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	8-10'
	Thuja x plicata 'Green Giant'	Green Giant Arborvitae	8-10'
	Juniperus chinensis 'Mountbatten'	Mountbatten Juniper	8-10'
	Juniperus virginiana	Eastern Red Cedar	8-10'
	Juniperus chinensis 'Blue Point'	Blue Point Juniper	6-7'
SHRUB OPTIONS:			
	Calycanthus floridus	Carolina Allspice	2-3'
	Cornus alba 'Elegantissima'	Varigated Red Twig Dogwood	2-3'
	Cornus racemosa	Grey Dogwood	2-3'
	Forsythia	Forsythia	2-3'
	Prunus Maratima	Beach Plum	2-3'
	Ilex verticillata	Winterberry	2-3'
	Physocarpus opulifolius 'Monlo'	Diabolo Ninebark	2-3'
	Viburnum dentatum	Arrowwood	2-3'
	Syringa vulgaris	Common Lilac	2-3'
	Ilex glabra 'Shamrock'	Shamrock Inkberry	2-3'
	Kalmia latifolia	Mountain Laurel	2-3'
	Rhododendron 'English Roseum'	English Roseum Rhododendron	2-3'
FLOWERING TREE OPTIONS:			
	Cercis candensis	Eastern Redbud	2-2.5"cal
	Cornus kousa	Korean Dogwood	2-2.5"cal
	Magnolia x soulangiana	Saucer Magnolia	8-10'
	Oxydendrum arboreum	Sourwood	2-2.5"cal
	Prunus serrulata 'Kwanzan'	Pink Flowering Cherry	2-2.5"cal
	Pyrus calleryana 'Cleveland Select'	Cleveland Select Fl.Pear	2-2.5"cal

MEADOW SEED MIX:

Creeping Red Fescue, (Festuca rubra), Canada Wild Rye, (Elymus canadensis), Annual Ryegrass, (Lolium multiflorum), Perennial Ryegrass, (Lolium perenne), Blue Grama, (Bouteloua gracilis), Little Bluestem, (Schizachyrium scoparium), Indian Grass, (Sorghastrum nutans), Rough Bentgrass, (Agrostis scabra), Upland Bentgrass, (Agrostis perennans

APPLICATION RATE: 35 lb/acre | 1250 sq ft/lb

TOTAL LOT AREA
200,544 S.F.±/4.604 AC±

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____ _____
DATE
_____
_____

0 20 40 80 160 FT
(5676 DEF BHD 1.dwg)

james k. emmanuel | associates
LANDSCAPE ARCHITECTS
22 Carlton Rd.
Marblehead, MA 01945
tel. (781) 622-7487
fax (781) 623-0293
james@jamesemmanuel.com
www.jamesemmanuel.com

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

LANDSCAPE PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 7 OF 11 | PROJECT No. SM-5676

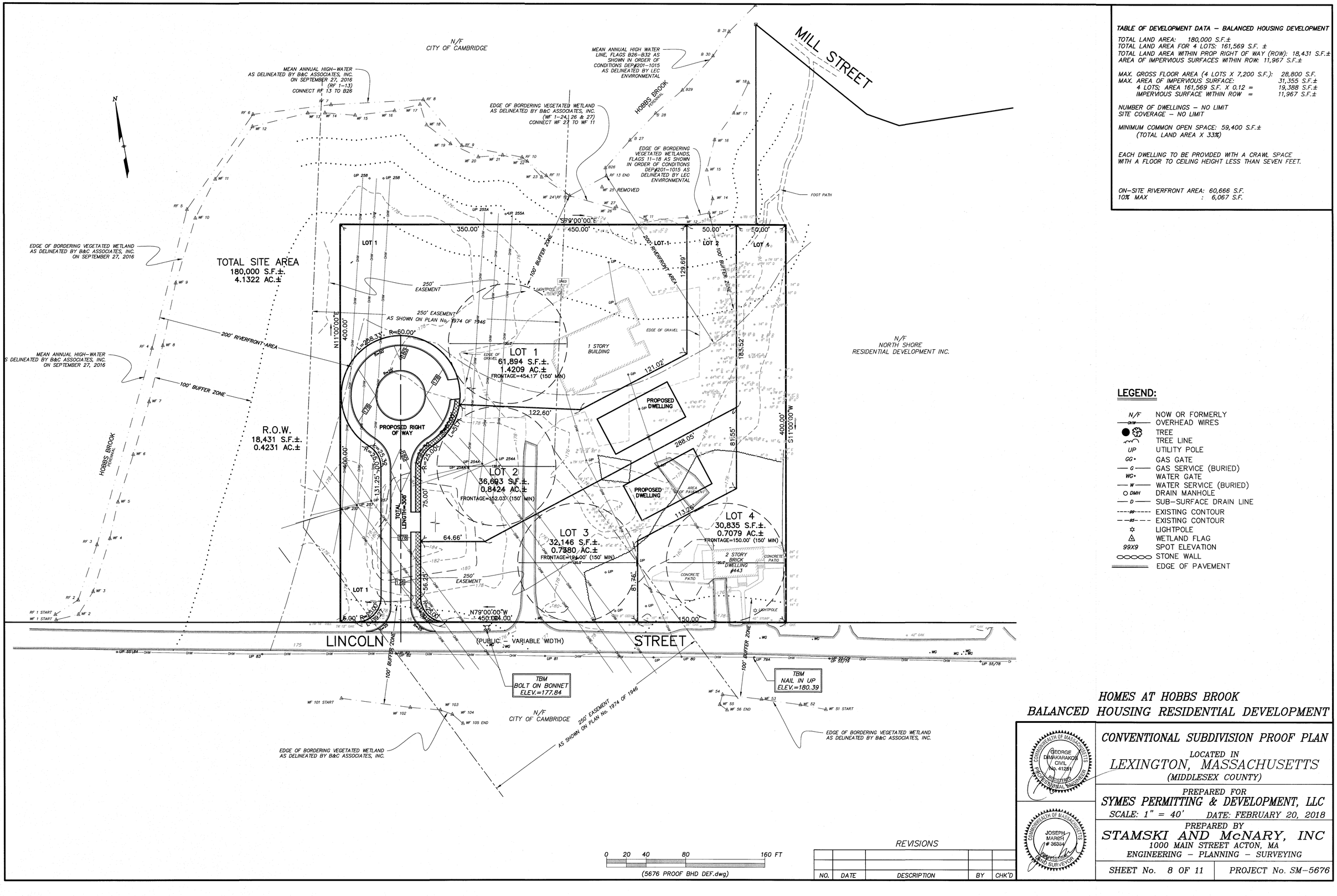


TABLE OF DEVELOPMENT DATA – BALANCED HOUSING DEVELOPMENT

TOTAL LAND AREA: 180,000 S.F.±
TOTAL LAND AREA FOR 4 LOTS: 161,569 S.F. ±
TOTAL LAND AREA WITHIN PROP. RIGHT OF WAY (ROW): 18,431 S.F.±
AREA OF IMPERVIOUS SURFACES WITHIN ROW: 11,967 S.F.±

MAX. GROSS FLOOR AREA (4 LOTS X 7,200 S.F.): 28,800 S.F.
MAX. AREA OF IMPERVIOUS SURFACE: 31,355 S.F.±
4 LOTS; AREA 161,569 S.F. X 0.12 = 19,388 S.F.±
IMPERVIOUS SURFACE WITHIN ROW = 11,967 S.F.±

NUMBER OF DWELLINGS – NO LIMIT
SITE COVERAGE – NO LIMIT

MINIMUM COMMON OPEN SPACE: 59,400 S.F.±
(TOTAL LAND AREA X 33%)

EACH DWELLING TO BE PROVIDED WITH A CRAWL SPACE WITH A FLOOR TO CEILING HEIGHT LESS THAN SEVEN FEET.

ON-SITE RIVERFRONT AREA: 60,666 S.F.
10% MAX : 6,067 S.F.

LEGEND:

N/F	NOW OR FORMERLY
OHW	OVERHEAD WIRES
	TREE
	TREE LINE
UP	UTILITY POLE
GG	GAS GATE
G	GAS SERVICE (BURIED)
WG	WATER GATE
W	WATER SERVICE (BURIED)
DMH	DRAIN MANHOLE
D	SUB-SURFACE DRAIN LINE
99	EXISTING CONTOUR
95	EXISTING CONTOUR
	LIGHTPOLE
	WETLAND FLAG
99X9	SPOT ELEVATION
	STONE WALL
	EDGE OF PAVEMENT

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS
GEORGE DIMAKARAKOS
CIVIL
NO. 41281
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
JOSEPH MARCH
36334
REGISTERED LAND SURVEYOR

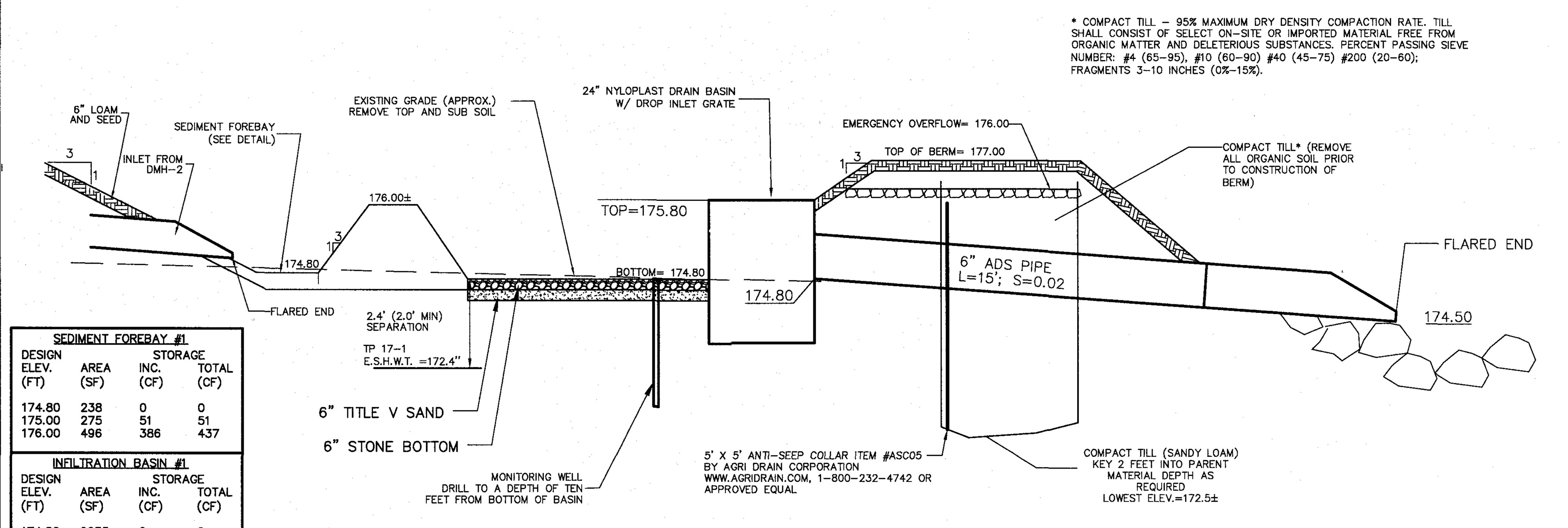
CONVENTIONAL SUBDIVISION PROOF PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES PERMITTING & DEVELOPMENT, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 8 OF 11 | PROJECT No. SM-5676


* COMPACT TILL – 95% MAXIMUM DRY DENSITY COMPACTION RATE. TILL SHALL CONSIST OF SELECT ON-SITE OR IMPORTED MATERIAL FREE FROM ORGANIC MATTER AND DELETERIOUS SUBSTANCES. PERCENT PASSING SIEVE NUMBER: #4 (65–95), #10 (60–90) #40 (45–75) #200 (20–60); FRAGMENTS 3–10 INCHES (0%–15%).
6" LOAM AND SEED
SEDIMENT FOREBAY (SEE DETAIL)
INLET FROM DMH-2
EXISTING GRADE (APPROX.) REMOVE TOP AND SUB SOIL
24" NYLOPLAST DRAIN BASIN W/ DROP INLET GRATE
EMERGENCY OVERFLOW= 176.00
TOP OF BERM= 177.00
COMPACT TILL* (REMOVE ALL ORGANIC SOIL PRIOR TO CONSTRUCTION OF BERM)
176.00±
174.80
TOP=175.80
BOTTOM= 174.80
6" ADS PIPE L=15'; S=0.02
174.80
FLARED END
174.50
FLARED END
2.4' (2.0' MIN) SEPARATION
TP 17-1 E.S.H.W. =172.4"
6" TITLE V SAND
6" STONE BOTTOM
MONITORING WELL DRILL TO A DEPTH OF TEN FEET FROM BOTTOM OF BASIN
5' X 5' ANTI-SEEP COLLAR ITEM #ASC05 BY AGRI DRAIN CORPORATION WWW.AGRIDRAIN.COM, 1-800-232-4742 OR APPROVED EQUAL
COMPACT TILL (SANDY LOAM) KEY 2 FEET INTO PARENT MATERIAL DEPTH AS REQUIRED LOWEST ELEV.=172.5±

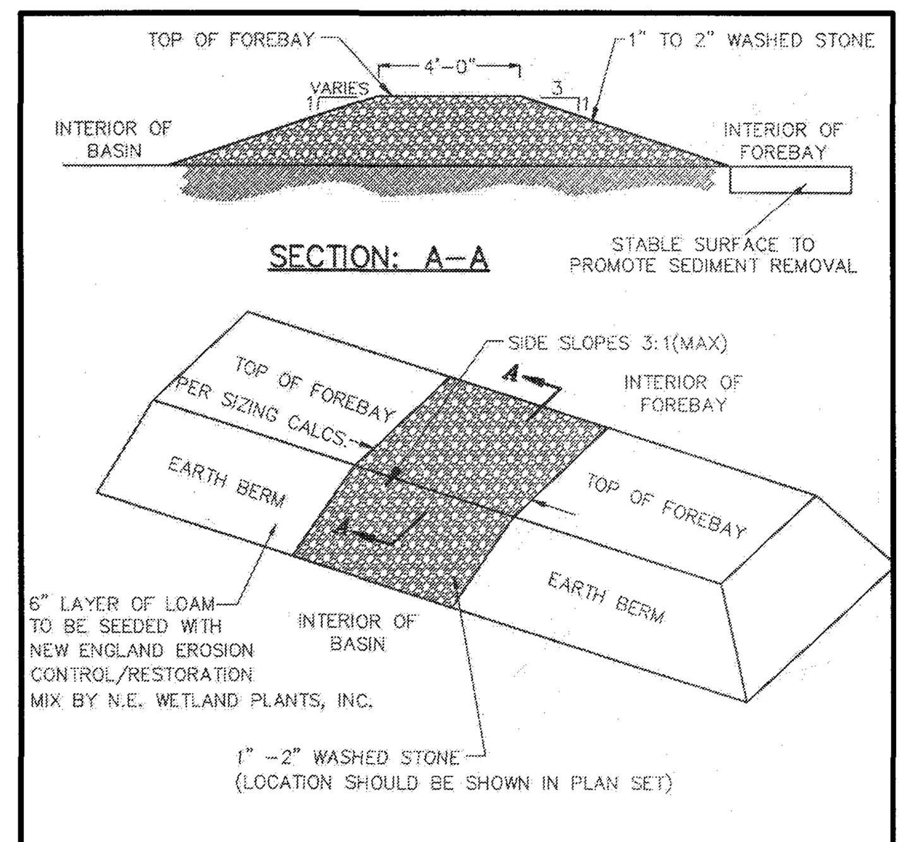
SEDIMENT FOREBAY #1

DESIGN ELEV. (FT)	AREA (SF)	STORAGE INC. (CF)	STORAGE TOTAL (CF)
174.80	238	0	0
175.00	275	51	51
176.00	496	386	437

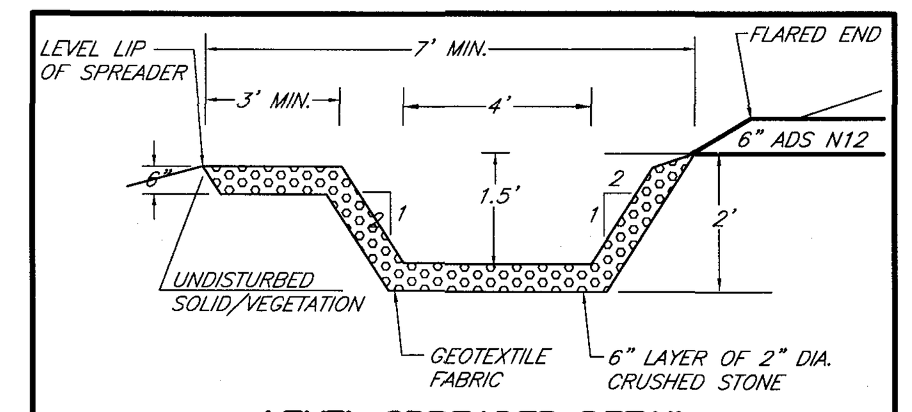
INFILTRATION BASIN #1

DESIGN ELEV. (FT)	AREA (SF)	STORAGE INC. (CF)	STORAGE TOTAL (CF)
174.80	2635	0	0
175.00	2990	562	562
176.00	3741	3358	3920
177.00	5270	4483	8404

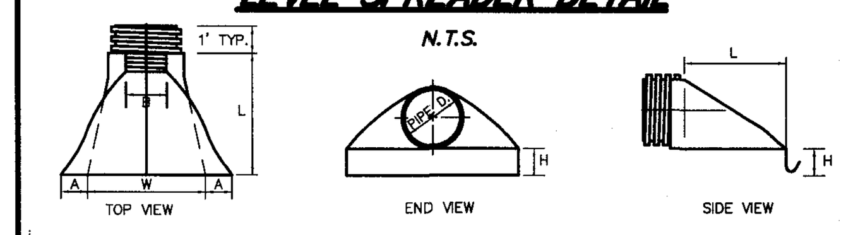
INFILTRATION BASIN 1 DETAIL
NOT TO SCALE


TOP OF FOREBAY
4'-0"
VARIES
1" TO 2" WASHED STONE
INTERIOR OF BASIN
INTERIOR OF FOREBAY
SECTION: A–A
STABLE SURFACE TO PROMOTE SEDIMENT REMOVAL
SIDE SLOPES 3:1(MAX)
INTERIOR OF FOREBAY
TOP OF FOREBAY
PER SIZING CALCS
EARTH BERM
TOP OF FOREBAY
EARTH BERM
6" LAYER OF LOAM– TO BE SEEDED WITH NEW ENGLAND EROSION CONTROL/RESTORATION MIX BY N.E. WETLAND PLANTS, INC.
INTERIOR OF BASIN
1" –2" WASHED STONE (LOCATION SHOULD BE SHOWN IN PLAN SET)
DR-14

SEDIMENT FOREBAY DETAIL
NOT TO SCALE



LEVEL SPREADER DETAIL
N.T.S.



ADS END SECTION DIMENSIONS
NOT TO SCALE

GENERAL NOTES:

1. ALL UNDERGROUND UTILITIES SHOWN HERE WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. ACTUAL LOCATIONS MUST BE DETERMINED BEFORE EXCAVATING,
2. BLASTING, INSTALLING, BACK FILLING, GRADING OR PAVEMENT RESTORATION OR REPAIR. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE MUST BE CONTACTED, INCLUDING THOSE IN CONTROL OF UTILITIES. SEE CHAPTER 370, ACTS OF 1963 MASS.
3. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE APPROPRIATE UTILITY ENGINEERING DEPT. MUST BE CONSULTED. THE CONTRACTOR SHALL NOTIFY PUBLIC UTILITY COMPANIES AT LEAST 72 HOURS PRIOR TO DIGGING OR EXCAVATING ON PUBLIC OR PRIVATE PROPERTY. DIG SAFE TEL. NO. 1–888–344–7233
4. ALL WATER LINE VALVES, ETC. SHALL MEET ALL SPECIFICATIONS OF THE TOWN OF LEXINGTON WATER & SEWER DIVISION.
5. ALL STUMPS AND OTHER CONSTRUCTION DEBRIS SHALL BE PROPERLY REMOVED FROM THE SITE. ANY FILL MATERIAL USED SHALL BE FREE OF HAZARDOUS MATERIALS, WASTE, AND CONSTRUCTION DEBRIS.
6. RIP RAP SHALL CONSIST OF HARD DURABLE STONE, ANGULAR IN SHAPE, THAT IS WELL GRADED WITHIN THE 25# TO 125# RANGE. THE RIP RAP SHALL BE PLACED OVER A
7. 12" BASE OF COARSE BANK RUN GRAVEL. RIP RAP SHOWN SCHEMATICALLY AT DRAINAGE OUTFALLS SHALL BE PLACED FOR A 3' WIDTH AND 6' LENGTH UNLESS OTHERWISE SPEC'D.
8. THE LIMITS OF WORK SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING PER THE STORMWATER POLLUTION PREVENTION PLAN.
9. EXISTING TOPSOIL SHALL BE STRIPPED, STOCKPILED, SCREENED AND SPREAD TO REQUIRED DEPTHS SHOWN ON THE PLAN.
10. CATCHBASIN SUMPS AND STORM WATER BASINS SHALL BE CLEANED FOLLOWING COMPLETION OF CONSTRUCTION AND ANNUALLY THEREAFTER PER O & M PLAN.
11. THE ENTIRE WORK AREA SHALL BE CLEARED OF BUILDINGS TO BE RAZED, PAVEMENT, DEBRIS, BOULDERS, BRUSH, TREES, STUMPS, UNSUITABLE MATERIALS AND LIKE MATERIAL.
12. ALL TOP AND SUBSOIL WITHIN WORK AREA SHALL BE REMOVED AND STOCKPILED ON SITE AS DIRECTED BY THE OWNER. LOAM SHALL BE SCREENED AND STOCKPILED ON–SITE FOR RE–USE IN AREAS OF GENERAL LOAM AND SEED.
13. THE CONTRACTOR SHALL MAINTAIN THE SITE IN A SAFE CONDITION THROUGHOUT THE CONTRACT PERIOD. THE CONTRACTOR SHALL FULLY COMPLY WITH ALL STATE, FEDERAL, AND LOCAL REGULATIONS PERTAINING TO SAFETY.

    SHRUBS – PROVIDE PER LANDSCAPE PLAN SPECIFICATIONS.
14. THE PROPOSED SIGNS SHALL BE DESIGNED AND INSTALLED IN CONFORMANCE WITH THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION FOR STREETS AND HIGHWAYS OR AS MOST RECENTLY AMENDED. EXISTING SIGNS TO BE RELOCATED WHERE NECESSARY.

    THE ELECTRICAL POWER DISTRIBUTION SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE LEXINGTON MUNICIPAL LIGHT PLANT IN EFFECT AT THE TIME. ELECTRICAL REQUIREMENTS AND LOCATION TO BE DETEREMINED BY OTHERS AND CONFIRMED WITH OWNER.
15. NO EARTH SHALL BE REMOVED FROM SITE.
16. PLAN IS SUBJECT TO REVIEW AND COMMENT BY THE CITY OF CAMBRIDGE WATER DEPARTMENT, DUE TO LOCATION OF THE CAMBRIDGE RESERVOIR IN PROXIMITY TO SITE.
17. THE EXISTING PRIVATE ON–SITE SEWAGE DISPOSAL SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH 310 CMR 15.354: ABANDONMENT OF SYSTEMS.

"THIS PLAN IS SUBJECT TO A COVENANT DATED ______________"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED ___________"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED ___________"

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

TOWN CLERK ______ DATE ______

APPROVED BY:
LEXINGTON PLANNING BOARD

____

____

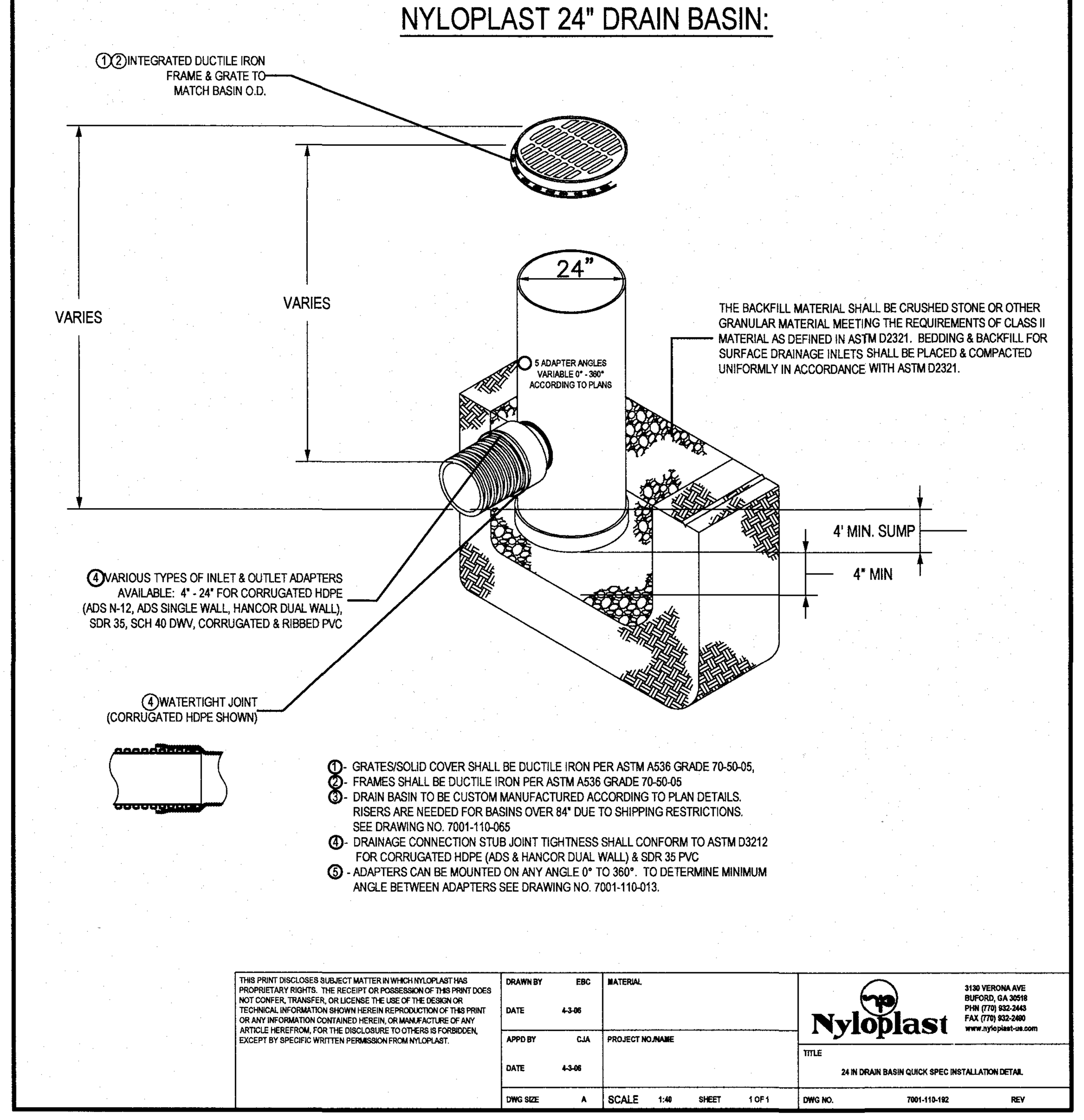
____

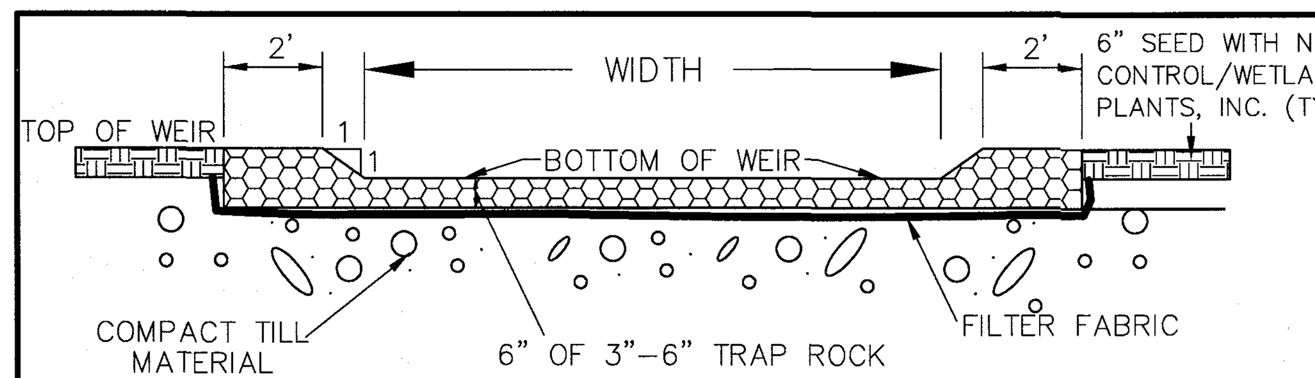
______________________ DATE

____

OUTLET STRUCTURE
NOT TO SCALE

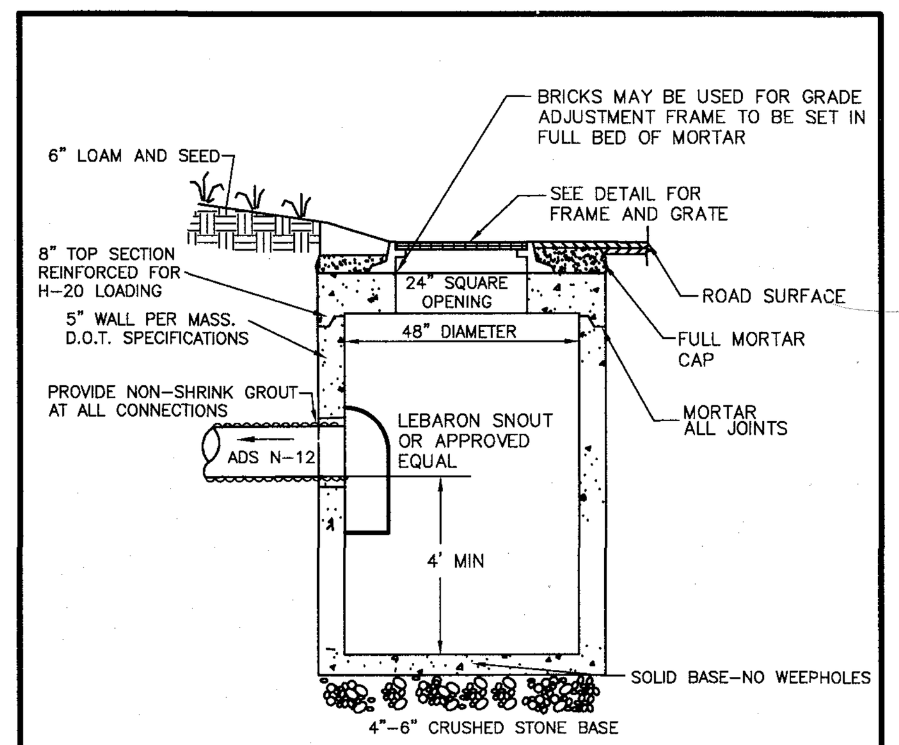
NYLOPLAST 24" DRAIN BASIN:


INTEGRATED DUCTILE IRON FRAME & GRATE TO MATCH BASIN O.D.
24"
VARIES
VARIES
4' MIN. SUMP
4" MIN
VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE: 4"–24" FOR CORRUGATED HDPE (ADS N-12, ADS SINGLE WALL, HANCOR DUAL WALL), SDR 35, SCH 40 DWV, CORRUGATED & RIBBED PVC
WATERTIGHT JOINT (CORRUGATED HDPE SHOWN)
Nyloplast
24 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL

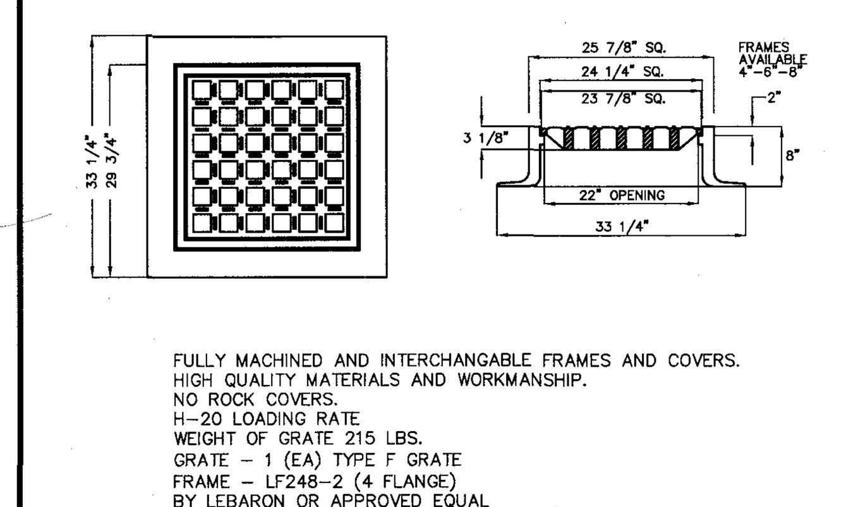


AREA	BOTTOM WIDTH OF WEIR
BASIN 1	6.0'

EMERGENCY OVERFLOW WEIR
NOT TO SCALE

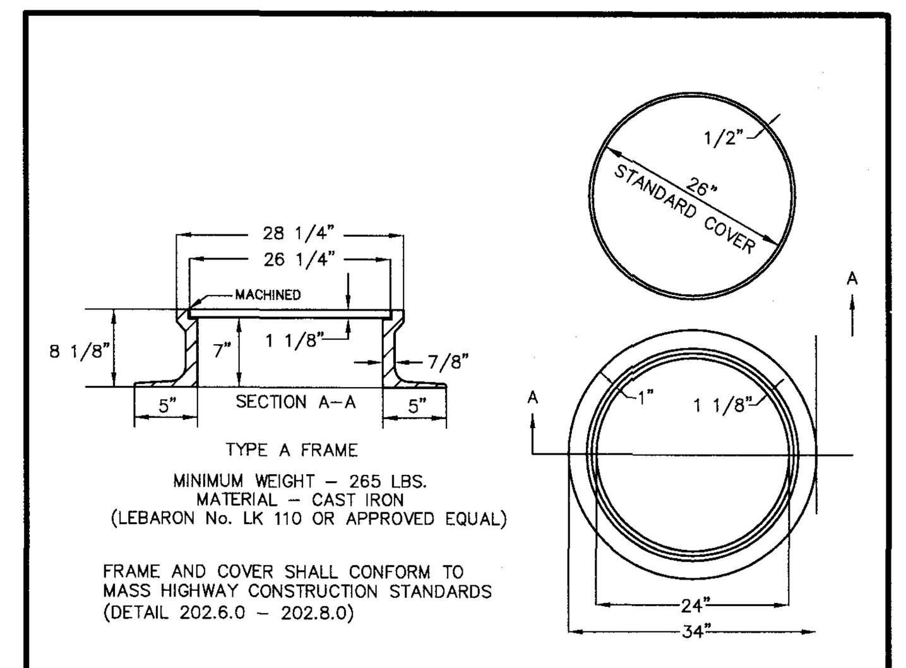

BRICKS MAY BE USED FOR GRADE ADJUSTMENT FRAME TO BE SET IN FULL BED OF MORTAR
6" LOAM AND SEED
SEE DETAIL FOR FRAME AND GRATE
ROAD SURFACE
FULL MORTAR CAP
24" SQUARE OPENING
48" DIAMETER
LEBARON SNOUT OR APPROVED EQUAL
MORTAR ALL JOINTS
ADS N-12
4' MIN
4"–6" CRUSHED STONE BASE
SOLID BASE–NO WEEPHOLES

PRECAST CATCH BASIN DETAIL
NOT TO SCALE

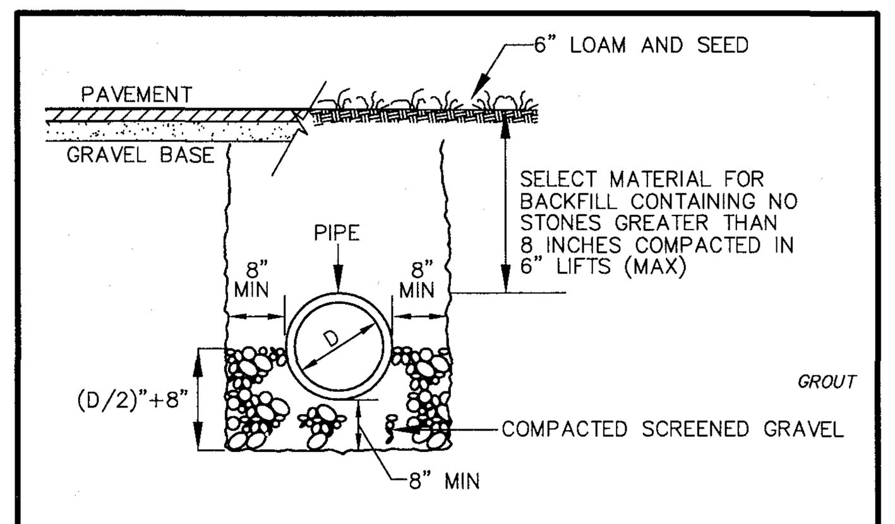


CATCH BASIN FRAME AND GRATE DETAIL
NOT TO SCALE

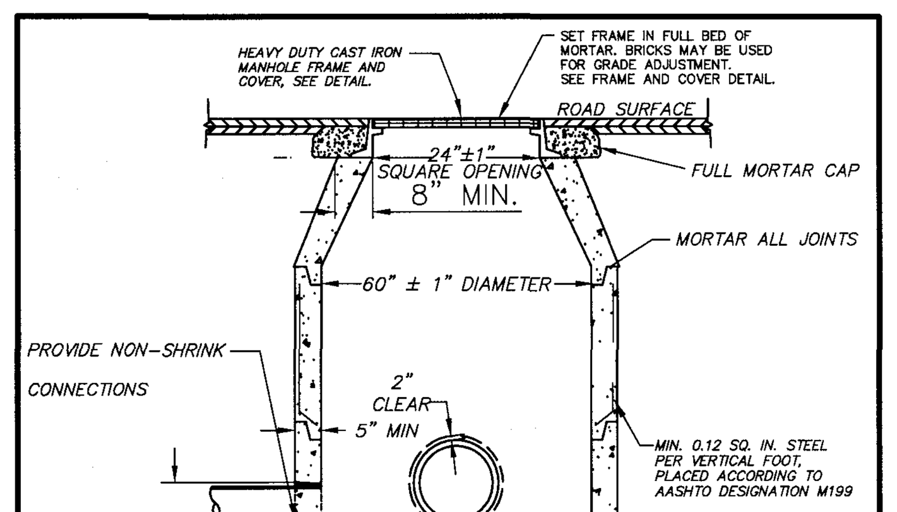
NOTES
1. FRAME AND GRATE TO CONFORM TO MASS HIGHWAY CONSTRUCTION STANDARDS (SEE DETAIL 201.6.0)



MANHOLE FRAME AND COVER
NOT TO SCALE

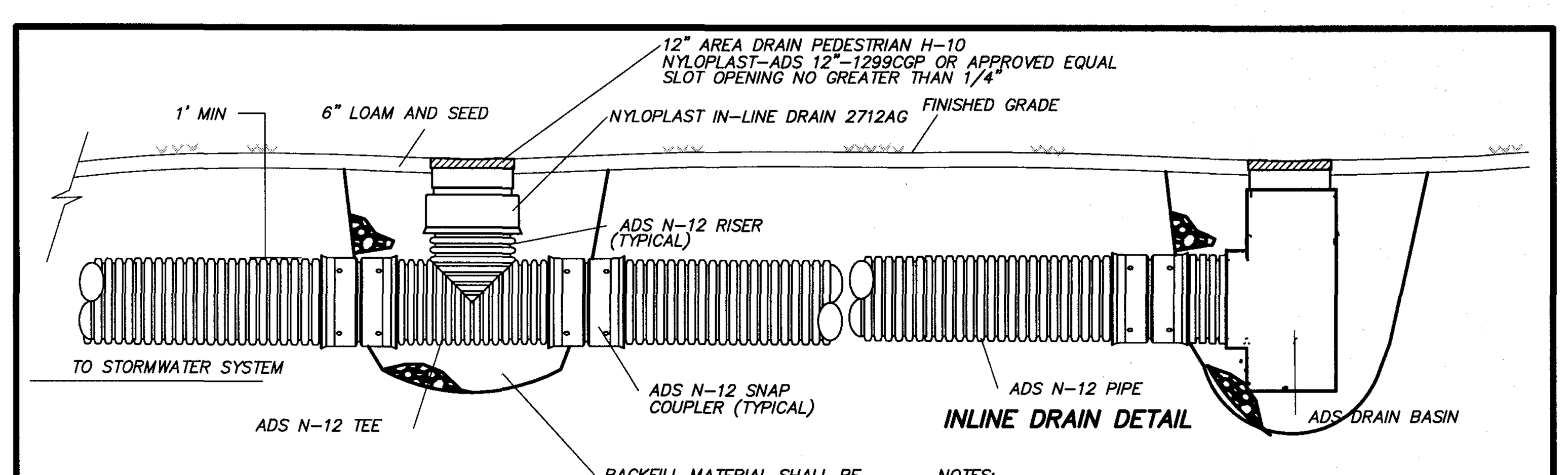


TYPICAL TRENCH DETAIL
NOT TO SCALE


SET FRAME IN FULL BED OF MORTAR, BRICKS MAY BE USED FOR GRADE ADJUSTMENT. SEE FRAME AND COVER DETAIL
HEAVY DUTY CAST IRON MANHOLE FRAME AND COVER. SEE DETAIL
ROAD SURFACE
24"± SQUARE OPENING
8" MIN.
FULL MORTAR CAP
MORTAR ALL JOINTS
60" ± 1" DIAMETER
PROVIDE NON-SHRINK CONNECTIONS
2" CLEAR
5" MIN
OUTSIDE OF PIPE + 2"
4" TO 6" CRUSHED STONE BASE

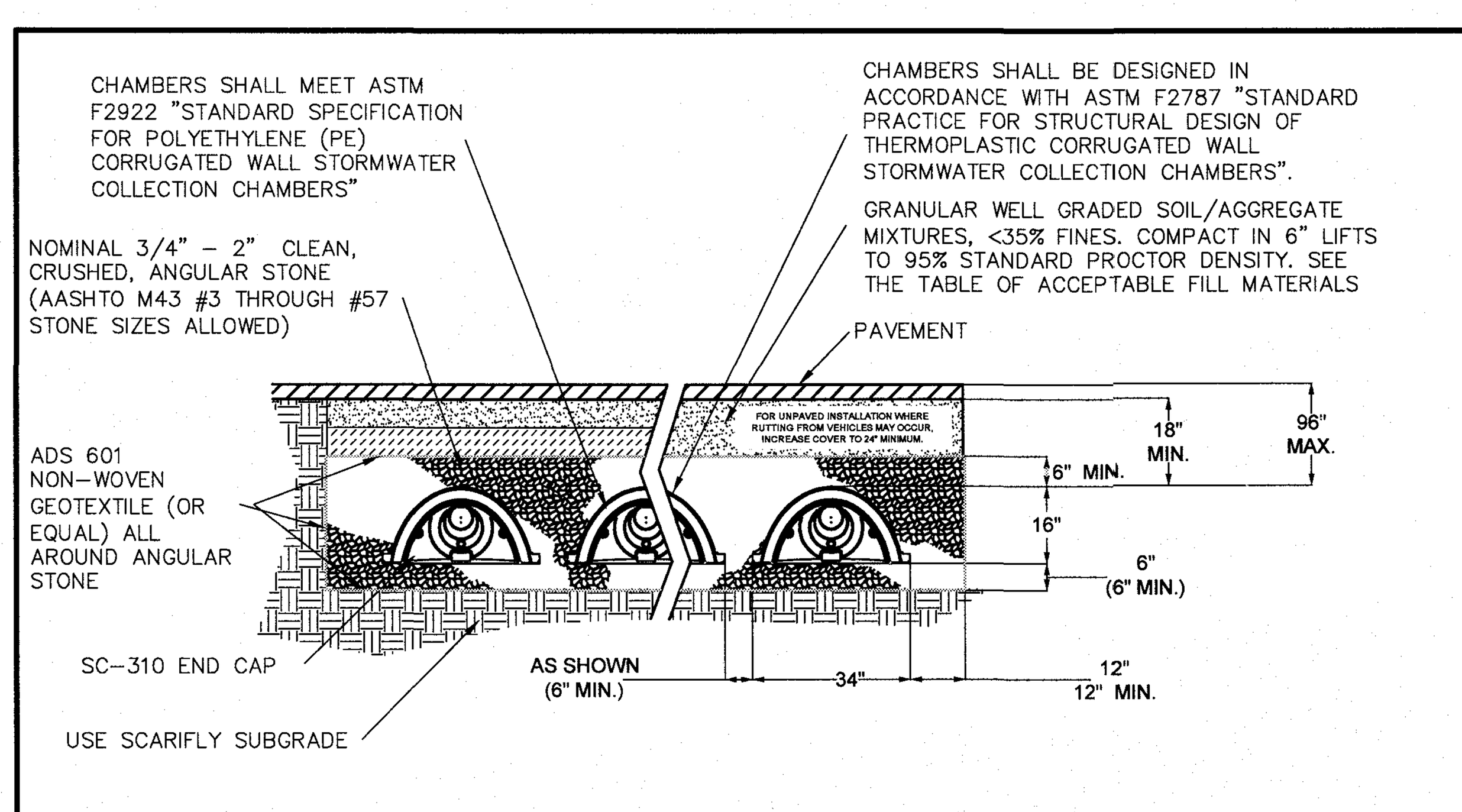
NOTES
1. MANHOLE TO CONFORM TO MASS HIGHWAY CONSTRUCTION STANDARDS (SEE DETAIL 202.4.0)
2. FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL ALONG CENTERLINE OF PIPE.

PRECAST CONCRETE MANHOLE DETAIL
NOT TO SCALE


12" AREA DRAIN PEDESTRIAN H-10 NYLOPLAST–ADS 12"–1299CGP OR APPROVED EQUAL SLOT OPENING NO GREATER THAN 1/4"
1" MIN
6" LOAM AND SEED
NYLOPLAST IN-LINE DRAIN 2712AG
FINISHED GRADE
ADS N-12 RISER (TYPICAL)
TO STORMWATER SYSTEM
ADS N-12 TEE
ADS N-12 SNAP COUPLER (TYPICAL)
ADS N-12 PIPE
INLINE DRAIN DETAIL
ADS DRAIN BASIN
BACKFILL MATERIAL SHALL BE CRUSHED STONE OR GRAVEL MATERIAL MEETING CLASS 1 OR 2 AS SPECIFIED IN ASTM D2321; BACKFILL MATERIAL SHALL BE PLACED UNIFORMLY IN 12" LIFTS AND COMPACTED, REFER MANUFACTURERS' INSTALLATION GUIDELINES

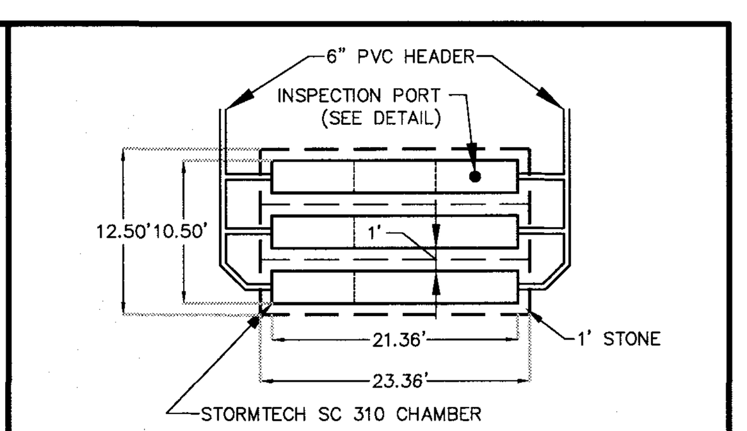
AREA DRAIN DETAIL
NOT TO SCALE

NOTES:
1. INLINE DRAINS SHALL BE AS MANUFACTURED BY ADS OR APPROVED EQUAL.
2. INLINE DRAIN BASINS, DRAINS, GRATES AND FRAMES SHALL BE INSTALLED AS REQUIRED BY THE MANUFACTURER'S SPECIFICATIONS.
3. GRATE AND FRAME MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70–50–05 & A48–CLASS 30B.


CHAMBERS SHALL MEET ASTM F2922 "STANDARD SPECIFICATION FOR POLYETHYLENE (PE) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS"
CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
GRANULAR WELL GRADED SOIL/AGGREGATE MIXTURES, <35% FINES. COMPACT IN 6" LIFTS TO 95% STANDARD PROCTOR DENSITY. SEE THE TABLE OF ACCEPTABLE FILL MATERIALS
NOMINAL 3/4" – 2" CLEAN, CRUSHED, ANGULAR STONE (AASHTO M43 #3 THROUGH #57 STONE SIZES ALLOWED)
PAVEMENT
18" MIN.
96" MAX.
6" MIN.
16"
6" (6" MIN.)
ADS 601 NON–WOVEN GEOTEXTILE (OR EQUAL) ALL AROUND ANGULAR STONE
SC-310 END CAP
AS SHOWN (6" MIN.)
34"
12" MIN.
USE SCARIFLY SUBGRADE

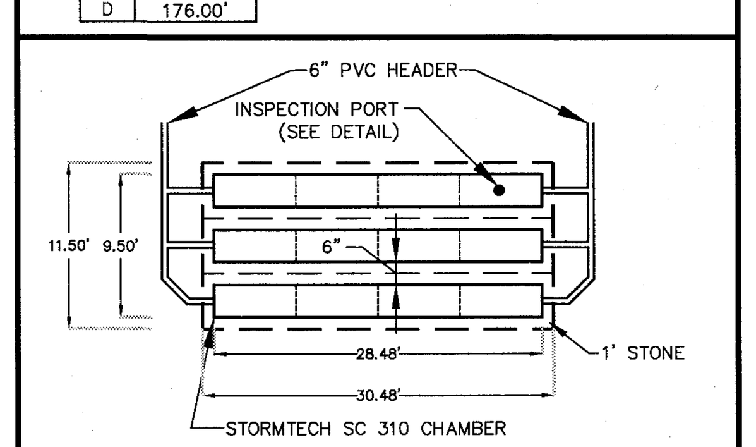
THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LFRD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

STORMTECH SC 310
NOT TO SCALE



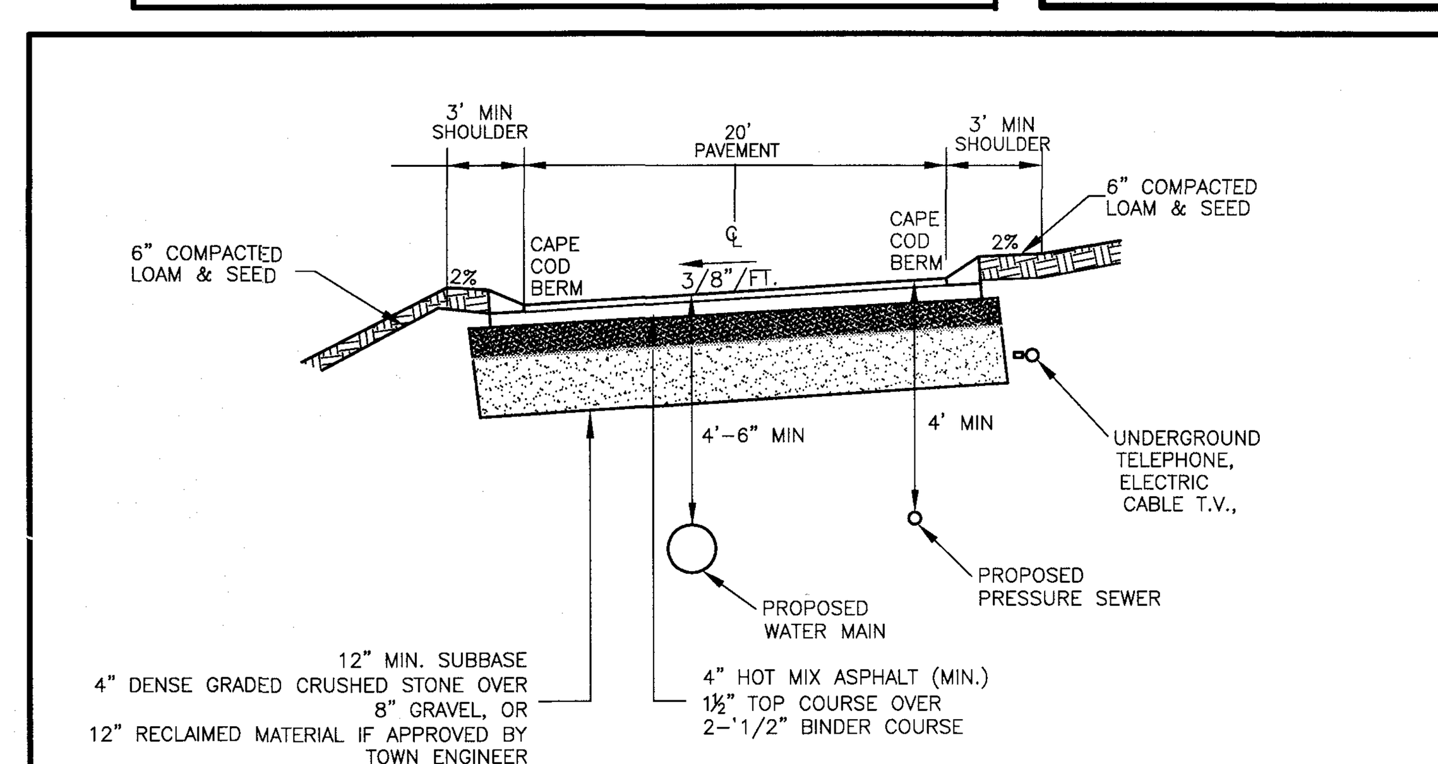
ROOF DRYWELL DWELLINGS A & D
NOT TO SCALE

#	BOTTOM STONE
A	176.00'
D	176.00'



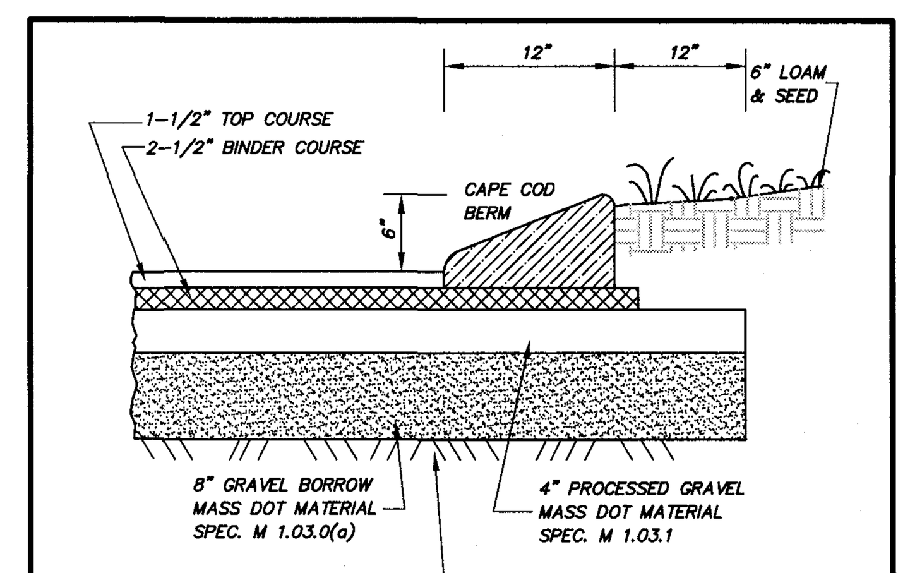
ROOF DRYWELL DWELLINGS B & C
NOT TO SCALE

#	BOTTOM STONE
B	176.00'
C	176.00'


3' MIN SHOULDER
20' PAVEMENT
3' MIN SHOULDER
6" COMPACTED LOAM & SEED
CAPE COD BERM
3/8"/FT.
2%
6" COMPACTED LOAM & SEED
4'-6" MIN
4' MIN
UNDERGROUND TELEPHONE, ELECTRIC CABLE T.V.,
PROPOSED WATER MAIN
PROPOSED PRESSURE SEWER
12" MIN. SUBBASE
4" DENSE GRADED CRUSHED STONE OVER 8" GRAVEL, OR
12" RECLAIMED MATERIAL IF APPROVED BY TOWN ENGINEER
4" HOT MIX ASPHALT (MIN.)
1½" TOP COURSE OVER
2–1/2" BINDER COURSE

* UTILITIES TO BE LABELED AND MARKED WITH MAGNETIC TAPE PRIOR TO BACKFILL

TYPICAL MAIN DRIVEWAY CROSS SECTION
NOT TO SCALE



NOTES:
1. MINIMUM PAVEMENT THICKNESS SHOWN IS FOR RESIDENTIAL STREETS. PROPOSED PAVEMENT DESIGNS FOR OTHER ROADWAYS TO BE APPROVED BY TOWN ENGINEER.
2. RECLAIMED ASPHALT PAVEMENT MATERIAL MAY BE SUBSTITUTED FOR DENSE GRADED CRUSHED STONE AND GRAVEL SUB-BASE IF APPROVED BY TOWN ENGINEER.
3. ALL GRAVEL IS TO BE COMPACTED TO 95% MAX. DRY DENSITY

CAPE COD BERM DETAIL
NOT TO SCALE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS
GEORGE DIMAKARAKOS
CIVIL
No. 41281
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
JOSEPH MARCH
36384
PROFESSIONAL LAND SURVEYOR

CONSTRUCTION DETAILS

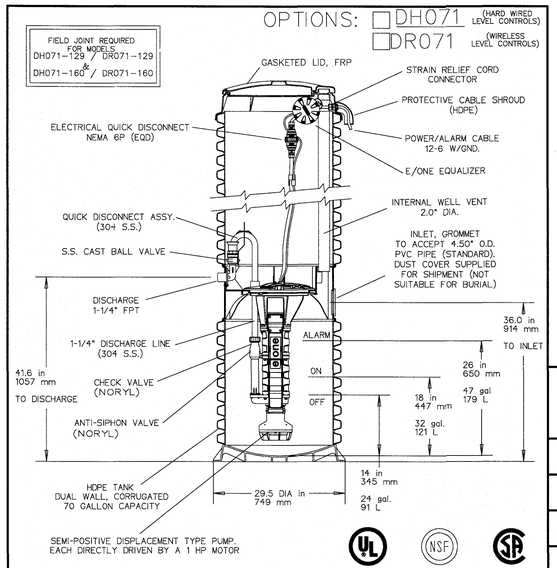
LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT AND PERMITTING, LLC

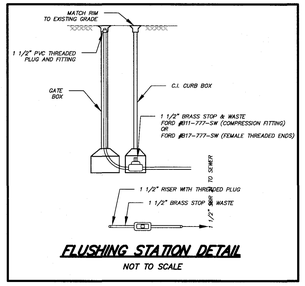
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

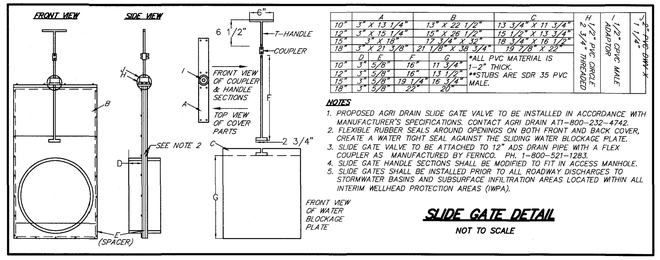
SHEET No. 9 OF 11 PROJECT No. SM–5676



UNIT #	4" INV. @ BUILDING	FINISHED GRADE E/ONE	4" INV. @ E/ONE
1	177.92	182.25	177.65
2	177.86	182.25	177.65
3	178.00	182.25	177.65
4	178.00	182.25	177.65
5	178.00	182.25	177.65
6	178.00	182.25	177.65
7	178.00	182.25	177.65
8	178.19	182.25	177.65



FLUSHING STATION DETAIL
NOT TO SCALE

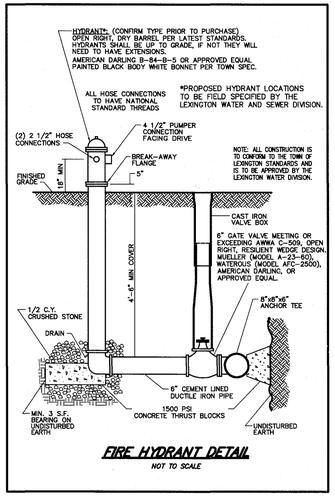


	A		B		C		H	J	K	L
10"	3" X 13 1/4"		13" X 22 1/2"		13 3/4" X 11 3/4"		2 1/2"	1/2"	1/2"	1/4"
12"	3" X 15 1/4"		15" X 26 1/2"		15 1/2" X 13 3/4"		2 1/2"	1/2"	1/2"	1/4"
15"	3" X 19"		17 3/4" X 32"		18 1/4" X 16 1/2"		2 1/2"	1/2"	1/2"	1/4"
18"	3" X 21 5/8"	3/8"	21 7/8" X 38 1/4"		19 7/8" X 19"		2 1/2"	1/2"	1/2"	1/4"
	D	E	F	G						
10"	3"	5/8"	16"	11 3/4"						
12"	4"	5/8"	16"	13 1/2"						
15"	4"	1/8"	19 1/4"	16 1/2"						
18"	5"	1/8"	22"	20"						

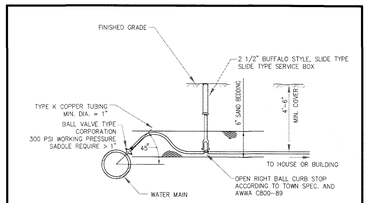
*ALL PVC MATERIAL IS 1-2" THICK.
**STUBS ARE SDR 35 PVC MALE.

NOTES
1. PROPOSED AGRI DRAIN SLIDE GATE VALVE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. CONTACT AGRI DRAIN AT1-800-232-4742.
2. FLEXIBLE RUBBER SEALS AROUND OPENINGS ON BOTH FRONT AND BACK COVER, CREATE A WATER TIGHT SEAL AGAINST THE SLIDING WATER BLOCKAGE PLATE.
3. SLIDE GATE VALVE TO BE ATTACHED TO 12" ADS DRAIN PIPE WITH A FLEX COUPLER AS MANUFACTURED BY FERNCO, PH. 1-800-521-1283.
4. SLIDE GATE HANDLE SECTIONS SHALL BE MODIFIED TO FIT IN ACCESS MANHOLE.
5. SLIDE GATES SHALL BE INSTALLED PRIOR TO ALL ROADWAY DISCHARGES TO STORMWATER BASINS AND SUBSURFACE INFILTRATION AREAS LOCATED WITHIN ALL INTERIM WELLHEAD PROTECTION AREAS (IWPA).

SLIDE GATE DETAIL
NOT TO SCALE

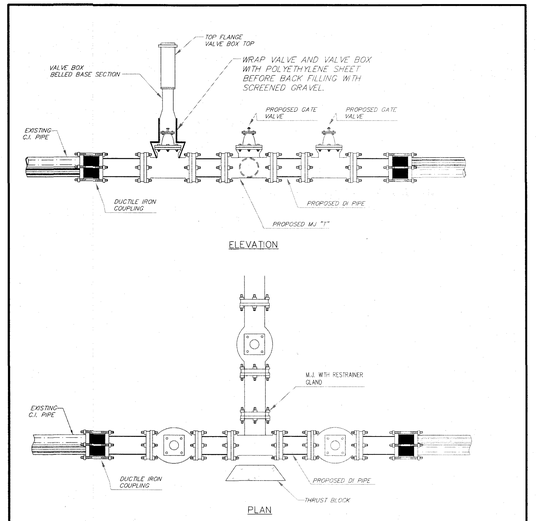


FIRE HYDRANT DETAIL
NOT TO SCALE



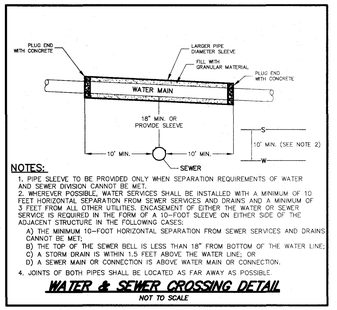
1. A 10' HORIZONTAL SEPARATION MUST BE MAINTAINED FROM THE SEWER SERVICE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEERING DIVISION.
2. FOR SERVICE RENEWALS, TUBING SHALL BE REPLACED TO THE PROPERTY LINE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEERING DIVISION.
3. WHERE AN EXISTING SERVICE IS BEING REPLACED TO THE MAIN, THE OLD SERVICE SHALL BE CAPPED AT THE CORPORATION.
4. THE WATER AND SEWER DIVISION MUST BE NOTIFIED IF LEAD SERVICES ARE ENCOUNTERED.
5. SERVICE TAPS SHALL BE PERFORMED BY THE WATER DIVISION.
6. SERVICE TAPS GREATER THAN 1" REQUIRE A SADDLE AND ARE SUBJECT TO THE APPROVAL OF THE ENGINEERING DIVISION.
7. USE QUICK STYLE COMPRESSION CONNECTIONS FOR ALL SERVICE BRASS.
8. FOR 1" CONNECTIONS TO EXIST. 3/4" CURB STOP CONNECT ADAPTER DIRECTLY TO CURB STOP. MOST EXISTING CURB STOPS REQUIRE 3/4" X 1" FEMALE ADAPTERS FOR NEW ENGLAND STYLE THREADS.
9. ALL CONNECTIONS TO EXIST. CURB STOPS SHALL REPLACE SERVICE BOXES IF NOT BUFFALO STYLE.
10. WATER SERVICE SHALL INCLUDE A BALL VALVE WITH COMPRESSION FITTING JUST BEFORE METER.

WATER SERVICE CONNECTION 2" AND SMALLER
NOT TO SCALE



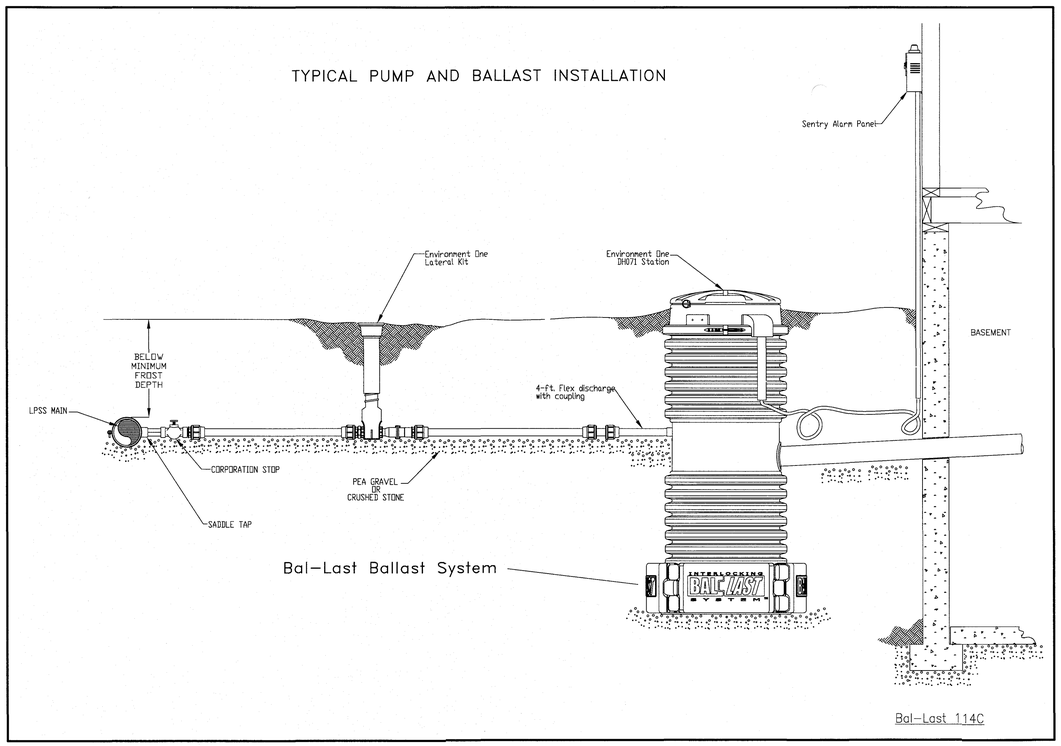
TRIPLE GATE CUT IN WATER MAIN CONNECTION
NOT TO SCALE

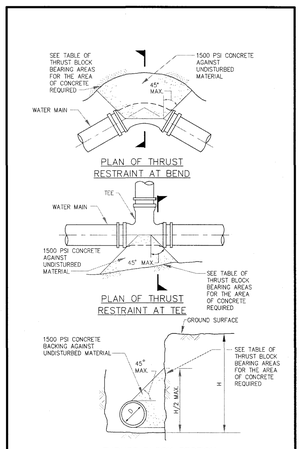
NOTE: GATE VALVES TO BE MJ, RESILIENT WEDGE, DUCTILE IRON, OPEN RIGHT HELTING AWWA C-509, C-153, C-570 & C-550



NOTES:
1. PIPE SLEEVE TO BE PROVIDED ONLY WHEN SEPARATION REQUIREMENTS OF WATER AND SEWER DIVISION CANNOT BE MET.
2. WHEREVER POSSIBLE, WATER SERVICES SHALL BE INSTALLED WITH A MINIMUM OF 10 FEET HORIZONTAL SEPARATION FROM SEWER SERVICES AND DRAINS AND A MINIMUM OF 3 FEET FROM ALL OTHER UTILITIES. ENCASEMENT OF EITHER THE WATER OR SEWER SERVICE IS REQUIRED IN THE FORM OF A 10-FOOT SLEEVE ON EITHER SIDE OF THE ADJACENT STRUCTURE IN THE FOLLOWING CASES:
   A) THE MINIMUM 10-FOOT HORIZONTAL SEPARATION FROM SEWER SERVICES AND DRAINS CANNOT BE MET;
   B) THE TOP OF THE SEWER BELL IS LESS THAN 18" FROM BOTTOM OF THE WATER LINE;
   C) A STORM DRAIN IS WITHIN 1.5 FEET ABOVE THE WATER LINE; OR
   D) A SEWER MAIN OR CONNECTION IS ABOVE WATER MAIN OR CONNECTION.
4. JOINTS OF BOTH PIPES SHALL BE LOCATED AS FAR AWAY AS POSSIBLE.

WATER & SEWER CROSSING DETAIL
NOT TO SCALE

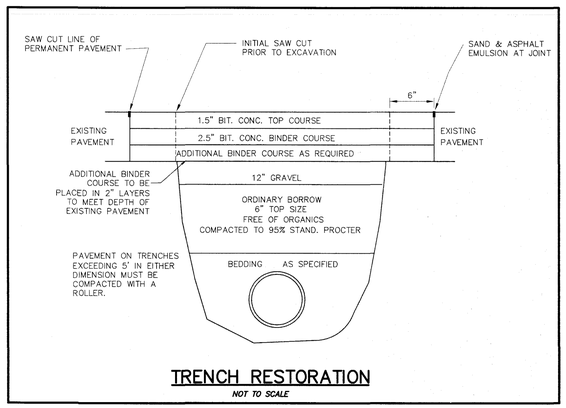




THRUST RESTRAINT AT FITTINGS
NTS
2-1.25 (REV. 12-15-94)

BEARING AREA FOR VARIOUS DIAMETERS						
FITTING	4"	6"	8"	10"	12"	16"
1/32 BEND (11 1/4°)	2 S.F.	2 S.F.	2 S.F.	2 S.F.	3 S.F.	5 S.F.
1/16 BEND (22 1/2°)	2 S.F.	2 S.F.	3 S.F.	3 S.F.	4 S.F.	5 S.F.
1/8 BEND (45°)	2 S.F.	2 S.F.	3 S.F.	5 S.F.	7 S.F.	12 S.F.
1/4 BEND (90°)	3 S.F.	3 S.F.	6 S.F.	9 S.F.	12 S.F.	21 S.F.
TEE/PLUG	2 S.F.	3 S.F.	4 S.F.	6 S.F.	9 S.F.	16 S.F.

NOTES:
1. ALL ELBOWS, BENDS, AND CAPS SHALL BE BRACED WITH CONCRETE THRUST BLOCKS. JOINTS SHALL NOT BE ENCASED IN CONCRETE.
2. BEARING AREA IS AREA OF CONCRETE IN CONTACT WITH WALL OF TRENCH (H X L).
3. HEIGHT AND LENGTH AS REQUIRED TO OBTAIN BEARING AREA SHOWN IN THE TABLE W/ H APPROX. 1/2 L.
4. THRUST BLOCK SIZING BASED ON 150 PSI WATER PRESSURE AND 2000 PSI SOIL BEARING CAPACITY.



TRENCH RESTORATION
NOT TO SCALE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____ DATE
_____
_____

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS GEORGE DIMAKARAKOS CIVIL No. 41287 REGISTERED PROFESSIONAL ENGINEER

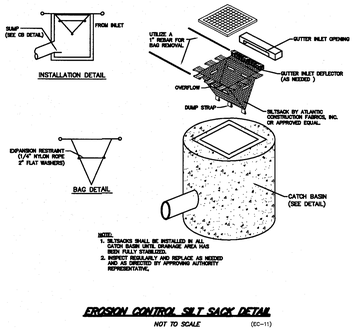
COMMONWEALTH OF MASSACHUSETTS JOSEPH MARCH # 36394 PROFESSIONAL LAND SURVEYOR

CONSTRUCTION DETAILS
LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

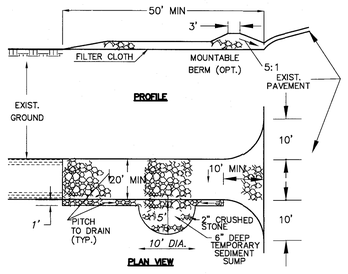
PREPARED FOR
SYMES DEVELOPMENT AND PERMITTING, LLC
SCALE: 1" = 40' *DATE: FEBRUARY 20, 2018*

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 10 OF 11 | PROJECT No. SM-5676



EROSION CONTROL SILT SACK DETAIL
NOT TO SCALE (EC-11)



CONSTRUCTION SPECIFICATIONS

1. THE ENTRANCE OF THE PROPOSED DRIVEWAY SHALL INITIALLY HAVE 6" OF 2" CRUSHED STONE LAID DOWN AS A TRAFFIC SEDIMENT CONTROL SURFACE AS SHOWN IN THE STABILIZED CONSTRUCTION ENTRANCE DETAIL. THIS STONE PACK SHALL BE PLACED OVER THE DRIVEWAY FOR A MINIMUM DISTANCE OF 40 FEET FROM THE EDGE OF PAVEMENT AND SHALL BE REMOVED AND REPLACED WITH ROADWAY GRAVEL IMMEDIATELY PRIOR TO THE PLACEMENT OF PAVEMENT.
2. STONE SIZE – USE 2" CRUSHED STONE.
3. WIDTH – TWENTY (20) FOOT MINIMUM, BUT NOT LESS THAN THE WIDTH AT POINTS OF INGRESS OR EGRESS.
4. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO THE PLACEMENT OF STONE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED NEAR CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMANDS AND REPAIR ANY MEASURES USED TO TRAP SEDIMENT.
7. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO THE ENTRANCE ONTO PUBLIC RIGHT-OF-WAYS. WHEN WASHING IS DONE IT SHALL BE DONE ON STABILIZED ENTRANCE WITH STONE AND WHICH DRAINS INTO THE SEDIMENT SUMP AS SHOWN.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN STORM.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE LIMITS OF WORK SHALL BE MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING.
2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION ON THE SITE. SILTATION BARRIER AND SILT FENCE SHALL BE PLACED IN ALL AREAS AS SHOWN ON ALL THE PLANS AND IN ANY OTHER AREAS AS DETERMINED NECESSARY DURING CONSTRUCTION.
3. ALL SOIL STOCKPILES SHALL HAVE EROSION CONTROL MEASURES AROUND THEIR EDGES AT ALL TIMES. SOIL STOCKPILES SHALL BE COVERED WITH TEMPORARY VEGETATION OR FASTENED TARPAULIN SHEETS.
4. THE DRAINAGE SYSTEM SHALL BE CONSTRUCTED DURING THE EARLIEST STAGES OF THE PROJECT IN ORDER TO COLLECT RUNOFF AND SEDIMENT.
5. ALL CATCH BASINS SHALL BE PROTECTED WITH SILT SACKS DURING CONSTRUCTION.
6. ALL CUT AND FILL SLOPES SHALL BE IMMEDIATELY COVERED WITH 6" OF LOAM AND SEEDED DURING THE GROWING SEASON (APRIL 1 TO NOVEMBER 1) OR COVERED WITH HAYMULCH DURING THE NON-GROWING SEASON (NOVEMBER 1 TO APRIL 1). IN AREAS SUBJECT TO THE WETLANDS PROTECTION ACT, THE HAYMULCH AND/OR REQUIRED MEASURES SHALL REMAIN IN PLACE UNTIL PERMANENT VEGETATION IS ESTABLISHED. UNLESS OTHERWISE INDICATED, ALL DISTURBED AREAS SHALL RECEIVE 6" OF LOAM AND BE SEEDED TO PREVENT EROSION.
7. THE DRAINAGE BASIN SHALL BE CLEANED FOLLOWING CONSTRUCTION AND ANNUALLY THEREAFTER. UPON ACCUMULATION OF 6" OF SEDIMENT, THE DRAINAGE BASIN SHALL BE CLEANED.
8. THE SILTATION BARRIER SHALL BE MAINTAINED UNTIL VEGETATIVE COVER HAS BEEN SUITABLY ESTABLISHED AND GRADED SLOPES ARE STABLE.

INSPECTION/MAINTAINENCE:

9. THE SITE CONTRACTOR IS RESPONSIBLE TO CLEAN UP ANY SEDIMENT WHICH ERODES FROM THE SITE INTO LINCOLN STREET OR ABUTTING PROPERTY IMMEDIATELY UPON DISCOVERY.
10. THE CONTRACTOR SHALL FOLLOW STANDARD PRACTICE AND LOAM AND SEED ALL DISTURBED AREAS FOLLOWING CONSTRUCTION.
11. OPERATOR PERSONNEL MUST INSPECT THE CONSTRUCTION SITE AT LEAST EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5 INCHES OR MORE. DISTURBED AREAS THAT HAVE BEEN STABILIZED MUST BE INSPECTED AT LEAST ONCE PER MONTH.
12. ALL CATCH BASIN SUMPS AND MANHOLES SHALL BE CLEANED OUT AFTER CONSTRUCTION.
13. DURING CONSTRUCTION, THE CONTRACTOR SHALL SPRAY DOWN THE SITE WITH A WATER TRUCK AS NEEDED FOR DUST CONTROL.
14. DURING CONSTRUCTION THE CONTRACTOR SHALL INSPECT LINCOLN ROAD AND SWEEP AS NECESSARY.
15. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL STRUCTURES AND DEVICES THROUGHOUT CONSTRUCTION. ANY EROSION CONTROL DEVICES FOUND TO NO LONGER TO BE SERVICEABLE SHALL BE REMOVED AND REPLACED. ALL ACCUMULATED SEDIMENTS MUST BE REMOVED WHEN DEPOSITS REACH NO MORE THAN ONE HALF THE HEIGHT OF THE SILTATION BARRIER.
16. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING (7 DAYS IF WITH 100 FEET OF A STREAM, POND OR WETLAND) AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
17. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT THE SITE FROM SPRING RUNOFF PROBLEMS. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TEMPORARY MULCH OR OTHER METHODS APPROVED BY THE ENGINEER SHALL BE EMPLOYED TO PROTECT THE SITE.
18. A STOCKPILE OF ADDITIONAL SILT FENCE AND HAYBALES SHALL BE KEPT ONSITE IN ORDER TO BE ABLE TO IMMEDIATELY RESPOND TO ISSUES WHICH MIGHT DEVELOP DURING CONSTRUCTION.

LONG TERM POLLUTION PREVENTION AND DRAINAGE SYSTEM OPERATION AND MAINTENANCE PLAN

1. THERE SHALL BE NO ILLICIT DISCHARGES TO ANY PART OF THE STORM DRAIN SYSTEM.
2. ALL DRAIN PIPE SHALL BE ADS, UNLESS OTHERWISE NOTED.

THE IMPLEMENTATION, INSPECTION, AND REPAIR OF THE EROSION CONTROLS IS THE RESPONSIBILITY OF THE SITE CONTRACTOR DURING CONSTRUCTION.

THE INSPECTION AND OPERATION OF THE STORM WATER MANAGEMENT SYSTEM UPON COMPLETION OF CONSTRUCTION IS THE RESPONSIBILITY OF:

DURING CONSTRUCTION: SYMES DEVELOPMENT AND PERMITTING, LLC

PARTIES RESPONSIBLE FOR LONG TERM OPERATION/MAINTENANCE:

CONDOMINIUM ASSOCIATION

SCHEDULE FOR INSPECTION AND MAINTENANCE:

STREET SWEEPING:

IT IS RECOMMENDED THAT THE PAVEMENT SHALL BE PROPERLY SWEPT TWICE A YEAR, WITH CONCENTRATIONS IN THE SPRING AND THE FALL.

DEEP SUMP AND HOODED CATCH BASINS

DURING CONSTRUCTION, CATCH BASIN GRATES SHALL BE WRAPPED WITH FILTER FABRIC. CATCH BASINS SHALL BE CLEANED UPON THE COMPLETION OF CONSTRUCTION. AFTER CONSTRUCTION, THE DEEP SUMPS FOR ALL CATCH BASINS AND DRAIN MANHOLES SHALL BE INSPECTED FOUR TIMES A YEAR AND CLEANED FOUR TIMES A YEAR. SEDIMENT REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL GUIDELINES AND REGULATIONS.

- THE DEPTH OF THE SEDIMENT IN A BASIN SHALL NOT EXCEED A DEPTH OF 18 INCHES AS DETERMINED BY PROBING WITH A STICK. IF THE STICK HITS THE BOTTOM WITHIN 30 INCHES OF THE WATER LEVEL, MORE THAN 18 INCHES OF SEDIMENT HAS ACCUMULATED AND MUST BE REMOVED. LICENSED PERSONS SHOULD REMOVE AND DISPOSE OF THE CONTENTS OF THE SUMP IN ACCORDANCE WITH APPLICABLE REGULATIONS.

INFILTRATION BASINS

PREVENTATIVE MAINTENANCE SHOULD BE PERFORMED AT LEAST TWICE A YEAR, AND IDEALLY SEDIMENT SHOULD BE REMOVED FROM THE SEDIMENT FOREBAYS AFTER EVERY MAJOR STORM EVENT. SEDIMENT SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL GUIDELINES AND REGULATIONS.

ONCE ONLINE, THE BASINS SHALL BE INSPECTED AFTER EVERY MAJOR STORM EVENT, FOR THE FIRST FEW MONTHS. THEREAFTER, THE BASIN SHOULD BE INSPECTED AT LEAST TWICE PER YEAR. IMPORTANT ITEMS TO CHECK FOR INCLUDE: DIFFERENTIAL SETTLEMENT, CRACKING, EROSION, LEAKAGE, OR TREE GROWTH ON THE EMBANKMENTS, CONDITION OF RIPRAP, SEDIMENT ACCUMULATION AND THE HEALTH OF THE TURF.

AT LEAST TWICE A YEAR, THE BUFFER AREA, SIDE SLOPES AND BASIN BOTTOM SHOULD BE MOWED. GRASS CLIPPINGS AND ACCUMULATED ORGANIC MATTER SHOULD BE REMOVED TO PREVENT THE FORMATION OF AN IMPERVIOUS ORGANIC MAT. TRASH AND DEBRIS SHOULD ALSO BE REMOVED AT THIS TIME.

SEDIMENT SHOULD BE REMOVED FROM THE BASIN AS NECESSARY. REMOVAL PROCEDURES SHOULD NOT TAKE PLACE UNTIL THE FLOOR OF THE BASIN IS THOROUGHLY DRY. PRETREATMENT DEVISES ASSOCIATED WITH BASINS SHOULD BE INSPECTED AND CLEANED AT LEAST TWICE A YEAR AND IDEALLY EVERY OTHER MONTH.

DRYWELLS:

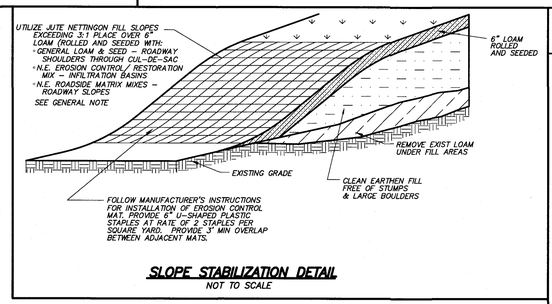
INSPECT THE DRYWELL AFTER EVERY MAJOR STORM FOR THE FIRST FEW MONTHS TO ENSURE PROPER STABILIZATION AND FUNCTION. THEREAFTER, INSPECT AND CLEAN IT AT LEAST ONCE PER YEAR. WATER LEVELS SHOULD BE RECORDED OVER SEVERAL DAYS TO CHECK THE DRYWELL DRAINAGE.

EMERGENCY CONTACTS:

IN THE EVENT OF A HAZARDOUS MATERIALS SPILL ON THE SITE THE FOLLOWING PARTIES SHALL BE CONTACTED: FIRE DEPARTMENT: PH: 978-862-0272

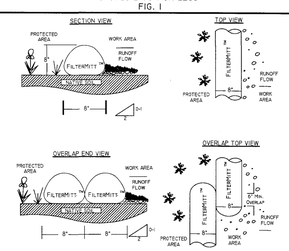
RECORDS:

THE OWNER SHALL MAINTAIN AN INSPECTION LOG OF ALL ELEMENTS OF THE STORM WATER MANAGEMENT PLAN. THE OWNER SHALL MAINTAIN A MAINTENANCE LOG DOCUMENTING THE INSPECTION AND MAINTENANCE OF THE DRAINAGE STRUCTURES UNDER HIS CONTROL. A COPY OF THE EROSION CONTROL AND STORM WATER MAINTENANCE PLAN AND INSPECTION LOGS SHALL BE KEPT ONSITE AT ALL TIMES.

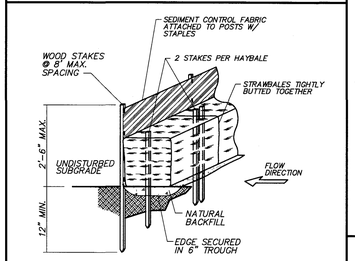


SLOPE STABILIZATION DETAIL
NOT TO SCALE

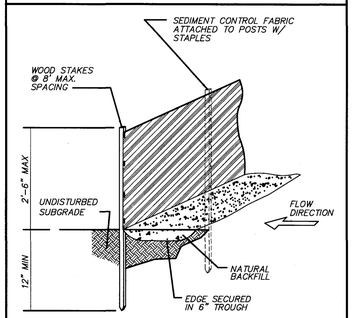
DETAILED SPECIFICATIONS
8" SEDIMENT FILTERMITT™
SLOPES 2 TO 1 OR LESS
FIG. 1



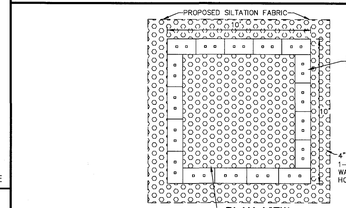
SILTATION BARRIER DETAIL
NOT TO SCALE



SILTATION BARRIER DETAIL
NOT TO SCALE

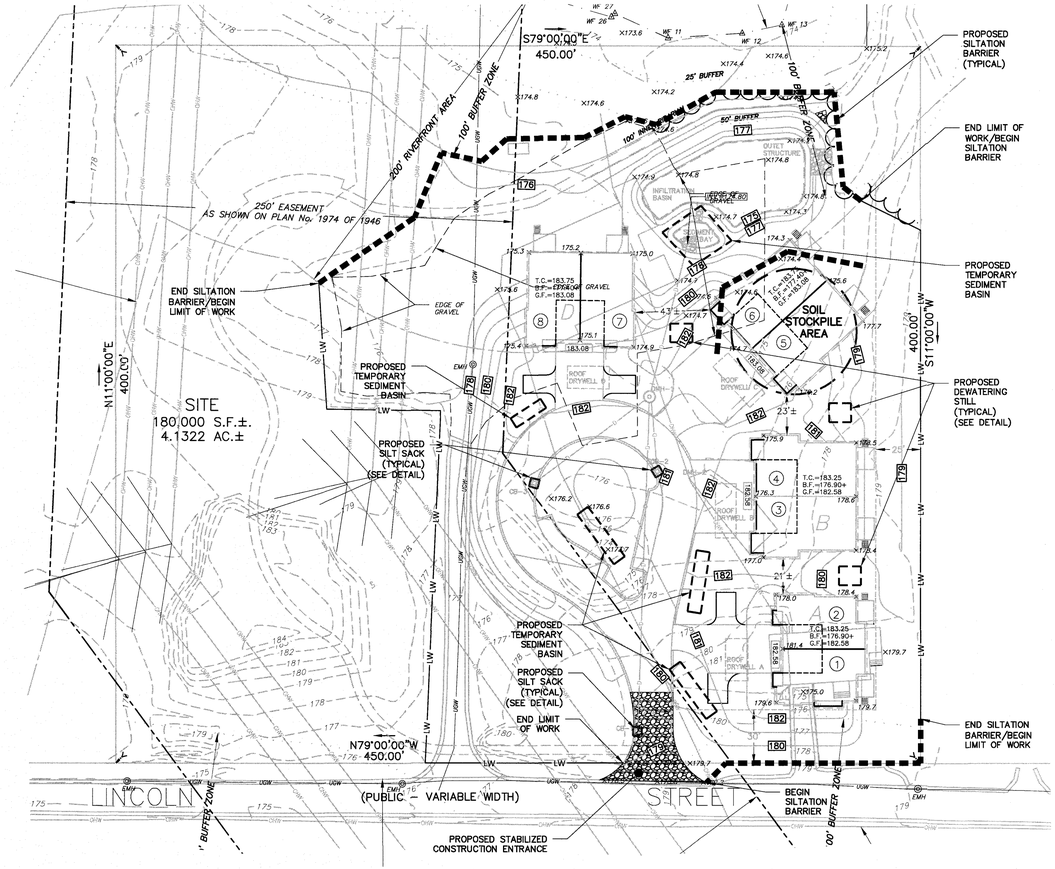


SILTATION FENCE DETAIL
NOT TO SCALE



NOTES:
1. A TRENCH DEWATERING STILL SHALL BE INSTALLED WHEREVER GROUNDWATER IS ENCOUNTERED SO AS TO PROVIDE AN AREA FOR PUMPED WATER TO BE DEPOSITED.
2. THE HAYBALES SHALL BE INSTALLED IN ACCORDANCE WITH THE HAYBALE SILTATION DETAIL PROVIDED ON THIS PLAN.
3. THE DEWATERING STILL SHALL BE CLEANED OF SILT AS NECESSARY.

DEWATERING STILL DETAIL
N.T.S.



0 20 40 80 160 FT

(5676 DEF BHD 2.dwg)

LEGEND:

- SILTATION BARRIER
- SOIL STOCKPILE AREA
- TEMPORARY SEDIMENT BASIN
- SILT SACK
- STABILIZED CONSTRUCTION ENTRANCE
- LW LIMIT OF WORK

APPROVED BY:
LEXINGTON PLANNING BOARD

_____ DATE

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

COMMONWEALTH OF MASSACHUSETTS
GEORGE DIMKARIAKOS
CIVIL
No. 41281
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
JOSEPH MARSH
36384
REGISTERED LAND SURVEYOR

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

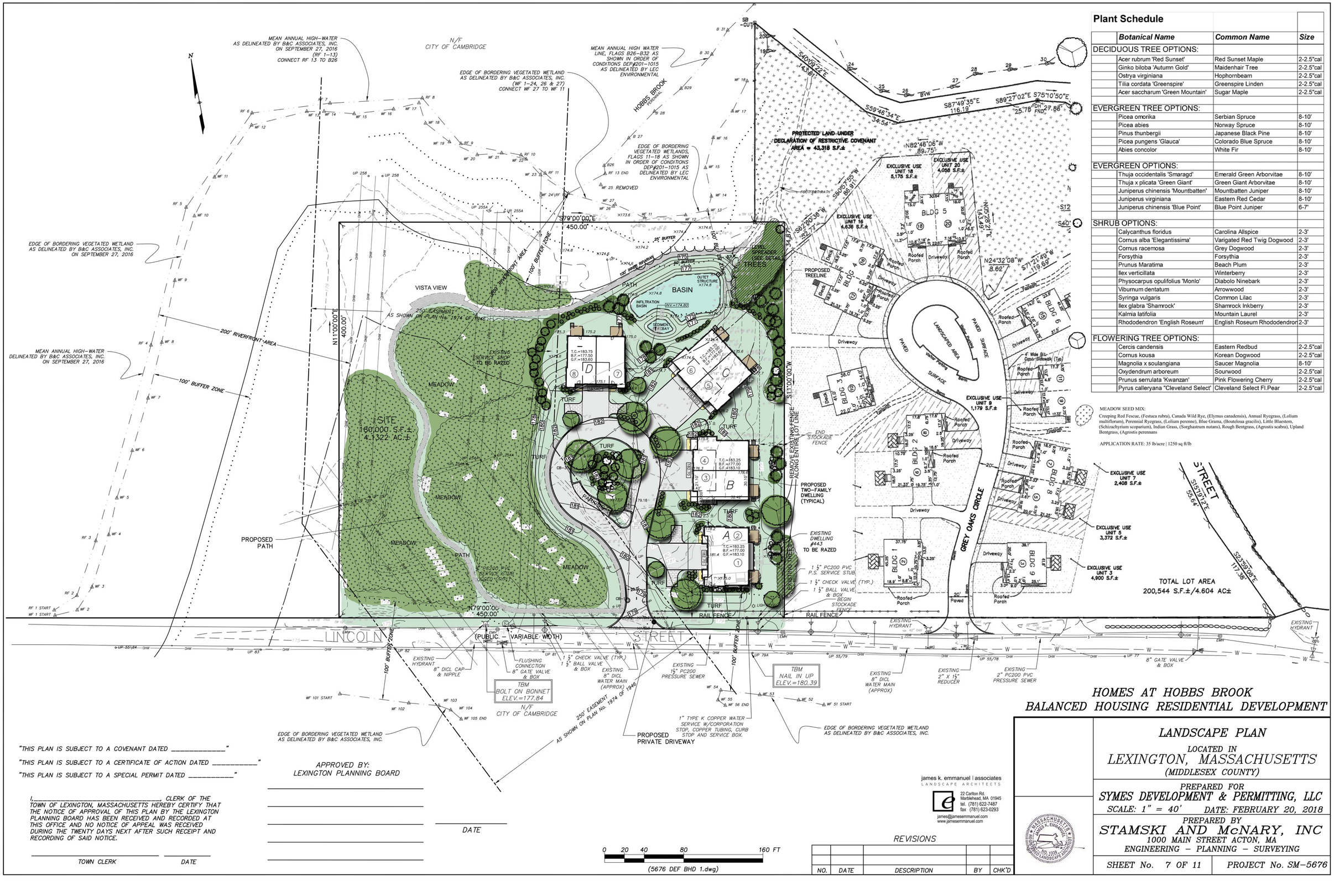
EROSION AND SEDIMENTATION CONTROL PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 11 OF 11 PROJECT No. SM-5676



Plant Schedule

	Botanical Name	Common Name	Size
DECIDUOUS TREE OPTIONS:			
	Acer rubrum 'Red Sunset'	Red Sunset Maple	2-2.5"cal
	Ginko biloba 'Autumn Gold'	Maidenhair Tree	2-2.5"cal
	Ostrya virginiana	Hophornbeam	2-2.5"cal
	Tilia cordata 'Greenspire'	Greenspire Linden	2-2.5"cal
	Acer saccharum 'Green Mountain'	Sugar Maple	2-2.5"cal
EVERGREEN TREE OPTIONS:			
	Picea omorika	Serbian Spruce	8-10'
	Picea abies	Norway Spruce	8-10'
	Pinus thunbergii	Japanese Black Pine	8-10'
	Picea pungens 'Glauca'	Colorado Blue Spruce	8-10'
	Abies concolor	White Fir	8-10'
EVERGREEN OPTIONS:			
	Thuja occidentalis 'Smaragd'	Emerald Green Arborvitae	8-10'
	Thuja x plicata 'Green Giant'	Green Giant Arborvitae	8-10'
	Juniperus chinensis 'Mountbatten'	Mountbatten Juniper	8-10'
	Juniperus virginiana	Eastern Red Cedar	8-10'
	Juniperus chinensis 'Blue Point'	Blue Point Juniper	6-7'
SHRUB OPTIONS:			
	Calycanthus floridus	Carolina Allspice	2-3'
	Cornus alba 'Elegantissima'	Varigated Red Twig Dogwood	2-3'
	Cornus racemosa	Grey Dogwood	2-3'
	Forsythia	Forsythia	2-3'
	Prunus Maratima	Beach Plum	2-3'
	Ilex verticillata	Winterberry	2-3'
	Physocarpus opulifolius 'Monlo'	Diabolo Ninebark	2-3'
	Viburnum dentatum	Arrowwood	2-3'
	Syringa vulgaris	Common Lilac	2-3'
	Ilex glabra 'Shamrock'	Shamrock Inkberry	2-3'
	Kalmia latifolia	Mountain Laurel	2-3'
	Rhododendron 'English Roseum'	English Roseum Rhododendron	2-3'
FLOWERING TREE OPTIONS:			
	Cercis candensis	Eastern Redbud	2-2.5"cal
	Cornus kousa	Korean Dogwood	2-2.5"cal
	Magnolia x soulangiana	Saucer Magnolia	8-10'
	Oxydendrum arboreum	Sourwood	2-2.5"cal
	Prunus serrulata 'Kwanzan'	Pink Flowering Cherry	2-2.5"cal
	Pyrus calleryana "Cleveland Select'	Cleveland Select Fl.Pear	2-2.5"cal

MEADOW SEED MIX:

Creeping Red Fescue, (Festuca rubra), Canada Wild Rye, (Elymus canadensis), Annual Ryegrass, (Lolium multiflorum), Perennial Ryegrass, (Lolium perenne), Blue Grama, (Bouteloua gracilis), Little Bluestem, (Schizachyrium scoparium), Indian Grass, (Sorghastrum nutans), Rough Bentgrass, (Agrostis scabra), Upland Bentgrass, (Agrostis perennans

APPLICATION RATE: 35 lb/acre | 1250 sq ft/lb

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____ DATE

0 20 40 80 160 FT
(5676 DEF BHD 1.dwg)

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

james k. emmanuel | associates
LANDSCAPE ARCHITECTS
22 Carlton Rd.
Marblehead, MA 01945
tel. (781) 622-7487
fax (781) 623-0293
james@jamesemmanuel.com
www.jamesemmanuel.com

LANDSCAPE PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING - PLANNING - SURVEYING

SHEET No. 7 OF 11 | PROJECT No. SM-5676

EVERSOURCE ENERGY

One NSTAR Way, SE210
Westwood, MA 02090

September 6, 2017

Mr. Jeffrey Rhuda
Symes Permitting & Development LLC
50 Dodge Street
Beverly, MA 01917

Dear Mr. Rhuda:
You have contacted us regarding the property at 443 Lincoln Street, Lexington, Massachusetts, thru which Eversource has an established easement. You have provided us with the following two plans showing alternative development of that property:

1. Conventional Subdivision: One plan is entitled "conventional subdivision proof plan" (sheet 3 of 4). This plan shows a dead-end road in the easement area that would serve as access to only three dwellings. A fourth lot fronts on Lincoln Street. No dwellings are located within our easement area.

2. Balanced Housing: One plan is entitled "site construction plan, balanced housing residential development" (sheet 2 of 4). On this plan, only a small portion of the proposed roadway is within the easement area. No dwellings or driveways are within the easement area.

You state that while you prefer to develop the site using the balanced housing plan (sheet 2), the Lexington Zoning Bylaws require that before you are permitted to do so, you must satisfy the Planning Board that the development shown on sheet 3, the proof plan (conventional subdivision), is possible. Because of that requirement, you have asked whether the road could be built as shown on the plan entitled "conventional subdivision proof plan" (sheet 3).
Our concern is for safety, reliability, integrity and security of our system. We always review requests like yours on a case by case basis, as the circumstances in each case vary. The fact that we allow a certain activity in one area does not mean that we shall allow that activity in another area. We note that there are improvements within the easement area that was previously approved by us under a license agreement, as the location of such improvement at the time of the Company's review and current configuration of our lines did not conflict with our use of our easement. The license granted in no way restricts the Company's future use and enjoyment of its easement rights as it conditions the land owners use of the easement.
In response to your specific question, we respond that we would consider the conventional approach as shown on sheet 3, but would require modifications to details before construction. For example, any roadway within our easement must provide adequate clearance between the finished roadway surface and our overhead wires. The precise location and construction of project utilities and drainage system would require our approval, as we have underground rights as well within the entire 250 foot wide corridor. We would make sure that any roadway and utility infrastructure are safely buffered from our structures and utilities cross the easement at 90

degrees. The Company would also evaluate any such proposal to ensure it does not interfere with the Company's likely future exercise of its easement rights.
We trust that this letter is sufficient to address the question regarding the hypothetical approval of your conceptual, conventional subdivision plan, so that the Town allows you to proceed with your preferred plan, which we believe is the appropriate approach to your development.

Sincerely,

Theresa M. Feuersanger
Supervisor &D Rights and Survey
247 Station Drive SE 210
Westwood Mass 02090
781-441-8277

Homes at Hobbs Brook
Project Narrative – 443 Lincoln Street

Existing conditions - The 4.13 acre site contains a single family dwelling (#443) near Lincoln Street and a detached multi use service shop (automobile repair) towards the rear line of the lot which are both proposed to be razed. The site is rectangular in shape consisting of four-hundred and fifty feet (450') of frontage along Lincoln Street with a lot depth of four-hundred feet (400'). This 180,000 square foot site is located entirely within the Residential District (RO) and has just two direct abutters. The recently constructed "Grey Oaks Circle" Balanced Housing Development consisting of fourteen units is located to the east and the City of Cambridge Reservoir Land is located to the north, south and west of the site.

The structures on the site are respectful of the two-hundred and fifty-foot wide Utility Easement which overlays a portion of the site at an angle from front to back along the westerly side line of the lot in common the City of Cambridge land. The paved driveway and portion of the gravel parking area associated with the service shop are within this utility easement, while the paved driveway serving the dwelling's garage under is located just outside this easement. The existing pavement in the public right-of-way is also greater in width in front of the dwelling to allow for on-street parking. Accessory to the existing dwelling are patios with typical landscaping, retaining walls, fences and lawn areas. A six-foot high wooden stockade fence near the dwelling is also present along the easterly side line of the lot in common with Lincoln Woods. The remaining area outside the easement between the existing structures and along the gravel parking area, is primarily woodland. The area within the utility easement is primarily cleared in fair condition with areas of emerging vegetation consisting of overgrown brush and selective trees present primarily along the street frontage and site perimeter.

Existing utility services - The dwelling and service shop are currently served by town water service and private on-site sewer services. Electrical services appear to be both above ground and below ground; there is an underground line within the utility easement. According to the Sewer & Water Main Record As-built Plan (RS 708B), both the 8-inch water main and 1 ½ inch pressure sewer main, which originate from Weston Street to the east, terminate just past the existing service shop driveway to the west prior to the Lincoln Town Line. The pressure sewer main reduces down from a 2-inch main approximately 200' east of the site. Fire protection is provided by the existing hydrants within Lincoln Street.

Existing wetland resource areas – Abutting the site to the north and west is Hobbs Brook which is a perennial stream with associated bordering vegetated wetland and Bordering Land Subject to Flooding. Hobbs Brooks flows under Lincoln Street and into the Cambridge Reservoir to the southwest. Abutting the site to the south are two segments of wetlands bordering on the Reservoir along the opposite side of Lincoln Street. The delineation of these abutting resource areas have been recently confirmed, thru the issuance of an Order of Resource Areas Delineation, by the Lexington Conservation Commission. A portion of the two-hundred foot (200') Riverfront Area measured from the mean annual high water line of Hobbs Brook is present along the rear line of the lot in addition to the one-hundred foot (100') buffer zone which is measured from the edge of the wetlands bordering Hobbs Brook. The outer one-hundred foot (100') buffer zone is also present within the front yard of the dwelling and to the west of the

service shop driveway. The Buffer Zone is a Protected Resource Area under the Code of the Town of Lexington for Wetland Protection, Chapter 130.

Existing stormwater runoff – On-site stormwater runoff drains to Hobbs Brook via sheet flow. A majority of the site drains to a low point behind the service shop to the north, while the runoff from the front of the site drains towards the public street to the south. Runoff within Lincoln Street primarily drains to the west towards Hobbs Brook from a high point near the existing dwelling. According to the NRCS Soil Survey, existing on-site soils consist of Windsor Loamy Sand which is excessively drained and Deerfield Loamy Sand which is moderately well drained.

Proposed Project - The proposed Balanced Housing Residential Development will provide a diversity of household types and sizes currently not available within a conventional development at this location. The granting of a special permit by the Planning Board will permit the construction of four two-family dwellings with open space. Access to the eight dwelling units from Lincoln Street will be provided via a private interior driveway with circular emergency turnaround. Individual driveways will be provided to each two-family dwelling from the interior driveway. The required sixteen (16) parking spaces required per zoning, two per dwelling, will be provided within the proposed garages and individual driveways. Four units will have a two-car garage and the remaining four units will have a one-car garage with a second parking space in front of each garage door. Additional parking is also available for most units within the individual driveways. The interior driveway has been designed to a width of twenty feet (20') to allow for proper circulation. The plan will also improve the riverfront buffer area by removing the large service shop and associated gravel parking area and incorporating native trees & shrubs. The proposal also provides controls from stormwater runoff, where currently there is none. A path is proposed that will connect to the existing path in the Grey Oaks Circle development to the east and loops around the proposed project to provide greater connectivity within the neighborhood. The proposed project also avoids conflict with the utility easement on the lot.

Proof Plan – The Applicant met last year with the Planning staff on a Conceptual basis to discuss the proof plan and a proposed BHD concept plan. Based on feedback from this meeting, the Proof Plan has been updated to include the proposed grades for the subdivision road option. The BHD Sketch plan has been updated to provide an alternative pavement layout with reduced building footprints provided by the Architect.

Proposed utilities – A proposed water main with hydrant from Lincoln Street is proposed within the private interior driveway. Individual water services will be provided from this main to each dwelling unit. E/One grinder pumps are proposed for each unit that will pump the wastewater to o the existing pressure sewer main in Lincoln Street. A condominium association consisting of the unit owners will be responsible for the operation and maintenance of the private utilities and stormwater controls.

Definitive List of Waivers

BALANCED HOUSING RESIDENTIAL DEVELOPMENT
Stamski and McNary, Inc.- Plan Date: February 20, 2018
443 Lincoln Street
Lexington, MA

In reference to the Town of Lexington's Planning Board Zoning Regulations dated August 30, 2017, here is a list of waivers that this Balanced Housing Residential Development at 443 Lincoln Street requires.

1. Referring to §5.1.2, Document and Plan Formatting Requirements, we request a waiver to 5.1.2.2 Vertical Datum: All elevations shown on profiles and topographic plans must be based on the North American Vertical Datum of 1988 (NAVD88) and identify all benchmarks used and their elevations.

   The USGS vertical datum provided matches the neighboring Grey Oaks Circle Balanced Housing Development to the east and also matches the "Sewer & Water Main Construction," Lincoln Street, STA. 9+13 to STA. 20+19 plan prepared by Tutela Engineering Associates dated February, 2001. The use of the USGS Datum allows the Town and public to understand the neighborhood all at the same elevation system. The use of the required Datum is possible but could offer confusion to abutting plan continuity.

The applicant and Planning Board Reserve the right to modify the contents of this Definitive List of Waivers as a result of discussion at public meetings.

Bldg A Units 1-2 Lincoln St

858.224

2/26/2018

Artform Home Plans

603-431-9559

Dear Builders and Home Buyers,

In addition to our Terms and Conditions (the "Terms", available on ArtformHomePlans.com), please be aware of the following:

As defined in the Terms, this is a Design Drawing and may not yet have Construction Drawings (CDs) or the CDs may not reflect design changes. During the conversion of a Design Drawing to Construction Drawings, changes may be necessary including, but not limited to, dimensional changes or changes to the framing and structural supports.

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Bldg A Units 1-2 Lincoln St

858.224

2/26/2018

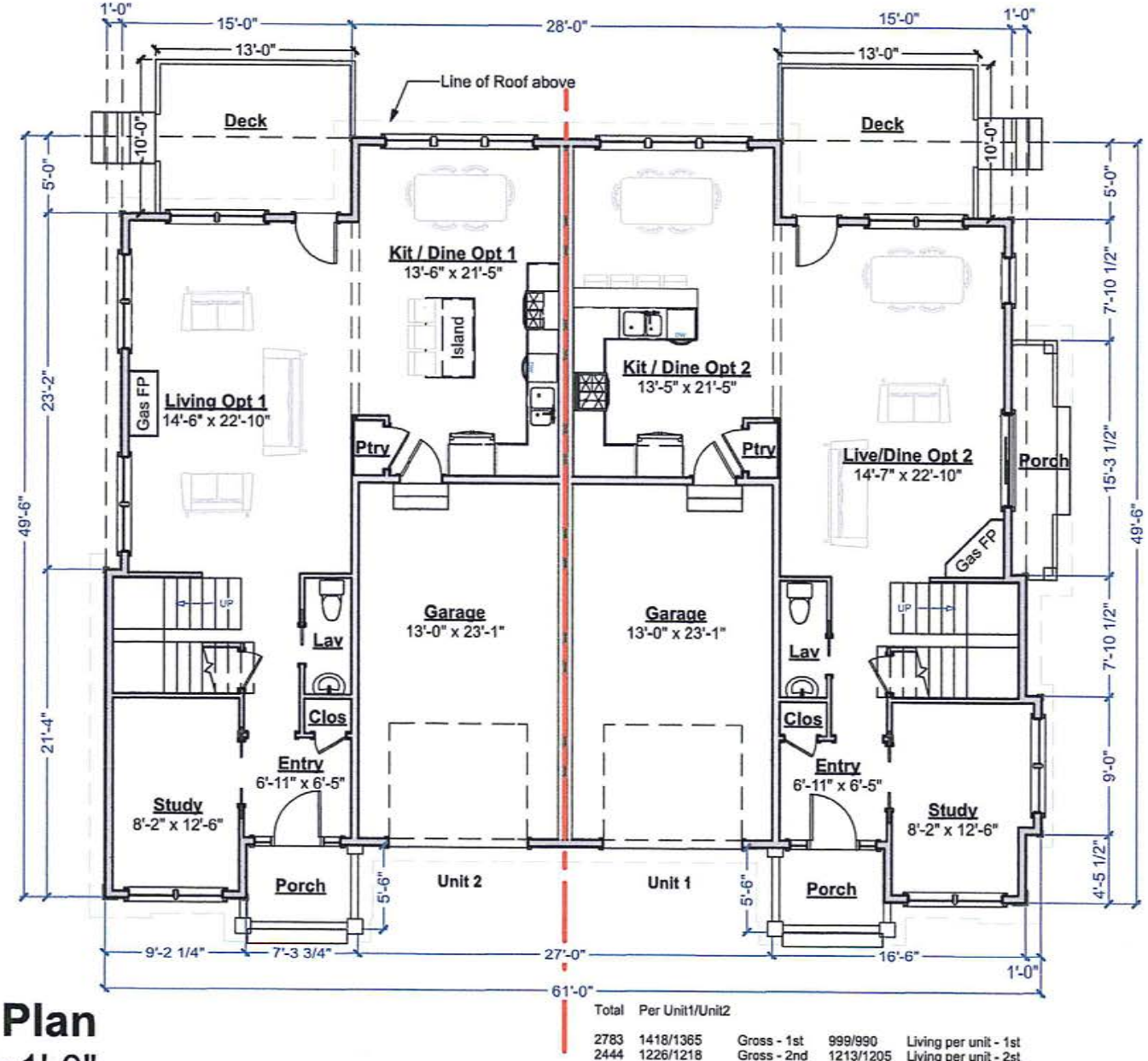
Artform Home Plans
603-431-9559

Bldg A Units 1-2 Lincoln St

858.224

2/26/2018

Artform Home Plans
603-431-9559



Total	Per Unit1/Unit2			
2783	1418/1365	Gross - 1st	999/990	Living per unit - 1st
2444	1226/1218	Gross - 2nd	1213/1205	Living per unit - 2st
5227	2644/2583	Gross - total	2212/2195	Living per unit - Total

First Floor Plan

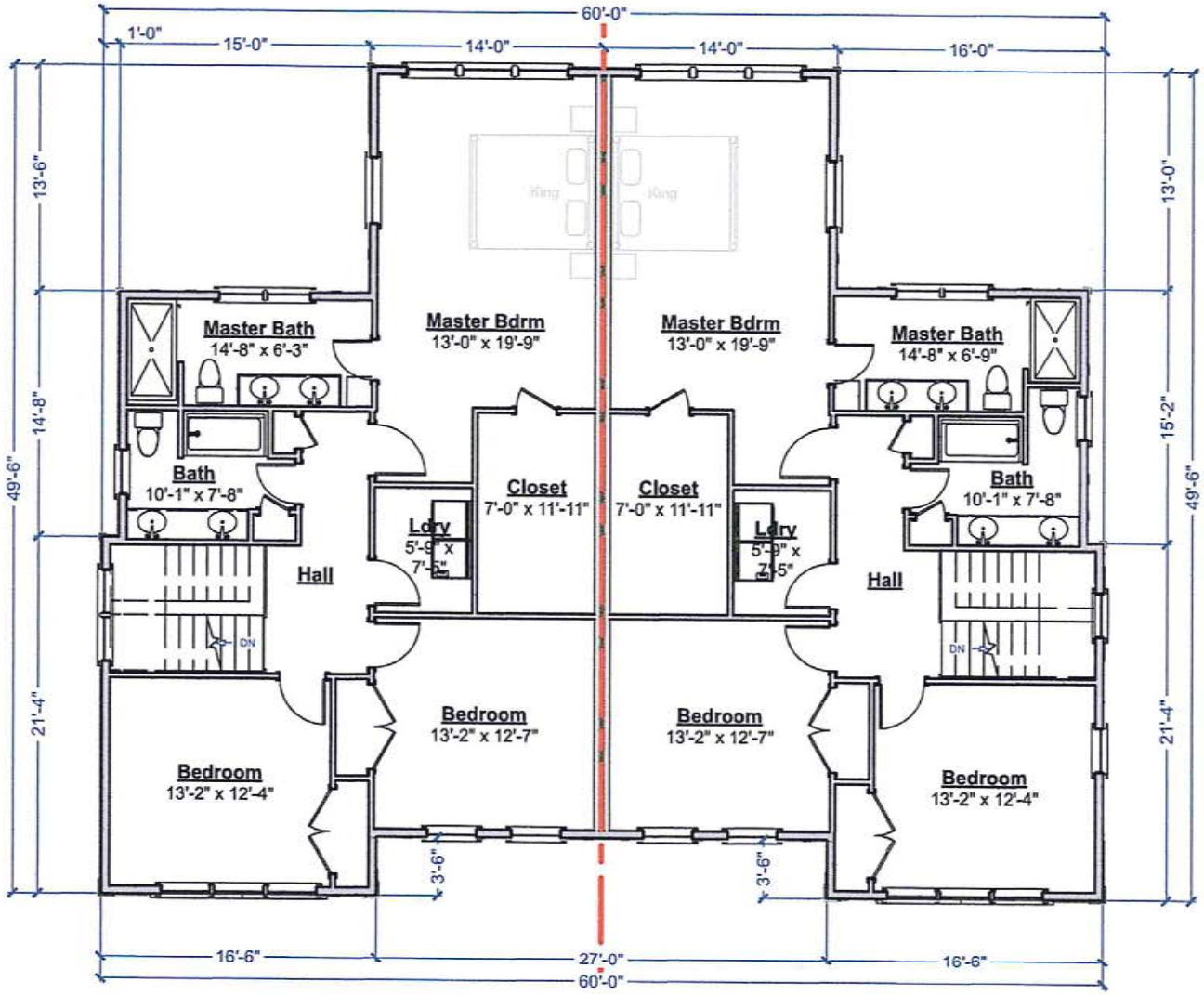
Scale: 3/32" = 1'-0"

Bldg A Units 1-2 Lincoln St

858.224

2/26/2018

Artform Home Plans
603-431-9559



Second Floor Plan

Scale: 3/32" = 1'-0"

Bldg A Units 1-2 Lincoln St

858.224

2/26/2018

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Front Elevation

Scale: 1/8" = 1'-0"

Bldg A Units 1-2 Lincoln St

858.224

2/26/2018

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Right Elevation

Scale: 1/8" = 1'-0"

Bldg A Units 1-2 Lincoln St

858.224

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Artform Home Plans
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Rear Elevation

Scale: 1/8" = 1'-0"

Bldg A Units 1-2 Lincoln St

858.224

2/26/2018

Artform Home Plans
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Left Elevation

Scale: 1/8" = 1'-0"

Bldg B Unit 3-4 Lincoln St

858.224

2/23/2018

Artform Home Plans

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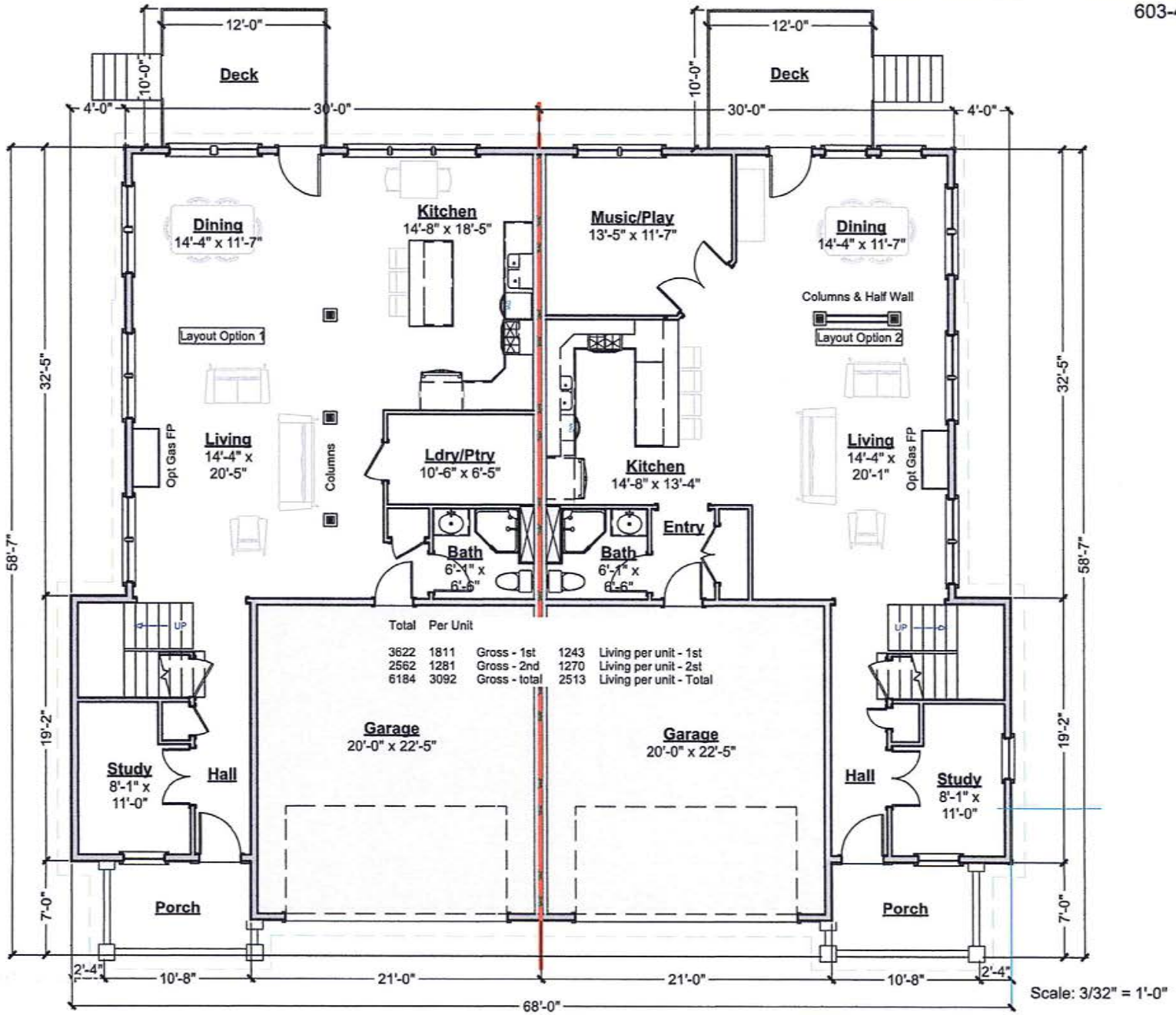

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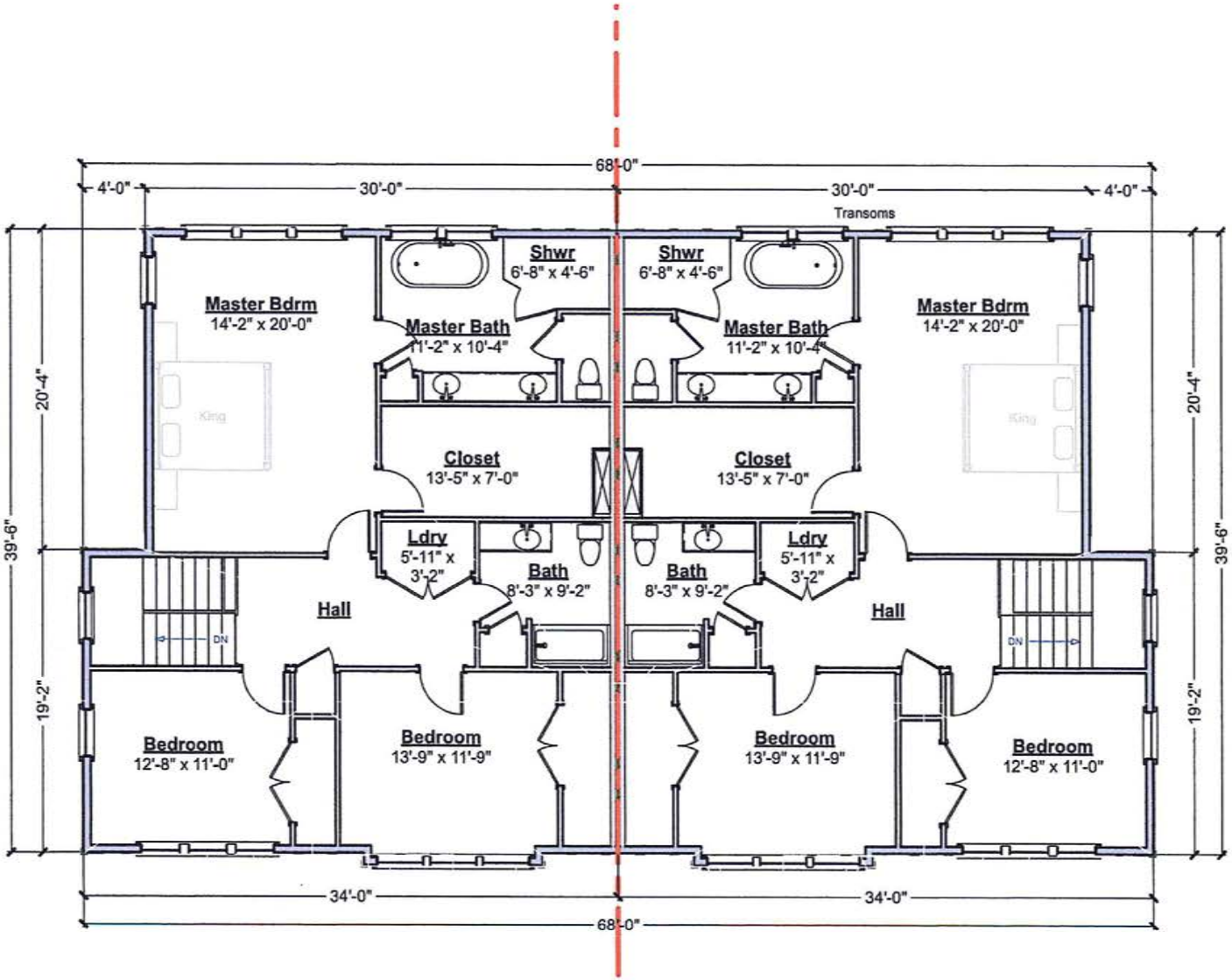

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Bldg B Unit 3-4 Lincoln St

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Bldg B Unit 3-4 Lincoln St

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Artform Home Plans

603-431-9559

Bldg C Units 5-6 Lincoln St

858.224

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Bldg C Units 5-6 Lincoln St

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2/23/2018

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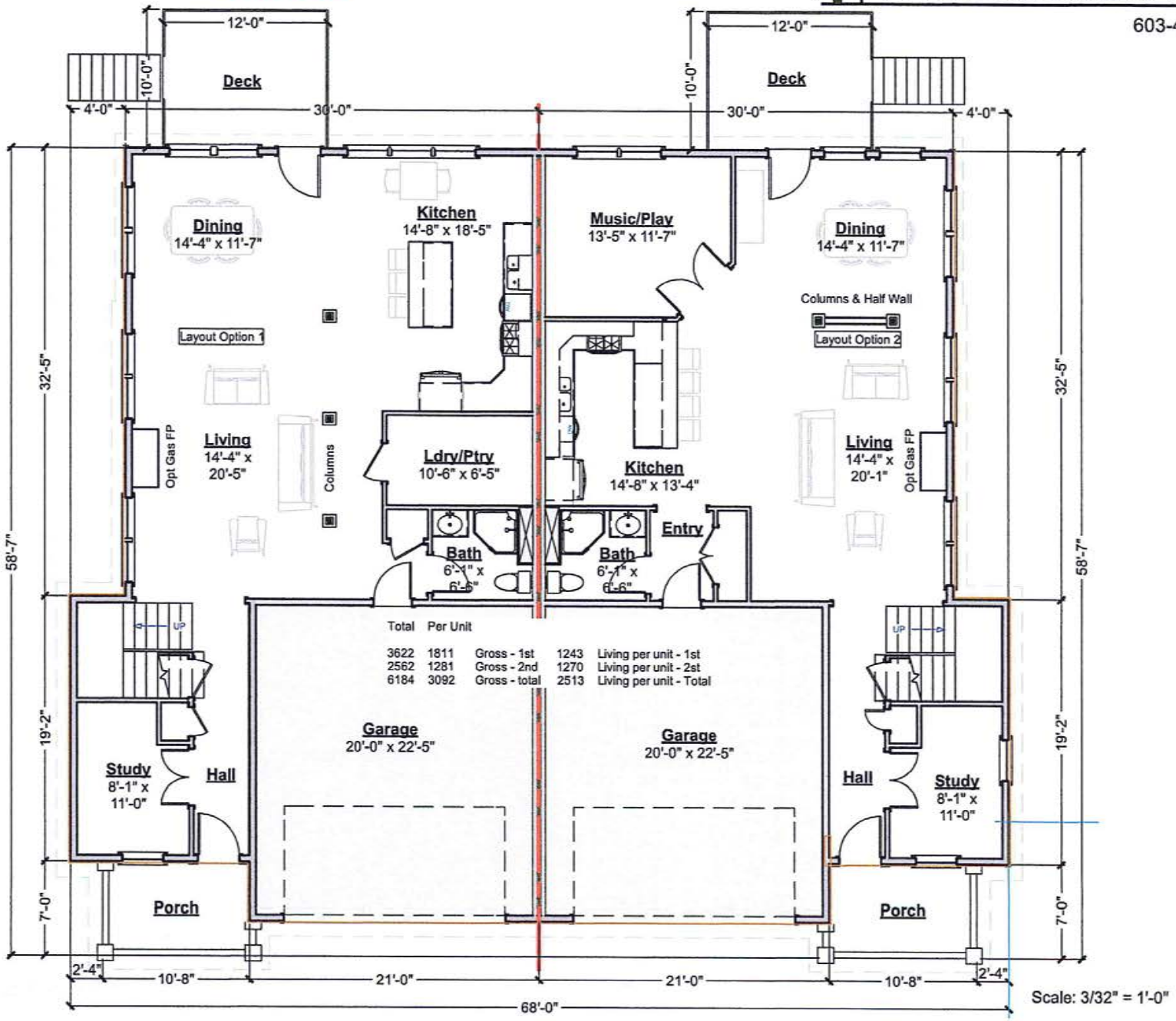

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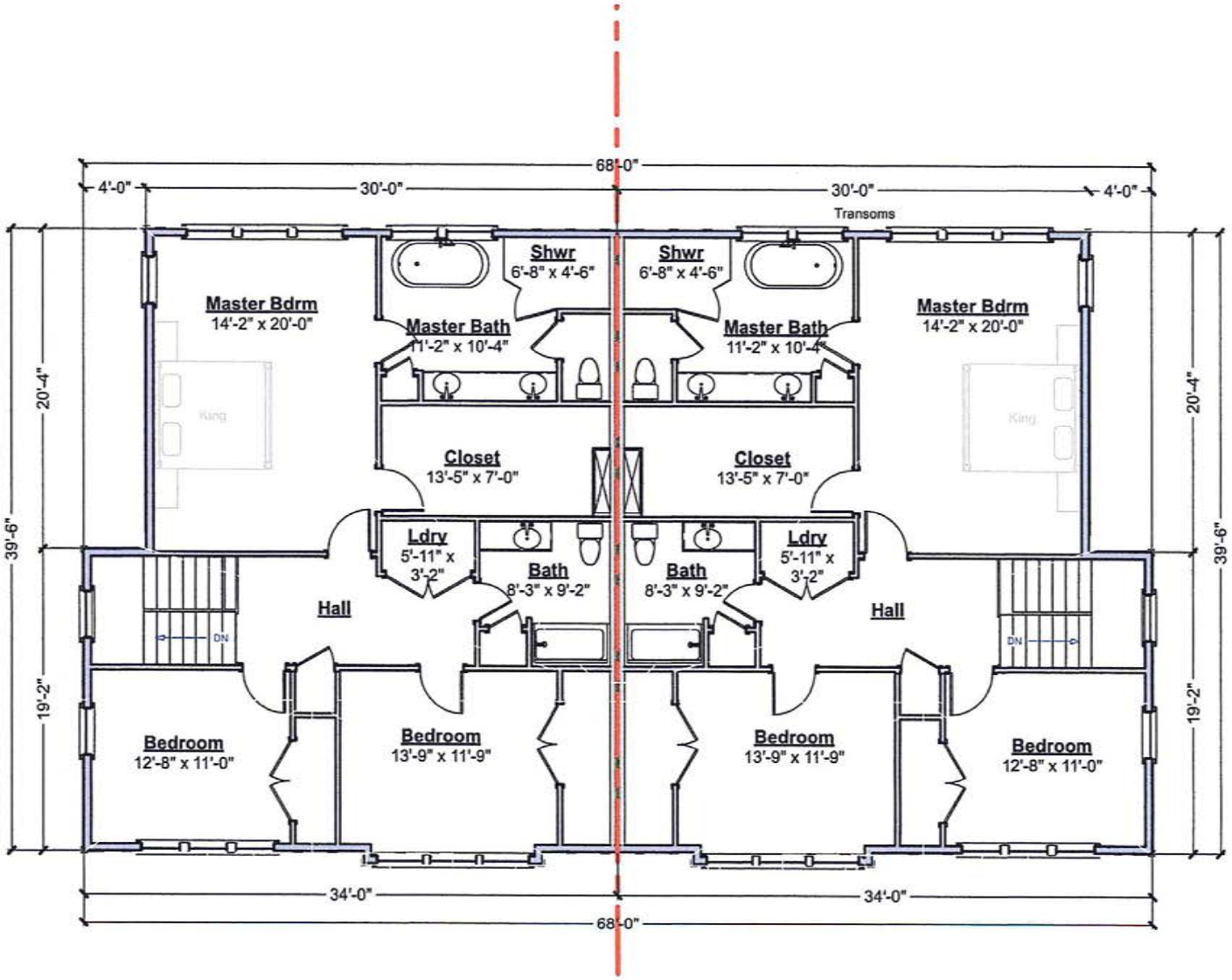

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2/23/2018

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Bldg D Units 7-8 Lincoln St

857.224

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Artform Home Plans

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Bldg D Units 7-8 Lincoln St

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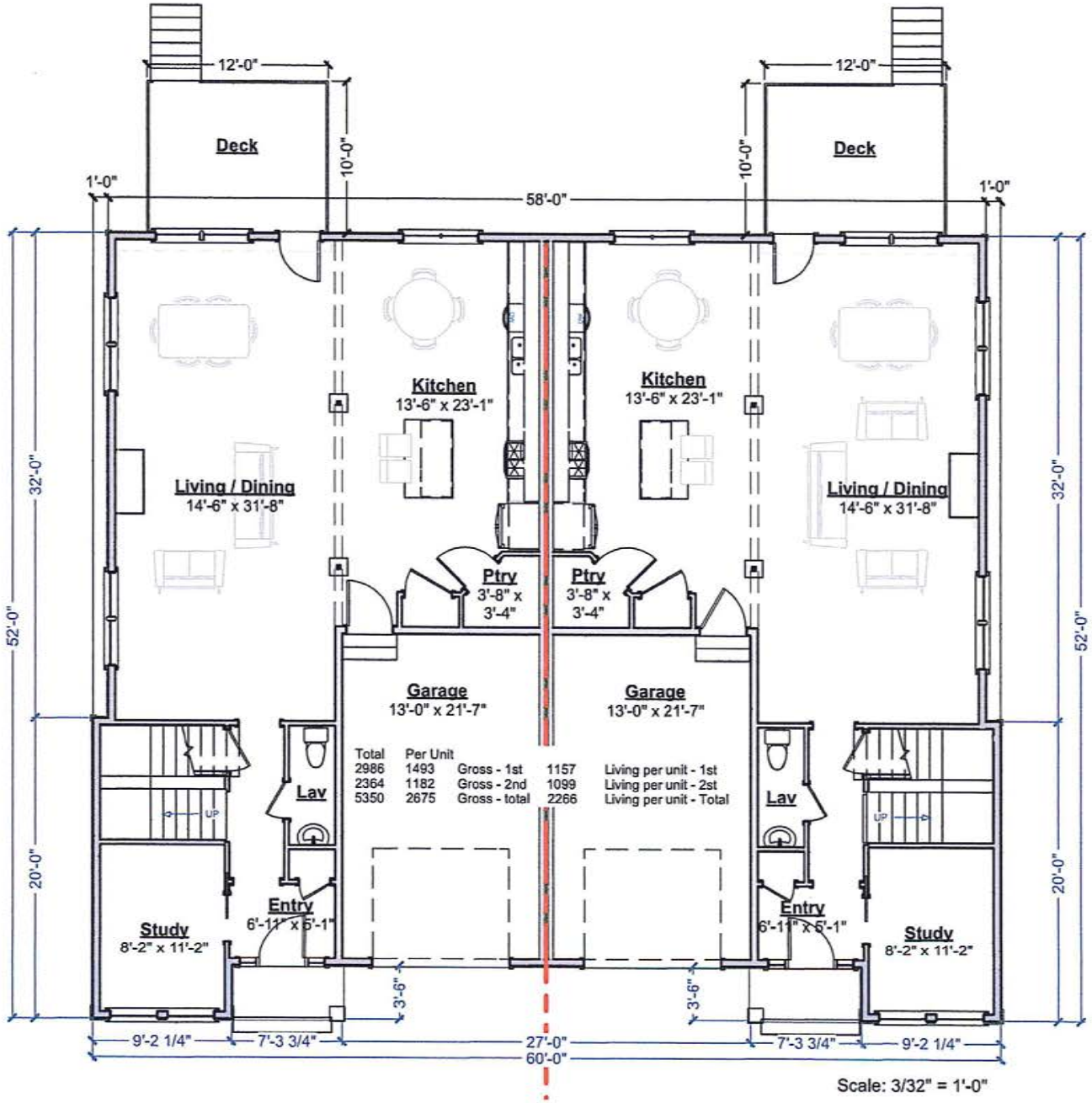

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Bldg D Units 7-8 Lincoln St

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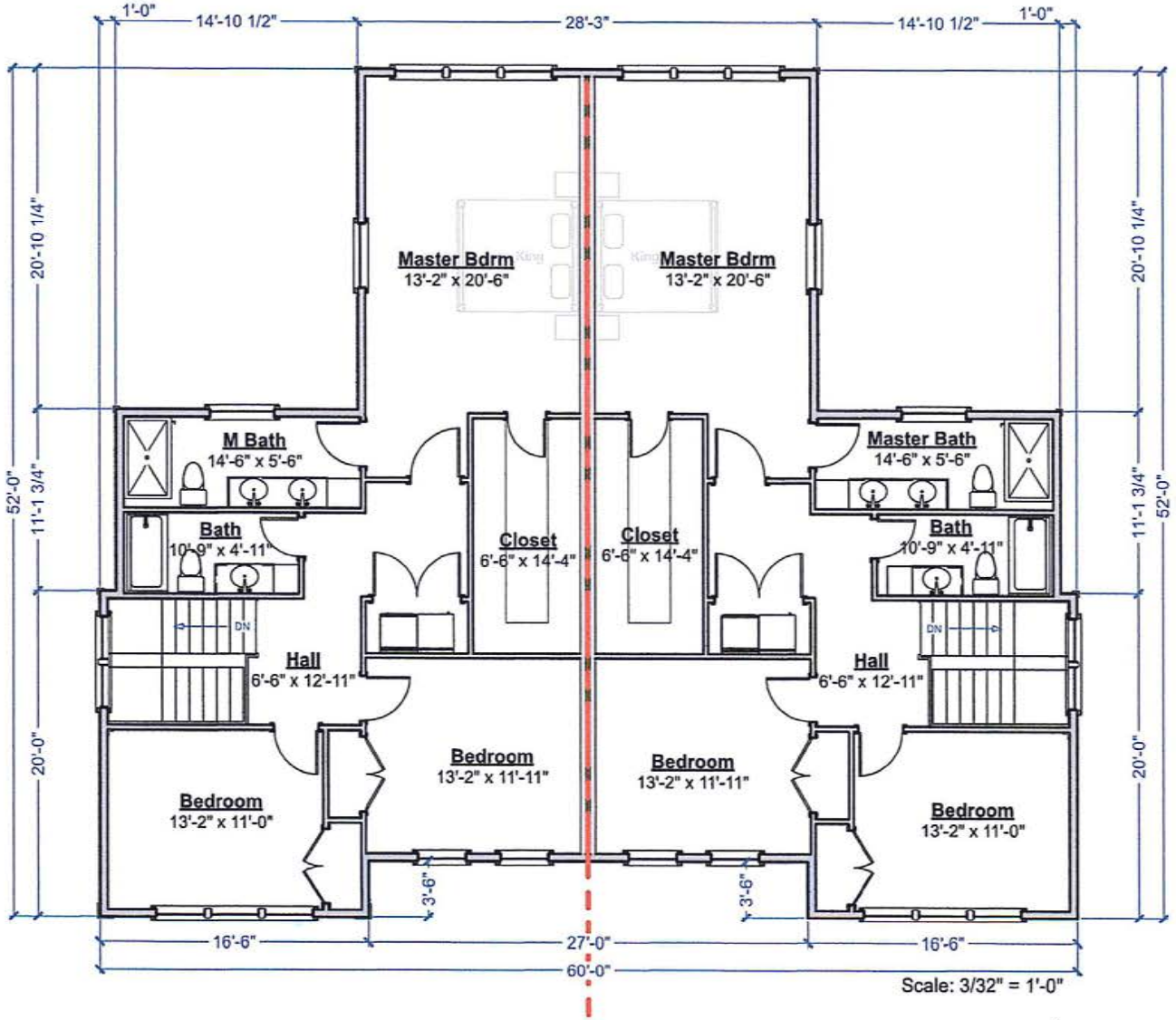

Bldg D Units 7-8 Lincoln St

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2/23/2018

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Bldg D Units 7-8 Lincoln St

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HOMES AT HOBBS BROOK
LANDSCAPE MAINTENANCE PLAN

General

The Condominium Association (CA) shall be responsible for the maintenance of all landscaped open space, natural screens, and constructed screens within the property. Landscaping shall be maintained in good condition such that planting shall be vigorous and in good health at all times and that the parcel shall present a healthy, neat, and orderly appearance, free from refuse and debris.

Integrated Turf Management Plan

Maintenance of lawn areas shall generally consist of watering, weeding, mowing and edging, replacement of dead sod, disease and insect control, repair of erosion, and any and all procedures consistent with good horticultural practice, as necessary to insure normal, vigorous and healthy growth of grass,

The CA shall provide the following maintenance activities as specified:

1. Mowing: Once a week or more often as conditions warrant.
2. Watering: by natural rainfall after establishment period. Seed to be kept moist during establishment period.
3. Fertilizing: Early spring and fall.
4. Weeding: Once or twice a year.
5. Pest and Disease Control: Only as needed
6. De-thatching: spring and fall.
7. Liming: Once a year, in the fall and as soil tests indicate need.
8. Raking, edging, debris removal, sod replacement, erosion repair: As needed.
9. Soil testing shall be performed once every 3 years or more frequent if conditions warrant. Soil shall be amended as indicated by test for turf grass.
10. Lawns shall be aerated annually during late summer or early fall. Thinning lawns shall be over-seeded with a certified general turf blended seed mix and top-dressed with a compost/sand mixture ¼-1/2" in the late summer and early fall.

22 Carlton Road Marblehead, MA 01945 tel.(781) 622-7487 fax (781) 623-0293
james@jamesemmanuel.com www.jamesemmanuel.com

11. Soil and seed shall be kept moist during seed establishment period. Late summer/early fall application of seed is preferable.

12. Turf fertilizer (slow release) shall be applied mid to late fall according to recommended rates in coordination with Cambridge Water Dept. / Reservoir guidelines.

13. Weeds shall be mechanically removed from the site as feasible and disposed of in a legal manner.

14. Grass clippings shall be left on turf areas using mulching mowers. Mowing patterns shall be alternated to avoid ruts and compaction. Care shall be taken to avoid damage to lawn areas.

Shrub and Groundcover Management

The CA shall provide the following shrub and maintenance activities as specified:

1. Mulching: Once each year in spring. Mulch shall be 2"-3" maximum depth and shall always be kept pulled 2"-3" away from tree trunk. Mulch shall be shredded bark, 100% organic and be free of any disease, pests, and insects. Mulch may be applied by manual or mechanical methods where appropriate.

2. Weeding: Once or twice a year as needed. Weeds shall be removed and disposed of off site in a legal manner.

3. Watering: weekly minimum during the establishment period. Long term watering typically only warranted by severe weather conditions.

4. Pruning: To include cleaning, raising and reduction, spring to fall, dependent on accepted practice for each particular species.

5. Preventative pest/disease management: Avoid shrubs and groundcover known to be susceptible to various pests. Establish pest thresholds prior to treatment with acceptable pesticides. Pesticide application to be performed by certified applicator. See tree pest management below.

6. Fertilizer shall be phosphorus free.

7. Once established, plantings shall be watered by natural rainfall. During excessive drought periods watering by hand or drip irrigation bags may be required.

8. Shrubs shall be pruned in accordance with generally accepted standards for proper pruning. Shrubs shall be pruned to remove branches that are dead, broken, extending beyond the face of curbs (where applicable). Shrubs shall not be sheared into topiary shapes.

9. Known invasive plants shall be identified, removed from site as practicable, and disposed of in a legal manner.

Tree Management

The CA shall provide the following tree maintenance activities as specified:

1. Risk Management: this includes management of existing trees to minimize risk of tree failure and possible damage or injury. This includes:

   - Removal of trees that show significant decline or serious defects in their structure.
   - Hazard pruning to remove a dead or broken portion of the tree.

2. Pruning: These include three different types of pruning as defined by the American National Standard for Tree Operations: Tree, Shrub and Other Woody Plant Maintenance - Standard Practices.

   - Crown Cleaning - selective pruning to remove one or more of the following parts: dead, diseased, and/or broken branches
   - Crown Raising - selective pruning to provide vertical clearance
   - Crown Reduction - selective pruning to decrease height and/or spread

3. Mulching: Once each year In spring. Mulch shall be 2"-3" maximum depth and shall always be kept pulled 2"-3" away form tree trunk. Mulch shall be shredded bark, 100% organic and be free of any disease, pests, and insects. Mulch may be applied by manual or mechanical methods where appropriate.

4. Pest and Disease Control: Only as needed. Dead or diseased branches shall be removed and disposed of off site in a legal manner.

5. Watering: weekly minimum during the establishment period. Long term shall be by natural rainfall. During excessive drought periods watering by hand or drip irrigation bags may be required.

6. Fertilization: early spring or fall. Formulation shall depend on soil test recommendations and plant variety. Granular type fertilizer to be used and watered in.

7. Soil additives: Only as needed.

8. Root crown excavation: This is required where excessive soil or mulch has been placed over the base of the tree.

9. Only trees on slopes 2:1 or greater shall be staked. Stakes shall be removed after first growing season.

10. Preventative pest/disease management: Avoid trees known to be susceptible to various pests. Establish acceptable pest thresholds. Once monitoring, identification, and action thresholds indicate that pest control is required, and preventive methods are no longer effective or available, evaluate the proper control method both for effectiveness and risk. Effective, less risky pest controls are chosen first, including highly targeted chemicals, such as pheromones

to disrupt pest mating, or mechanical control, such as trapping or weeding. If further monitoring, identifications and action thresholds indicate that less risky controls are not working, then additional pest control methods would be employed, such as targeted spraying of pesticides. Broadcast spraying of non-specific pesticides is a last resort. Pesticides, if required, to be applied by a certified applicator.

11. Replacement Trees: CA shall replace dead or missing trees according to the following:

    - Lost, dead or diseased trees shall be replaced with the same or similar species.
    - New trees shall be 3" in caliper for shade trees and to 2" in caliper for ornamental trees.

Watering during establishment period

Water source shall consist of local water supply systems. At a minimum trees and shrubs shall be watered by flooding as follows:
Month 0-3: Once per week
Month 3-6: Twice per month
Month 6-12: Once per month.

Watering frequency may be increased or decreased depending upon excessive rainfall or drought conditions.

Seasonal Maintenance

The CA shall maintain a plan for seasonal activities including raking, de thatching, removal of dead brush and flowers, fertilizing, watering, pruning, mowing, weeding, etc. for each of the following:

1. Spring Clean-up Plan

2. Fall Clean-up Plan

3. Leaf & Plant Debris Disposal

4. Winter Plowing: Prior to the start of each winter season, curb lines and planting beds should be stacked out with brightly colored wooden stakes to demarcate edges. Snow storage will be in designated open areas adjacent to parking and walks. During periods of extreme snowfall, portions of the common area may be utilized for storage of snow. Springtime cleanup will typically include repair of any turf damage related to plowing operations.

5. Winter Deicing Plan: Minimize de-icing per Cambridge Water Dept. Guidelines. Mix 80% sand with calcium chloride for deicing.

Stormwater Management Permit Application

For

Homes at Hobbs Brook

443 Lincoln Street
Map 35 Parcel 2
Lexington, MA

February 20, 2018

Stamski And McNary, Inc.
Engineering - Planning – Surveying
1000 Main Street; Acton, MA 01720 (978) 263-8585
www.stamskiandmcnary.com

Applicant:	Symes Development and Permitting, LLC. 50 Dodge Street Beverly, MA 01915
Owner:	The Gertrude M. Piantedosi Trust 443 Lincoln Street Lexington, MA 02421

SM-5676

File: 5676 SW Report Cover & TOC.doc

Table of Contents

Narrative

Stormwater Management

The proposed project is for an 8 unit Balanced Housing Development at 443 Lincoln Street.

Pre Development

The existing site is approximately 4.13 ac and contains an existing dwelling and mechanics shop, a land use with higher potential pollutant loads, with associated gravel drive and paved areas. An existing cleared utility easement is present on the property. The site has been divided into 3 subcatchments as shown on the attached drainage map.

Subcatchment E-1 contains a portion of the existing dwelling, associated concrete patios, lawn, and brush vegetative cover within the utility easement. Subcatchment E-2 contains the existing mechanics shop, gravel drive, and some paved area; the vegetative cover is lawn and brush within the majority of the utility easement. Subcatchment E-3 is located on the western portion of the lot and is comprised of brush vegetative cover.

Post Development

The proposed work is to remove the existing dwelling, service shop, and appurtenances and construct a cluster development containing 4 two-family dwellings. The proposed subcatchments are shown on the attached drainage map.

Subcatchment P-1 is located along the south side of the lot along the Lincoln Street right-of-way (ROW); the subcatchment compares to Subcatchment E-1. The subcatchment is entirely vegetated with brush and lawn. The subcatchment will be allowed to drain to the Lincoln Street ROW.

Subcatchment P-2A consists of the entirety of the paved area and area surrounding the proposed dwellings, up to the eastern lot line. Paved surface runoff will be captured by three catch basins and diverted to an infiltration basin containing a sediment forebay on the North side of the property.

Subcatchment P-2B comprises the largest portion of the site. The subcatchment surface area will be primarily brush with a smaller portion of grass cover. Runoff from the subcatchment will discharge to Hobbs Brook beyond the Northern property line, similarly to existing conditions within Subcatchment E-2.

Subcatchment P-3 is comprised of a small portion of the site along the Western lot line. This subcatchment is identical to Subcatchment E-3. No permanent disturbance is proposed within this subcatchment.

In accordance with the Town of Lexington Regulations, Chapter 181-73.A, Standards 1 through 10 of the Massachusetts Department of Environmental Protection Stormwater Management Standards have been met. In addition, the system design will not result in a

serious flood hazard during the 100-year storm event. The peak runoff rates have been summarized in the following tables.

Compliance with MA DEP Stormwater Management Standards

Compliance with the Stormwater Management Standards is as follows:

Standard 1: No Untreated Discharges
No untreated discharges to wetlands are proposed. Additional runoff from the site is to be treated with a sediment forebay and infiltrated in an infiltration basin. Roof runoff will be treated by roof drywells. Additional pervious paver areas are proposed for select parking spaces.

Standard 2: Peak Rate Attenuation
The Post-Development peak discharge rates must not be increased from pre-development rates for the 1-year, 2-year, 10-year, and 100-year storm events. Also, offsite flood impact from the 100-year storm must not be increased. With a combination of infiltration and detention, the peak runoff rate and volume have been decreased. The peak runoff rates have been summarized in the following tables.

Discharge Summary Tables

Total Runoff – Subcatchment 1

1-year Storm		2-year Storm		10-year Storm		100-year Storm	
Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
0.000	0.000	0.000	0.000	0.001	0.001	0.016	0.014

Total Runoff – Subcatchment 2

1-year Storm		2-year Storm		10-year Storm		100-year Storm	
Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
0.000	0.000	0.000	0.000	0.018	0.003	0.284	0.054

Total Runoff – Subcatchment 3

1-year Storm		2-year Storm		10-year Storm		100-year Storm	
Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.005

Standard 3: Stormwater Recharge
The infiltration structures have been sized to infiltrate the required recharge volume resulting from the increase in impervious area on the site as specified in the Massachusetts Stormwater Handbook. The "Simple Dynamic" method was used in sizing the required storage volume to infiltrate the recharging runoff. Calculations were performed to insure drawdown within 72 hours to provide storage for the next storm event. Detailed calculations showing compliance with Standard 3 have been attached to this report.

Standard 4: Water Quality
The required water quality volume for this project is 1" of runoff over the impervious area for the infiltration. This volume will be treated to meet the 80% TSS removal requirement of Standard 4. The area treated is greater than the amount of increased impervious surface on the site. Calculations showing treatment levels are attached.

Standard 5: Land Uses with Higher Potential Pollutant Loads
The site proposed will not contain "land uses with higher potential pollutant loads." The project will remove the land uses with higher pollutant loads.

Standard 6: Critical Areas
The site discharges runoff to critical areas associated with the City of Cambridge Reservoir.

Standard 7: Redevelopment
The proposed project is not redevelopment relative to stormwater compliance.

Standard 8: Construction Period Controls
The erosion and sedimentation control measures will be followed in accordance with the requirements of the NPDES Construction General Permit. The project will require coverage under the NPDES Construction General Permit.

Standard 9: Operation and Maintenance Plan
An Operation and Maintenance Plan is included in this report.

Standard 10: Illicit Discharges to Drainage System
An Illicit Discharge Compliance will be provided prior to the discharge of stormwater runoff to the post-construction stormwater BMP's.

Design Basis

1. The United States Department of Agriculture Natural Resource Conservation Service (N.R.C.S.) TR55 methodology was used to determine offsite rates of runoff.
2. The twenty-four hour rainfall, taken from N.R.C.S. publications, is 6.4 inches for the 100-year storm, 4.5 inches for the 10-year storm, and 3.1 inches for the 2-year storm event.
3. The hydrologic calculations were performed using the computer program: "Hydraflow Hydrographs 2007" by Intelisolve.
4. The soil types of the site were taken from the N.R.C.S. Soil Survey Map for Middlesex County.
5. Soil conditions and estimated seasonal high groundwater table were based on on-site soil evaluations.
6. The Natural Resources Conservation Service (N.R.C.S.) soil survey indicated the presences of Scarboro mucky fine sandy loam, Charlton-Hollis-Rock outcrop, Windsor loamy sand, and Deerfield loamy sand. These soil groups rate as Hydrologic Group A, D, B, and B, respectively.

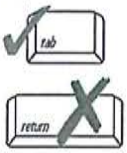
Stormwater Checklist

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

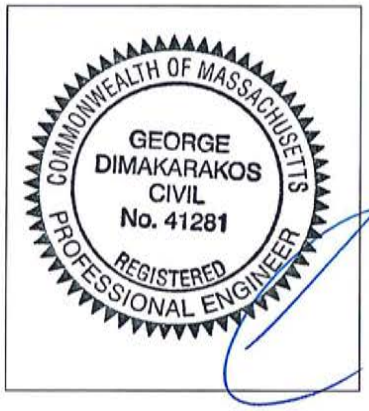
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



2/26/18

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☐ Redevelopment

☒ Mix of New Development and Redevelopment

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☒ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☐ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
  - ☐ Credit 1
  - ☐ Credit 2
  - ☐ Credit 3
- ☐ Use of "country drainage" versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☒ Other (describe): Roof Drywells and Infiltration Basin

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☒ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☒ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☒ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☒ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☒ Simple Dynamic ☐ Dynamic Field[1]

☒ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☒ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

- ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
- ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
- ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
- ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☒ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☒ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☒ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☒ is near or to other critical areas
- ☒ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☒ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☒ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☒ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☒ Critical areas and BMPs are identified in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☐ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☐ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☒ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☒ Name of the stormwater management system owners;
- ☒ Party responsible for operation and maintenance;
- ☒ Schedule for implementation of routine and non-routine maintenance tasks;
- ☒ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☒ Description and delineation of public safety features;
- ☒ Estimated operation and maintenance budget; and
- ☒ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☐ An Illicit Discharge Compliance Statement is attached;

☒ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Pre-Development Hydrology

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. E-1
3	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. E-2
5	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. E-3
7	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. P-1
9	SCS Runoff	0.036	2	748	525	---	-----	-----	Sub. P-2A
10	Reservoir	0.000	2	760	0	9	174.81	23.4	Infil. Basin-1
12	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. P-2B
14	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. P-3
16	SCS Runoff	0.164	2	724	548	---	-----	-----	Dwelling A
17	Reservoir	0.065	2	736	548	16	176.56	67.4	Drywell A
19	SCS Runoff	0.213	2	724	710	---	-----	-----	Dwellings B&C
20	Reservoir	0.082	2	736	710	19	176.59	91.3	Drywells B&C
22	SCS Runoff	0.177	2	724	591	---	-----	-----	Dwelling D
23	Reservoir	0.066	2	736	591	22	176.61	78.9	Drywell D

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. E-1
3	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. E-2
5	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. E-3
7	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. P-1
9	SCS Runoff	0.127	2	740	1,083	---	-----	-----	Sub. P-2A
10	Reservoir	0.000	2	786	0	9	174.83	87.2	Infil. Basin-1
12	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. P-2B
14	SCS Runoff	0.000	2	n/a	0	---	-----	-----	Sub. P-3
16	SCS Runoff	0.197	2	724	664	---	-----	-----	Dwelling A
17	Reservoir	0.068	2	738	664	16	176.71	97.7	Drywell A
19	SCS Runoff	0.255	2	724	859	---	-----	-----	Dwellings B&C
20	Reservoir	0.087	2	738	859	19	0.74	131	Drywells B&C
22	SCS Runoff	0.213	2	724	715	---	-----	-----	Dwelling D
23	Reservoir	0.070	2	740	715	22	176.78	113	Drywell D

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.001	2	1324	9	---	------	------	Sub. E-1
3	SCS Runoff	0.018	2	1324	322	---	------	------	Sub. E-2
5	SCS Runoff	0.000	2	n/a	0	---	------	------	Sub. E-3
7	SCS Runoff	0.001	2	1324	9	---	------	------	Sub. P-1
9	SCS Runoff	0.768	2	728	3,416	---	------	------	Sub. P-2A
10	Reservoir	0.000	2	750	0	9	174.96	444	Infil. Basin-1
12	SCS Runoff	0.003	2	1326	30	---	------	------	Sub. P-2B
14	SCS Runoff	0.000	2	n/a	0	---	------	------	Sub. P-3
16	SCS Runoff	0.288	2	724	987	---	------	------	Dwelling A
17	Reservoir	0.080	2	742	987	16	177.16	193	Drywell A
19	SCS Runoff	0.373	2	724	1,277	---	------	------	Dwellings B&C
20	Reservoir	0.102	2	744	1,277	19	1.21	255	Drywells B&C
22	SCS Runoff	0.311	2	724	1,064	---	------	------	Dwelling D
23	Reservoir	0.083	2	744	1,064	22	177.29	217	Drywell D

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.2

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	SCS Runoff	0.016	2	820	415	----	------	------	Sub. E-1
3	SCS Runoff	0.284	2	744	3,639	----	------	------	Sub. E-2
5	SCS Runoff	0.005	2	902	131	----	------	------	Sub. E-3
7	SCS Runoff	0.014	2	818	373	----	------	------	Sub. P-1
9	SCS Runoff	2.108	2	728	7,847	----	------	------	Sub. P-2A
10	Reservoir	0.000	2	722	0	9	175.39	1,864	Infil. Basin-1
12	SCS Runoff	0.054	2	822	1,405	----	------	------	Sub. P-2B
14	SCS Runoff	0.005	2	902	131	----	------	------	Sub. P-3
16	SCS Runoff	0.411	2	724	1,426	----	------	------	Dwelling A
17	Reservoir	0.100	2	746	1,426	16	178.01	328	Drywell A
19	SCS Runoff	0.532	2	724	1,845	----	------	------	Dwellings B&C
20	Reservoir	0.132	2	744	1,845	19	2.12	428	Drywells B&C
22	SCS Runoff	0.443	2	724	1,537	----	------	------	Dwelling D
23	Reservoir	0.108	2	746	1,537	22	178.33	362	Drywell D

Worksheet 2: Runoff curve number and runoff SM-5676

Project: 443 Lincoln St By PFK Date 1/12/18

Location: Lexington, MA Checked _____ Date _____

Circle one: Present | Developed Subcatchment E-1

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)			CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive		0	98			0.00	0.00
-	Impervious - Building		0	98			0.00	0.00
A	Woods and Brush	Good Condition	18,788	30			0.43	12.94
A	Open Space	Good Condition	6,605	39			0.15	5.91
							Totals = 0.58	18.85

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{18.85}{0.58} = 32.34$; Use CN = 32.3

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr	2	10	100
Rainfall, P (24-hour)	in	3.1	4.5	6.4
Runoff, Q (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)	in	0.06	0.00	0.21
Runoff, Q	cf	125	10	449

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 4: Time of Concentration (Tc) or travel time (Tt) SM-5676

Project: 443 Lincoln St By PFK Date 1/9/2018

Location: Lexington, MA Checked _____ Date _____

Circle one: Present Developed Subcatchment E-1
Circle one: Tc Tt through subarea _____

Time of Concentration 2

Sheet flow (Applicable to Tc only)		Segment ID	A-B			
1. Surface Description (table 3-1)			grass			
2. Mannings roughness coeff., n (table 3-1)			0.4			
3. Flow length, L (total L <= 300 ft)		ft	50			
4. Two-yr 24-hr rainfall, P2		in	3.1			
5. Land Slope, s		ft/ft	0.14			
6. Tt = 0.007 (nL)^0.8 / (P2^0.5 s^0.4)	Compute Tt	hr	0.10			0.10
Shallow concentrated Flow		Segment ID	B-C			
7. Surface Description (paved or unpaved)			UNPAVED			
8. Flow Length, L		ft	25			
9. Watercourse slope, s		ft/ft	0.07			
10. Average Velocity, V (figure 3-1)		ft/s	4.27			
11. Tt = L / 3600V	Compute Tt	hr	0.00			0.00
Channel flow		Segment ID				
12. Cross sectional flow area, a		sf				
13. Wetted perimeter, pw		ft				
14. Hydraulic radius, r=a/wp	Compute r	ft				
15. Channel Slope, s		ft/ft				
16. Manning's roughness coeff., n						
17. V = 1.49 r^2/3 s^1/2 / n	Compute V	ft/s				
18. Flow length, L		ft				
19. Tt = L / 3600V	Compute Tt	hr				0

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.10
min 6.0

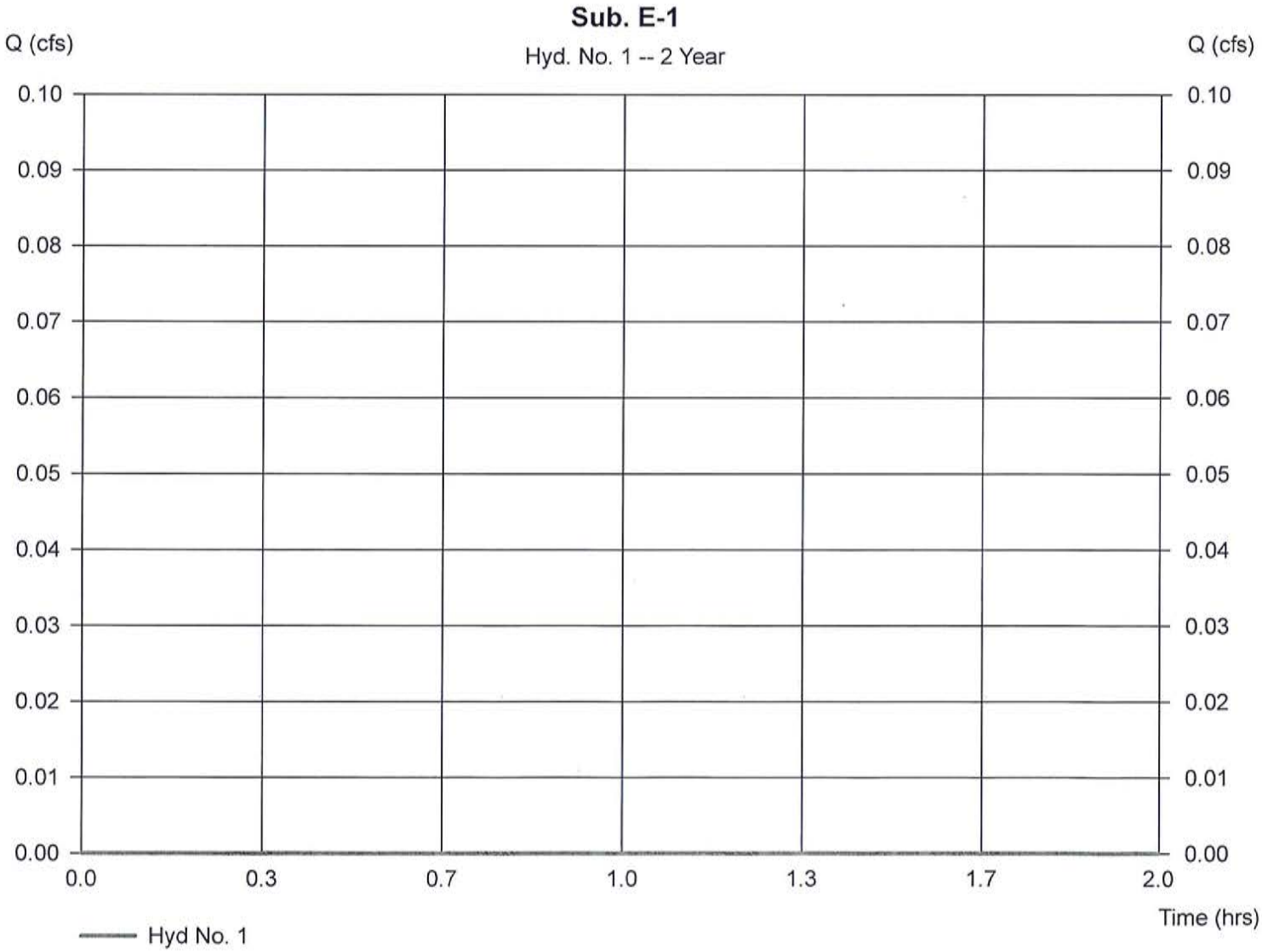
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 1

Sub. E-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 0.580 ac	Curve number	= 32.3
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



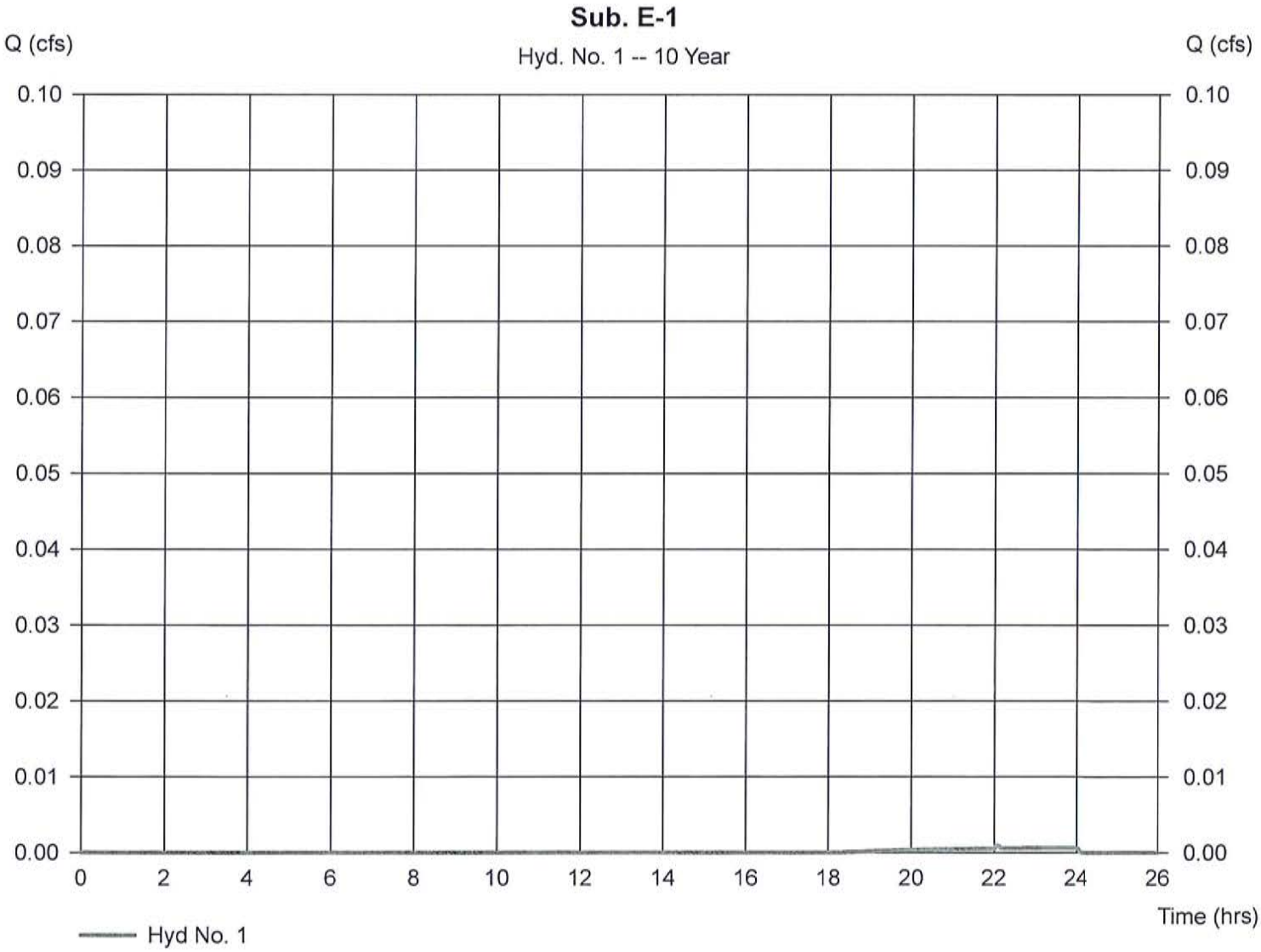
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 1

Sub. E-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.001 cfs
Storm frequency	= 10 yrs	Time to peak	= 22.07 hrs
Time interval	= 2 min	Hyd. volume	= 9 cuft
Drainage area	= 0.580 ac	Curve number	= 32.3
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



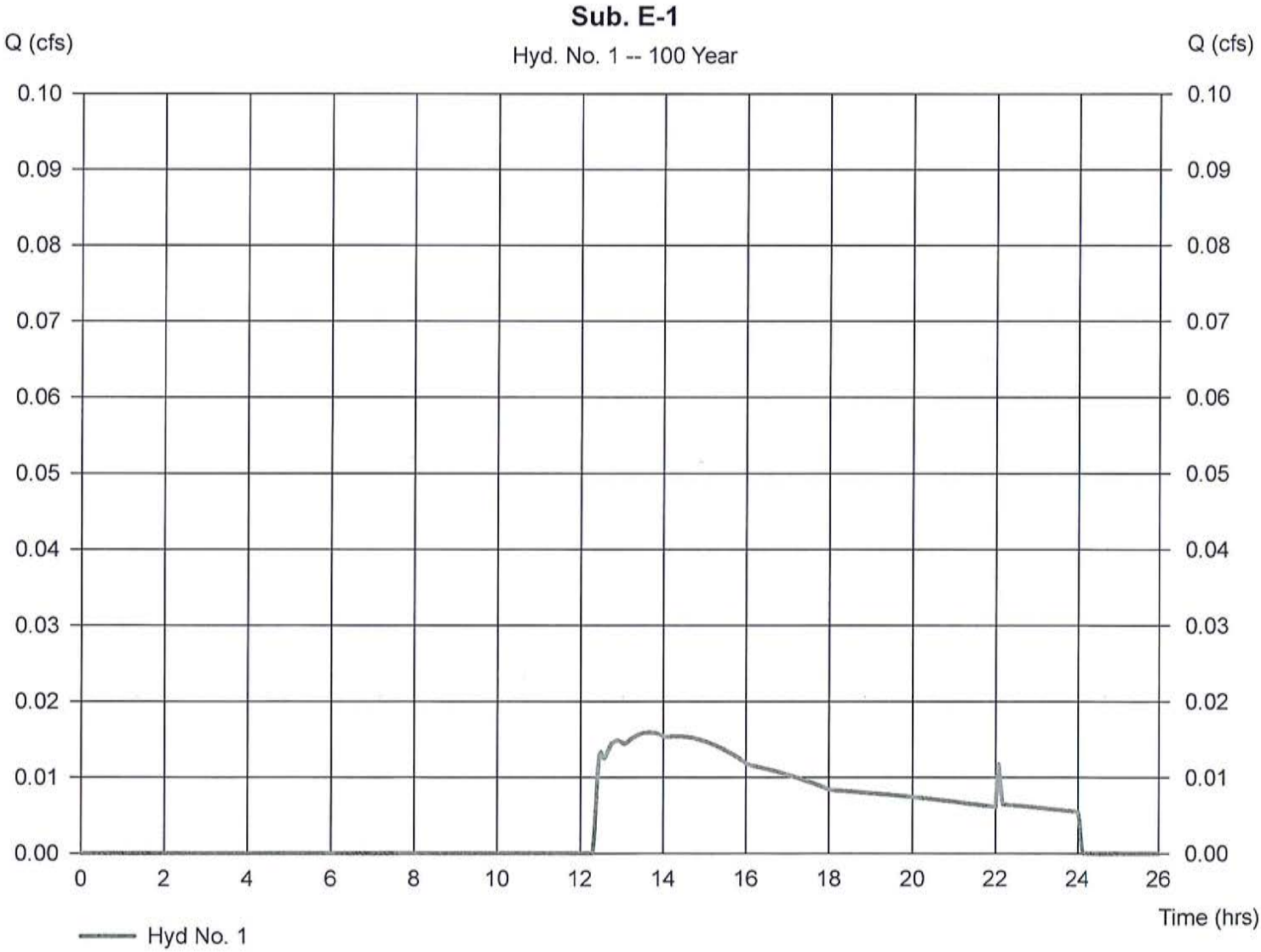
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 1

Sub. E-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.016 cfs
Storm frequency	= 100 yrs	Time to peak	= 13.67 hrs
Time interval	= 2 min	Hyd. volume	= 415 cuft
Drainage area	= 0.580 ac	Curve number	= 32.3
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Worksheet 2: Runoff curve number and runoff SM-5676

Project: 443 Lincoln St By PFK Date 1/29/18

Location: Lexington, MA Checked _____ Date _____

Circle one: [Present] Developed Subcatchment E-2

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)			CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive		0	98			0.00	0.00
-	Impervious - Building		0	98			0.00	0.00
A	Woods and Brush	Good Condition	66,692	30			1.53	45.93
A	Open Space	Good Condition	74,690	39			1.71	66.87
						Totals =	3.25	112.80

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{112.80}{3.25} = 34.75$; Use CN = 34.8

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr	2	10	100
Rainfall, P (24-hour)	in	3.1	4.5	6.4
Runoff, Q (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)	in	0.02	0.03	0.33
Runoff, Q	cf	279	335	3849

D-2 (210-VI-TR-55, Second Ed., June 1986)

Worksheet 4: Time of Concentration (Tc) or travel time (Tt) **SM-5676**

Project: 443 Lincoln St By PFK Date 1/9/2018

Location: Lexington, MA Checked _____ Date _____

Circle one: Present / Developed
Circle one: Tc / Tt through subarea: Subcatchment E-2

Time of Concentration 2

Sheet flow (Applicable to Tc only)		Segment ID	A-B			
1. Surface Description (table 3-1)			grass			
2. Mannings roughness coeff., n (table 3-1)			0.4			
3. Flow length, L (total L <= 300 ft)		ft	50			
4. Two-yr 24-hr rainfall, P2		in	3.1			
5. Land Slope, s		ft/ft				
6. Tt = 0.007 (nL)^0.8 / (P2^0.5 s^0.4)	Compute Tt	hr				0.00
Shallow concentrated Flow		Segment ID	B-C			
7. Surface Description (paved or unpaved)			UNPAVED			
8. Flow Length, L		ft	35.28			
9. Watercourse slope, s		ft/ft	0.11			
10. Average Velocity, V (figure 3-1)		ft/s	5.35			
11. Tt = L / 3600V	Compute Tt	hr	0.00			0.00
Channel flow		Segment ID				
12. Cross sectional flow area, a		sf				
13. Wetted perimeter, pw		ft				
14. Hydraulic radius, r=a/wp	Compute r	ft				
15. Channel Slope, s		ft/ft				
16. Manning's roughness coeff., n						
17. V = 1.49 r^2/3 s^1/2 / n	Compute V	ft/s				
18. Flow length, L		ft				
19. Tt = L / 3600V	Compute Tt	hr				0

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.00
min 6.0

(210-VI-TR-55, Second Ed., June 1986) D-3

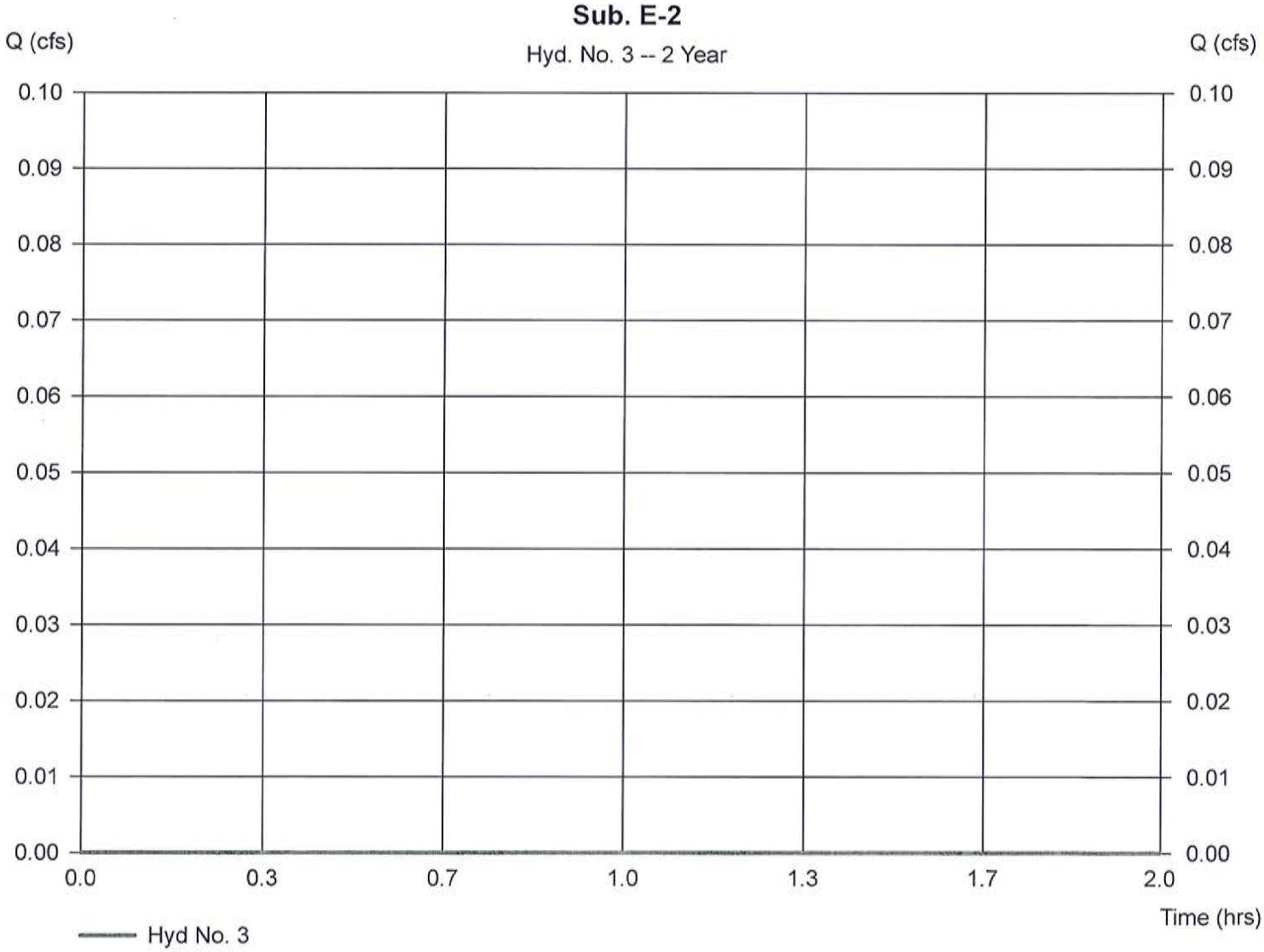
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 3

Sub. E-2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 3.250 ac	Curve number	= 34.8
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



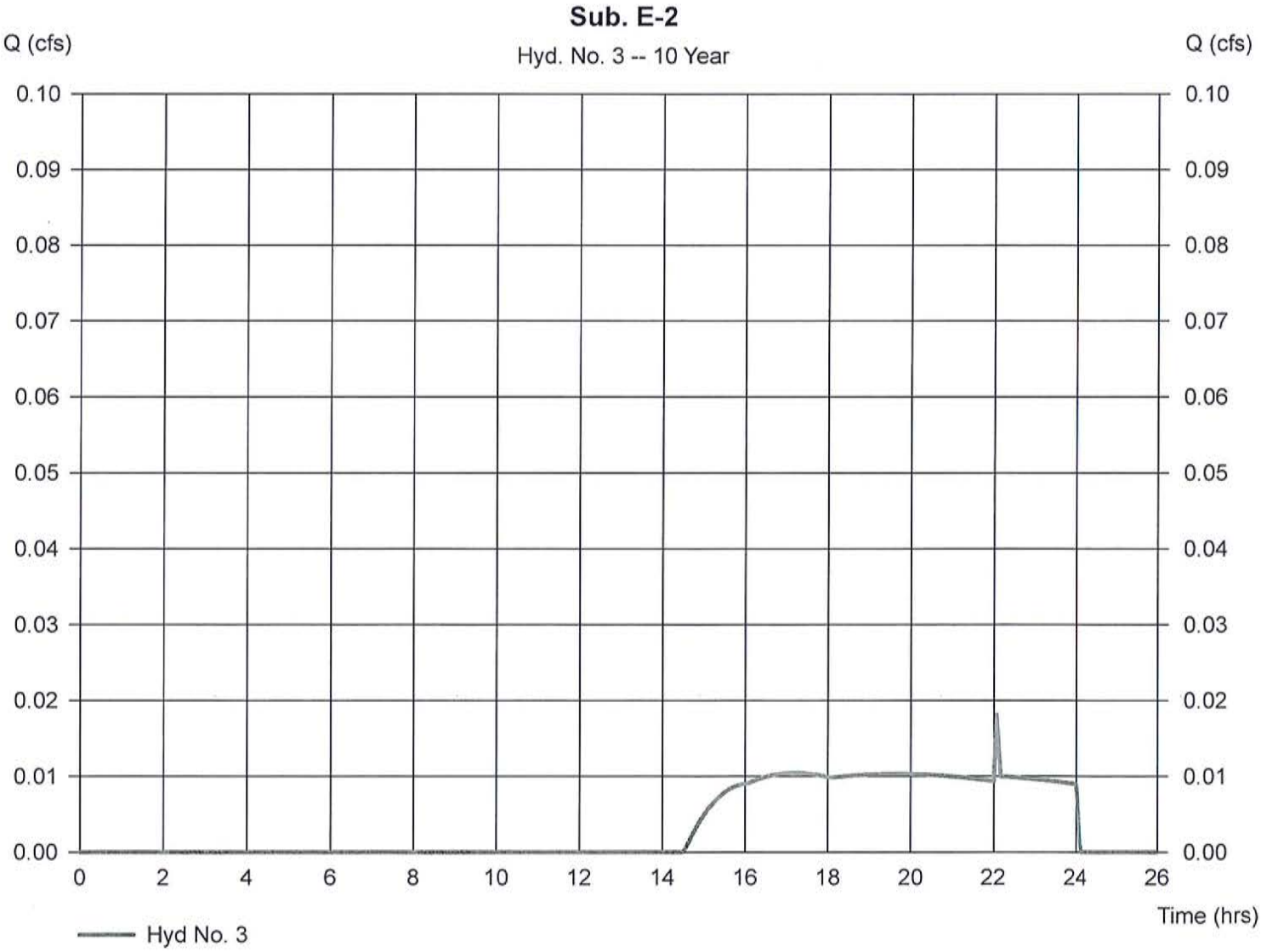
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 3

Sub. E-2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.018 cfs
Storm frequency	= 10 yrs	Time to peak	= 22.07 hrs
Time interval	= 2 min	Hyd. volume	= 322 cuft
Drainage area	= 3.250 ac	Curve number	= 34.8
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



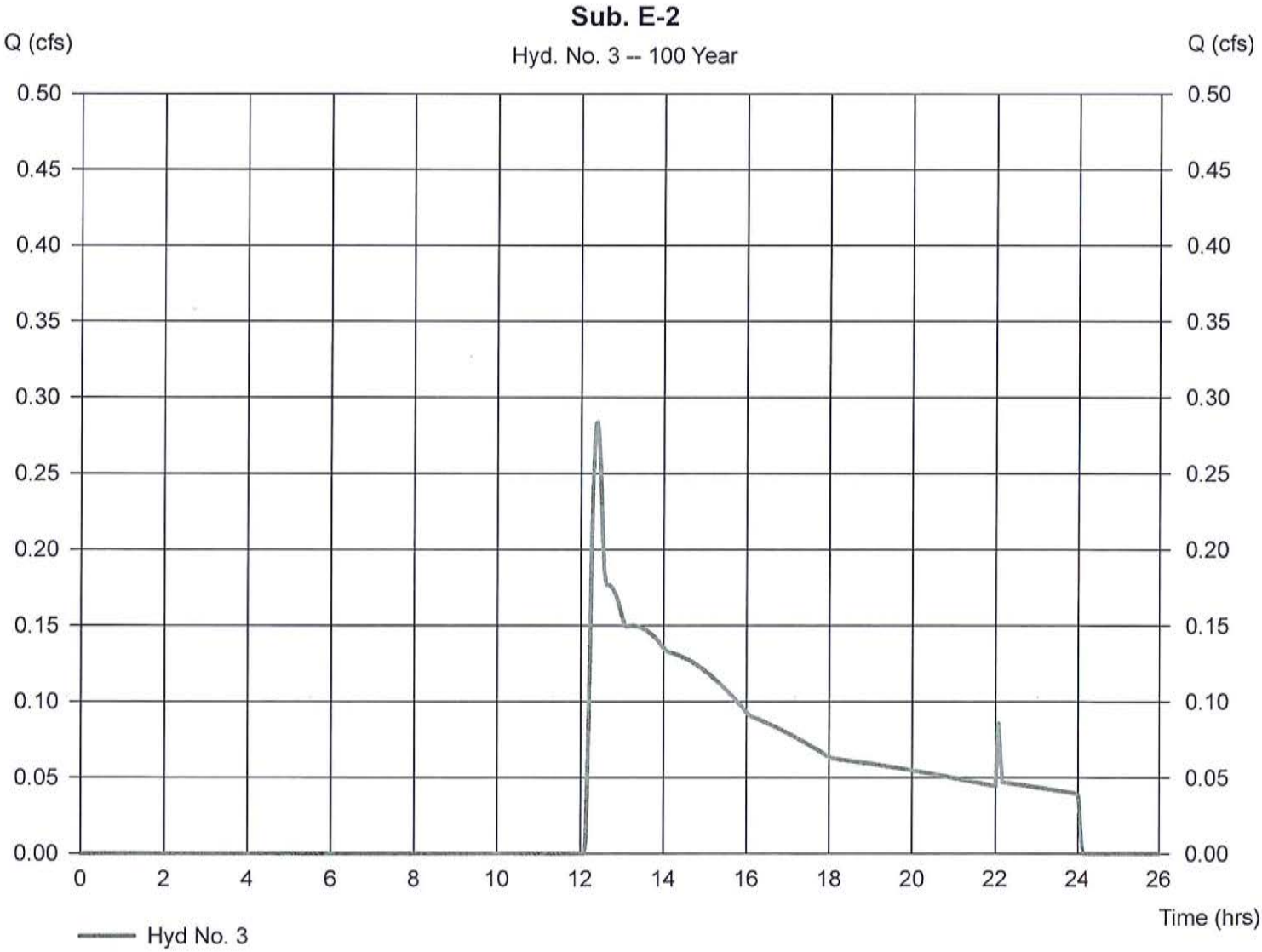
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 3

Sub. E-2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.284 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.40 hrs
Time interval	= 2 min	Hyd. volume	= 3,639 cuft
Drainage area	= 3.250 ac	Curve number	= 34.8
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Worksheet 2: Runoff curve number and runoff SM-5676

Project: 443 Lincoln St By PFK Date 1/29/18

Location: Lexington, MA Checked _____ Date _____

Circle one: [Present] Developed Subcatchment E-3

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)			CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive		0	98			0.00	0.00
-	Impervious - Building		0	98			0.00	0.00
A	Woods and Brush	Good Condition	13,225	30			0.30	9.11
A	Open Space	Good Condition	0	39			0.00	0.00
						Totals =	0.30	9.11

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{9.11}{0.30} = 30.00$; Use CN = 30.0

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr	2	10	100
Rainfall, P (24-hour)	in	3.1	4.5	6.4
Runoff, Q (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)	in	0.11	0.00	0.12
Runoff, Q	cf	124	1	132

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 4: Time of Concentration (Tc) or travel time (Tt) SM-5676

Project: 443 Lincoln St By PFK Date 1/9/2018

Location: Lexington, MA Checked _____ Date _____

Circle one: Present / Developed
Circle one: Tc / Tt through subarea: Subcatchment E-3

Time of Concentration 2

Sheet flow (Applicable to Tc only)		Segment ID	A-B			
1. Surface Description (table 3-1)			grass			
2. Mannings roughness coeff., n (table 3-1)			0.4			
3. Flow length, L (total L <= 300 ft)		ft	50			
4. Two-yr 24-hr rainfall, P2		in	3.1			
5. Land Slope, s		ft/ft	0.08			
6. Tt = 0.007 (nL)^0.8 / (P2^0.5 s^0.4)	Compute Tt	hr	0.12			0.12
Shallow concentrated Flow		Segment ID	B-C			
7. Surface Description (paved or unpaved)			UNPAVED			
8. Flow Length, L		ft	35.28			
9. Watercourse slope, s		ft/ft	0.11			
10. Average Velocity, V (figure 3-1)		ft/s	5.35			
11. Tt = L / 3600V	Compute Tt	hr	0.00			0.00
Channel flow		Segment ID				
12. Cross sectional flow area, a		sf				
13. Wetted perimeter, pw		ft				
14. Hydraulic radius, r=a/wp	Compute r	ft				
15. Channel Slope, s		ft/ft				
16. Manning's roughness coeff., n						
17. V = 1.49 r^2/3 s^1/2 / n	Compute V	ft/s				
18. Flow length, L		ft				
19. Tt = L / 3600V	Compute Tt	hr				0

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.12
min 7.3

(210-VI-TR-55, Second Ed., June 1986) D-3

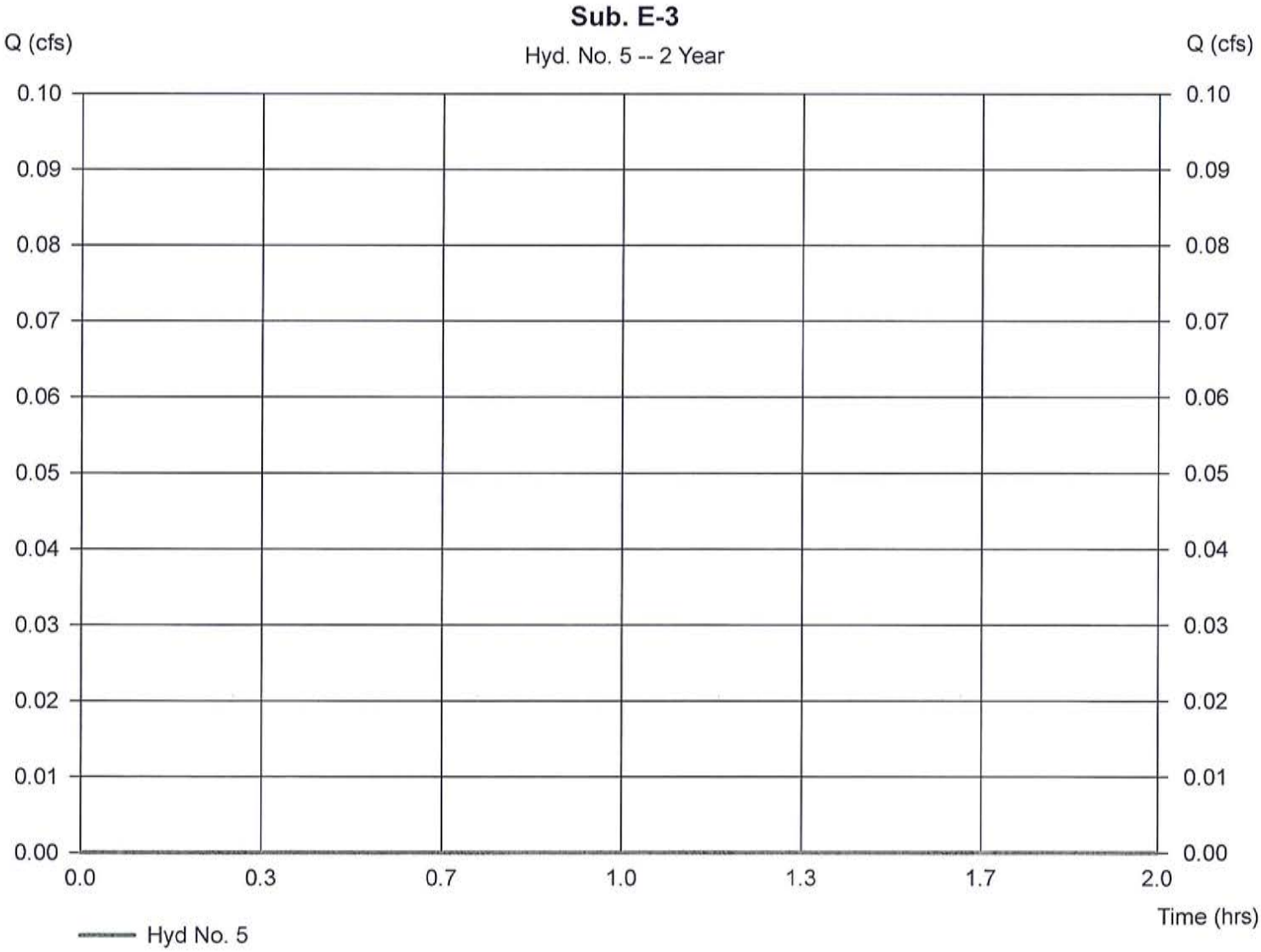
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 5

Sub. E-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 0.300 ac	Curve number	= 30
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 7.30 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



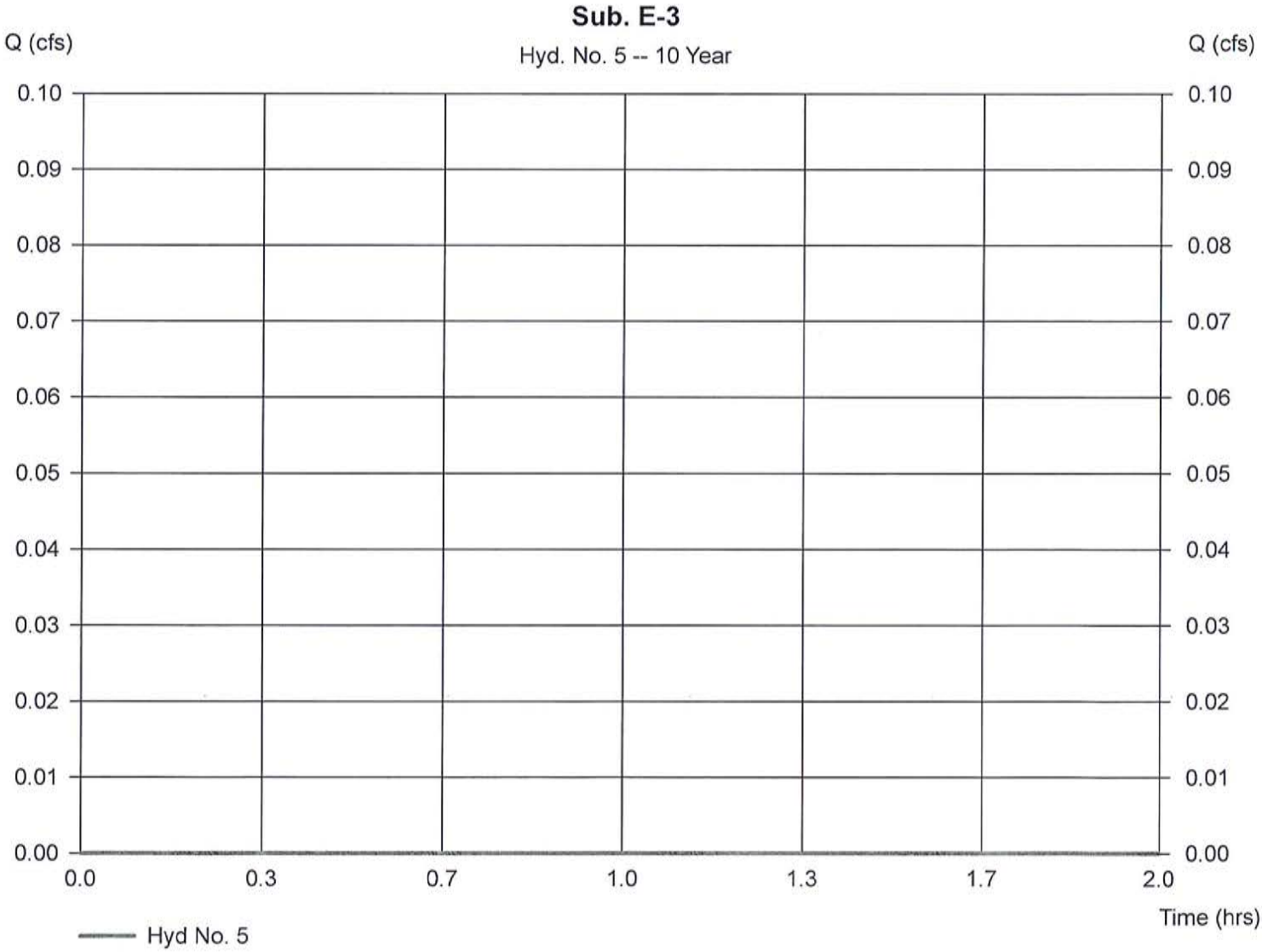
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 5

Sub. E-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 0.300 ac	Curve number	= 30
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 7.30 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



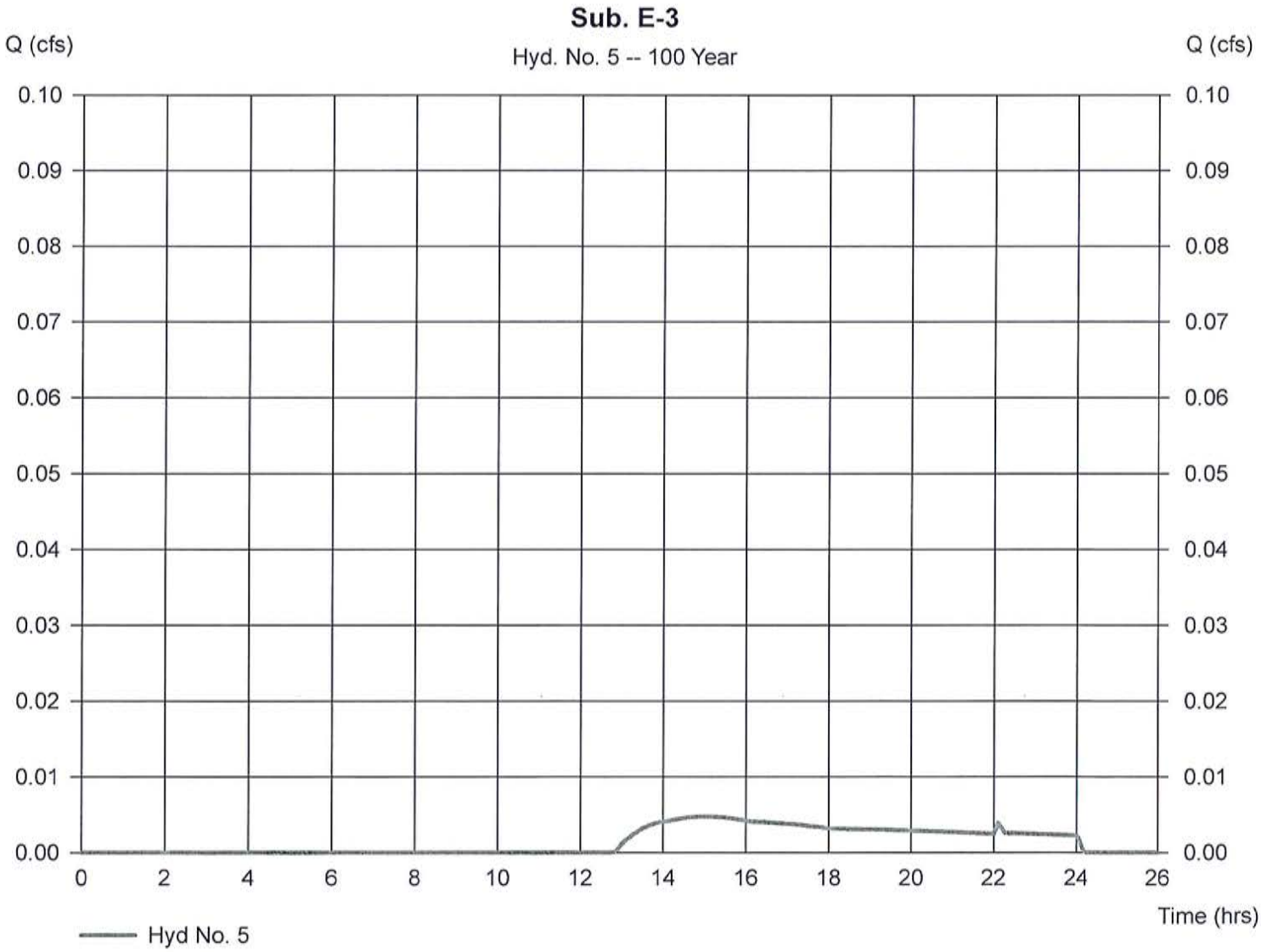
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 5

Sub. E-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.005 cfs
Storm frequency	= 100 yrs	Time to peak	= 15.03 hrs
Time interval	= 2 min	Hyd. volume	= 131 cuft
Drainage area	= 0.300 ac	Curve number	= 30
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 7.30 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Post-Development Hydrology

Worksheet 2: Runoff curve number and runoff SM-5676

Project: 443 Lincoln St By PFK Date 1/9/18

Location: Lexington, MA Checked _____ Date _____

Circle one: Present [Developed] Subcatchment P-1

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)			CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive		0	98			0.00	0.00
-	Impervious - Building		0	98			0.00	0.00
A	Woods and Brush	Good Condition	16,437	30			0.38	11.32
A	Open Space	Good Condition	5,908	39			0.14	5.29
						Totals =	0.51	16.61

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{16.61}{0.51} = 32.38$; Use CN = [32.4]

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr	2	10	100
Rainfall, P (24-hour)	in	3.1	4.5	6.4
Runoff, Q (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)	in	0.06	0.00	0.21
Runoff, Q	cf	109	9	398

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 4: Time of Concentration (Tc) or travel time (Tt) **SM-5676**

Project: 443 Lincoln St By PFK Date 1/9/2018

Location: Lexington, MA Checked _____ Date _____

Circle one: Present | Developed
Circle one: Tc | Tt through subarea Subcatchment P-1

Time of Concentration 2

Sheet flow (Applicable to Tc only)		Segment ID	A-B			
1. Surface Description (table 3-1)			grass			
2. Mannings roughness coeff., n (table 3-1)			0.4			
3. Flow length, L (total L <= 300 ft)		ft	50			
4. Two-yr 24-hr rainfall, P2		in	3.1			
5. Land Slope, s		ft/ft	0.14			
6. Tt = 0.007 (nL)^0.8 / (P2^0.5 s^0.4)	Compute Tt	hr	0.10			0.10
Shallow concentrated Flow		Segment ID	B-C			
7. Surface Description (paved or unpaved)			UNPAVED			
8. Flow Length, L		ft	25			
9. Watercourse slope, s		ft/ft	0.07			
10. Average Velocity, V (figure 3-1)		ft/s	4.27			
11. Tt = L / 3600V	Compute Tt	hr	0.00			0.00
Channel flow		Segment ID				
12. Cross sectional flow area, a		sf				
13. Wetted perimeter, pw		ft				
14. Hydraulic radius, r=a/wp	Compute r	ft				
15. Channel Slope, s		ft/ft				
16. Manning's roughness coeff., n						
17. V = 1.49 r^2/3 s^1/2 / n	Compute V	ft/s				
18. Flow length, L		ft				
19. Tt = L / 3600V	Compute Tt	hr				0

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.10
min 6.0

(210-VI-TR-55, Second Ed., June 1986) D-3

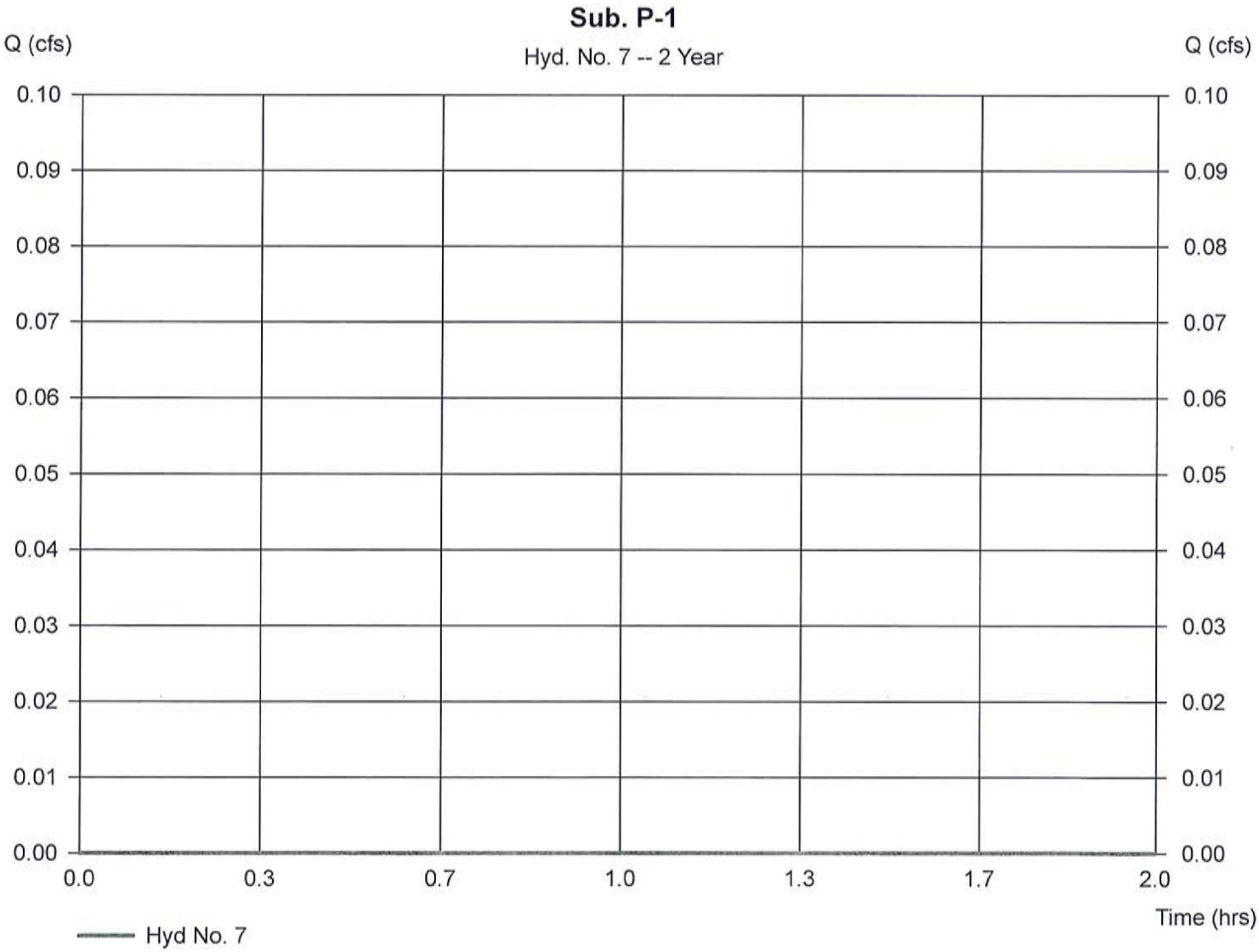
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 7

Sub. P-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 0.510 ac	Curve number	= 32.4
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



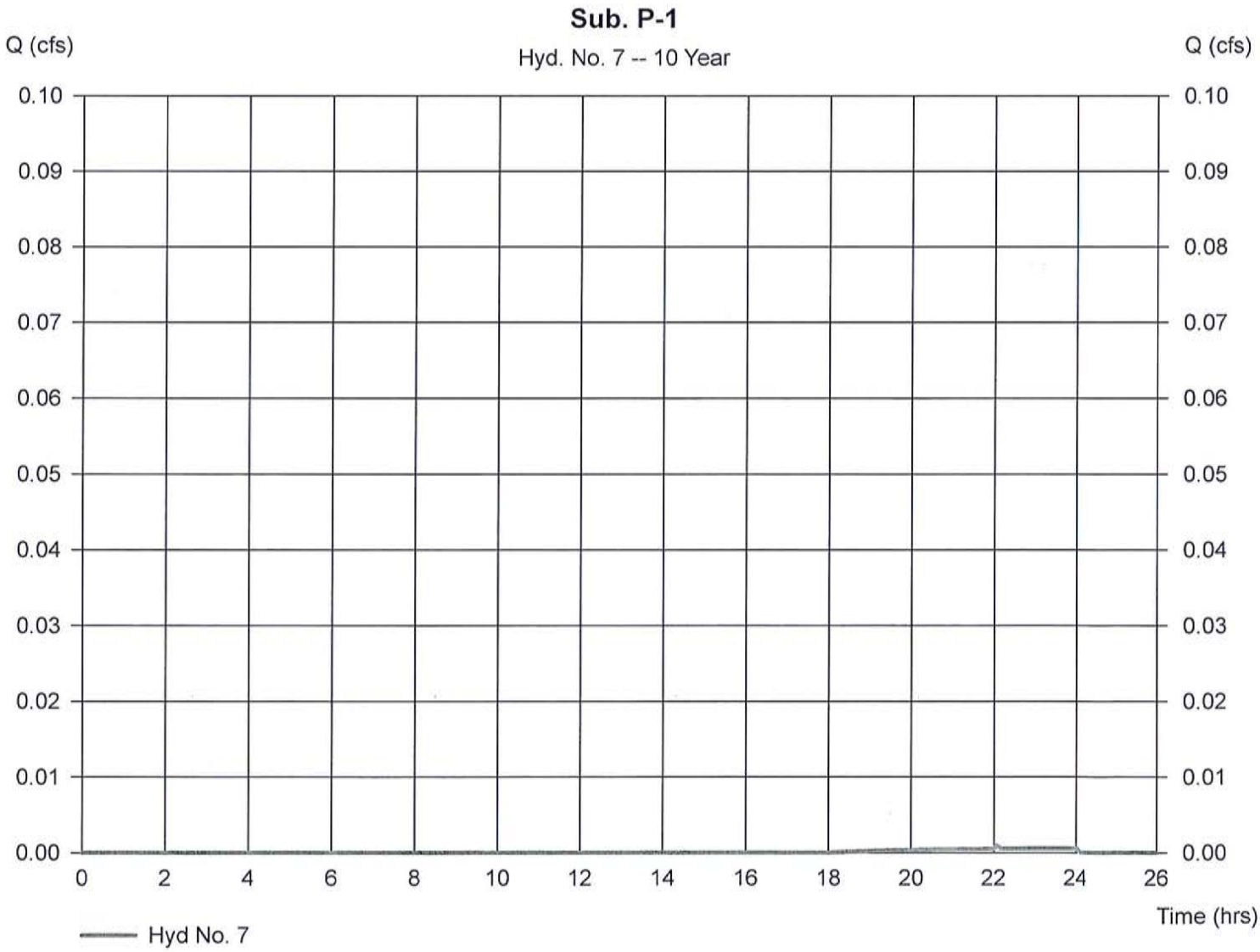
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 7

Sub. P-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.001 cfs
Storm frequency	= 10 yrs	Time to peak	= 22.07 hrs
Time interval	= 2 min	Hyd. volume	= 9 cuft
Drainage area	= 0.510 ac	Curve number	= 32.4
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



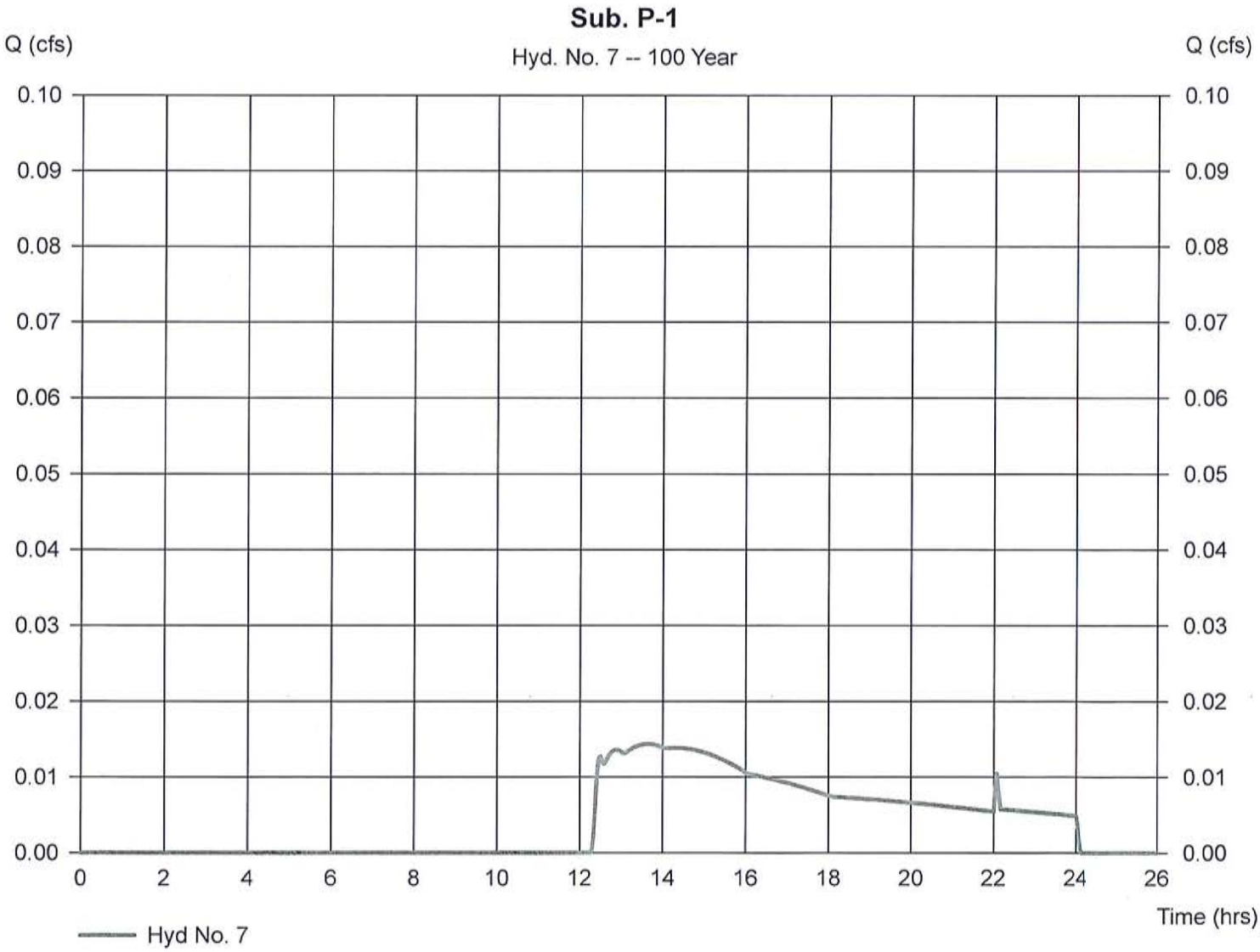
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 7

Sub. P-1

Hydrograph type	= SCS Runoff	Peak discharge	= 0.014 cfs
Storm frequency	= 100 yrs	Time to peak	= 13.63 hrs
Time interval	= 2 min	Hyd. volume	= 373 cuft
Drainage area	= 0.510 ac	Curve number	= 32.4
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Worksheet 2: Runoff curve number and runoff SM-5676

Project: 443 Lincoln St By PFK Date 1/9/18

Location: Lexington, MA Checked _____ Date _____

Circle one: Present [Developed] Subcatchment P-2A

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)			CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive		14,768	98			0.34	33.22
-	Impervious - Building		0	98			0.00	0.00
A	Woods and Brush	Good Condition	0	30			0.00	0.00
A	Open Space	Good Condition	35,595	39			0.82	31.87
							Totals = 1.16	65.09

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{65.09}{1.16} = 56.30$; Use CN = [56.3]

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr	2	10	100
Rainfall, P (24-hour)	in	3.1	4.5	6.4
Runoff, Q (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)	in	0.26	0.81	1.86
Runoff, Q	cf	1080	3405	7822

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 4: Time of Concentration (Tc) or travel time (Tt) **SM-5676**

Project: 443 Lincoln St By PFK Date 1/9/2018

Location: Lexington, MA Checked _____ Date _____

Circle one: Present | Developed
Circle one: Tc | Tt through subarea

Subcatchment P-2A

Time of Concentration 2

Sheet flow (Applicable to Tc only)		Segment ID	A-B			
1. Surface Description (table 3-1)			grass			
2. Mannings roughness coeff., n (table 3-1)			0.24			
3. Flow length, L (total L <= 300 ft)		ft	50			
4. Two-yr 24-hr rainfall, P2		in	3.1			
5. Land Slope, s		ft/ft	0.015			
6. Tt = 0.007 (nL)^0.8 / (P2^0.5 s^0.4)	Compute Tt	hr	0.16			0.16
Shallow concentrated Flow		Segment ID	B-C			
7. Surface Description (paved or unpaved)			UNPAVED			
8. Flow Length, L		ft	45			
9. Watercourse slope, s		ft/ft	0.13			
10. Average Velocity, V (figure 3-1)		ft/s	5.82			
11. Tt = L / 3600V	Compute Tt	hr	0.00			0.00
Channel flow		Segment ID				
12. Cross sectional flow area, a		sf				
13. Wetted perimeter, pw		ft				
14. Hydraulic radius, r=a/wp	Compute r	ft				
15. Channel Slope, s		ft/ft				
16. Manning's roughness coeff., n						
17. V = 1.49 r^2/3 s^1/2 / n	Compute V	ft/s				
18. Flow length, L		ft				
19. Tt = L / 3600V	Compute Tt	hr				0

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.16
min 9.5

(210-VI-TR-55, Second Ed., June 1986) D-3

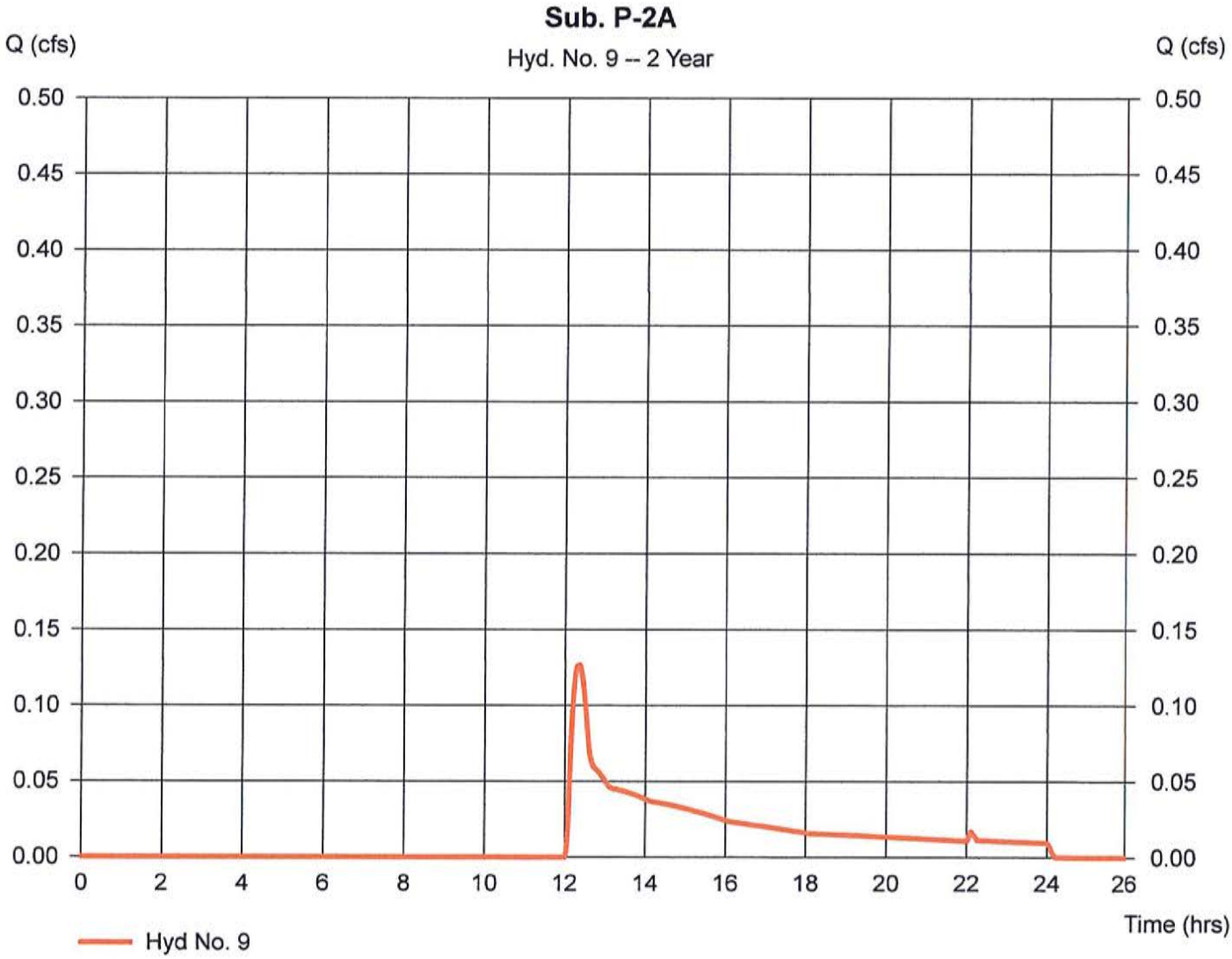
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 9

Sub. P-2A

Hydrograph type	= SCS Runoff	Peak discharge	= 0.127 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 1,083 cuft
Drainage area	= 1.160 ac	Curve number	= 56.3
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 9.50 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



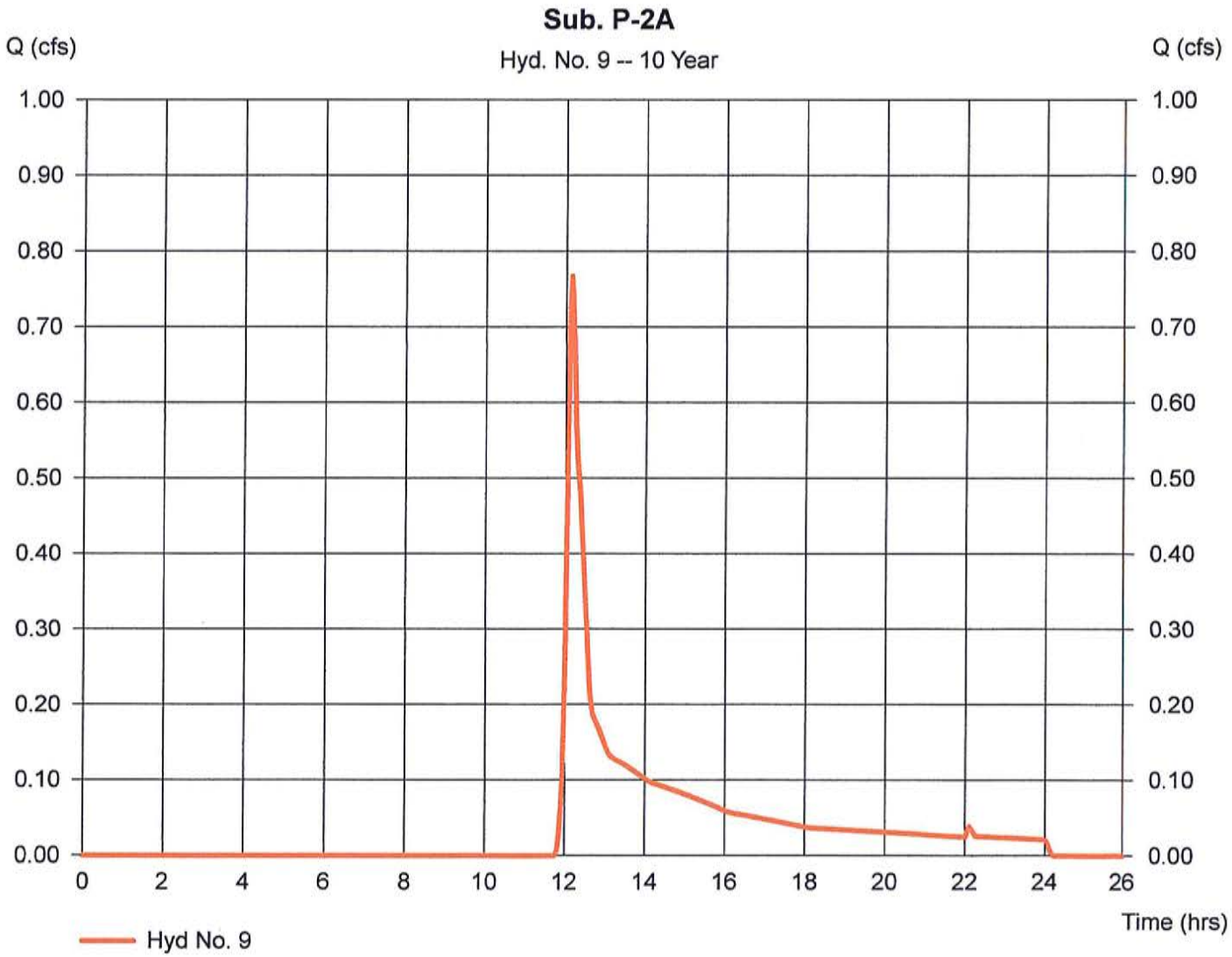
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 9

Sub. P-2A

Hydrograph type	= SCS Runoff	Peak discharge	= 0.768 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 3,416 cuft
Drainage area	= 1.160 ac	Curve number	= 56.3
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 9.50 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



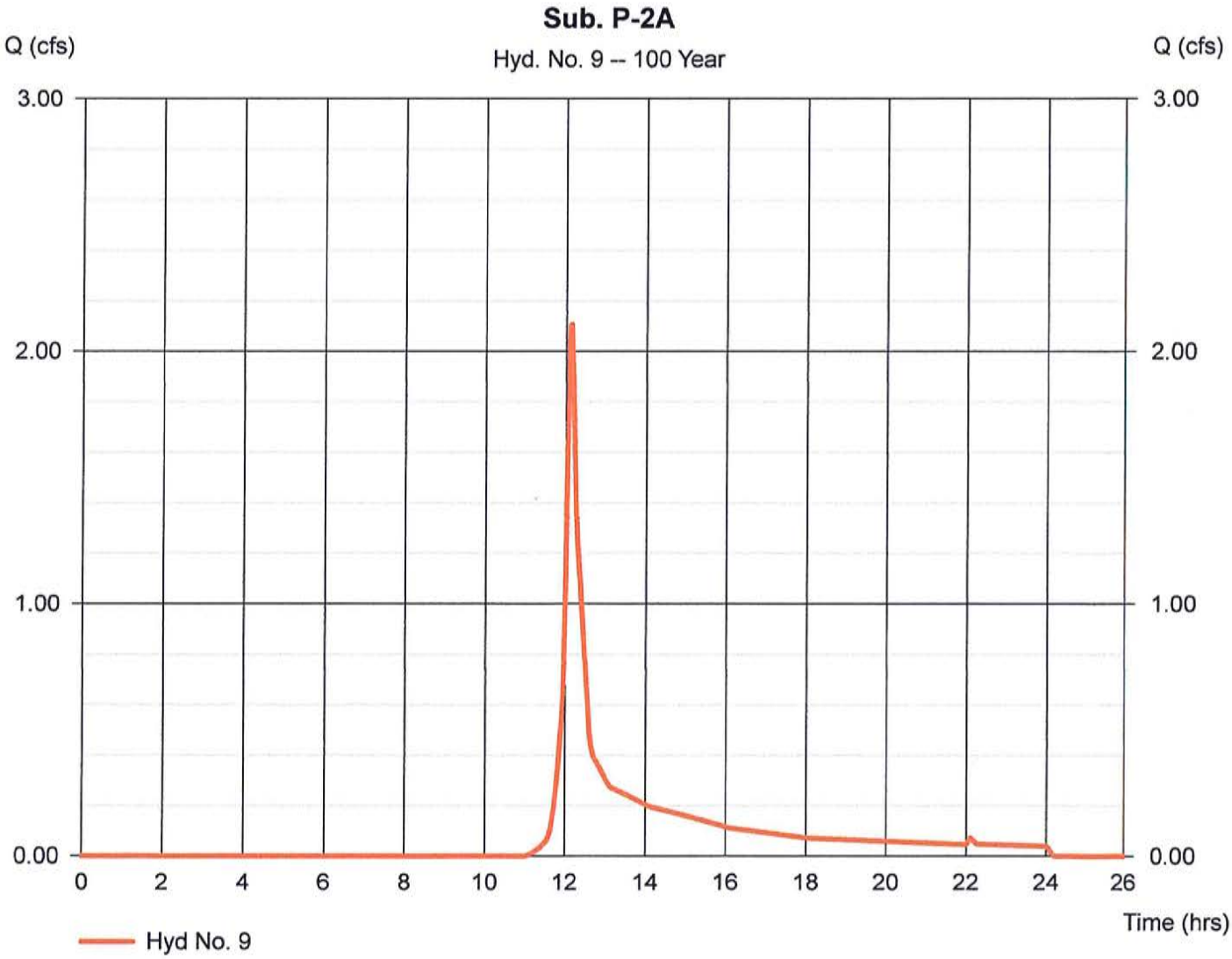
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 9

Sub. P-2A

Hydrograph type	= SCS Runoff	Peak discharge	= 2.108 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.13 hrs
Time interval	= 2 min	Hyd. volume	= 7,847 cuft
Drainage area	= 1.160 ac	Curve number	= 56.3
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 9.50 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

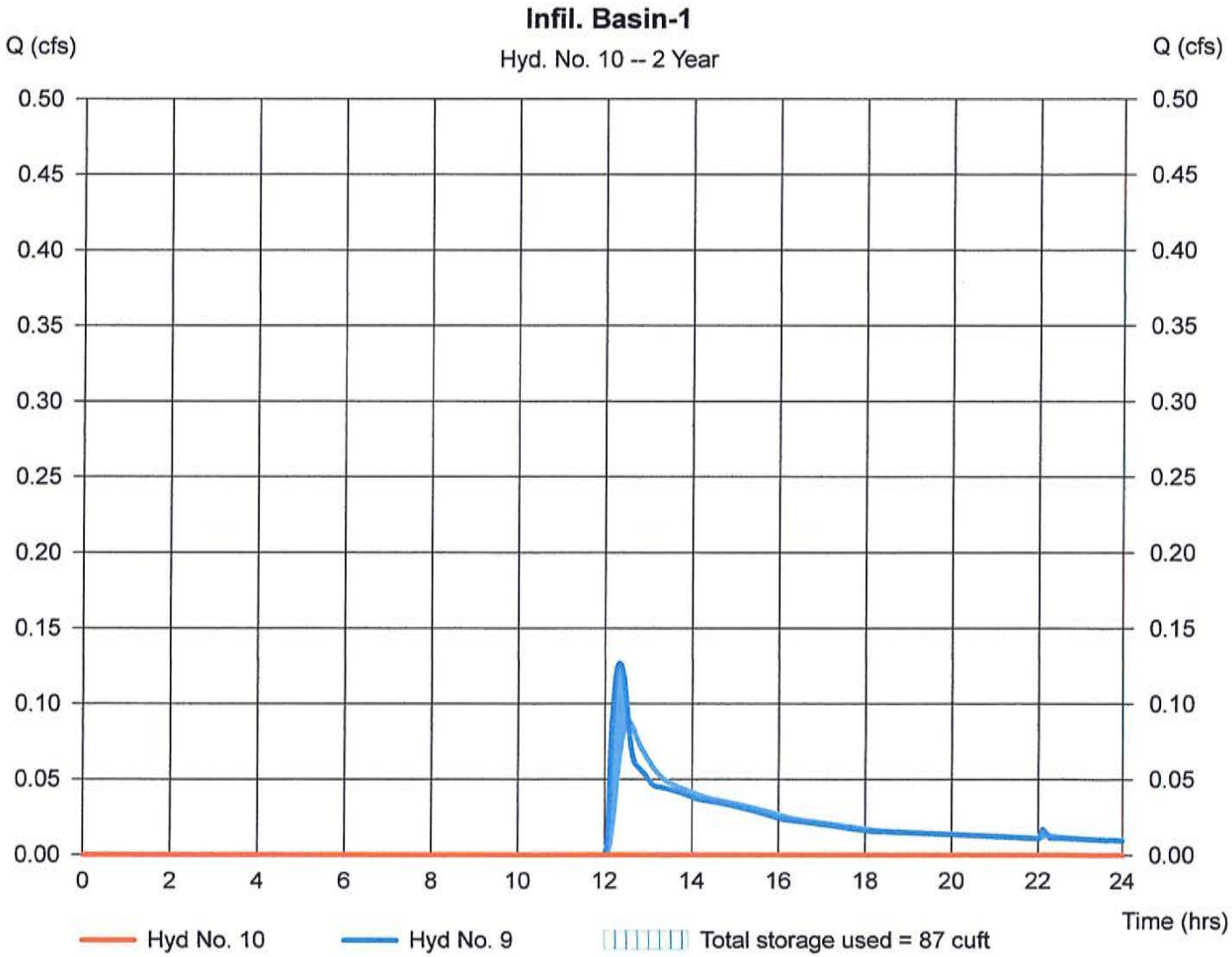
Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 10

Infil. Basin-1

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= 13.10 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 9 - Sub. P-2A	Max. Elevation	= 174.83 ft
Reservoir name	= Infil. Basin-1	Max. Storage	= 87 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

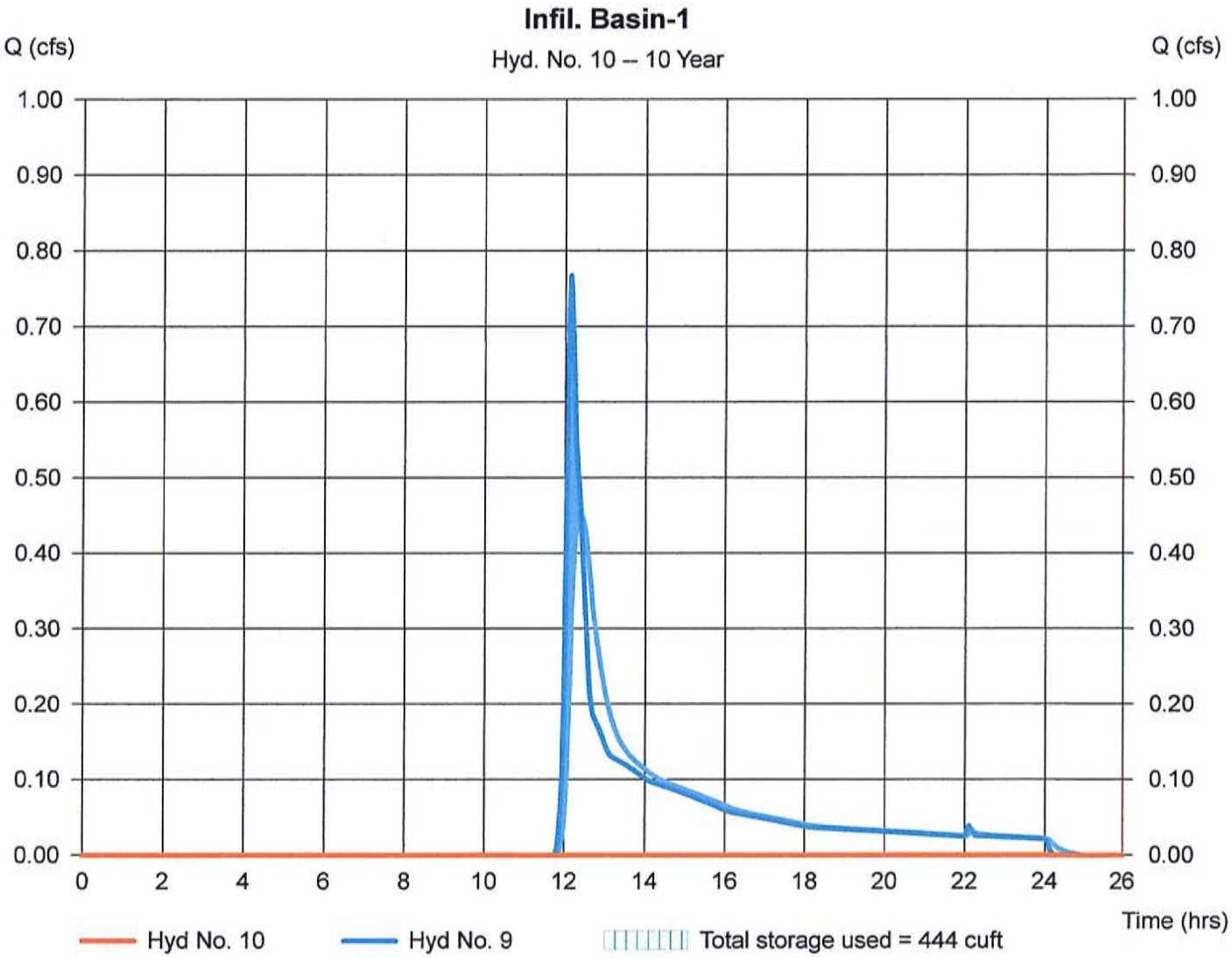
Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 10

Infil. Basin-1

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.50 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 9 - Sub. P-2A	Max. Elevation	= 174.96 ft
Reservoir name	= Infil. Basin-1	Max. Storage	= 444 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Hydrograph Report

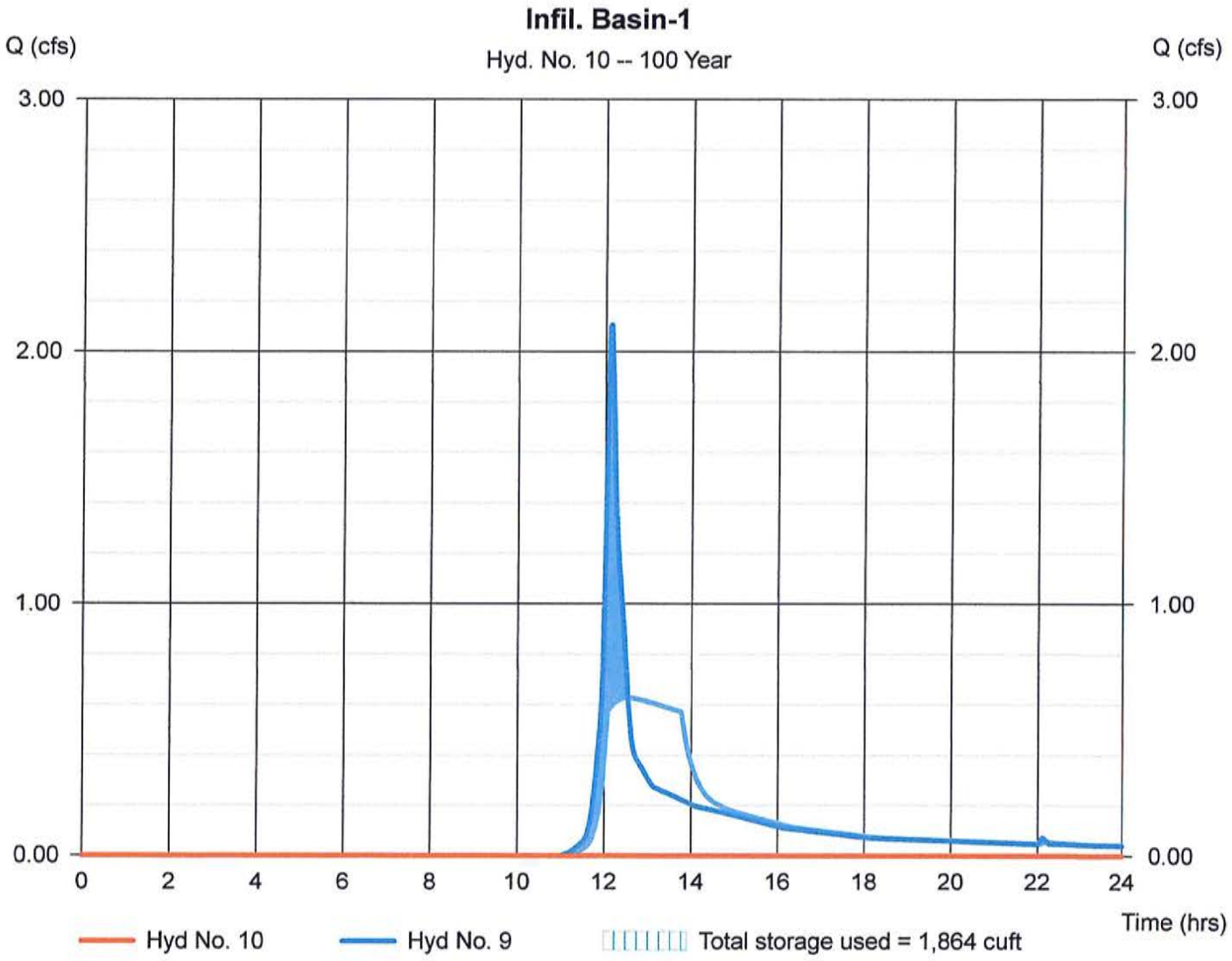
Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 10

Infil. Basin-1

Hydrograph type	= Reservoir	Peak discharge	= 0.000 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.03 hrs
Time interval	= 2 min	Hyd. volume	= 0 cuft
Inflow hyd. No.	= 9 - Sub. P-2A	Max. Elevation	= 175.39 ft
Reservoir name	= Infil. Basin-1	Max. Storage	= 1,864 cuft

Storage Indication method used. Exfiltration extracted from Outflow.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Pond No. 1 - Infil. Basin-1

Pond Data

Contours - User-defined contour areas. Conic method used for volume calculation. Begining Elevation = 174.80 ft

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	174.80	2,635	0	0
0.20	175.00	2,990	562	562
1.20	176.00	3,741	3,358	3,920
2.20	177.00	5,270	4,483	8,404

Culvert / Orifice Structures

	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 12.00	0.00	0.00	0.00
Span (in)	= 12.00	0.00	0.00	0.00
No. Barrels	= 1	1	1	0
Invert El. (ft)	= 175.00	0.00	0.00	0.00
Length (ft)	= 94.00	0.00	0.00	0.00
Slope (%)	= 1.00	0.00	0.00	n/a
N-Value	= .010	.010	.010	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	Yes	Yes	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 6.28	8.50	0.00	0.00
Crest El. (ft)	= 175.80	176.00	0.00	0.00
Weir Coeff.	= 3.33	2.60	3.33	3.33
Weir Type	= Riser	Broad	---	---
Multi-Stage	= Yes	No	No	No

Exfil.(in/hr) = 8.270 (by Contour)

TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).

Worksheet 2: Runoff curve number and runoff SM-5676

Project: 443 Lincoln St By PFK Date 1/29/18

Location: Lexington, MA Checked _____ Date _____

Circle one: Present [Developed] Subcatchment P-2B

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)			CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive		0	98			0.00	0.00
-	Impervious - Building		0	98			0.00	0.00
A	Woods and Brush	Good Condition	60,051	30			1.38	41.36
A	Open Space	Good Condition	20,160	39			0.46	18.05
						Totals =	1.84	59.41

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{59.41}{1.84} = 32.26$; Use CN = [32.3]

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency.....	yr	2	10	100
Rainfall, P (24-hour).....	in	3.1	4.5	6.4
Runoff, Q..... (Use P and CN with table 2-1, fig. 2-1,) or eqs. 2-3 and 2-4.)	in	0.06	0.00	0.21
Runoff, Q.....	cf	406	28	1396

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 4: Time of Concentration (Tc) or travel time (Tt) SM-5676

Project: 443 Lincoln St By PFK Date 1/9/2018

Location: Lexington, MA Checked _____ Date _____

Circle one: Present | Developed
Circle one: Tc | Tt through subarea Subcatchment P-2B

Time of Concentration 2

Sheet flow (Applicable to Tc only)		Segment ID	A-B			
1. Surface Description (table 3-1)			grass			
2. Mannings roughness coeff., n (table 3-1)			0.4			
3. Flow length, L (total L <= 300 ft)		ft	50			
4. Two-yr 24-hr rainfall, P2		in	3.1			
5. Land Slope, s		ft/ft	0.1			
6. Tt = 0.007 (nL)^0.8 / (P2^0.5 s^0.4)	Compute Tt	hr	0.11			0.11
Shallow concentrated Flow		Segment ID	B-C			
7. Surface Description (paved or unpaved)			UNPAVED			
8. Flow Length, L		ft	332			
9. Watercourse slope, s		ft/ft	0.015			
10. Average Velocity, V (figure 3-1)		ft/s	1.98			
11. Tt = L / 3600V	Compute Tt	hr	0.05			0.05
Channel flow		Segment ID				
12. Cross sectional flow area, a		sf				
13. Wetted perimeter, pw		ft				
14. Hydraulic radius, r=a/wp	Compute r	ft				
15. Channel Slope, s		ft/ft				
16. Manning's roughness coeff., n						
17. V = 1.49 r^2/3 s^1/2 / n	Compute V	ft/s				
18. Flow length, L		ft				
19. Tt = L / 3600V	Compute Tt	hr				0

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.16
min 9.4

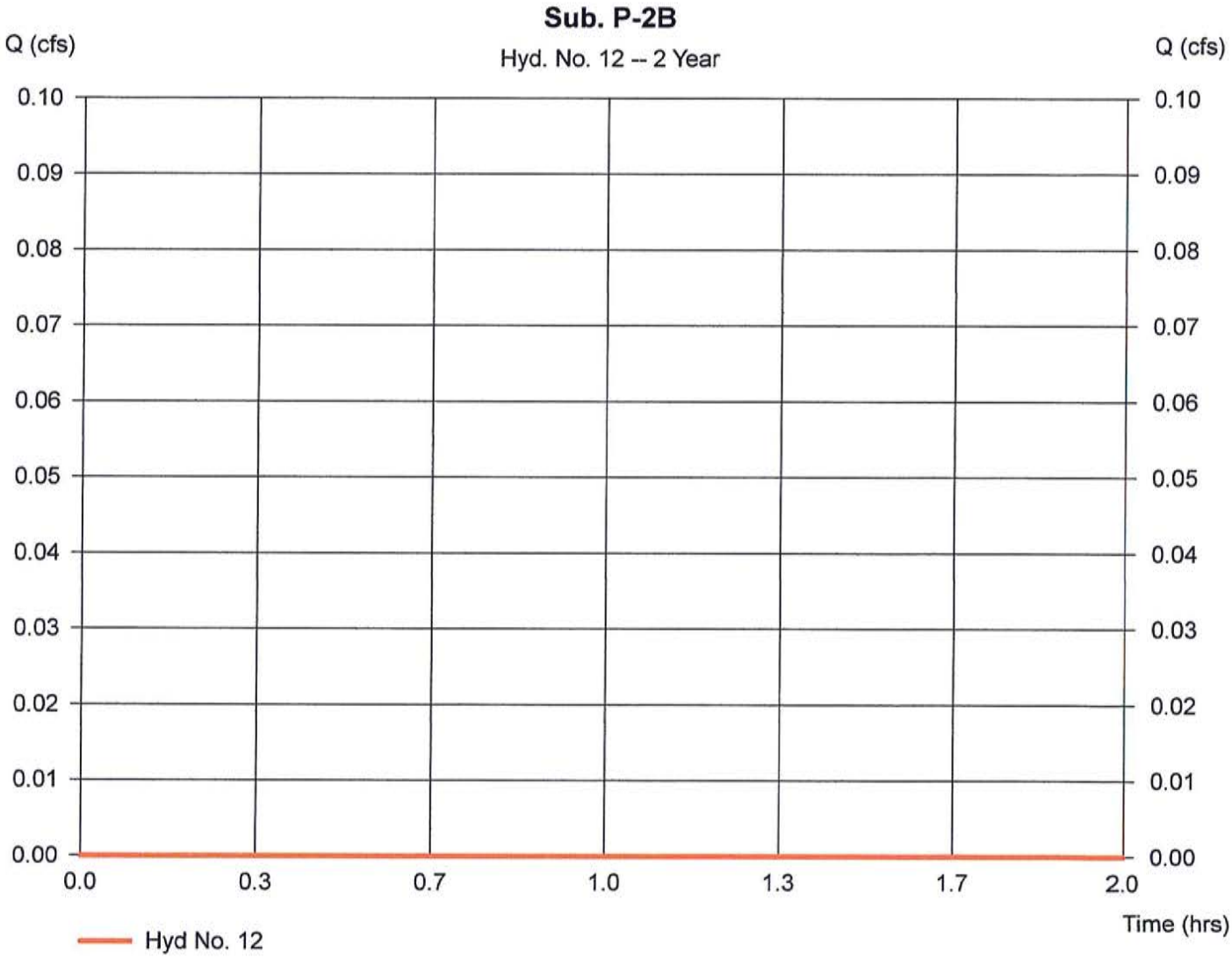
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 12

Sub. P-2B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 1.840 ac	Curve number	= 32.3
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 9.40 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



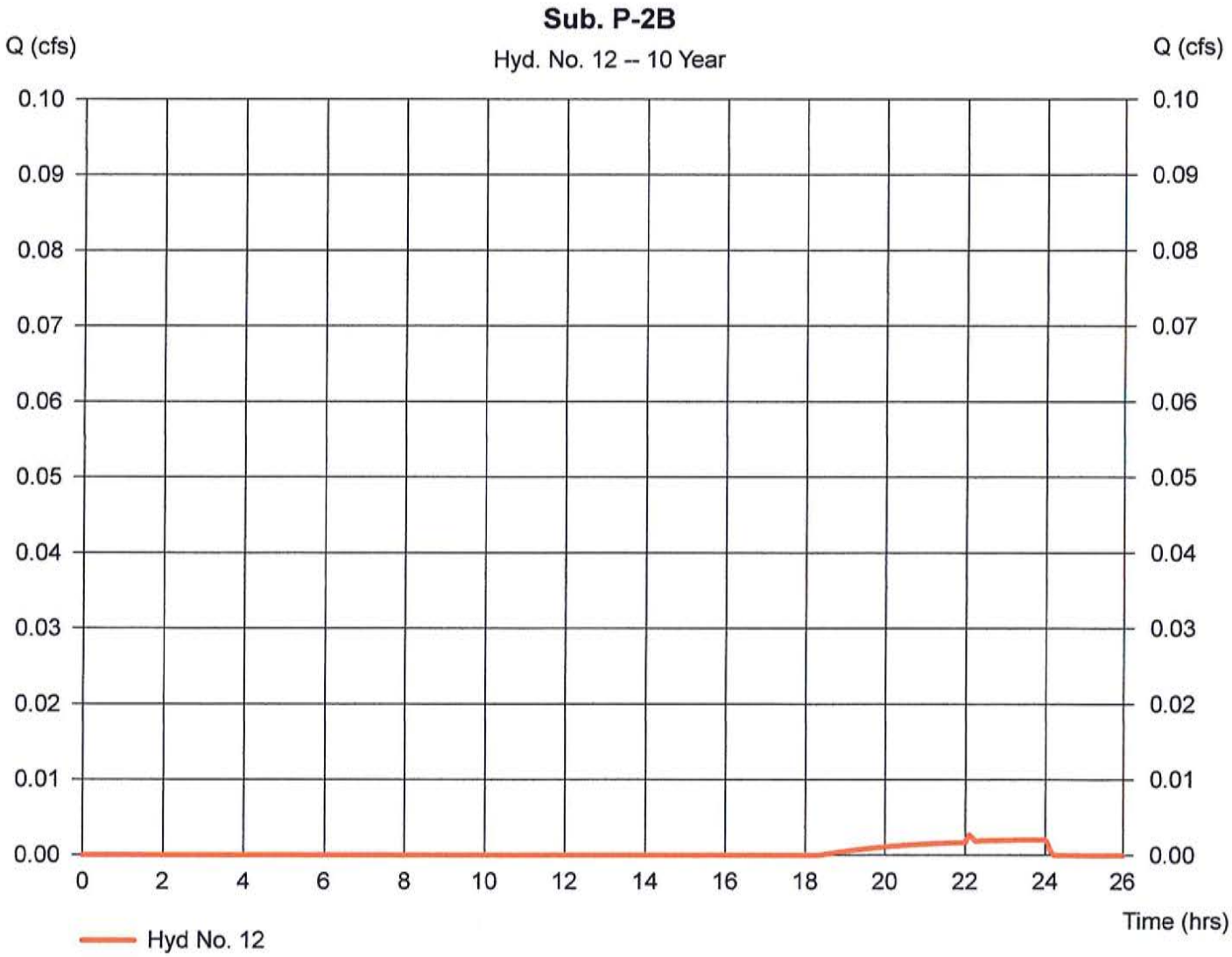
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 12

Sub. P-2B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.003 cfs
Storm frequency	= 10 yrs	Time to peak	= 22.10 hrs
Time interval	= 2 min	Hyd. volume	= 30 cuft
Drainage area	= 1.840 ac	Curve number	= 32.3
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 9.40 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



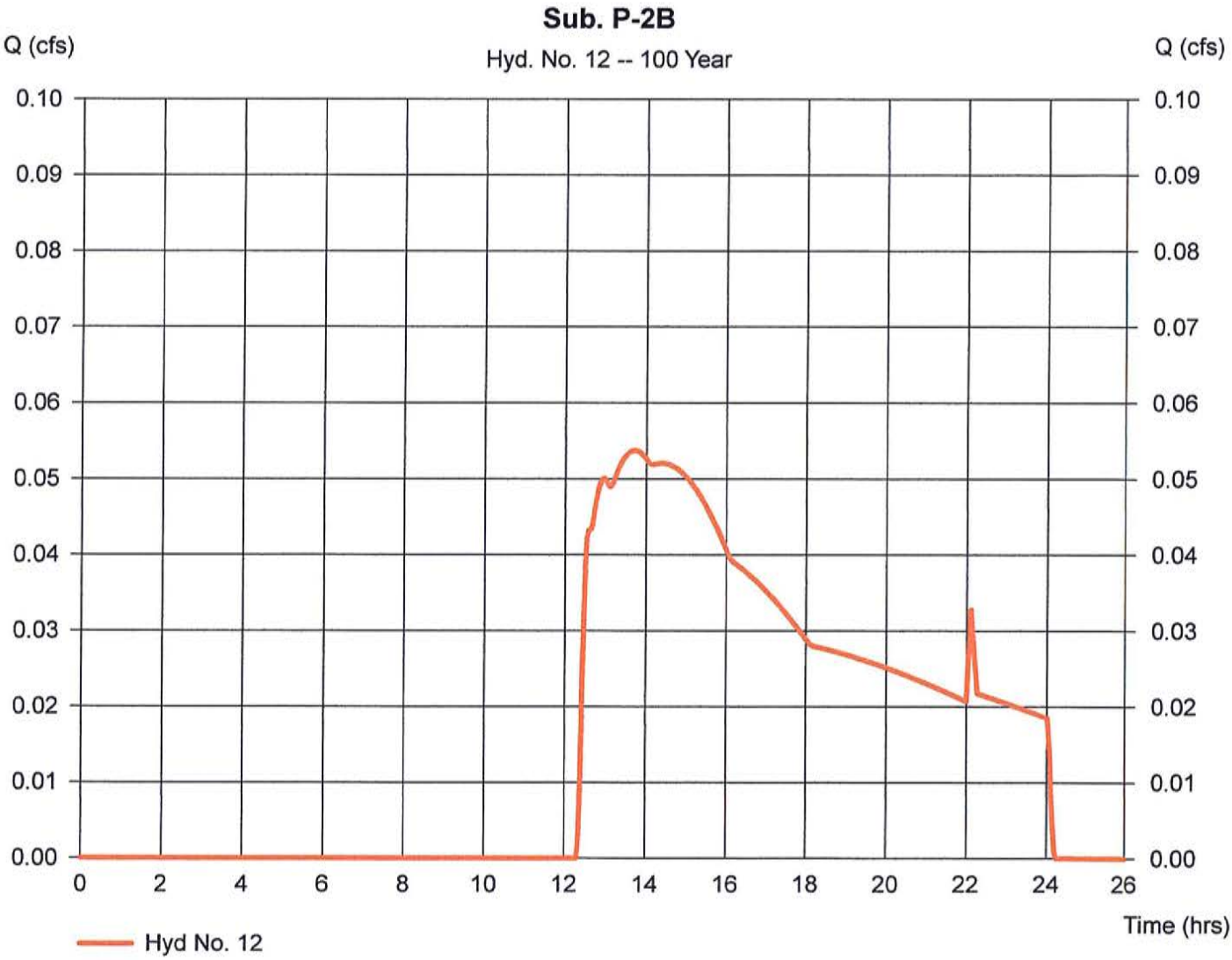
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 12

Sub. P-2B

Hydrograph type	= SCS Runoff	Peak discharge	= 0.054 cfs
Storm frequency	= 100 yrs	Time to peak	= 13.70 hrs
Time interval	= 2 min	Hyd. volume	= 1,405 cuft
Drainage area	= 1.840 ac	Curve number	= 32.3
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 9.40 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Worksheet 2: Runoff curve number and runoff **SM-5676**

Project: 443 Lincoln St By PFK Date 1/29/18

Location: Lexington, MA Checked _____ Date _____

Circle one: Present [Developed] Subcatchment P-3

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)			CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive		0	98			0.00	0.00
-	Impervious - Building		0	98			0.00	0.00
A	Woods and Brush	Good Condition	13,225	30			0.30	9.11
A	Open Space	Good Condition	0	39			0.00	0.00
							Totals =	
							0.30	9.11

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{9.11}{0.30} = 30.00$; Use CN = [30.0]

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency.....	yr	2	10	100
Rainfall, P (24-hour).....	in	3.1	4.5	5.4
Runoff, Q..... (Use P and CN with table 2-1, fig. 2-1,) or eqs. 2-3 and 2-4.)	in	0.11	0.00	0.12
Runoff, Q.....	cf	124	1	132

(210-VI-TR-55, Second Ed., June 1986)

Worksheet 4: Time of Concentration (Tc) or travel time (Tt) **SM-5676**

Project: 443 Lincoln St By PFK Date 1/9/2018

Location: Lexington, MA Checked _____ Date _____

Circle one: Present | Developed — Subcatchment P-3

Circle one: Tc | Tt through subarea _____

Time of Concentration 2

Sheet flow (Applicable to Tc only)		Segment ID	A-B			
1. Surface Description (table 3-1)			grass			
2. Mannings roughness coeff., n (table 3-1)			0.4			
3. Flow length, L (total L <= 300 ft)		ft	50			
4. Two-yr 24-hr rainfall, P2		in	3.1			
5. Land Slope, s		ft/ft	0.08			
6. Tt = 0.007 (nL)^0.8 / (P2^0.5 s^0.4)	Compute Tt	hr	0.12			0.12
Shallow concentrated Flow		Segment ID	B-C			
7. Surface Description (paved or unpaved)			UNPAVED			
8. Flow Length, L		ft	35.28			
9. Watercourse slope, s		ft/ft	0.11			
10. Average Velocity, V (figure 3-1)		ft/s	5.35			
11. Tt = L / 3600V	Compute Tt	hr	0.00			0.00
Channel flow		Segment ID				
12. Cross sectional flow area, a		sf				
13. Wetted perimeter, pw		ft				
14. Hydraulic radius, r=a/wp	Compute r	ft				
15. Channel Slope, s		ft/ft				
16. Manning's roughness coeff., n						
17. V = 1.49 r^2/3 s^1/2 / n	Compute V	ft/s				
18. Flow length, L		ft				
19. Tt = L / 3600V	Compute Tt	hr				0

20. Watershed or subarea Tc or Tt (add Tt in steps 6, 11, and 19) hr 0.12

min 7.3

(210-VI-TR-55, Second Ed., June 1986)

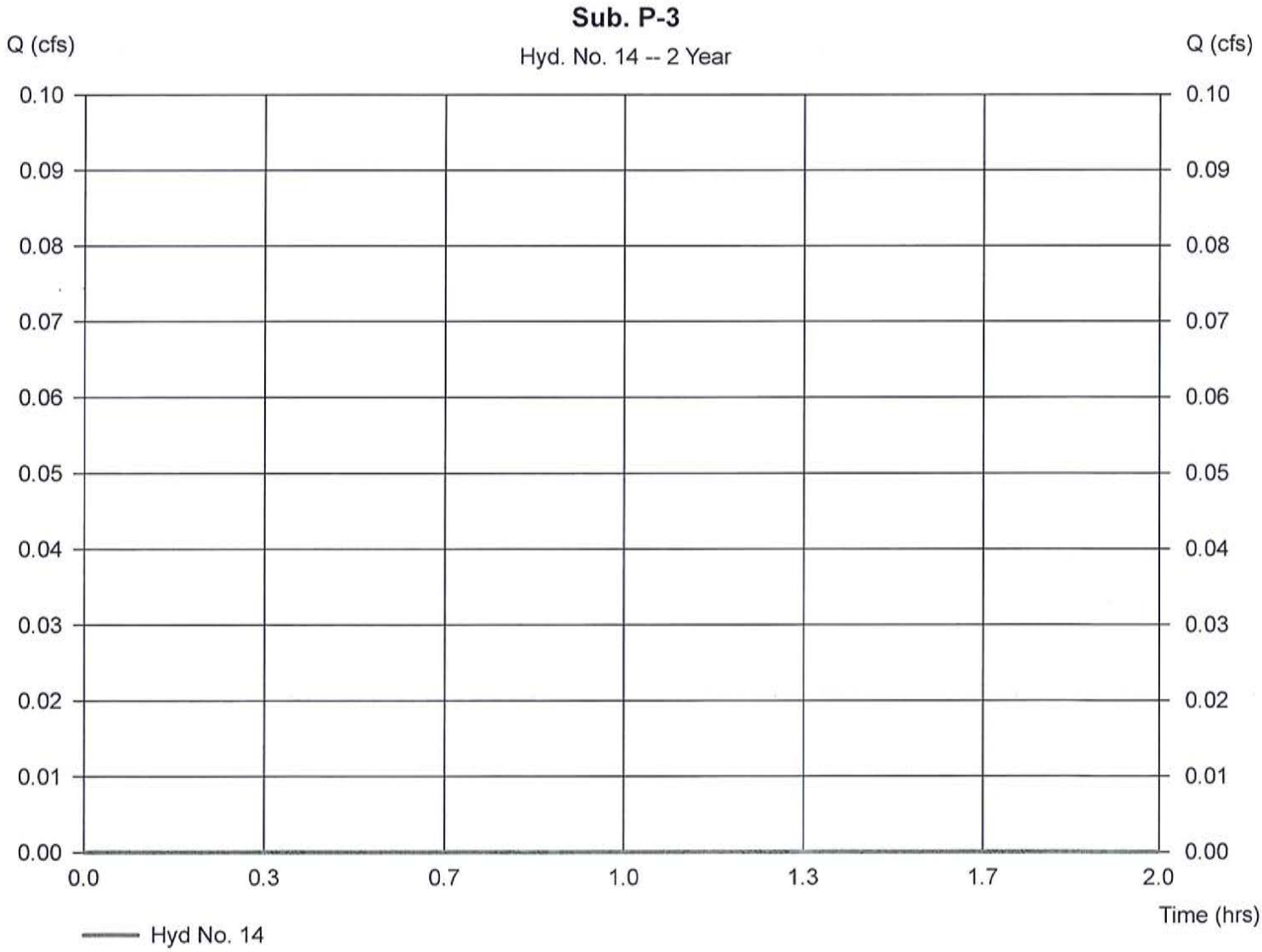
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 14

Sub. P-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 2 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 0.300 ac	Curve number	= 30
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 7.30 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



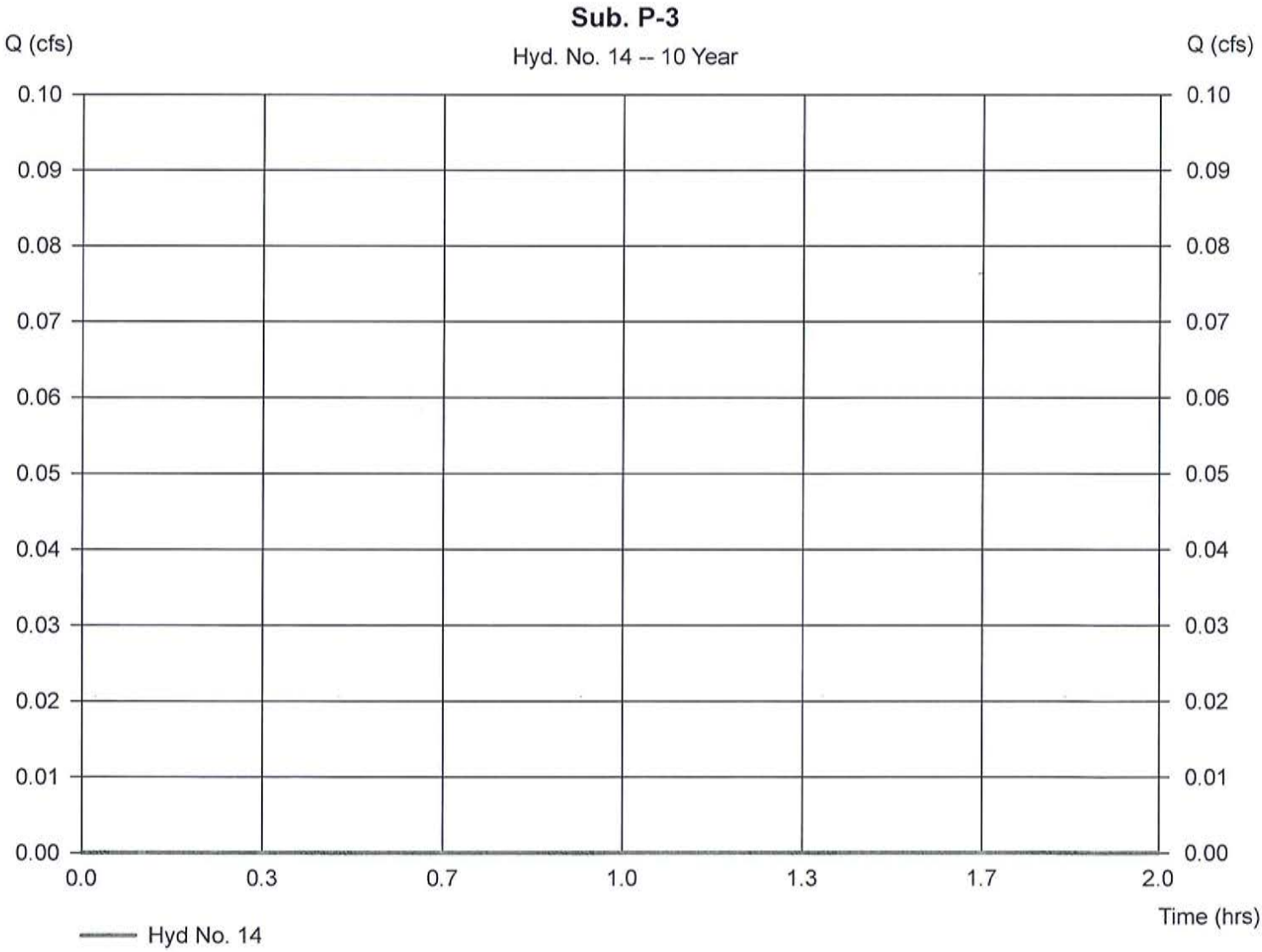
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 14

Sub. P-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.000 cfs
Storm frequency	= 10 yrs	Time to peak	= n/a
Time interval	= 2 min	Hyd. volume	= 0 cuft
Drainage area	= 0.300 ac	Curve number	= 30
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 7.30 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



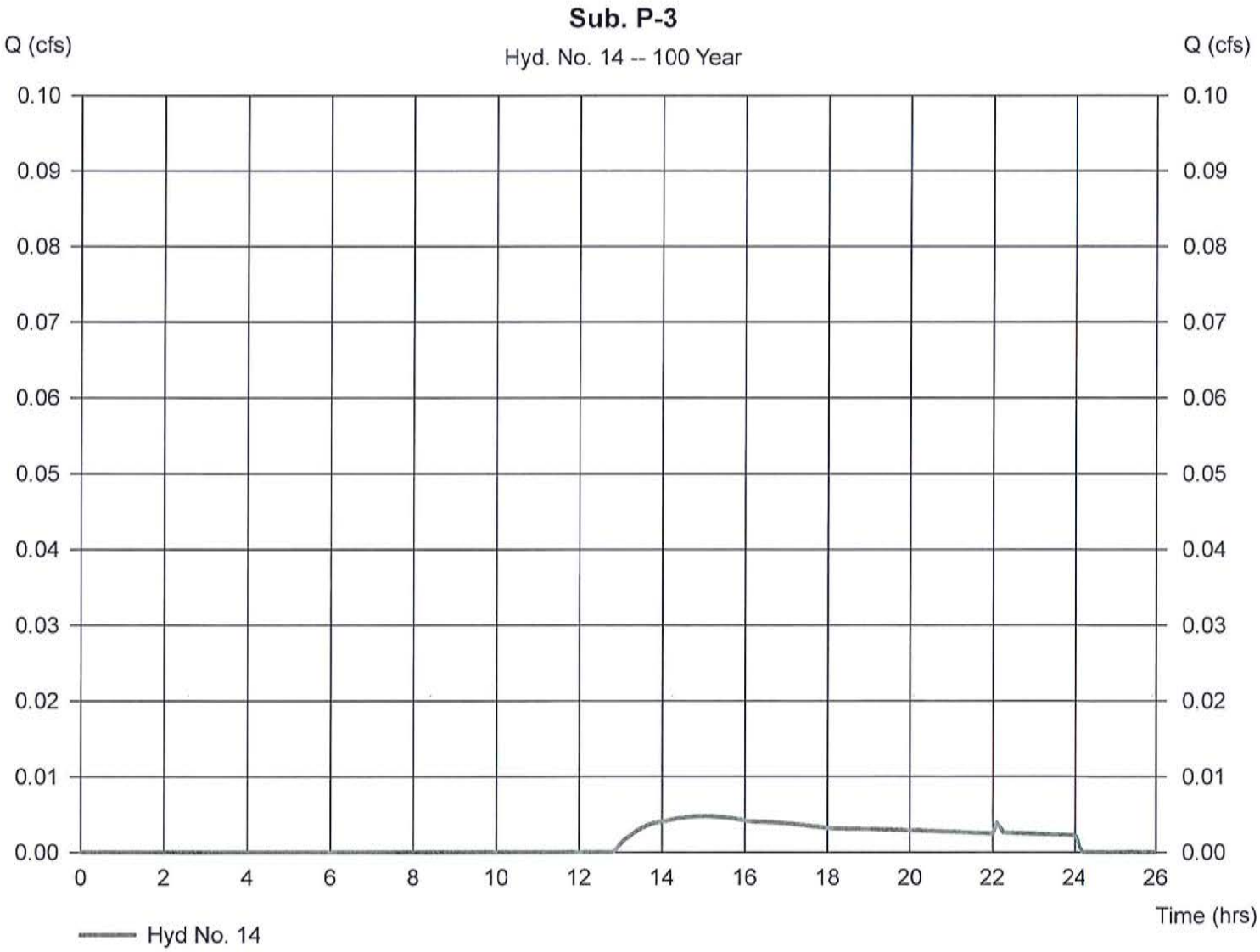
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Tuesday, Jan 30, 2018

Hyd. No. 14

Sub. P-3

Hydrograph type	= SCS Runoff	Peak discharge	= 0.005 cfs
Storm frequency	= 100 yrs	Time to peak	= 15.03 hrs
Time interval	= 2 min	Hyd. volume	= 131 cuft
Drainage area	= 0.300 ac	Curve number	= 30
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 7.30 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Worksheet 2: Runoff curve number and runoff SM-5676

Project: 443 Lincoln St By PFK Date 1/29/18

Location: Lexington, MA Checked _____ Date _____

Circle one: Present [Developed] Roof Drywell A

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)		CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive	0	98			0.00	0.00
-	Impervious - Building	2,967	98			0.07	6.68
A	Woods and Brush	Good Condition 0	30			0.00	0.00
A	Open Space	Good Condition	39			0.00	0.00
					Totals =	0.07	6.68

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{6.68}{0.07} = 98.00$; Use CN = [98.0]

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr	2	10	100
Rainfall, P (24-hour)	in	3.1	4.5	6.4
Runoff, Q (Use P and CN with table 2-1, fig. 2-1, or eqs. 2-3 and 2-4.)	in	2.87	4.26	6.16
Runoff, Q	cf	709	1054	1523

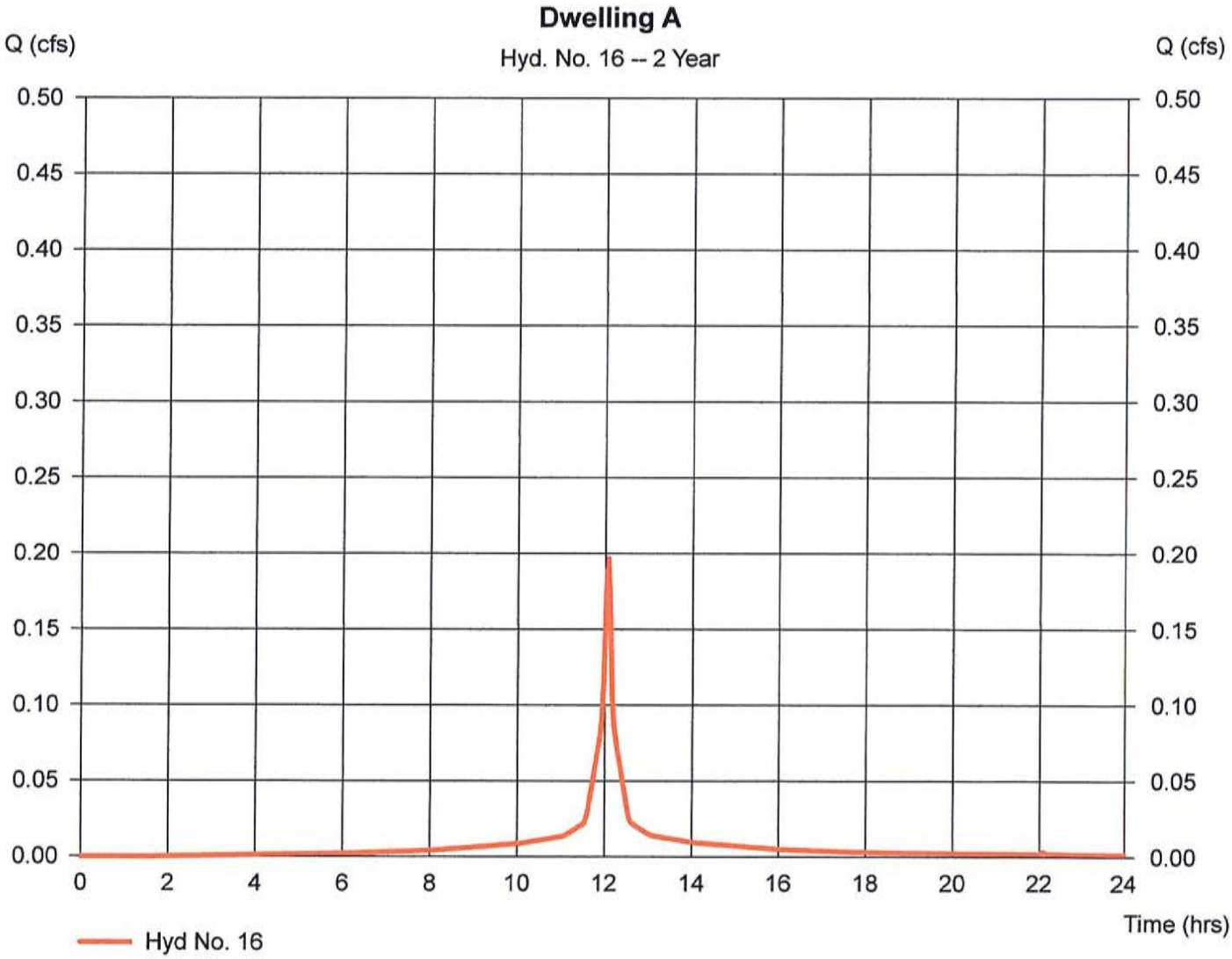
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 16

Dwelling A

Hydrograph type	= SCS Runoff	Peak discharge	= 0.197 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 664 cuft
Drainage area	= 0.068 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



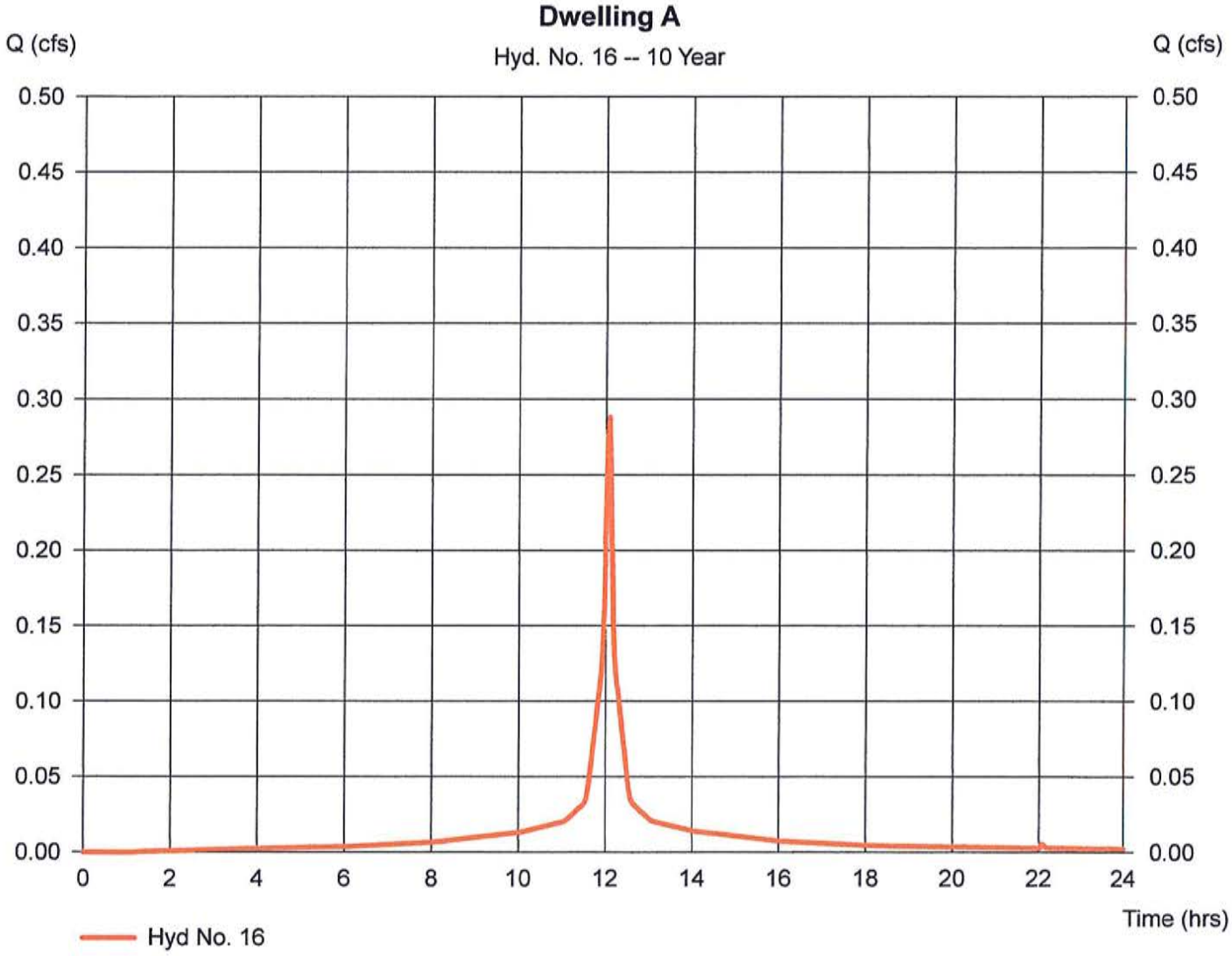
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 16

Dwelling A

Hydrograph type	= SCS Runoff	Peak discharge	= 0.288 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 987 cuft
Drainage area	= 0.068 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



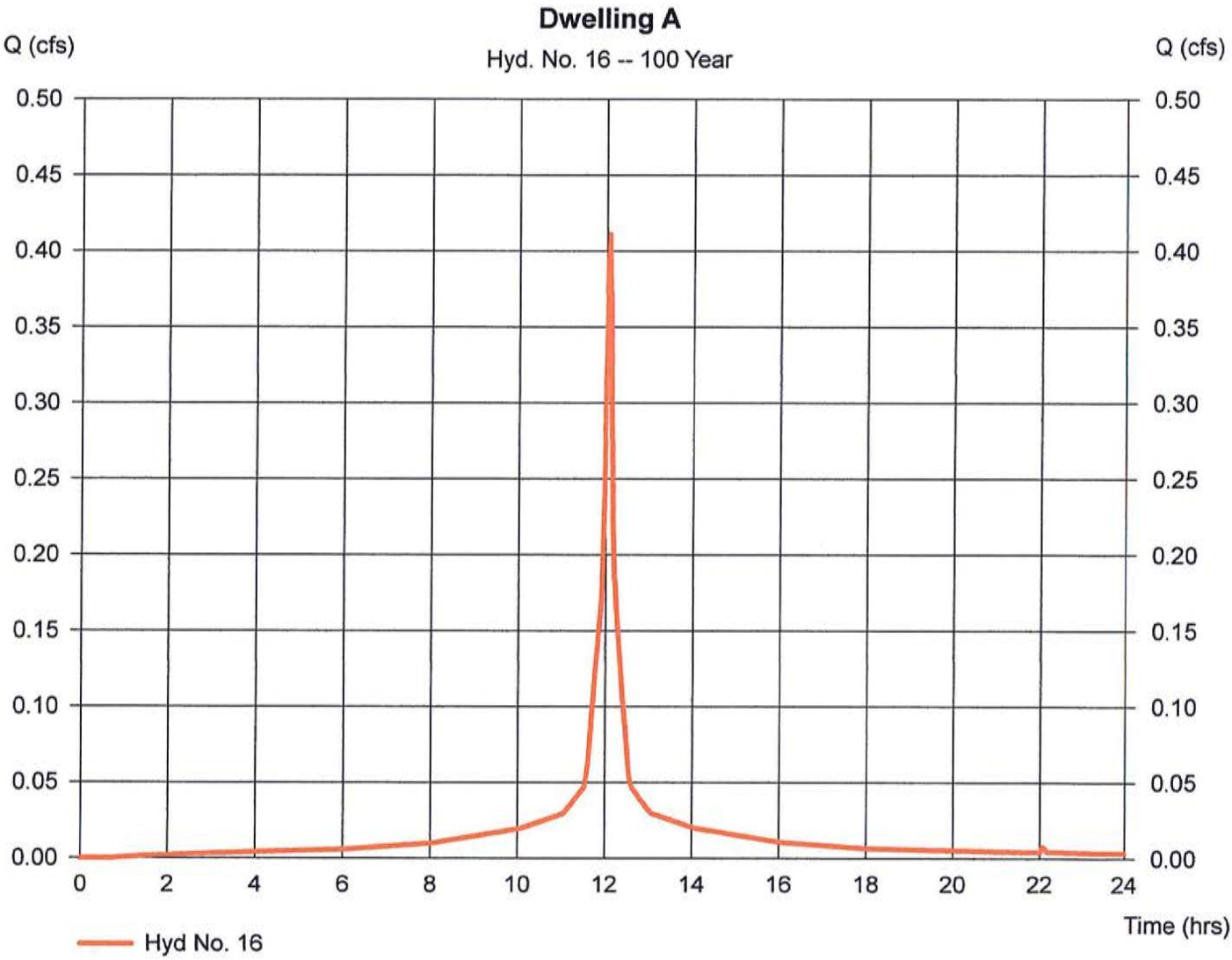
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 16

Dwelling A

Hydrograph type	= SCS Runoff	Peak discharge	= 0.411 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 1,426 cuft
Drainage area	= 0.068 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

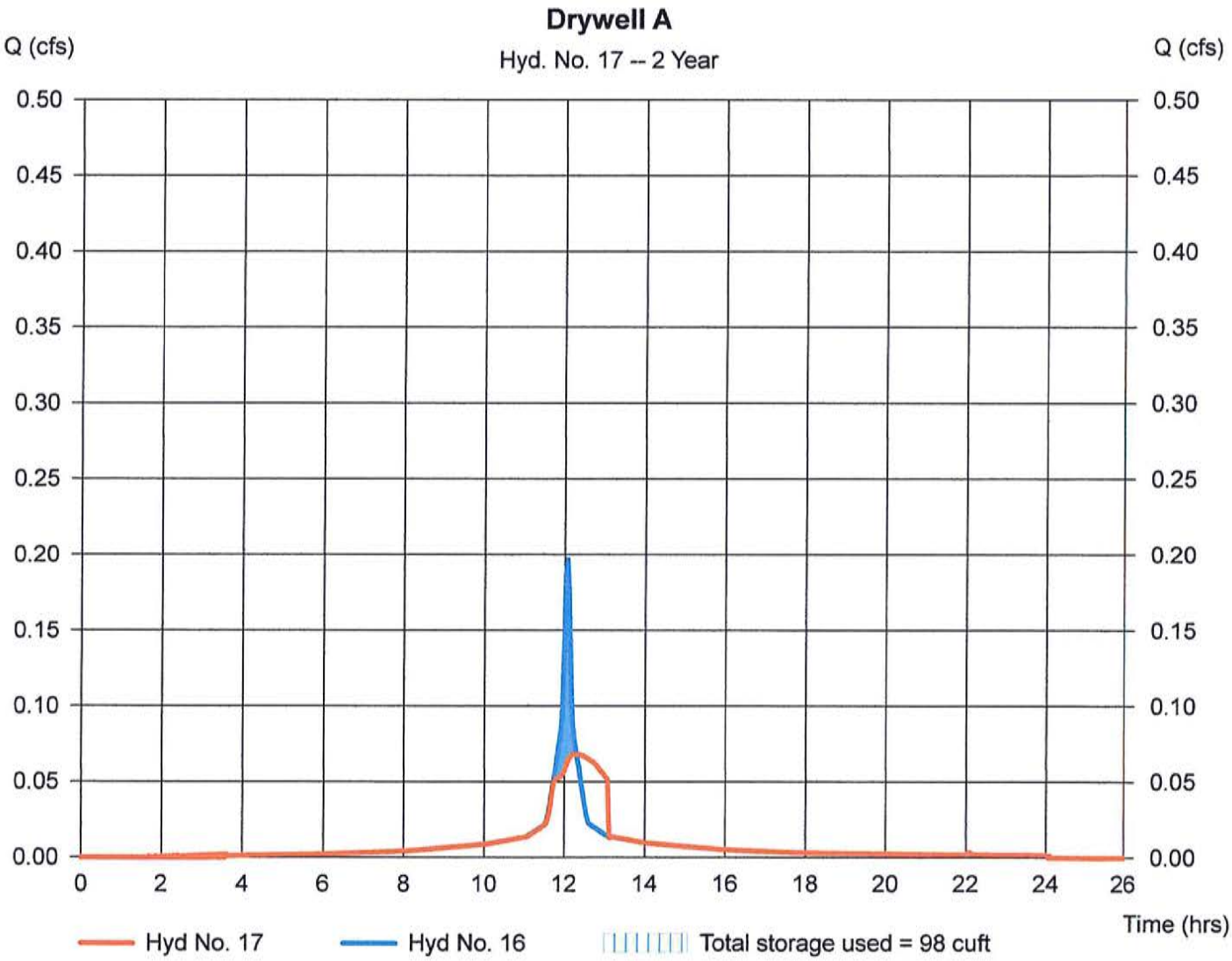
Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 17

Drywell A

Hydrograph type	= Reservoir	Peak discharge	= 0.068 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.30 hrs
Time interval	= 2 min	Hyd. volume	= 664 cuft
Inflow hyd. No.	= 16 - Dwelling A	Max. Elevation	= 176.71 ft
Reservoir name	= Roof Drywell A	Max. Storage	= 98 cuft

Storage Indication method used. Outflow includes exfiltration.



Hydrograph Report

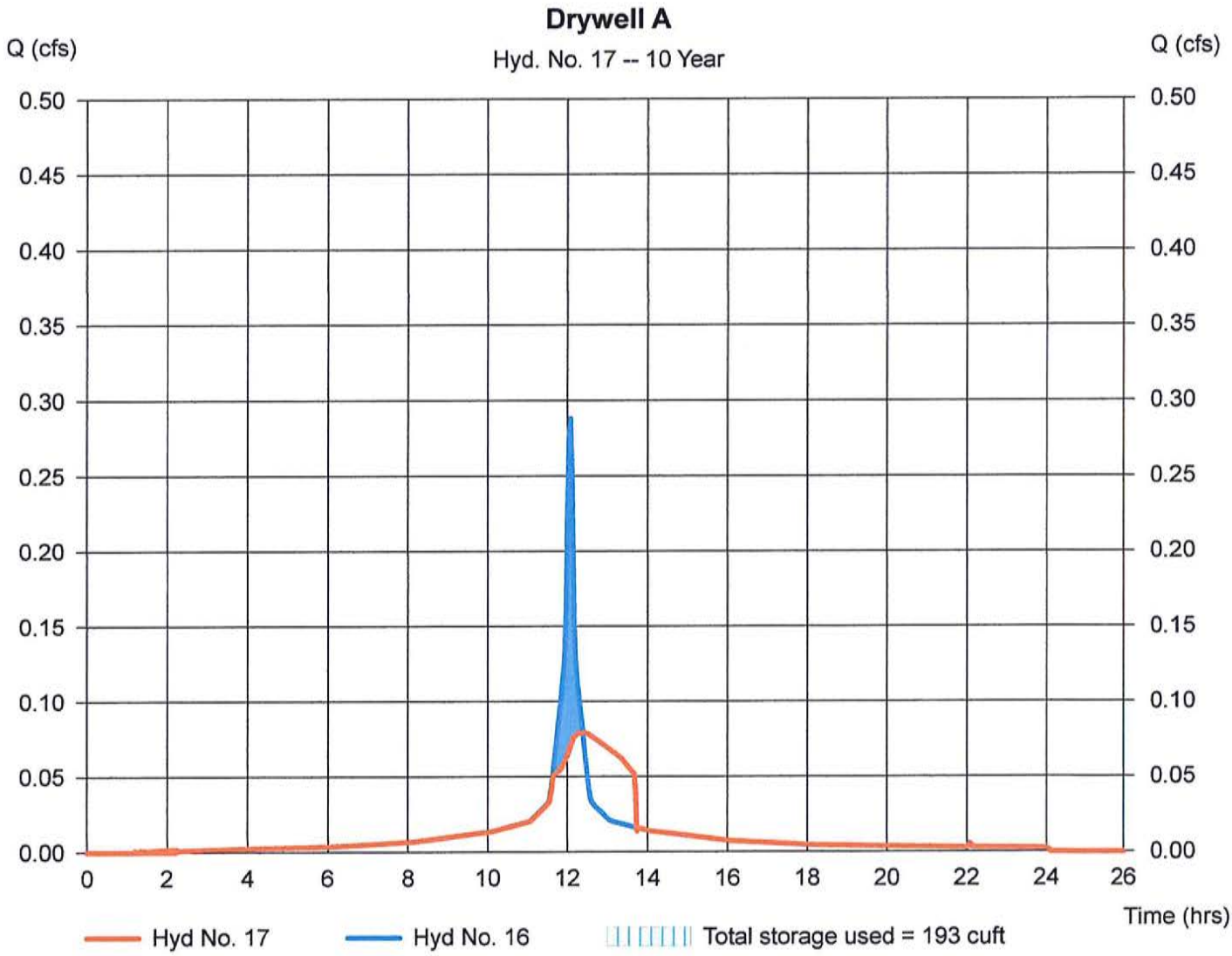
Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 17

Drywell A

Hydrograph type	= Reservoir	Peak discharge	= 0.080 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.37 hrs
Time interval	= 2 min	Hyd. volume	= 987 cuft
Inflow hyd. No.	= 16 - Dwelling A	Max. Elevation	= 177.16 ft
Reservoir name	= Roof Drywell A	Max. Storage	= 193 cuft

Storage Indication method used. Outflow includes exfiltration.



Hydrograph Report

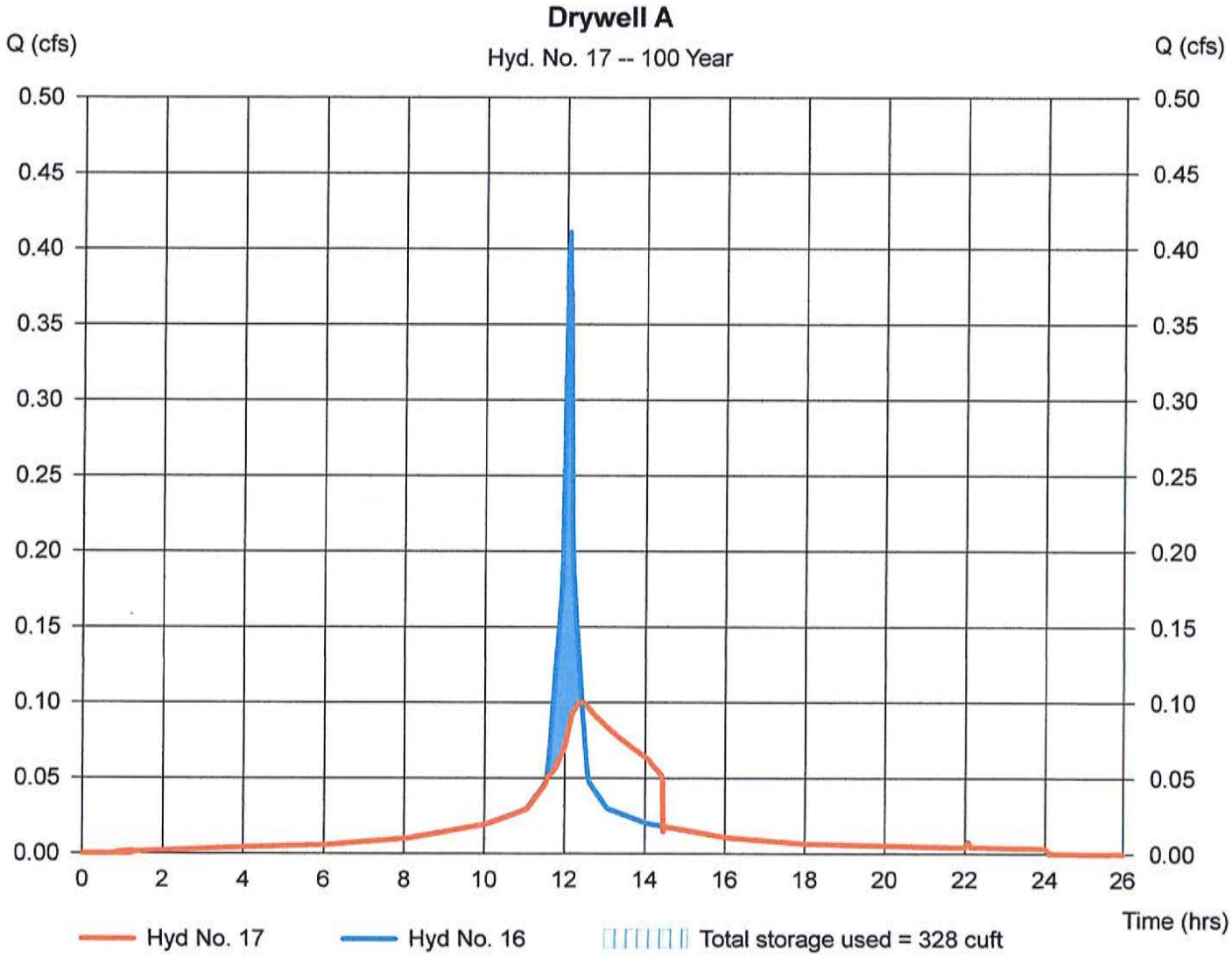
Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 17

Drywell A

Hydrograph type	= Reservoir	Peak discharge	= 0.100 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.43 hrs
Time interval	= 2 min	Hyd. volume	= 1,426 cuft
Inflow hyd. No.	= 16 - Dwelling A	Max. Elevation	= 178.01 ft
Reservoir name	= Roof Drywell A	Max. Storage	= 328 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Pond No. 7 - Roof Drywell A

Pond Data

UG Chambers - Invert elev. = 176.50 ft, Rise x Span = 1.33 x 2.83 ft, Barrel Len = 21.36 ft, No. Barrels = 3, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 176.00 ft, Width = 4.16 ft, Height = 2.33 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	176.00	n/a	0	0
0.23	176.23	n/a	25	25
0.47	176.47	n/a	25	50
0.70	176.70	n/a	46	96
0.93	176.93	n/a	49	146
1.17	177.17	n/a	48	193
1.40	177.40	n/a	45	239
1.63	177.63	n/a	41	280
1.86	177.86	n/a	33	312
2.10	178.10	n/a	25	337
2.33	178.33	n/a	25	362

Culvert / Orifice Structures

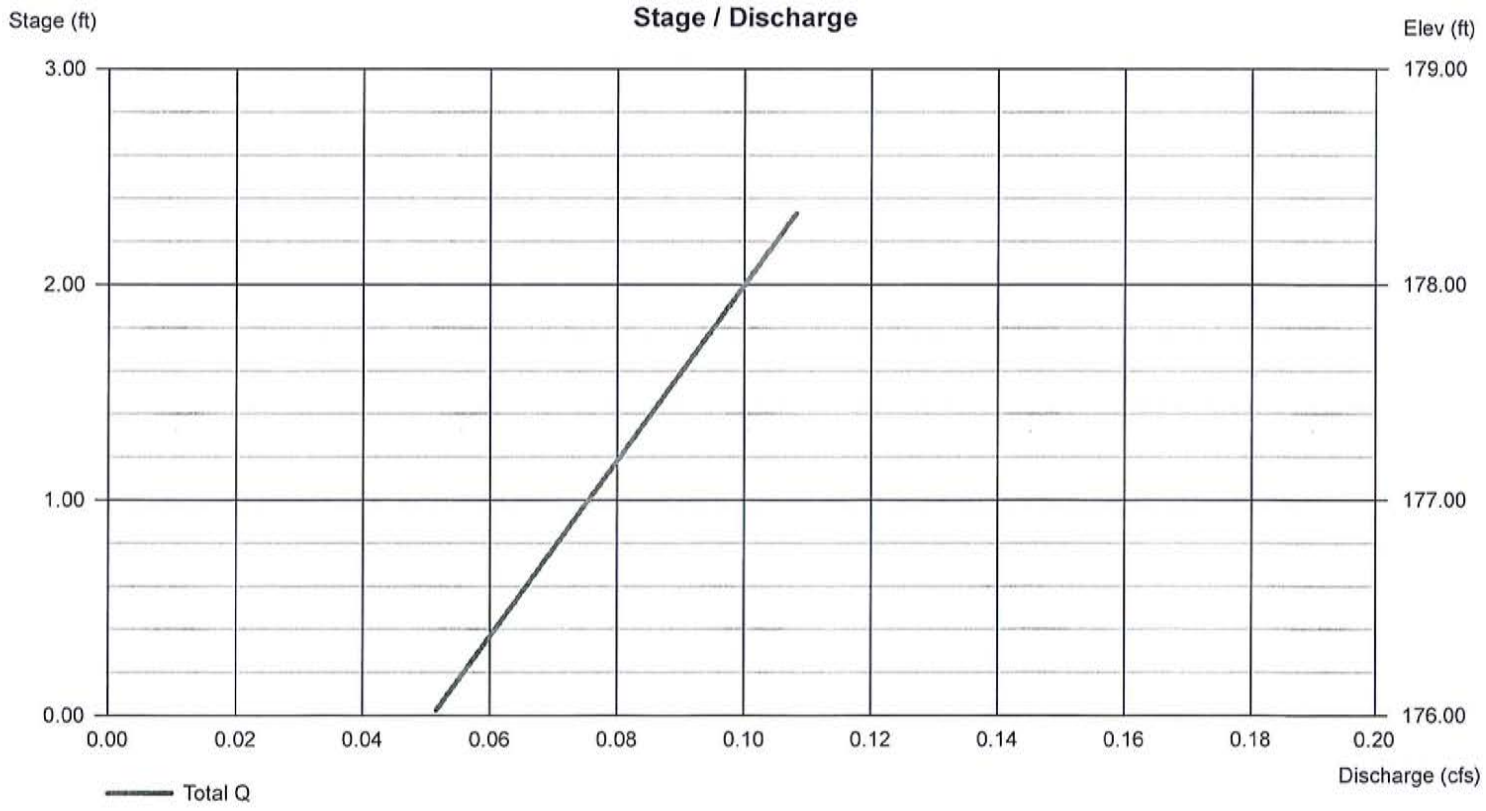
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	Inactive	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 8.270 (by Wet area)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Worksheet 2: Runoff curve number and runoff SM-5676

Project: 443 Lincoln St By PFK Date 1/29/18

Location: Lexington, MA Checked _____ Date _____

Circle one: Present [Developed] Roof Drywells B & C

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)			CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive		0	98			0.00	0.00
-	Impervious - Building		3,848	98			0.09	8.66
A	Woods and Brush	Good Condition	0	30			0.00	0.00
A	Open Space	Good Condition		39			0.00	0.00
							Totals = 0.09	8.66

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{8.66}{0.09} = 98.00$; Use CN = [98.0]

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency.....	yr	2	10	100
Rainfall, P (24-hour).....	in	3.1	4.5	6.4
Runoff, Q..... (Use P and CN with table 2-1, fig. 2-1,) or eqs. 2-3 and 2-4.)	in	2.87	4.26	6.16
Runoff, Q.....	cf	920	1367	1976

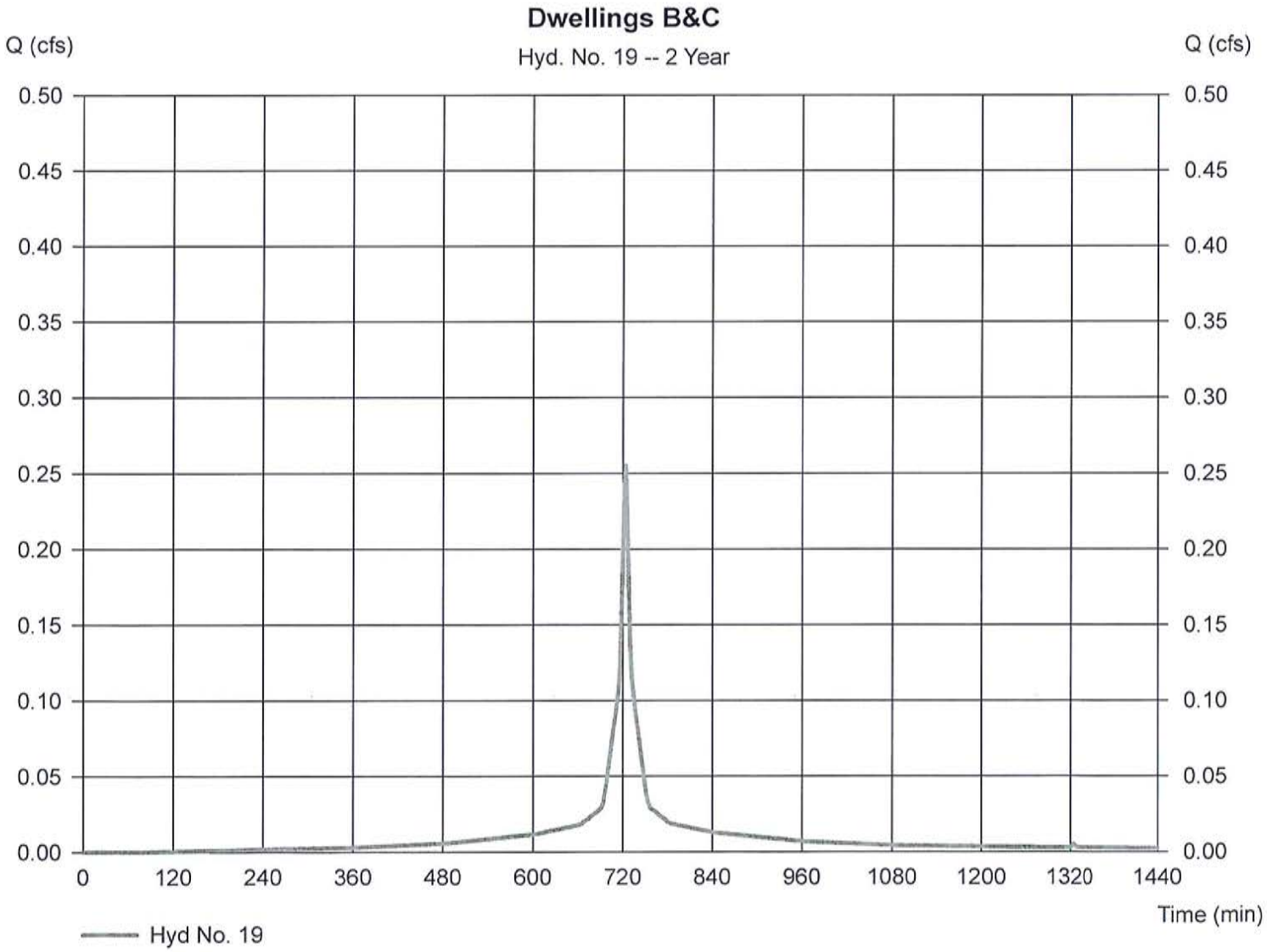
(210-VI-TR-55, Second Ed., June 1986)

Hydrograph Report

Hyd. No. 19

Dwellings B&C

Hydrograph type	= SCS Runoff	Peak discharge	= 0.255 cfs
Storm frequency	= 2 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 859 cuft
Drainage area	= 0.088 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

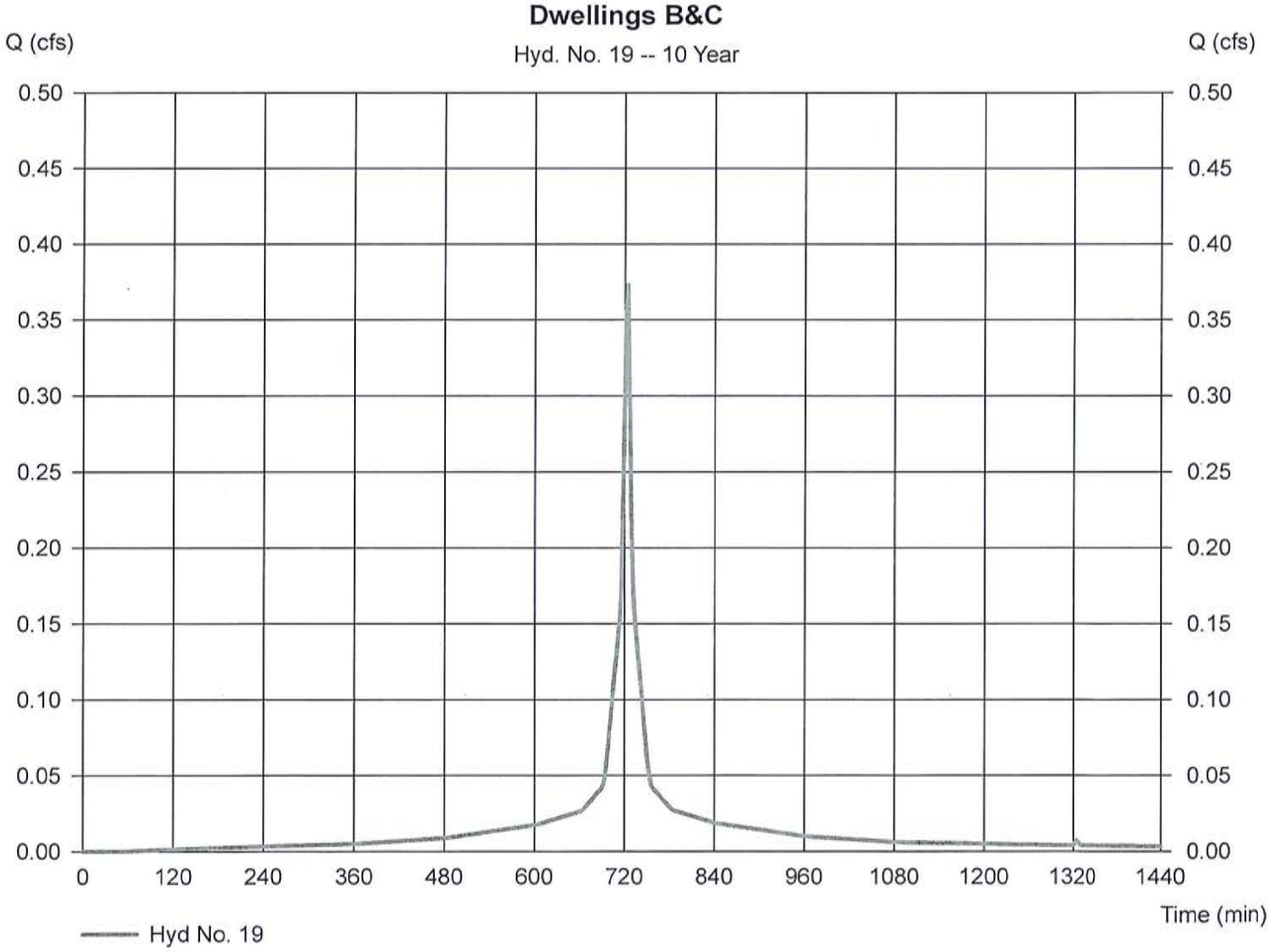


Hydrograph Report

Hyd. No. 19

Dwellings B&C

Hydrograph type	= SCS Runoff	Peak discharge	= 0.373 cfs
Storm frequency	= 10 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,277 cuft
Drainage area	= 0.088 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

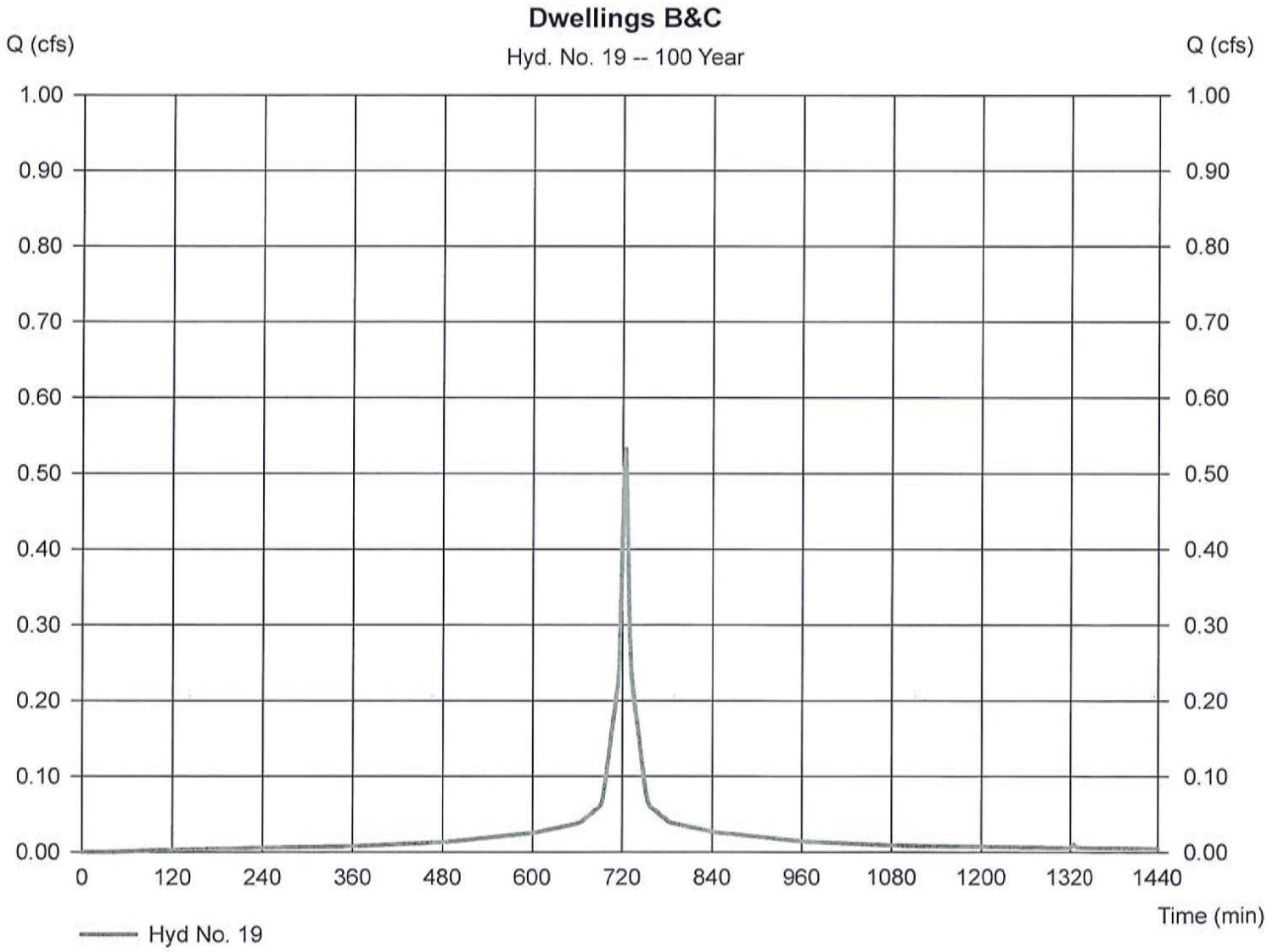


Hydrograph Report

Hyd. No. 19

Dwellings B&C

Hydrograph type	= SCS Runoff	Peak discharge	= 0.532 cfs
Storm frequency	= 100 yrs	Time to peak	= 724 min
Time interval	= 2 min	Hyd. volume	= 1,845 cuft
Drainage area	= 0.088 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



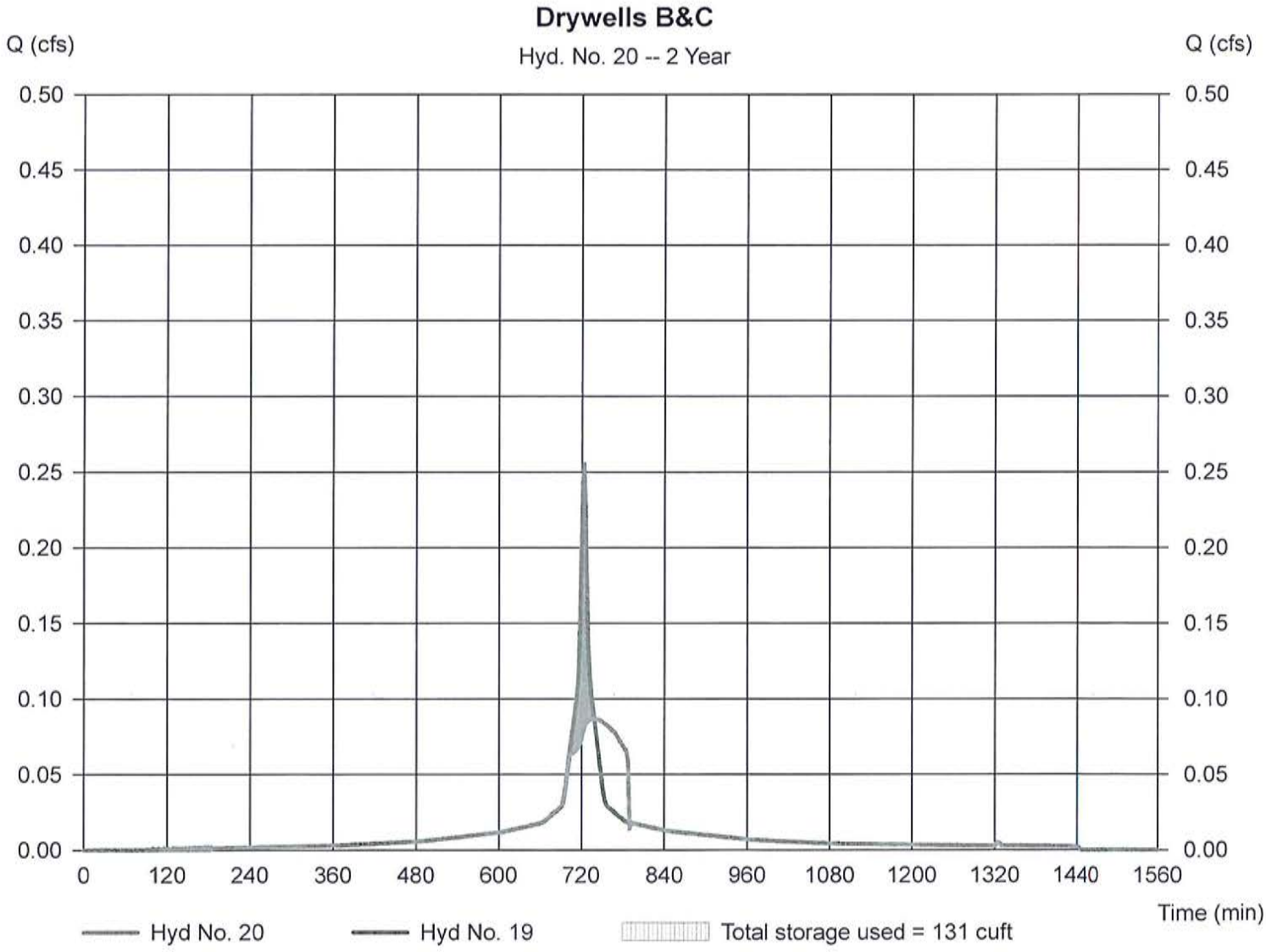
Hydrograph Report

Hyd. No. 20

Drywells B&C

Hydrograph type	= Reservoir	Peak discharge	= 0.087 cfs
Storm frequency	= 2 yrs	Time to peak	= 738 min
Time interval	= 2 min	Hyd. volume	= 859 cuft
Inflow hyd. No.	= 19 - Dwellings B&C	Max. Elevation	= 0.74 ft
Reservoir name	= Roof Drywell B	Max. Storage	= 131 cuft

Storage Indication method used. Outflow includes exfiltration.



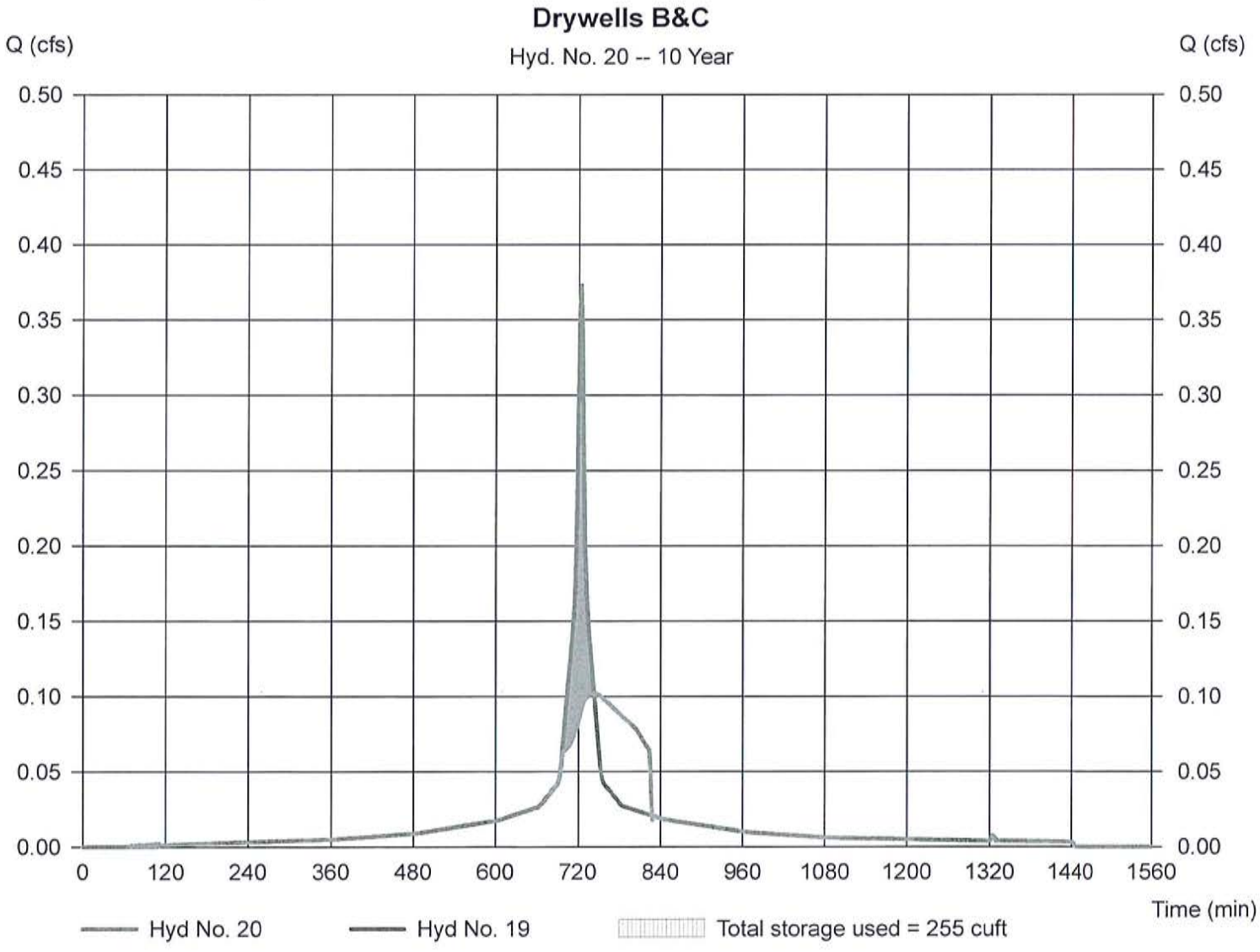
Hydrograph Report

Hyd. No. 20

Drywells B&C

Hydrograph type	= Reservoir	Peak discharge	= 0.102 cfs
Storm frequency	= 10 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 1,277 cuft
Inflow hyd. No.	= 19 - Dwellings B&C	Max. Elevation	= 1.21 ft
Reservoir name	= Roof Drywell B	Max. Storage	= 255 cuft

Storage Indication method used. Outflow includes exfiltration.



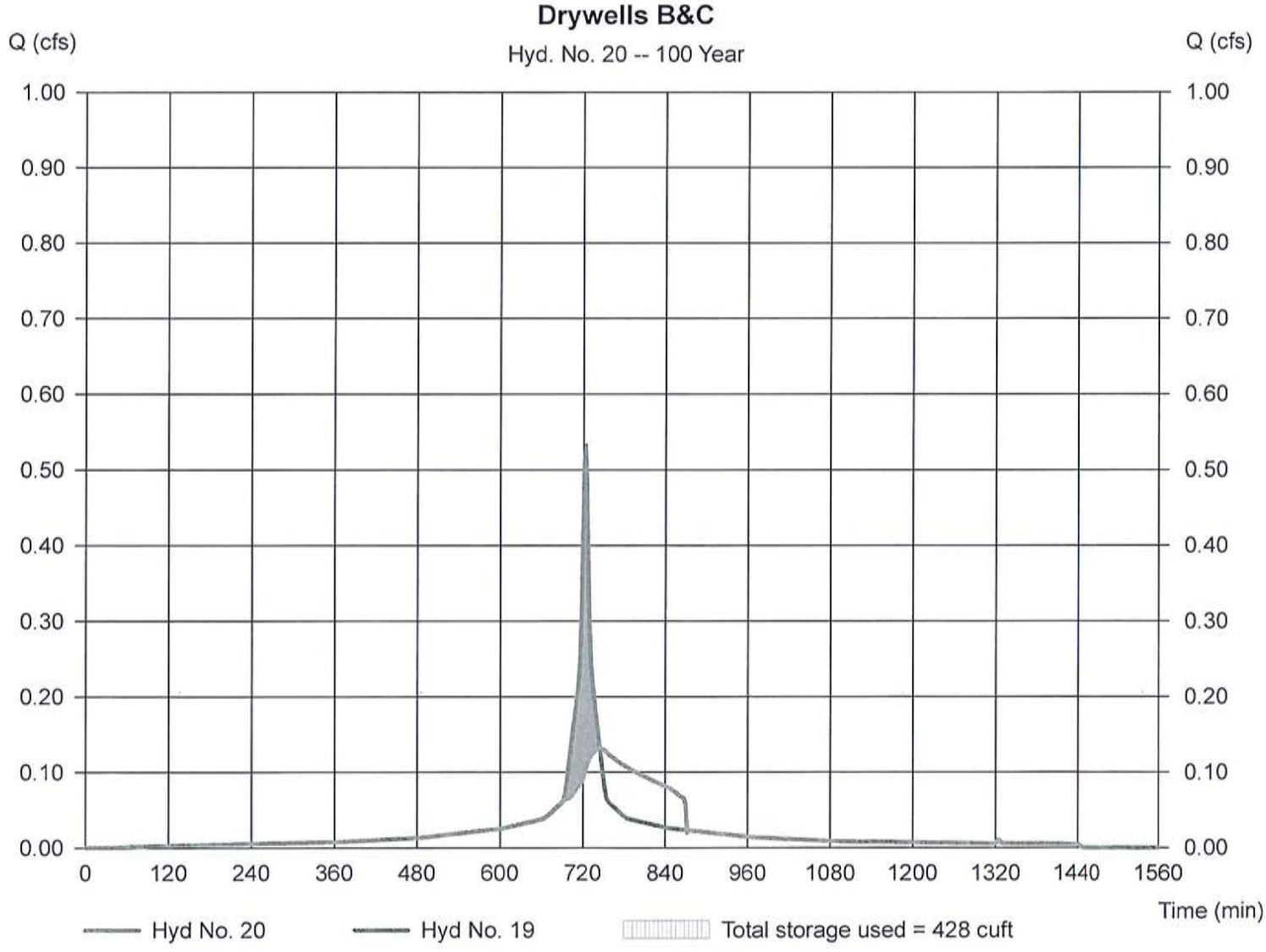
Hydrograph Report

Hyd. No. 20

Drywells B&C

Hydrograph type	= Reservoir	Peak discharge	= 0.132 cfs
Storm frequency	= 100 yrs	Time to peak	= 744 min
Time interval	= 2 min	Hyd. volume	= 1,845 cuft
Inflow hyd. No.	= 19 - Dwellings B&C	Max. Elevation	= 2.12 ft
Reservoir name	= Roof Drywell B	Max. Storage	= 428 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2 — Friday, Feb 9, 2018

Pond No. 5 - Roof Drywells B&C

Pond Data

UG Chambers - Invert elev. = 176.50 ft, Rise x Span = 1.33 x 2.83 ft, Barrel Len = 28.48 ft, No. Barrels = 3, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 176.00 ft, Width = 3.83 ft, Height = 2.33 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	176.00	n/a	0	0
0.23	176.23	n/a	31	31
0.47	176.47	n/a	31	61
0.70	176.70	n/a	59	120
0.93	176.93	n/a	63	184
1.17	177.17	n/a	61	245
1.40	177.40	n/a	58	303
1.63	177.63	n/a	52	355
1.86	177.86	n/a	41	396
2.10	178.10	n/a	31	426
2.33	178.33	n/a	31	457

Culvert / Orifice Structures

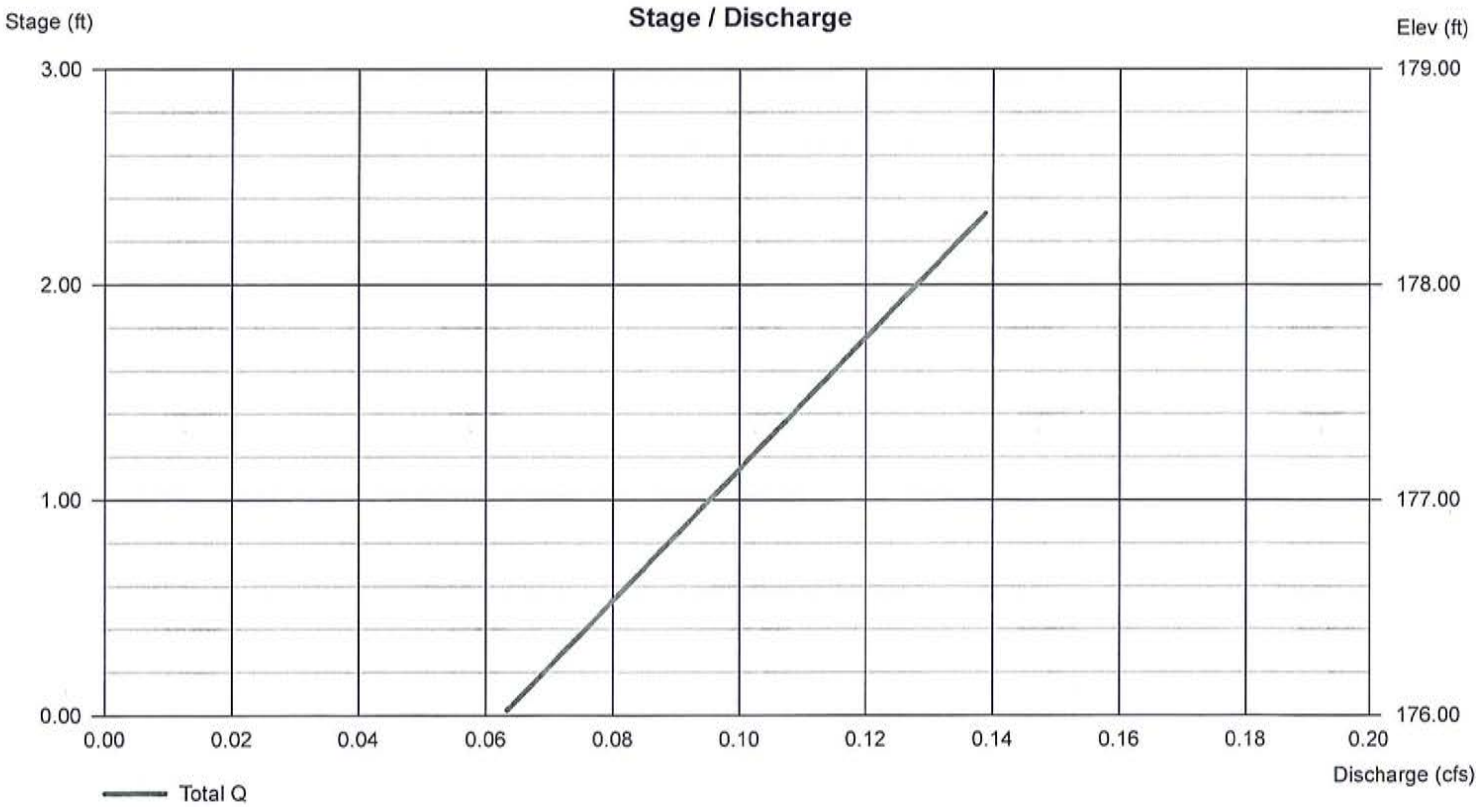
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 8.270 (by Wet area)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Worksheet 2: Runoff curve number and runoff SM-5676

Project: 443 Lincoln St By PFK Date 1/29/18

Location: Lexington, MA Checked _____ Date _____

Circle one: Present [Developed] Roof Drywell D

1. Runoff curve number (CN)

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition: percent impervious: unconnected/connected impervious area ratio)			CN 1/ Table 2-2	CN 1/ Fig. 2-3	CN 1/ Fig. 2-4	Area Acres	Product of CN x Area
-	Impervious - Drive		0	98			0.00	0.00
-	Impervious - Building		3,194	98			0.07	7.19
A	Woods and Brush	Good Condition	0	30			0.00	0.00
A	Open Space	Good Condition		39			0.00	0.00
						Totals =	0.07	7.19

1/ Use only one CN source per line.

CN (weighted) = $\frac{\text{total product}}{\text{total area}} = \frac{7.19}{0.07} = 98.00$; Use CN = [98.0]

2. Runoff

		Storm #1	Storm #2	Storm #3
Frequency	yr	2	10	100
Rainfall, P (24-hour)	in	3.1	4.5	6.4
Runoff, Q (Use P and CN with table 2-1, fig. 2-1,) or eqs. 2-3 and 2-4.)	in	2.87	4.26	6.16
Runoff, Q	cf	763	1135	1640

(210-VI-TR-55, Second Ed., June 1986)

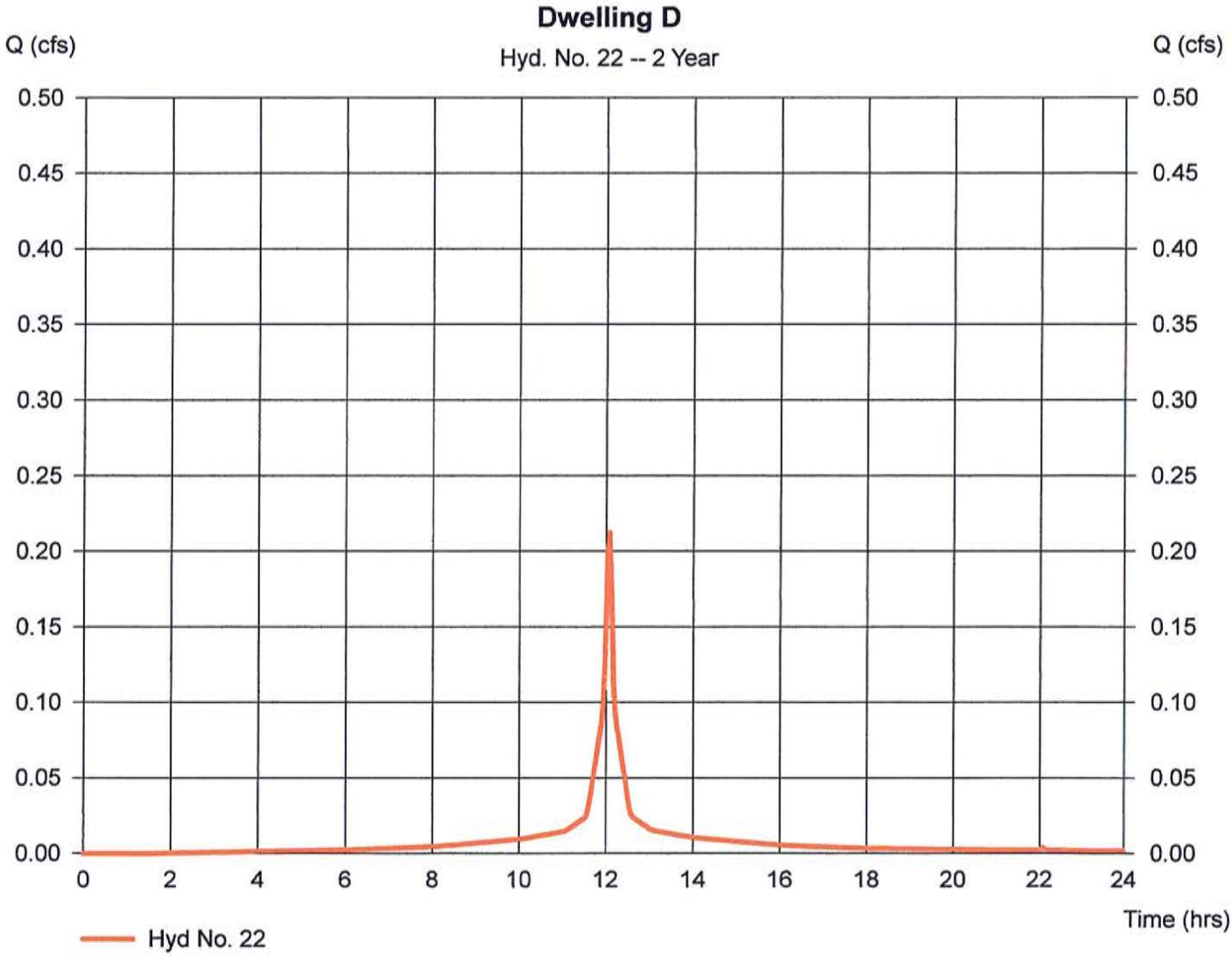
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 22

Dwelling D

Hydrograph type	= SCS Runoff	Peak discharge	= 0.213 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 715 cuft
Drainage area	= 0.073 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 3.10 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



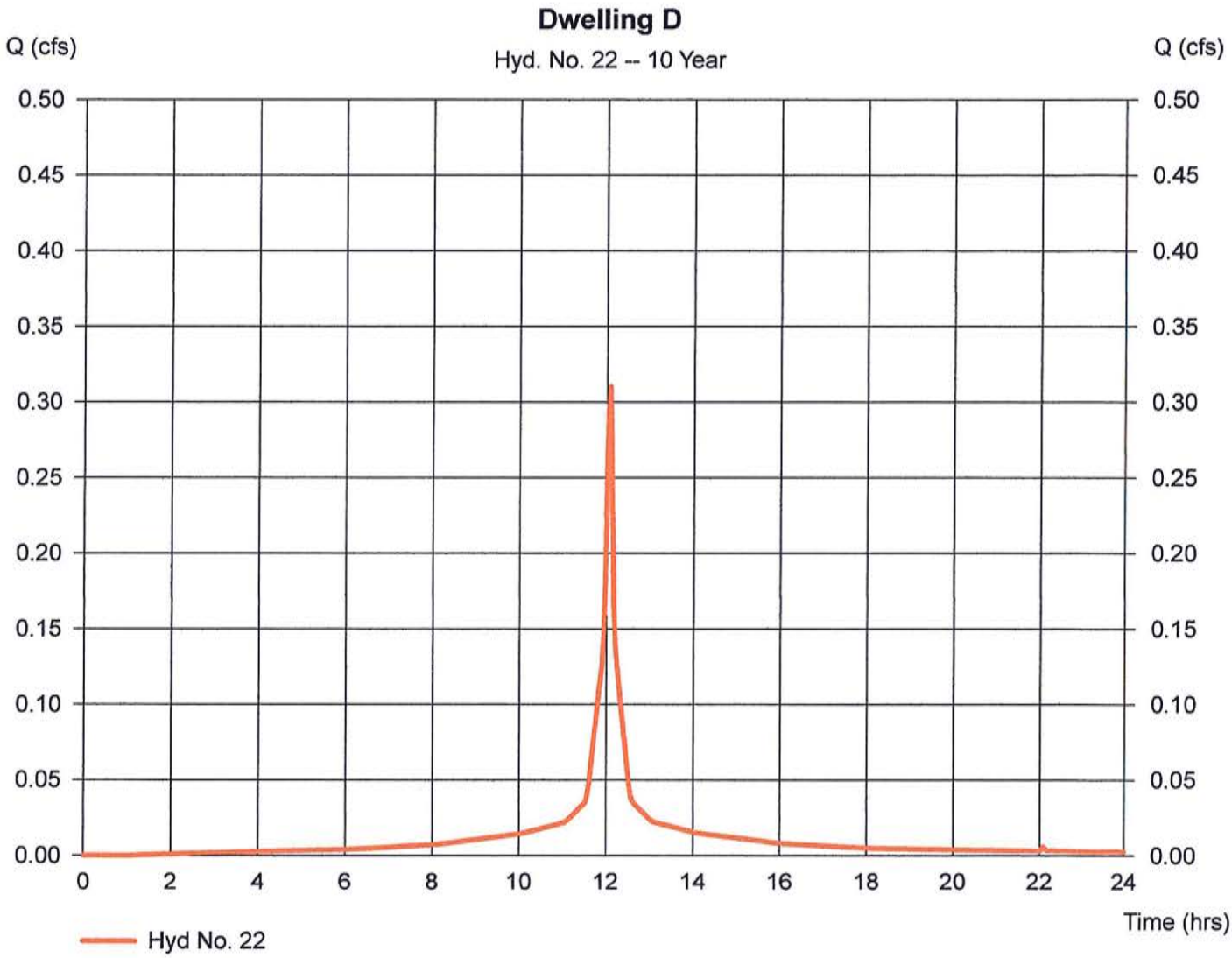
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 22

Dwelling D

Hydrograph type	= SCS Runoff	Peak discharge	= 0.311 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 1,064 cuft
Drainage area	= 0.073 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 4.50 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



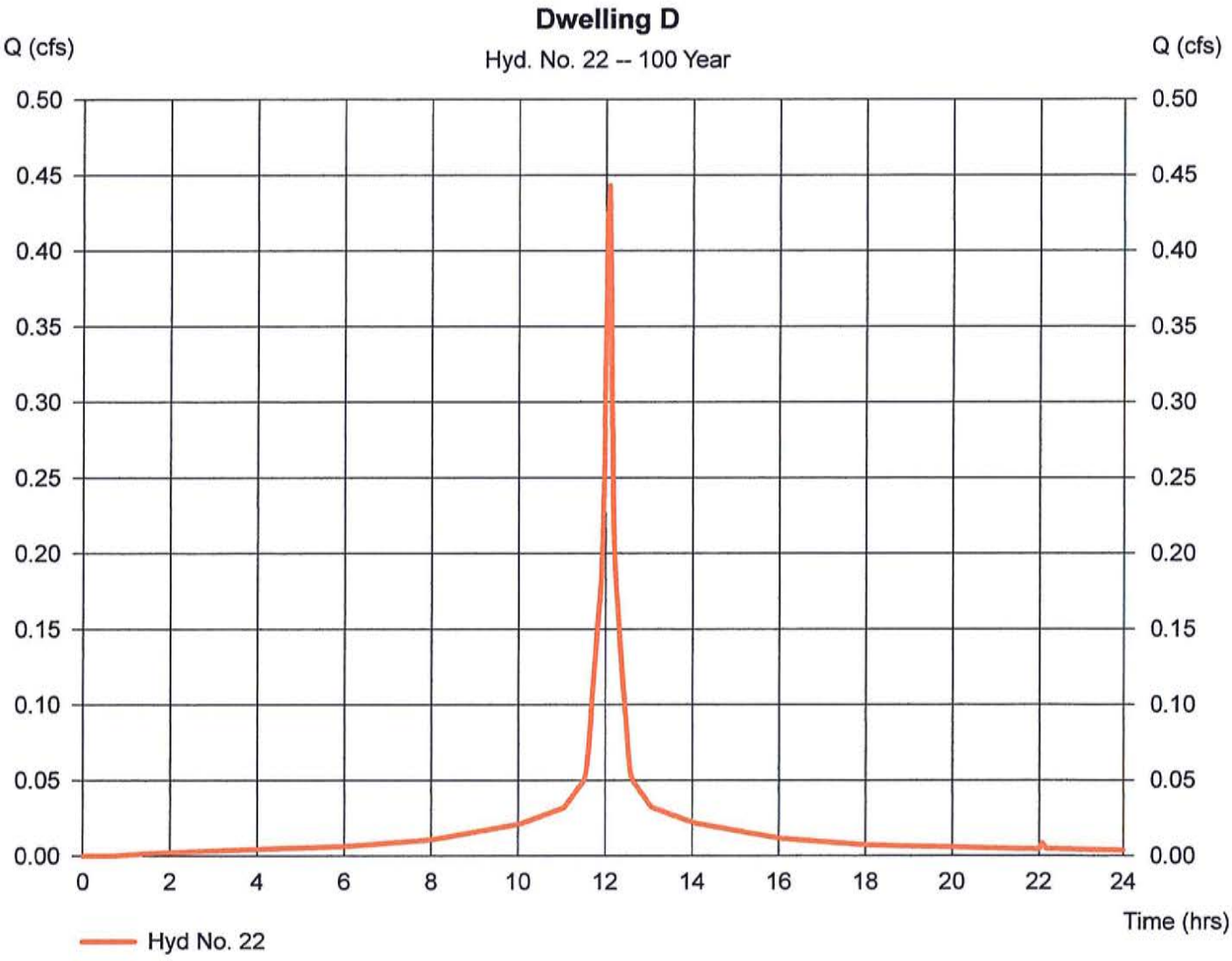
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 22

Dwelling D

Hydrograph type	= SCS Runoff	Peak discharge	= 0.443 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.07 hrs
Time interval	= 2 min	Hyd. volume	= 1,537 cuft
Drainage area	= 0.073 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 6.00 min
Total precip.	= 6.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484



Hydrograph Report

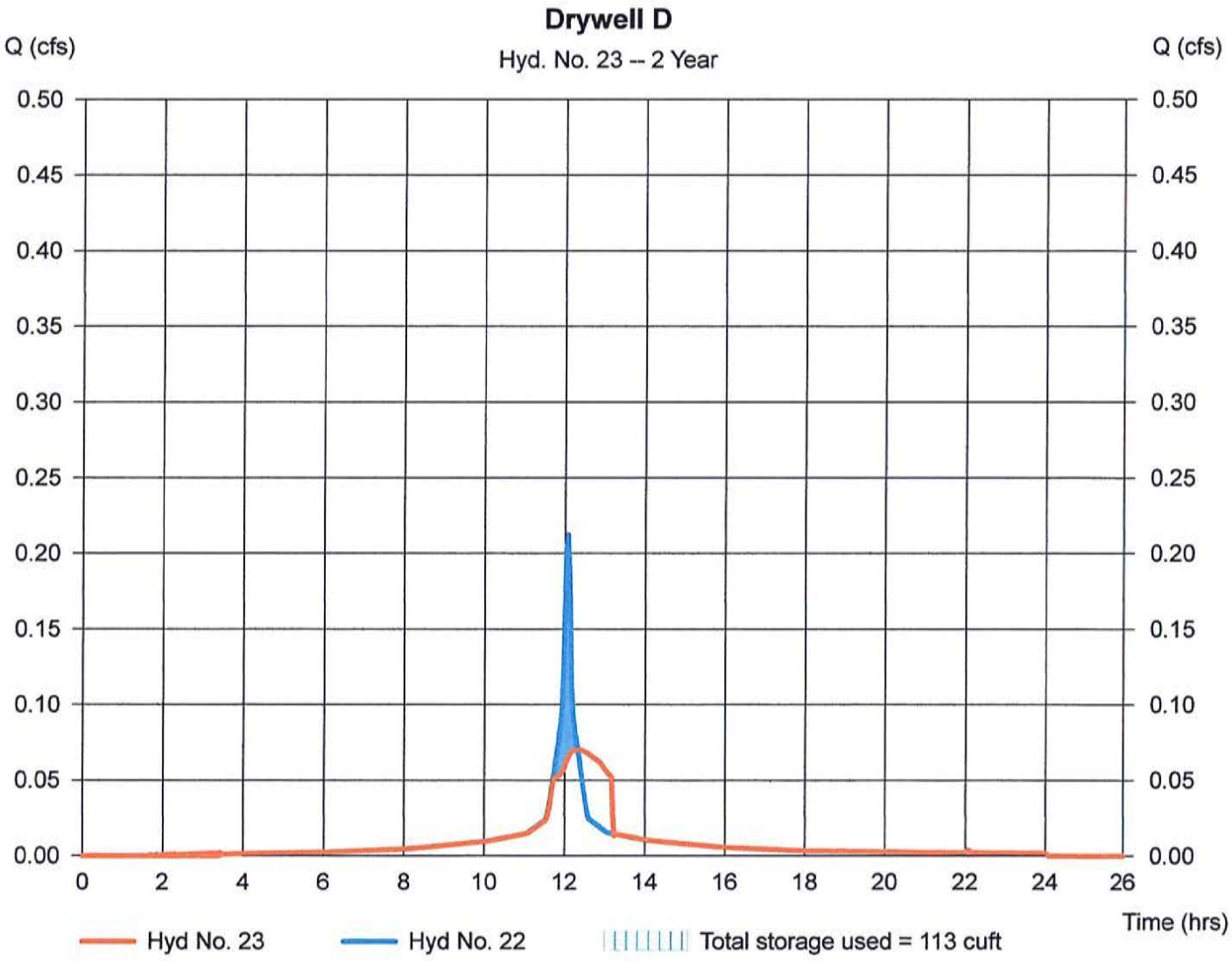
Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 23

Drywell D

Hydrograph type	= Reservoir	Peak discharge	= 0.070 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.33 hrs
Time interval	= 2 min	Hyd. volume	= 715 cuft
Inflow hyd. No.	= 22 - Dwelling D	Max. Elevation	= 176.78 ft
Reservoir name	= Rood Drywell D	Max. Storage	= 113 cuft

Storage Indication method used. Outflow includes exfiltration.



Hydrograph Report

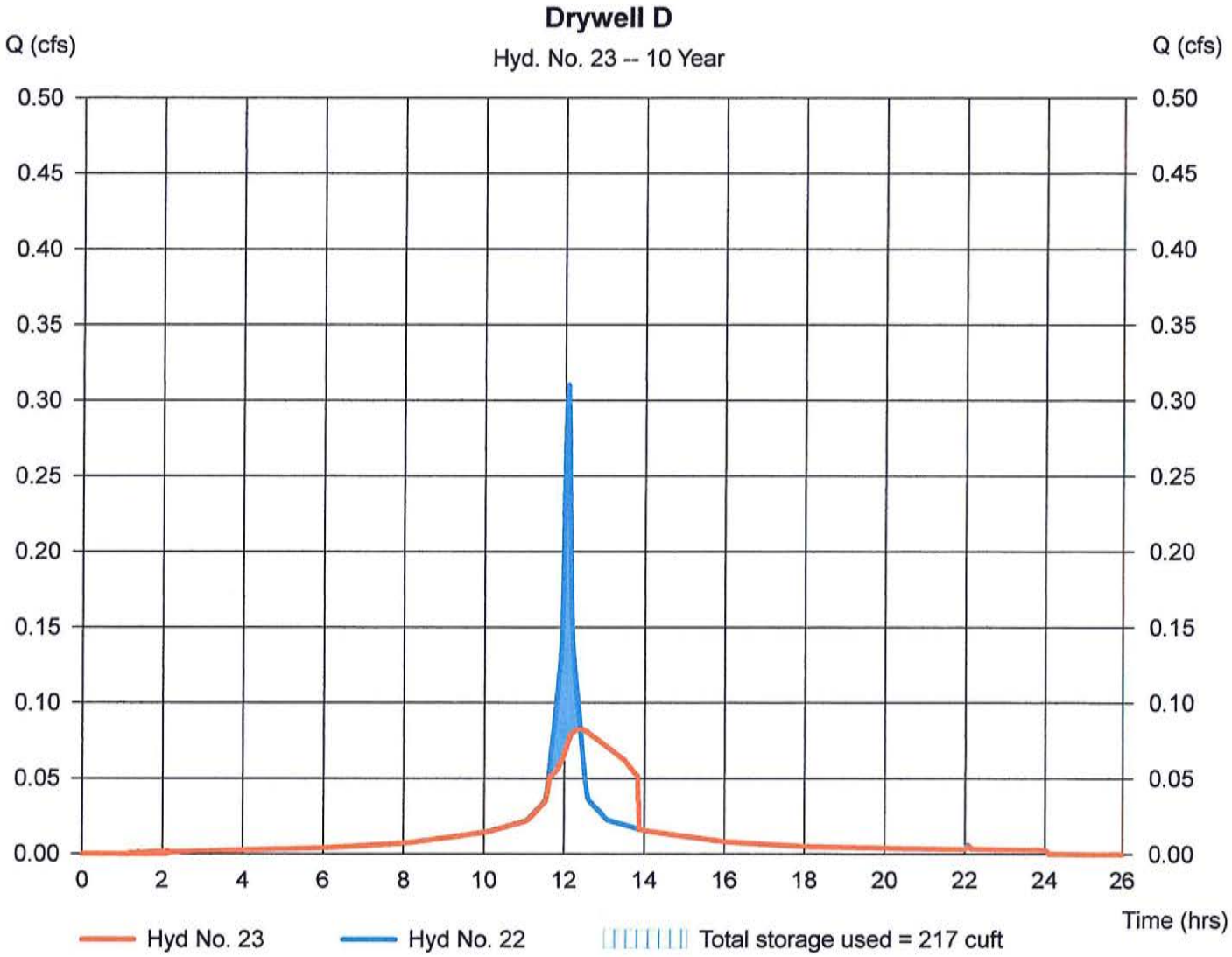
Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 23

Drywell D

Hydrograph type	= Reservoir	Peak discharge	= 0.083 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.40 hrs
Time interval	= 2 min	Hyd. volume	= 1,064 cuft
Inflow hyd. No.	= 22 - Dwelling D	Max. Elevation	= 177.29 ft
Reservoir name	= Rood Drywell D	Max. Storage	= 217 cuft

Storage Indication method used. Outflow includes exfiltration.



Hydrograph Report

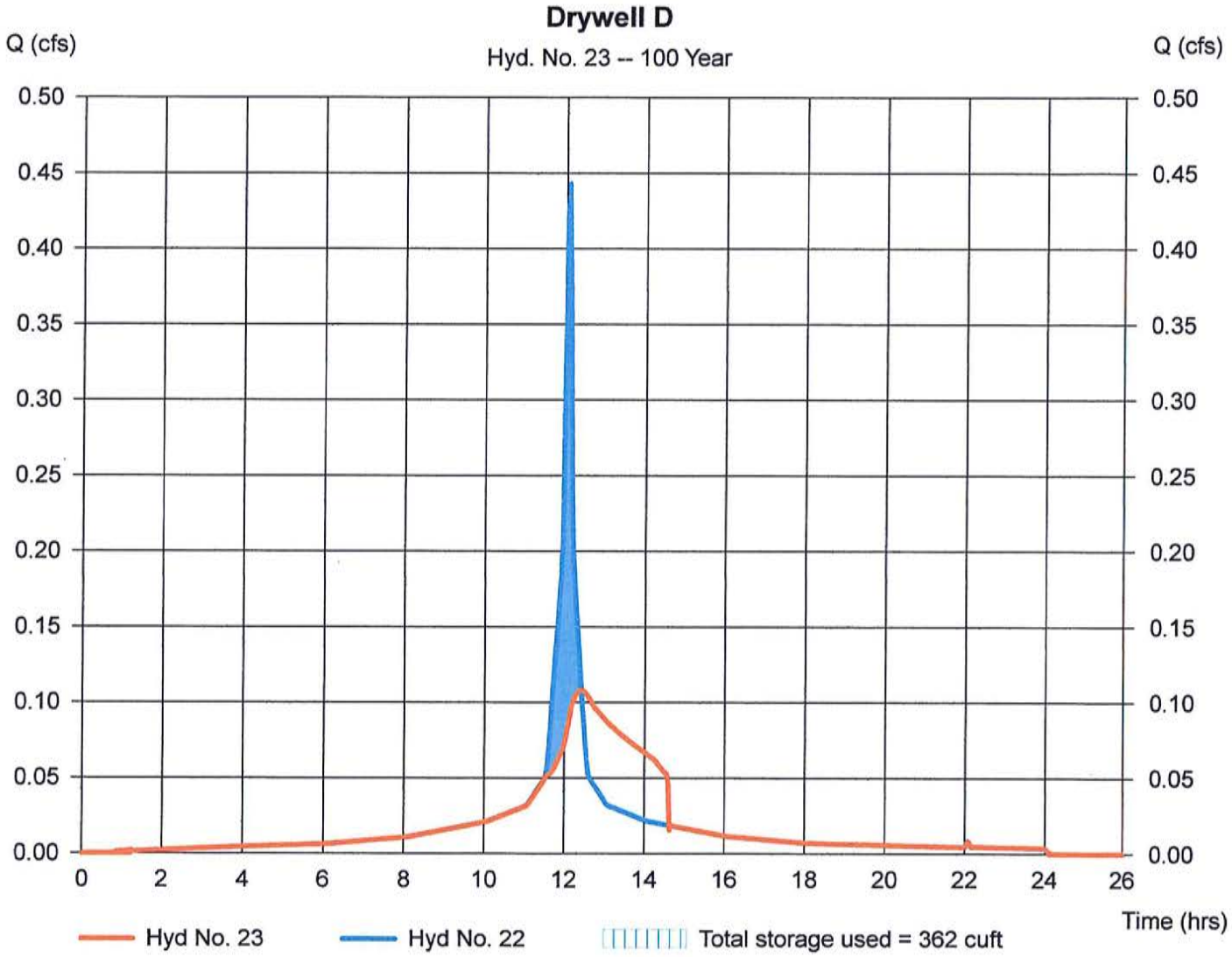
Hydraflow Hydrographs by Intelisolve v9.2 — Wednesday, Feb 21, 2018

Hyd. No. 23

Drywell D

Hydrograph type	= Reservoir	Peak discharge	= 0.108 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.43 hrs
Time interval	= 2 min	Hyd. volume	= 1,537 cuft
Inflow hyd. No.	= 22 - Dwelling D	Max. Elevation	= 178.33 ft
Reservoir name	= Rood Drywell D	Max. Storage	= 362 cuft

Storage Indication method used. Outflow includes exfiltration.



Pond Report

Hydraflow Hydrographs by Intelisolve v9.2 — Friday, Feb 9, 2018

Pond No. 9 - Rood Drywell D

Pond Data

UG Chambers - Invert elev. = 176.50 ft, Rise x Span = 1.33 x 2.83 ft, Barrel Len = 21.36 ft, No. Barrels = 3, Slope = 0.00%, Headers = No
Encasement - Invert elev. = 176.00 ft, Width = 4.16 ft, Height = 2.33 ft, Voids = 40.00%

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour area (sqft)	Incr. Storage (cuft)	Total storage (cuft)
0.00	176.00	n/a	0	0
0.23	176.23	n/a	25	25
0.47	176.47	n/a	25	50
0.70	176.70	n/a	46	96
0.93	176.93	n/a	49	146
1.17	177.17	n/a	48	193
1.40	177.40	n/a	45	239
1.63	177.63	n/a	41	280
1.86	177.86	n/a	33	312
2.10	178.10	n/a	25	337
2.33	178.33	n/a	25	362

Culvert / Orifice Structures

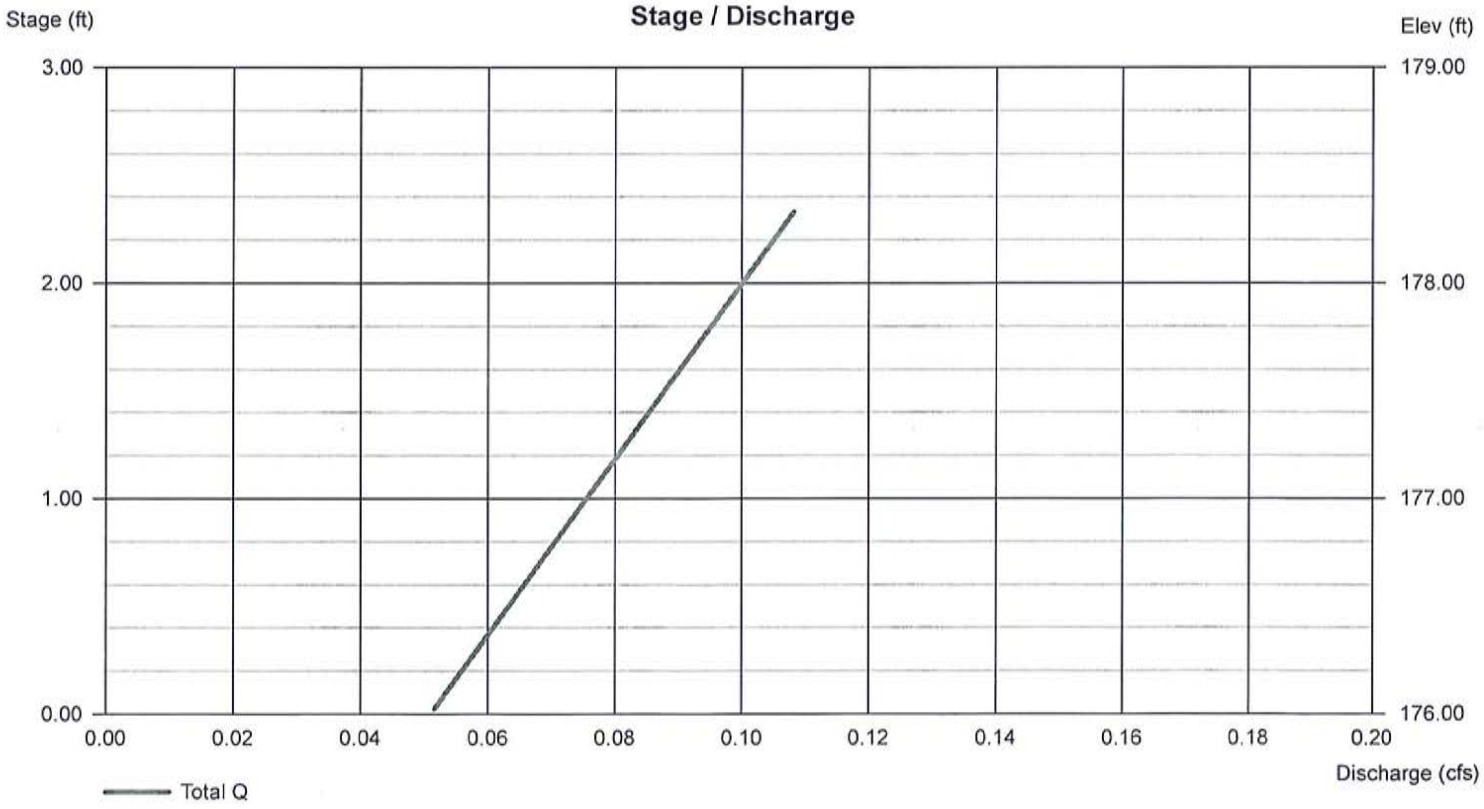
	[A]	[B]	[C]	[PrfRsr]
Rise (in)	= 0.00	0.00	0.00	0.00
Span (in)	= 0.00	0.00	0.00	0.00
No. Barrels	= 0	0	0	0
Invert El. (ft)	= 0.00	0.00	0.00	0.00
Length (ft)	= 0.00	0.00	0.00	0.00
Slope (%)	= 0.00	0.00	0.00	n/a
N-Value	= .013	.013	.013	n/a
Orifice Coeff.	= 0.60	0.60	0.60	0.60
Multi-Stage	= n/a	No	No	No

Weir Structures

	[A]	[B]	[C]	[D]
Crest Len (ft)	= 0.00	0.00	0.00	0.00
Crest El. (ft)	= 0.00	0.00	0.00	0.00
Weir Coeff.	= 3.33	3.33	3.33	3.33
Weir Type	= ---	---	---	---
Multi-Stage	= No	No	No	No

Exfil.(in/hr) = 8.270 (by Wet area)
TW Elev. (ft) = 0.00

Note: Culvert/Orifice outflows are analyzed under inlet (ic) and outlet (oc) control. Weir risers checked for orifice conditions (ic) and submergence (s).



Water Quality Volume Calculations

Water Quality Volume Calculations

Job: 5676

Calculated by: DJC
Date: 2/21/2018

Infiltration Basin 1
Soils:
Hydrologic Group: A
Required First Flush Volume
1 inch of runoff x impervious area

Impervious area: 0.34 acres
14,768 s.f.

Infiltration Basin 1 (below outlet)

Elev. (FT)	Change Elev. (FT)	Area (SF)	Inc. Volume (CF)	
174.8	0	2635		
175	0.2	2990	562.5	
175.8	0.8	3741	2692.4	**3254.9**

Required Water Quality Volume

$$V = 14{,}768 \text{ s.f.} \times \frac{1}{12} = \mathbf{1{,}231 \text{ c.f.}}$$

Volume Provided 3,255 c.f.

3,255 c.f. > 1,231 c.f. O.K.

Groundwater Recharge Calculations

Recharge Volume Calculations

Job: SM-5676

Calculated by: DJC
Date: 2/21/2018

Infiltration Basin 1 from Sub P-2A
Soils:
Hydrologic Group: A
Required Recharge Volume
0.6 inches of runoff x impervious area

Impervious area: 0.34 acres
14,768 s.f.

Required Recharge Volume (Rv)

$$Rv = 14{,}768 \text{ s.f.} \times \frac{0.6}{12} = \mathbf{738} \text{ c.f.}$$

Simple Dynamic Method
A=Rv / (D+KT)
Rv=A(D+kT)

D (depth of infiltration facility):	2.2	ft
K (saturated hydraulic conductivity):	8.27	inches/hour
	0.69	feet/hour
T (time):	2	hours
A=	2,635	s.f.
Voids=	1.00	
Rv=	9,429	c.f. > 738 c.f.

72 Hour Drawdown
Rv/(K x Bottom Area)= 0.11 Hours
0.11 < 72 hours O.K.

Recharge Volume Calculations

Job: SM-5676

Calculated by: DJC
Date: 2/21/2018

Roof Drywell D
Soils:
Hydrologic Group: A
Required Recharge Volume
0.6 inches of runoff x impervious area

Impervious area: 0.07 acres
2,967 s.f.

Required Recharge Volume (Rv)

$$Rv = 2{,}967 \text{ s.f.} \times \frac{0.6}{12} = \mathbf{148} \text{ c.f.}$$

Simple Dynamic Method
A=Rv / (D+KT)
Rv=A(D+kT)

D (depth of infiltration facility):	2.33	ft		
K (saturated hydraulic conductivity):	8.27	inches/hour		
	0.69	feet/hour		
T (time):	2	hours		
A=	292	s.f.		
Voids=	0.40			
Volume of Chambers=	132			
Rv=	807	c.f.	>	148 c.f.

72 Hour Drawdown
Rv/(K x Bottom Area)= 0.27 Hours
0.27 < 72 hours O.K.

Recharge Volume Calculations

Job: SM-5676

Calculated by: DJC
Date: 2/21/2018

Roof Drywell B & C
Soils:
Hydrologic Group: A
Required Recharge Volume
0.6 inches of runoff x impervious area

Impervious area: 0.09 acres
3,847 s.f.

Required Recharge Volume (Rv)

$$Rv = \frac{3{,}847 \text{ s.f.} \times 0.6}{12} = \mathbf{192 \text{ c.f.}}$$

Simple Dynamic Method
A=Rv / (D+KT)
Rv=A(D+kT)

D (depth of infiltration facility):	2.33	ft
K (saturated hydraulic conductivity):	8.27	inches/hour
	0.69	feet/hour
T (time):	2	hours
A=	351	s.f.
Voids=	0.40	
Volume of Chambers=	176	
Rv=	986	c.f. > 192 c.f.

72 Hour Drawdown
Rv/(K x Bottom Area)= 0.28 Hours
0.28 < 72 hours O.K.

Recharge Volume Calculations

Job: SM-5676

Calculated by: DJC
Date: 2/21/2018

Roof Drywell A
Soils:
Hydrologic Group: A
Required Recharge Volume
0.6 inches of runoff x impervious area

Impervious area: 0.06 acres
2,669 s.f.

Required Recharge Volume (Rv)

$$Rv = 2{,}669 \text{ s.f.} \times \frac{0.6}{12} = \mathbf{133} \text{ c.f.}$$

Simple Dynamic Method
A=Rv / (D+KT)
Rv=A(D+kT)

D (depth of infiltration facility):	2.33	ft
K (saturated hydraulic conductivity):	8.27	inches/hour
	0.69	feet/hour
T (time):	2	hours
A=	292	s.f.
Voids=	0.40	
Volume of Chambers=	132	
Rv=	806	c.f. > 133 c.f.

72 Hour Drawdown
Rv/(K x Bottom Area)= 0.24 Hours
0.24 < 72 hours O.K.

TSS Removal Calculations

INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Non-automated: Mar. 4, 2008

Location: Infiltration Basin (44% Removal)

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Deep Sump Hooded Catch Basin	25%	1.00	0.25	0.75
Sediment Forebay	25%	0.75	0.19	0.56

Total TSS Removal = 44%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 5676
Prepared By: PFK
Date: 2/20/2018

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

INSTRUCTIONS:

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Non-automated: Mar. 4, 2008

Location: Subcatchment P-2A

TSS Removal Calculation Worksheet

A BMP[1]	B TSS Removal Rate[1]	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Deep Sump Hooded Catch Basin	25%	1.00	0.25	0.75
Infiltration Basin (with Sediment Forebay)	80%	0.75	0.6	0.15

Total TSS Removal = 85%

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: 5676
Prepared By: PFK
Date: 2/20/2018

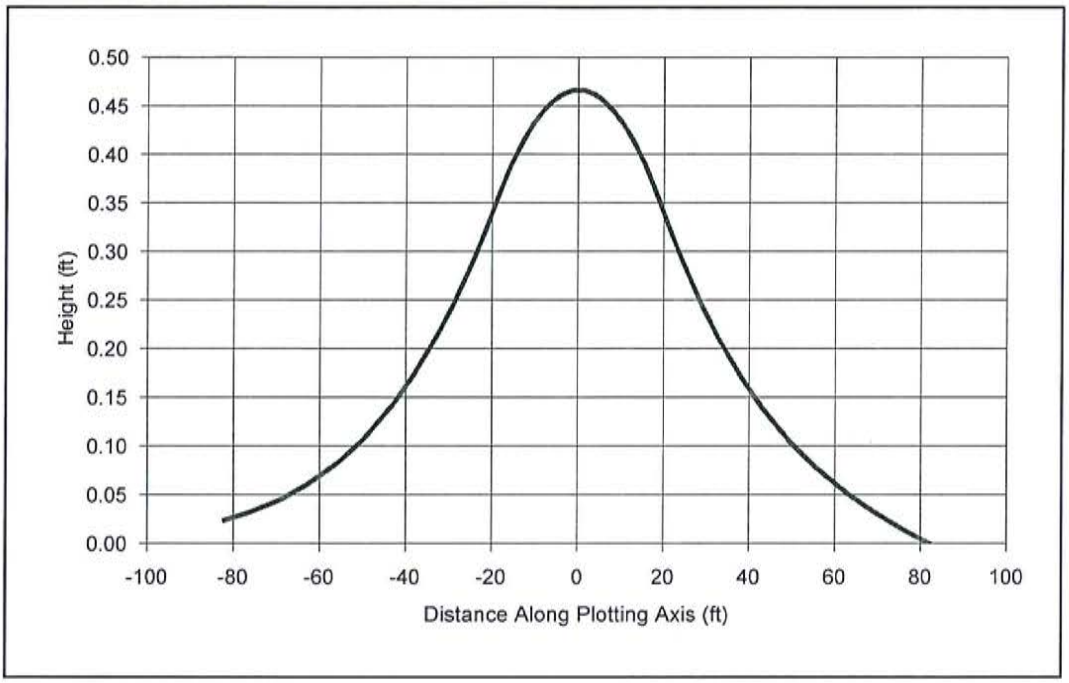
*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
1. From MassDEP Stormwater Handbook Vol. 1

Groundwater Mounding

INFILTRATION BASIN 1

Groundwater Mounding Analysis (Hantush's Method using Glover's Solution)



COMPANY: Stamski and McNary, Inc.

PROJECT: 5676

ANALYST: PFK

DATE: 2/21/2018 TIME: 8:47:46 AM

INPUT PARAMETERS

Application rate: 0.28 c.ft/day/sq. ft
Duration of application: 1 days
Fillable porosity: 0.24
Hydraulic conductivity: 39 ft/day
Initial saturated thickness: 7 ft
Length of application area: 75 ft
Width of application area: 38 ft
Constant head boundary used at: 82 ft
Plotting axis from Y-Axis: 90 degrees
Edge of recharge area:
positive X: 19 ft
positive Y: 0 ft
Total volume applied: 798 c.ft

MODEL RESULTS

X (ft)	Y (ft)	Plot Axis (ft)	Mound Height (ft)
-82	0	-82	0.02
-69	0	-69	0.04
-55.9	0	-56	0.08
-42.9	0	-43	0.14
-32.6	0	-33	0.21
-24.7	0	-25	0.29
-18.2	0	-18	0.36
-12.7	0	-13	0.42
-7.9	0	-8	0.45
-4.8	0	-5	0.46
-2.6	0	-3	0.46
0	0	0	0.47
2.6	0	3	0.46
4.8	0	5	0.46
7.9	0	8	0.45
12.7	0	13	0.42
18.2	0	18	0.36
24.7	0	25	0.29
32.6	0	33	0.21
42.9	0	43	0.14
55.9	0	56	0.08
69	0	69	0.03
82	0	82	0

Pipe Sizing Calculations

DESIGN STORM: 100 YEAR
DATE: **2/12/2018**
DONE BY: PFK
FILE: 5676 RATIONAL METHOD

PROJECT: SM-5676
LOCATION: Lexington, MA

FROM	TO	LENGTH (FT)	TRIBUTARY AREA		TIME	MANHOLE	FALL IN PIPE (FT)	DRAIN INV. ELEVATION		GROUND SURFACE	
			INCR. (ACRES)	TOTAL (ACRES)	TO UPPER END (MIN)	INVERT DROP (FT)		UPPER END	LOWER END	UPPER END	LOWER END
CB-1	DMH-1	182	0.28	0.28	10		0.91	176.23	175.32	178.80	182.40
CB-3	DMH-1	76	0.15	0.15	10		1.31	176.63	175.32	180.80	182.40
CB-2	DMH-1	37	0.2	0.20	10		0.74	176.06	175.32	180.80	182.40

Closed Drainage System **SM-5676**

Project: 443 Lincoln St By PFK Date 2/12/2018

Location: Lexington, MA Checked _____ Date _____

Rational Method

Q = peak flow rate, (cfs) i = rainfall intensity inches/hour

C = runoff coefficient, A = area (ac)
C = 0.90 impervious
C = 0.20 landscaped / grass
C = 0.15 woods

CB-1 to DMH-1

Surface Cover	A (ac)	C	Product A x C
impervious	0.14	0.9	0.126
lands/grass	0.14	0.2	0.028
woods	0.00	0.15	0
sum =	0.28	sum =	0.154

C = **0.55** = total product / total area

Project: 443 Lincoln St By PFK Date 2/12/2018

Location: Lexington, MA Checked _____ Date _____

Rational Method

Q = peak flow rate, (cfs) i = rainfall intensity inches/hour

C = runoff coefficient, A = area (ac)
C = 0.90 impervious
C = 0.20 landscaped / grass
C = 0.15 woods

CB-3 TO DMH-1

Surface Cover	A (ac)	C	Product A x C
impervious	0.07	0.9	0.063
lands/grass	0.08	0.2	0.016
woods		0.15	0
sum =	0.15	sum =	0.079

C = **0.53** = total product / total area

Project: 443 Lincoln St By PFK Date 2/12/2018

Location: Lexington, MA Checked _____ Date _____

Rational Method

Q = peak flow rate, (cfs) i = rainfall intensity inches/hour

C = runoff coefficient, A = area (ac)
C = 0.90 impervious
C = 0.20 landscaped / grass
C = 0.15 woods

CB-2 TO DMH-1

Surface Cover	A (ac)	C	Product A x C
impervious	0.13	0.9	0.117
lands/grass	0.07	0.2	0.014
woods		0.15	0
sum =	0.2	sum =	0.131

C = **0.66** = total product / total area

Soil Evaluation

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

STAMSKI AND McNARY, INC.
1000 Main Street
ACTON, MA 01720
Engineering • Planning • Surveying

C. On-Site Review

(minimum of two holes required at every proposed disposal area)

Deep Observation Hole Number: TP 17-1 | Date: 12/15/2017 | Time: | Weather: SUN 20°F

1. Location

   Ground Elevation at Surface of Hole _____

   Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: _____ (e.g. woodland, agricultural field, vacant lot, etc.) Surface Stones _____ Slope (%) _____

   Vegetation _____ Landform _____ Position on landscape (attach sheet) _____

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Possible Wet Area

   Property Line _____ feet Drinking Water Well _____ feet Other 10' OFF SHED

4. Parent Material: Proglacial Unsuitable Materials Present: Yes ☑ No ☐

   If Yes: Disturbed Soil ☐ Fill Material ☑ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☑ No ☐

   If Yes: Depth Weeping from Pit 100 Depth Standing Water in Hole _____

   Estimated Depth to High Groundwater: _____ _____

Deep Observation Hole Number: TP 17-1

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
12	FILL	GRAVEL		RANDOM		LOT	—	—	—	—	
33	FILL	GRAVELLY		GENERAL		FILL	—	—	—	—	
72	C_1	2.5Y ~~2.5Y~~	33	HIGH CHROMA	>5	SAND MEDIUM	—	—	M	VERY FRIABLE	
108	C_2	6/6 2.5Y				SAND FINE	—	—	M	VERY FRIABLE	
		6/2									

Additional Notes _____

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

STAMSKI AND McNARY, INC.
1000 Main Street
ACTON, MA 01720
Engineering • Planning • Surveying

C. On-Site Review

(minimum of two holes required at every proposed disposal area)

Deep Observation Hole Number: TP 17-2 | Date: 12/15/2017 | Time: _____ | Weather: SW 20°F

1. Location

   Ground Elevation at Surface of Hole _____

   Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: _____ (e.g. woodland, agricultural field, vacant lot, etc.) Surface Stones _____ Slope (%) _____

   Vegetation _____ Landform _____ Position on landscape (attach sheet) _____

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Possible Wet Area

   Property Line _____ feet Drinking Water Well _____ feet Other

4. Parent Material: Proglacial Unsuitable Materials Present: Yes ☐ No ☐

   If Yes: Disturbed Soil ☐ Fill Material ☐ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☑ No ☐

   If Yes: Depth Weeping from Pit 84 Depth Standing Water in Hole _____

   Estimated Depth to High Groundwater: 66 OR Higher DUE TO FILL UNABLE TO DETERMINE ESHGW, SEE OTHER TEST PITS

Deep Observation Hole Number: TP 17-2

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles) Depth	Color	Percent	Soil Texture (USDA)	Coarse Fragments % by Volume Gravel	Cobbles & Stones	Soil Structure	Soil Consistence (Moist)	Other
66	FILL	—	—			FILL			BOULDERS, BRICK ASPHALT,		
120	C	2.5Y 6/3	66"	High Fitrown	>10	SAND Medium	—	—	M	VERY FRIABLE	

Additional Notes _____

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

STAMSKI AND McNARY, INC.
1000 Main Street
ACTON, MA 01720
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C. On-Site Review

(minimum of two holes required at every proposed disposal area)

Deep Observation Hole Number: TP 17-3 Date 12/15/2017 Time _____ Weather SW 20°s

1. Location

Ground Elevation at Surface of Hole _____

Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: _____ (e.g. woodland, agricultural field, vacant lot, etc.) _____ Surface Stones _____ Slope (%)

_____ Vegetation _____ Landform _____ Position on landscape (attach sheet)

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Possible Wet Area

Property Line _____ feet Drinking Water Well _____ feet Other

4. Parent Material: PROGLACIAL Unsuitable Materials Present: Yes ☐ No ☐

If Yes: Disturbed Soil ☐ Fill Material ☒ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☒ No ☐

If Yes: Depth Weeping from Pit 74 Depth Standing Water in Hole _____

Estimated Depth to High Groundwater: 36" _____

Deep Observation Hole Number: TP 17-3

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
36	FILL		—	—	—	FILL	—	—	BOULDERS BRICK		
110	C		36"	HIGH CHROMA	>10	SAND MEDIUM TO FINE	—	—	M	VERY FRIABLE	
	COLLAPSE										
	CAVE IN										

Additional Notes _____

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

STAMSKI AND McNARY, INC.
1000 Main Street
ACTON, MA 01720
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C. On-Site Review

(minimum of two holes required at every proposed disposal area)

Deep Observation Hole Number: TP 17-4 | Date: 12/15/2017 | Time: _____ | Weather: SW 20°

1. Location

   Ground Elevation at Surface of Hole _____

   Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: _____ (e.g. woodland, agricultural field, vacant lot, etc.) _____ Surface Stones _____ Slope (%) _____

   Vegetation _____ Landform _____ Position on landscape (attach sheet) _____

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Possible Wet Area

   Property Line _____ feet Drinking Water Well _____ feet Other

4. Parent Material: Roadfill Unsuitable Materials Present: Yes ☐ No ☐

   If Yes: Disturbed Soil ☐ Fill Material ☐ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☐ No ☐

   If Yes: Depth Weeping from Pit 80 Depth Standing Water in Hole _____

   Estimated Depth to High Groundwater: 24

Deep Observation Hole Number: TP 17-4

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
10	A	10YR 3/2	—	—	—	SL	—	—	M	F	
24	B	10YR 4/4	—	—	—	LS	—	—	M	F	
40	C_1	2.5Y 6/1	24	High Chroma	>10	SAND med	—	—	M	Very Friable	
40	C_2	2.5Y 6/6			>10	SAND FN	—	—	M	F	
100											

Additional Notes _____

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

STAMSKI AND McNARY, INC.
1000 Main Street
ACTON, MA 01720
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C. On-Site Review

(minimum of two holes required at every proposed disposal area)

Deep Observation Hole Number: TP 17-5 Date: 12/15/2017 Time: _____ Weather: SW 20°s

1. Location

Ground Elevation at Surface of Hole _____

Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: _____ (e.g. woodland, agricultural field, vacant lot, etc.) Surface Stones: _____ Slope (%): _____

Vegetation: _____ Landform: _____ Position on landscape (attach sheet): _____

3. Distances from: Open Water Body ~ feet Drainage Way _____ feet Possible Wet Area

Property Line _____ feet Drinking Water Well _____ feet Other

4. Parent Material: Proglacial Unsuitable Materials Present: Yes ☐ No ☒

If Yes: Disturbed Soil ☐ Fill Material ☐ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☐ No ☒

If Yes: Depth Weeping from Pit ~ Depth Standing Water in Hole ~

Estimated Depth to High Groundwater: 40 NO GW. DUE TO LOWERING OF RESERVOIR

Deep Observation Hole Number: TP 17-5

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
12	A	10YR 3/2	—	—	—	SL	—	—	M	F	
14	B	10YR 4/4	—	—	—	LS	—	—	M	F	
40	C_1	Variegated Colors 2.5Y 6/6	40	High Chroma	>5	SAND Medium	—	—	M	VFR	
108	C_2	2.5Y 6/4				SAND FINE	—	—	M	F	

Additional Notes _____

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Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

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C. On-Site Review

(minimum of two holes recorded at every proposed disposal area)

Deep Observation Hole Number: TP 17-6 Date: 12/15/2017 Time: _____ Weather: SW 20°F

1. Location

Ground Elevation at Surface of Hole _____

Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: WOODLAND (e.g. woodland, agricultural field, vacant lot, etc.) _____ Surface Stones _____ Slope (%) _____

Vegetation _____ Landform _____ Position on landscape (attach sheet) _____

3. Distances from: Open Water Body – feet Drainage Way _____ feet Possible Wet Area

Property Line _____ feet Drinking Water Well _____ feet Other

4. Parent Material: Moraine Unsuitable Materials Present: Yes ☐ No ☐

If Yes: Disturbed Soil ☐ Fill Material ☐ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☐ No ☐

If Yes: Depth Weeping from Pit – Depth Standing Water in Hole –

Estimated Depth to High Groundwater: 36 NO GW OBSERVED LIKELY DUE TO DRAIN DOWN OF RESERVOIR

Deep Observation Hole Number: TP 17-6

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
12	A	10YR 3/2	–	–	–	10YR 3/2	–	–	M	F	
24	B	10YR 4/4	–	–	–	10YR 4/4	–	–	M	F	
40	C	2.5Y 6/3	36	HIGH CHROMA	15	SAND COARSE	10	–	M	VERY FRIABLE	
114	C_2	2.5Y 6/6				SAND FINE			M	F	
		VARIEGATED COLORS									

Additional Notes _____

Commonwealth of Massachusetts
City/Town of
Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

STAMSKI AND McNARY, INC.
1000 Main Street
ACTON, MA 01720
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C. On-Site Review

(minimum of two holes recorded at every proposed disposal area)

Deep Observation Hole Number: TP 17-7 Date 12/15/2017 Time _____ Weather SW 20°

1. Location

Ground Elevation at Surface of Hole _____

Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: _____ (e.g. woodland, agricultural field, vacant lot, etc.) Surface Stones _____ Slope (%) _____

Vegetation _____ Landform _____ Position on landscape (attach sheet) _____

3. Distances from: Open Water Body ~ feet Drainage Way _____ feet Possible Wet Area

Property Line _____ feet Drinking Water Well _____ feet Other

4. Parent Material: proglacial Unsuitable Materials Present: Yes ☐ No ☐

If Yes: Disturbed Soil ☐ Fill Material ☐ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☐ No ☒ *

If Yes: Depth Weeping from Pit 34 Depth Standing Water in Hole _____

Estimated Depth to High Groundwater: NO GW OBSERVED MOTTLED COLORS

* RESERVOIR DRAINED IS IMPACTING LACK OF OBSERVED GROUNDWATER

Deep Observation Hole Number: TP 17-7

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
9	A	10YR 3/2	—	—	—	SL	—	—	M	F	
20	B	10YR 4/4	—	—	—	LS	—	—	M	F	
	C	2.5Y 6/3	Relic Poss. @ 34"			SAND COARSE					
		MOTTLED COLORS									

Additional Notes _____

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

STAMSKI AND McNARY, INC.
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C. On-Site Review

(minimum of two holes recorded at every proposed disposal area)

Deep Observation Hole Number: TP 17-8 Date: 12/15/2017 Time: _____ Weather: SW 20°F

1. Location

   Ground Elevation at Surface of Hole _____

   Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: LAWN (e.g. woodland, agricultural field, vacant lot, etc.) Surface Stones: _____ Slope (%): _____

   Vegetation: GRASS + Landform: _____ Position on landscape (attach sheet): _____

3. Distances from: Open Water Body ~ feet Drainage Way _____ feet Possible Wet Area

   Property Line _____ feet Drinking Water Well _____ feet Other

4. Parent Material: PROGLACIAL Unsuitable Materials Present: Yes ☐ No ☐

   If Yes: Disturbed Soil ☐ Fill Material ☐ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☐ No ☒

   If Yes: Depth Weeping from Pit 50" R Depth Standing Water in Hole _____

   Estimated Depth to High Groundwater: RELIC 50" POSSIBLE NO GROUNDWATER OBSERVED DUE TO RESERVOIR DRAINED DOWN

Deep Observation Hole Number: TP 17-8

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
17	A	10YR 3/2	—	—	—	SL	—	—	M	F	
27	B	10YR 4/4	—	—	—	LS	—	—	M	F	
40	C_1	2.5Y 6/3	—	—	—	SAND FINE	—	—	M	FIRM	
108	C_2	2.5Y 6/6	50	RELIC	>5	SAND COARSE	—	—	SG	LOOSE	

Additional Notes _____

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

STAMSKI AND McNARY, INC.
1000 Main Street
ACTON, MA 01720
Engineering • Planning • Surveying

C. On-Site Review

(minimum of two holes required at every proposed disposal area)

Deep Observation Hole Number: TP 17-9 | 12/15/2017 (Date) | ____ (Time) | SW 20° (Weather)

1. Location

   Ground Elevation at Surface of Hole ____

   Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: ____ (e.g. woodland, agricultural field, vacant lot, etc.) ____ Surface Stones ____ Slope (%)

   Vegetation ____ Landform ____ Position on landscape (attach sheet)

3. Distances from: Open Water Body ____ feet Drainage Way ____ feet Possible Wet Area

   Property Line ____ feet Drinking Water Well ____ feet Other

4. Parent Material: Proglacial Unsuitable Materials Present: Yes ☐ No ☐

   If Yes: Disturbed Soil ☐ Fill Material ☐ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☐ No ☐

   If Yes: Depth Weeping from Pit 100 Depth Standing Water in Hole ____

   Estimated Depth to High Groundwater: 44

Deep Observation Hole Number: TP 17-9

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
36	F	—	—	—	—	SL	—	—	—	—	
40	A	10YR 3/2	—	—	—	SL	—	—	M	F	
44	B	10YR 4/4	—	—	—	LS	—	—	M	F	
109	C	2.5Y 6/6	44	High Chroma	>5	SAND Med	—		M	F	

Additional Notes ____

Commonwealth of Massachusetts
City/Town of

Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

STAMSKI AND McNARY, INC.
1000 Main Street
ACTON, MA 01720
Engineering • Planning • Surveying

C. On-Site Review

(minimum of two holes required at every proposed disposal area)

Deep Observation Hole Number: TP 17-90 | Date: 12/1/2017 | Time: _____ | Weather: SW 20°F

1. Location

   Ground Elevation at Surface of Hole _____

   Location (Identify on Plan) 443 LINCOLN STREET

2. Land Use: _____ (e.g. woodland, agricultural field, vacant lot, etc.) Surface Stones _____ Slope (%) _____

   Vegetation _____ Landform _____ Position on landscape (attach sheet) _____

3. Distances from: Open Water Body _____ feet Drainage Way _____ feet Possible Wet Area

   Property Line _____ feet Drinking Water Well _____ feet Other

4. Parent Material: Proglacial Unsuitable Materials Present: Yes ☐ No ☐

   If Yes: Disturbed Soil ☐ Fill Material ☐ Impervious Layer(s) ☐ Weathered/Fractured Rock ☐ Bedrock ☐

5. Groundwater Observed: Yes ☐ No ☐

   If Yes: Depth Weeping from Pit 94 Depth Standing Water in Hole _____

   Estimated Depth to High Groundwater: LACK OF ESHGW INFLUENCED BY LOWERED RESERVOIR

Deep Observation Hole Number: TP 17-90 — 3 48" culverts 12'

Depth (In:)	Soil Horizon/ Layer	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features (mottles)			Soil Texture (USDA)	Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
			Depth	Color	Percent		Gravel	Cobbles & Stones			
30	FILL	—	—	-	-	SL	—	—	FILL	POOL	TILES
36	A	10YR 3/2	-	-	-	SL	—	—	M	FR	
44	B	10YR 4/4	-	-	-	LS	—	—	M	F	
60	C	2.5Y 6/3	60	High chroma	>5	SAND COARSE	5	—	M	VERY FRIABLE	
120	C2	2.5Y 6/6				SAND MEDIUM					

Additional Notes _____

Stormwater Operation and Maintenance Manual

Stormwater Operation and Maintenance Manual

For

Symes Development and Permitting, LLC

Homes at Hobbs Brook
443 Lincoln Street
Lexington, MA 02421

February 20, 2018

Responsible Party:

Applicant: Symes Development and Permitting, LLC
60 Dodge Street
Beverly, MA 01915

SM-5676

Stamski And McNary, Inc.
Engineering - Planning – Surveying
1000 Main Street; Acton, MA 01720 (978) 263-8585
www.stamskiandmcnary.com

Table of Contents

Long Term Operation and Maintenance Plan

Schedule for Inspection and Maintenance:

Driveway Sweeping:
It is recommended that the pavement shall be properly swept twice a year, with concentrations in the spring and the fall.

Deep Sump Hooded Catch Basins and Drain Manholes:
During construction, catch basin grates shall be wrapped with filter fabric. Catch basins shall be cleaned upon the completion of construction. After construction, the deep sumps for all catch basins and drain manholes shall be inspected four times a year and cleaned four times a year. Sediment removed shall be disposed of in accordance with applicable local, state, and federal guidelines and regulations. The depth of the sediment in a basin shall not exceed a depth of 18 inches as determined by probing with a stick. If the stick hits the bottom within 30 inches of the water level, more than 18 inches of sediment has accumulated and must be removed. Licensed persons should remove and dispose of the contents of the sump in accordance with applicable regulations.

Roof Drywells:
Inspect the system after every major storm (1" in 24 hours) for the first 3 months to ensure proper stabilization and function. Thereafter, inspect and clean it at least twice per year. Water levels should be recorded over several days to check the structures drainage. Also, mosquito controls may be necessary.

Sediment Forebay: (Infiltration Basin 1)
The floor and sidewalls of the sediment forebay must be stabilized before use. Sediment forebays shall be inspected monthly and cleaned a minimum of four times per year and when sediment depth is between 3-6 inches. After sediment removal, any damaged vegetation must be replaced. Grass in the forebay shall not exceed 6 inches in length and any scouring and gullying shall be repaired as necessary.

Infiltration Basin: (Infiltration Basin 1)
Preventative maintenance should be performed at least twice a year, and ideally sediment should be removed from the sediment forebay after every major storm event. Sediment shall be disposed of in accordance with applicable local, state, and federal guidelines and regulations.

Once online, the basin shall be inspected after every major storm event (1" in 24 hours), for the first 3 months. Thereafter, the basin should be inspected at least twice per year. Important items to check for include: differential settlement, cracking, erosion, leakage, or tree growth on the embankments, condition of riprap, sediment accumulation and the health of the turf.
At least twice a year, the buffer area and side slopes of the basin should be mowed. Grass clippings and accumulated organic matter should be removed to prevent the formation of an impervious organic mat. Trash and debris should also be removed at this time. Scarify bottom area and add additional sand if necessary.

Sediment should be removed from the basin as necessary. Removal procedures should not take place until the floor of the basin is thoroughly dry. Pretreatment devises associated with basins should be inspected and cleaned at least twice a year and ideally every other month.

Emergency Contacts:
In the event of a hazardous materials spill on the site the following parties shall be contacted:
Fire Department: ph: 781-862-0272

Records:
The Condominium Association shall maintain an inspection log of all elements of the storm water management plan. The Condominium Association shall maintain a maintenance log documenting the inspection and maintenance of the drainage structures. A copy of the erosion control and storm water maintenance plan and inspection logs shall be kept onsite at all times.

Responsible Party:
The Condominium Association shall be responsible for the inspection and maintenance of the street sweeping, snow removal, catch basins, drainage manholes, infiltration basins, and drywells.

Budget: The estimated annual operation and maintenance budget is $3,000.

Illicit Discharges: THERE WILL BE NO ILLICIT DISCHARGES ON SITE.

Name: _____

Signature: _____

Date: _____

Operation and Maintenance Sample Inspection Log

Homes at Hobbs Brook

Operation and Maintenance Inspection Log

Year: _____

Inspection Items:	Frequency:
Street Sweeping	**Two times per year**
Catch Basins	**Four times per year**
Drywells	**Once per year**
Sediment Forebay	**Monthly**
Infiltration Basin	**Monthly**

Street Sweeping:

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Comments:

Action Required:

Catch Basin 1 (CB-1):

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Sediment Depth: _____ (Remove if depth greater than 18")
Comments:

Action Required:

Catch Basin 2 (CB-2):

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Sediment Depth: _____ (Remove if depth greater than 18")
Comments:

Action Required:

Catch Basin 3 (CB-3):

Previous Inspection Date:
Inspection Date:
Inspector Name:
Sediment Depth: (Remove if depth greater than 18")
Comments:

Action Required:

RD-A (Building A):

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Comments:

Action Required:

RD-B (Building B):

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Comments:

Action Required:

RD-C (Building C):

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Comments:

Action Required:

RD-D (Building D):

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Comments:

Action Required:

Sediment Forebay, Basin 1:

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Erosion in Forebay: _____
Comments:

Action Required:

Infiltration Basin 1:

Previous Inspection Date: _____
Inspection Date: _____
Inspector Name: _____
Sediment Forebay: _____ (Remove if depth greater than 18")
Erosion in Basin: _____
Outlet Structure: _____
Comments:

Action Required:

Drainage Maps

Definitive Plan

TOWN OF LEXINGTON
PLANNING OFFICE

1625 Massachusetts Avenue
Lexington, Massachusetts 02420
Tel: 781-698-4560
www.lexingtonma.gov/planning

Aaron Henry, Director
David Kucharsky, Assistant Director
David Fields, Planner

AGENDA ITEM SUMMARY & STAFF RECOMMENDATION

Item Name/Description:	443 Lincoln Street Definitive Special Permit
Application Date:	February 26, 2018
Public Hearing Required Opening Date:	May 2, 2018 (65 days)
Proposed Meeting Date:	April 26, 2018

Process to Date

On February 21, 2017, Symes Development and Permitting, Inc., submitted a sketch balanced housing development plan for 443 Lincoln Street. This iteration of a balanced housing plan was discussed by the Planning Board on the evening of April 05, 2017. This submission was followed by a second sketch plan on October 25, 2017, which was discusses at the Planning Board November 15, 2017 meeting.

Submittal Standards

The material submitted meets the criteria laid out for a definitive special permit plan in §176-6.4. The Planning Board (Board) will review the plan set, dated February 20, 2018, and respond to the applicant with comment, as they have done previously. The approval of this special permit will require a supermajority of the Board.

Plan Set Review & Staff Comments

The submitted plan contains the necessary information for the Board to provide meaningful feedback to the applicant. The Board requested the following information during the first meeting in April, which was addressed by the applicant on the meeting of November 15th (see attached material provided by the applicant):

- The applicant must explain how useable the open space is;
- The applicant should be prepared to discuss the constraints of the land due to the utility easement on the property, if any;
- The parking plan for the balanced housing development proposal must be explained;
- The footprint of the abutting, recent development should be provided on the plan set;
- The applicant should get documentation from Cambridge identifying what they would allow for salting and snow storage, due to the proximity of the site to the Cambridge Reservoir;
- The applicant must explain if the two-foot deep retention basin is adequate, or if it needs to be modified;
- The applicant will be responsible for repaving the street if and when utilities are laid out and connected. A paving plan should be provided going forward; and
- An answer to the question of what the emission of the power lines, or voltage of the lines, is

currently.

Submitted Plans

Staff reviewed the plans submitted by the applicant. The applicant has previously addressed any staff concerns regarding Eversource's easement on the site. The sanitary sewer service provided in the proposed plans appears to have been altered from the previous proposal and will now offer sanitary grinders and pumps for each structure. Engineering Division staff had the following to offer in relation to the proposed sanitary sewer system:

- provide all pump calculations used for pump sizing.
- provide calculations confirming the addition of the proposed pump system will not affect the functionality of the existing pumping systems on the existing two in force main.
- We request that a comment be added to the plans that the entire proposed pumping system will be privately owned and maintained. This is to include proper signs placed on the pumping equipment along with emergency contact information in the event of pump failure.

Other comments from the Town's Engineering Division is provided under a separate cover.

Regarding the applicant's previous comment of providing documentation from Cambridge identifying what the City would allow for salting and snow storage, due to the proximity of the site to the Cambridge Reservoir, official documentation has yet to be provided; this is something the Board may wish to request from the applicant during this hearing (i.e., the attached letter received for a previous filing at 435-439 Lincoln Street can serve as a reference).

Other Staff Comments

After several iterations of this project staff believes that the current proposal is superior to the conventional subdivision that could otherwise be built at this site. If there are any lingering concerns of the Board as yet to be identified, these can be addressed by the applicant during the public hearing process. Staff recommends approving the proposed balanced housing residential development at 443 Lincoln Street. The reasoning for this is that the site is already developed and all land on site has been disturbed, potentially contaminated, or encumbered with utilities or buildings. Furthermore, this site has no direct abutters, but for Grey Oaks Circle, making any disruption that could occur during construction very minimal to the surrounding area. Furthermore, the positive increase in the diversity of housing stock within the town is preferable to the construction of four, large single family homes.

Responses submitted regarding staff concerns prior to the 11/15/2017 meeting of the Planning Board

Plan Set Review & Staff Comments (Symes Responses – November 15, 2017)

• The applicant must explain how useable the open space is;

The Open Space will be available for passive recreation. The open meadow within the easement will be improved thru the control of invasive species vegetation, by removal of the gravel parking area and remnant debris piles. The existing open meadow is anticipated to be mowed on a semi-annual basis in order to control height of vegetation and invasive species regrowth.

• The applicant should be prepared to discuss the constraints of the land due to the utility easement on the property, if any;

There will be limitations to the height of vegetation. The actual construction of utilities lines will be coordinated with Eversource Energy to avoid impact on its equipment.

• The parking plan for the balanced housing development proposal must be explained;

Each Dwelling will have two spaces. Single car garages will have the second space in front of garage door. Dwellings with two-car garages satisfy parking requirements inside garage.

• The footprint of the abutting, recent development should be provided on the plan set;

A Neighborhood Overlay Plan has been provided which illustrates the As-built Oak Circle dwellings and their proposed approved landscaping feature.

• The applicant should get documentation from Cambridge identifying what they would allow for salting and snow storage, due to the proximity of the site to the Cambridge Reservoir;

The verbal instructions obtained from were to minimize deicing. The allowable mixture of salt and sand is 80% sand and 20% calcium chloride. Snow storage will be located along edge of driveway and to the west within open space.

• The applicant must explain if the two-foot deep retention basin is adequate, or if it needs to be modified;

The Infiltration Basin will be designed in accordance with applicable regulations. Final footprint and location may be subject to adjustment. If necessary, additional subsurface storage or a second basin to the west of Building A may also complement this basin.

• The applicant will be responsible for repaving the street if and when utilities are laid out and connected. A paving plan should be provided going forward; and

All necessary repaving in Lincoln Street will be completed by Applicant per current Town Standards.

• An answer to the question of what the emission of the power lines, or voltage of the lines, is currently.

There are two sets of three lines within the easement. The first set is offset greater than 52' from the edge of easement and the second set is offset greater than 175' from the edge of easement. Per the instructions of Eversource, our office surveyed the elevations of the wires along the site for review and approval. The Eversource letter is based on the review of available clearance to the wires from the proposed grades shown.

- Staff reviewed the plans submitted by the applicant. The applicant has addressed staff concerns regarding the utility easement on the site. The applicant should be asked to confirm the capacity of the connecting sewer main that will service the proposed site and address how the main will function (i.e., forced or gravity).

The low-pressure sewer main has already been extended down to this development with two stubs provided for the existing structures. We spoke early on with the vendor (F.R. Mahoney) for the low pressure sewer system regarding this development and are confident we can provide a suitable system. Similar to the abutting Grey Oaks Circle development, we propose a gravity sewer within the site to a pump chamber along the frontage. The pump chamber will connect to the low-pressure line within the right-of-way. Sewer collection system will be designed and installed per current Town of Lexington standards.

CITY OF CAMBRIDGE

MASSACHUSETTS

Water Department
250 Fresh Pond Parkway
Cambridge, Mass. 02138

(617) 349-4770

January 8, 2016

Conservation Commission
Town of Lexington
1625 Massachusetts Avenue
Lexington, MA 02420

via email

Re: 435 and 439, Lincoln St., Lexington, MA

Dear Commissioners:

The Cambridge Water Department (CWD) appreciates the opportunity to submit comments on the proposed development at 435 and 439 Lincoln Street. Water from the site drains towards Hobbs Brook and the Hobbs Brook Reservoir, important surface waters within the City of Cambridge drinking water supply system. After reviewing the Notice of Intent and the Definitive Subdivision Plans dated November 20, 2015, CWD believes that the proposed stormwater management system will be sufficient to maintain water quality and quantity contingent on the following:

- The subsurface infiltration systems be equipped with a shut off valve to protect against potential spills.
- The Long-Term Pollution Prevention Plan and Order of Conditions are updated to:
  - Prohibit the use of sodium-based deicing agents (such as NaCl) on the roadway and limit the use of chloride-containing deicers.
    - Acceptable forms of deicing chemicals would include a mix of at least 80 percent sand and no more than 20 percent sodium-free deicing agent (such as MgCl) and/or Calcium Magnesium Acetate (CMA). Other low sodium and low chloride deicing options could be used if permission is granted by CWD.
  - Prohibit use of herbicides and pesticides in the common areas unless permission has been granted by CWD.
  - For fertilizer application, require compliance with all components of 330 CMR 31.00. Nitrogen fertilizer used in common areas must be slow-release.
- The Order of Conditions require:
  - The party responsible for the Operations and Maintenance (O&M) plan to regrade the private road if post-construction conditions reveal that stormwater is bypassing catch basins # 1 and # 2, thereby allowing stormwater to flow unmitigated to Lincoln Street and preventing the infiltration system from functioning as intended.

- The party responsible for the O&M Plan to submit an annual report to the Conservation Commission showing compliance with the schedule outlined in the Post-Construction Stormwater Maintenance Plan. CWD should be CCed on this communication.

CWD also notes that the project takes place within Zone A of an Outstanding Resource Water (ORW). As such, the Part C question 5 of the NOI should be updated accordingly. The project is also located within the Charles River Basin, which has a phosphorus TMDL, so Standard 4 of the Stormwater Report Checklist should be updated with the appropriate information.

Sincerely,

Jamie O'Connell, Watershed Protection Supervisor
City of Cambridge Water Department
(617) 349-4781

cc: David Kaplan, Watershed Manager, CWD
Stephen S. Corda, Managing Director, CWD
Cambridge Water Board

MEMORANDUM

TO: Aaron Henry, Senior Planner

FROM: David Pavlik, Senior Civil Engineer
Michael Sprague, Senior Civil Engineer

DATE: March 20, 2018

SUBJECT: Homes at Hobbs Brook Definitive Special Permit Plan

CC: John Livsey, Town Engineer

The engineering division has reviewed the Definitive Special Permit Plans titled "Homes at Hobbs Brook" dated February 20, 2018. We submit the following;

Comment to Planning:

Please be aware that Lincoln St is still under moratorium until the beginning of the 2019paving season, on April 16, 2019.

Utilities:

Water

- Hydrants shall be American-Darling 5 ¼ inch B-84-B-5. Hydrant color; should conform to Lexington Fire Dept rules. We require this information be clearly noted on the plans.
- All hydrants, valves and valve boxes shall be American made only. Valves shall open **right (clockwise), hydrants shall open right (clockwise**). We require this information be clearly noted on the plans.
- All proposed vertical and horizontal bends for the proposed water main shall be on plans with adequate restraining glands, rods and thrust restraints.
- Please identify locations of any bends in the water main, bends will require restraints in accordance with town standards.
- An effort should be made to reduce the amount of clutter on plans so the proposed water services can be clearly identified. Will make addition comments after review of revised plans.

Sanitary Sewer

- Please provide all pump calculations used for pump sizing.
- Please provide calculations confirming the addition of the proposed pump system will not affect the functionality of the existing pumping systems on the existing two in force main.

- We request that a comment be added to the plans that the entire proposed pumping system will be privately owned and maintained. This is to include proper sings placed on the pumping equipment along with emergency contact information in the event of pump failure.
- Maintain separation of utilities in particular the drain and sewer mains.
- A minimum two course brick detail shall be shown on all sewer and drain manhole details.
- All manhole frame and covers should be consistent with Town of Lexington Standards.
- All sewer and drain pipes should conform to Town of Lexington Standards.

Drainage for roadway, sidewalk, driveway aprons, and site grading:

- The drainage analysis was complete and acceptable.
- Any trees that may be cut should be reviewed with the Tree Warden, Chris Filadoro at the DPW.
- Stormwater management report and Operation and Maintenance report is acceptable.
- Any stormwater BMP's that are to be used post construction, should not be used during construction unless they are cleaned properly to remove the higher sediment loadings found in construction runoff.

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- — G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- — W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- — D — SUB–SURFACE DRAIN LINE
- --89-- EXISTING CONTOUR
- --85-- EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT
- PROPOSED PERVIOUS PAVEMENT
- PROPOSED OPEN SPACE

N

MEAN ANNUAL HIGH–WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 (RF 1–13) CONNECT RF 13 TO B26

N/F CITY OF CAMBRIDGE

MEAN ANNUAL HIGH WATER LINE, FLAGS B26–B32 AS SHOWN IN ORDER OF CONDITIONS DEP#201–1015 AS DELINEATED BY LEC ENVIRONMENTAL

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. (WF 1–24, 26 & 27) CONNECT WF 27 TO WF 11

HOBBS BROOK PERENNIAL

EDGE OF BORDERING VEGETATED WETLANDS, FLAGS 11–18 AS SHOWN IN ORDER OF CONDITIONS DEP#201–1015 AS DELINEATED BY LEC ENVIRONMENTAL

B 25 REMOVED

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016

MEAN ANNUAL HIGH–WATER DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016

200' RIVERFRONT AREA

100' BUFFER ZONE

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

PROTECTED LAND UNDER DECLARATION OF RESTRICTIVE COVENANT AREA = 43,318 S.F.±

S40°55'22"E 143.16'

S59°46'34"E 34.54'

S87°49'35"E 116.19'

S89°27'02"E 25.78'

S75°10'50"E 35.03'

S48°15'28"E 85.43'

S25°

N82°46'06"W 89.75'

S80°57'55"W 86.91'

S62°50'36"W 151.77'

N83°04'14"W 13.58'

S12°07'56"W 16.58'

S40°53'19"W 20.61'

N05°28'21"E 143.49'

N24°32'08"W 8.62'

S71°21'49"W 119.69'

S79°00'00"E 450.00'

N11°00'00"E 400.00'

N79°00'00"W 450.00'

S11°00'00"W 400.00'

COMMON OPEN SPACE

COMMON OPEN SPACE 82,929± S.F.

SITE 80,000 S.F.± 1.837± AC.±

PROPOSED 1-1/2 INCH LINE WITH 1-1/4 INCH CONNECTIONS FOR EACH UNIT. OUTDOOR DH071-93 STATIONS SHOWN INDOOR IH091 UNITS ARE ANOTHER OPTION THAT COULD BE INSTALLED IN INSIDE CRAWL SPACE. SEE PUMP AND LATERAL DETAIL IN THE ATTACHED REPORT LETTER

EXCLUSIVE USE UNIT 18 5,175 S.F.±

EXCLUSIVE USE UNIT 20 4,056 S.F.±

EXCLUSIVE USE UNIT 16 4,636 S.F.±

EXCLUSIVE USE UNIT 15 5,588 S.F.±

EXCLUSIVE USE UNIT 9 1,179 S.F.±

EXCLUSIVE USE UNIT 7 2,408 S.F.±

EXCLUSIVE USE UNIT 5 3,372 S.F.±

EXCLUSIVE USE UNIT 3 4,900 S.F.±

BLDG 1 BLDG 2 BLDG 3 BLDG 4 BLDG 5 BLDG 6 BLDG 7 BLDG 8 BLDG 9

PROPOSED TREE LINE

LANDSCAPED AREA

PAVED SURFACE

Water Retaining Berm

Zone 1.1

Zone # 1

Zone # 2

PROPOSED TWO–FAMILY DWELLING (TYPICAL)

PROPOSED PATH

PROPOSED PRIVATE DRIVEWAY

GREY OAKS CIRCLE

LINCOLN STREET

FRMA Quadriplex Station

TOTAL LOT AREA 200,544 S.F.±/4.604 AC±

1 ¼" PC200 PVC PRESSURE SERVICE STUB

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

BEGIN STOCKADE FENCE

EXISTING HYDRANT

EXISTING 8" DICL WATER MAIN (APPROX)

EXISTING 2" X 1½" REDUCER

EXISTING 2" PC200 PVC PRESSURE SERVICE

8" GATE VALVE & BOX

EXISTING 15" PC200 PRESSURE SEWER

TBM NAIL IN UP ELEV.=180.39

EXISTING HYDRANT

EXISTING 8" DICL CAP & NIPPLE

FLUSHING CONNECTION 8" GATE VALVE & BOX

TBM BOLT ON BONNET ELEV.=177.84

N/F CITY OF CAMBRIDGE

1" TYPE K COPPER WATER SERVICE W/CORPORATION STOP, COPPER TUBING, CURB STOP AND SERVICE BOX.

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC.

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC.

PRESSURE SEWER DESIGN IS BASED ON EXISTING CONDITIONS FROM PLAN BY TUTELA ENGINEERING FOR THE LINCOLN WOODS GREY OAKS CIRCLE CONNECTION.

PROGRESS PRINT
DATE: JAN 30, 2018

0 20 40 80 160 FT

(5676 DEF BHD 1.dwg)

IMPERVIOUS AREA

DWELLING FOOTPRINTS
A= 2,669 S.F.
B= 3,847 S.F.
C= 3,847 S.F.
D= 2,967 S.F.
TOTAL= 13,330 S.F.

DWELLING FOOTPRINTS =13,330± S.F.
MAIN DRIVEWAY LOOP = 9,024± S.F..
INDIVIDUAL DRIVES = 5,744±S.F.
TOTAL IMPERVIOUS = 28,098± S.F.
28,098± S.F. < 31,355± S.F. O.K.

COMMON OPEN SPACE = 82,929± S.F.
82,929± S.F. > 59,400 S.F. O.K.

20' PAVEMENT WIDTH

BUILDING SIZE (GFA)*
ASSUMES CRAWL SPACES – NO BASEMENTS
**SEE ARCHITECTURAL PLANS*

RIVERFRONT AREA
DWELLING A 4,323± S.F.
DWELLING B 1,527± S.F.
TOTAL RIVERFRONT 5,850± SF. = 9.6% RA.

EXEMPT STORMWATER: 10,145± S.F. =16.7% RA.
EXEMPT MITIGATION: 8,027± S.F. =13.3% RA

TABLE OF DEVELOPMENT DATA – BALANCED HOUSING DEVELOPMENT

TOTAL LAND AREA: 180,000 S.F.±
TOTAL LAND AREA FOR 4 LOTS: 161,569 S.F. ±
TOTAL LAND AREA WITHIN PROP RIGHT OF WAY (ROW): 18,431 S.F.±
AREA OF IMPERVIOUS SURFACES WITHIN ROW: 11,967 S.F.±

MAX. GROSS FLOOR AREA (4 LOTS X 7,200 S.F.): 28,800 S.F.
MAX. AREA OF IMPERVIOUS SURFACE: 31,355 S.F.±
4 LOTS; AREA 161,569 S.F. X 0.12 = 19,388 S.F.±
IMPERVIOUS SURFACE WITHIN ROW = 11,967 S.F.±

NUMBER OF DWELLINGS – NO LIMIT
SITE COVERAGE – NO LIMIT

MINIMUM COMMON OPEN SPACE: 59,400 S.F.±
(TOTAL LAND AREA X 33%)

EACH DWELLING TO BE PROVIDED WITH A CRAWL SPACE WITH A FLOOR TO CEILING HEIGHT LESS THAN SEVEN FEET.

ON–SITE RIVERFRONT AREA: 60,666 S.F.
10% MAX : 6,067 S.F.

RECORD OWNER

THE GERTRUDE M. PIANTEDOSI TRUST
443 LINCOLN STREET
LEXINGTON, MA

REFERENCE

MIDDLESEX REGISTRY OF DEEDS SOUTH DISTRICT DEED BOOK 65347 PAGE 366 PLAN BOOK 239 PLAN 26

ZONING DISTRICT

RO

DATUM

N.G.V.D. OF 1929

eone SEWER SYSTEMS

f.r. mahony & associates inc. frma 273 Weymouth Street • Rockland MA 02370

SITE CONSTRUCTION PLAN
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

443 LINCOLN STREET
LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES PERMITTING & DEVELOPMENT, LLC
SCALE: 1" = 40' DATE: JANUARY 18, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 2 OF 4 *PROJECT No. SM–5676*

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D

f.r. mahony & associates, inc.
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E/ONE Pressure System Design Report
For
443 LINCOLN STREET

Lexington, MA
February 2, 2018

E/ONE EXTREME SERIES

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February 2, 2018

Richard J. Harrington, P.E.
Stamski and McNary, Inc.
1000 Main Street
Acton, MA 01720

RE: 443 Lincoln Street, Lexington, MA

Dear Richard;

This preliminary design analysis examines the use of the E/One Pressure Sewer System for your project. E/One has begun its fiftieth year of installation and O&M experience along with considerable research and development leading to continuous product and system improvements. E/One remains the worldwide industry standard and industry leader in the pressure sewer technology. The unique characteristics of the E/One Pressure Sewer approach provides not only a technical solution, but also an economic advantage to be realized with low up front and O&M costs.

System Analysis

This project proposes to collect wastewater from 8 single family residences from 4 duplex structures and discharge to the existing 1-1/2 inch PVC pressure sewer in Lincoln Street.

Using the information you provided and previous plans and reports for the Grey Oaks Circle abutting project, we ran the enclosed preliminary pressure sewer pipe sizing analysis. This was run through our Low Pressure Sewer Design Software that employs our Flow Velocity and Friction Head Loss vs. Pumps in Simultaneous Operation Spreadsheet. We have used the surface topography provided to make our analyses.

Zone Layout

Using your site plan we laid out a system of 4 flow zones leading to the final discharge point. We followed topography from your plan sheet 2 of 4 and matched to plans by Tutela Engineering Associates, Inc. for Sewer and Water Main Connection dated February 2001. The initial design report by FRMA had 3 flow zones terminating ay Weston Street at elevation 198. We have added Zone 1.1 common piping for your project to discharge to the former Zone # 1.

Computations are based on the Hazen-Williams formula for friction loss, using calculations of cross-sectional area and flow rate to determine pipe sizes that create

"self-cleaning" velocities of 2.0 fps or higher. A "C" factor of 150, SDR 21 PVC pipe and the average expected daily volumes for single family homes are also used in this analysis.

The highest Total Dynamic Head generated is approximately 110 feet which comprised of static head and friction loss in the proposed pipeline. This is well below our pump's continuous-run rating of 185 ft, and well within its intermittent, i.e., normal, operating range. Flow velocity throughout the system meets or exceeds 2 fps. These characteristics and low retention time indicate that this will be a reliable, low-maintenance system.

Design Flows & System Velocity

We normally use average daily flows for system designs rather than the peak design flows commonly used for gravity sewer sizing. We do this because the system is sealed and void of inflow and infiltration commonly allowed for in gravity sewer designs. We size the system for an average daily flow of 200+/- gpd generally for single family homes. The pumps selected are rated to flows up to 700 gpd thus peak flows are easily handled. We size the pipelines for the proper scouring velocity based on the pump's output which has a consistent flow rate over a wide range of head conditions. We then look at the pipeline retention time to optimize the line size for the lowest retention that will pass wastewater in a short period of time to reduce sediment in the lines and prevent odor issues. This makes for a very reliable and maintenance free wastewater collection system.

Often we are asked to use the published "State" design values from various flow tables in order to secure approval. We can do this; but then we run the reports based on the actual predicted average flow to optimize the line size as mentioned above.

Many of our installations have seen flows that more closely mirror the EPA water use goals of 70 gpd/capita. We also look at seasonal uses a little more closely due to greater reductions in flow in the offseason. In applications of this type we look to find the best for both seasons.

Appurtenances

- Cleanouts, Air/Vacuum Release

Our normal recommendations for valve placement are as follows: flushing connections at 1,000' to 1,500' intervals and at branch ends and junctions; isolation valves at branch junctions; and air release valves at peaks of 25 ft. or more and/or at intervals of 2,000 to 2,500 ft.

Flushing can also be accomplished with a portable flushing tool that can be used at each pump to flush the system. As the service left for this property is a 1-1/2 inch

lateral line, we would suggest continuing that line size as the common header for each connection which would then be reduced to 1-1/4 inch.

- Service Laterals and Check Valves

Common practice in pressure sewers requires the ability to isolate each lot with a corporation stop off the main and service lateral kit to the lot line. E/One now requires that each pump connection be isolated with a combination curb stop/redundant check valve.

E/One has developed a true wastewater rated check valve which is built in to our stainless steel lateral kit shown in this report. These components are rated to 235 psi and with standard connection fittings rated to 150 psi. These items are included in the budget analyses and shown in this report.

We strongly advise against the use of waterworks check valves as they are not rated for sewage environments. We do not like to recommend brass due to concerns for corrosion. **WEF Manual of Practice FD-12, Second Edition**, page 45 speaks to the limited success of brass or bronze alloys.

> "Besides corrosion considerations, brass is subject to de-alloying, while some bronze, such as 85-5-5, will give better performance. The terms *brass* and *bronze* are used loosely, despite having different meanings; the engineer is advised to evaluate these materials with caution."

We have also seen PVC body check valves with pressure rating to 150 psi that do not have the same rating for back pressure on the check valve. This can result in damage to the check valve and pumping issues as the check valve disc can become dislodged under pressure and then become a line obstruction.

- Corporation Stops/ Mainline Connections

Connections to the main pressure line do not require WYE type fittings. We commonly use a TEE or saddle connection. We isolate each connection to the main line with a stainless steel corporation valve in the same manner used for other utilities such as gas and water services.

We recommend that the service laterals connect to the mainline and do not need to enter the cleanout manhole as shown in the "discussion plan". You will find this easier to install and service without having to align and install fittings within the cleanout manhole.

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Budget Notes

We show both our outdoor Model DH071-93 pumps and indoor pump Model IH091-IDU in this report. We have used the Outdoor pump in the budget estimate. We can also provide pricing for our indoor pump model. We have note used the E/One Design Assistant Budget form as it would also include the existing pipe work as a default.

- Onsite pipe installation would likely be in the range of $15.00 to $20.00 per foot.
- Laterals $299 each with added installation cost
- Corporations $125.00 each with added installation cost
- DH071-93 pumps with Bal-Last $4,900 each with added installation cost
- IH091 Optional Indoor $3,900 plus plumbing and wiring cost.
    - *I generally include a 5% overhead and 15% contingency in my budgets*

Costs of pipeline excavation and pump installation are best obtained from sources in your region. You may be better able to determine these costs.

I am looking forward to working with you on this and future projects. Please contact me if you have any questions or require additional information.

Best regards,

Henry S. Albro

West Townsend Office
781-982-9300, Ext. 222
henryalbro@frmahony.com

Enclosures

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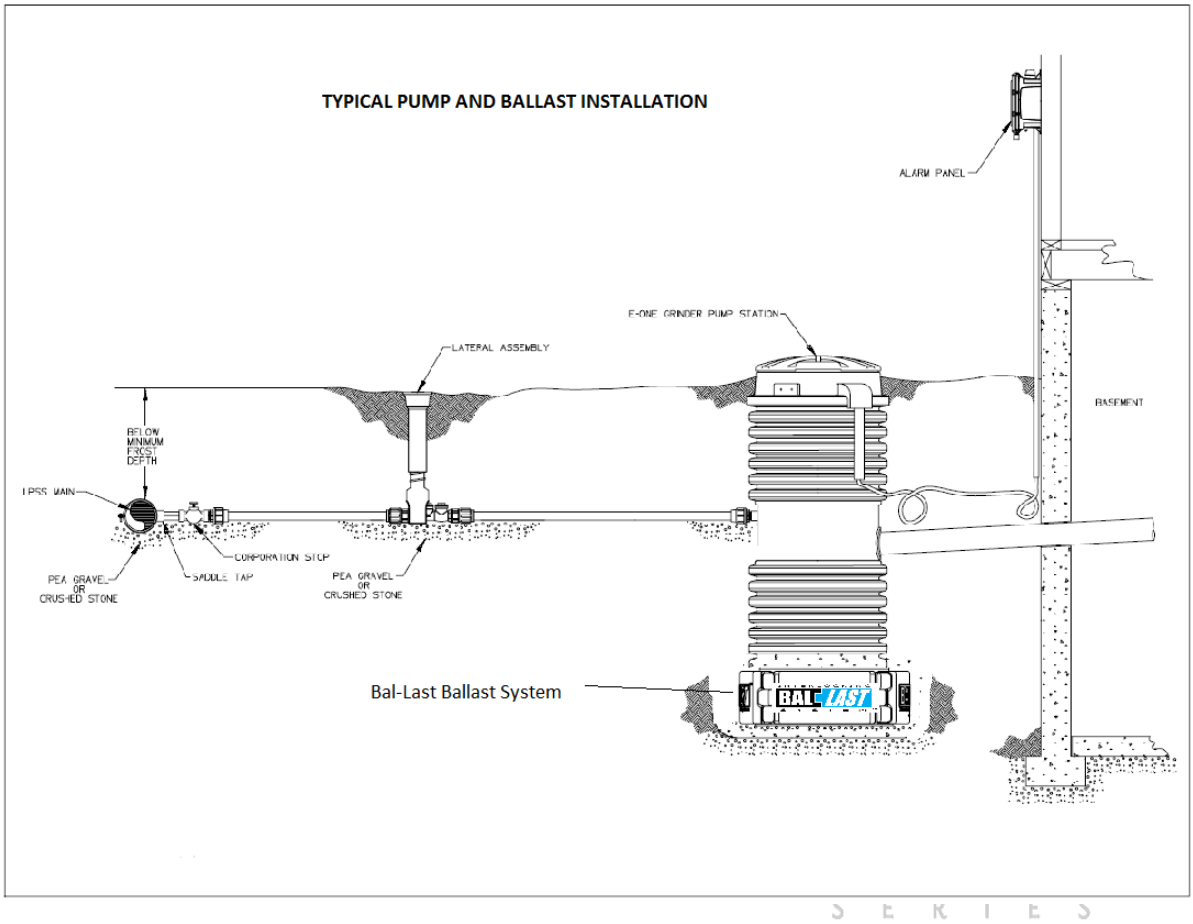

This image shows the typical layout of an outdoor pump unit for single-family home use. The pump unit is furnished complete, ready for installation. The installer needs to confirm the power cord length and discharge and inlet configuration. Standard products are supplied with 32 foot power supply cable. Standard inlets are 4-inch Schedule 40 Grommets (@ zero degrees) with 1-1/4 inch discharge (@ 180 degrees). Other configurations are available.

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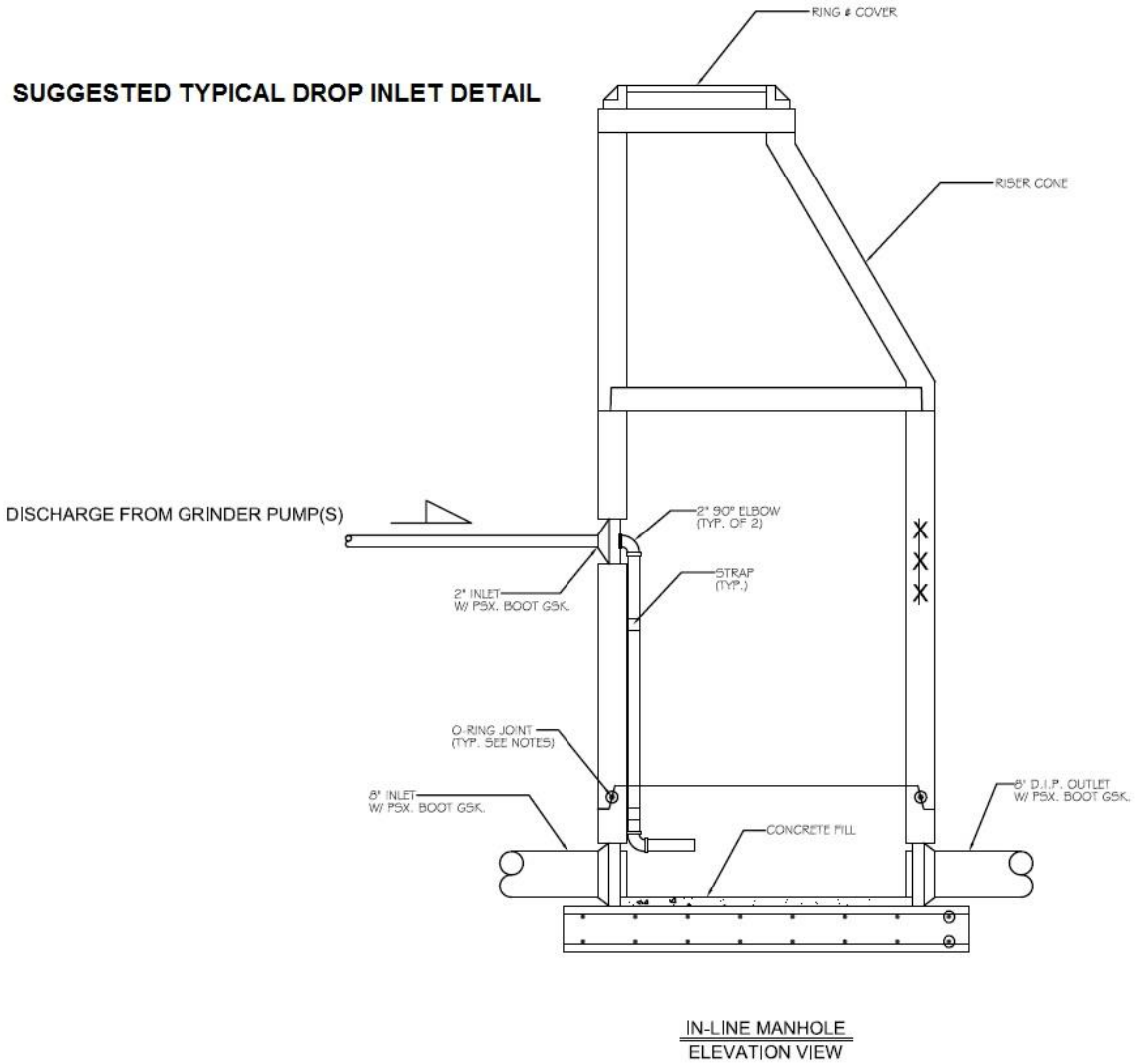
SUGGESTED TYPICAL DROP INLET DETAIL



IN-LINE MANHOLE
ELEVATION VIEW

This detail is shown as a concept sketch when major grade adjustments are required. We recommend that smaller inlet lines match the crown of outlet gravity sewer lines in all cases in order to direct flow to properly drain to the gravity sewer

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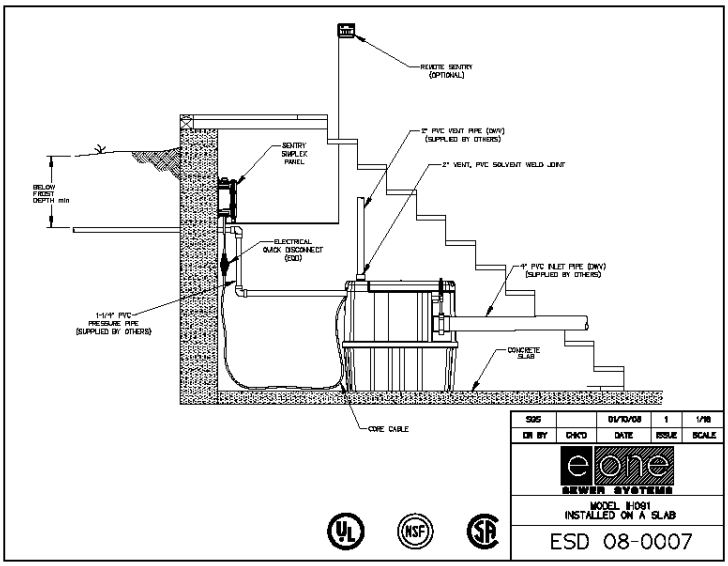
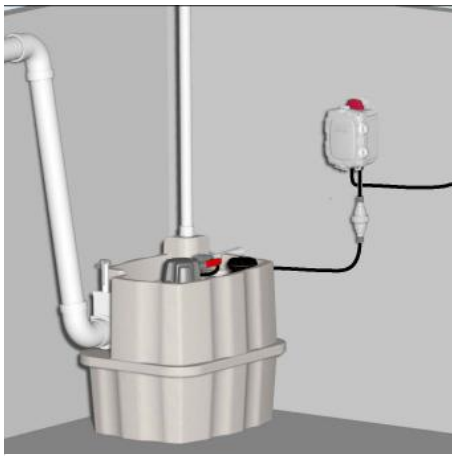
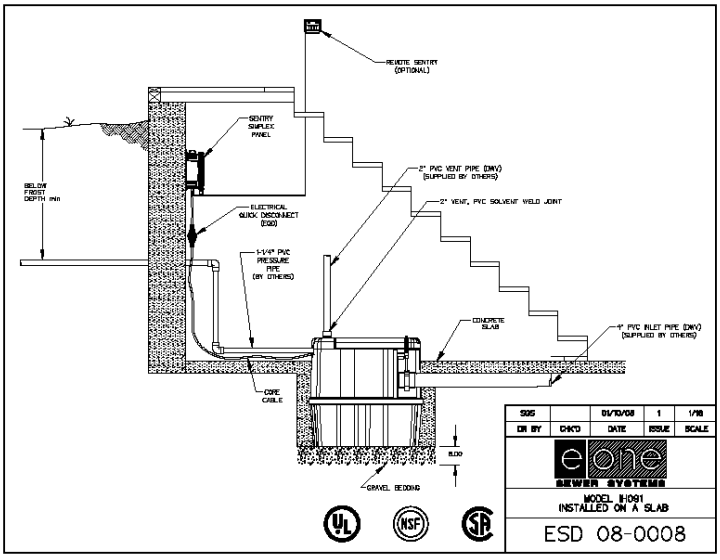
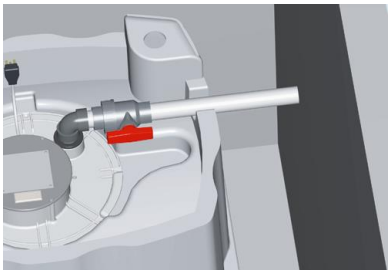
Model IH091 Indoor Pump Connection options for this station can be adapted to connect above the sill plumbing or below slab plumbing as seen in the sketches below.









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Standard alarm panels are the Sentry® panel mounted outside of the home as shown in the drawing (above).
Options include emergency generator connection (see photo) and Redundant alarm Remote Sentry® panel shown. Other panel configurations are available. See the partial listing of panel options below.

- Basic Panels include circuit breaker for the pump and separate breaker for the alarm. These panels include alarm light, alarm buzzer and alarm silence button. ***All F. R. Mahony panels are equipped with dry contacts to enable the connection of the Remote Sentry® (battery powered redundant alarm panel option)***

- Standard options include auto transfer generator connection shown above. This panel provides automatic power transfer without having to open the alarm panel or having to operate any manual transfer switching. This feature can be added to the basic panel or the panels offered below.

- Popular options include the **"Protection Package"** which monitors and protects the system from:
  - Pump Run Dry Condition (Pump running out of water)
  - Pump Overpressure Condition (Closed valve)
  - Brownout Condition (Main voltage under 12% of nameplate)
  - High Liquid Level

- The **"Protect Plus"** panel features offer the same items in the "Protection Package" plus the following:
  - High & Low Amperage draw by the pump
  - High & Low voltage to the pump
  - Extended Runtime by the pump (indicating wear or excessive flow) (field adjustable settings)
  - Monitoring of:
    - Real-time Pump Voltage and Current
    - Cycles & Hours (can be reset)
    - Minimum & Maximum Amperage (can be reset)
    - Minimum, Maximum, Average, and Last Run Cycle (in minutes, can be reset)

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Emergency Generator Transfer Options.

The indoor pump units may be furnished with a receptacle for connection of emergency power supplies. The image to the right shows the connection receptacle on the right side of our Sentry panels. This connection may be connected by your electrician to a remote connection port outside of the home.

Wiring must be performed by a licensed electrician and conforming to NEC and local electrical codes.

The box (left) is shown in the face view (face up) and is intended to be mounted on the outside wall to permit connection of a portable generator to the receptacle on the bottom. Generator operation must always be in well ventilated areas outside of any living space.

The pump may be operated under emergency power provided the automatic transfer option is selected with the Sentry® panel. Normal pump run times are short and should not require the continuous connection of a generator. A single portable generator may be used to service several homes effectively.

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Pump models may be the DH071-93 (standard height) for outdoor use or the Model IH091 indoor unit. Both products are UL listed NSF and CSA certified and Massachusetts Plumbing Board Accepted.

Model DH071-93 Outdoor Pump With Bal-Last™

The outdoor model is complete - ready for installation and connection to exterior plumbing and power supply. This unit is fully tested for operation and factory leak tested. No assembly is required and there are no floats to adjust. The pump is furnished complete with the alarm panel and direct bury power supply cable. Standard cable length is 32 feet with 50, 75, and 100 and up to 150 foot cables available. (See Alarm Panel options above)

Other station configurations are available for higher flow requirements. Please contact us for more information. Additional information may be found at www.eone.com

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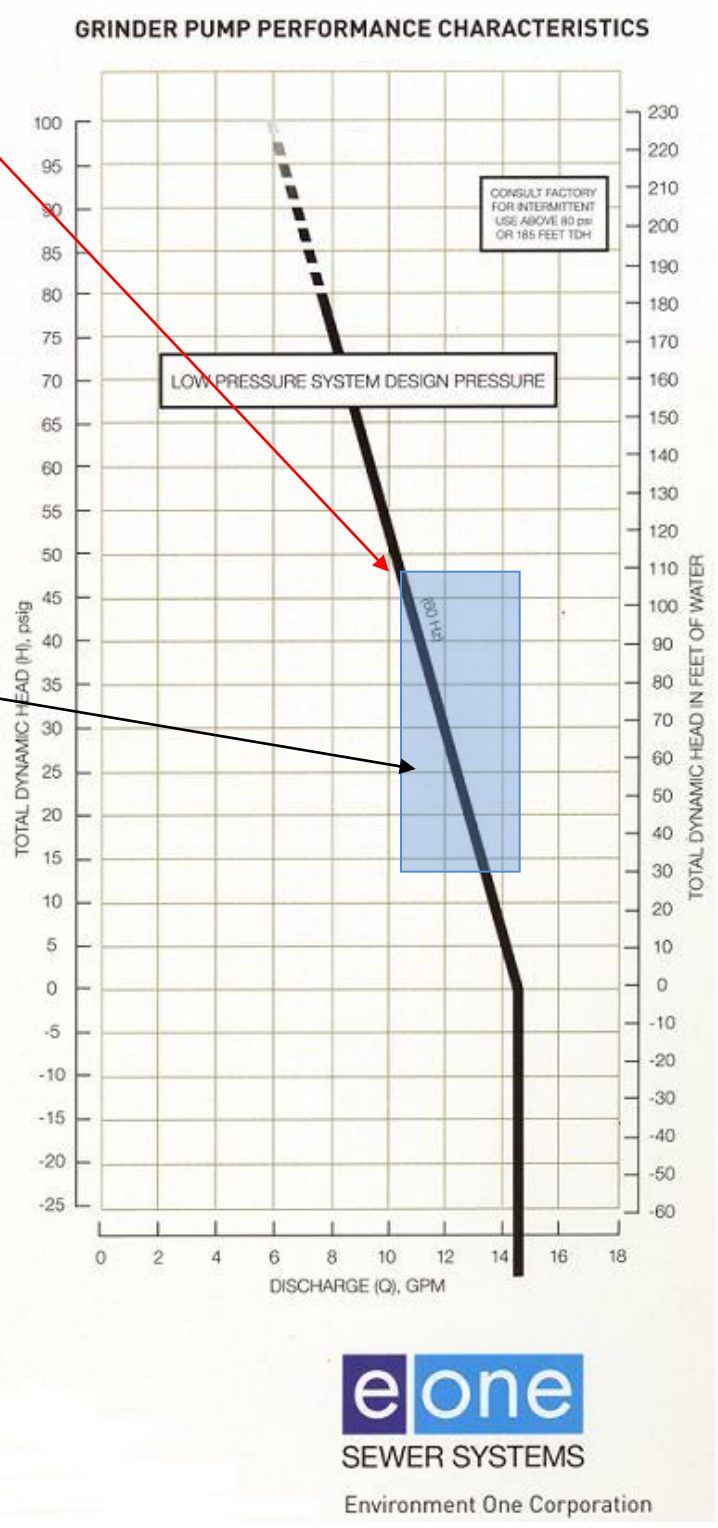
Operation Conditions

111 Feet is the highest TDH at simultaneous operating conditions with the expected number of pumps operating in each zone, or the head of an individual pump operating in a single zone condition.

Operating range of E/One pumps from 0-185 feet TDH and from 0 to -60 feet TDH.

Your System Range

Anti-siphon valves in E/One cores provide for negative head pumping. In common systems with negative heads of 25-30 feet or more we recommend the use of combination air/vacuum release valves as described below.



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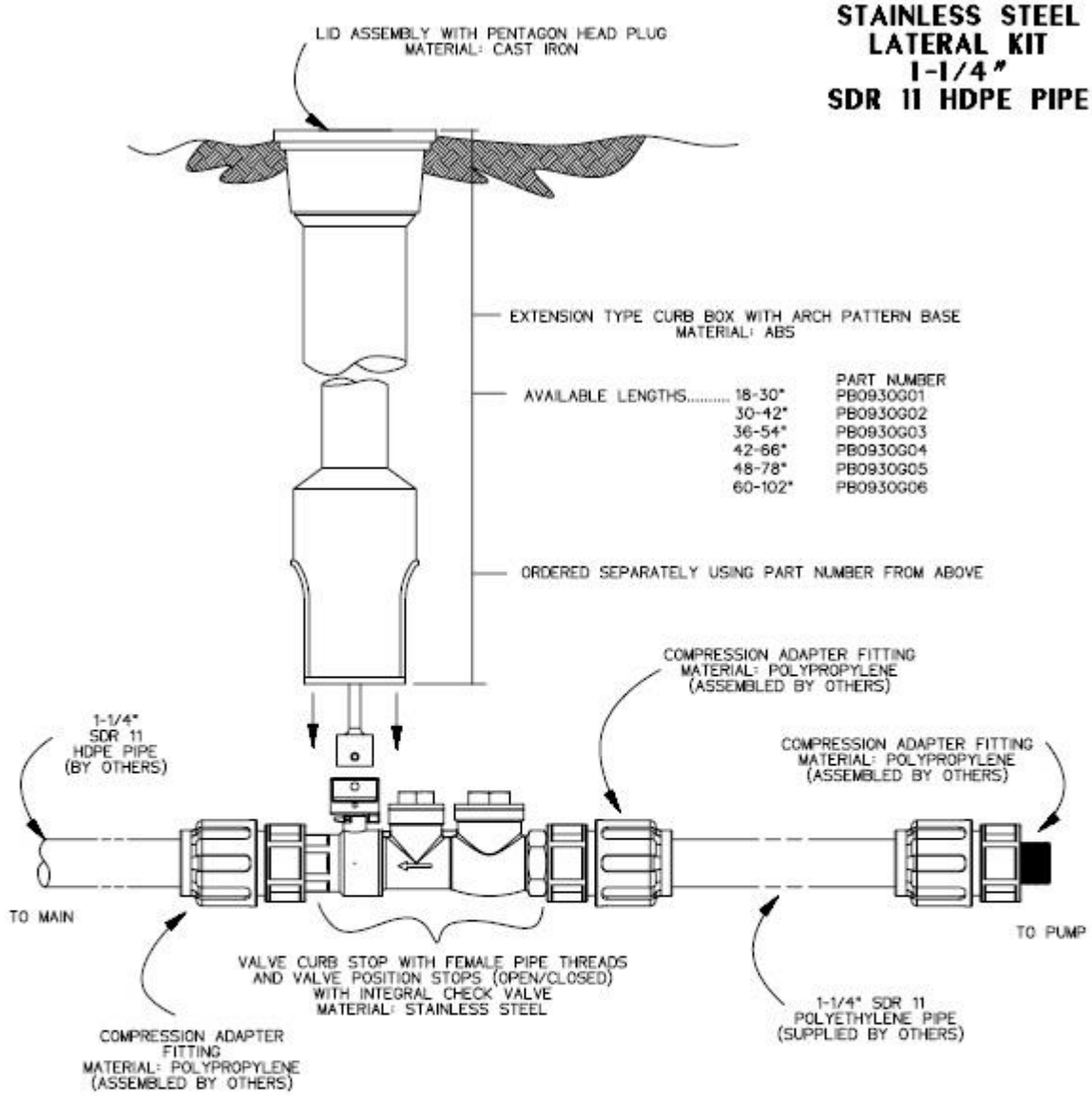
STAINLESS STEEL LATERAL KIT 1-1/4" SDR 11 HDPE PIPE



KIT PARTS ARE NOT ASSEMBLED

NOTES:

1. SS CURB STOP/CHECK VALVE AND FITTINGS ARE PROVIDED SEPARATELY, TO BE ASSEMBLED BY OTHERS
2. TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, AND A LAYER OF PIPE DOPE (SUPPLIED BY OTHERS) TO THE THREADS ON THE PLASTIC FITTINGS AND INSTALL PER THE MANUFACTURER'S INSTRUCTIONS
3. ASSEMBLY IS TO BE PRESSURE TESTED (BY OTHERS)
4. ASSEMBLY IS TO BE USED WITH SDR11 HDPE PIPE
5. TO ORDER SS LATERAL KIT, USE PART NUMBER NC0193G01
6. CURB BOX IS TO BE ORDERED SEPARATELY, SEE ABOVE

SGS	DN	11/02/11	A	3/16
DR BY	CHK'D	DATE	ISSUE	SCALE

e|one
SEWER SYSTEMS

STAINLESS STEEL LATERAL KIT
1-1/4" SDR 11 HDPE PIPE

NA0330P02

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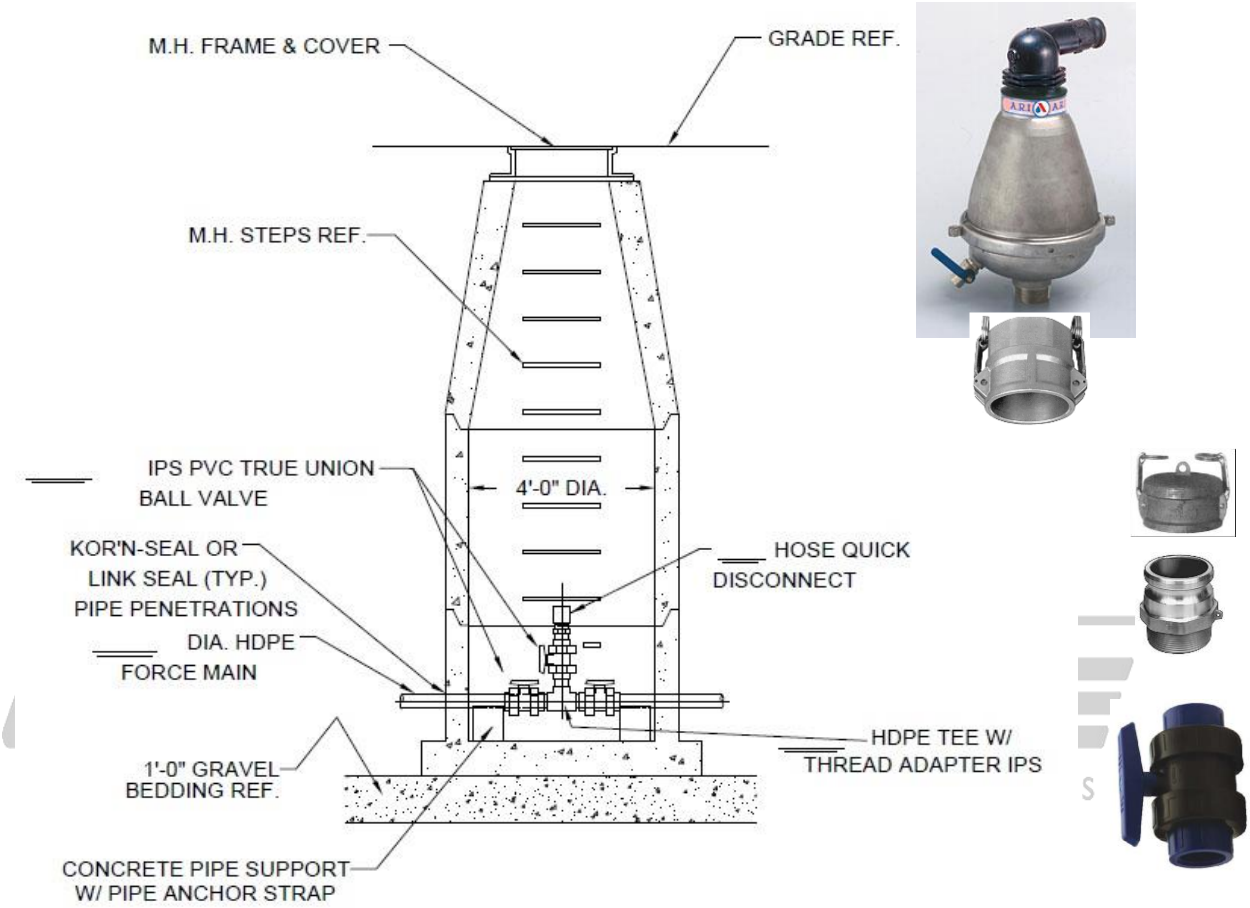
Typical Cleanout Detail

(Optional Air/Vacuum Valve shown –right)



Cleanout detail can be modified to match typical installation needs. Inline shut offs may be added to isolate flow direction. Image shown is flow through cleanout. These structures can be terminal end of line cleanouts, or junction cleanouts as may be required. Optional air and vacuum relief valves may be added when required.

Environment One Corporation

Pressure Sewer Preliminary Cost and Design Analysis For 443 Lincoln Street Extension Lexington, MA

Prepared For:
Stamski and McNary
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Tel: (978) 263-8585 ext. 211
Fax: rjh@stamskiandmcnary.com
Prepared By: frma/eq/ Henry Albro REV
February 1, 2018

443 Lincoln Street Extension
Lexington, MA

Prepared by : frma/eq/ Henry Albro REV **On:** February 1, 2018

Notes :
This report looks at adding 8 Pumps to existing zone # 1 with 1-1/2 inch PVC Pipe.

<<<<< E N D O F N O T E S >>>>>

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By:
frma/eq/ Henry Albro REV

443 Lincoln Street Extension
Lexington, MA

February 1, 2018

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Gals/day per Pump	Max Flow Per Pump (gpm)	Max Sim Ops	Max Flow (GPM)	Pipe Size (inches)	Max Velocity (FPS)	Length of Main this Zone	Friction Loss Factor (ft/100 ft)	Friction Loss This Zone	Accum Fric Loss (feet)	Max Main Elevation	Minimum Pump Elevation	Static Head (feet)	Total Dynamic Head (ft)
This spreadsheet was calculated using pipe diameters for:		SDR21PVC									Friction loss calculations were based on a Constant for inside roughness "C" of:			150			
1.00	2.00	2	10	200	10.89	4	43.56	1.50	5.64	450.00	6.77	30.45	69.56	198.00	176.00	22.00	91.56
1.10	1.00	8	8	200	10.03	3	30.09	1.50	4.16	475.00	3.85	18.28	87.84	198.00	175.00	23.00	110.84
2.00	3.00	3	13	200	12.25	4	48.99	2.00	3.78	1,250.00	2.49	31.11	39.11	198.00	176.00	22.00	61.11
3.00	3.00	2	15	200	13.72	4	44.34	2.00	3.92	300.00	2.67	8.00	8.00	198.00	178.00	20.00	28.00

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One.

PRELIMINARY PRESSURE SEWER - ACCUMULATED RETENTION TIME (HR)

Prepared By:
frma/eq/ Henry Albro REV

443 Lincoln Street Extension
Lexington, MA

February 1, 2018

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Gallons per 100 lineal feet	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR21PVC								Gals per Day per Dwelling		200
1.00	2.00	10	1.50	12.07	450.00	54.32	2,000	36.82	0.65	3.28
1.10	1.00	8	1.50	12.07	475.00	57.33	1,600	27.91	0.86	4.14
2.00	3.00	13	2.00	18.84	1,250.00	235.53	2,600	11.04	2.17	2.63
3.00	3.00	15	2.00	18.84	300.00	56.53	3,000	53.07	0.45	0.45

Note: This analysis is valid only with the use of progressive cavity type grinder pumps as manufactured by Environment One

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JOSEPH MARCH, P.E., P.L.S.
GEORGE DIMAKARAKOS, P.E.

May 15, 2018

Lexington Planning Board
201 Bedford Street Rm 202
Lexington, MA 02420

Re: Homes at Hobbs Brook
443 Lincoln Street

Members of the Board,

On behalf of our client, Symes Permitting and Development LLC, our office has revised the Definitive Balanced Housing Development Plan Set dated May 15, 2018. The plan revisions are in response to both the written review comments received to date and the verbal review comments received during the public hearing.

A summary of the Plan revisions are as follows:

- All of the Engineering comments have been addressed as detailed below.
- The Planting List is now all native plants on the Landscape Plan.
- A letter from the Cambridge Water Department has been requested.
- The Notice of Intent application has been filed with Conservation.
- A neighborhood land use timeline has been prepared for NOI (see attached).
- Only select plan sheets 4, 5, 6, 7, 9 & 10 have been updated.

Responses to Engineering Division Memorandum from David Pavlik dated March 20, 2018

Water

- The fire hydrant detail has been modified to call for use of American-Darling 5 ¼ inch B-84-B-5 to be painted per town requirements (sheet 10).
- General Note 4 has been modified to specify that all hydrants, valves, and valve boxes shall be American made only (sheet 9).
- Bends in the proposed water main have been identified (sheet 6) and thrust block specifications are provided per detail (sheet 10). The proposed water main has been relocated under the proposed access drive (sheet 6).
- A larger, 1"=20' scale, utility detail has been provided (sheet 6).

Sewer

- Sewer details and inverts updated (sheet 10). Also see F.R. Mahony report.
- See F.R. Mahony report relative to existing line and services.
- General Note 18 has been added to specify that the proposed sewer system will be privately owned and maintained and a sign with contact information will be placed on each pumping unit (Sheet 9).
- The proposed pressure sewer has been reconfigured. The pressure sewer line is now located behind Buildings A&B. The total number of E/One units has been reduced from 8 to 4. The proposed E/One units are now type DH152. Overall utility layout has been adjusted to provide separation.
- Two course bricks are now shown and specified in the drain manhole detail (Sheet 9).
- General Note 21 has been added to specify all manhole frame and covers to meet Town of Lexington Standards (Sheet 9).
- General Notes 19 and 20 have been added to specify all sewer and drain pipes shall meet Town of Lexington Standards (Sheet 9).

Drainage for roadway, sidewalk, driveway aprons, and site grading

- Stormwater details relative to catch basins, drain manhole, area drain and level spreader have labels which have been edited per engineering comments (sheet 10).

Electric

- Services will now be provided overhead across Lincoln Street to an onsite utility pole where it will then proceed underground to dwelling units similar to Grey Oaks Circle.

Response to Agenda Item Summary a & Staff Recommendations from Planning Office

Submitted Plans

- The BHD Application and Notice of Intent have been submitted to the Cambridge Water Department and a letter from them has been requested.

Thank you for your attention to this mater. We look forward to further discussing this project at the next Planning Board hearing. Please contract our office if there are questions.

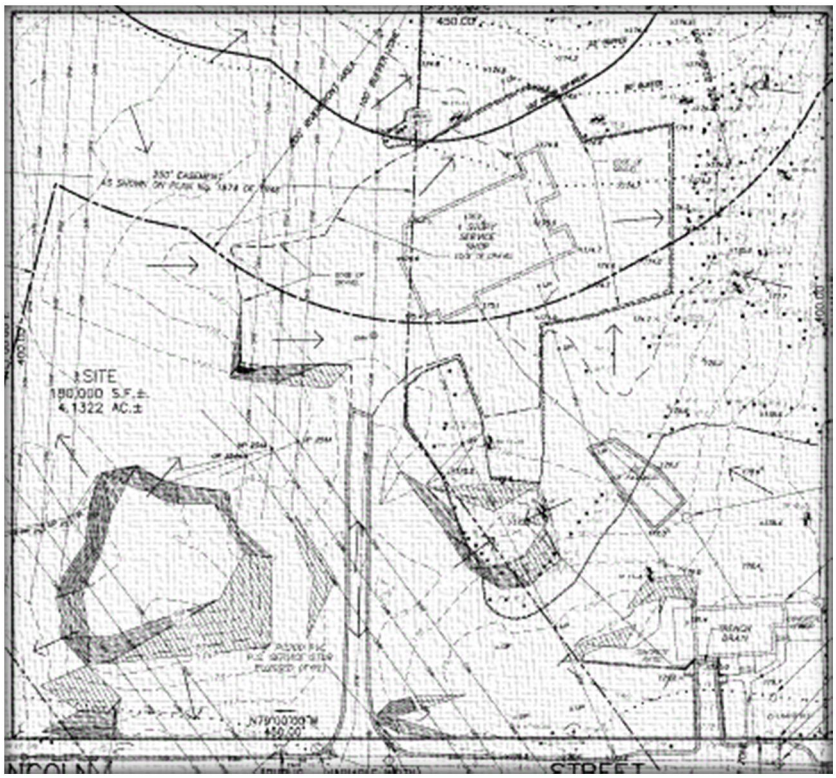
Respectfully,

Stamski and McNary, Inc.

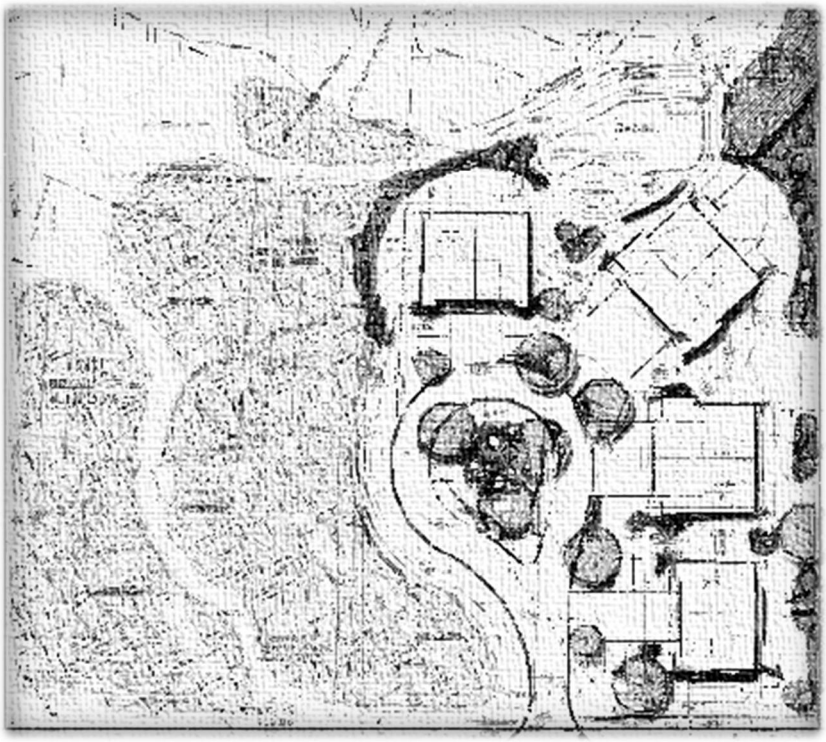
Paul Kirchner, E.I.T.

Richard J. Harrington, P.E.

The Homes at Hobbs Brook



Existing Land Use with Higher Potential Pollutant Load



Future residential use similar to abutting Grey Oaks Circle

2005 – AERIAL VIEW

BACK IN THE DAY

Substantial alteration of onsite area

Active onsite auto shop & abutting shop

Higher onsite land use operations

Multiple onsite material storage areas and debris stock piles

Greater auto storage activity on gravel driveways and parking lots

Additional dirt and gravel access driveways

Multiple driveways and dwellings opposite reservoir on both sites

2016 – AERIAL VIEW

THE OLD NEIGHBORHOOD

Onsite land use operations reduced from 2005

One onsite auto service shop & one abutting shop

Land use operations reduced within onsite riverfront area

Remnant material areas and stock piles remain

Reduced auto storage on gravel driveways and parking lots

Minor overgrowth of abandoned dirt and gravel paths within easement

2017 – AERIAL VIEW

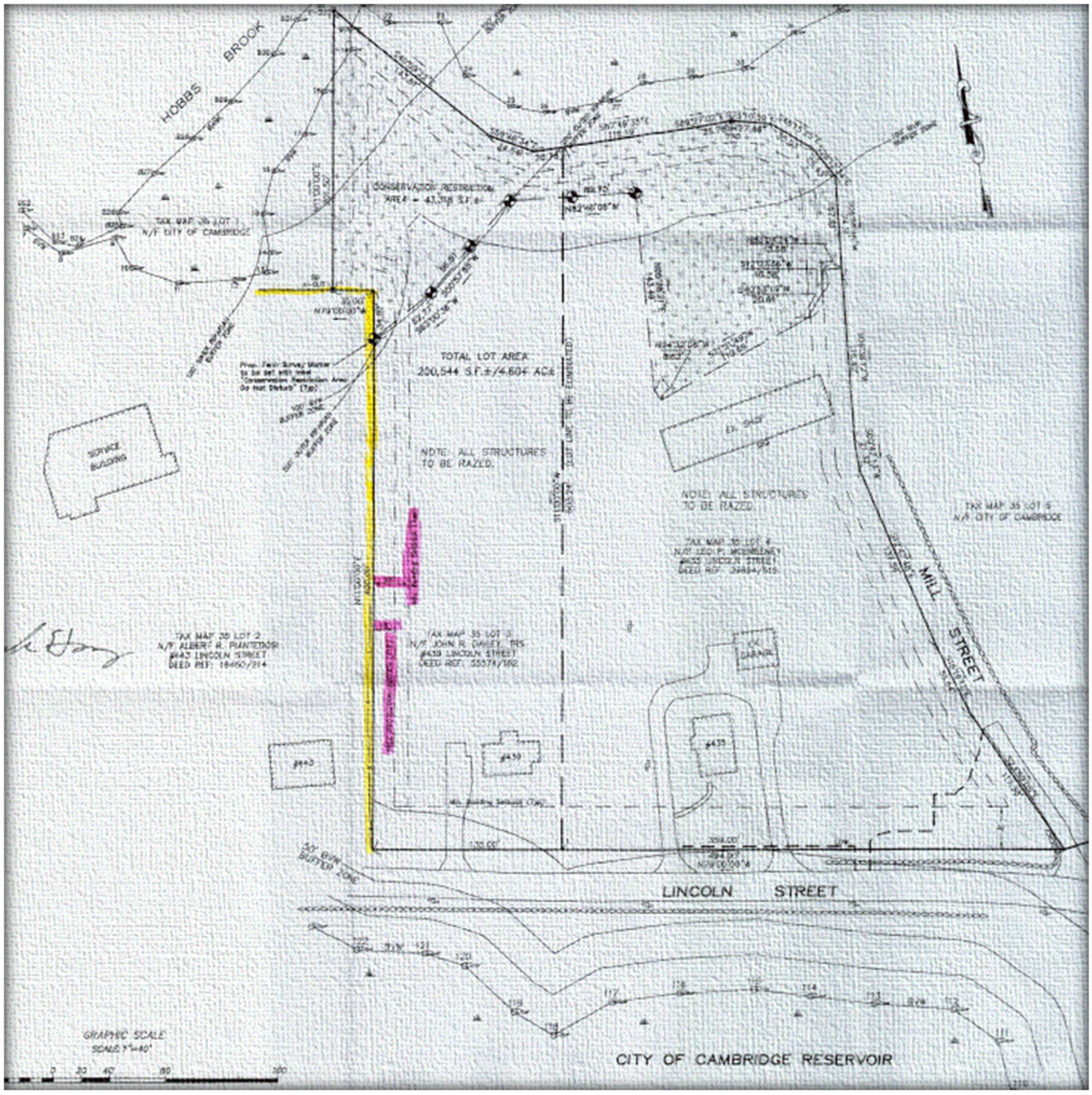
BEGINNING OF A NEW NEIGHBORHOOD

Little onsite change from 2016 aerial view

Active on-site auto repair shop remains

Abutting Balanced Housing Development - Grey Oaks Circle under construction

Applicant submits Sketch Plan for on-site Balanced Housing Development



2016 – PLAN VIEW

THE OLD NEIGHBORHOOD

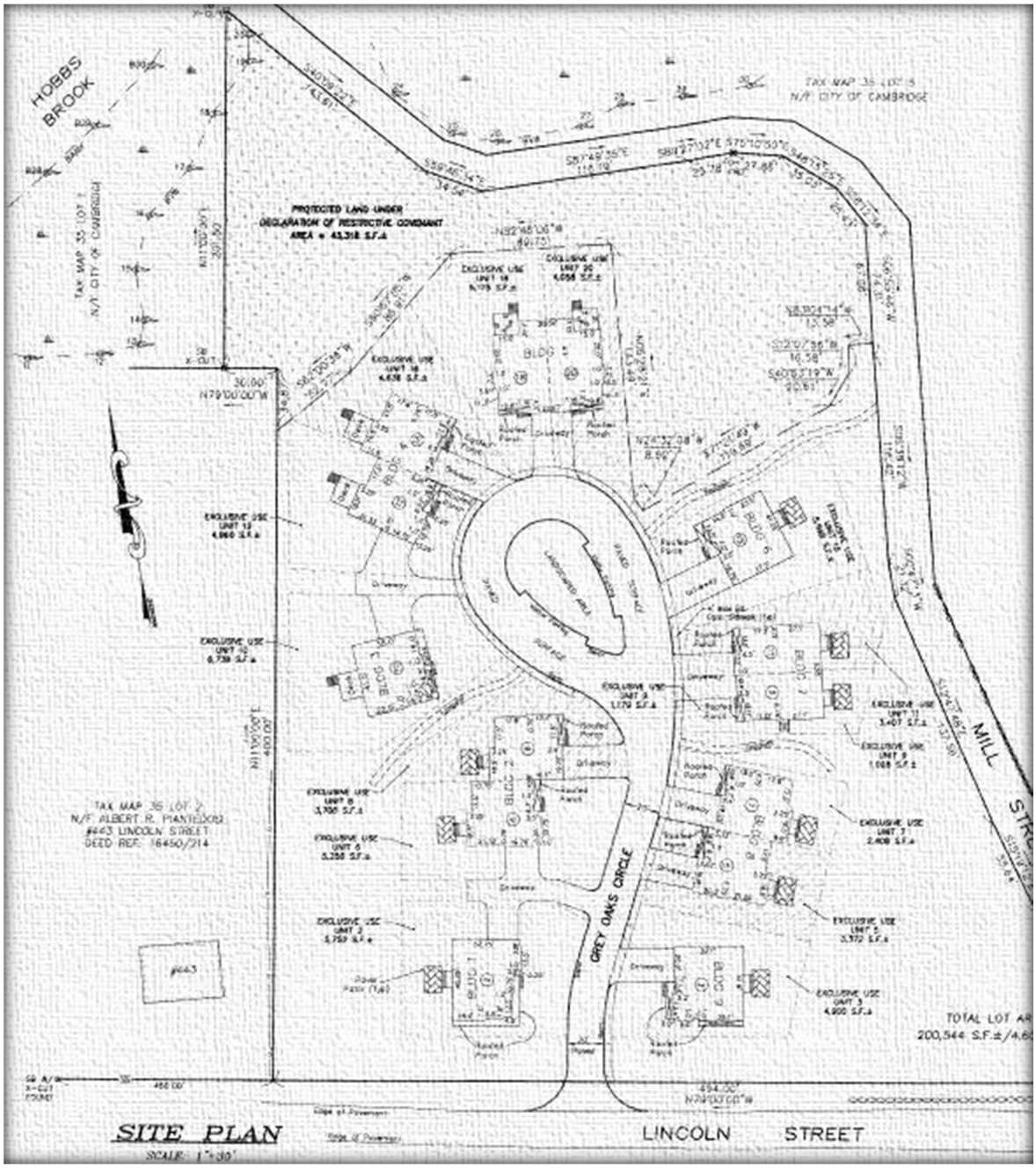
Two shops

Three residential dwellings

Six individual paved curb-cuts

Acres of unprotected open space

Lack of stormwater management controls



2017 - PLAN VIEW

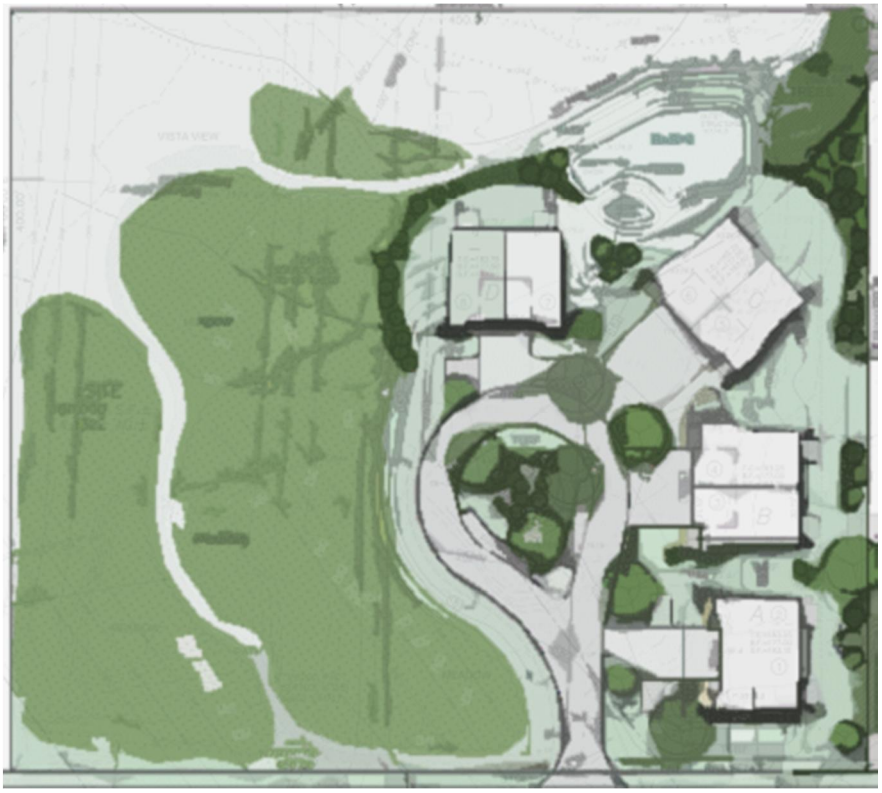
BEGINNING OF A NEW NEIGHBORHOOD

Abutting Grey Oaks Circle Complete

Removal of the abutting service shop and two dwellings

Abutting balanced housing development with common areas

Abutting Mill Street walking path



2018 - FOCUS

IMPROVEMENT FOR THE FUTURE

Remove remaining auto repair shop and one dwelling

Revegetate inner riparian zone

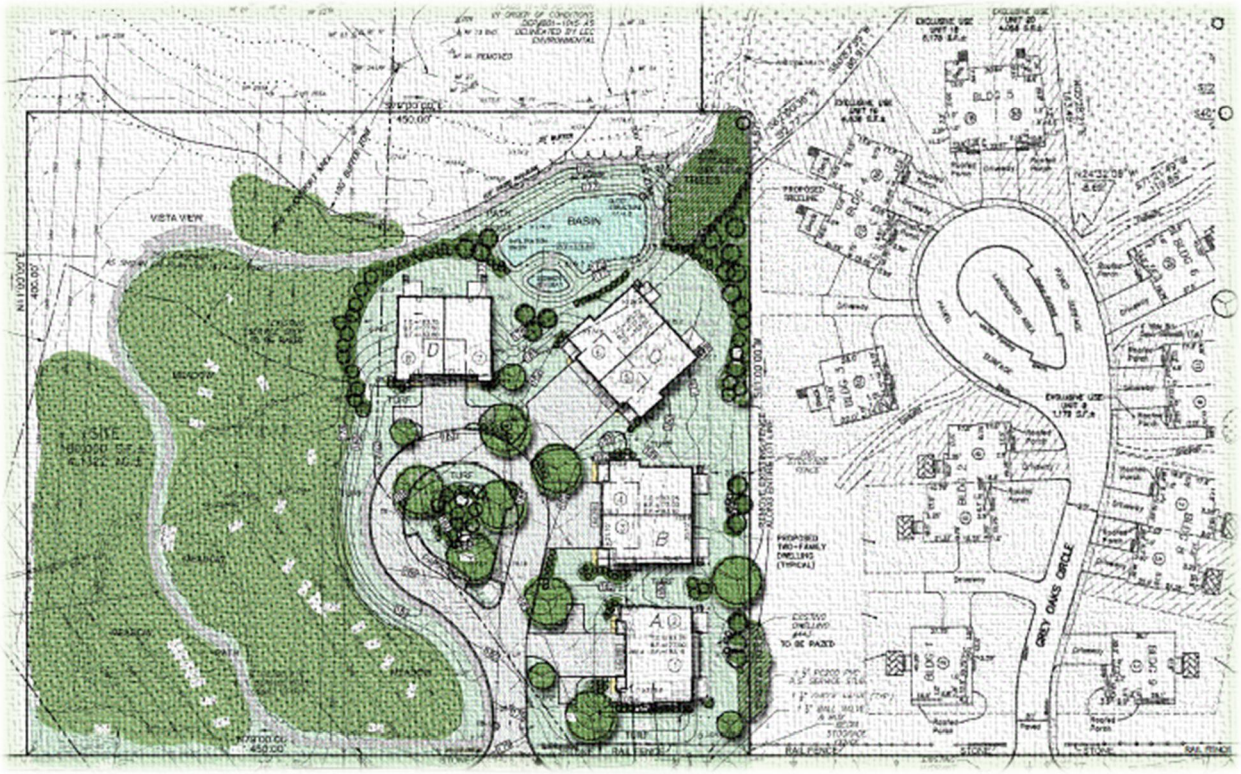
Redevelop riverfront area

Eliminate on-site private sewage disposal system

Protect common areas

Provide additional walking paths

Connect vista view to abutting Mill Street path



2020 - VISION

A COMPLETE AMD IMPROVED NEIGHBORHOOD

Two balanced housing developments

One neighborhood

Protected common areas

Walking trails

Stormwater management controls

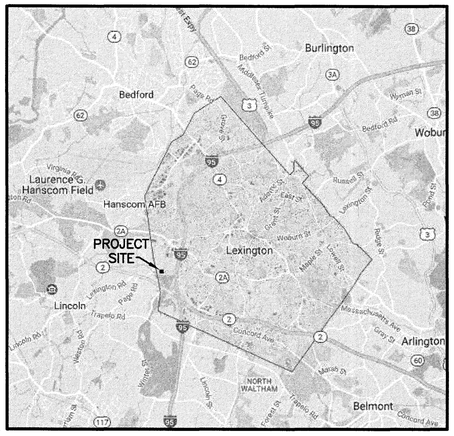
Prohibition on any further development

HOMES AT HOBBS BROOK

DEFINITIVE PLAN
BALANCED HOUSING RESIDENTIAL DEVELOPMENT
443 LINCOLN STREET
LEXINGTON, MASSACHUSETTS

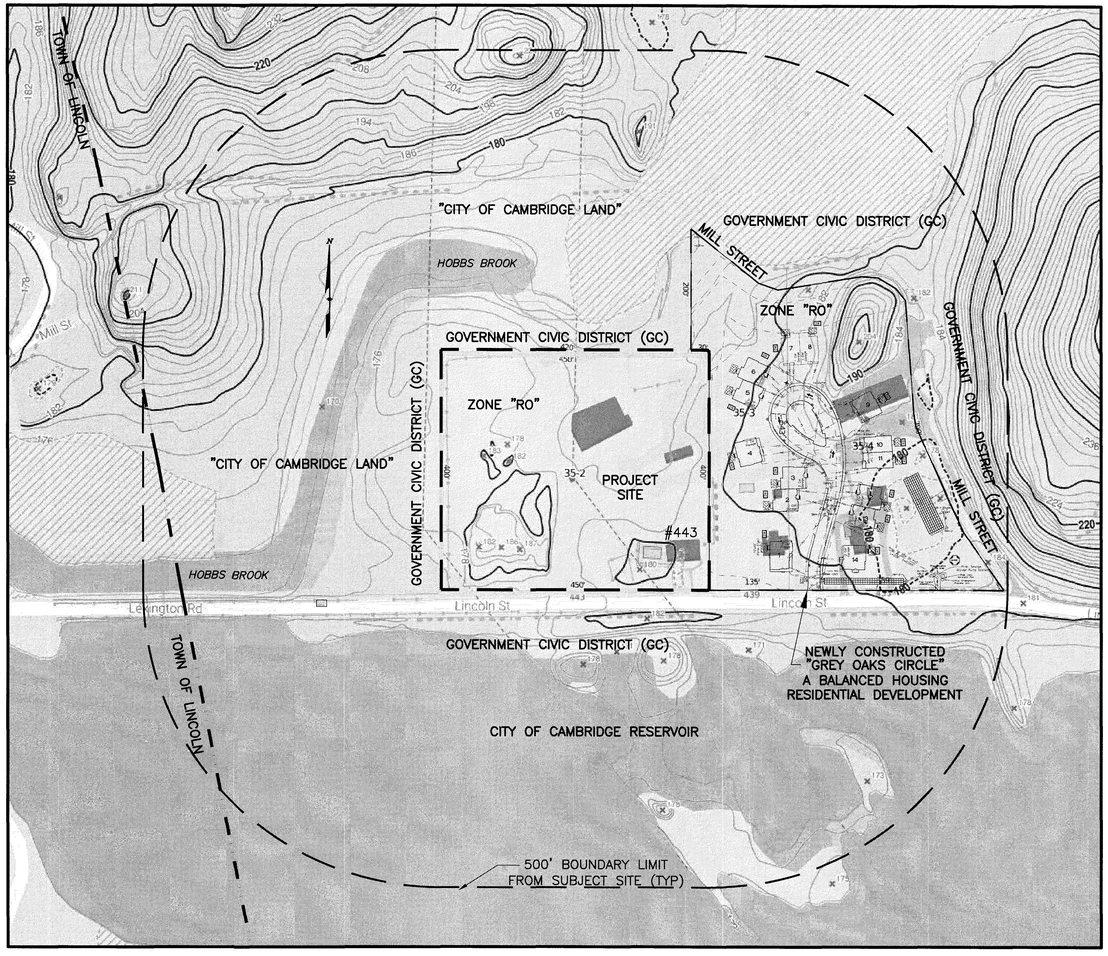
FEBRUARY 20, 2018

REVISED: MAY 15, 2018



TOWN LOCUS

SCALE: 1"=10,000'



LOCUS MAP

SCALE: 1"=120'

0 60 120 240 360 480 FT

SHEET INDEX

APPLICANT

SYMES DEVELOPMENT & PERMITTING, LLC
50 DODGE STREET
BEVERLY, MA 01915

LANDSCAPE ARCHITECT

JAMES EMMANUEL, ASSOCIATES
22 CARLTON ROAD
MARBLEHEAD, MA 01945

SURVEYOR/ENGINEER

STAMSKI AND MCNARY, INC.
1000 MAIN STREET
ACTON, MA 01720

ATTORNEY

LATHAM LAW OFFICES, LLC
643 MAIN STREET
READING, MA 01867–3096

RECORD OWNER

THE GERTRUDE M. PIANTEDOSI TRUST
443 LINCOLN STREET
LEXINGTON, MA

REFERENCE

MIDDLESEX REGISTRY OF DEEDS
SOUTH DISTRICT
DEED BOOK 65347 PAGE 366
PLAN BOOK 239 PLAN 26
ASSESSOR'S MAP 35 PARCEL 2

ZONING DISTRICT

RO

DATUM

N.G.V.D. OF 1929

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- D — SUB-SURFACE DRAIN LINE
- 99 — EXISTING CONTOUR
- 95 — EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT

N

MEAN ANNUAL HIGH-WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 (RF 1-13) CONNECT RF 13 TO B26 ORAD ISSUED DEP#201-1038

N/F CITY OF CAMBRIDGE

MEAN ANNUAL HIGH WATER LINE, FLAGS B26-B32 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. (WF 1-24, 26 & 27) CONNECT WF 27 TO WF 11 ORAD ISSUED DEP#201-1038

HOBBS BROOK PERENNIAL

EDGE OF BORDERING VEGETATED WETLANDS, FLAGS 11-18 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

WF 25 REMOVED

PROTECTED LAND UNDER DECLARATION OF RESTRICTIVE COVENANT AREA = 43,318 S.F.±

EXCLUSIVE USE UNIT 16 4,636 S.F.±

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 ORAD ISSUED DEP#201-1038

MEAN ANNUAL HIGH-WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 ORAD ISSUED DEP#201-1038

200' RIVERFRONT AREA

100' BUFFER ZONE

600' RIVERFRONT AREA

100' BUFFER ZONE

50' BUFFER

25' BUFFER

100' INNER RIPARIAN

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

S79°00'00"E 450.00'

N11°00'00"E 400.00'

S11°00'00"W 400.00'

N79°00'00"W 450.00'

SITE
180,000 S.F.±.
4.1322 AC.±

S40°09'22"E 143.61'

S59°46' 34.54'

S60°19'55"W 86.91'

S62°00'36"W 34.87'

EDGE OF GRAVEL

1 STORY SERVICE SHOP

EDGE OF PAVEMENT

EXISTING PRIVATE SEWAGE DISPOSAL SYSTEM (APPROX.) (SEE NOTE 17.)

2 STORY BRICK DWELLING #443

EXISTING WELL (APPROX.)

1 ½" PC200 PVC P.S. SERVICE STUB

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

BEGIN STOCKADE FENCE

END STOCKADE FENCE

TRENCH DRAIN

CONCRETE PATIO

BLDG 1

BLDG 2

BLDG 3

BLDG 4

Deck

Driveway

Roof Porch

PC200 PVC P.S. SERVICE STUB PLUGGED (TYP.)

LINCOLN STREET (PUBLIC - VARIABLE WIDTH)

EXISTING HYDRANT

8" CLDI CAP & NIPPLE

FLUSHING CONNECTION

8" GATE VALVE & BOX

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

EXISTING 8" DICL WATER MAIN (APPROX.)

EXISTING 1½" PC200 PRESSURE SEWER

TBM BOLT ON BONNET ELEV.=177.84

TBM NAIL IN UP ELEV.=180.39

EXISTING 6" CLDI WATER MAIN (APPROX)

EXISTING 2" X 1½" REDUCER

EXISTING 2" PC200 PVC PRESSURE SEWER

8" GATE VALVE & BOX

EXISTING HYDRANT

CAMBRIDGE RESERVOIR

N/F CITY OF CAMBRIDGE

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

1" TYPE K COPPER WATER SERVICE W/CORPORATION STOP, COPPER TUBING, CURB STOP AND SERVICE BOX.

CAMBRIDGE RESERVOIR

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ORAD ISSUED DEP#201-1038

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ORAD ISSUED DEP#201-1038

SLOPE KEY:

- <15%
- 15% – 25%
- 25% – 40%
- 40% – 100%

DIRECTION OF FLOW

0 20 40 80 160 FT

(5676 DEF BHD 2.dwg)

TEST PITS WERE PERFORMED ON DECEMBER 15, 2017
BY STAMSKI AND MCNARY, INC., RICHARD J. HARRINGTON, P.E., S.E. No. 1012

SOILS INFORMATION

TEST PIT: TP 17-1
ELEV.=175.1±

0"–12"	FILL: GRAVEL PARKING
12"–33"	FILL: GENERAL FILL
33"–72"	LAYER C1: MEDIUM SAND
72"–108"	LAYER C2: FINE SAND

WATER WEEPING @ 100"
MOTTLING OBSERVED @ 33"
E.S.H.G.W. ELEV =172.4'

TEST PIT: TP 17-2
ELEV.=174.7±

0"–66"	FILL
66"–120"	LAYER C: MEDIUM SAND

WATER WEEPING @ 84"
MOTTLING OBSERVED @ 66"
E.S.H.G.W. ELEV =169.2'

TEST PIT: TP 17-3
ELEV.=174.4±

0"–36"	FILL
36"–110"	LAYER C: MEDIUM SAND

WATER WEEPING @ 74"
MOTTLING OBSERVED @ 36"
E.S.H.G.W. ELEV =171.4'

[redacted]

TEST PIT: TP 17-4
ELEV.=175.4±

0"–10"	HORIZON A: SANDY LOAM
10"–24"	HORIZON B: LOAMY SAND
24"–40"	LAYER C1: MEDIUM SAND
40"–100"	LAYER C2: FINE SAND

WATER WEEPING @ 80"
MOTTLING OBSERVED @ 24"
E.S.H.G.W. ELEV =173.4'

TEST PIT: TP 17-5
ELEV.=177.3±

0"–12"	HORIZON A: SANDY LOAM
12"–14"	HORIZON B: LOAMY SAND
14"–40"	LAYER C1: MEDIUM SAND
40"–108"	LAYER C2: FINE SAND

WATER WEEPING @ NONE
MOTTLING OBSERVED @ 40"
E.S.H.G.W. ELEV =174.0'

TEST PIT: TP 17-6
ELEV.=176.4±

0"–12"	HORIZON A: SANDY LOAM
12"–24"	HORIZON B: LOAMY SAND
24"–40"	LAYER C1: MEDIUM SAND
40"–114"	LAYER C2: FINE SAND

WATER WEEPING @ NONE
MOTTLING OBSERVED @ 36"
E.S.H.G.W. ELEV =173.4'

TEST PIT: TP 17-7
ELEV.=179.0±

0"–9"	HORIZON A: SANDY LOAM
9"–20"	HORIZON B: LOAMY SAND
20"–34"	LAYER C: COARSE SAND

WATER WEEPING @ 34"
MOTTLING OBSERVED @ NONE
E.S.H.G.W. ELEV =176.2'

TEST PIT: TP 17-8
ELEV.=178.4±

0"–17"	HORIZON A: SANDY LOAM
17"–27"	HORIZON B: LOAMY SAND
27"–40"	LAYER C1: FINE SAND
40"–108"	LAYER C2: COARSE SAND

WATER WEEPING @ 50"
MOTTLING OBSERVED @ 50"
E.S.H.G.W. ELEV =174.2'

TEST PIT: TP 17-9
ELEV.=175.4±

0–36"	FILL: SANDY LOAM
36"–40"	HORIZON A: SANDY LOAM
40"–44"	HORIZON B: LOAMY SAND
44"–109"	LAYER C: MEDIUM SAND

WATER WEEPING @ 100"
MOTTLING OBSERVED @ 44"
E.S.H.G.W. ELEV =171.7'

TEST PIT: TP 17-10
ELEV.=175.9±

0"–30"	FILL: SANDY LOAM
30"–36"	HORIZON A: SANDY LOAM
36"–44"	HORIZON B: LOAMY SAND
44"–60"	LAYER C1: COARSE SAND
60"–120"	LAYER C2: MEDIUM SAND

WATER WEEPING @ 94"
MOTTLING OBSERVED @ 60"
E.S.H.G.W. ELEV =170.9'

UTILITY NOTE:

1. ALL UNDERGROUND UTILITIES SHOWN HERE WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. ACTUAL LOCATIONS MUST BE DETERMINED IN THE FIELD BEFORE DESIGNING, EXCAVATING, BLASTING, INSTALLING, BACKFILLING, GRADING, PAVEMENT RESTORATION OR REPAIRING. ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE CONTACTED INCLUDING THOSE IN CONTROL OF UTILITIES NOT SHOWN ON THIS PLAN. SEE CHAPTER 370, ACTS OF 1963 MASS. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS THE APPROPRIATE PUBLIC UTILITY ENGINEERING DEPARTMENT MUST BE CONSULTED. DIG SAFE TELEPHONE No. 1-888-344-7233.

2. EXISTING TOPOGRAPHY & SITE FEATURES OBTAINED FROM AN ON THE GROUND FIELD SURVEY.

3. THE LOCUS PROPERTY IS NOT LOCATED WITHIN A FLOOD ZONE AS DEPICTED ON THE MOST RECENT FLOOD INSURANCE RATE MAP.

4. PROJECT SITE IS NOT HABITAT FOR RARE SPECIES OR RARE WILDLIFE.

5. EXISTING SEWER & WATER MAIN INFORMATION OBTAINED FROM TOWN OF LEXINGTON, MASSACHUSETTS ENGINEERING DIVISION; SEWER & WATER MAIN CONSTRUCTION AS-BUILT PLAN DATED SEPTEMBER 14, 2001; LINCOLN STREET (STA 9+13 TO 20+19) [R.S.708B].

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____ _____
_____ DATE
_____

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
1	5/15/18	PLANNING BOARD REVISIONS	PFK	RJH

COMMONWEALTH OF MASSACHUSETTS
GEORGE DIMAKARAKOS
CIVIL
No. 41281
REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
JOSEPH MARCH
5483864
REGISTERED LAND SURVEYOR

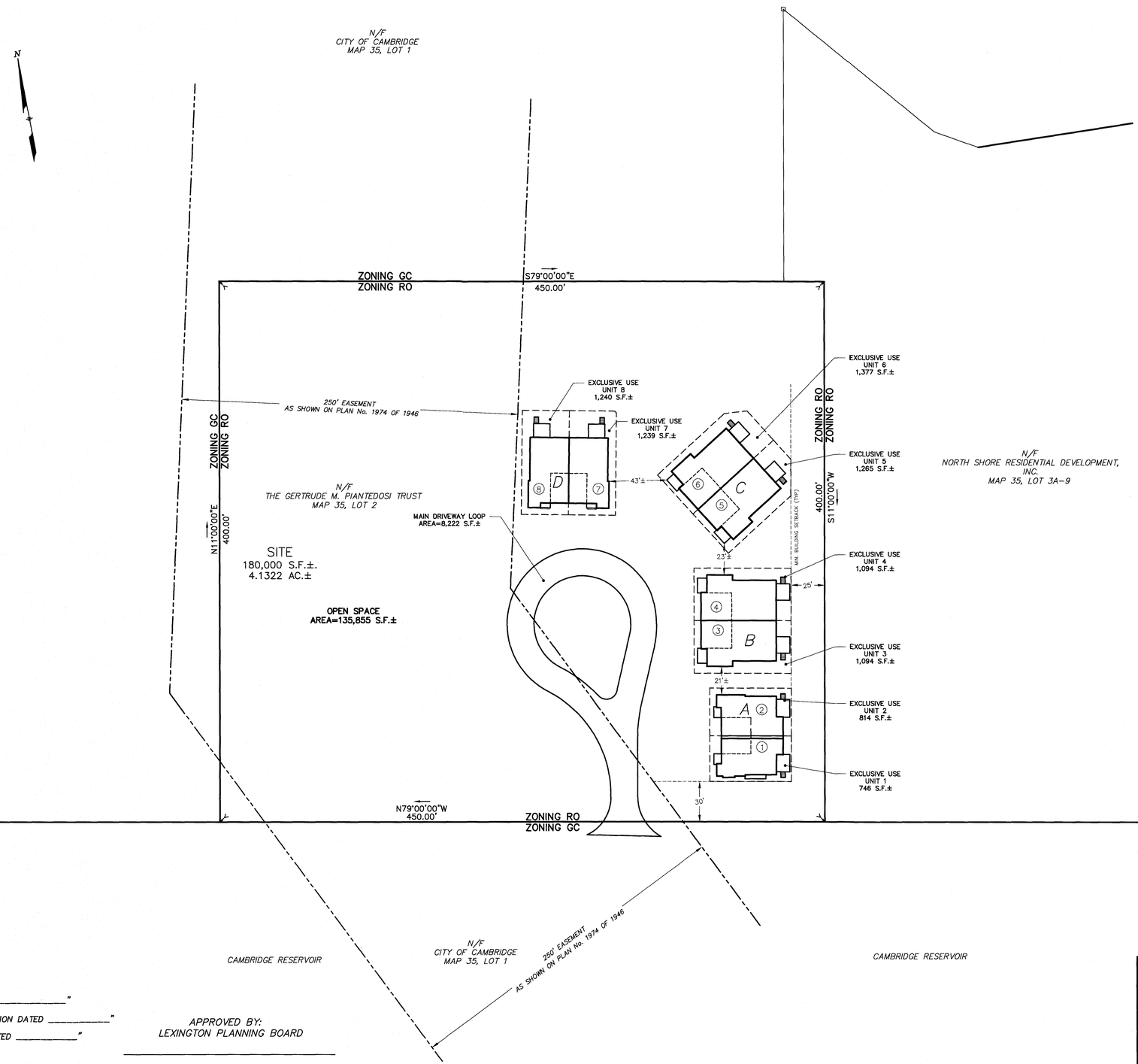
HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

SITE ANALYSIS MAP

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT AND PERMITTING, LLC
SCALE: 1" = 40' *DATE: FEBRUARY 20, 2018*

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING



FOR REGISTRY OF DEEDS USE ONLY

I DECLARE, TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

JOSEPH MARCH, PLS — DATE

LEGEND:

N/F	NOW OR FORMERLY
OHW	OVERHEAD WIRES
	TREE
	TREE LINE
UP	UTILITY POLE
GG•	GAS GATE
G	GAS SERVICE (BURIED)
WG•	WATER GATE
W	WATER SERVICE (BURIED)
DMH	DRAIN MANHOLE
D	SUB-SURFACE DRAIN LINE
99	EXISTING CONTOUR
95	EXISTING CONTOUR
	LIGHTPOLE
	WETLAND FLAG
99X9	SPOT ELEVATION
	STONE WALL
	EDGE OF PAVEMENT
	PROPOSED PERVIOUS PAVEMENT

NOTE:

OPEN SPACE EXCLUDES BUILDINGS, EXCLUSIVE USE AREAS, AND THE MAIN DRIVEWAY LOOP.

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

TOWN CLERK — DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

DATE

0 20 40 80 160 FT

(5676 DEF BHD 2.dwg)

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
1	5/15/18	PLANNING BOARD REVISIONS	PFK	RJH

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS — GEORGE DIMAKARAKOS — CIVIL — No. 41281 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — JOSEPH MARCH — # 36384 — PROFESSIONAL LAND SURVEYOR

PROPERTY RIGHTS PLAN OF LAND

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 3 OF 11 | PROJECT No. SM-5676

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- D — SUB-SURFACE DRAIN LINE
- 99 — EXISTING CONTOUR
- 95 — EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT
- PROPOSED PERVIOUS PAVEMENT

N

MEAN ANNUAL HIGH-WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 (RF 1-13) CONNECT RF 13 TO B26 ORAD ISSUED DEP#201-1038

N/F CITY OF CAMBRIDGE

MEAN ANNUAL HIGH WATER LINE, FLAGS B26-B32 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. (WF 1-24, 26 & 27) CONNECT WF 27 TO WF 11 ORAD ISSUED DEP#201-1038

HOBBS BROOK PERENNIAL

EDGE OF BORDERING VEGETATED WETLANDS, FLAGS 11-18 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

WF 25 REMOVED

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 ORAD ISSUED DEP#201-1038

MEAN ANNUAL HIGH-WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 ORAD ISSUED DEP#201-1038

200' RIVERFRONT AREA

100' BUFFER ZONE

SITE
180,000 S.F.±.
4.1322 AC.±

S79°00'00"E 450.00'

N11°00'00"W 400.00'

N79°00'00"W 450.00'

VISTA VIEW

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

EXISTING SERVICE SHOP TO BE RAZED

MEADOW

TURF

PARKING

DRIVE A

PROPOSED PATH

1 ½" PC200 PVC P.S. SERVICE STUB PLUGGED (TYP.)

PROPOSED PRIVATE DRIVEWAY

PROPOSED TWO-FAMILY DWELLING (TYPICAL)

PROPOSED AREA DRAIN (TYPICAL) (SEE DETAIL)

EXISTING DWELLING #443 TO BE RAZED

BEGIN STOCKADE FENCE

END STOCKADE FENCE

REMOVE EXISTING FENCE ALONG ENTIRE LOT LINE

EXISTING TREES

RAIL FENCE

PROTECTED LAND UNDER DECLARATION OF RESTRICTIVE COVENANT AREA = 43,318 S.F.±

LEVEL SPREADER (SEE DETAIL)

PROPOSED TREELINE

PROPOSED SLIDE GATE (SEE DETAIL)

BASIN INV.=175.00

INFILTRATION BASIN INV.=174.80

SEDIMENT FOREBAY

OUTET STRUCTURE X174.8

PATH

EXCLUSIVE USE UNIT 18 5,175 S.F.±

EXCLUSIVE USE UNIT 20 4,056 S.F.±

EXCLUSIVE USE UNIT 16 4,636 S.F.±

EXCLUSIVE USE UNIT 9 1,179 S.F.±

EXCLUSIVE USE UNIT 7 2,408 S.F.±

EXCLUSIVE USE UNIT 5 3,372 S.F.±

EXCLUSIVE USE UNIT 3 4,900 S.F.±

BLDG 1 BLDG 2 BLDG 3 BLDG 4 BLDG 5 BLDG 6

PAVED SURFACE

LANDSCAPED AREA

GREY OAKS CIRCLE

S' STREET

TOTAL LOT AREA
200,544 S.F.±/4.604 AC±

EXISTING HYDRANT

8" GATE VALVE & BOX

EXISTING 8" CLDI WATER MAIN (APPROX)

EXISTING 2" X 15" REDUCER

EXISTING 2" PC200 PVC PRESSURE SEWER

EXISTING 15" PC200 PRESSURE SEWER

TBM BOLT ON BONNET ELEV.=177.84

TBM NAIL IN UP ELEV.=180.39

LINCOLN STREET (PUBLIC - VARIABLE WIDTH)

EXISTING 8" CLDI CAP & NIPPLE

FLUSHING CONNECTION 8" GATE VALVE & BOX

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

1" TYPE K COPPER WATER SERVICE W/CORPORATION STOP, COPPER TUBING, CURB STOP AND SERVICE BOX.

CAMBRIDGE RESERVOIR

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. ORAD ISSUED DEP#201-1038

0 20 40 80 160 FT

(5676 DEF BHD 2.dwg)

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____."

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____

_____

_____ _____
DATE

TABLE OF DIMENSIONAL CONTROLS FOR BALANCED HOUSING SPECIAL PERMIT RESIDENTIAL DEVELOPMENT

TOTAL SITE AREA: 180,000 S.F.±	ALLOWED	PROPOSED
MAXIMUM IMPERVIOUS SURFACE	31,355 S.F.	26,992 S.F.
MAXIMUM GROSS FLOOR AREA	28,800 S.F.	22,945 S.F.
MINIMUM COMMON OPEN SPACE	59,400 S.F.	135,855 S.F.

BUILDING SIZE (GFA)

UNIT #	G.F.A. PROPOSED (S.F.)
1	2,644±
2	2,583±
3	3,092±
4	3,092±
5	3,092±
6	3,092±
7	2,675±
8	2,675±

TOTAL: 22,945 S.F.

IMPERVIOUS AREAS:

ITEM	S.F.
DWELLING A FOOTPRINT:	2,639
DWELLING B FOOTPRINT:	3,459
DWELLING C FOOTPRINT:	3,459
DWELLING D FOOTPRINT:	2,910
MAIN DRIVE:	8,222
ASPHALT CURB:	554
DWELLING A DRIVE:	1,432
DWELLING B DRIVE:	1,280
DWELLING C DRIVE:	2,169
DWELLING D DRIVE:	868

TOTAL: 26,992 S.F.

HARDSCAPE AREAS:

PERVIOUS PAVERS

ITEM	S.F.
DWELLING A DRIVE:	413
DWELLING D DRIVE:	382
VISITOR PARKING:	782

TOTAL: 1,577 S.F.

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
1	5/15/18	PLANNING BOARD REVISIONS	PFK	RJH

COMMONWEALTH OF MASSACHUSETTS — GEORGE DIMAKARAKOS — CIVIL — No. 41281 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — JOSEPH MARCH — # 36364 — PROFESSIONAL LAND SURVEYOR

SITE CONSTRUCTION PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING - PLANNING - SURVEYING

SHEET No. 4 OF 11 | PROJECT No. SM-5676

AVERAGE EXISTING GRADE CALCULATION/BUILDING HEIGHT

UNIT	EXISTING GRADE ELEVATIONS AT BUILDING CORNERS 1	2	3	4	AVERAGE EXISTING GRADE	HIGHEST RIDGE	BUILDING HEIGHT
1	181.4	179.9	179.7	179.6	180.15	217.43	37.28
2	181.4	179.9	178.4	178.2	179.48	217.43	37.96
3	176.3	178.6	178.4	177.0	177.58	213.60	36.03
4	176.3	178.6	178.5	175.9	177.33	213.60	36.28
5	174.7	175.6	177.7	174.2	176.05	214.10	38.05
6	174.7	175.6	174.3	174.6	174.80	214.10	39.30
7	175.1	175.2	175.1	174.9	175.08	214.68	39.61
8	175.1	175.2	175.4	175.4	175.28	214.68	39.41

SITE CONSTRUCTION PLAN

UNIT	FFE	T.C.	G.F.	B.F.
1	184.33	183.25	182.58	176.90*
2	184.33	183.25	182.58	176.90*
3	184.33	183.25	182.58	176.90*
4	184.33	183.25	182.58	176.90*
5	184.83	183.75	183.08	177.40*
6	184.83	183.75	183.08	177.40*
7	184.83	183.75	183.08	177.40*
8	184.83	183.75	183.08	177.40*

* CRAWL SPACE – MAX HEIGHT = 6'–8"**
** MEASURED FROM BOTTOM JOIST TO BASEMENT FLOOR

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

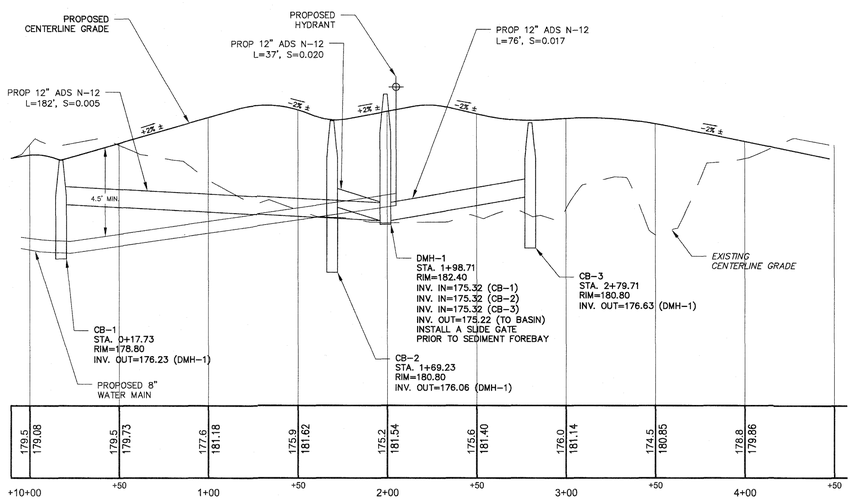
"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

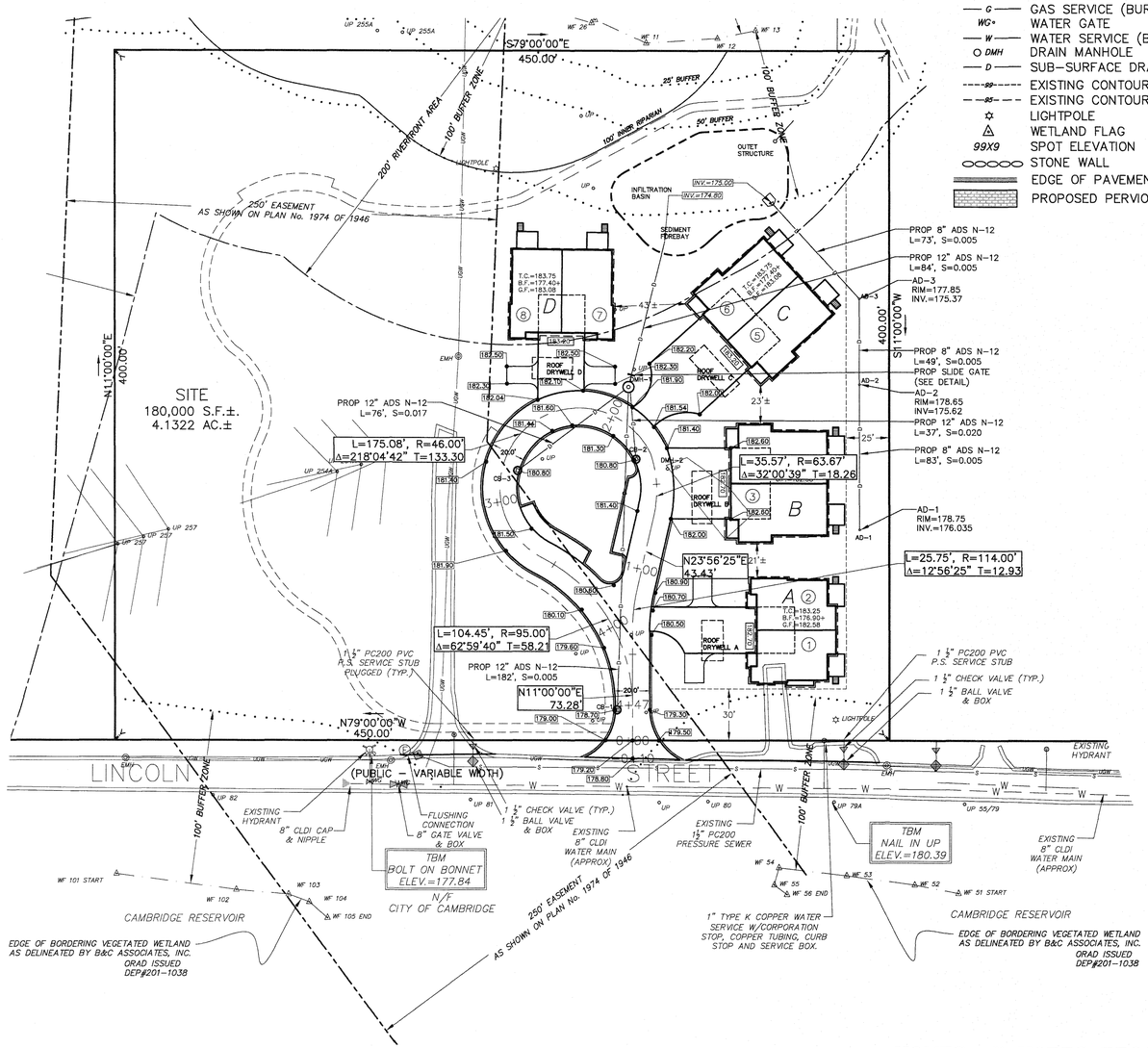
_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____ _____
_____ DATE
_____



PROFILE: SCALE: 1"= 40' H.
1"= 4' V.



PLAN: SCALE: 1"=40'

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- D — SUB-SURFACE DRAIN LINE
- 50 — EXISTING CONTOUR
- 55 — EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT
- PROPOSED PERVIOUS PAVEMENT

NO.	DATE	DESCRIPTION	BY	CHK'D
		REVISIONS		
1	5/15/18	PLANNING BOARD REVISIONS	PFK	RJH

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS — GEORGE DIMAKARAKOS — CIVIL — No. 41281 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — JOSEPH MARCH — # 38384 — PROFESSIONAL LAND SURVEYOR

PLAN AND PROFILE

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 5 OF 11 | PROJECT No. SM-5676

LEGEND:

- N/F — NOW OR FORMERLY
- OHW — OVERHEAD WIRES
- TREE
- TREE LINE
- UP — UTILITY POLE
- GG• — GAS GATE
- G — GAS SERVICE (BURIED)
- WG• — WATER GATE
- W — WATER SERVICE (BURIED)
- DMH — DRAIN MANHOLE
- D — SUB-SURFACE DRAIN LINE
- 99 — EXISTING CONTOUR
- 95 — EXISTING CONTOUR
- LIGHTPOLE
- WETLAND FLAG
- 99X9 — SPOT ELEVATION
- STONE WALL
- EDGE OF PAVEMENT
- PROPOSED PERVIOUS PAVEMENT

MEAN ANNUAL HIGH-WATER AS DELINEATED BY B&C ASSOCIATES, INC. ON SEPTEMBER 27, 2016 (RF 1-13) CONNECT RF 13 TO B26 ORAD ISSUED DEP#201-1038

N/F CITY OF CAMBRIDGE

EDGE OF BORDERING VEGETATED WETLAND AS DELINEATED BY B&C ASSOCIATES, INC. (WF 1-24, 26 & 27) CONNECT WF 27 TO WF 11 ORAD ISSUED DEP#201-1038

MEAN ANNUAL HIGH WATER LINE, FLAGS B26-B32 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

HOBBS BROOK (PERENNIAL)

EDGE OF BORDERING VEGETATED WETLANDS, FLAGS 11-18 AS SHOWN IN ORDER OF CONDITIONS DEP#201-1015 AS DELINEATED BY LEC ENVIRONMENTAL

WF 25 REMOVED

S79°00'00"E 450.00'

25' BUFFER

100' BUFFER ZONE

50' BUFFER

100' INNER RIPARIAN

200' RIVERFRONT AREA

OUTLET STRUCTURE

INFILTRATION BASIN (INV.=175.00) (INV.=174.80)

SEDIMENT FOREBAY

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

PROPOSED 500 GALLON UNDERGROUND PROPANE TANK (TYPICAL)

PROPOSED FLUSHING STATION RIMS TO GRADE (SEE DETAIL)

PROPOSED HYDRANT

PROPOSED WATER MAIN AND SERVICE

PROPOSED UNDERGROUND ELECTRIC/CABLE/PHONE SERVICE

PROPOSED UTILITY POLE

1 ½" PC200 PVC P.S. SERVICE STUB PLUGGED (TYP.)

SITE
180,000 S.F.±.
4.1322 AC.±

N11°00'00"E 400.00'

S11°00'00"W 400.00'

PROPOSED AREA DRAIN

PROPOSED SLIDE GATE

PROPOSED 1 1/2" PRESSURE SEWER LINE

PROPOSED E/ONE GRINDER PUMP (TYPICAL) (SEE DETAIL)

1 ½" PC200 PVC P.S. SERVICE STUB

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

N79°00'00"W 450.00'

LINCOLN STREET (PUBLIC - VARIABLE WIDTH)

EXISTING HYDRANT

8" CLDI CAP & NIPPLE

FLUSHING CONNECTION 8" GATE VALVE & BOX

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

EXISTING 8" CLDI WATER MAIN (APPROX)

EXISTING 12" PC200 PRESSURE SEWER

TBM BOLT ON BONNET ELEV.=177.84

TBM NAIL IN UP ELEV.=180.39

EXISTING 8" CLDI WATER MAIN (APPROX)

EXISTING 2" X 1½" REDUCER

2" PRESS.

250' EASEMENT AS SHOWN ON PLAN No. 1974 OF 1946

N/F CITY OF CAMBRIDGE

CAMBRIDGE RESERVOIR

1" TYPE K COPPER WATER SERVICE W/CORPORATION STOP COPPER TUBING CURB

EDGE OF BORDERING VEGETATED WETLAND

0 20 40 80 160 FT

(5676 DEF BHD 2.dwg)

8" CLDI CAP & NIPPLE

PROVIDE THRUST RESTRAINT AT END

11.5° BEND

PROPOSED HYDRANT & GATE VALVE (SEE DETAIL)

PROVIDE THRUST RESTRAINT AT 45° BEND

PROVIDE THRUST RESTRAINT AT 11.5° BEND

PROPOSED E/ONE GRINDER PUMP (TYPICAL) (SEE DETAIL)

PROVIDE THRUST RESTRAINT AT 11.5° BEND

PROPOSED WATER SERVICE (TYPICAL)

PROPOSED 8" CLDI WATER MAIN

PROPOSED UNDERGROUND ELECTRIC/CABLE/PHONE SERVICE

PROP. UTILITY POLE BRING OVERHEAD TO UNDERGROUND OUTSIDE EASEMENT

PROVIDE THRUST RESTRAINT AT TEE

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

PROPOSED 8"x8"x8" TEE

EXISTING 8" CLDI WATER MAIN (APPROX)

EXISTING 12" PC200 PRESSURE SEWER

UTILITY SERVICES DETAIL
SCALE: 1"=20'

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____ _____
DATE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
1	5/15/18	PLANNING BOARD REVISIONS	PFK	RJH

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS — GEORGE DIMAKARAKOS — CIVIL — No. 41281 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — JOSEPH MARCH — # 38384 — PROFESSIONAL LAND SURVEYOR

SITE UTILITY PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING - PLANNING - SURVEYING

SHEET No. 6 OF 11 | PROJECT No. SM-5676

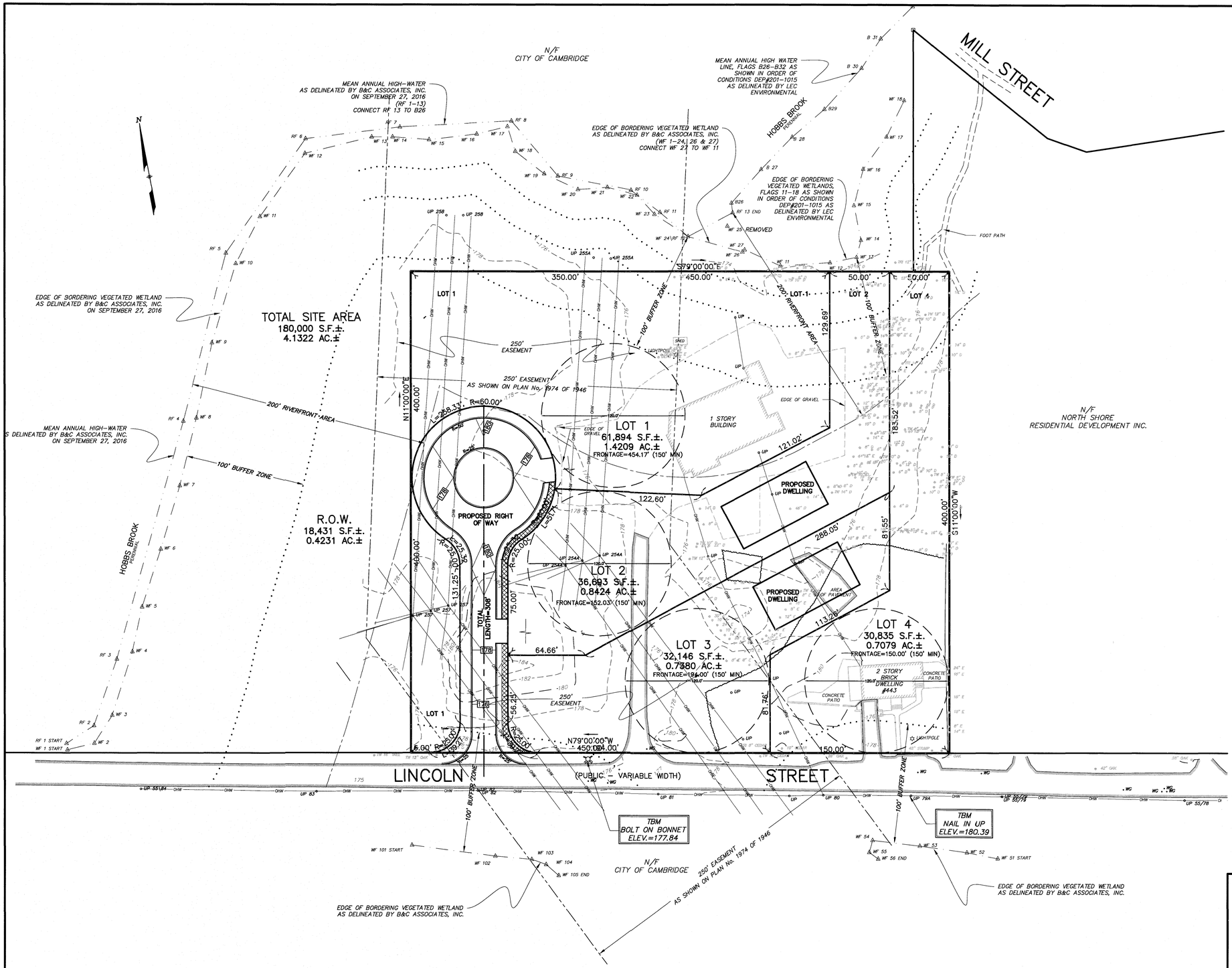


TABLE OF DEVELOPMENT DATA – BALANCED HOUSING DEVELOPMENT

TOTAL LAND AREA: 180,000 S.F.±
TOTAL LAND AREA FOR 4 LOTS: 161,569 S.F. ±
TOTAL LAND AREA WITHIN PROP RIGHT OF WAY (ROW): 18,431 S.F.±
AREA OF IMPERVIOUS SURFACES WITHIN ROW: 11,967 S.F.±

MAX. GROSS FLOOR AREA (4 LOTS X 7,200 S.F.): 28,800 S.F.
MAX. AREA OF IMPERVIOUS SURFACE: 31,355 S.F.±
4 LOTS; AREA 161,569 S.F. X 0.12 = 19,388 S.F.±
IMPERVIOUS SURFACE WITHIN ROW = 11,967 S.F.±

NUMBER OF DWELLINGS – NO LIMIT
SITE COVERAGE – NO LIMIT

MINIMUM COMMON OPEN SPACE: 59,400 S.F.±
(TOTAL LAND AREA X 33%)

EACH DWELLING TO BE PROVIDED WITH A CRAWL SPACE WITH A FLOOR TO CEILING HEIGHT LESS THAN SEVEN FEET.

ON-SITE RIVERFRONT AREA: 60,666 S.F.
10% MAX : 6,067 S.F.

LEGEND:

N/F	NOW OR FORMERLY
OHW	OVERHEAD WIRES
	TREE
	TREE LINE
UP	UTILITY POLE
GG•	GAS GATE
G	GAS SERVICE (BURIED)
WG•	WATER GATE
W	WATER SERVICE (BURIED)
DMH	DRAIN MANHOLE
D	SUB-SURFACE DRAIN LINE
99	EXISTING CONTOUR
95	EXISTING CONTOUR
	LIGHTPOLE
	WETLAND FLAG
99X9	SPOT ELEVATION
	STONE WALL
	EDGE OF PAVEMENT

0 20 40 80 160 FT

(5676 PROOF BHD DEF.dwg)

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
1	5/15/18	PLANNING BOARD REVISIONS	PFK	RJH

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

GEORGE DIMAKARAKOS, CIVIL, No. 41281, REGISTERED PROFESSIONAL ENGINEER, COMMONWEALTH OF MASSACHUSETTS

JOSEPH MARCH, #-36394, REGISTERED LAND SURVEYOR, COMMONWEALTH OF MASSACHUSETTS

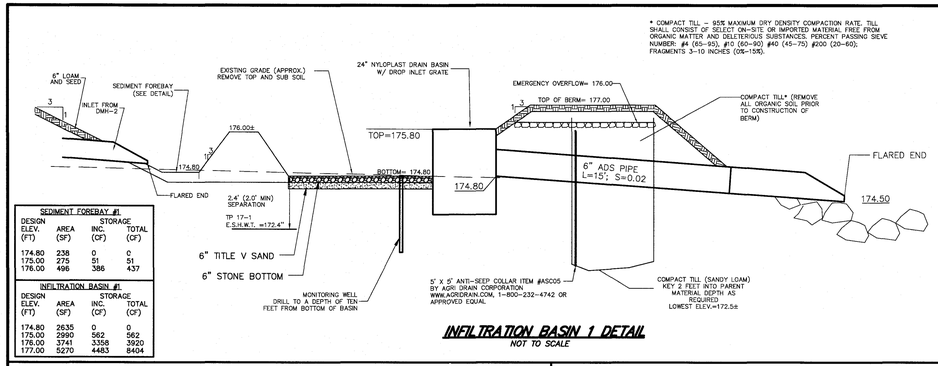
CONVENTIONAL SUBDIVISION PROOF PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES PERMITTING & DEVELOPMENT, LLC
SCALE: 1" = 40' *DATE: FEBRUARY 20, 2018*

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

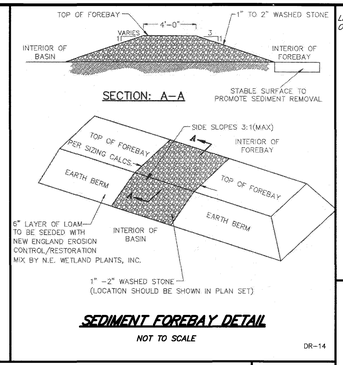
SHEET No. 8 OF 11 *PROJECT No. SM-5676*



SEDIMENT FOREBAY #1			
DESIGN ELEV. (FT)	AREA (SF)	STORAGE INC. (CF)	TOTAL (CF)
174.80	238	0	0
175.00	275	51	51
176.00	498	386	437

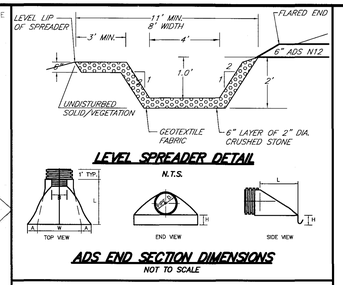
INFILTRATION BASIN #1			
DESIGN ELEV. (FT)	AREA (SF)	STORAGE INC. (CF)	TOTAL (CF)
174.80	2635	0	0
175.00	2990	562	562
176.00	3741	3358	3920
177.00	5270	4483	8404

INFILTRATION BASIN 1 DETAIL
NOT TO SCALE



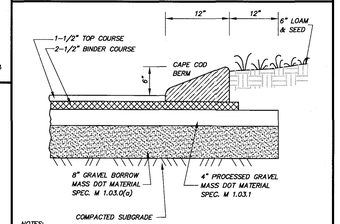
SEDIMENT FOREBAY DETAIL
NOT TO SCALE

DR-14



LEVEL SPREADER DETAIL
NOT TO SCALE

ADS END SECTION DIMENSIONS
NOT TO SCALE



NOTES:
1. MINIMUM PAVEMENT THICKNESS SHOWN IS FOR RESIDENTIAL STREETS. PROPOSED PAVEMENT DESIGNS FOR OTHER ROADWAYS TO BE APPROVED BY TOWN ENGINEER.
2. RECLAIMED ASPHALT PAVEMENT MATERIAL MAY BE SUBSTITUTED FOR DENSE GRADED CRUSHED STONE AND GRAVEL SUB-BASE IF APPROVED BY TOWN ENGINEER.
3. ALL GRAVEL IS TO BE COMPACTED TO 95% MAX. DRY DENSITY

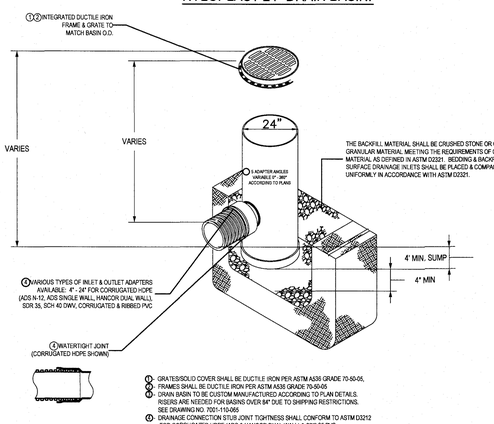
CAPE COD BERM DETAIL
NOT TO SCALE

GENERAL NOTES:

1. ALL UNDERGROUND UTILITIES SHOWN HERE WERE COMPILED ACCORDING TO AVAILABLE RECORD PLANS FROM VARIOUS UTILITY COMPANIES AND PUBLIC AGENCIES AND ARE APPROXIMATE ONLY. ACTUAL LOCATIONS MUST BE DETERMINED BEFORE EXCAVATING.
2. BEFORE BLASTING, INSTALLING, BACKFILLING, GRADING, OR PAVEMENT RESTORATION OR REPAIR, ALL UTILITY COMPANIES, PUBLIC AND PRIVATE, MUST BE CONTACTED, INCLUDING THOSE IN CONTROL OF UTILITIES. SEE CHAPTER 370, ACTS OF 1963 MASS.
3. WE ASSUME NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE APPROPRIATE UTILITY ENGINEERING DEPT. MUST BE CONSULTED. THE CONTRACTOR SHALL NOTIFY PUBLIC UTILITY COMPANIES AT LEAST 72 HOUSE PRIO TO DIGGING OR EXCAVATING ON PUBLIC OR PRIVATE PROPERTY. DIG SAFE TEL. NO. 1-888-344-7233.
4. ALL HYDRANTS, WATER VALVES, VALVE BOXES, ETC SHALL BE AMERICAN MADE; VALVES SHALL OPEN RIGHT (CLOCKWISE), HYDRANTS SHALL OPEN RIGHT (CLOCKWISE), PER TOWN OF LEXINGTON REQUIREMENTS.
5. ALL STUMPS AND OTHER CONSTRUCTION DEBRIS SHALL BE PROPERLY REMOVED FROM THE SITE. ANY FILL MATERIAL USED SHALL BE FREE OF HAZARDOUS MATERIALS, WASTE, AND CONSTRUCTION DEBRIS.
6. RIP RAP SHALL CONSIST OF HARD DURABLE STONE, ANGULAR IN SHAPE, THAT IS WELL GRADED WITHIN THE 25# TO 125# RANGE. THE RIP RAP SHALL BE PLACED OVER A 12" BASE OF COARSE BANK RUN GRAVEL. RIP RAP SHOWN SCHEMATICALLY AT DRAINAGE OUTFALLS SHALL BE PLACED FOR A 3' WIDTH AND 6' LENGTH UNLESS OTHERWISE SPECIFIED.
7. THE LIMITS OF WORK SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING PER THE STORMWATER POLLUTION PREVENTION PLAN.
8. EXISTING TOPSOIL SHALL BE STRIPPED, STOCKPILEDM SCREENED AND SPREAD TO REQUIRED DEPTHS AS SHOWN ON THE PLAN IN AREAS OF GENERAL LOAM AND SEED.
9. CATCHBASIN SUMPS AND STORM WATER BASINS SHALL BE CLEANED FOLLOWING COMPLETION OF CONSTRUCTION AND ANUALLY THEREAFTER PER O&M.
10. THE ENTIRE WORK AREA SHALL BE CLEARED OF BUILDINGS TO BE RAZED, PAVEMENT, DEBRIS, BOULDERS, BRUSH, TREES, STUMPS, UNSUITABLE MATERIAL AND LIKE MATERIALS.
11. THE CONTRACTOR SHALL MAINTAIN THE SITE IN A SAFE CONDITION THROUGHOUT THE CONTRACT PERIOD. THE CONTRACTOR SHALL FULLY COMPLY WITH ALL STATE, FEDERAL, AND LOCAL REGULATIONS PERTAINING TO SAFETY.
12. SHRUBS – PROVIDE PER LANDSCAPE PLAN SPECIFICAITONS.
13. THE PROPOSED SIGNS SHALL BE DESIGNED AND INSTALLED IN CONFORMANCE WITH THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES 2009 EDITION FOR STREETS AND HIGHWAYS OR AS MOST RECENTLY AMENDED. EXISTING SIGNS TO BE RELOCATED WHERE NECESSARY.
14. THE ELECTRICAL POWER DISTRIBUTION SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE LEXINGTON MUNICIPAL LIGHT PLANT IN EFFECT AT THE TIME. ELECTRICAL REQUIREMENTS AND LOCATION TO BE DETERMINED BY OTHER AND CONFIRMED WITH OWNER.
15. NO EARTH SHALL BE REMOVED FROM THE SITE.
16. PLAN IS SUBJECT TO REVIEW AND COMMENT BY THE CITY OF CAMBRIDGE WATER DEPARTMENT, DUE TO LOCATION OF CAMBRIDGE RESERVOIR IN PROXIMITY TO THE SITE.
17. THE EXISTING PRIVATE ON-SITE SEWAGE DISPOSAL SYSTEM SHALL BE ABANDONED IN ACCORDANCE WITH 310 CMR 15.354: ABANDONMENT OF SYSTEMS.
18. THE PROPOSED SEWER PUMPING SYSTEM SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE APPLICANT'S DESIGNEE. A SIGN SHALL BE PLACED ON EACH PUMPING UNIT INCLUDING EMERGENCY CONTACT INFORMATION IN THE EVENT OF FAILURE.
19. THE PROPOSED PRESSURE SEWER PIPE SHALL BE OF TYPE SDR 21 PVC.
20. PROPOSED WATER MAIN PIPE SHALL BE CEMENT LINED DUCTILE IRON THICKNESS CLASS 52. INSTALLATION SHALL CONFORM TO TOWN REQUIREMENTS.
21. ALL MANHOLE FRAMES AND COVERS SHALL CONFORM TO TOWN OF LEXINGTON STANDARDS.

OUTLET STRUCTURE
NOT TO SCALE

NYLOPLAST 24" DRAIN BASIN:



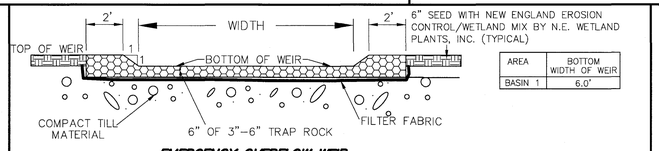
1. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SCH 35 PVC
5. ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-013.

DRAWN BY	EBC	MATERIAL	
DATE	4-3-06		
APPD BY	CJA	PROJECT NO./NAME	
DATE	4-3-06		
DWG SIZE	A	SCALE 1:40	SHEET 1 OF 1

Nyloplast — 2100 VERONA AVE BUFORD, GA 30518 PHN (770) 932-2900 FAX (770) 932-2488 www.nyloplast-us.com

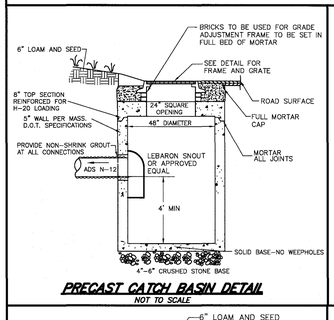
DWG NO. 7001-110-102 REV

TITLE: 24 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL

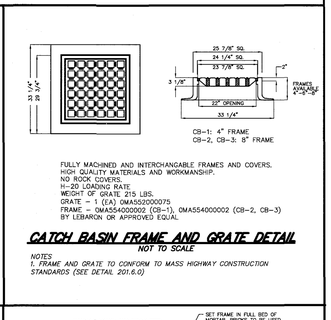


AREA	BOTTOM WIDTH OF WEIR
BASIN 1	6.0'

EMERGENCY OVERFLOW WEIR
NOT TO SCALE



PRECAST CATCH BASIN DETAIL
NOT TO SCALE

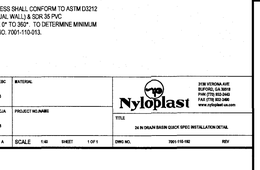


CB-1: 4" FRAME
CB-2, CB-3: 8" FRAME

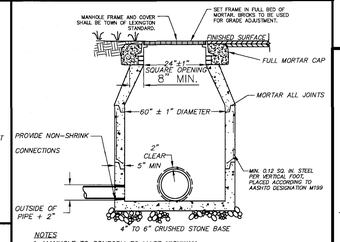
FULLY MACHINED AND INTERCHANGABLE FRAMES AND COVERS. HIGH QUALITY MATERIALS AND WORKMANSHIP. NO ROCK COVERS. H-20 LOADING RATE. WEIGHT OF GRATE 215 LBS. GRATE – 1 (EA) OMA552000075 FRAME – OMA554000002 (CB-1), OMA554000002 (CB-2, CB-3) BY LEBARON OR APPROVED EQUAL

CATCH BASIN FRAME AND GRATE DETAIL
NOT TO SCALE

NOTES
1. FRAME AND GRATE TO CONFORM TO MASS HIGHWAY CONSTRUCTION STANDARDS (SEE DETAIL 201.6.0)

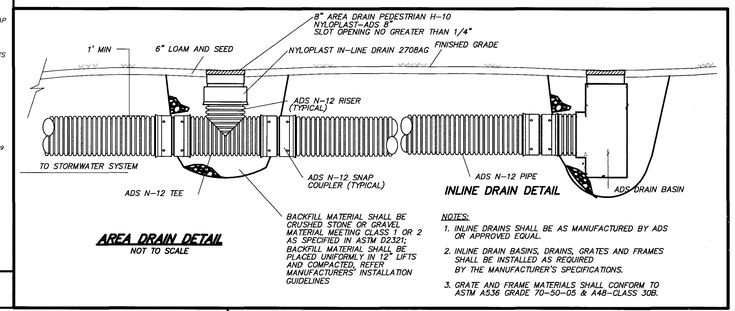


TYPICAL TRENCH DETAIL
NOT TO SCALE



NOTES
1. MANHOLE TO CONFORM TO MASS HIGHWAY CONSTRUCTION STANDARDS (SEE DETAIL 202.4.0)
2. FACE OF PIPE FLUSH OR NOT TO PROJECT MORE THAN 4" FROM FACE OF WALL ALONG CENTERLINE OF PIPE.

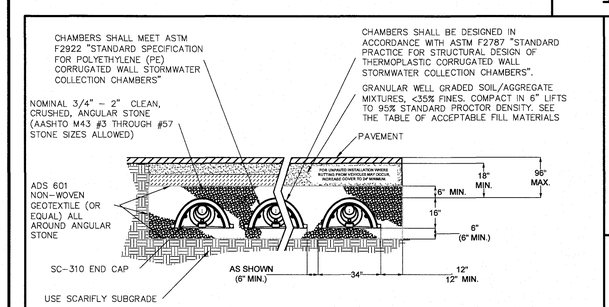
PRECAST CONCRETE MANHOLE DETAIL
NOT TO SCALE



AREA DRAIN DETAIL
NOT TO SCALE

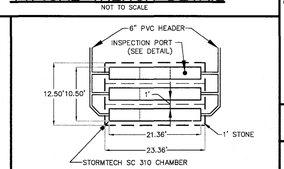
INLINE DRAIN DETAIL

NOTES:
1. INLINE DRAINS SHALL BE AS MANUFACTURED BY ADS OR APPROVED EQUAL.
2. INLINE DRAIN BASINS, DRAINS, GRATES AND FRAMES SHALL BE INSTALLED AS REQUIRED BY THE MANUFACTURER'S SPECIFICATIONS.
3. GRATE AND FRAME MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05 & A48-CLASS 30B.



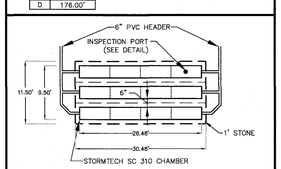
THE INSTALLED CHAMBER SYSTEM SHALL PROVIDE THE LOAD FACTORS SPECIFIED IN THE AASHTO LFRD BRIDGE DESIGN SPECIFICATIONS SECTION 12.12 FOR EARTH AND LIVE LOADS WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.

STORMTECH SC 310
NOT TO SCALE



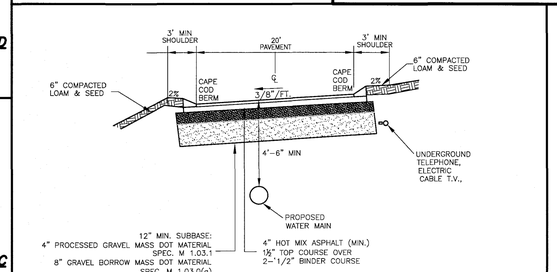
ROOF DRYWELL DWELLINGS A & D
NOT TO SCALE

#	BOTTOM STONE
A	176.00'
D	176.00'



ROOF DRYWELL DWELLINGS B & C
NOT TO SCALE

#	BOTTOM STONE
B	176.00'
C	176.00'



* UTILITIES TO BE LABELED AND MARKED WITH MAGNETIC TAPE PRIOR TO BACKFILL

TYPICAL MAIN DRIVEWAY CROSS SECTION
NOT TO SCALE

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____

_____

_____ _____
DATE

_____

_____

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS — GEORGE DIMAKARAKOS — CIVIL — No. 41251 — REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS — JOSEPH MARCH — # 36384 — REGISTERED LAND SURVEYOR

CONSTRUCTION DETAILS

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

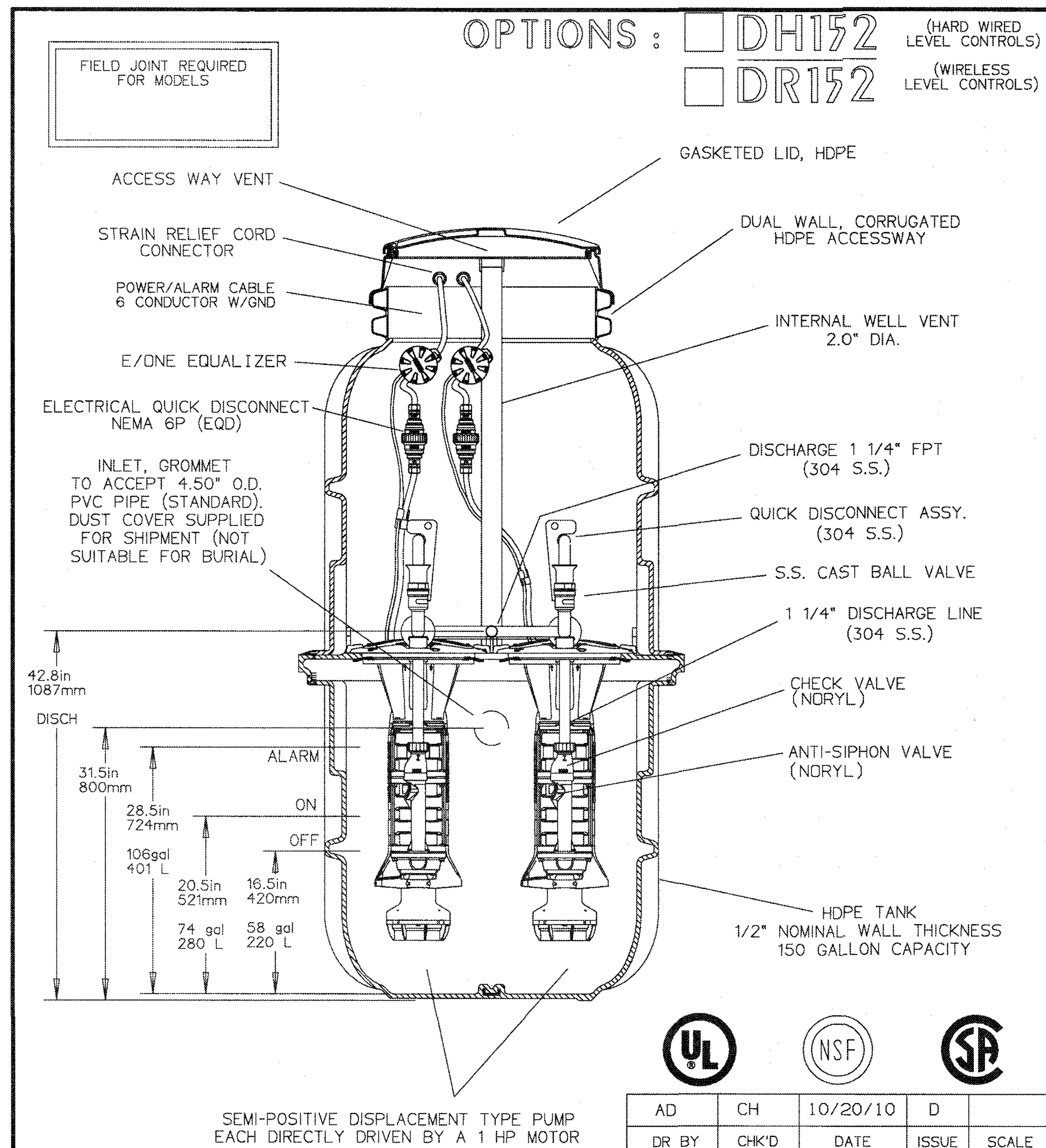
PREPARED FOR
SYMES DEVELOPMENT AND PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 9 OF 11 | PROJECT No. SM-5676

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
1	5/15/18	PLANNING BOARD REVISIONS	PFK	RJH



CONCRETE BALLAST MAY BE REQUIRED SEE INSTALLATION INSTRUCTIONS FOR DETAILS

NOTE: DIMENSIONS ARE FOR REF ONLY

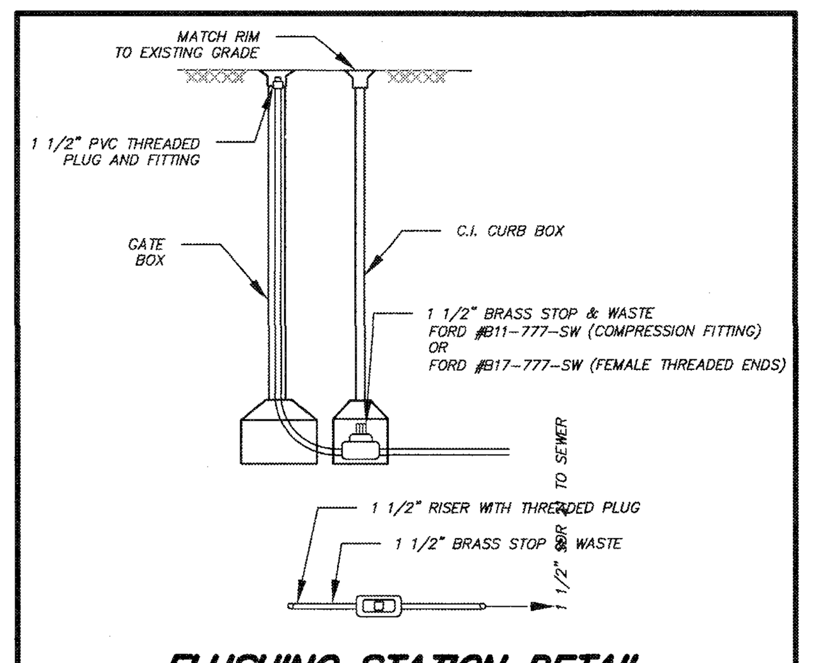
AD	CH	10/20/10	D	
DR BY	CHK'D	DATE	ISSUE	SCALE

eone SEWER SYSTEMS

MODEL DH152 / DR152 DETAIL SHEET

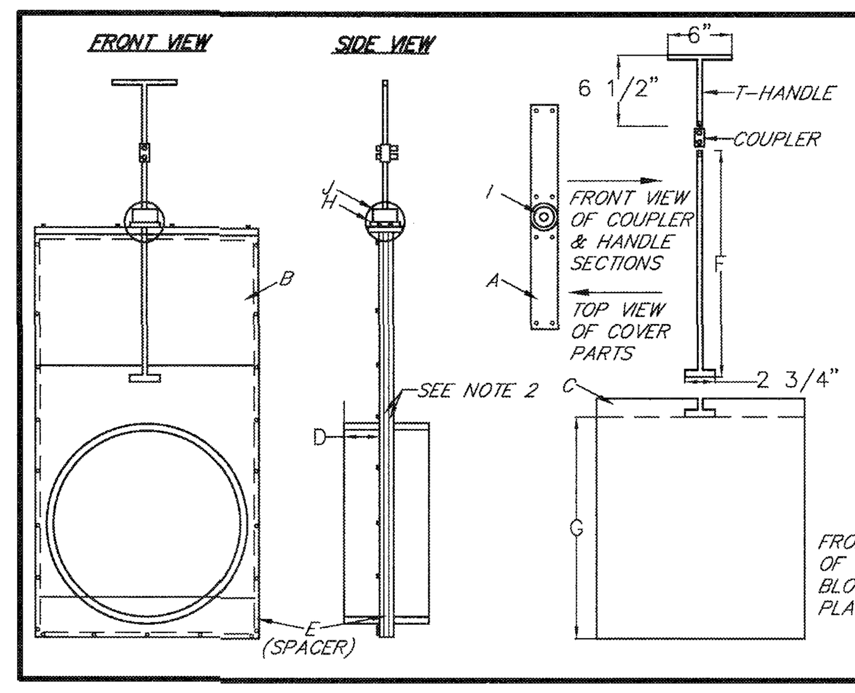
NA0052P02

UNIT #	4" INV. @ BUILDING	FINISHED GRADE E/ONE	4" INV. @ E/ONE
1	175.37	180.00	174.75
2	175.37	180.00	174.75
3	175.37	180.00	174.25
4	175.37	180.00	174.25
5	178.92	182.25	177.50
6	178.92	182.25	177.50
7	178.54	182.25	177.50
8	178.54	182.25	177.50



FLUSHING STATION DETAIL

NOT TO SCALE



	A	B	C	H	I	J
10"	3" X 13 1/4"	13" X 22 1/2"	13 3/4" X 11 3/4"	1/2" PVC CIRCLE 2 3/4" THREADED	1/2" CPVC MALE ADAPTOR	2" PVC DWV X 1 1/4"
12"	3" X 15 1/4"	15" X 26 1/2"	15 1/2" X 13 3/4"			
15"	3" X 18"	17 3/4" X 32"	18 3/4" X 16 1/2"			
18"	3" X 21 3/8"	21 1/8" X 38 3/4"	19 7/8" X 22"			

	D	E	F	G
10"	3"	5/8"	16"	11 3/4"
12"	3"	5/8"	16"	13 1/2"
15"	3"	5/8"	19 1/4"	16 3/4"
18"	3"	5/8"	22"	20"

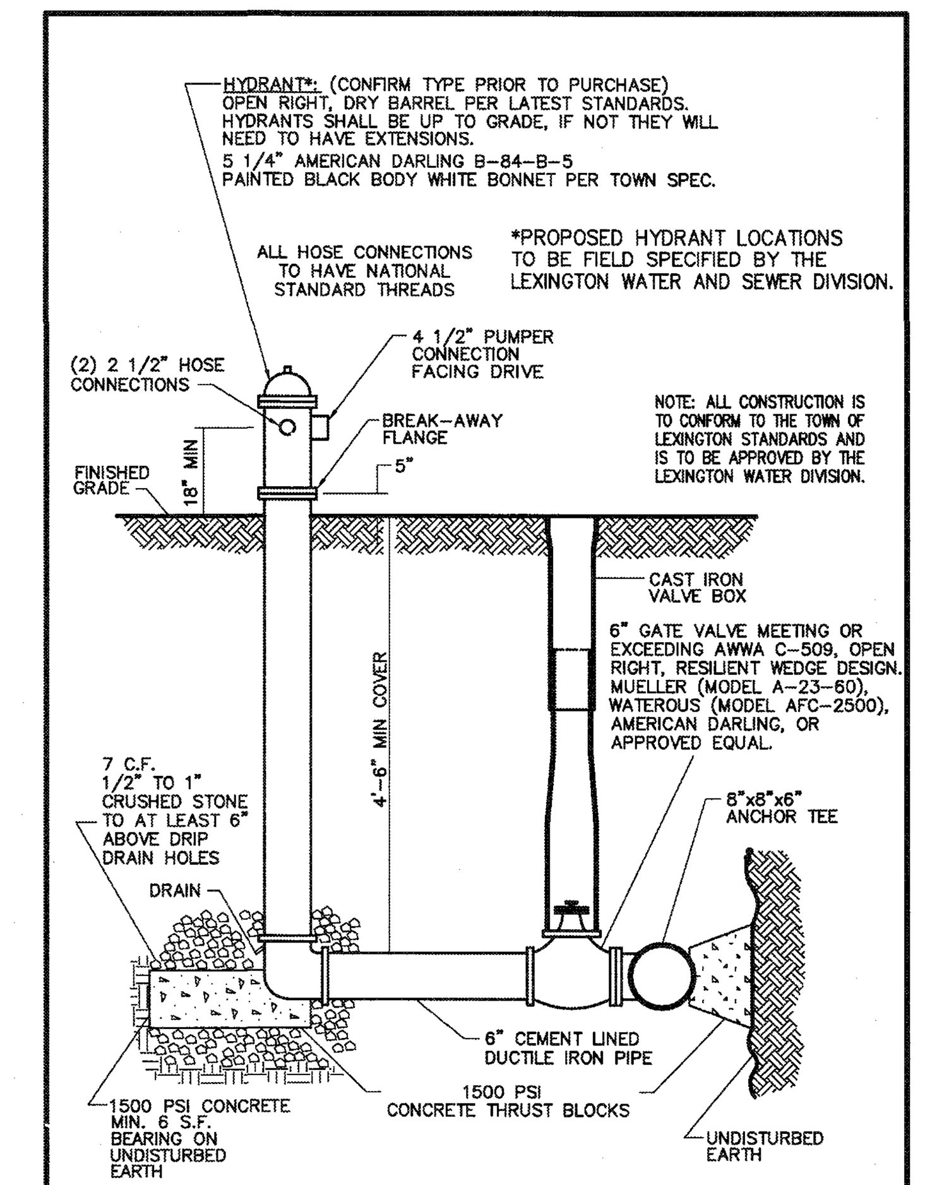
*ALL PVC MATERIAL IS 1-2" THICK.
**STUBS ARE SDR 35 PVC MALE.

NOTES

1. PROPOSED AGRI DRAIN SLIDE GATE VALVE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. CONTACT AGRI DRAIN AT1-800-232-4742.
2. FLEXIBLE RUBBER SEALS AROUND OPENINGS ON BOTH FRONT AND BACK COVER, CREATE A WATER TIGHT SEAL AGAINST THE SLIDING WATER BLOCKAGE PLATE.
3. SLIDE GATE VALVE TO BE ATTACHED TO 12" ADS DRAIN PIPE WITH A FLEX COUPLER AS MANUFACTURED BY FERNCO. PH. 1-800-521-1283.
4. SLIDE GATE HANDLE SECTIONS SHALL BE MODIFIED TO FIT IN ACCESS MANHOLE.
5. SLIDE GATES SHALL BE INSTALLED PRIOR TO ALL ROADWAY DISCHARGES TO STORMWATER BASINS AND SUBSURFACE INFILTRATION AREAS LOCATED WITHIN ALL INTERIM WELLHEAD PROTECTION AREAS (IWPA).

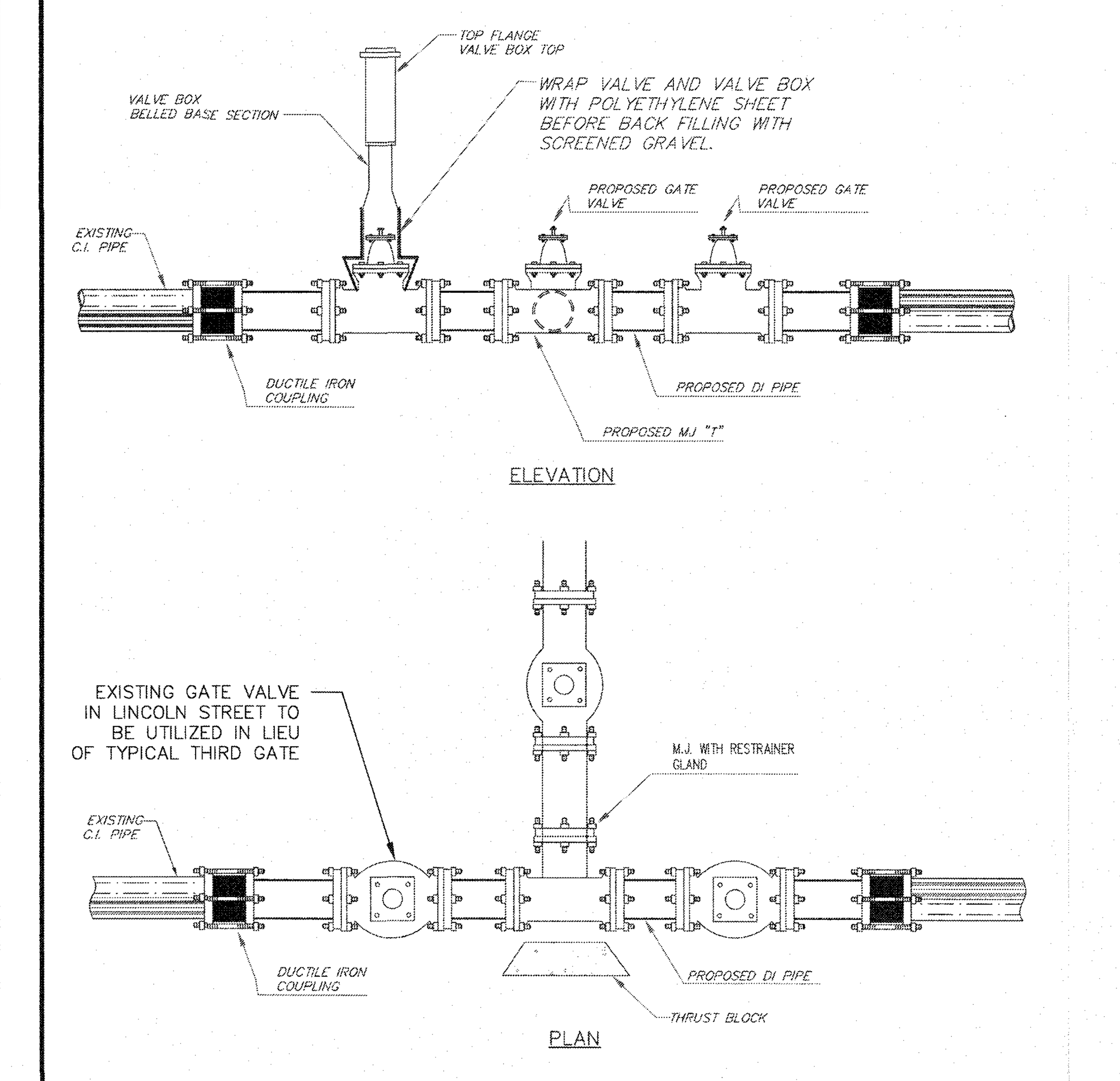
SLIDE GATE DETAIL

NOT TO SCALE



FIRE HYDRANT DETAIL

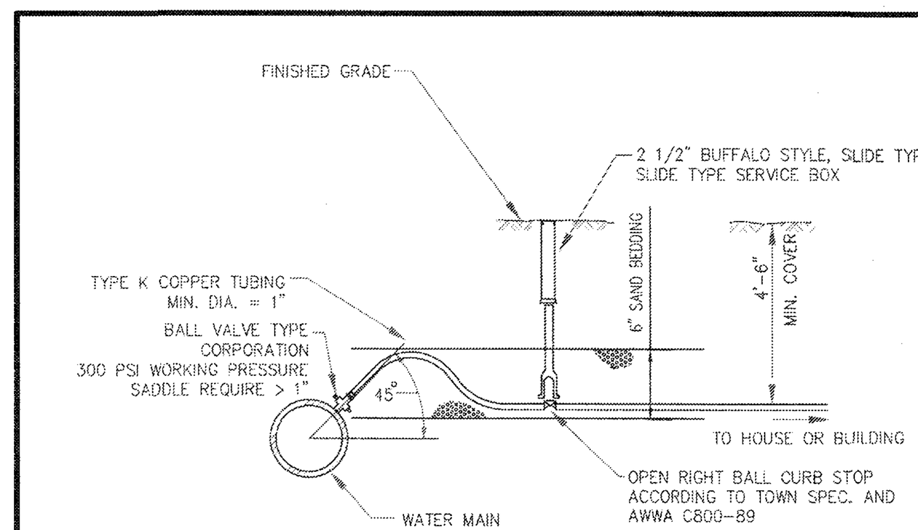
NOT TO SCALE



TRIPLE GATE CUT IN WATER MAIN CONNECTION

NOT TO SCALE

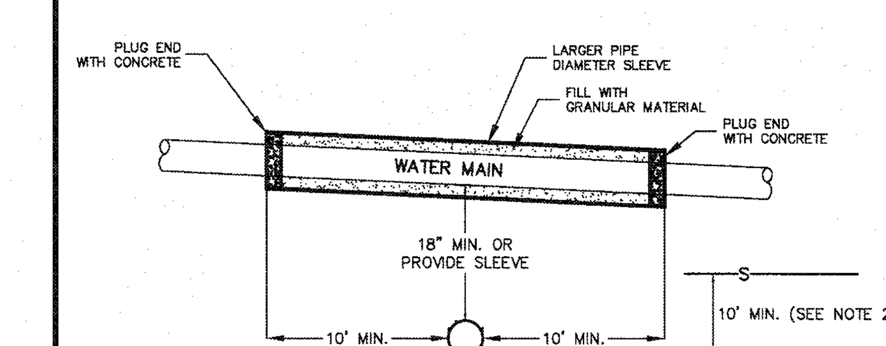
NOTE: GATE VALVES TO BE M.J. RESILIENT WEDGE, DUCTILE IRON, OPEN RIGHT MEETING AWWA C-509, C-153, C-509 & C-550



1. A 10' HORIZONTAL SEPARATION MUST BE MAINTAINED FROM THE SEWER SERVICE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEERING DIVISION.
2. FOR SERVICE RENEWALS, TUBING SHALL BE REPLACED TO THE PROPERTY LINE UNLESS OTHERWISE AUTHORIZED BY THE ENGINEERING DIVISION.
3. WHERE AN EXISTING SERVICE IS BEING REPLACED TO THE MAIN, THE OLD SERVICE SHALL BE CAPPED AT THE CORPORATION.
4. THE WATER AND SEWER DIVISION MUST BE NOTIFIED IF LEAD SERVICES ARE ENCOUNTERED.
5. SERVICE TAPS SHALL BE PERFORMED BY THE WATER DIVISION.
6. SERVICE TAPS GREATER THAN 1" REQUIRE A SADDLE AND ARE SUBJECT TO THE APPROVAL OF THE ENGINEERING DIVISION.
7. USE QUICK STYLE COMPRESSION CONNECTIONS FOR ALL SERVICE BRASS.
8. FOR 1" CONNECTIONS TO EXIST. 3/4" CURB STOP CONNECT ADAPTER DIRECTLY TO CURB STOP. MOST EXISTING CURB STOPS REQUIRE 3/4" X 1" FEMALE ADAPTERS FOR NEW ENGLAND STYLE THREADS.
9. ALL CONNECTIONS TO EXIST. CURB STOPS SHALL REPLACE SERVICE BOXES IF NOT BUFFALO STYLE.
10. WATER SERVICE SHALL INCLUDE A BALL VALVE WITH COMPRESSION FITTING JUST BEFORE METER.

WATER SERVICE CONNECTION 2" AND SMALLER

NOT TO SCALE



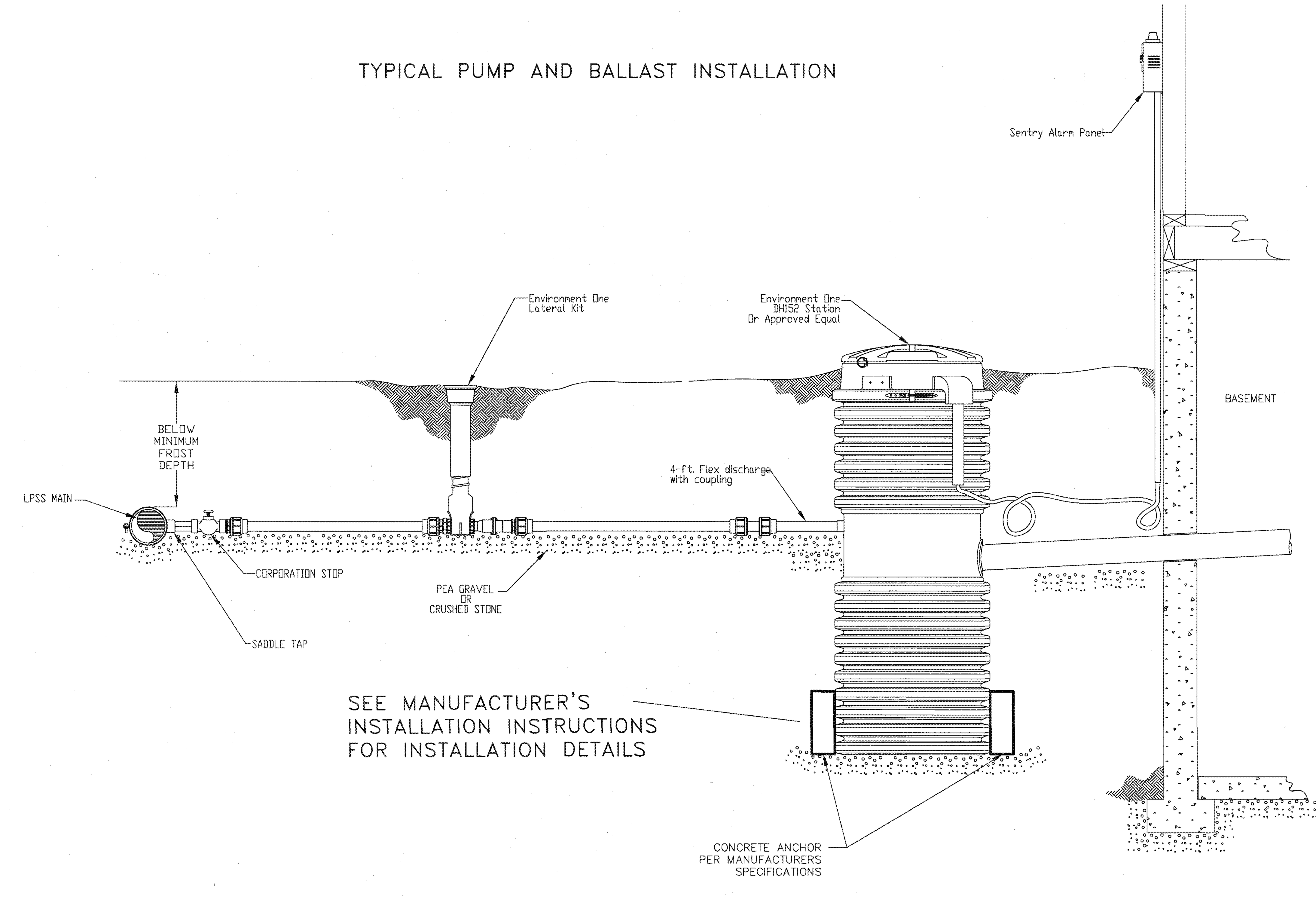
NOTES:

1. PIPE SLEEVE TO BE PROVIDED ONLY WHEN SEPARATION REQUIREMENTS OF WATER AND SEWER DIVISION CANNOT BE MET.
2. WHEREVER POSSIBLE, WATER SERVICES SHALL BE INSTALLED WITH A MINIMUM OF 10 FEET HORIZONTAL SEPARATION FROM SEWER SERVICES AND DRAINS AND A MINIMUM OF 3 FEET FROM ALL OTHER UTILITIES. ENCASEMENT OF EITHER THE WATER OR SEWER SERVICE IS REQUIRED IN THE FORM OF A 10-FOOT SLEEVE ON EITHER SIDE OF THE ADJACENT STRUCTURE IN THE FOLLOWING CASES:
   A) THE MINIMUM 10-FOOT HORIZONTAL SEPARATION FROM SEWER SERVICES AND DRAINS CANNOT BE MET;
   B) THE TOP OF THE SEWER BELL IS LESS THAN 18" FROM BOTTOM OF THE WATER LINE;
   C) A STORM DRAIN IS WITHIN 1.5 FEET ABOVE THE WATER LINE; OR
   D) A SEWER MAIN OR CONNECTION IS ABOVE WATER MAIN OR CONNECTION.
4. JOINTS OF BOTH PIPES SHALL BE LOCATED AS FAR AWAY AS POSSIBLE.

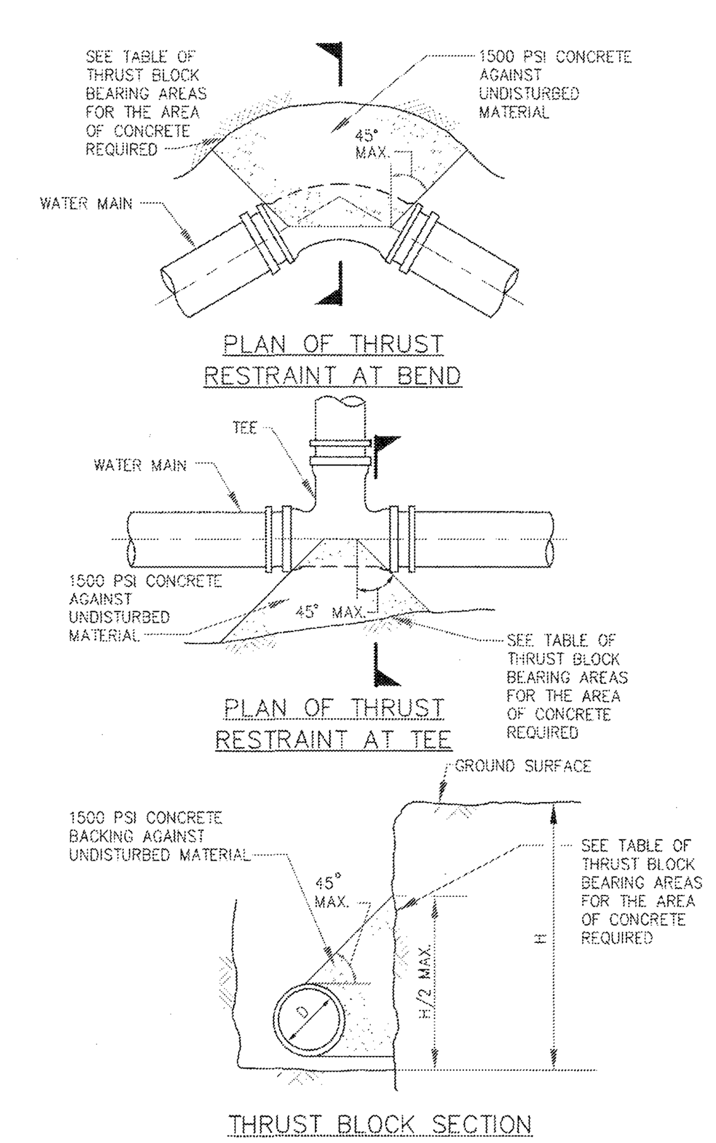
WATER & SEWER CROSSING DETAIL

NOT TO SCALE

TYPICAL PUMP AND BALLAST INSTALLATION



SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR INSTALLATION DETAILS



THRUST RESTRAINT AT FITTINGS

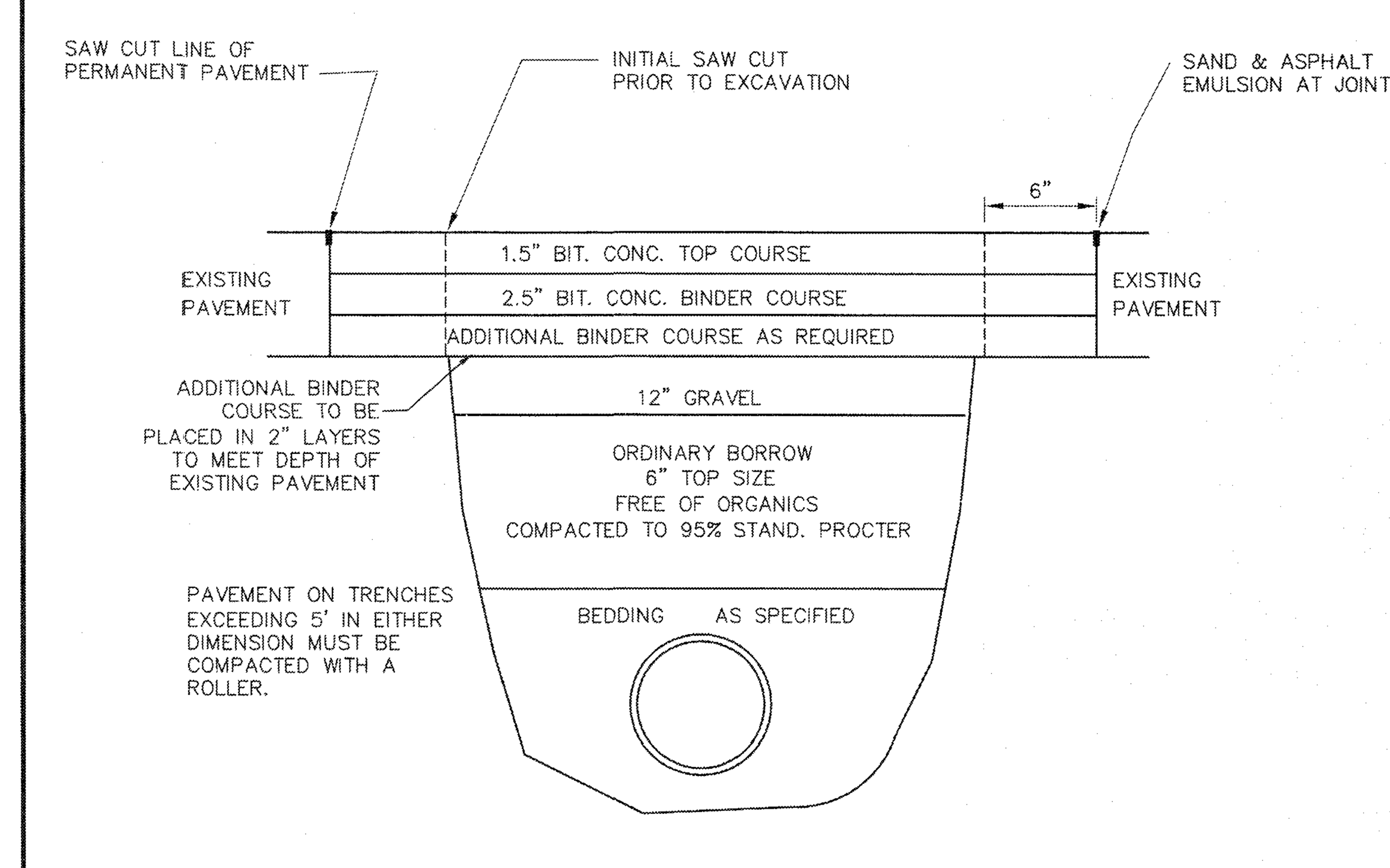
NTS
2-1.25 (REV. 12-15-94)

BEARING AREA FOR VARIOUS DIAMETERS

FITTING	4"	6"	8"	10"	12"	16"
1/32 BEND (11 1/4°)	2 S.F.	2 S.F.	2 S.F.	2 S.F.	3 S.F.	5 S.F.
1/16 BEND (22 1/2°)	2 S.F.	2 S.F.	3 S.F.	3 S.F.	4 S.F.	5 S.F.
1/8 BEND (45°)	2 S.F.	2 S.F.	3 S.F.	5 S.F.	7 S.F.	12 S.F.
1/4 BEND (90°)	3 S.F.	3 S.F.	6 S.F.	9 S.F.	12 S.F.	21 S.F.
TEE/PLUG	2 S.F.	3 S.F.	4 S.F.	6 S.F.	9 S.F.	16 S.F.

NOTES:

1. ALL ELBOWS, BENDS, AND CAPS SHALL BE BRACED WITH CONCRETE THRUST BLOCKS. JOINTS SHALL NOT BE ENCASED IN CONCRETE.
2. BEARING AREA IS AREA OF CONCRETE IN CONTACT WITH WALL OF TRENCH (H X L).
3. HEIGHT AND LENGTH AS REQUIRED TO OBTAIN BEARING AREA SHOWN IN THE TABLE W/ H APPROX. 1/2 L.
4. THRUST BLOCK SIZING BASED ON 150 PSI WATER PRESSURE AND 2000 PSI SOIL BEARING CAPACITY.



TRENCH RESTORATION

*FOR LINCOLN STREET PAVEMENT PATCH

NOT TO SCALE

APPROVED BY:
LEXINGTON PLANNING BOARD

DATE

"THIS PLAN IS SUBJECT TO A COVENANT DATED ____________"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED ____________"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED ____________"

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

TOWN CLERK DATE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
1	5/15/18	PLANNING BOARD REVISIONS	PFK	RJH

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

COMMONWEALTH OF MASSACHUSETTS GEORGE DIMAKARAKOS CIVIL No. 41281 REGISTERED PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS JOSEPH MARCH # 36384 PROFESSIONAL LAND SURVEYOR

CONSTRUCTION DETAILS

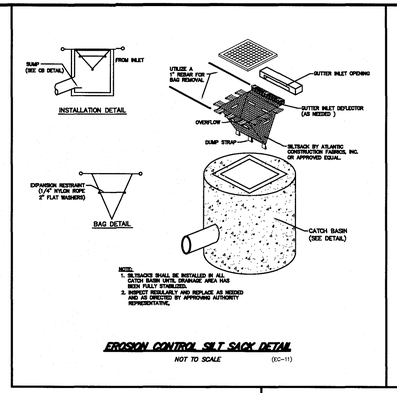
LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT AND PERMITTING, LLC

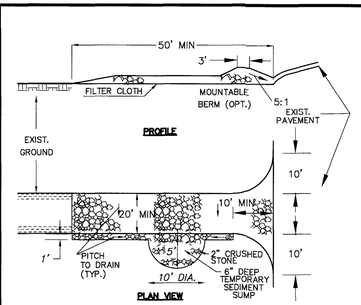
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING - PLANNING - SURVEYING

SHEET No. 10 OF 11 PROJECT No. SM-5676



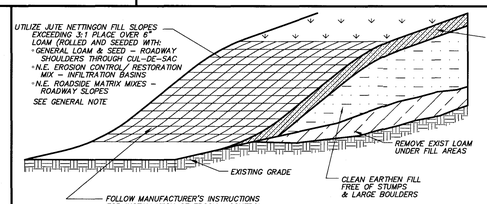
EROSION CONTROL SILT SACK DETAIL
NOT TO SCALE (EC-11)



STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE

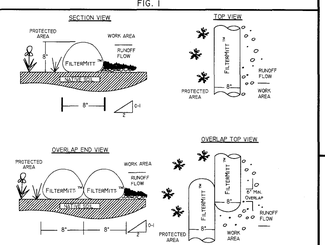
CONSTRUCTION SPECIFICATIONS

1. THE ENTRANCE OF THE PROPOSED DRIVEWAY SHALL INITIALLY HAVE 6" OF 2" CRUSHED STONE LAID DOWN AS A TRAFFIC SEDIMENT CONTROL SURFACE AS SHOWN IN THE STABILIZED CONSTRUCTION ENTRANCE DETAIL. THIS STONE PACK SHALL BE PLACED OVER THE DRIVEWAY FOR A MINIMUM DISTANCE OF 40 FEET FROM THE EDGE OF PAVEMENT AND SHALL BE REMOVED AND REPLACED WITH ROADWAY GRAVEL IMMEDIATELY PRIOR TO THE PLACEMENT OF PAVEMENT.
2. STONE SIZE – USE 2" CRUSHED STONE.
3. WIDTH – TWENTY (20) FOOT MINIMUM, BUT NOT LESS THAN THE WIDTH AT POINTS OF INGRESS OR EGRESS.
4. FILTER CLOTH – WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO THE PLACEMENT OF STONE.
5. SURFACE WATER – ALL SURFACE WATER FLOWING OR DIVERTED NEAR CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
6. MAINTENANCE – THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMANDS AND REPAIR ANY MEASURES USED TO TRAP SEDIMENT.
7. WASHING – WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO THE ENTRANCE ONTO PUBLIC RIGHT-OF-WAYS. WHEN WASHING IS DONE IT SHALL BE DONE ON STABILIZED ENTRANCE WITH STONE AND WHICH DRAINS INTO THE SEDIMENT SUMP AS SHOWN.
8. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN STORM.



SLOPE STABILIZATION DETAIL
NOT TO SCALE

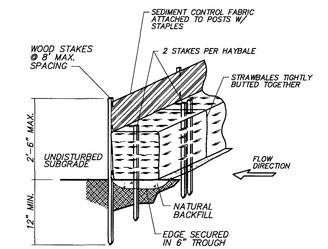
DETAILED SPECIFICATIONS
8" SEDIMENT FILTERMITT™
SLOPES 2 TO 1 OR LESS
FIG. 1



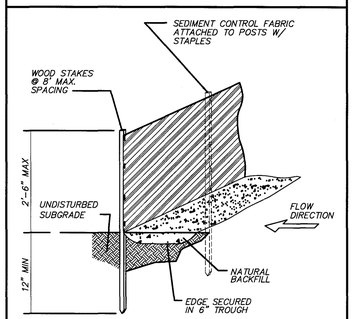
NOTE:
1. FILL WITH COMPOST.

SILTATION BARRIER DETAIL
NOT TO SCALE

FOR FURTHER INFORMATION ABOUT PHASE II STORMWATER PRODUCTS, INC. CONTACT US AT:
P.O. Box 757 - WRENTHAM, MA 02093 - PH: (508) 384-7140 - FAX: (508) 384-0571
WWW.GROUNDSCAPESEXPRESS.COM



SILTATION BARRIER DETAIL
NOT TO SCALE



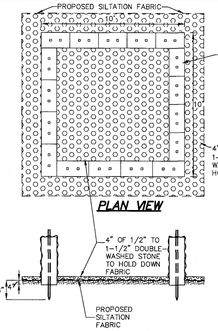
SILTATION FENCE DETAIL
NOT TO SCALE

EROSION AND SEDIMENTATION CONTROL NOTES

1. THE LIMITS OF WORK SHALL BE MARKED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION OR SITE CLEARING.
2. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO ANY CONSTRUCTION ON THE SITE. SILTATION BARRIER AND SILT FENCE SHALL BE PLACED IN ALL AREAS AS SHOWN ON ALL THE PLANS AND IN ANY OTHER AREAS AS DETERMINED NECESSARY DURING CONSTRUCTION.
3. ALL SOIL STOCKPILES SHALL HAVE EROSION CONTROL MEASURES AROUND THEIR EDGES AT ALL TIMES. SOIL STOCKPILES SHALL BE COVERED WITH TEMPORARY VEGETATION OR FASTENED TARPAULIN SHEETS.
4. THE DRAINAGE SYSTEM SHALL BE CONSTRUCTED DURING THE EARLIEST STAGES OF THE PROJECT IN ORDER TO COLLECT RUNOFF AND SEDIMENT.
5. ALL CATCH BASINS SHALL BE PROTECTED WITH SILT SACKS DURING CONSTRUCTION.
6. ALL CUT AND FILL SLOPES SHALL BE IMMEDIATELY COVERED WITH 6" OF LOAM AND SEEDED DURING THE GROWING SEASON (APRIL 1 TO NOVEMBER 1) OR COVERED WITH HAYMULCH DURING THE NON-GROWING SEASON (NOVEMBER 1 TO APRIL 1), IN AREAS SUBJECT TO THE WETLANDS PROTECTION ACT, THE HAYMULCH AND/OR REQUIRED MEASURES SHALL REMAIN IN PLACE UNTIL PERMANENT VEGETATION IS ESTABLISHED. UNLESS OTHERWISE INDICATED, ALL DISTURBED AREAS SHALL RECEIVE 6" OF LOAM AND BE SEEDED TO PREVENT EROSION.
7. THE DRAINAGE BASIN SHALL BE CLEANED FOLLOWING CONSTRUCTION AND ANNUALLY THEREAFTER. UPON ACCUMULATION OF 6" OF SEDIMENT, THE DRAINAGE BASIN SHALL BE CLEANED.
8. THE SILTATION BARRIER SHALL BE MAINTAINED UNTIL VEGETATIVE COVER HAS BEEN SUITABLY ESTABLISHED AND GRADED SLOPES ARE STABLE.

INSPECTION/MAINTAINENCE:

9. THE SITE CONTRACTOR IS RESPONSIBLE TO CLEAN UP ANY SEDIMENT WHICH ERODES FROM THE SITE INTO LINCOLN STREET OR ABUTTING PROPERTY IMMEDIATELY UPON DISCOVERY.
10. THE CONTRACTOR SHALL FOLLOW STANDARD PRACTICE AND LOAM AND SEED ALL DISTURBED AREAS FOLLOWING CONSTRUCTION.
11. OPERATOR PERSONNEL MUST INSPECT THE CONSTRUCTION SITE AT LEAST EVERY 7 DAYS AND WITHIN 24 HOURS OF A RAINFALL OF 0.5 INCHES OR MORE. DISTURBED AREAS THAT HAVE BEEN STABILIZED MUST BE INSPECTED AT LEAST ONCE PER MONTH.
12. ALL CATCH BASIN SUMPS AND MANHOLES SHALL BE CLEANED OUT AFTER CONSTRUCTION.
13. DURING CONSTRUCTION, THE CONTRACTOR SHALL SPRAY DOWN THE SITE WITH A WATER TRUCK AS NEEDED FOR DUST CONTROL.
14. DURING CONSTRUCTION THE CONTRACTOR SHALL INSPECT LINCOLN ROAD AND SWEEP AS NECESSARY.
15. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL STRUCTURES AND DEVICES THROUGHOUT CONSTRUCTION. ANY EROSION CONTROL DEVICES FOUND TO NO LONGER TO BE SERVICEABLE SHALL BE REMOVED AND REPLACED. ALL ACCUMULATED SEDIMENTS MUST BE REMOVED WHEN DEPOSITS REACH NO MORE THAN ONE HALF THE HEIGHT OF THE SILTATION BARRIER.
16. THOSE AREAS UNDERGOING ACTUAL CONSTRUCTION WILL BE LEFT IN UNTREATED OR UNVEGETATED CONDITION FOR A MINIMUM TIME. AREAS SHALL BE PERMANENTLY STABILIZED WITHIN 15 DAYS OF FINAL GRADING (7 DAYS IF WITH 100 FEET OF A STREAM, POND OR WETLAND) AND TEMPORARILY STABILIZED WITHIN 30 DAYS OF INITIAL DISTURBANCE OF THE SOIL.
17. TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINAL GRADED SHALL BE COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TO PROTECT THE SITE FROM SPRING RUNOFF PROBLEMS. IF FINAL SEEDING OF THE DISTURBED AREAS IS NOT COMPLETED 45 DAYS PRIOR TO THE FIRST KILLING FROST TEMPORARY MULCH OR OTHER METHODS APPROVED BY THE ENGINEER SHALL BE EMPLOYED TO PROTECT THE SITE.
18. A STOCKPILE OF ADDITIONAL SILT FENCE AND HAYBALES SHALL BE KEPT ONSITE IN ORDER TO BE ABLE TO IMMEDIATELY RESPOND TO ISSUES WHICH MIGHT DEVELOP DURING CONSTRUCTION.



NOTES:
1. A TRENCH DEWATERING STILL SHALL BE INSTALLED WHEREVER GROUNDWATER IS ENCOUNTERED SO AS TO PROVIDE AN AREA FOR PUMPED WATER TO BE DEPOSITED.
2. THE HAYBALES SHALL BE INSTALLED IN ACCORDANCE WITH THE HAYBALE SILTATION DETAIL PROVIDED ON THIS PLAN.
3. THE DEWATERING STILL SHALL BE CLEANED OF SILT AS NECESSARY.

DEWATERING STILL DETAIL
N.T.S.

LONG TERM POLLUTION PREVENTION AND DRAINAGE SYSTEM OPERATION AND MAINTENANCE PLAN

1. THERE SHALL BE NO ILLICIT DISCHARGES TO ANY PART OF THE STORM DRAIN SYSTEM.
2. ALL DRAIN PIPE SHALL BE ADS, UNLESS OTHERWISE NOTED.

THE IMPLEMENTATION, INSPECTION, AND REPAIR OF THE EROSION CONTROLS IS THE RESPONSIBILITY OF THE SITE CONTRACTOR DURING CONSTRUCTION.

THE INSPECTION AND OPERATION OF THE STORM WATER MANAGEMENT SYSTEM UPON COMPLETION OF CONSTRUCTION IS THE RESPONSIBILITY OF:

DURING CONSTRUCTION: SYMES DEVELOPMENT AND PERMITTING, LLC

PARTIES RESPONSIBLE FOR LONG TERM OPERATION/MAINTENANCE:

CONDOMINIUM ASSOCIATION

SCHEDULE FOR INSPECTION AND MAINTENANCE:

STREET SWEEPING:

IT IS RECOMMENDED THAT THE PAVEMENT SHALL BE PROPERLY SWEPT TWICE A YEAR, WITH CONCENTRATIONS IN THE SPRING AND THE FALL.

DEEP SUMP AND HOODED CATCH BASINS

DURING CONSTRUCTION, CATCH BASIN GRATES SHALL BE WRAPPED WITH FILTER FABRIC. CATCH BASINS SHALL BE CLEANED UPON THE COMPLETION OF CONSTRUCTION. AFTER CONSTRUCTION, THE DEEP SUMPS FOR ALL CATCH BASINS AND DRAIN MANHOLES SHALL BE INSPECTED FOUR TIMES A YEAR AND CLEANED FOUR TIMES A YEAR. SEDIMENT REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL GUIDELINES AND REGULATIONS.

- THE DEPTH OF THE SEDIMENT IN A BASIN SHALL NOT EXCEED A DEPTH OF 18 INCHES AS DETERMINED BY PROBING WITH A STICK. IF THE STICK HITS THE BOTTOM WITHIN 30 INCHES OF THE WATER LEVEL, MORE THAN 18 INCHES OF SEDIMENT HAS ACCUMULATED AND MUST BE REMOVED. LICENSED PERSONS SHOULD REMOVE AND DISPOSE OF THE CONTENTS OF THE SUMP IN ACCORDANCE WITH APPLICABLE REGULATIONS.

INFILTRATION BASINS

PREVENTATIVE MAINTENANCE SHOULD BE PERFORMED AT LEAST TWICE A YEAR, AND IDEALLY SEDIMENT SHOULD BE REMOVED FROM THE SEDIMENT FOREBAYS AFTER EVERY MAJOR STORM EVENT. SEDIMENT SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, AND FEDERAL GUIDELINES AND REGULATIONS.

ONCE ONLINE, THE BASINS SHALL BE INSPECTED AFTER EVERY MAJOR STORM EVENT, FOR THE FIRST FEW MONTHS. THEREAFTER, THE BASIN SHOULD BE INSPECTED AT LEAST TWICE PER YEAR. IMPORTANT ITEMS TO CHECK FOR INCLUDE: DIFFERENTIAL SETTLEMENT, CRACKING, EROSION, LEAKAGE, OR TREE GROWTH ON THE EMBANKMENTS, CONDITION OF RIPRAP, SEDIMENT ACCUMULATION AND THE HEALTH OF THE TURF.

AT LEAST TWICE A YEAR, THE BUFFER AREA, SIDE SLOPES AND BASIN BOTTOM SHOULD BE MOWED. GRASS CLIPPINGS AND ACCUMULATED ORGANIC MATTER SHOULD BE REMOVED TO PREVENT THE FORMATION OF AN IMPERVIOUS ORGANIC MAT. TRASH AND DEBRIS SHOULD ALSO BE REMOVED AT THIS TIME.

SEDIMENT SHOULD BE REMOVED FROM THE BASIN AS NECESSARY. REMOVAL PROCEDURES SHOULD NOT TAKE PLACE UNTIL THE FLOOR OF THE BASIN IS THOROUGHLY DRY. PRETREATMENT DEVISES ASSOCIATED WITH BASINS SHOULD BE INSPECTED AND CLEANED AT LEAST TWICE A YEAR AND IDEALLY EVERY OTHER MONTH.

DRYWELLS:

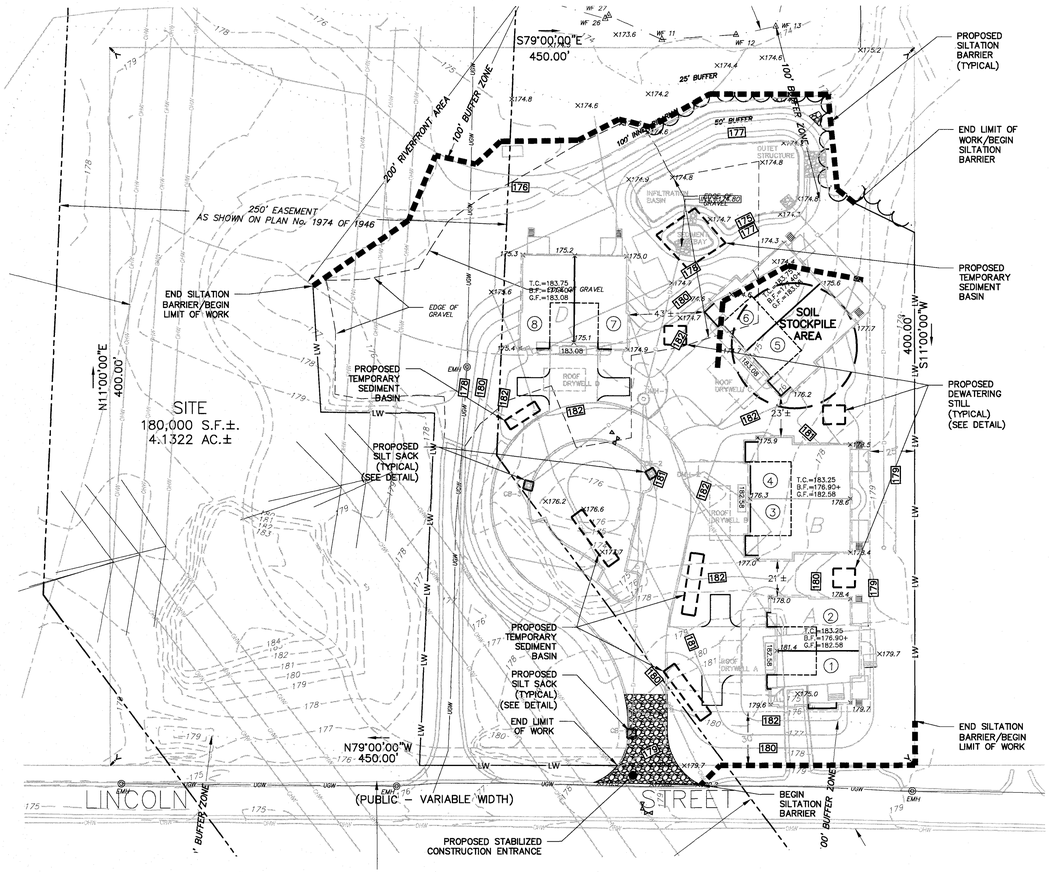
INSPECT THE DRYWELL AFTER EVERY MAJOR STORM FOR THE FIRST FEW MONTHS TO ENSURE PROPER STABILIZATION AND FUNCTION. THEREAFTER, INSPECT AND CLEAN IT AT LEAST ONCE PER YEAR. WATER LEVELS SHOULD BE RECORDED OVER SEVERAL DAYS TO CHECK THE DRYWELL DRAINAGE.

EMERGENCY CONTACTS:
IN THE EVENT OF A HAZARDOUS MATERIALS SPILL ON THE SITE THE FOLLOWING PARTIES SHALL BE CONTACTED: FIRE DEPARTMENT: PH: 978-862-0272

RECORDS:
THE OWNER SHALL MAINTAIN AN INSPECTION LOG OF ALL ELEMENTS OF THE STORM WATER MANAGEMENT PLAN. THE OWNER SHALL MAINTAIN A MAINTENANCE LOG DOCUMENTING THE INSPECTION AND MAINTENANCE OF THE DRAINAGE STRUCTURES UNDER HIS CONTROL. A COPY OF THE EROSION CONTROL AND STORM WATER MAINTENANCE PLAN AND INSPECTION LOGS SHALL BE KEPT ONSITE AT ALL TIMES.

LEGEND:

- SILTATION BARRIER
- SOIL STOCKPILE AREA
- TEMPORARY SEDIMENT BASIN
- SILT SACK
- STABILIZED CONSTRUCTION ENTRANCE
- LW — LIMIT OF WORK



0 20 40 80 160 FT

(5676 DEF BHD 2.dwg)

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____
_____
_____ _____
DATE

REVISIONS

NO.	DATE	DESCRIPTION	BY	CHK'D
1	5/15/18	PLANNING BOARD REVISIONS	PFK	RJH

COMMONWEALTH OF MASSACHUSETTS
GEORGE DIMAKARAKOS
CIVIL
No. 41281
REGISTERED
PROFESSIONAL ENGINEER

COMMONWEALTH OF MASSACHUSETTS
JOSEPH MARION
36364
REGISTERED
LAND SURVEYOR

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

EROSION AND SEDIMENTATION CONTROL PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 11 OF 11 | PROJECT No. SM-5676

Plant Schedule

	Botanical Name	Common Name	Size
DECIDUOUS TREE OPTIONS:			
	Ostrya virginiana	Hophornbeam	2-2.5"cal
	Acer rubrum 'Red Sunset'	Red Sunset Maple	2-2.5"cal
	Acer saccharum 'Green Mountain'	Sugar Maple	2-2.5"cal
	Nyssa sylvatica	Tulelo	2-2.5"cal
	Tilia americana	Basswood	2-2.5"cal
	Carya ovata	Shagbark Hickory	2-2.5"cal
	Quercus coccinea	Scarlet Oak	2-2.5"cal
	Carpinus caroliniana	American Hornbeam	2-2.5"cal
EVERGREEN OPTIONS:			
	Abies balsamea	Balsalm Fir	7-8'
	Chamaecyparis thyoides	White Cedar	7-8'
	Juniperus virginiana	Eastern Red Cedar	8-10'
	Pinus rigida	Pitch Pine	6-7'
	Pinus strobus	White Pine	8-10'
SHRUB OPTIONS:			
	Calycanthus floridus	Carolina Allspice	2-3'
	Clethra alnifolia	Summmer Sweet	2-3'
	Myrica pennsylvanica	Northern Bayberry	2-3'
	Comptonia peregrina	Sweet Fern	18-24"
	Ilex glabra	Inkberry	2-3'
	Ilex verticillata	Winterberry	2-3'
	Vaccinium corymbosum	Highbush Blueberry	2-3'
	Kalmia latifolia	Mountain Laurel	2-3'
	Rosa virginiana	Virginia Rose	18-24"
	Prunus Maratima	Beach Plum	2-3'
	Cornus amomum	Silky Dogwood	2-3'
	Viburnum dentatum	Arrowwood	2-3'
FLOWERING TREE OPTIONS:			
	Cercis candensis	Eastern Redbud	2-2.5"cal
	Oxudenfrum arboreum	Sourwood	2"cal
	Hamamellis virginiana	Witch Hazel	7-8'
	Magnolia virginaina	Sweetbay Magnolia	7-8'
	Amelanchier canadensis	Serviceberry	8-10'
	Cornus florida	White Dogwood	2-2.5"cal

MEADOW SEED MIX:

Creeping Red Fescue, (Festuca rubra), Canada Wild Rye, (Elymus canadensis), Annual Ryegrass, (Lolium multiflorum), Perennial Ryegrass, (Lolium perenne), Blue Grama, (Bouteloua gracilis), Little Bluestem, (Schizachyrium scoparium), Indian Grass, (Sorghastrum nutans), Rough Bentgrass, (Agrostis scabra), Upland Bentgrass, (Agrostis perennans

APPLICATION RATE: 35 lb/acre | 1250 sq ft/lb

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"

"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"

"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

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

_____ _____
TOWN CLERK DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____
_____
_____ _____
DATE
_____
_____

0 20 40 80 160 FT

(5676 DEF BHD 1.dwg)

NO.	DATE	DESCRIPTION	BY	CHK'D
		REVISIONS		
1	5/9/18	PLANT LIST	JE	JE

james k. emmanuel | associates
LANDSCAPE ARCHITECTS
22 Carlton Rd.,
Marblehead, MA 01945
tel. (781) 622-7487
fax (781) 623-0293
james@jamesemmanuel.com
www.jamesemmanuel.com

HOMES AT HOBBS BROOK
BALANCED HOUSING RESIDENTIAL DEVELOPMENT

LANDSCAPE PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
SYMES DEVELOPMENT & PERMITTING, LLC
SCALE: 1" = 40' DATE: FEBRUARY 20, 2018

PREPARED BY
STAMSKI AND McNARY, INC
1000 MAIN STREET ACTON, MA
ENGINEERING – PLANNING – SURVEYING

SHEET No. 7 OF 11 PROJECT No. SM-5676

UTILITY SERVICES DETAIL

T.C.=183.75
B.F.=177.40+
G.F.=183.08

T.C.=183.75
B.F.=177.40+
G.F.=183.08

T.C.=183.25
B.F.=176.90+
G.F.=182.58

T.C.=183.25
B.F.=176.90+
G.F.=182.58

ROOF DRYWELL D

ROOF DRYWELL C

ROOF DRYWELL B

ROOF DRYWELL A

8" CLDI CAP & NIPPLE

PROVIDE THRUST RESTRAINT AT END

11.5° BEND

PROPOSED HYDRANT & GATE VALVE (SEE DETAIL)

PROVIDE THRUST RESTRAINT AT 45° BEND

PROVIDE THRUST RESTRAINT AT 11.5° BEND

PROVIDE THRUST RESTRAINT 11.5° BEND

PROPOSED WATER SERVICE (TYPICAL)

PROPOSED 8" CLDI WATER MAIN

OPOSED UNDERGROUND LECTRIC/CABLE/PHONE SERVICE

PROPOSED E/ONE GRINDER PUMP (TYPICAL) (SEE DETAIL)

PROP. UTILITY POLE BRING OVERHEAD TO UNDERGROUND OUTSIDE EASEMENT

PROVIDE THRUST RESTRAINT AT TEE

1 ½" CHECK VALVE (TYP.)

1 ½" BALL VALVE & BOX

PROPOSED 8"x8"x8" TEE

EXISTING 8" CLDI WATER MAIN

EXISTING 1½" PC200 PRESSURE SEWER

43'±

23'±

21'±

30'

20.0'

2+00

4+00

4+47

+00

0+00

0+10

DMH-1

DMH-2

CB-1

CB-2

UP 80

UP 79A

LIGHTPOLE

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

56 Webb Street: Preliminary Plan

PRESENTER:

ITEM NUMBER:

SUMMARY:

Applicant is seeking approval of a preliminary subdivision plan under Section 175-5.0 of the Planning Board's Subdivision Regulations for a 6 lot conventional subdivision. Attached is a copy of the subdivision plan and staff's memo.

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/24/2018

ATTACHMENTS:

Description	Type
56 Webb Street Preliminary Plan	Backup Material
Staff Report	Backup Material

MASS. STATE COORDINATE SYSTEM

PROPOSED 16 FOOT WIDE EMERGENCY ACCESS EASEMENT

WEBB STREET

REFERENCES

1. WETLAND RESOURCE AREAS ESTABLISHED BY WETLANDS PRESERVATION, INC, SEPTEMBER, 2017.
2. RTK GPS FIELD SURVEYS BETWEEN SEPTEMBER 26, 2017 AND OCTOBER 9, 2017.
3. ELEVATIONS REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988.
4. LEXINGTON ASSESSOR RECORDS, OCTOBER, 2017.
5. TOPOGRAPHIC CONTOURS DERIVED FROM LEXINGTON GIS SYSTEM, OCTOBER, 2017.
6. FIELD OBSERVATIONS RECORDED FROM SITE VISIT ON OCTOBER 28, 2017.

MAP 54 LOT 6A N/F SHERMAN THOMAS &
MAP 54 LOT 6B N/F STERN LYNNELL E.
MAP 54 LOT 5B N/F MALONE STEVEN C. & LINDA S.
MAP 54 LOT 5A N/F GAGNON CHRISTOPHER &
MAP 54 LOT 2B N/F RUOCCO BLAIR &
MAP 54 LOT 2A N/F GANDHAM RAMESH &
MAP 54 LOT 156 N/F EPSTEIN HOWARD D. &
MAP 54 LOT 155 N/F SMITH GARRISON R. &
MAP 54 LOT 154 N/F LIM SWEECHENG TRUSTEE
MAP 47 LOT 154 N/F TANG SCOTT H. &
MAP 47 LOT 153 N/F XI HUALIN &
MAP 47 LOT 152 N/F WOO HIN - KOON &
MAP 47 LOT 160 N/F JAUVTIS HARVEY I. & DONNA B.
MAP 47 LOT 159 N/F ALLOWAY NANCY F.
MAP 47 LOT 158 N/F KIRK JAMES E. & ALICE I.
MAP 47 LOT 157 N/F DISILVA THOMAS R. &
MAP 47 LOT 156 N/F JUNG YOUNG CHUN &
MAP 47 LOT 91 N/F BALICH JOYCE ELIZABETH
MAP 47 LOT 86A N/F LEXINGTON CONGREGATION OF JEHOVAH'S WIT
MAP 54 LOT 3A N/F LIU YUEN-JONG
MAP 54 LOT 4A N/F LEDONNE ERIC &
MAP 54 LOT 14B N/F TOWN OF LEXINGTON
MAP 47 LOT 85B N/F SOTIR LUKE T &
MAP 47 LOT 61A N/F TOWN OF LEXINGTON - CONSERVATION
MAP 47 LOT 64 N/F TREBINO LAWRENCE G. TRUSTEE
MAP 47 LOT 65A N/F LEE ROBERT TRAVIS &
MAP 47 LOT 63B N/F CHEN PING &

LOT 1 area = 43,200 s.f.
LOT 2 area = 40,130 s.f.
LOT 3 area = 30,100 s.f.
LOT 4 area = 31,090 s.f.
LOT 5 area = 33,350 s.f.
LOT 6 area = 30,000 s.f.

PROPOSED 40 FOOT WIDE EXTENSION OF DUNHAM STREET

120' LOT REGULARITY CIRCLE (TYP.)

PROPOSED SUBSURFACE INFILTRATION DRAINAGE FIELD WITH OVERFLOW

HISTORIC WAY

SURFACE WATER FLOW

DUNHAM STREET

ZONING DISTRICT: RO

LEGEND

54/5B	ASSESSOR MAP/ASSESSOR PARCEL #
CB	CONCRETE BOUND (FOUND)
	BORDERING VEGETATED WETLAND, MA WETLANDS PROTECTION ACT, G.L. c. 131, s. 40

REDUCED

0 40 80 120
Scale: 1 inch = 40 Feet

FOR REGISTRY OF DEEDS USE ONLY

"THIS PLAN IS SUBJECT TO A COVENANT DATED _____"
"THIS PLAN IS SUBJECT TO A CERTIFICATE OF ACTION DATED _____"
"THIS PLAN IS SUBJECT TO A SPECIAL PERMIT DATED _____"

I DECLARE, TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, INFORMATION, AND BELIEF, THAT THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS.

_____ DATE

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

_____ TOWN CLERK _____ DATE

APPROVED BY:
LEXINGTON PLANNING BOARD

_____ DATE

NO.	DATE	DESCRIPTION	BY	CHK'D

REVISIONS

HIGHLAND FARM
PRELIMINARY SUBDIVISION PLAN

LOCATED IN
LEXINGTON, MASSACHUSETTS
(MIDDLESEX COUNTY)

PREPARED FOR
ANGIE KAVLAKIAN
SCALE: 1" = 40' DATE: APRIL 16, 2018

PREPARED BY
DECOULOS & COMPANY, LLC,
CAMBRIDGE, MA

SHEET No. 1 OF 1 PROJECT No. 748

TOWN OF LEXINGTON
PLANNING OFFICE
AGENDA ITEM SUMMARY & STAFF RECOMMENDATION

Item Name/Description:	56 Webb Street Preliminary Subdivision Plan
Application Date:	April 26, 2018
Constructive Approval Date:	June 10, 2018 (45 days)
Proposed Meeting Date:	May 24, 2018

Procedural Summary

Decoulos and Company, LLC., on behalf of Angie Kavlakian (applicant), submitted a plan for a preliminary subdivision at 56 Webb Street and 0 Dunham Street, Assessor's map 47, Lot 155A and Lot 64, respectively, on April 26, 2018. This is the first time this matter will come before the Planning Board (the Board).

Staff Comments

The proposal for a conventional subdivision consists of six (6) lots laid out on a single street terminating in a cul-de-sac. The street is proposed to be an extension of Dunham Street, which currently only exists in paper form adjacent to the property owned by the applicant. The applicant has not requested any waivers from the Board for the current preliminary plan. The lots, as laid out, all appear to meet the zoning requirements for the RO zone in which the parcel resides.

For the reasons explained below, staff does not believe this plan shows a conforming subdivision, primarily because it includes a dead-end street that exceeds the limits permitted by the Planning Board *Subdivision Regulations*, Chapter 175 of Lexington Code.

Specifically, the single sheet preliminary subdivision plan, titled "Highland Farm," submitted to the Planning Office does not conform to the requirements of §175-7.2.E(7)(a), which reads:

> A dead-end street may not be longer than 650 feet from the point of beginning following the centerline to the furthest point on the right-of-way line. The point of beginning of a dead end street or way or of a system of dead end streets or ways is the point of intersection of street centerlines with a street of which there are two or more distinct vehicular access routes to the general street network of the Town.

Section §175-7.2 in turn defines a dead-end street, road, or way as follows:

> Either [A] a street providing only one vehicular access route to the general street network of the Town or [B] a system of two or more intersecting streets whose overall layout provides only one vehicular access route to the general street network of the Town. Multiple vehicular access points less than 125 feet apart are considered a single access point.

The current paved way entering off of Woburn Street, consisting of Utica and then Dunham Streets, is a pre-existing, nonconforming dead-end street approximately 1,000 feet in length with only one means of ingress and egress. There is a paper, laid out right-of-way that then continues for approximately another 225 feet before terminating at the parcel owned by the applicant, map and lot number 47-155A. The proposed way, as shown on the preliminary plan, is approximately 1,200 feet in length not including the existing, paved way and also has only one means of ingress and egress. Combining the proposed way and the existing way would create a dead-end street approximately 2,200 feet in length, over three times the distance the current *Subdivision Regulations* allow for a dead-end street, and nearly a half-mile in length.

The proposal also includes a 16 foot wide paved easement that would connect the proposed extension of Dunham Street to Webb Street. Staff does not believe that this "emergency access easement" meets the definition of a street, road or way, as stated in the Zoning Bylaw, §135-10.1, nor does it conform to the standards laid out in the *Subdivision Regulations*, §175-7.2.E(1)(c). The "emergency access easement" would be too narrow to satisfy the design standards for streets and rights-of-way in the *Subdivision Regulations* §175-7.2.E(1)(c). Thus, in staff's opinion, the easement is not a street, rendering the proposed plan invalid.

Further, the emergency access easement does not augment the proposed dead end road in a manner that avoids its violation of the *Subdivision Regulations* as described above. The applicant appears to be claiming that the emergency access easement as laid out allows for a second means of vehicular access to the proposed forty (40) foot right-of-way such that this latter, wider right of way would not be a dead end street. However, as explained above, the access easement has too many deficiencies in the layout to qualify as a "street, road, or way," meaning the entirety of the extended Dunham Street is a dead-end.

Staff notes that the means of vehicular access must be a way as laid out in the Town's *Subdivision Regulations,* unless waived by the Planning Board in such a way as to not endanger the health and safety of the public. In other words, such "vehicular access routes" must qualify as "streets, roads, or ways" under the *Subdivision Regulations*. The proposed emergency access route does not meet this requirement.

Requiring adequate emergency access to new subdivisions is consistent with the goals of the of the Commonwealth's Subdivision Control Law. As described in G.L. c. 41, §81M the Planning Board's powers are to be exercised:

> with due regard for the provision of adequate access to all of the lots in a subdivision by ways that will be safe and convenient for travel….for securing

safety in the case of fire, flood, panic and other emergencies….

The current plan, in staff's opinion, does not adequately meet the requirements for streets as described in Lexington's *Subdivision Regulations* because emergency access will be too limited.

Other Office or Division Comments

The Engineering Office comments will be submitted under a separate cover upon their submission. The Health Office has not submitted any comments in regard to this subdivision plan. The Departments of Fire and Public Safety have not submitted comments on this project.

Staff Recommendation

Planning Office staff does not recommend approval of this preliminary subdivision plan for the reasons stated above. The plan does not comply with §175-7.2 with regard to the proposed lay out of the right-of-way. Given the issues with the right-of-way, staff has not analyzed other potential issues with this preliminary plan. Any other issues, including whether it would be appropriate for the Planning Board to grant a waiver of this requirement if the applicant were to request one, would require further analysis by staff. However, potential concerns are bulleted below:

- The horizontal curvature of the laid out way proposed as an extension of Dunham Street would need to be reviewed by the Engineering Department;
- The drainage and stormwater system needs further clarification and submission of a drainage and stormwater management plans is required by §175-5.3.A(2);
- The developable site area for each lot shown on the plan requires calculation per §135-4.2.3 of the Code of Lexington.

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

PSDUP Sketch Decision: 7 Hartwell Avenue

PRESENTER:

ITEM NUMBER:

SUMMARY:

Decision is in the process of being drafted and will be posted before meeting occurs.

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/24/2018

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Comprehensive Plan Update

PRESENTER:

Aaron Henry, Planning Director

ITEM NUMBER:

3

SUMMARY:

This is a standing item to allow staff to update the Board on the status of the Comprehensive Plan and related initiatives. Upcoming meetings include the following:

- Housing Panel - May 29, 2018 (7PM) Lexington Community Center Rm. 237
- Comprehensive Plan Kick-Off Event - June 4, 2018 (7PM) Battin Hall, Cary Memorial Building

SUGGESTED MOTION:

There is no Board action required for this item.

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/24/2018

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Upcoming Meetings & Anticipated Schedule

PRESENTER:

Aaron Henry, Planning Director

ITEM NUMBER:

2

SUMMARY:

This recurring agenda item is to inform the Board and public of the proposed meeting schedule. The next Planning Board Meetings are scheduled for the following dates:

- Thursday, June 7, 2018
- Thursday, June 21, 2018

FY 19 (July 2018-June 2019) meeting calendar & schedule are attached for the Board's review.

SUGGESTED MOTION:

There is no need for the Board to act on this item.

FOLLOW-UP:

Should Board members have any known conflicts with any of the proposed dates or wish to request an item be placed on a meeting agenda, please follow up with staff.

DATE AND APPROXIMATE TIME ON AGENDA:

5/24/2018

ATTACHMENTS:

Description	Type
FY19 Planning Board Calendar	Backup Material
FY19 Planning Board Meeting Schedule	Backup Material

Fiscal Year 2019

2018						2019					
July	August	September	October	November	December	January	February	March	April	May	June
1 Su	1 We	1 Sa	1 Mo	**1 Th PB MTG**	1 Sa	**1 Tu** New Year's Day	1 Fr	1 Fr	**1 Mo ATM**	**1 We ATM**	1 Sa
2 Mo	2 Th	2 Su	2 Tu	2 Fr	2 Su	2 We	2 Sa	2 Sa	2 Tu	2 Th	2 Su
3 Tu	3 Fr	3 Mo Labor Day	3 We	3 Sa	3 Mo	3 Th	3 Su	3 Su	**3 We ATM**	3 Fr	3 Mo
4 We Independence Day	4 Sa	**4** Tu	**4 Th PB MTG**	4 Su	4 Tu	4 Fr	4 Mo	4 Mo ELECTION	4 Th	4 Sa	4 Tu
5 Th	5 Su	5 We	5 Fr	5 Mo	5 We	5 Sa	5 Tu	5 Tu	5 Fr	5 Su	5 We
6 Fr	6 Mo	6 Th	6 Sa	6 Tu	6 Th	6 Su	6 We	6 We	6 Sa	6 Mo	**6 Th PB MTG**
7 Sa	7 Tu	7 Fr	7 Su	7 We	7 Fr	7 Mo	7 Th	7 Th	7 Su	7 Tu	7 Fr
8 Su	8 We	8 Sa	**8 Mo** Columbus Day	8 Th	8 Sa	8 Tu	8 Fr	8 Fr	**8 Mo ATM**	8 We	8 Sa
9 Mo	9 Th	9 Su	9 Tu	9 Fr	9 Su	9 We	9 Sa	9 Sa	9 Tu	**9 Th PB MTG**	9 Su
10 Tu	10 Fr	10 Mo Rosh Hashanah	10 We	10 Sa	10 Mo	**10 Th PB MTG**	10 Su	10 Su	**10 We ATM**	10 Fr	10 Mo
11 We	11 Sa	11 Tu	11 Th	11 Su	11 Tu	11 Fr	11 Mo	11 Mo	11 Th	11 Sa	11 Tu
12 Th PB MTG	12 Su	12 We	12 Fr	**12 Mo** Veterans Day	12 We	12 Sa	12 Tu	12 Tu	12 Fr	12 Su	12 We
13 Fr	13 Mo	**13 Th PB MTG**	13 Sa	**13 Tu STM**	**13 Th PB MTG**	13 Su	13 We	13 We	13 Sa	13 Mo	13 Th
14 Sa	14 Tu	14 Fr	14 Su	**14 We STM**	14 Fr	14 Mo	**14 Th PB MTG**	**14 Th PB MTG**	14 Su	14 Tu	14 Fr
15 Su	15 We	15 Sa	15 Mo	**15 Th STM**	15 Sa	15 Tu	15 Fr	15 Fr	**15 Mo** Patriot's Day	15 We	15 Sa
16 Mo	**16 Th PB MTG**	16 Su	16 Tu	16 Fr	16 Su	16 We	16 Sa	16 Sa	**16 Tu**	16 Th	16 Su
17 Tu	17 Fr	17 Mo	17 We	17 Sa	17 Mo	**17 Th PB MTG**	17 Su	17 Su	**17 We**	17 Fr	17 Mo
18 We	18 Sa	18 Tu Eve Yom Kippur	18 Th **PB MTG**	18 Su	18 Tu	18 Fr	**18 Mo** Presidents' Day	18 Mo	**18 Th**	18 Sa	18 Tu
19 Th	19 Su	**19 We** Yom Kippur	19 Fr	19 Mo	19 We	19 Sa	19 Tu	19 Tu	**19 Fr**	19 Su	19 We
20 Fr	20 Mo	**20 Th PB MTG**	20 Sa	20 Tu	20 Th	20 Su	**20 We**	20 We	20 Sa	20 Mo	**20 Th PB MTG**
21 Sa	21 Tu	21 Fr	21 Su	21 We	21 Fr	**21 Mo** MLK Day	**21 Th**	21 Th	21 Su	21 Tu	21 Fr
22 Su	22 We	22 Sa	22 Mo	**22 Th** Thanks-giving	22 Sa	22 Tu	**22 Fr**	22 Fr	**22 Mo ATM**	22 We	22 Sa
23 Mo	23 Th	23 Su	23 Tu	23 Fr	23 Su	23 We	23 Sa	23 Sa	23 Tu	**23 Th PB MTG**	23 Su
24 Tu	24 Fr	24 Mo	24 We	24 Sa	24 Mo	24 Th	24 Su	24 Su	**24 We ATM**	24 Fr	24 Mo
25 We	25 Sa	25 Tu	25 Th	25 Su	**25 Tu** Christmas Day	25 Fr	25 Mo	**25 Mo ATM**	**25 Th PB MTG**	25 Sa	25 Tu
26 Th PB MTG	26 Su	26 We	26 Fr	26 Mo	**26 We**	26 Sa	26 Tu	26 Tu	26 Fr	26 Su	26 We
27 Fr	27 Mo	27 Th	27 Sa	27 Tu	**27 Th**	27 Su	27 We	**27 We ATM**	27 Sa	**27 Mo** Memorial Day	27 Th
28 Sa	28 Tu	28 Fr	28 Sa	28 We	**28 Fr**	28 Mo	**28 Th PB MTG**	28 Th	28 Su	28 Tu	28 Fr
29 Su	29 We	29 Sa	29 Mo	**29 Th PB MTG**	29 Sa	29 Tu		29 Fr	**29 Mo ATM**	29 We	29 Sa
30 Mo	**30 Th PB MTG**	30 Su	30 Tu	30 Fr	30 Su	30 We		30 Sa	30 Tu	30 Th	30 Su
31 Tu	31 Fr		31 We		31 Mo	**31 Th PB MTG**		31 Su		31 Fr	

FY MTG #	Important dates	Ad Due (LMM)	Ad Run Dates		Notes
			#1	#2	
1	**07/12/2018**	06/21/18	06/28/18	07/05/18	
2	**07/26/2018**	07/05/18	07/12/18	07/19/18	
3	**08/16/2018**	07/26/18	08/02/18	08/09/18	
	08/20/2018				**BOS meeting regarding warrant STM?**
	08/22/2018				**legal ad due to LMM/motions ready**
4	**08/30/2018**	08/09/18	08/16/18	08/23/18	**legal ad 1 STM PH**
	09/06/2018				**legal ad 2 STM PH**
5	**09/13/2018**	08/23/18	08/30/18	09/06/18	**Open STM Public Hearings-1**
6	**09/20/2018**	08/30/18	09/06/18	09/13/18	**STM Public Hearing 2**
7	**10/04/2018**	09/13/18	09/20/18	09/27/18	**STM Public Hearing 3**
8	**10/18/2018**	09/27/18	10/04/18	10/11/18	**Close Public hearings**
9	**11/01/2018**	10/11/18	10/18/18	10/25/18	**DUE: STM REPORTS**
	11/13/2018				**STM; Pre-TM Mtg**
	11/14/2018				**STM; Pre-TM Mtg**
10	**11/15/2018**	10/25/18	11/01/18	11/08/18	**STM; Pre-TM Mtg**
11	**11/29/2018**	11/07/18	11/14/18	11/21/18	
12	**12/13/2018**	11/20/18	11/29/18	12/06/18	*legal ad in early LMM Thanksgiving holiday*
	12/28/2018				**DUE: ATM MOTIONS to BOS**
13	**01/10/2019**	12/18/18	12/27/18	01/03/19	
14	**01/17/2019**	12/26/18	01/03/19	01/10/19	*legal ad in early LMM Christmas Legal ad 1 ATM PH* **motion ready**
	01/24/2019				legal ad 2 ATM PH
15	**01/31/2019**	01/10/19	01/17/19	01/24/19	*Legal ad in early LMM presidents day* ***Open ATM Public Hearings-1***
16	**02/14/2019**	01/24/19	01/31/19	02/07/19	**ATM Public Hearing 2**
17	**02/28/2019**	02/07/19	02/14/19	02/21/19	**Close ATM Public hearings**
18	**03/13/2019**	02/21/19	02/28/19	03/06/19	**DUE: ATM REPORTS**
19	03/25/2019	02/28/19	03/07/19	03/14/19	Town Meeting Start; Pre-TM Mtg
20	03/27/2019	02/28/19	03/07/19	03/14/19	Pre-TM Mtg
21	04/01/2019	03/07/19	03/14/19	03/21/19	Pre-TM Mtg
22	04/03/2019	03/07/19	03/14/19	03/21/19	Pre-TM Mtg
23	04/08/2019	03/14/19	03/21/19	03/28/19	Pre-TM Mtg
24	04/10/2019	03/14/19	03/21/19	03/28/19	Pre-TM Mtg
25	04/22/2019	03/28/19	04/04/19	04/11/19	Pre-TM Mtg
26	04/24/2019	03/28/19	04/04/19	04/11/19	Pre-TM Mtg
27	04/29/2019	04/04/19	04/11/19	04/18/19	Pre-TM Mtg
28	05/01/2019	04/04/19	04/11/19	04/18/19	Pre-TM Mtg
29	**05/09/2019**	04/18/19	04/25/19	05/02/19	Begin Reg Updates; PB Reorganize
30	**05/23/2019**	05/02/19	05/09/19	05/16/19	
31	**06/06/2019**	06/16/19	05/23/19	05/30/19	
32	**06/20/2019**	05/29/19	06/06/19	06/13/19	*Legal ad in early LMM Memorial day* **Finalize Reg Updates**

AGENDA ITEM SUMMARY

LEXINGTON PLANNING BOARD

AGENDA ITEM TITLE:

Minutes

PRESENTER:

ITEM NUMBER:

SUMMARY:

Drafts of the following meeting minutes will be reviewed by the Planning Board:

- May 10, 2018

SUGGESTED MOTION:

FOLLOW-UP:

DATE AND APPROXIMATE TIME ON AGENDA:

5/24/2018

ATTACHMENTS:

	Description	Type
🗋	Draft PB Meeting Minutes 5-10-18	Backup Material

PLANNING BOARD MINUTES
MEETING OF MAY10, 2018

A meeting of the Lexington Planning Board, held in the Hudson Room, in the Cary Memorial building was called to order at 7:00 p.m. by Chair, Richard Canale with members Ginna Johnson, Charles Hornig, Nancy Corcoran-Ronchetti, and Bob Creech, and planning staff Aaron Henry, David Kucharsky, and Lori Kaufman present. Mr. Carl Valenti, Town Manager was present.

**********STAFF REPORTS**********

Upcoming Meetings & Anticipated Meetings:

The next three Planning Board meetings are May 24, June 7 and 21.

Other upcoming meetings are May 22, CPAC Meeting, May 23, Economic Development Panel #2, May 29, Housing Panel #2, May 30, Joint BOS and PB- Hartwell Avenue Initiative, and June 4, Comprehensive Plan Kick Off Event.

Comprehensive Plan Update:

The RFP deadline was April 20 and a decision will be made next week and shared at the next meeting. Board Members can send staff recommendations on the RFP.

**********COMMUNITY UPDATE**********

Planning Director Position:

Mr. Valenti explained the transition plan for the departure of Mr. Henry, Planning Director. The recruitment process began last week with a closing date of June 8, 2018 and are looking at Labor Day to have a new director in place. In the meantime Mr. Valenti recommended Carol Kowalski, Assistant Town Manager for Development serve as the interim Planning Director.

Board Comments:

- There was concern about the additional work since a full time staff member is needed and wants to make sure there will enough time for Ms. Kowalski to be able to handle the work load that would be required.
- Board members are delighted to work with her more closely.
- If additional resources are needed can the extra monies from salary be used for additional help? Can go to Town Meeting and can be done if needed.

On a motion of Ms. Johnson, seconded by Ms. Corcoran-Ronchetti, it was voted, 5-0, to accept the Town Manager's recommendation of Carol Kowalski as the interim Planning Director.

SPRD Committee:

The Board discussed the draft charge for the Special Permit Residential Development Committee and Mr. Canale's proposed changes.

Board Comments:

- The charge needs to be clear about what was meant by joint and if both boards do not agree that does not stop the process.
- Would like Board of Selectmen (BOS) Member be a voting member as well as Residential Policy Committee Members.
- This committee would be subject to open meeting law.
- Need to see data and documentation.
- The committee should go back to basics and should leave the scope broad.
- The feasibility piece has been hard to get, the focus should be on what the Board wants to get from the project and what is being built and not the amount of money made by the developer for the project.
- Do you see this as a policy making committee or a stakeholder committee?
- Having a Real Estate agent on the committee would not be balanced.
- Bring in seven people as committee members and others to participate.
- Advocate moving this forward as soon as possible since this was promised to be brought back for the Fall Special Town Meeting.
- Mr. Canale will speak with Ms. Hai and the Town Manager to get things moving.

Net Zero Plan Update:

Mr. Mark Sandeen presented Getting Net Zero Emissions Road map and recommendations to update the Planning Board. The presentation can be found in the meeting packet for May 10, 2018.

The goal would be how to get this incorporated into the Comprehensive Plan.

**********DEVELOPMENT ADMINISTRATION**********

17 Tower Road, ANR:

On a motion of Mr. Hornig, seconded by Ms. Corcoran-Ronchetti, it was voted, 5-0, to endorse the plan as it does not show a subdivision.

Belmont Country Club Land, ANR:

On a motion of Mr. Hornig, seconded by Ms. Johnson, it was voted, 5-0, to endorse the plan as it does not show a subdivision.

7 Hartwell Avenue, Sketch PSDUP:

Mr. Bob Buckley, attorney from Riemer and Braunstein representing the Russian School of mathematics was present.

This was CD-1 when amended in 2001 and is coming to establish a new Planned Development and go to Town Meeting. The major issue appears to be traffic and will have to look at the impacts on the Town's infrastructure.

Board Comments:

- Is there anything you are asking for that is not permitted for uses? *The only thing is non-confirming is the frontage and lot area.* It would be better to make it part of the CM District and would require a zoning change.
- The parking is problematic with the traffic with all the cars entering and exiting at the same time. The applicant needs to design a new circulation pattern.
- Want to see side and yard and front setbacks respected.
- Accessibility and multi-model transportation and pedestrian crossings need to be would need to be addressed.
- Did not see a landscape plan with the existing trees and those that will be removed and make the site look nice.
- When does the school operate*? Monday through Friday from 3:30 p.m. to 8:30 p.m. and 9 a.m. to 6p.m. on weekends with cars coming and going ever two hours.*
- 20 cars coming and going every 10 minutes is a lot of traffic.
- Is there a plan for public access (easement) on the corner for pedestrians to get to a good spot?

The Board will need to draft a decision for the next meeting.

1106 Massachusetts Avenue, Review and Endorse Special Permit SSD decision:

Staff provided a draft decision and received no comments from Board members.

On a motion of Mr. Hornig, seconded, by Ms. Corcoran-Ronchetti, it was voted, 5-0, to approve the special permit for 1106 Massachusetts Avenue.

1106 Massachusetts Avenue, preliminary Subdivision:

On a motion of Mr. Hornig, seconded, by Ms. Corcoran-Ronchetti, it was voted, 5-0, to approve The preliminary subdivision plan for 1106 Masssachusetts Avenue.

On a motion of Mr. Hornig, seconded, by Ms. Johnson, it was voted, 5-0, to authorize the Planning Director to accept on behalf of the Board the withdrawal from the applicant if it is given before Friday.

**********BOARD ADMINISTRATION**********

Minutes Review and Approval:

On a motion of Mr. Hornig, seconded by Ms. Johnson, it was voted, 5-0, to approve April 23, 2018, and April 26, 2018 as amended.

Fiscal Year 2019 Workplan Discussion:

The Fall Special Town Meeting will include some if not all of the following:

Belmont Country Club, North Hartwell Avenue initiative, 7 Hartwell Avenue, 331 Concord Avenue, 186 Bedford Street, Marijuana, Special Permit Residential Development, and the TMOD for Hartwell Avenue.

The Board discussed Mr. Creech's proposed items to the Planning Board Work plan 2018-2019.

Board Reorganization:

The Board held its annual election of officers.

On a motion of Mr. Canale, seconded by Mr. Creech, it was voted, 5-0, to elect Ms. Ginna Johnson as chair, Mr. Creech as vice chair, and Ms. Corcoran-Ronchetti as clerk.

On a motion, duly made and seconded, it was voted to adjourn the meeting at 9:51 p.m.

The meeting was recorded by LexMedia.

The following documents used at the meeting can be found on the Planning Board website in Planning Board packets.

- Draft charge for the Special Permit residential Committee (2 pages).
- Agenda Item Summary and Staff recommendations for 17 Tower Road, ANR (2 pages)
- Plan of Land 17 Tower Road (1 page).
- Approval Not required for Belmont Country Club (1 page).
- Cover Letter from Riemer and Braunstein for 7 Hartwell Avenue (2 pages).
- PSDUP Document for 7 Hartwell Avenue (8 pages).
- Proposed plans for the Russian School of Mathematics (9 pages).
- Staff memo for 7 Hartwell Avenue (sketch PSDUP) (2 pages).
- Draft of Grant of Special Permit for 1106 Massachusetts Avenue (6 pages).
- Agenda Item Summary and Staff recommendations for 1106 Massachusetts Avenue (1 page).
- Richard Canale's comments to the draft SPRD charge (2 pages).
- Presentation for Getting net Zero Emissions Road map and recommendations.
- Mr. Creech Planning Board Work plan 2018-2019 (2 pages).

Bob Creech, Clerk