

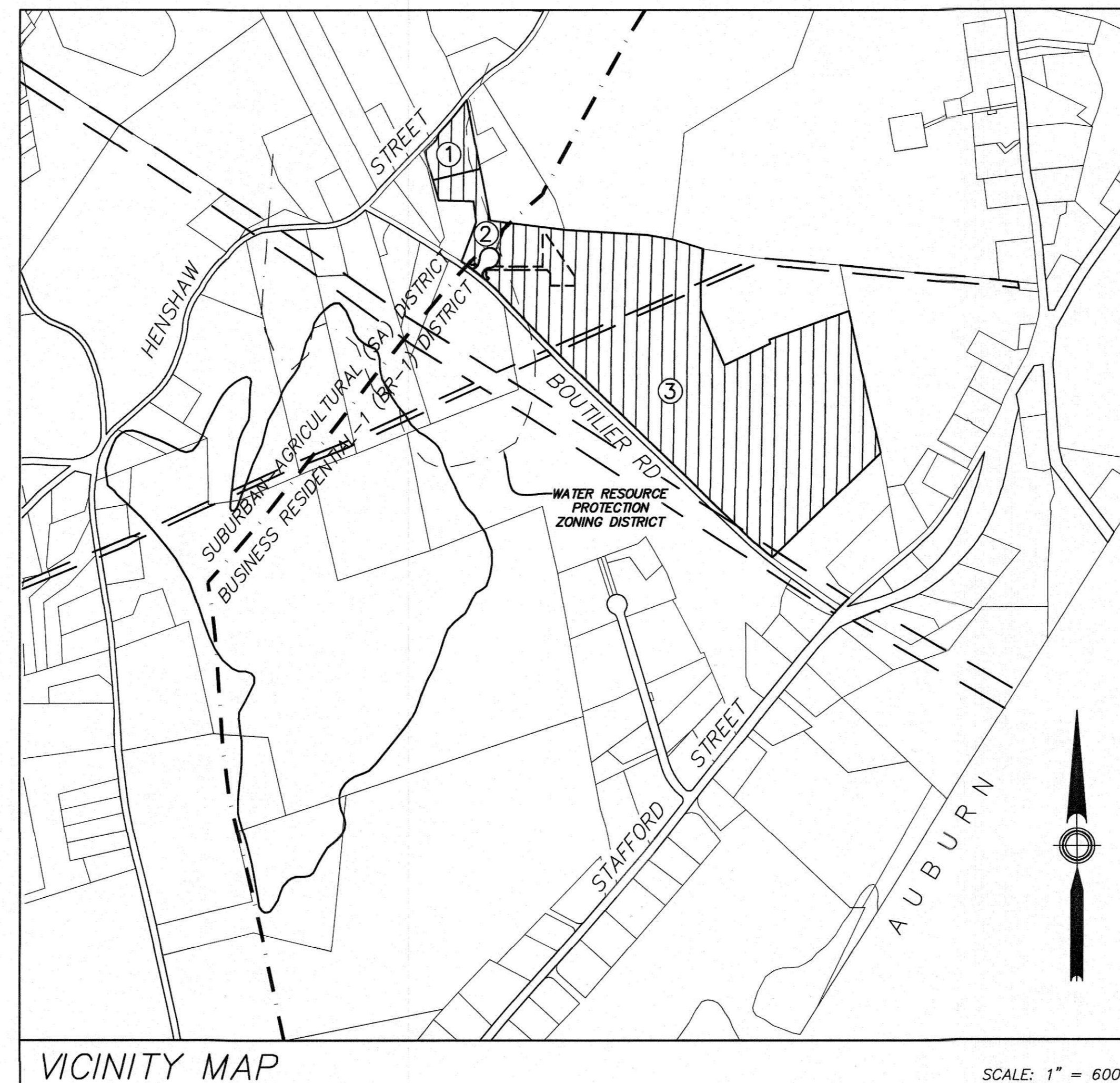
DEFINITIVE SUBDIVISION PLAN

BOUTILIER ROAD

IN

LEICESTER, MASSACHUSETTS

MARCH 20, 2019



APPLICANT:

ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS 01605
TEL: (774) 314-2549

OWNER

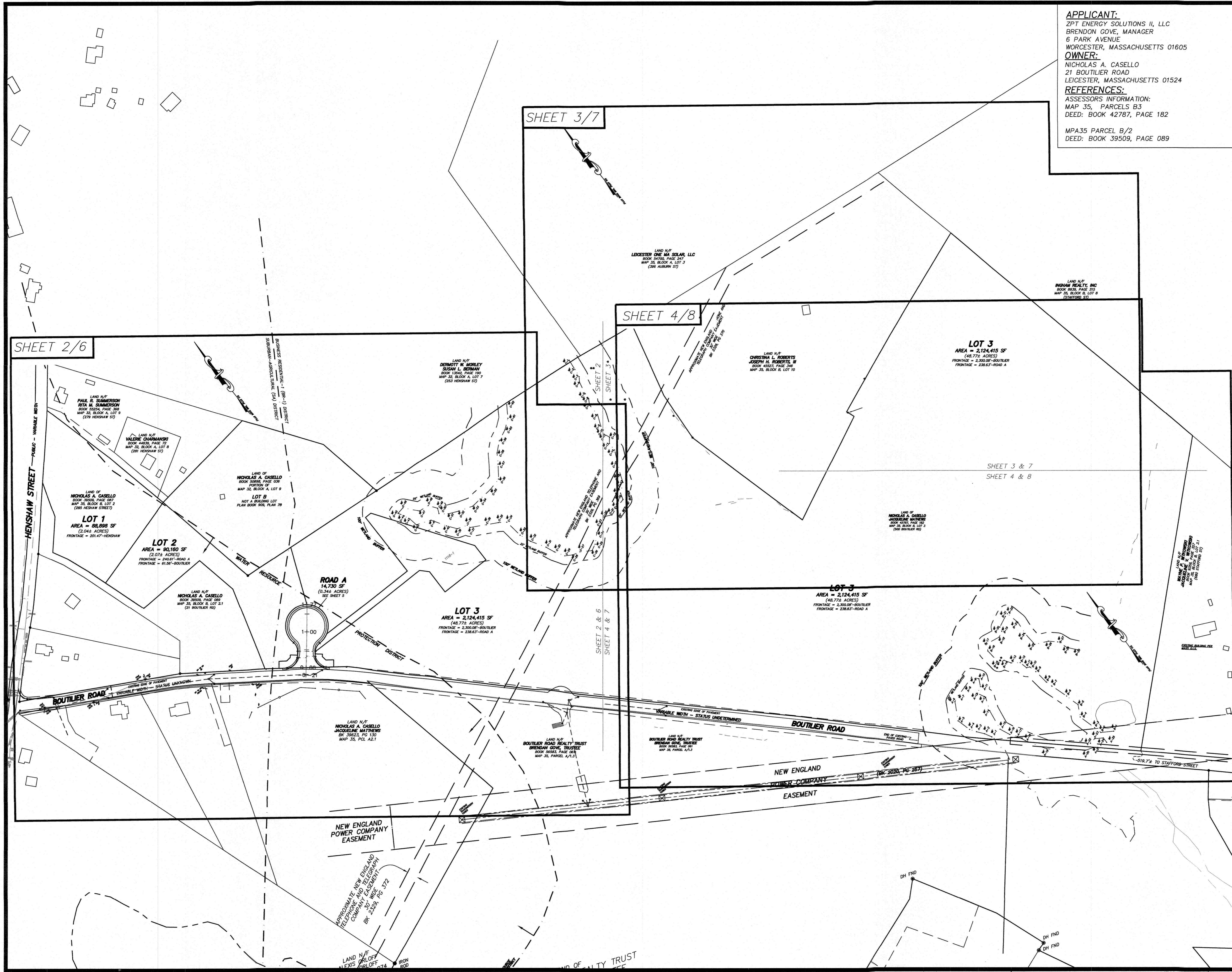
NICHOLAS A. CASELLO
21 BOUTILIER ROAD
LEICESTER, MASSACHUSETTS 01524

CIVIL ENGINEER & LAND SURVEYOR:

HANNIGAN ENGINEERING, INC.
8 MONUMENT SQUARE
LEOMINSTER, MASSACHUSETTS 01453
TEL: (978) 534-1234

PLAN INDEX

SHEET 1	INDEX PLAN
SHEET 2-5	PLAN OF LAND
SHEET 6-8	DEFINITIVE SUBDIVISION PLAN
SHEET 9	ROADWAY PROFILE
SHEET 10-11	CONSTRUCTION DETAILS



APPLICANT:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE, MANAGER
6 PARK AVENUE
WORCESTER, MASSACHUSETTS 01605

OWNER:
NICHOLAS A. CASELLO
21 BOUTILIER ROAD
LEICESTER, MASSACHUSETTS 01524

REFERENCES:
ASSESSORS INFORMATION:
MAP 35, PARCELS B3
DEED: BOOK 42787, PAGE 182

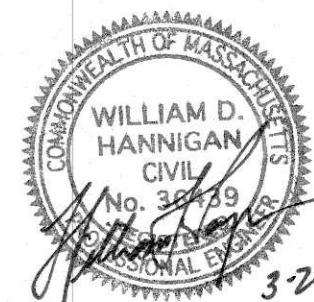
MPA35 PARCEL B/2
DEED: BOOK 39509, PAGE 089

PROJECT INFORMATION

LAND INFORMATION		
MAP/PARCEL:	35/B/3, 35/B/2	
DEED BOOK/PAGE:	42787/182; 39509/087	
ZONING INFORMATION		
ZONING DISTRICT:	BUSINESS	SUBURBAN
	RESIDENTIAL-1 (BR-1)	AGRICULTURAL (SA)
DIMENSIONAL REQUIREMENTS:		
MINIMUM AREA:	20,000 SF	80,000 SF
MINIMUM FRONTAGE:	150 FEET	200 FEET
MINIMUM HEIGHT:	55 FEET	35 FEET
MINIMUM SETBACKS:		
FRONT YARD:	50 FT	40 FT
SIDE YARD:	40 FT	40 FT
REAR YARD:	40 FT	40 FT

- GENERAL NOTES:**
1. PROPERTY LINE INFORMATION BASED DEEDS AND PLANS OF RECORD. NO CERTIFICATION OF PROPERTY LINES SHOWN ON THIS PLAN IS INTENDED OR IMPLIED BY HANNIGAN ENGINEERING, INC. PROPERTY LINE DETERMINATIONS MADE BY A ON-THE-GROUND PROPERTY LINE SURVEY IN JULY OF 2018.
 2. TOPOGRAPHIC SURVEY INFORMATION AS DEPICTED HEREON IS BASED ON LIDAR (LIGHT DETECTION AND RANGING) OBSERVATION MADE AND PROCESS BY WOLPERT, INC. IN 2014 AND PROVIDED BY THE U.S. GEOLOGICAL SURVEY. POST-PROCESSING BY OTHERS AND PROVIDED TO THIS OFFICE. DATUM IS BASED ON NAVD88.
 3. AREAS SUBJECT TO PROTECTION UNDER THE WETLANDS PROTECTION ACT HAVE BEEN DELINEATED BY CARON ENVIRONMENTAL IN JULY OF 2018. THESE AREAS ARE DEPICTED ON THE PLANS BASED ON FIELD SURVEY LOCATION DURING THE TOPOGRAPHIC SURVEY.
 4. LOCATION OF ALL UTILITIES ARE APPROXIMATE AS SHOWN AND BASED UPON VISIBLE STRUCTURES AT THE TIME OF THE FIELD SURVEY. LOCATION OF EXISTING UTILITIES AND SUBSURFACE STRUCTURES, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE DETERMINED BY THE CONTRACTOR, MARKED IN THE FIELD, AND REVIEWED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL BE AWARE OF THE OBLIGATION TO ALL UTILITY COMPANIES AND AGENCY AS WELL AS DIG-SAFE PRIOR TO EXCAVATION. (SEE NOTE)
 5. NOTIFICATION REQUIREMENTS SHOWN ON THIS PLAN SHALL NOT RELIEVE THE CONTRACTOR OF ANY OTHER REQUIREMENTS WHICH MAY EXIST UNDER LOCAL, STATE, OR FEDERAL JURISDICTION TO WHICH THE CONTRACTOR IS OBLIGATED.
 6. RELOCATION OF AND/OR CONNECTION TO EXISTING UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY.
 7. UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF THE CITY OF LEICESTER AND THE MASS DOT SPECIFICATIONS OF HIGHWAYS AND BRIDGES.
 8. ALL SLOPES UNLESS OTHERWISE SPECIFIED, SHALL BE LOAMED AND SEEDED FOR STABILIZATION.
 9. ANY DEVIATIONS IN DESIGN AS SHOWN SHALL REQUIRE A REVIEW AND APPROVAL OF THE DESIGN ENGINEER OR FIRM. CHANGES MADE IN THE FIELD MADE WITHOUT AUTHORIZATION SHALL BE SUBJECT TO REVIEW BY THE ENGINEER AND APPROPRIATE APPROVING AUTHORITY. EXPENSES INCURRED TO BRING THE UNAUTHORIZED CHANGES TO ACCEPTABLE CONFORMANCE SHALL BE BORNE BY THE COMPANY OR CONTRACTOR MAKING THE UNAUTHORIZED CHANGE.
 10. ANY MATERIALS DISCOVERED ON-SITE WHICH ARE NOT SUITABLE FOR USE IN THE PROJECT AS SHOWN ON THIS PLAN SHALL BE REMOVED AND HAULED OFF-SITE TO AN APPROPRIATELY LICENSED FACILITY.
 11. PLANS TO BE REVIEWED BY APPLICABLE UTILITY AGENCIES FOR COMPLIANCE WITH REGULATIONS. FINAL LOCATION IS SUBJECT TO CHANGE.
 12. APPLICANT SHOULD BE AWARE OF OBLIGATIONS TO COMPLY WITH CHAPTER 131, SECTION 40 OF THE MASSACHUSETTS GENERAL LAWS, OTHERWISE KNOWN AS THE WETLANDS PROTECTION ACT, AND THE ASSOCIATED REGULATIONS (310 CMR 10.000).
 13. STOCKPILING OF MATERIAL SHALL NOT BE PERMITTED WITHIN ANY AREAS SUBJECT TO PROTECTION UNDER THE WETLANDS PROTECTION ACT WITHOUT PRIOR APPROVAL BY THE LOCAL CONSERVATION COMMISSION. STOCKPILES SHALL BE PLACED IN A SUITABLE LOCATION AND SURROUNDED BY A ROW OF STAKED HAY BALES FOR EROSION CONTROL.
 14. AREAS OF FILL TO BE COMPACTED TO A MINIMUM 95% DRY DENSITY IN AREAS WITHIN ROADWAYS AND UTILITY EASEMENTS. OTHER AREAS OF FILL TO BE COMPACTED TO A MINIMUM 90% DRY DENSITY. ALL FILL MATERIALS ARE TO BE CLEAN FILL, FREE OF DELETERIOUS MATERIALS AND DEBRIS.
 15. THE AREA PROPOSED FOR DEVELOPMENT IS NOT WITHIN A 100 YEAR FLOOD PLAIN PER F.E.M.A. FIRM PANEL #25027C-0784E, DATED: JULY 04, 2011. COMPLIANCE WITH APPLICABLE REGULATIONS IS REQUIRED.
 16. PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
 17. ALL UTILITIES ARE TO BE INSTALLED BY A LICENSED UTILITY CONTRACTOR LICENSED BY THE CITY OF LEICESTER.

DEFINITIVE PLAN



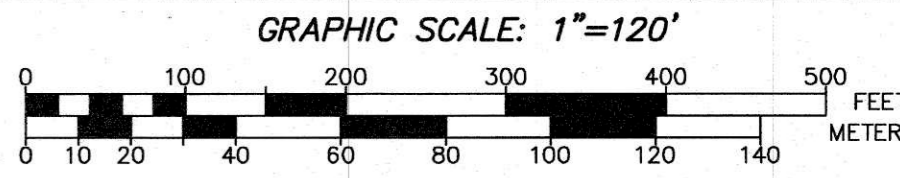
HANNIGAN ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE (978) 534-1234 (T)
LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)

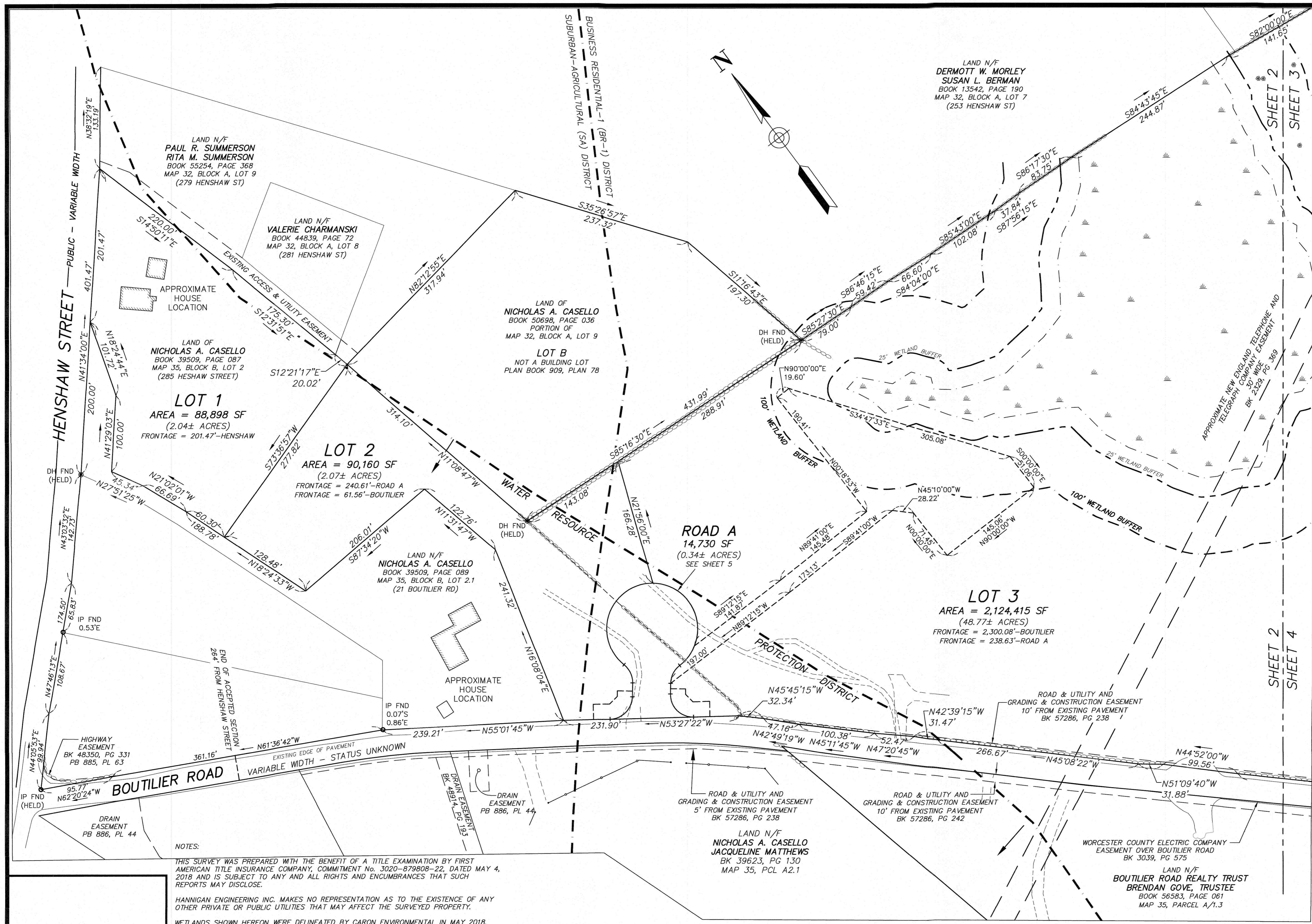
WWW.HANNIGANENGINEERING.COM

INDEX PLAN IN LEICESTER, MASSACHUSETTS

PREPARED FOR:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS, 01605
TEL: (774) 314-2549



CALC:	CMA/WDH	DRWN:	CMA/WDH	SCALE:	1"=120'
CHKD:	WDH	APPD:	WDH	DATE:	MAR 20, 2019
SRV:	JEF/IEH	FB:	E2719.070618	JOB NO:	2719
TAB:	(1) INDEX	SHEET	1 OF 11	PLAN NO:	C-14-25



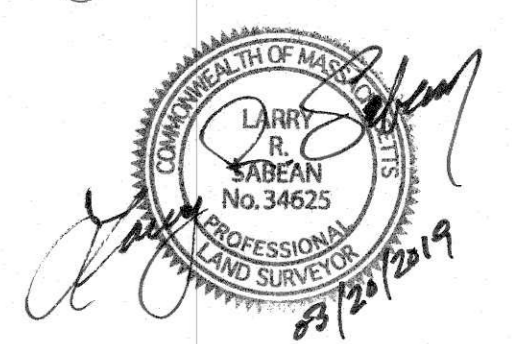
APPROVAL UNDER THE
SUBDIVISION CONTROL LAW,
IS REQUIRED.

MGL CHAPTER 41, SECTION 81-K
LEICESTER PLANNING BOARD

DATE: _____

I HEREBY CERTIFY THAT THIS PLAN
WAS PREPARED IN CONFORMANCE WITH
THE RULES AND REGULATIONS OF THE
REGISTERS OF DEEDS.

Larry R. Sabean 8/20/2019
LARRY R. SABEAN, P.L.S. 34625 DATE:



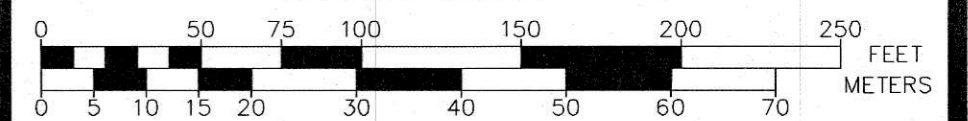
**HANNIGAN
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LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)
WWW.HANNIGANENGINEERING.COM

**DEFINITIVE SUBDIVISION PLAN
IN
LEICESTER, MASSACHUSETTS**

PREPARED FOR:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS, 01605
TEL: (774) 314-2549

GRAPHIC SCALE: 1"=60'



CALC: CMA/WDH	DRWN: LRS	SCALE: 1" = 60'
CHKD: WDH	APPD: LRS	DATE: MAR 20, 2019
SRV: JEF-IEH	FB: 58/01	JOB NO: 2719
TAB: (2) POL	SHEET 2 OF 5	PLAN NO: C-14-25

NOTES:

THIS SURVEY WAS PREPARED WITH THE BENEFIT OF A TITLE EXAMINATION BY FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT No. 3020-879808-22, DATED MAY 4, 2018 AND IS SUBJECT TO ANY AND ALL RIGHTS AND ENCUMBRANCES THAT SUCH REPORTS MAY DISCLOSE.

HANNIGAN ENGINEERING INC. MAKES NO REPRESENTATION AS TO THE EXISTENCE OF ANY OTHER PRIVATE OR PUBLIC UTILITIES THAT MAY AFFECT THE SURVEYED PROPERTY.

WETLANDS SHOWN HEREON WERE DELINEATED BY CARON ENVIRONMENTAL IN MAY 2018.

THE UTILITIES SHOWN ARE THE RESULTS OF FIELD LOCATIONS AND OBSERVATIONS. NO GUARANTY AS TO THEIR ACCURACY IS WARRANTED OR IMPLIED BY THIS PLAN.

THE PROPERTY IS NOT GRAPHICALLY LOCATED WITHIN A FEDERAL FLOOD HAZARD AREA, ZONE A, AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR WORCESTER COUNTY, MASSACHUSETTS, TOWN OF LEICESTER, MAP No. 25027C0784E, DATED JULY 4, 2011.

THE PROPERTY IS SUBJECT TO AND HAS THE BENEFIT OF ROAD & UTILITY EASEMENTS AND GRADING & CONSTRUCTION EASEMENTS RECORDED IN BOOK 57286, PAGE 238 AND BOOK 57286, PAGE 242.

EXISTING CARPATHS AS SHOWN ON THIS PLAN ARE NOT INTENDED TO IMPLY RIGHTS OF OTHERS OVER SUBJECT PROPERTY.

CONDITIONS OF APPROVAL ARE CONTAINED IN THE WRITTEN DECISION OF THE PLANNING BOARD ENTITLED CERTIFICATE OF APPROVAL OF A DEFINITIVE SUBDIVISION PLAN, DATED _____

I, _____ CLERK OF THE TOWN OF LEICESTER
RECEIVED AND RECORDED APPROVAL FROM THE PLANNING BOARD
OF THIS PLAN ON _____ AND NO APPEAL WAS TAKEN
FOR TWENTY (20) DAYS THEREAFTER.

PLAN REFERENCE:

PLAN BOOK 89, PLAN 14
PLAN BOOK 318, PLAN 7
PLAN BOOK 552, PLAN 6
PLAN BOOK 669, PLAN 73
PLAN BOOK 783, PLAN 89
PLAN BOOK 885, PLAN 63
PLAN BOOK 885, PLAN 102
PLAN BOOK 885, PLAN 112
PLAN BOOK 891, PLAN 114
PLAN BOOK 909, PLAN 78

REFERENCE:

ASSESSOR MAP 35, BLOCK B, LOT 3
DEED BOOK 42787, PAGE 182
ASSESSOR MAP 35, BLOCK B, LOT 2
DEED BOOK 39509, PAGE 087

ZONE: BR-1

BUSINESS-RESIDENTIAL 1
STRUCTURE
AREA = 20,000 SF
FRONTAGE = 150'
SETBACKS: FRONT = 50'
SIDE = 40'
REAR = 40'

APPLICANT:

ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE, MANAGER
6 PARK AVENUE
WORCESTER, MA 01605

OWNER:

NICHOLAS A. CASELLO
JACQUELINE MATTHEWS
21 BOUTILIER ROAD
LEICESTER, MA 01524

APPROVAL UNDER THE
SUBDIVISION CONTROL LAW,
IS REQUIRED.

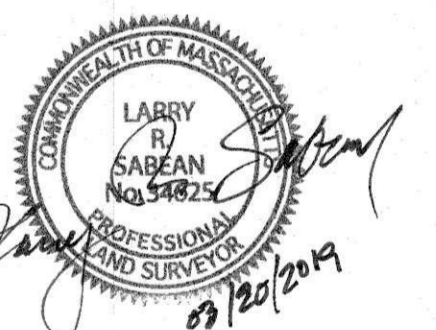
MGL CHAPTER 41, SECTION 81-K

LEICESTER PLANNING BOARD

DATE: _____

I HEREBY CERTIFY THAT THIS PLAN
WAS PREPARED IN CONFORMANCE WITH
THE RULES AND REGULATIONS OF THE
REGISTERS OF DEEDS.

Larry R. Sabean 08/20/2019
LARRY R. SABEAN, P.L.S. 34625 DATE:



HANNIGAN ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE (978) 534-1234 (T)
LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)
WWW.HANNIGANENGINEERING.COM

**DEFINITIVE SUBDIVISION PLAN
IN
LEICESTER, MASSACHUSETTS**

PREPARED FOR:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS, 01605
TEL: (774) 314-2549

GRAPHIC SCALE: 1"=60'
0 50 100 150 200 250 FEET
0 5 10 15 20 30 40 50 60 70 METERS

CALC: CMA/WDH	DRWN: LRS	SCALE: 1" = 60'
CHKD: WDH	APPD: LRS	DATE: MAR 20, 2019
SRV: JEF-IEH	FB: 58/01	JOB NO: 2719
TAB: (3) POL	SHEET 3 OF 5	PLAN NO: C-14-25

LAND N/F
LEICESTER ONE MA SOLAR, LLC
BOOK 54700, PAGE 247
MAP 35, BLOCK A, LOT 3
(396 AUBURN ST)

LAND N/F
INGHAM REALTY, INC
BOOK 8939, PAGE 315
MAP 35, BLOCK B, LOT 8
(STAFFORD ST)

LAND N/F
CHRISTINA L. ROBERTS
JOSEPH H. ROBERTS, III
BOOK 45527, PAGE 346
MAP 35, BLOCK B, LOT 10

LOT 3
AREA = 2,124,415 SF
(48.77± ACRES)
FRONTAGE = 2,300.08'-BOUTILIER
FRONTAGE = 238.63'-ROAD A

LAND OF
NICHOLAS A. CASELLO
JACQUELINE MATHEWS
BOOK 42787, PAGE 182
MAP 35, BLOCK B, LOT 3
(500 BOUTILIER RD)

LAND N/F
WAYNE P. WITKOWSKI
JACQUELINE V. WITKOWSKI
BOOK 9359, PAGE 057
MAP 35, BLOCK B, LOT 3.1
(680 STAFFORD ST)

NOTES:

THIS SURVEY WAS PREPARED WITH THE BENEFIT OF A TITLE EXAMINATION BY FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT No. 3020-879868-22 DATED MAY 4, 2018 AND IS SUBJECT TO ANY AND ALL RIGHTS AND ENCUMBRANCES THAT SUCH REPORTS MAY DISCLOSE.

HANNIGAN ENGINEERING INC. MAKES NO REPRESENTATION AS TO THE EXISTENCE OF ANY OTHER PRIVATE OR PUBLIC UTILITIES THAT MAY AFFECT THE SURVEYED PROPERTY.

WETLANDS SHOWN HEREON WERE DELINEATED BY CARON ENVIRONMENTAL IN MAY 2018.

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THE PROPERTY IS NOT GRAPHICALLY LOCATED WITHIN A FEDERAL FLOOD HAZARD AREA, ZONE A, AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR WORCESTER COUNTY, MASSACHUSETTS, TOWN OF LEICESTER, MAP No. 25027C0784E, DATED JULY 4, 2011.

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I, _____ CLERK OF THE TOWN OF LEICESTER
RECEIVED AND RECORDED APPROVAL FROM THE PLANNING BOARD
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FOR TWENTY (20) DAYS THEREAFTER.

PLAN REFERENCE:

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PLAN BOOK 552, PLAN 6
PLAN BOOK 669, PLAN 73
PLAN BOOK 783, PLAN 89
PLAN BOOK 885, PLAN 63
PLAN BOOK 885, PLAN 102
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PLAN BOOK 909, PLAN 78

REFERENCE:

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DEED BOOK 42787, PAGE 182

ASSESSOR MAP 35, BLOCK B, LOT 2
DEED BOOK 39509, PAGE 087

ZONE: BR-1

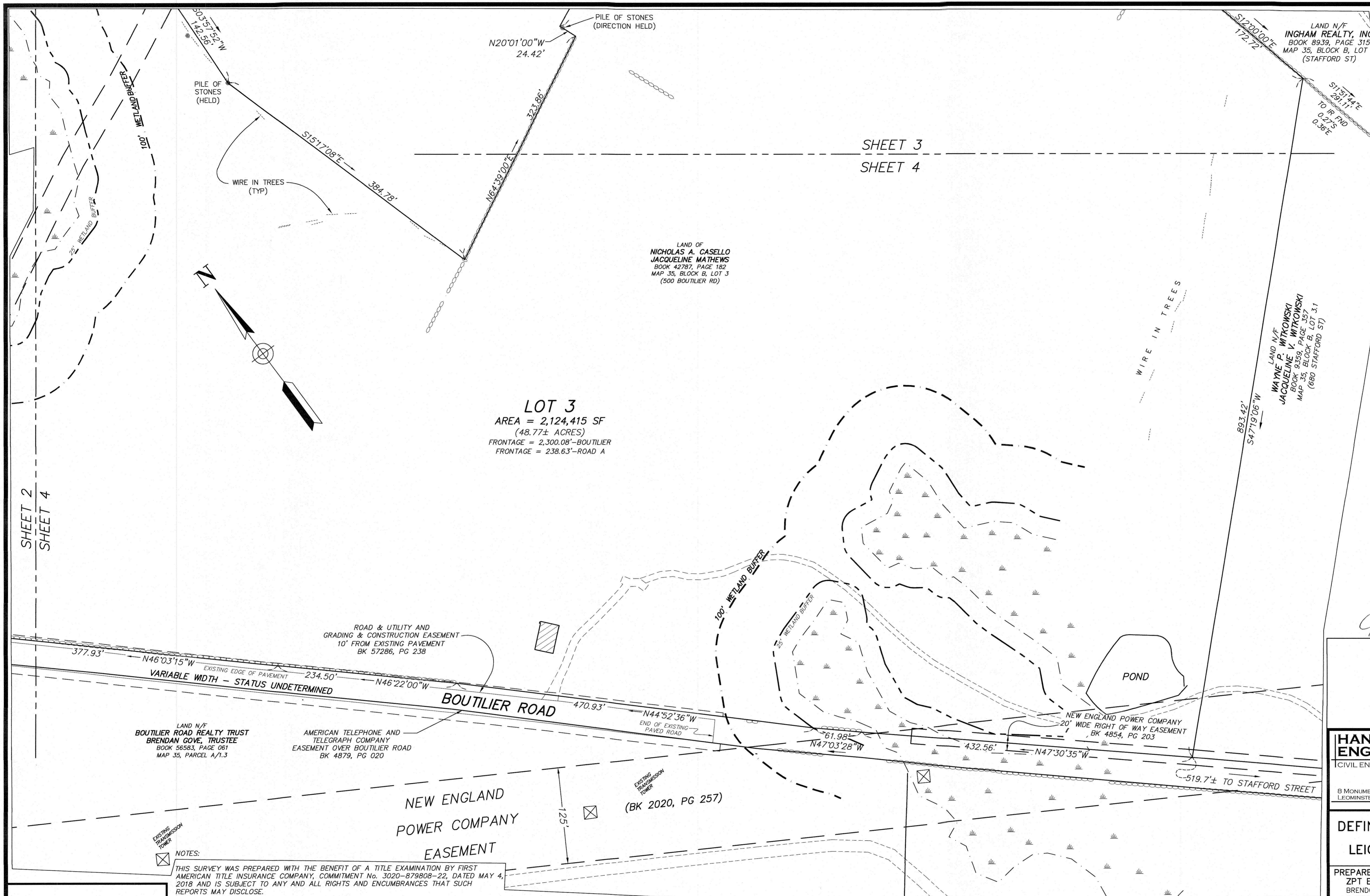
BUSINESS-RESIDENTIAL 1
STRUCTURE
AREA = 20,000 SF
FRONTAGE = 150'
SETBACKS: FRONT = 50'
SIDE = 40'
REAR = 40'

APPLICANT:

ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE, MANAGER
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WORCESTER, MA 01605

OWNER:

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JACQUELINE MATHEWS
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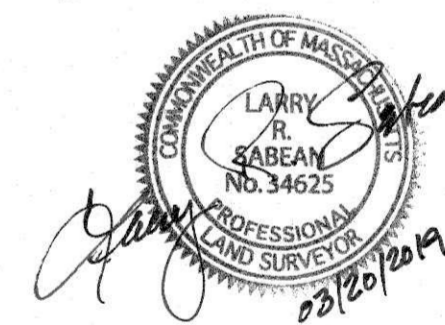


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MGL CHAPTER 41, SECTION 81-K
LEICESTER PLANNING BOARD

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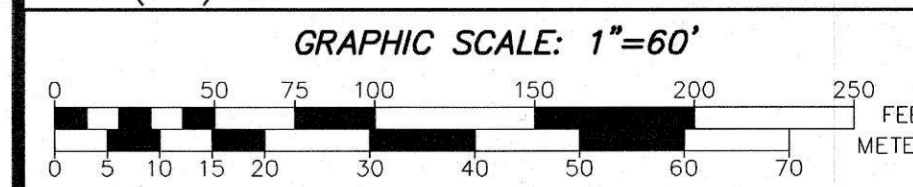


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TEL: (774) 314-2549



CALC: CMA/WDH	DRWN: LRS	SCALE: 1" = 60'
CHKD: WDH	APPD: LRS	DATE: MAR 20, 2019
SRV: JEF-IEH	FB: 58/01	JOB NO: 2719
TAB: (4) POL	SHEET 4 OF 5	PLAN NO: C-14-25

NOTES:
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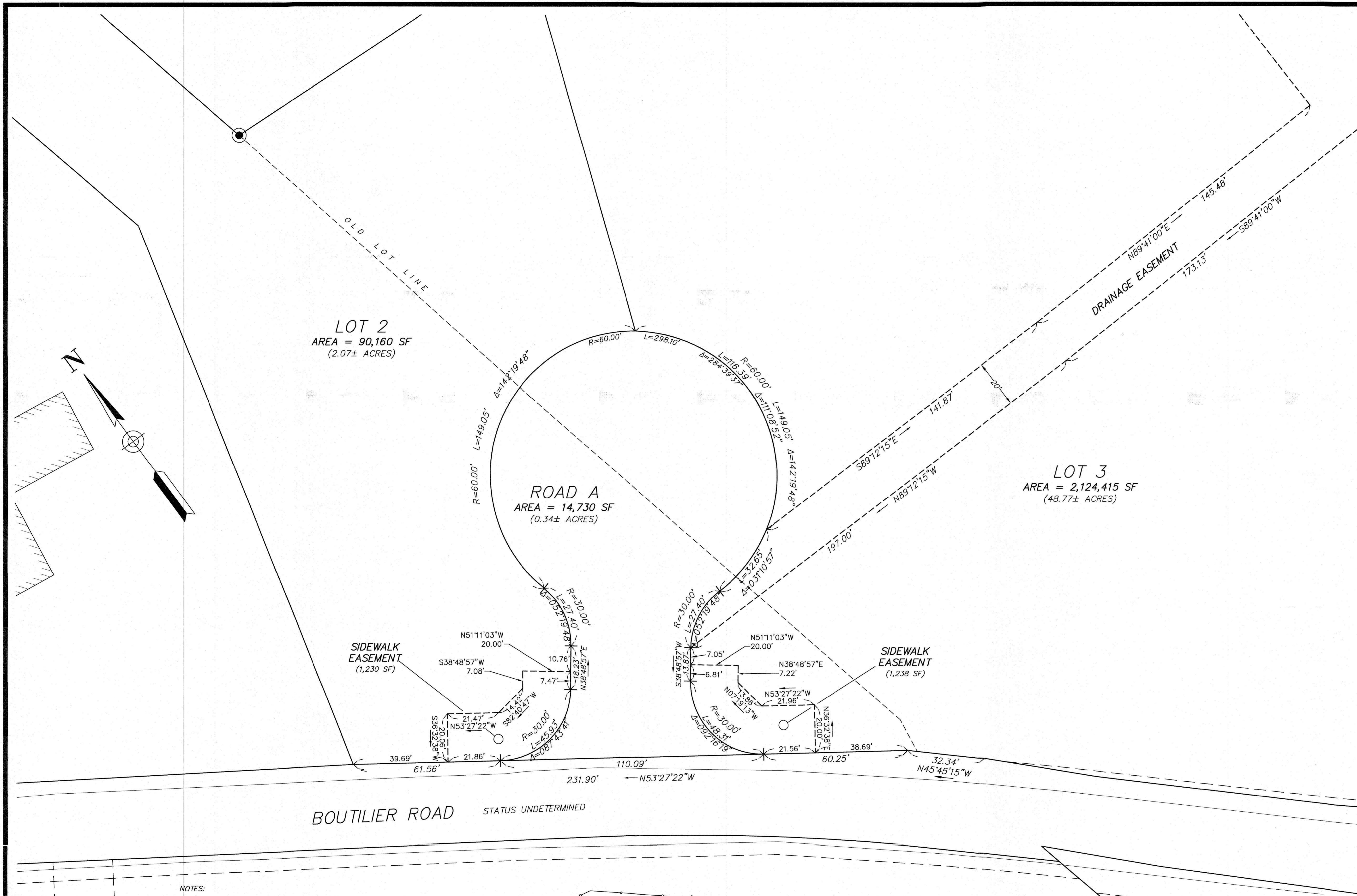
PLAN REFERENCE:
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PLAN BOOK 318, PLAN 7
PLAN BOOK 552, PLAN 6
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PLAN BOOK 783, PLAN 89
PLAN BOOK 885, PLAN 63
PLAN BOOK 885, PLAN 102
PLAN BOOK 885, PLAN 112
PLAN BOOK 891, PLAN 114
PLAN BOOK 909, PLAN 78

REFERENCE:
ASSESSOR MAP 35, BLOCK B, LOT 3
DEED BOOK 42787, PAGE 182
ASSESSOR MAP 35, BLOCK B, LOT 2
DEED BOOK 39509, PAGE 087

ZONE: BR-1
BUSINESS-RESIDENTIAL 1
STRUCTURE
AREA = 20,000 SF
FRONTAGE = 150'
SETBACKS: FRONT = 50'
SIDE = 40'
REAR = 40'

APPLICANT:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE, MANAGER
6 PARK AVENUE
WORCESTER, MA 01605

OWNER:
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JACQUELINE MATHEWS
21 BOUTILIER ROAD
LEICESTER, MA 01524



NOTES:

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I, _____ CLERK OF THE TOWN OF LEICESTER RECEIVED AND RECORDED APPROVAL FROM THE PLANNING BOARD OF THIS PLAN ON _____ AND NO APPEAL WAS TAKEN FOR TWENTY (20) DAYS THEREAFTER.

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SIDE = 40'
REAR = 40'

APPLICANT:

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TEL: (774) 314-2549

OWNER:

NICHOLAS A. CASELLO
JACQUELINE MATHEWS
21 BOUTILIER ROAD
LEICESTER, MA 01524

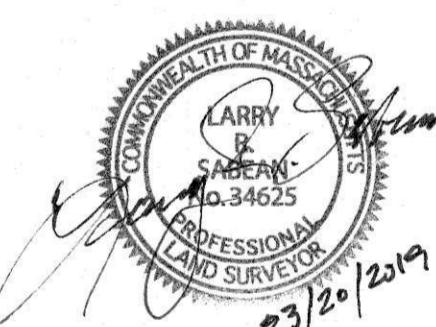
APPROVAL UNDER THE
SUBDIVISION CONTROL LAW,
IS REQUIRED.

MGL CHAPTER 41, SECTION 81-K
LEICESTER PLANNING BOARD

DATE: _____

I HEREBY CERTIFY THAT THIS PLAN
WAS PREPARED IN CONFORMANCE WITH
THE RULES AND REGULATIONS OF THE
REGISTERS OF DEEDS.

Larry R. Sabean 03/20/2019
LARRY R. SABEAN, P.L.S. 34625 DATE:



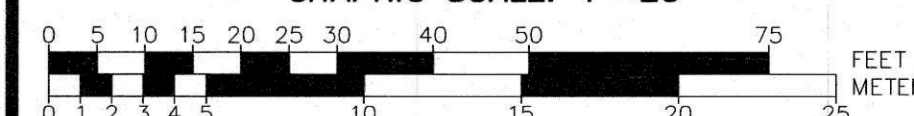
**HANNIGAN
ENGINEERING, INC.**
CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE (978) 534-1234 (T)
LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)
WWW.HANNIGANENGINEERING.COM

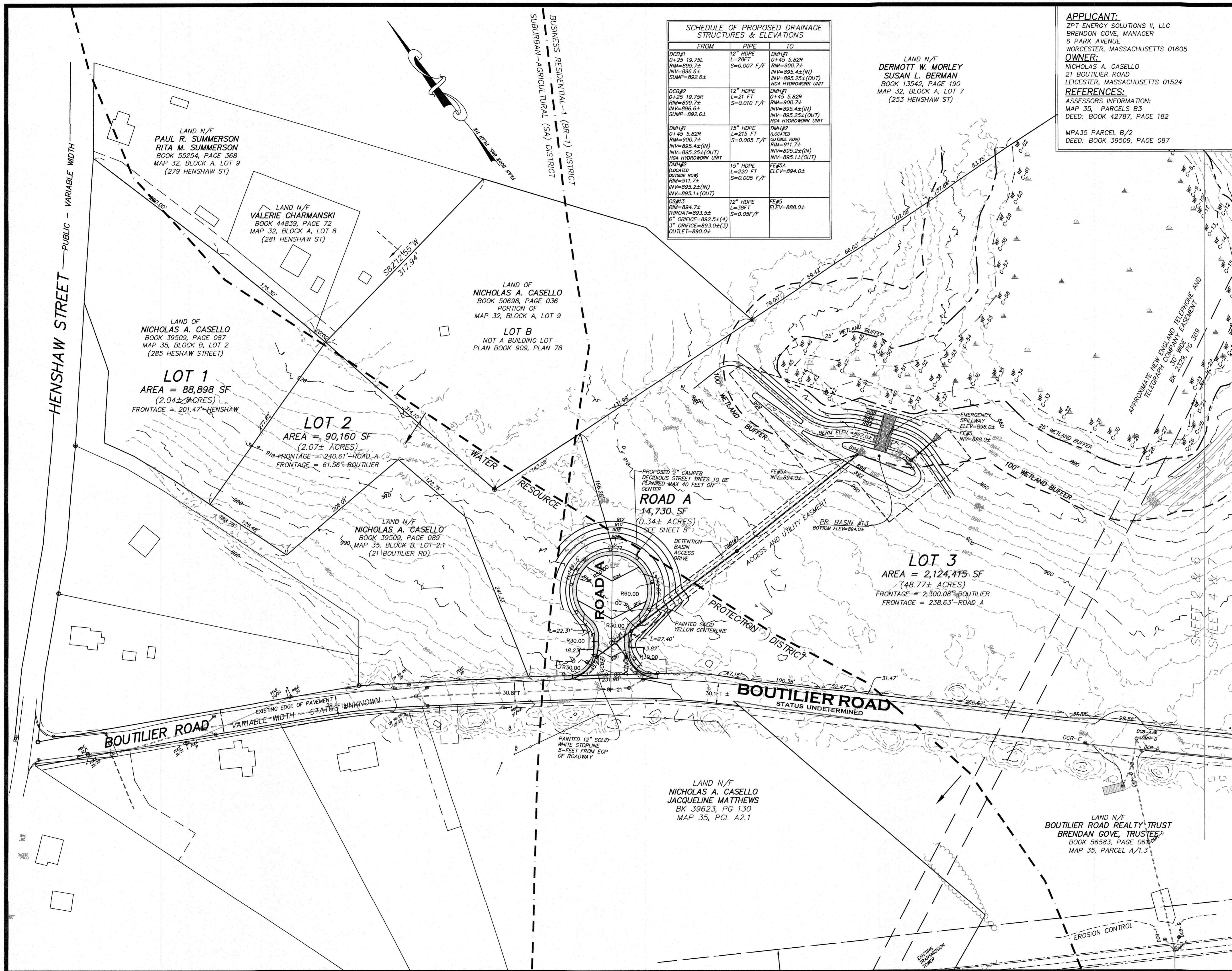
**DEFINITIVE SUBDIVISION PLAN
IN
LEICESTER, MASSACHUSETTS**

PREPARED FOR:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS, 01605
TEL: (774) 314-2549

GRAPHIC SCALE: 1"=20'



CALC: CMA/WDH	DRWN: LRS	SCALE: 1" = 60'
CHKD: WDH	APPD: LRS	DATE: MAR 20, 2019
SRV: JEF-IEH	FB: 58/01	JOB NO: 2719
TAB: (5) POL	SHEET 5 OF 5	PLAN NO: C-14-25



SCHEDULE OF PROPOSED DRAINAGE STRUCTURES & ELEVATIONS		
FROM	PIPE	TO
DCB#1 0+25 19.75L RIM=899.7± INV=896.6± SUMP=892.6±	12" HDPE L=28FT S=0.007 F/F	DMH#1 0+45 5.82R RIM=900.7± INV=895.4±(IN) INV=895.25±(OUT) HG4 HYDROWORK UNIT
DCB#2 0+25 19.75R RIM=899.7± INV=896.6± SUMP=892.6±	12" HDPE L=21 FT S=0.010 F/F	DMH#1 0+45 5.82R RIM=900.7± INV=895.4±(IN) INV=895.25±(OUT) HG4 HYDROWORK UNIT
DMH#1 0+45 5.82R RIM=900.7± INV=895.4±(IN) INV=895.25±(OUT) HG4 HYDROWORK UNIT	15" HDPE L=215 FT S=0.005 F/F	DMH#2 LOCATED OUTSIDE ROW RIM=911.7± INV=895.2±(IN) INV=895.1±(OUT)
DMH#2 LOCATED OUTSIDE ROW RIM=911.7± INV=895.2±(IN) INV=895.1±(OUT)	15" HDPE L=220 FT S=0.005 F/F	FE#5A ELEV=894.0±
OS#13 RIM=894.7± THROAT=893.5± 6" ORIFICE=892.5±(4) 3" ORIFICE=893.0±(3) OUTLET=890.0±	12" HDPE L=38FT S=0.05F/F	FE#5 ELEV=888.0±

LAND N/F
DERMOTT W. MORLEY
SUSAN L. BERMAN
BOOK 13542, PAGE 190
MAP 32, BLOCK A, LOT 7
(253 HENSHAW ST)

APPLICANT:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE, MANAGER
6 PARK AVENUE
WORCESTER, MASSACHUSETTS 01605

OWNER:
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21 BOUTILIER ROAD
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REFERENCES:
ASSESSORS INFORMATION:
MAP 35, PARCELS B3
DEED: BOOK 42787, PAGE 182

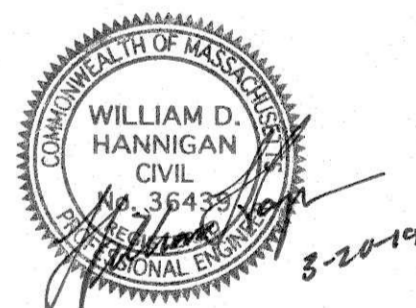
MPA35 PARCEL B/2
DEED: BOOK 39509, PAGE 087

PROJECT INFORMATION

LAND INFORMATION		
MAP/PARCEL:	35/B/3; 35/B/2	
DEED BOOK/PAGE:	42787/182; 39509/087	
ZONING INFORMATION		
ZONING DISTRICT:	BUSINESS	SUBURBAN
	RESIDENTIAL-1 (BR-1)	AGRICULTURAL (SA)
DIMENSIONAL REQUIREMENTS:		
MINIMUM AREA:	20,000 SF	80,000 SF
MINIMUM FRONTAGE:	150 FEET	200 FEET
MINIMUM HEIGHT:	55 FEET	35 FEET
MINIMUM SETBACKS:		
FRONT YARD:	50 FT	40 FT
SIDE YARD:	40 FT	40 FT
REAR YARD:	40 FT	40 FT

- GENERAL NOTES:**
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 - TOPOGRAPHIC SURVEY INFORMATION AS DEPICTED HEREON IS BASED ON LEADAR (LIGHT DETECTION AND RANGING) OBSERVATION MADE AND PROCESS BY WOLFERT INC. IN 2014 AND PROVIDED BY THE U.S. GEOLOGICAL SURVEY. POST-PROCESSING BY OTHERS AND PROVIDED TO THIS OFFICE. DATUM IS BASED ON NAVD83.
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 - UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF THE CITY OF LEICESTER AND THE MASS DOT SPECIFICATIONS OF HIGHWAYS AND BRIDGES.
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DEFINITIVE PLAN

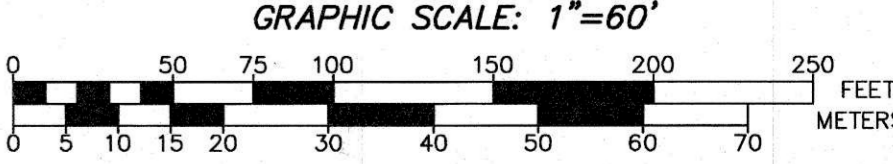


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CIVIL ENGINEERS & LAND SURVEYORS

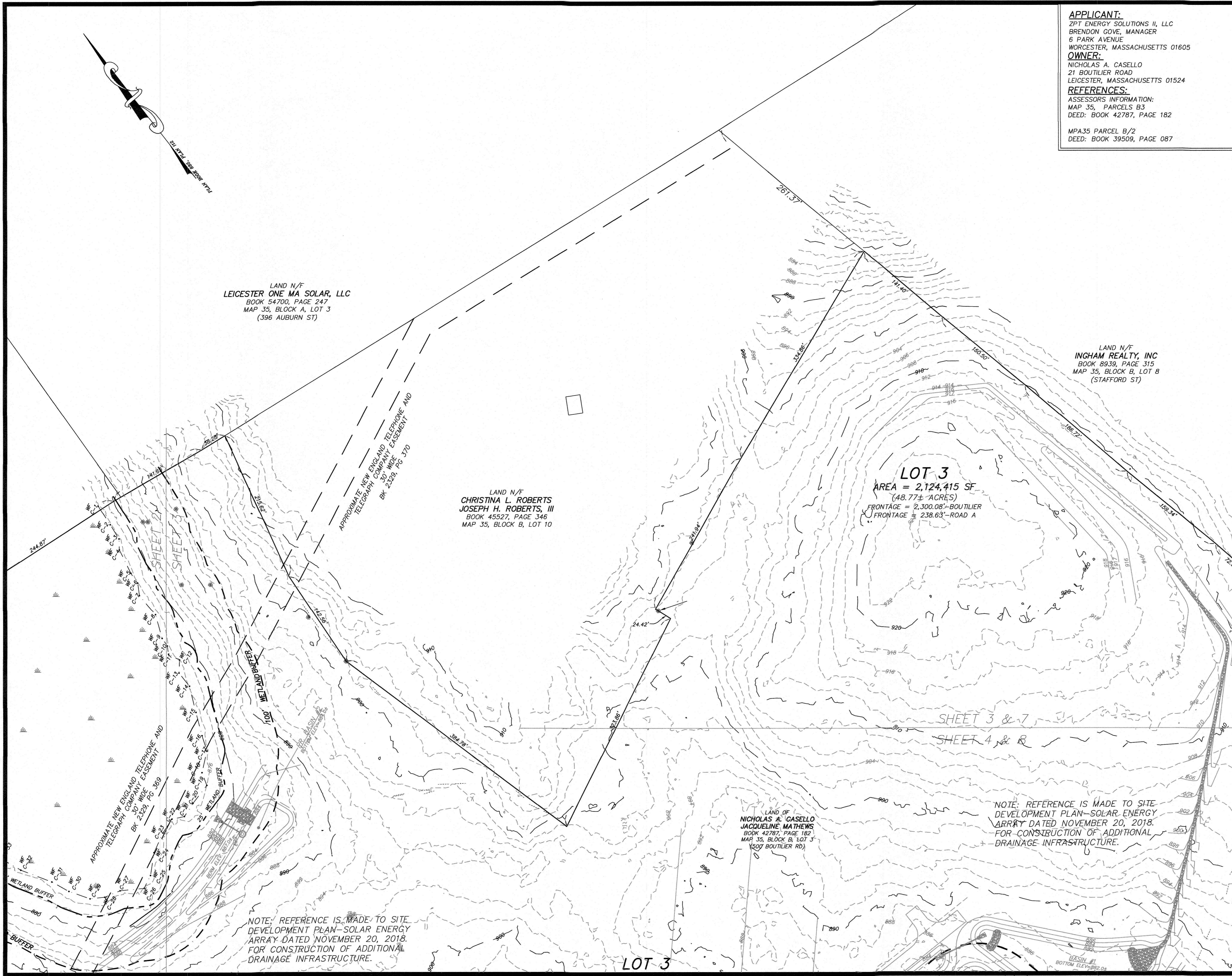
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IN
LEICESTER, MASSACHUSETTS

PREPARED FOR:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS, 01605
TEL: (774) 314-2549



CALC: CMA/WDH	DRWN: CMA/WDH	SCALE: 1"=60'
CHKD: WDH	APPD: WDH	DATE: MAR 20, 2019
SRV: JEF/IEH	FB: E2719.070618	JOB NO: 2719
TAB: (6) DEF	SHEET 6 OF 11	PLAN NO: C-14-25



APPLICANT:
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BRENDON GOVE, MANAGER
6 PARK AVENUE
WORCESTER, MASSACHUSETTS 01605

OWNER:
NICHOLAS A. CASELLO
21 BOUTILIER ROAD
LEICESTER, MASSACHUSETTS 01524

REFERENCES:
ASSESSORS INFORMATION:
MAP 35, PARCELS B3
DEED: BOOK 42787, PAGE 182

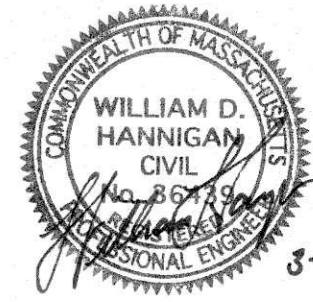
MPA35 PARCEL B/2
DEED: BOOK 39509, PAGE 087

PROJECT INFORMATION

LAND INFORMATION			
MAP/PARCEL:	35/B/3; 35/B/2		
DEED BOOK/PAGE:	42787/182; 39509/087		
ZONING INFORMATION			
ZONING DISTRICT:	BUSINESS	SUBURBAN	
	RESIDENTIAL-1 (BR-1)	AGRICULTURAL (SA)	
DIMENSIONAL REQUIREMENTS:			
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DEFINITIVE PLAN



HANNIGAN ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS

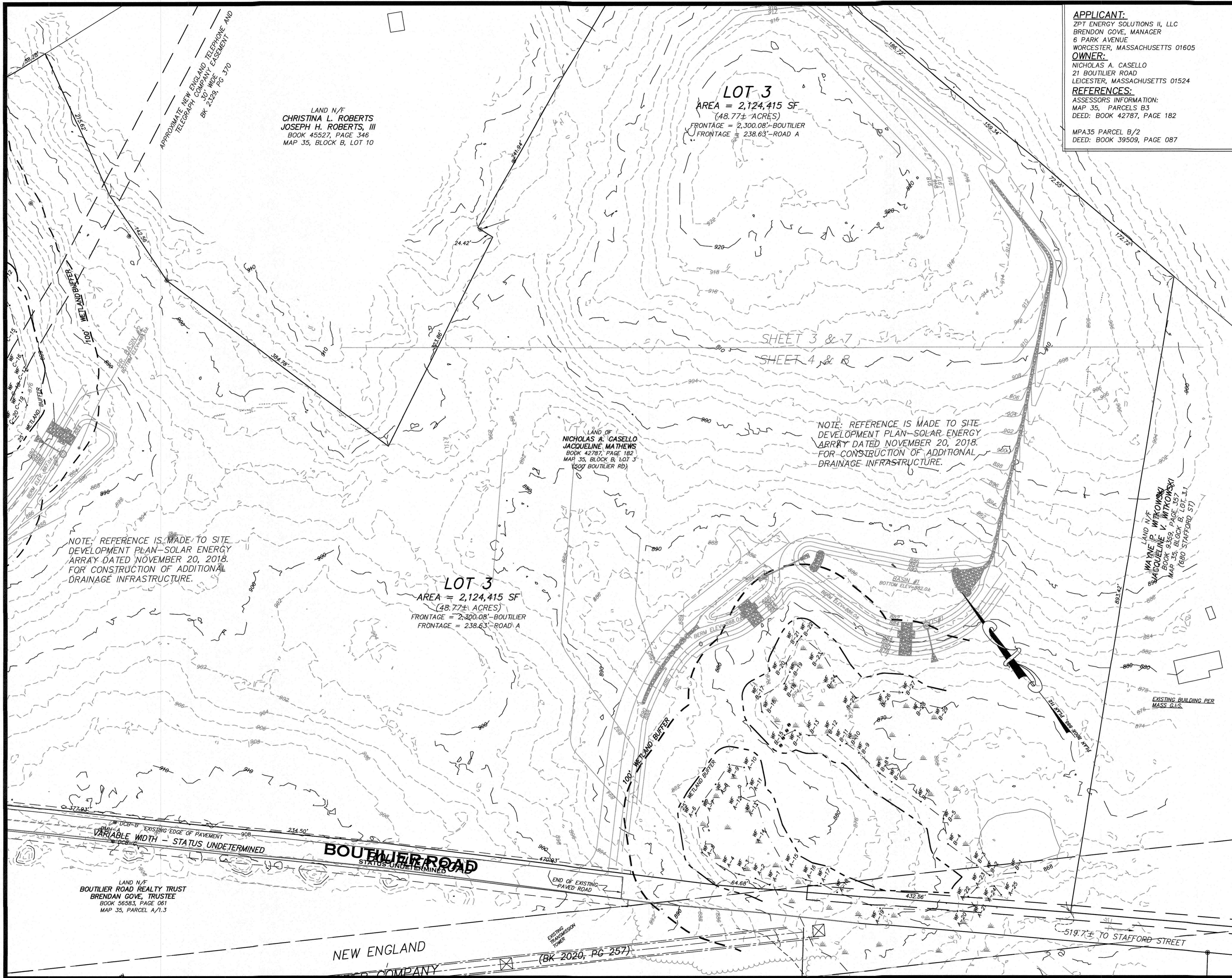
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DEFINITIVE SUBDIVISION PLAN IN LEICESTER, MASSACHUSETTS

PREPARED FOR:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS, 01605
TEL: (774) 314-2549

GRAPHIC SCALE: 1"=60'
0 50 100 150 200 250 FEET
0 5 10 15 20 30 40 50 60 70 METERS

CALC: CMA/WDH	DRWN: CMA/WDH	SCALE: 1"=60'
CHKD: WDH	APPD: WDH	DATE: MAR 20, 2019
SRV: JEF/IEH	FB: E2719.070618	JOB NO: 2719
TAB: (7) DEF	SHEET 7 OF 11	PLAN NO: C-14-25



APPLICANT:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE, MANAGER
6 PARK AVENUE
WORCESTER, MASSACHUSETTS 01605

OWNER:
NICHOLAS A. CASELLO
21 BOUTILIER ROAD
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REFERENCES:
ASSESSORS INFORMATION:
MAP 35, PARCELS B3
DEED: BOOK 42787, PAGE 182

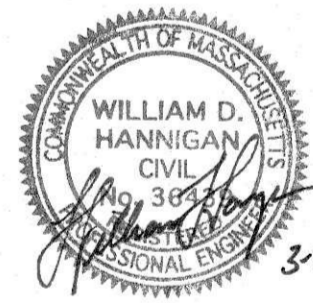
MPA35 PARCEL B/2
DEED: BOOK 39509, PAGE 087

PROJECT INFORMATION

LAND INFORMATION		
MAP/PARCEL:	35/B/3; 35/B/2	
DEED BOOK/PAGE:	42787/182; 39509/087	
ZONING INFORMATION		
ZONING DISTRICT:	BUSINESS	SUBURBAN
	RESIDENTIAL-1 (BR-1)	AGRICULTURAL (SA)
DIMENSIONAL REQUIREMENTS:		
MINIMUM AREA:	20,000 SF	80,000 SF
MINIMUM FRONTAGE:	150 FEET	200 FEET
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MINIMUM SETBACKS:		
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DEFINITIVE PLAN



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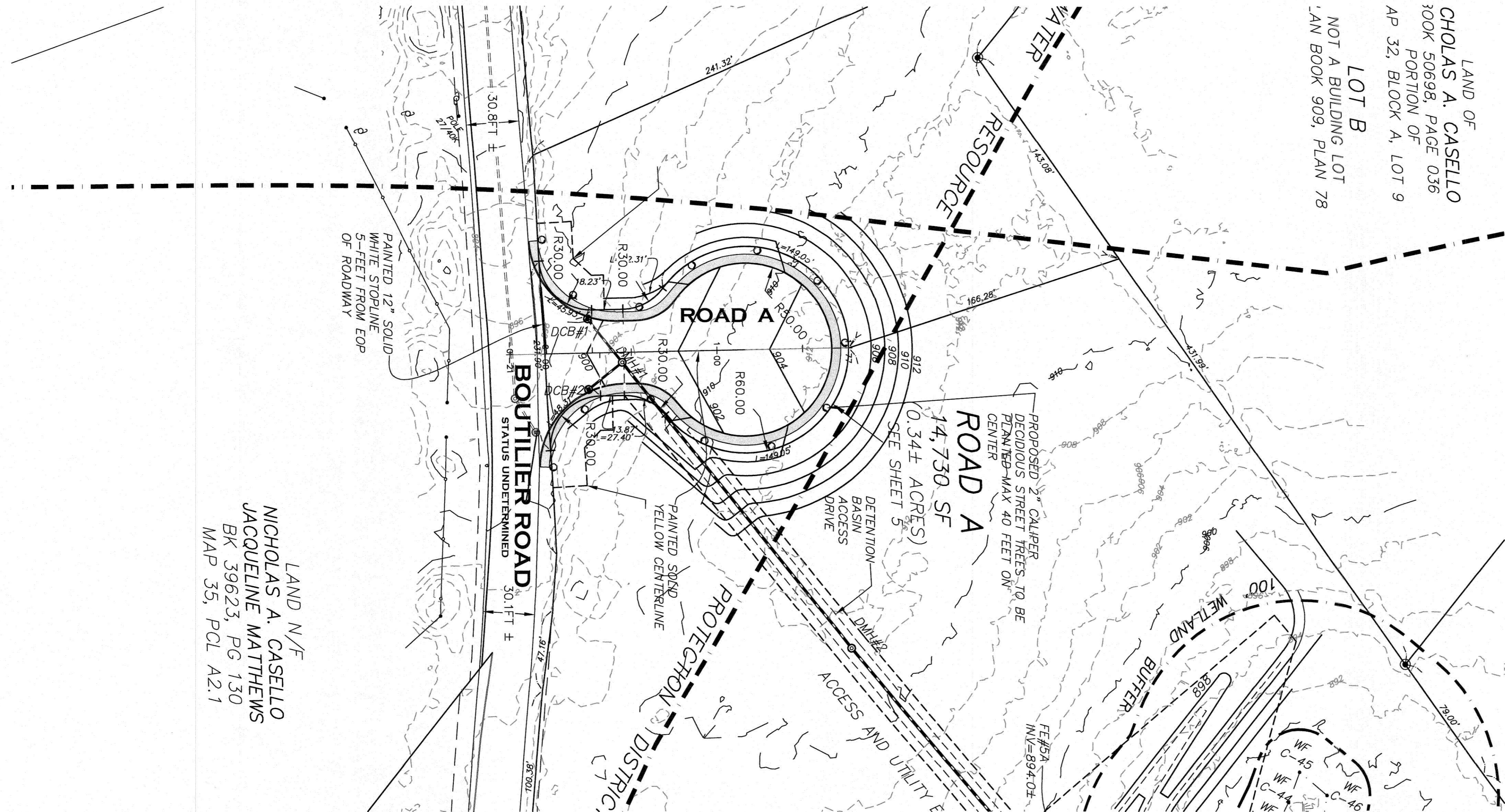
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SRV: JEF/IEH	FB: E2719.070618	JOB NO: 2719
TAB: (8) DEF	SHEET 8 OF 11	PLAN NO: C-14-25



LAND N/F
NICHOLAS A. CASELLO
JACQUELINE MATTHEWS
BK 39623, PG 130
MAP 35, PCL A2.1

LAND OF
CHOLAS A. CASELLO
300K 50698, PAGE 036
PORTION OF
AP 32, BLOCK A, LOT 9
NOT A BUILDING LOT
LAN BOOK 909, PLAN 78

APPLICANT:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE, MANAGER
6 PARK AVENUE
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OWNER:
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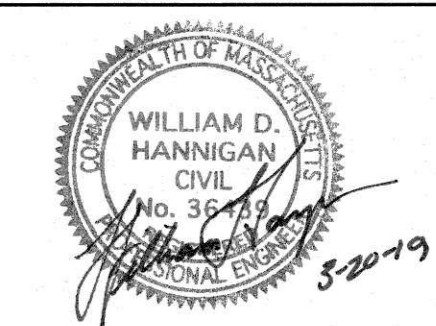
MPA35 PARCEL B/2
DEED: BOOK 39509, PAGE 087

PROJECT INFORMATION

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DIMENSIONAL REQUIREMENTS:		
MINIMUM AREA:	20,000 SF	80,000 SF
MINIMUM FRONTAGE:	150 FEET	200 FEET
MINIMUM HEIGHT:	55 FEET	35 FEET
MINIMUM SETBACKS:		
FRONT YARD:	50 FT	40 FT
SIDE YARD:	40 FT	40 FT
REAR YARD:	40 FT	40 FT

- GENERAL NOTES:**
1. PROPERTY LINE INFORMATION BASED DEEDS AND PLANS OF RECORD. NO CERTIFICATION OF PROPERTY LINES SHOWN ON THIS PLAN IS INTENDED OR IMPLIED BY HANNIGAN ENGINEERING, INC. PROPERTY LINE DETERMINATIONS MADE BY A ON-THE-GROUND PROPERTY LINE SURVEY IN JULY OF 2018.
 2. TOPOGRAPHIC SURVEY INFORMATION AS DEPICTED HEREON IS BASED ON LIDAR (LIGHT DETECTION AND RANGING) OBSERVATION MADE AND PROCESS BY WOLPERT, INC. IN 2014 AND PROVIDED BY THE US GEOLOGICAL SURVEY. POST-PROCESSING BY OTHERS AND PROVIDED TO THIS OFFICE. DATUM IS BASED ON NAVD83.
 3. AREAS SUBJECT TO PROTECTION UNDER THE WETLANDS PROTECTION ACT HAVE BEEN Delineated BY CARON ENVIRONMENTAL IN JULY OF 2018. THESE AREAS ARE DEPICTED ON THE PLANS BASED ON FIELD SURVEY LOCATION DURING THE TOPOGRAPHIC SURVEY.
 4. LOCATION OF ALL UTILITIES ARE APPROXIMATE AS SHOWN AND BASED UPON VISIBLE STRUCTURES AT THE TIME OF THE FIELD SURVEY. LOCATION OF EXISTING UTILITIES AND SUBSURFACE STRUCTURES, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE DETERMINED BY THE CONTRACTOR, MARKED IN THE FIELD, AND REVIEWED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL BE AWARE OF THE OBLIGATION TO ALL UTILITY COMPANIES AND AGENCY AS WELL AS DIG-SAFE PRIOR TO EXCAVATION. (SEE NOTE)
 5. NOTIFICATION REQUIREMENTS SHOWN ON THIS PLAN SHALL NOT RELIEVE THE CONTRACTOR OF ANY OTHER REQUIREMENTS WHICH MAY EXIST UNDER LOCAL, STATE, OR FEDERAL JURISDICTION TO WHICH THE CONTRACTOR IS OBLIGATED.
 6. RELOCATION OF AND/OR CONNECTION TO EXISTING UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY.
 7. UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF THE CITY OF LEICESTER AND THE MASS DOT SPECIFICATIONS OF HIGHWAYS AND BRIDGES.
 8. ALL SLOPES UNLESS OTHERWISE SPECIFIED, SHALL BE LOAMED AND SEEDED FOR STABILIZATION.
 9. ANY DEVIATIONS IN DESIGN AS SHOWN SHALL REQUIRE A REVIEW AND APPROVAL OF THE DESIGN ENGINEER OR FIRM. CHANGES MADE IN THE FIELD MADE WITHOUT AUTHORIZATION SHALL BE SUBJECT TO REVIEW BY THE ENGINEER AND APPROPRIATE APPROVING AUTHORITY. EXPENSES INCURRED TO BRING THE UNAUTHORIZED CHANGES TO ACCEPTABLE CONFORMANCE SHALL BE BORNE BY THE COMPANY OR CONTRACTOR MAKING THE UNAUTHORIZED CHANGE.
 10. ANY MATERIALS DISCOVERED ON-SITE WHICH ARE NOT SUITABLE FOR USE IN THE PROJECT AS SHOWN ON THIS PLAN SHALL BE REMOVED AND HAULED OFF-SITE TO AN APPROPRIATELY LICENSED FACILITY.
 11. PLANS TO BE REVIEWED BY APPLICABLE UTILITY AGENCIES FOR COMPLIANCE WITH REGULATIONS. FINAL LOCATION IS SUBJECT TO CHANGE.
 12. APPLICANT SHOULD BE AWARE OF OBLIGATIONS TO COMPLY WITH CHAPTER 131, SECTION 40 OF THE MASSACHUSETTS GENERAL LAWS, OTHERWISE KNOWN AS THE WETLANDS PROTECTION ACT, AND THE ASSOCIATED REGULATIONS (310 CMR 10.00).
 13. STOCKPILING OF MATERIAL SHALL NOT BE PERMITTED WITHIN ANY AREAS SUBJECT TO PROTECTION UNDER THE WETLANDS PROTECTION ACT WITHOUT PRIOR APPROVAL BY THE LOCAL CONSERVATION COMMISSION. STOCKPILES SHALL BE PLACED IN A SUITABLE LOCATION AND SURROUNDED BY A ROW OF STAKED HAY BALES FOR EROSION CONTROL.
 14. AREAS OF FILL TO BE COMPACTED TO A MINIMUM 95% DRY DENSITY IN AREAS WITHIN ROADWAYS AND UTILITY EASEMENTS. OTHER AREAS OF FILL TO BE COMPACTED TO A MINIMUM 90% DRY DENSITY. ALL FILL MATERIALS ARE TO BE CLEAN FILL, FREE OF DELETERIOUS MATERIALS AND DEBRIS.
 15. THE AREA PROPOSED FOR DEVELOPMENT IS NOT WITHIN A 100 YEAR FLOOD PLAIN PER F.E.M.A. FIRM PANEL #25027C-0784E, DATED: JULY 04, 2011. COMPLIANCE WITH APPLICABLE REGULATIONS IS REQUIRED.
 16. PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
 17. ALL UTILITIES ARE TO BE INSTALLED BY A LICENSED UTILITY CONTRACTOR LICENSED BY THE CITY OF LEICESTER.

DEFINITIVE PLAN



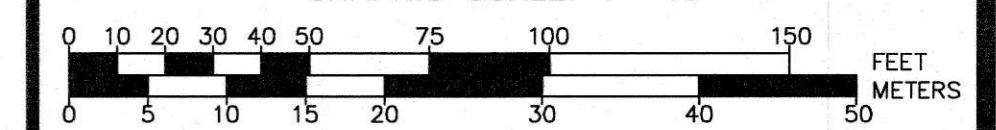
HANNIGAN ENGINEERING, INC.
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8 MONUMENT SQUARE (978) 534-1234 (T)
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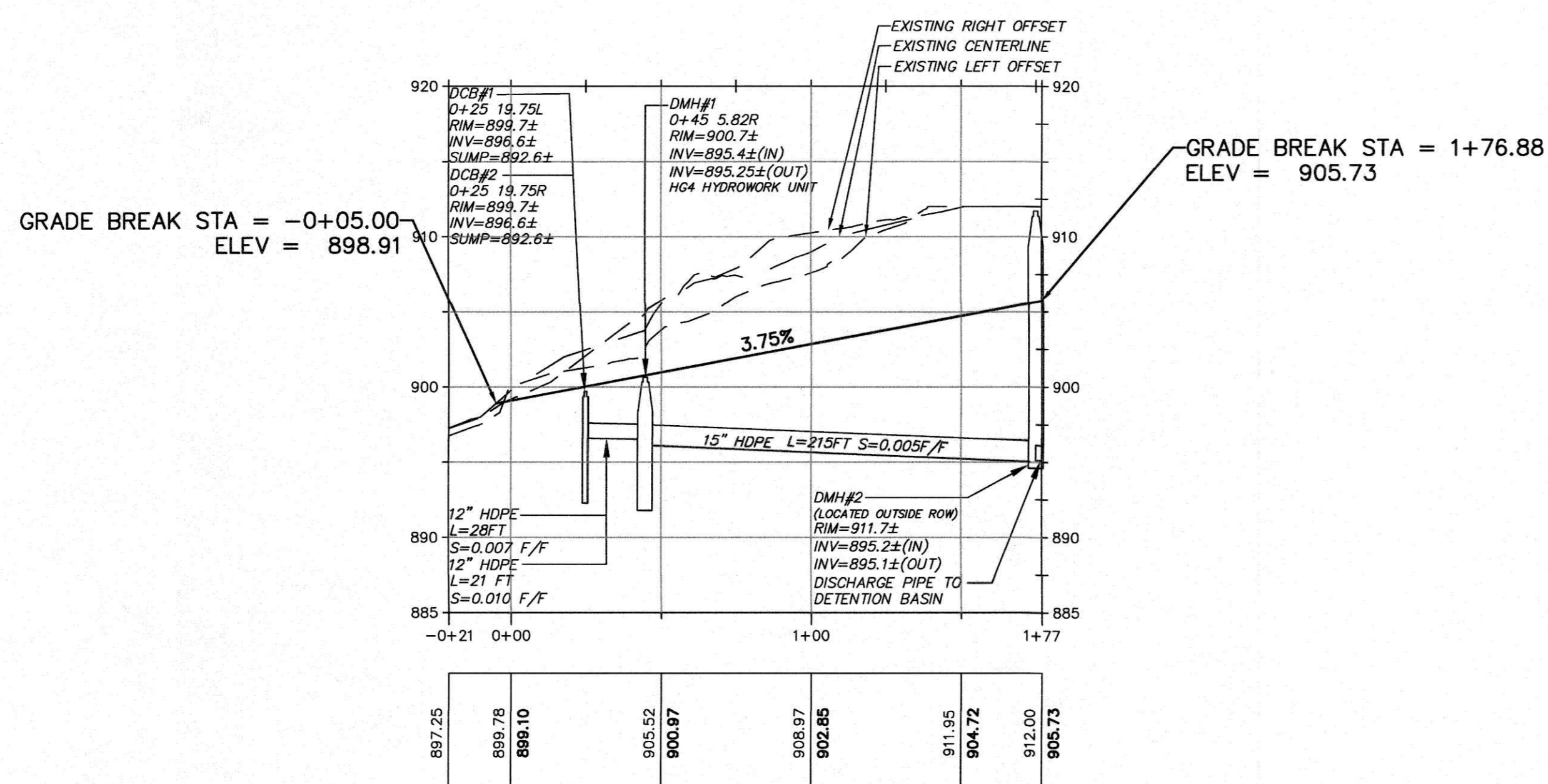
ROADWAY PROFILE IN LEICESTER, MASSACHUSETTS

PREPARED FOR:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS, 01605
TEL: (774) 314-2549

GRAPHIC SCALE: 1"=40'



CALC: CMA/WDH	DRWN: CMA/WH/D	SCALE: 1"=40'
CHKD: WDH	APPD: WDH	DATE: MAR 20, 2019
SRV: JEF/IEH	FB: E2719.070618	JOB NO: 2719
TAB: (9) PRO	SHEET 9 OF 11	PLAN NO: C-14-25



ROADWAY PROFILE HORIZONTAL SCALE = 1:40 VERTICAL SCALE = 1:8

EROSION & SEDIMENTATION CONTROL PLAN

GENERAL:

1. THE PURPOSE OF THIS PLAN IS TO PRESENT A PREVENTIVE METHOD OF CONSTRUCTION TO MINIMIZE THE IMPACT OF THE CONSTRUCTION ACTIVITIES UPON WETLAND AND OTHER SENSITIVE AREAS. THE DATA CONTAINED ON THIS PLAN IS INTENDED TO SUPPLEMENT THE DEVELOPER OR CONTRACTORS' EXPERTISE AND IS NOT MEANT TO CIRCUMVENT LOGICAL DECISIONS REQUIRED BY A VARIETY OF FIELD CONDITIONS INCLUDING WEATHER AND THE TYPE OF EQUIPMENT AVAILABLE TO THE CONTRACTOR.
2. THE CONTRACTOR IS TO BE AWARE OF THE REQUIREMENTS AND OBLIGATIONS TO COMPLY WITH CHAPTER 131, SECTION 40 OF THE MASSACHUSETTS GENERAL LAWS, OTHERWISE KNOWN AS THE WETLANDS PROTECTION ACT, AND ITS ASSOCIATED REGULATIONS (310 CMR 10.00). CERTAIN PERMITS IN THE FORM OF AN ORDER OF CONDITIONS, OR OTHER FORMAT, MAY BE REQUIRED FOR THE CONSTRUCTION AS DEPICTED ON THIS PLAN. THESE PERMITS SHALL BE REVIEWED AND ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL ALSO MAINTAIN COPIES OF ALL PERMITS ON SITE AT ALL TIMES.
3. IF CHANGES IN THE PROJECT ARE REQUIRED DUE TO FIELD CONDITIONS THE DEVELOPER/CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER FOR REVIEW OF THESE CONDITIONS. UPON REVIEW, AND PRIOR TO THE IMPLEMENTATION OF ANY CHANGE, THE CONTRACTOR AND THE ENGINEER SHALL MEET WITH THE APPROPRIATE LOCAL AND/OR STATE OFFICIAL, OR ITS AGENT, TO DETERMINE IF THE CHANGE REQUIRES MODIFICATION TO EXISTING APPROVED PERMITS.

4. ALTERATION AND/OR DESTRUCTION OF WETLAND AREAS WITHOUT PRIOR CONSENT OF THE CONSERVATION COMMISSION IS PROHIBITED. SILTATION PLUMES, ILLEGAL DISCHARGES, OR INADVERTANT ALTERATION SHALL BE CONSIDERED AS ACTIVITIES NOT PERMITTED BY THE ORDER AND SHALL BE REPORTED TO THE CONSERVATION COMMISSION ALONG WITH THE PROPOSED MITIGATIVE MEASURES.

5. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE EROSION AND SEDIMENT CONTROL BARRIER SHALL BE INSTALLED AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN THE EROSION CONTROL BARRIER UNTIL ALL WORK IS COMPLETE. AND ALL AREAS HAVE BEEN STABILIZED. THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE ONLY UPON THE APPROVAL OF THE CONSERVATION COMMISSION.

6. EROSION AND SEDIMENTATION CONTROL DEVICES, SUCH AS CHECK DAMS, SEDIMENT BASINS, ETC. ARE TO BE INSTALLED AS SHOWN ON THE SITE DEVELOPMENT PLANS WITH ASSOCIATED DETAILS, AS APPROPRIATE.

7. CONSTRUCTION OPERATIONS SHALL NOT CAUSE NOTICEABLE SEDIMENTATION PLUMES TO OCCUR ON OR SURROUNDING THE PROJECT. SHOULD SEDIMENT EXTEND BEYOND THE EROSION CONTROL BARRIERS, THE CONTRACTOR SHALL STOP WORK AND INSTALL ADDITIONAL MITIGATION MEASURES TO PREVENT FURTHER SEDIMENTATION.

8. NO MATERIAL SUBJECT TO EROSION SHALL BE STOCKPILED OVERNIGHT WITHIN 100 FEET OF ANY WETLAND AREAS WITHOUT PROPER EROSION AND SEDIMENTATION DEVICES IN PLACE.

9. EQUIPMENT SHALL NOT BE PARKED WITHIN WETLAND OR BUFFER AREAS EXCEPT DURING ACTUAL OPERATIONS REQUIRING SAID EQUIPMENT.
10. ACCUMULATED SEDIMENT ALONG EROSION CONTROL BARRIERS SHALL BE PERIODICALLY REMOVED AND DISPOSED OF BY THE CONTRACTOR AS REQUIRED BY THE CONSERVATION COMMISSION OR AS DIRECTED BY THE ENGINEER.

EROSION CONTROL METHODS:

1. IT IS OF GREAT IMPORTANCE THAT CONCENTRATION OF RUNOFF BE AVOIDED IN ORDER TO PREVENT THE TRANSPORT OF SEDIMENT.
2. THE PRIMARY EROSION CONTROL METHOD TO BE UTILIZED IS TO LIMIT THE AREA OF DISTURBANCE DURING CONSTRUCTION ACTIVITIES. THIS IS ACCOMPLISHED BY PROMPT STABILIZATION OF DISTURBED AREAS UPON COMPLETION OF SEQUENCES OF CONSTRUCTION.
3. EROSION AND SEDIMENT CONTROL DEVICES SUCH AS HAY BALES, SILT FENCES, DIVERSION BERMS, ETC. SHALL BE UTILIZED FOR THE PROTECTION OF THE AREAS BEYOND THE LIMIT OF CONSTRUCTION.

DEMARCATION OF SENSITIVE AREAS:

1. IT IS RECOMMEND THAT BARRIERS BE PLACED ON THE SITE TO CONTROL THE LIMITS OF THE DISTURBANCE. AS AN EXAMPLE, HAY BALE BARRIERS PROVIDE SUCH DEMARCATION AND OTHER METHODS SUCH AS LOG BARRIERS, ROPE WITH FLAGGING, ETC. MAY BE UTILIZED.
2. CARE SHOULD BE TAKEN IN THE OPERATION OF EQUIPMENT, SUCH THAT ONLY THE MINIMUM AREA NEEDED TO BE ALTERED IS DISTURBED.

1. ACCESS TO THE SITE SHALL BE MADE IN THE AREA OF A PERMANENT DRIVEWAY OR ROADWAY UNLESS DOING SO WOULD RESULT IN A TRAFFIC HAZARD.

2. AN AREA OF CRUSHED STONE SHALL BE PLACED AT THE DRIVEWAY ENTRANCE TO INSURE THAT MUD IS NOT TRACKED ONTO THE EXISTING ROAD (SEE CONSTRUCTION ENTRANCE DETAIL). IF MUD IS INADVERTENTLY TRACKED ONTO THE ROAD, IT SHOULD BE PROMPTLY REMOVED.

3. LABORERS VEHICLES SHALL BE PARKED IN A DESIGNATED AREA AS TO MINIMIZE DISTURBED SURFACES AND TO INSURE THAT RUTS ARE NOT CREATED AND WHICH COULD CARRY WATER TO A WETLAND OR OTHER SENSITIVE AREA.

4. SUITABLE MEASURES SHALL BE TAKEN TO INSURE THAT LARGE DELIVERY TRUCKS SERVING THE SITE DO NOT DAMAGE TO AREAS OF EXISTING VEGETATION OR CAUSE DISTURBANCE TO STABILIZED AREAS.

ORDERLY CONSTRUCTION PROCEDURES:

1. THE CONTRACTOR SHALL PERFORM SITE CONSTRUCTION IN A MANNER WHICH WILL INSURE THE STABILIZATION OF AREAS IN PROXIMITY OF OR TRIBUTARY TO WETLAND AREAS AS SOON AS POSSIBLE.

2. EROSION CONTROL DEVICES SUCH AS HAY BALE BARRIERS, SILT FENCES AND MULCH SHALL BE BROUGHT TO THE SITE AND STOCKPILED PRIOR TO INITIATING CONSTRUCTION.

3. THE CONTRACTOR SHALL PROVIDE AREAS FOR THE TEMPORARY STORAGE OF CONSTRUCTION DEBRIS. CONSTRUCTION DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE FOR AN EXTENDED PERIOD OF TIME.

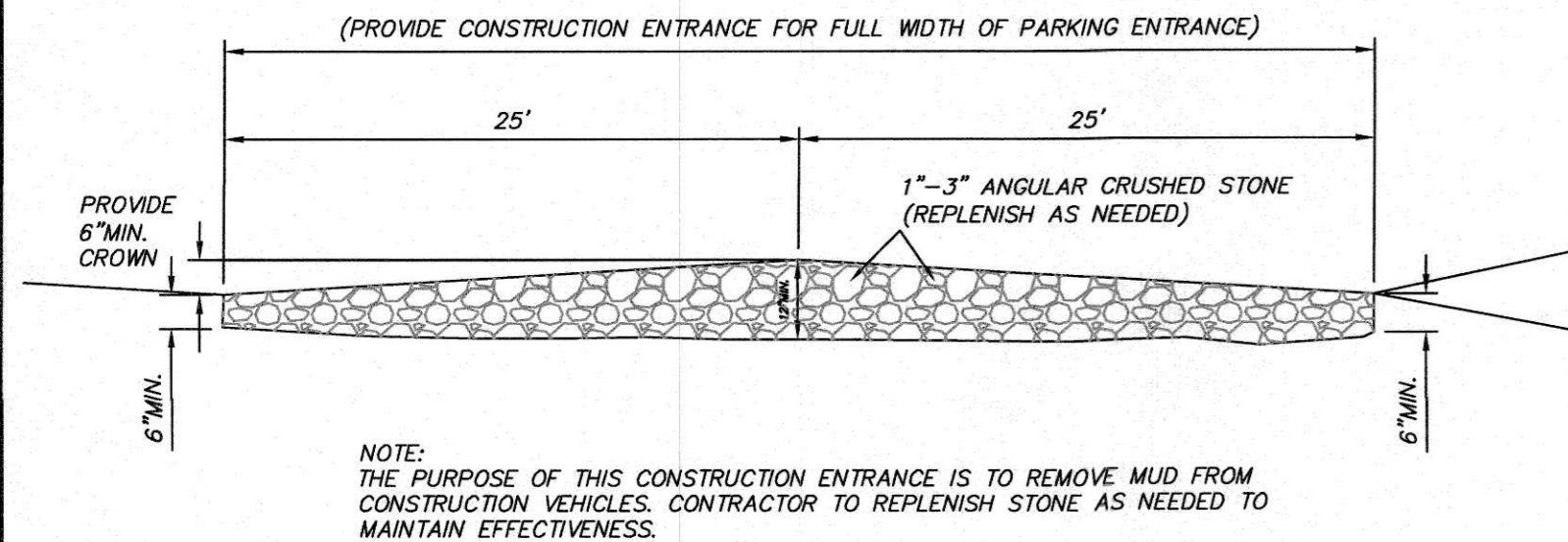
CLEARING:

1. LAND CLEARING SHALL BE PERFORMED IN PHASES CONSISTENT WITH ACTUAL CONSTRUCTION REQUIREMENTS. FINAL LAND CLEARING SHALL BE LIMITED TO RETURN TO GRADE SLOPES.

2. TREES SHALL BE CUT FOR ENTIRE SITE LEAVING HUMPS IN PLACE TO MAINTAIN SOIL STABILIZATION.

3. STUMPS SHALL BE PULLED AND STOCKPILED FOR GRINDING.
4. BRUSH AND BRANCHES SHOULD BE CHIPPED AND UTILIZED FOR WOOD MULCH IF PRACTICAL.

5. VEHICLES UTILIZED IN THE CLEARING OPERATION SHOULD NOT TRAVERSE WETLANDS OR FLOWING BROOKS OR STREAMS WITHOUT PRIOR APPROVAL FROM THE LOCAL CONSERVATION COMMISSION OR AGENT.



CONSTRUCTION ENTRANCE

NO SCALE

ROUGH GRADING:

1. THE ROUGH GRADING OF THE SITE SHALL FOLLOW THE FILL AND EXCAVATION SEQUENCES AS DESCRIBED ON THE CONSTRUCTION PHASING PLANS. SLOPES SHALL BE MAINTAINED AWAY FROM WETLANDS AND SENSITIVE AREAS AS MUCH IS PRACTICAL.
2. DURING THIS PROCESS THE EROSION POTENTIAL IS HIGH. SUFFICIENT EROSION CONTROL BARRIERS SHOULD BE KEPT IN PROXIMITY TO THE WORK AREA TO ALLOW QUICK ACTION SHOULD EROSION BECOME AN ISSUE AND TO INSURE THAT NO SEDIMENT REACHES WETLANDS OR OTHER SENSITIVE AREAS.
3. IN AREAS OF CUT AND/OR FILL WHERE SLOPES COULD DIVERT WATER TOWARD WETLAND AREAS, DIVERSION TRENCHES AND/OR SWALES SHOULD BE CONSIDERED AND IMPLEMENTED TO DIVERT WATER AWAY FROM THESE AREAS.
4. STEEP SIDE SLOPES IN EXCAVATION OR FILL SHOULD BE AVOIDED.
5. DISTURBED AREAS SHALL BE STABILIZED BY LOAMING AND SEEDING OR RIPRAPED IMMEDIATELY AFTER THE FINISH GRADE HAS BEEN MET. IF FINAL GRADING DOES NOT OCCUR DURING THE GROWING SEASON, THESE AREAS SHALL BE MULCHED WITH HAY WITH A TACKIFIER, IF NECESSARY SLOPED AREAS MAY REQUIRE ADDITIONAL CONTROLS SUCH AS EROSION CONTROL SOCKS OR HAYBALES.
6. A GROUND COVER SUFFICIENT TO RETAIN SOILS IN A STABILIZED CONDITION MUST BE PROVIDED WITHIN 14 WORKING DAYS, SEASON PERMITTING, ON ANY PORTION OF THE TRACT UPON WHICH FURTHER ACTIVE CONSTRUCTION IS NOT BEING UNDERTAKEN.

DRAINAGE:

1. IF DRAINAGE PIPES OR SWALES ARE TO BE INSTALLED, THEY SHALL BE CONSTRUCTED FROM DOWNSTREAM UP AND CONSTRUCTION SHALL INCLUDE THE PLACEMENT OF OUTFALL RIPRAP AND OTHER MITIGATIVE MEASURES SHOWN ON THE PLAN.
2. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, HAY BALES OR OTHER SUITABLE METHODS TO ENTRAP SEDIMENT SHALL BE PLACED DOWNSTREAM.
3. THE TOE OF EMBANKMENTS SHALL BE STABILIZED IMMEDIATELY, MULCHED AND TACKED DOWN BY SUITABLE MEANS.

CREATION OF DETENTION BASIN:

1. THE DETENTION BASIN HAS BEEN PLACED AS A SEPARATE ITEM TO EMPHASIZE THE IMPORTANCE OF EROSION CONTROL DURING ITS CONSTRUCTION.
2. THE PRIMARY EROSION CONTROL METHOD FOR BASIN CONSTRUCTION, AS WELL AS FOR THE SITE IS THE RAPID STABILIZATION OF ALL SURFACES. SECONDARY IN IMPORTANCE IS THE CONCENTRATION OF RUNOFF BE AVOIDED IN ORDER TO PREVENT THE TRANSPORT OF SEDIMENT.
3. DURING CONSTRUCTION, THE FILL AND EXCAVATION SEQUENCES SHOWN ON THE CONSTRUCTION PHASING PLANS, ALONG WITH THE DETAILS PROVIDED IN THIS PLAN SET SHALL BE UTILIZED. THESE SEQUENCES REQUIRE THAT SLOPED AREAS LEFT FOR ANY PERIOD OF TIME NOT SLOPED TOWARDS THE WETLAND OR SENSITIVE AREA, BUT RATHER BACK INTO THE FILL MATERIAL.
4. THE BASIN BERM IS TO BE CONSTRUCTED BY EQUIPMENT WORKING ON STABLE MATERIAL ONLY. HAY BALES SHALL BE PLACED AT THE TOE OF SLOPE UNTIL SURFACES ARE STABILIZED.
5. NO EXCAVATION WITHIN THE BASIN SHALL COMMENCE UNTIL THE BERM IS IN PLACE.
6. CARE SHOULD BE TAKEN TO INSURE THAT ORGANIC MATERIAL REMOVED FROM THE BASIN AREA IS RESERVED FOR FINISH GRADING AND THE STABILIZATION OF DISTURBED AREAS.
7. IF DEWATERING IS NECESSARY, PUMPING TO A SETTLING BASIN SHALL BE PERMITTED IF SETTLING BASIN IS CONSTRUCTED, MAINTAINED AND OPERATED EFFECTIVELY.
8. AT NO TIME SHALL RUNOFF CARRYING SEDIMENT BE ALLOWED TO FLOW TO THE WETLANDS OR SENSITIVE AREAS.
9. THE WORK AREA SHALL REMAIN FREE OF LITTER AND DEBRIS AT ALL TIMES AND MONITORED ON A DAILY BASIS TO ENSURE COMPLIANCE.
10. ALL MATERIALS STOCKPILED SHALL BE LOCATED, MULCHED OR OTHERWISE TREATED TO INSURE THAT MATERIALS CONTAINED, THEREIN, AREA NOT CARRIED INTO THE WETLANDS.
11. ANY MATERIALS BLOWN OR CARRIED BY WATER AWAY FROM THE CONSTRUCTION SITE OR INTO THE WETLAND AREAS SHALL BE PROMPTLY REMOVED AS REQUIRED BY THE LOCAL CONSERVATION COMMISSION.
12. A GEOTECHNICAL FILTER FABRIC SHALL BE PLACED OVER THE BASIN SUBDRAIN DURING CONSTRUCTION TO PREVENT SEDIMENT FROM ENTERING AND CLOGGING THE DRAIN. THE FABRIC SHALL BE REMOVED FOR BASIN PREPARATION FOR FINAL STABILIZATION.

1. IT IS OF GREAT IMPORTANCE THAT CONCENTRATION OF RUNOFF BE AVOIDED IN ORDER TO PREVENT THE TRANSPORT OF SEDIMENT.
2. THE PRIMARY EROSION CONTROL METHOD TO BE UTILIZED IS TO LIMIT THE AREA OF DISTURBANCE DURING CONSTRUCTION ACTIVITIES. THIS IS ACCOMPLISHED BY PROMPT STABILIZATION OF DISTURBED AREAS UPON COMPLETION OF SEQUENCES OF CONSTRUCTION.
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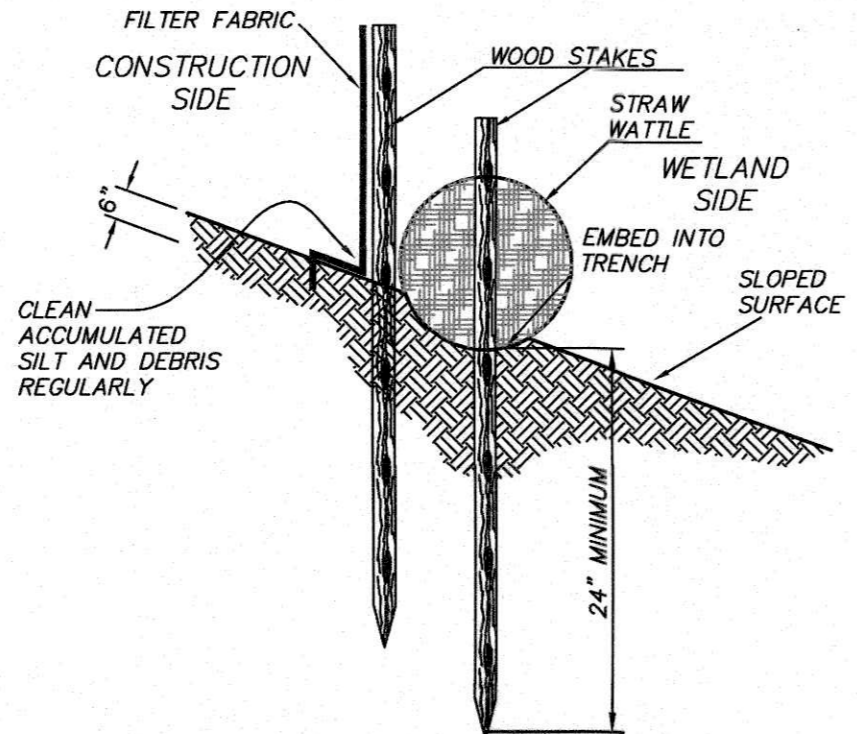
CLEARING:

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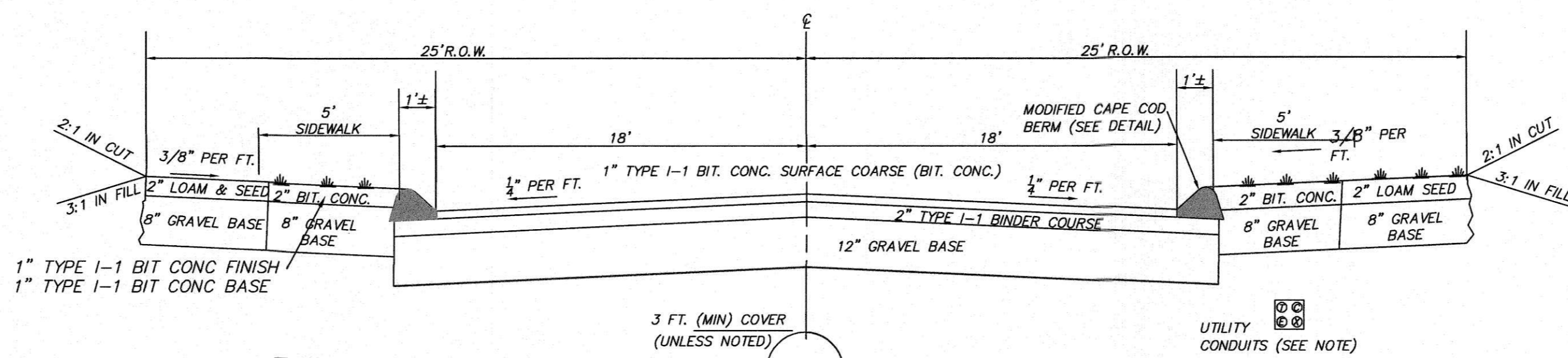
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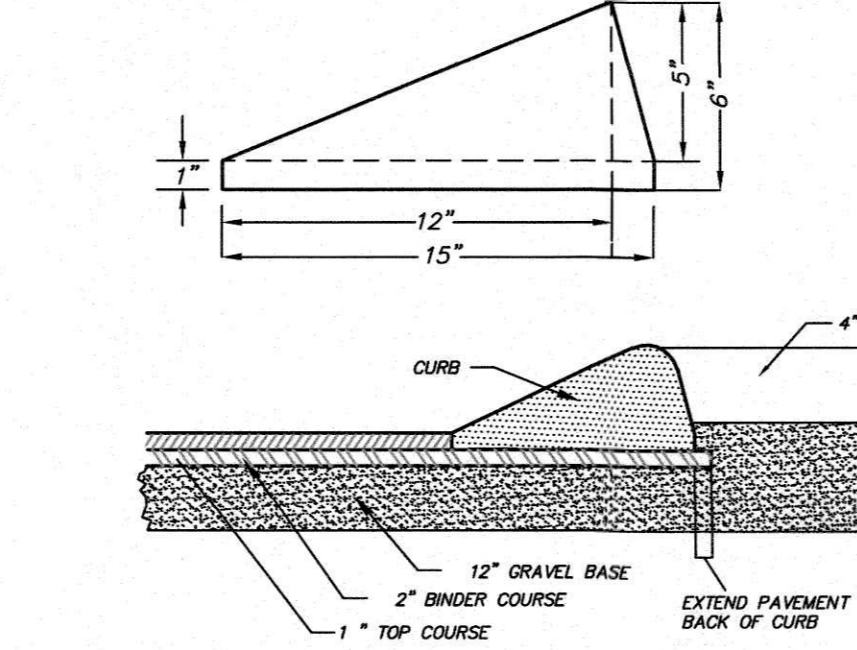
STRAW WATTLE DETAIL

NO SCALE



TYPICAL ROADWAY CROSS-SECTION

28FT WIDE - NO SCALE

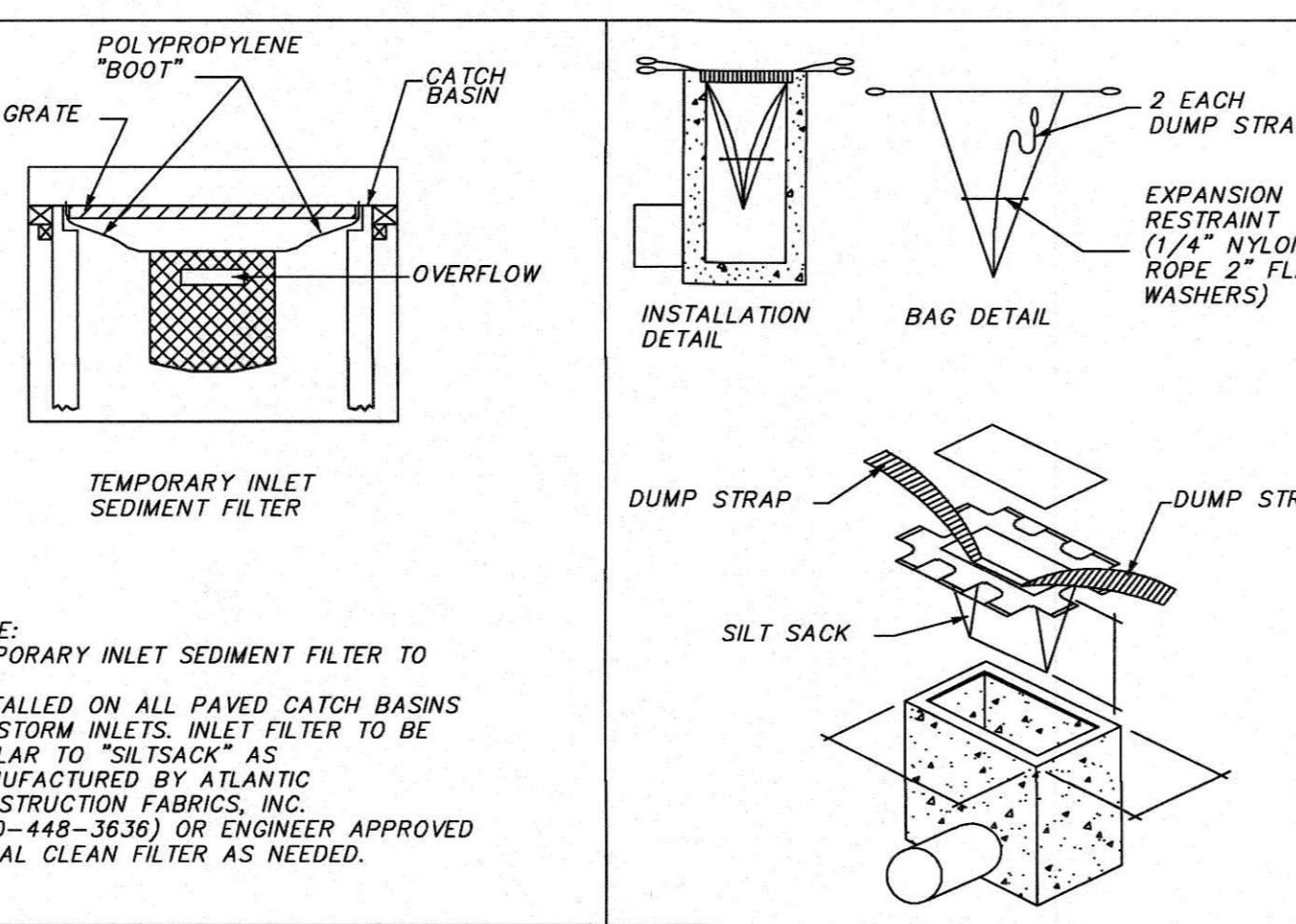


BITUMINOUS CONCRETE CURB

(NO SCALE)

GRUBBING AND STRIPPING:

1. TOP SOIL SHALL BE RETAINED AND STOCKPILED FOR LANDSCAPING PURPOSES.
2. GRUBBING AND STRIPPING OF SLOPES LEADING TO WETLAND AREAS SHOULD NOT BE UNDERTAKEN DURING PERIODS OF INTENSE RAINFALL.
3. TOP SOIL STOCKPILE LOCATIONS ARE DEPICTED ON THE SITE DEVELOPMENT PLAN, THE EROSION CONTROL PLAN, AND/OR THE CONSTRUCTION PHASING PLAN AND SHALL BE ADHERED TO.
4. WHEN WORKING IN THE VICINITY OF WETLANDS, TOP SOIL SATURATED WITH WATER SHALL BE REMOVED, AND CONTAINED PRIOR TO BEING USED.
5. AREAS LEADING TO WETLANDS SHALL HAVE HAY BALE BARRIERS INSTALLED ACROSS THEM IN ARCS POINTING DOWN THE HILL AT INTERVALS SUFFICIENT TO MITIGATE RUNOFF CARRYING SEDIMENT.
6. DURING PERIODS OF INTENSE RAINFALL, OR IF THE PROJECT IS TO BE LEFT FOR A PERIOD OF TIME, CONSIDERATION SHOULD BE GIVEN TO SUPPLEMENT HAY BALE BARRIERS WITH EITHER CRUSHED STONE OR ARMORED BARRIERS. CONSIDERATION MAY ALSO BE GIVEN TO DIVERTING RUNOFF INTO TEMPORARY SEDIMENTATION CONTROL AREAS.
7. WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED AND SUPPLEMENTED.



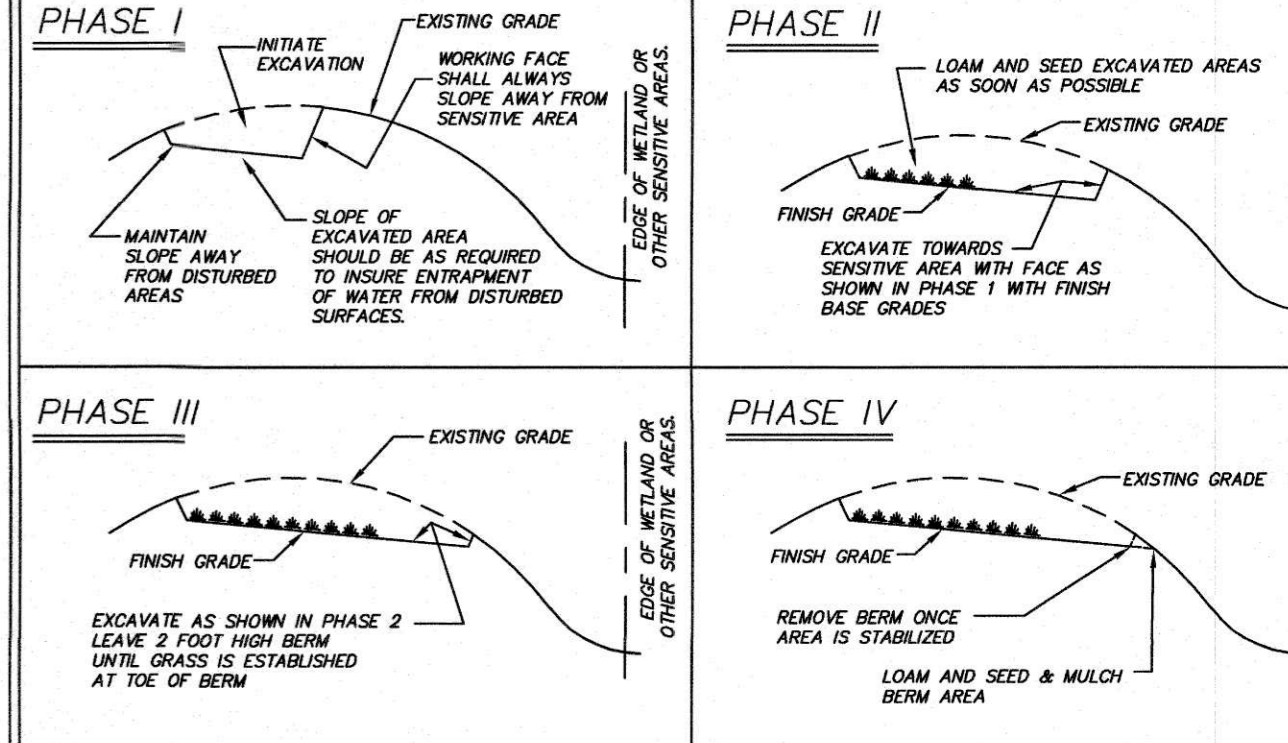
SILT SACK DETAIL

NO SCALE

EROSION CONTROL SLOPE DETAIL

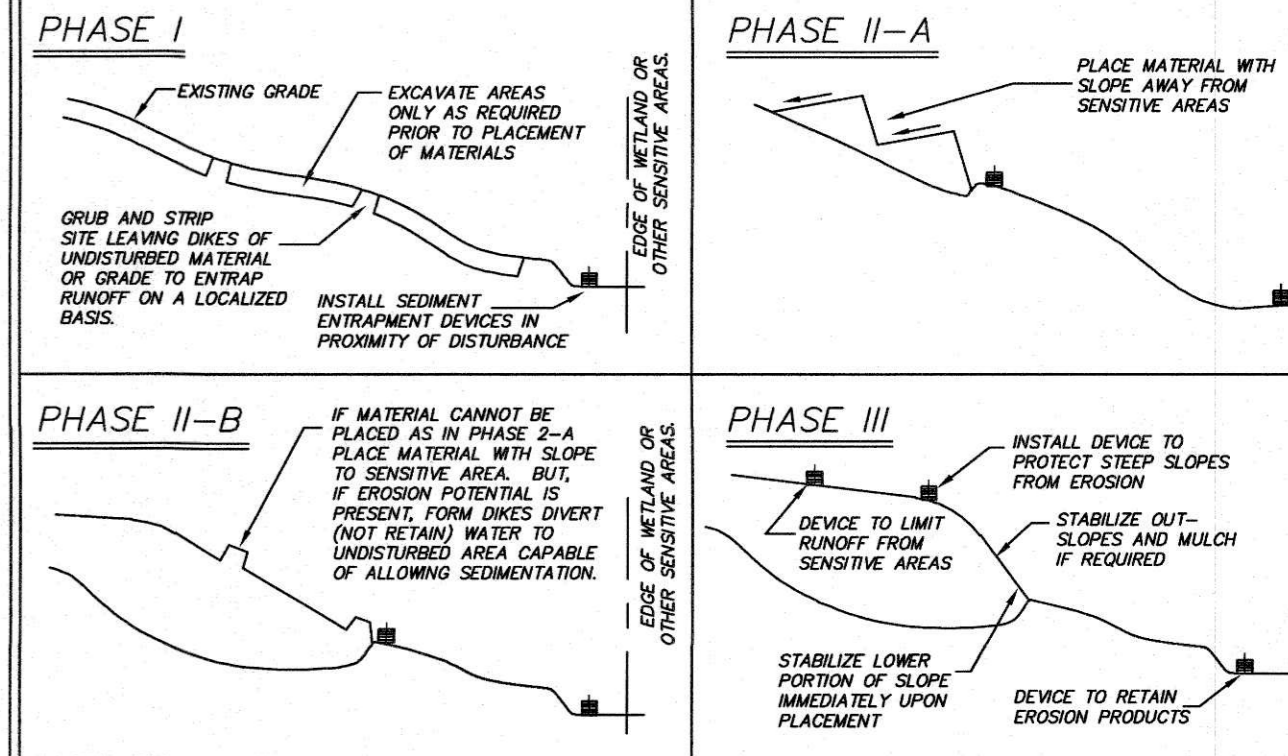
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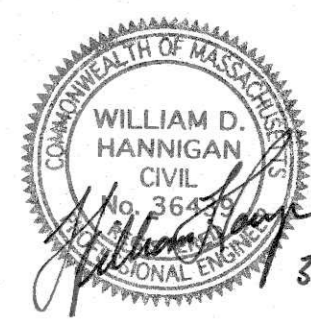


FILL SEQUENCE

NO SCALE



DEFINITIVE PLAN



HANNIGAN ENGINEERING, INC.

CIVIL ENGINEERS & LAND SURVEYORS

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LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)
WWW.HANNIGANENGINEERING.COM

CONSTRUCTION DETAILS IN LEICESTER, MASSACHUSETTS

PREPARED FOR:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS, 01605
TEL: (774) 314-2549

CALC: CMA/WDH	DRWN: CMA/WDH	SCALE: NA
CHKD: WDH	APPD: WDH	DATE: MAR 20, 2019
SRV: JEF/IEH	FB: E2719.070618	JOB NO: 2719
TAB: (10) DET	SHEET 10 OF 11	PLAN NO: C-14-25

APPLICANT:

ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE, MANAGER
6 PARK AVENUE
WORCESTER, MASSACHUSETTS 01605

OWNER:

NICHOLAS A. CASELLO & JACQUELINE MATTHEWS
500 BOUTILIER ROAD
LEICESTER, MASSACHUSETTS 01524

STORMWATER OPERATION AND MAINTENANCE PLAN

THE FOLLOWING SHALL BE CONSIDERED THE OPERATION & MAINTENANCE PLAN (OMP) FOR THE STORMWATER COLLECTION FACILITY FOR THIS DEVELOPMENT. THIS OMP HAS BEEN PREPARED IN ACCORDANCE WITH THE STORMWATER MANAGEMENT POLICY AS ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

I. SYSTEM OWNERSHIP

THE SYSTEM SHALL INCLUDE THE DRAINAGE INFRASTRUCTURE AND ALL OF ITS COMPONENTS AS SHOWN ON THE SITE DEVELOPMENT PLANS, INCLUDING THE DETENTION FACILITIES AND OUTFALL AREAS OF THE DRAINAGE SYSTEM. THE STRUCTURES OF THE SYSTEM SHALL INCLUDE THE DRAINAGE SWALES AND THE OUTFALL & CONTROL STRUCTURES. THE SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DETAILS AND THE APPROVED PLANS.

UPON THE COMPLETION OF CONSTRUCTION THE DRAINAGE SYSTEM DESCRIBED ABOVE AND AS DEPICTED ON THE SITE PLANS SHALL BECOME PROPERTY OF THE LAND OWNER, WITH SPECIFIC EASEMENT RIGHTS TO THE OPERATOR OF THE SOLAR SYSTEM TO MAINTAIN THE DRAINAGE SYSTEM AS DEPICTED ON THE APPROVED PLANS. SAID EASEMENT RIGHTS SHALL BE SPECIFICALLY DESCRIBED IN LEASE DOCUMENTS FOR THE PROJECT.

II. RESPONSIBLE PARTIES

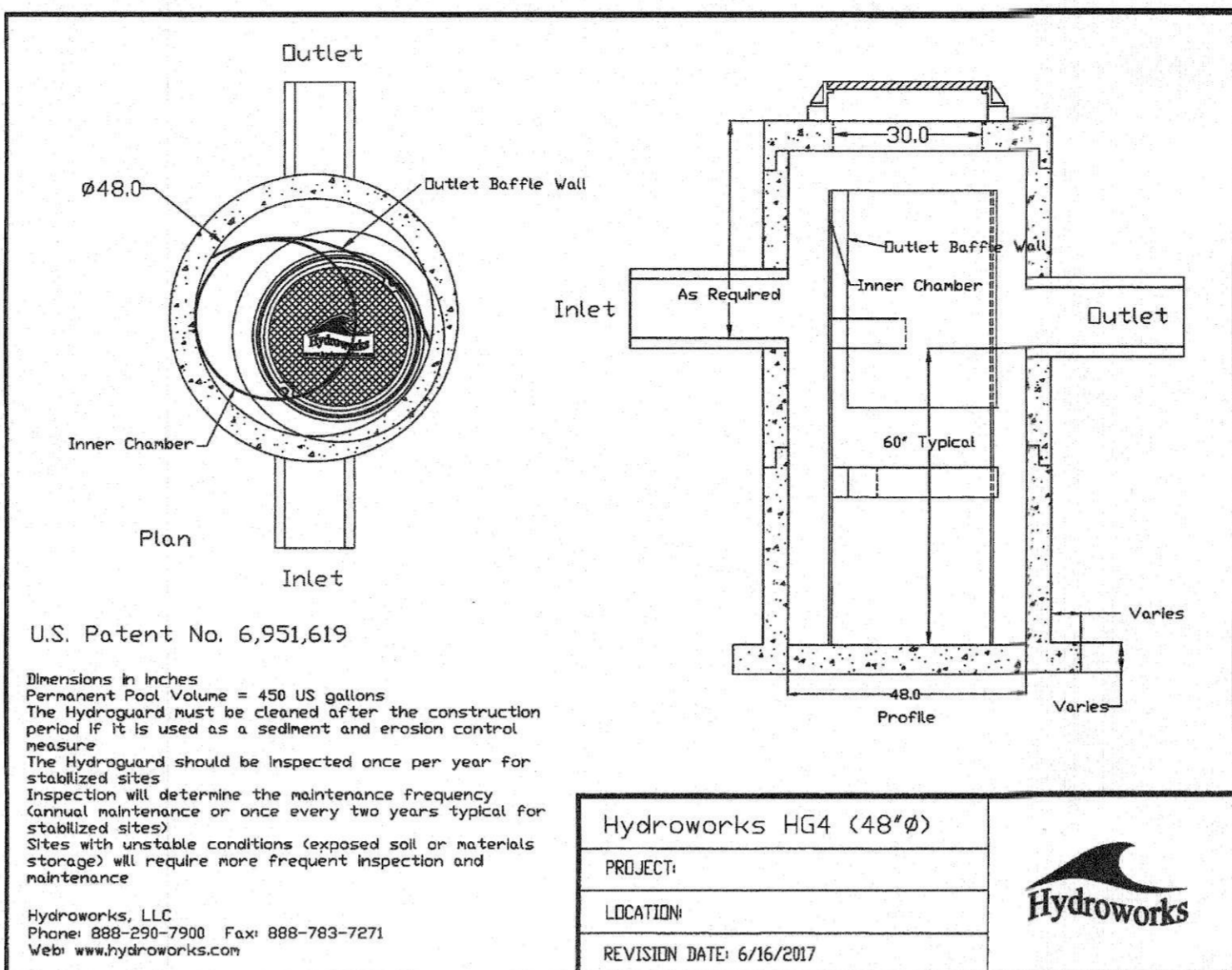
THE OPERATOR OF THE SOLAR SYSTEM SHALL BE CONSIDERED THE RESPONSIBLE PARTY FOR THE OPERATION AND MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM. THE SYSTEM SHALL INCLUDE THE DRAINAGE INFRASTRUCTURE AND ALL OF ITS COMPONENTS AS SHOWN ON THE APPROVED PLANS. THE SYSTEM SHALL ALSO INCLUDE THE DETENTION FACILITIES AND THE OUTFALL AREAS OF THE DRAINAGE SYSTEM.

III. INSPECTION & MAINTENANCE SCHEDULE

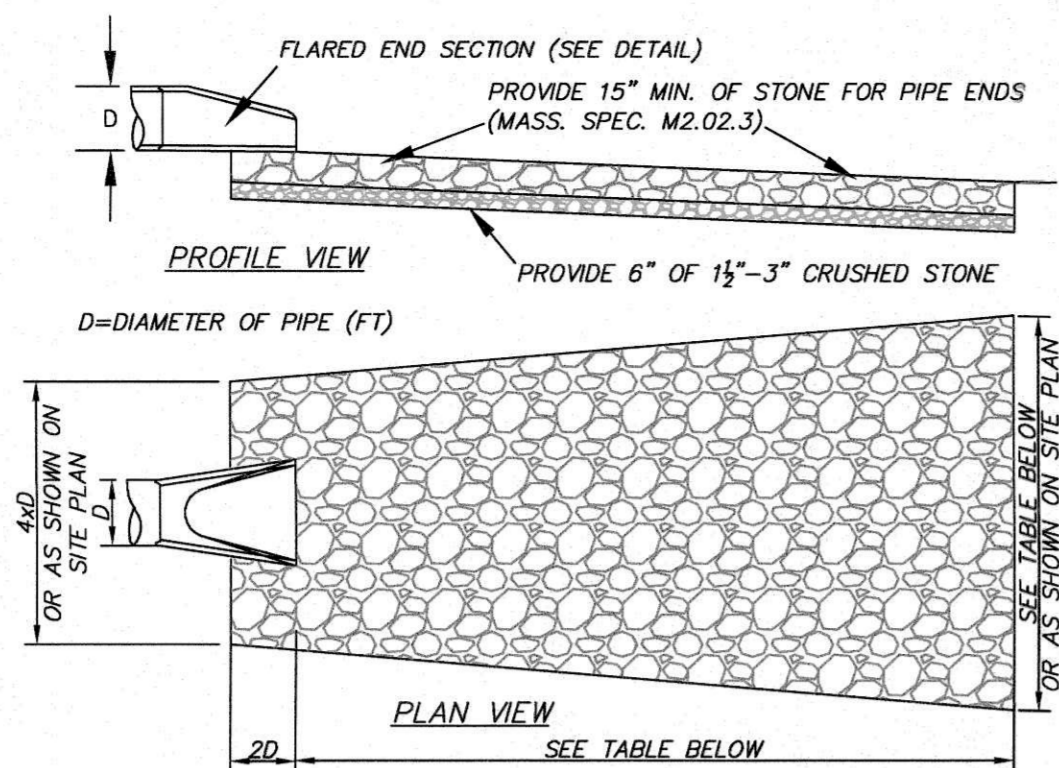
THE FOLLOWING MAINTENANCE SCHEDULE SHALL BE FOLLOWED IN ORDER TO MAINTAIN THE EFFECTIVENESS OF THE STORMWATER MANAGEMENT SYSTEM.

STRUCTURE TYPE	INSPECTION	MAINTENANCE	TASK
RIP/RAP APRONS	TWICE A YEAR	EVERY 10 YEARS	REMOVE DEBRIS & ADD STONE
SUBDRAINS	TWICE A YEAR	EVERY 4 YEARS	REPLACE PEASTONE
DETENTION BASINS	MONTHLY (MAY-OCT)	MONTHLY (MAY-OCT)	MOW GRASS AREAS & REMOVE DEBRIS
OUTFALL STRUCTURES:			REMOVE SEDIMENT IF PRESENT
SPILLWAYS	TWICE A YEAR	EVERY 10 YEARS	REMOVE DEBRIS & ADD STONE
DRAINAGE SWALE	TWICE A YEAR	MONTHLY (MAY-OCT)	REMOVE DEBRIS AND VEGETATION
			REPLACE STONE AS NECESSARY
			REMOVE SEDIMENT FROM SUMPS
CATCH BASINS	QUARTERLY AND AT THE END OF END OF THE FOLIAGE AND SNOW REMOVAL SEASONS	QUARTERLY, OR WHENEVER THE DEPTH OF DEPOSITS IS GREATER THAN OR EQUAL TO ONE HALF THE DEPTH FROM THE BOTTOM OF THE INVERT OF THE LOWEST PIPE	***GRATES TO BE KEPT CLEAR THROUGHOUT THE YEAR***
HYDROWORKS -HYDROGUARD	ANNUALLY IN THE SPRING	ANNUALLY IN THE SPRING	REMOVE SEDIMENT FROM SUMPS

NOTE: THE DETENTION BASINS ON THIS PROJECT MAY GROW VEGETATION IN THE BOTTOM WHICH MAY INCLUDE SPECIES PART OF THE WETLAND PROTECTION ACT. THESE PLANTS SHALL NOT BE CONSTRUED AS HAVING PROTECTION UNDER THE ACT AND SHALL BE CONSIDERED OPPORTUNISTIC GROWTH PLANTS. ADDITIONALLY, THIS AREA SHALL NOT BE CONSIDERED A CONSTRUCTED WETLAND.



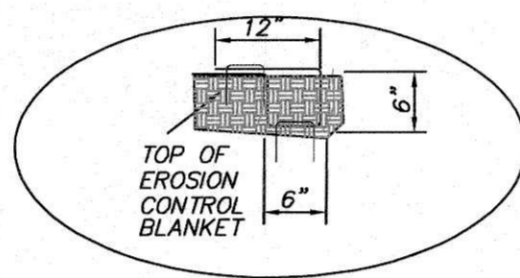
WATER QUALITY UNIT (DMH#1) - HYDROWORKS HG4
NO SCALE



RIP RAP APRON DETAIL
NO SCALE

PIPE DIAMETER	LENGTH	TERMINUS WIDTH
12-INCH (FE#5)	10.0 FEET	10.0 FEET
15-INCH (FE#5A)	10.0 FEET	11.0 FEET

RIP-RAP APRON DIMENSIONING TABLE

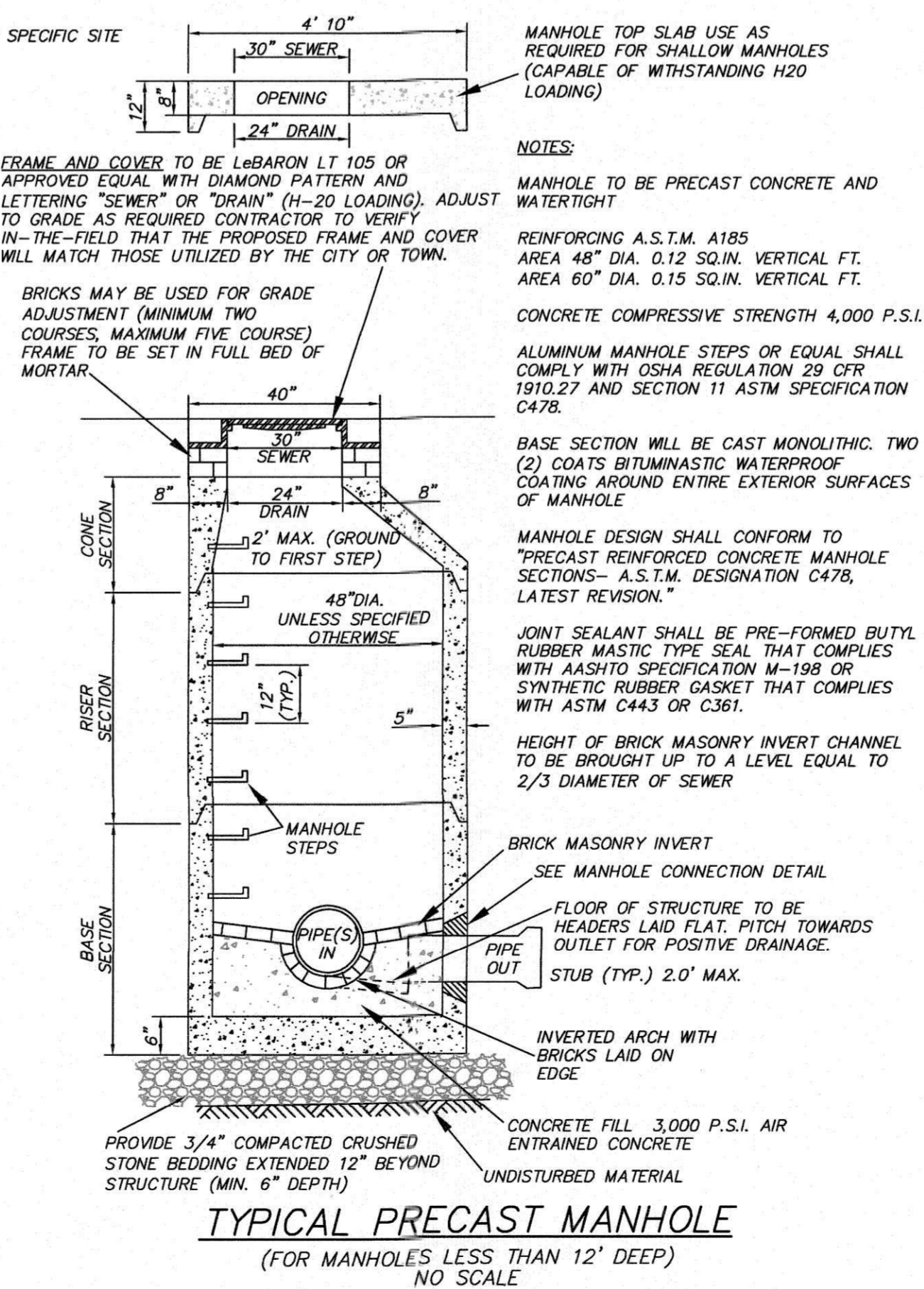


PROCEDURES FOR INSTALLATION OF EROSION CONTROL BLANKET:

- 1) PREPARE SLOPES WITH FINAL GRADING AND LOAM PLACEMENT. RAKE AND SMOOTH FINAL SURFACE, APPLY APPLICABLE SEED MIX.
- 2) START AT THE TOP OF SLOPE BY ANCHORING BLANKETS IN A 6" DEEP x 6" WIDE ANCHOR TRENCH. PLACE BLANKETS, STAPLE (8" STAPLES), BACKFILL AND COMPACT WITH FABRIC OVERLAP OF 12".
- 3) ROLL BLANKETS DOWN THE SLOPE. STAPLE THE OPEN BLANKET EDGE USING ONE ROW OF STAPLES AT 2' INTERVALS. THE INTERIOR OF THE BLANKET SHOULD BE STAPLED USING A 2" WIDE x 3" HIGH STAPLE PATTERN. BE SURE TO LAY BLANKETS LOOSLY ON THE GROUND ALLOWING A GOOD CONTACT BETWEEN SOIL AND BLANKETS.
- 4) USE AN 6" OVERLAP BETWEEN BLANKET SPLICES. USE A SINGLE ROW OF STAPLES TO ANCHOR BLANKETS TOGETHER.
- 5) PROVIDE 6" x 6" ANCHOR TRENCH AT TOE OF SLOPE.
- 6) EROSION CONTROL BLANKET TYPE SHALL BE PROPERLY SELECTED FOR SOIL CONDITIONS AND MAXIMUM ALLOWABLE SLOPE.
- 7) ANY/ALL METALLIC ANCHORS SHALL BE PROMPTLY REMOVED ONCE THE VEGETATIVE COVER HAS BEEN ESTABLISHED.
- 8) GRASS SEED VARIETY SHALL BE PROPERLY CHOSEN FOR SPECIFIC SITE CONDITIONS (SHADE OR SUN, ETC.).

EROSION CONTROL BASKET PLACEMENT

NO SCALE

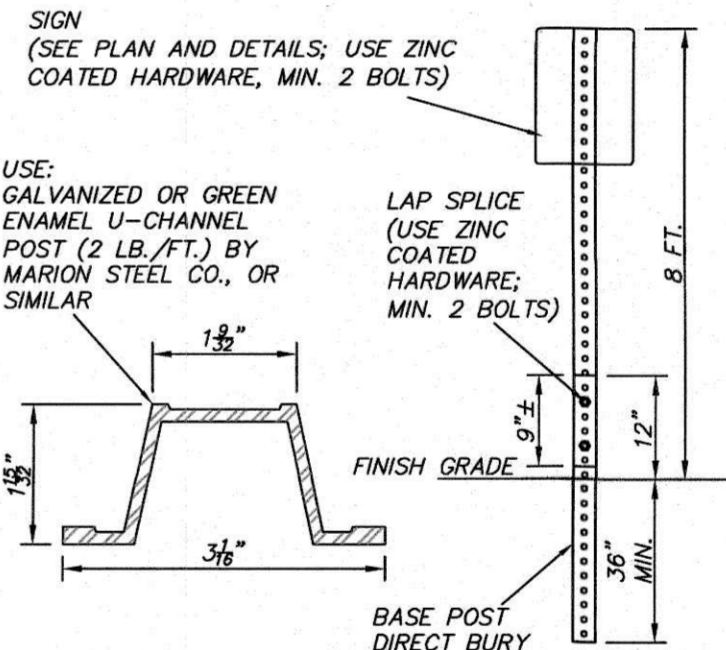


TYPICAL PRECAST CATCH BASIN

WITH BITUMINOUS CURBING
NO SCALE

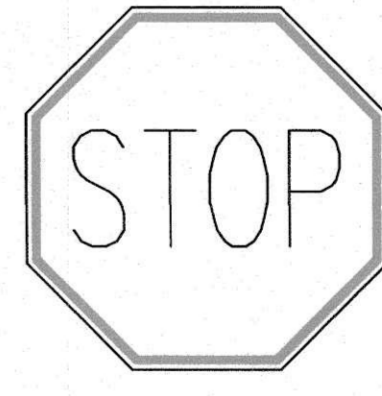
TYPICAL PRECAST MANHOLE

(FOR MANHOLES LESS THAN 12' DEEP)
NO SCALE



SIGN POST DETAIL

(NO SCALE)



S-3
30" x 30"

APPLICANT:

ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE, MANAGER
6 PARK AVENUE
WORCESTER, MASSACHUSETTS 01605
OWNER:
NICHOLAS A. CASELLO & JACQUELINE MATTHEWS
500 BOUTILLIER ROAD
LEICESTER, MASSACHUSETTS 01524

DEFINITIVE PLAN



HANNIGAN ENGINEERING, INC.

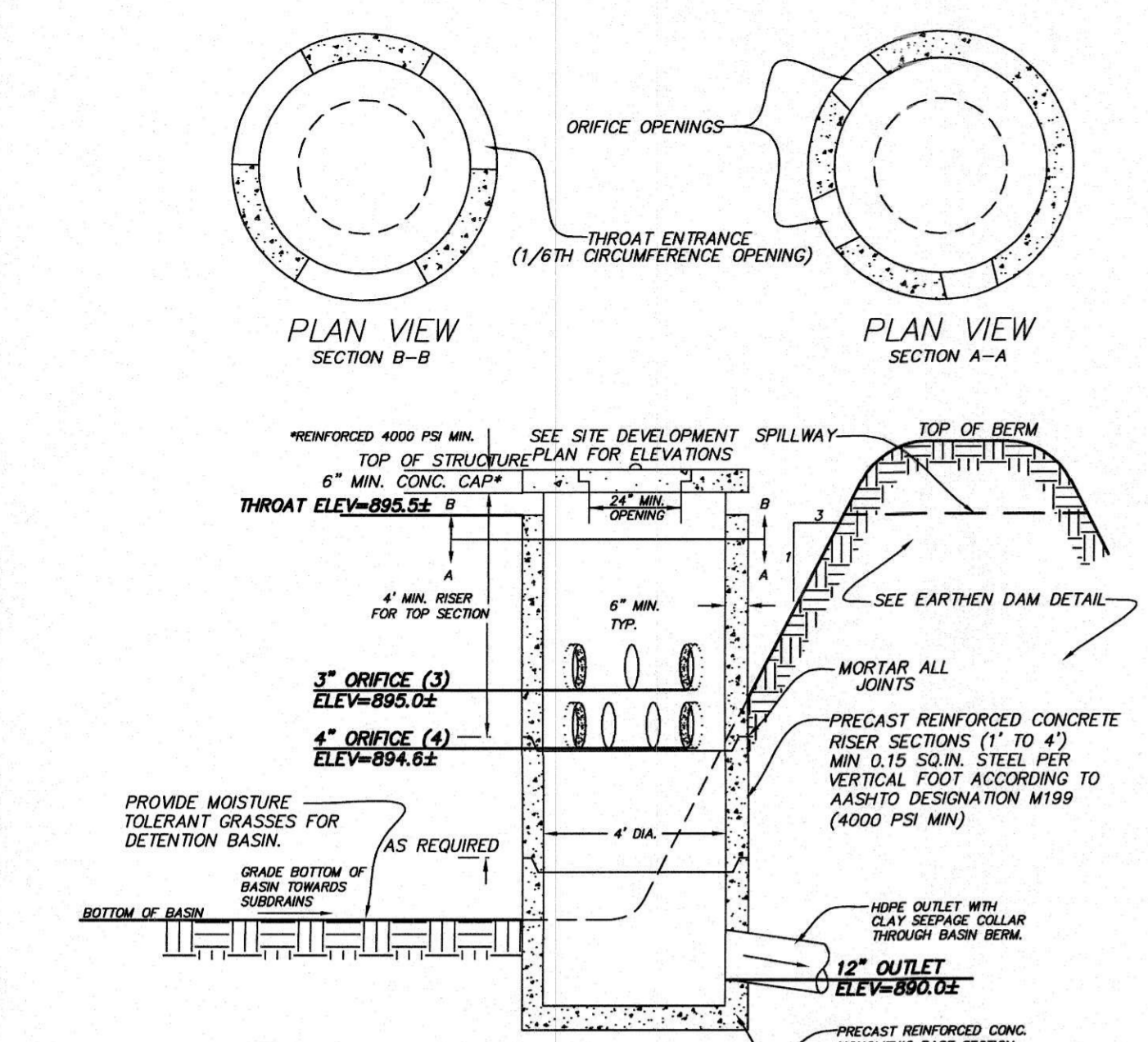
CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE (978) 534-1234 (T)
LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)
WWW.HANNIGANENGINEERING.COM

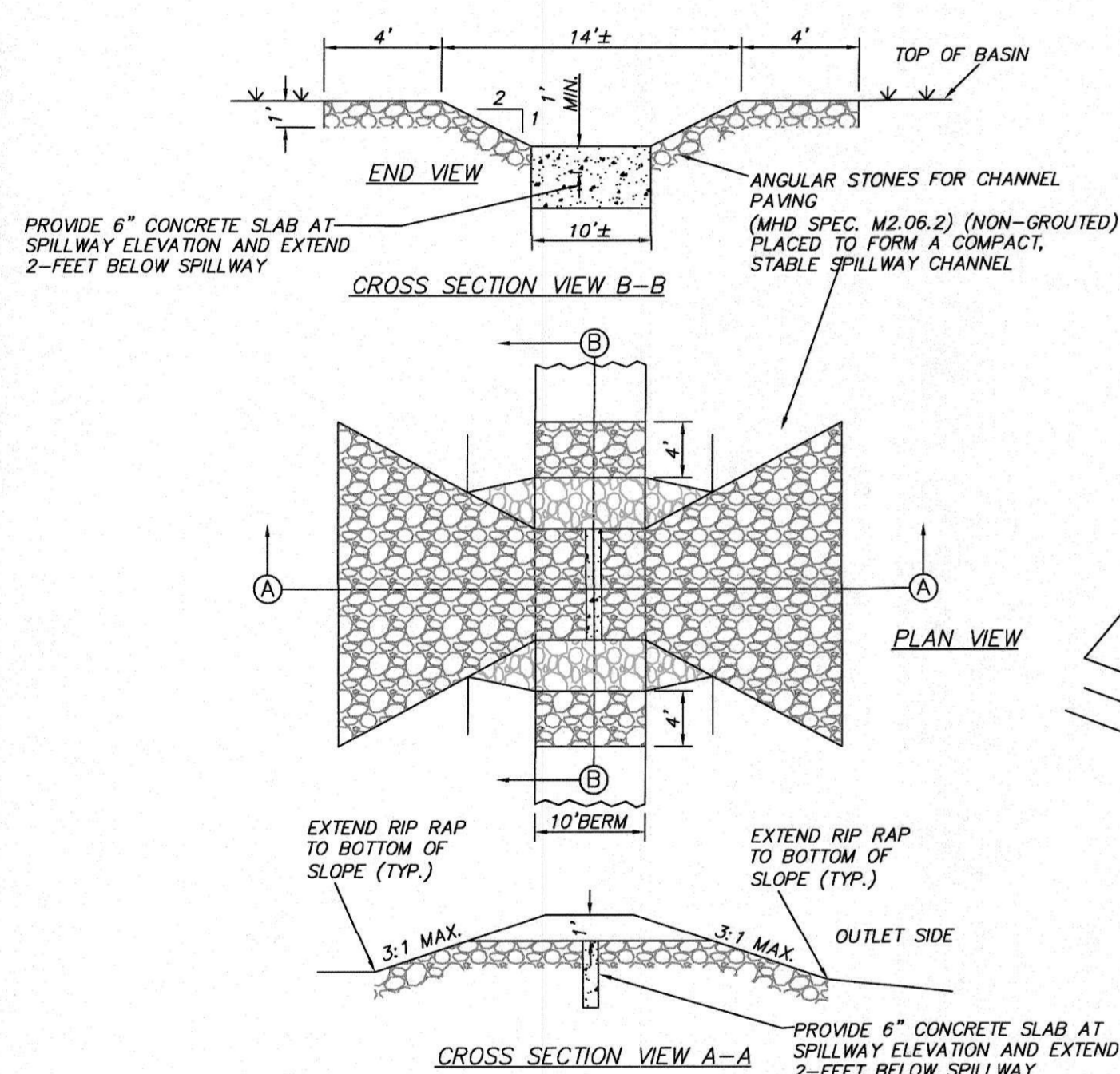
CONSTRUCTION DETAILS IN LEICESTER, MASSACHUSETTS

PREPARED FOR:
ZPT ENERGY SOLUTIONS II, LLC
BRENDON GOVE
6 PARK AVENUE
WORCESTER, MASSACHUSETTS, 01605
TEL: (774) 314-2549

CALC: CMA/WDH	DRWN: CMA/WDH	SCALE: NA
CHKD: WDH	APPD: WDH	DATE: MAR 20, 2019
SRV: JEF/IEH	FB: E2719.070618	JOB NO: 2719
TAB: (10) det	SHEET 11 OF 11	PLAN NO: C-14-25

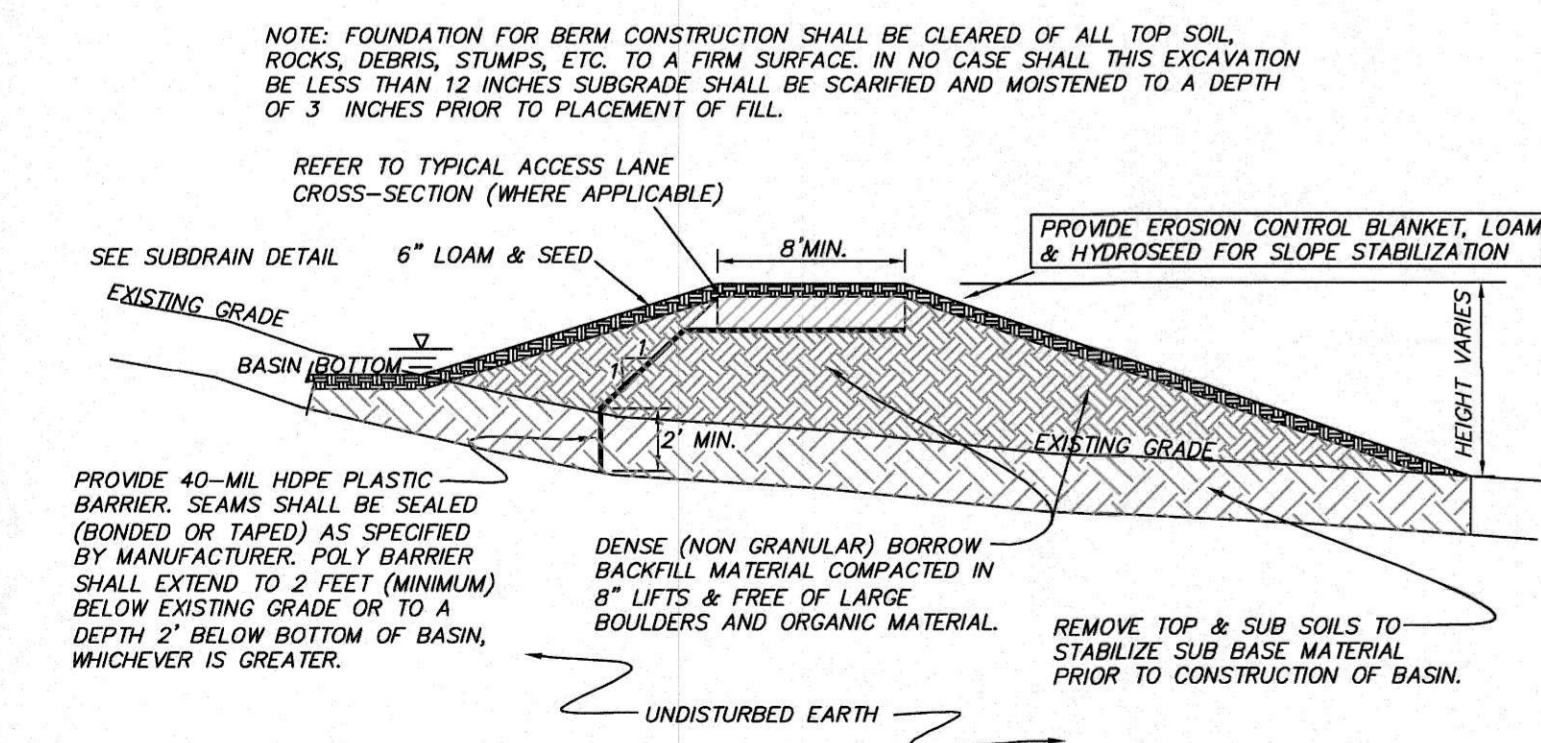


D-BASIN OUTLET STRUCTURE #13
WITH 1/8TH CIRCUMFERENCE THROAT OPENINGS
NO SCALE



EMERGENCY SPILLWAY DETAIL

NO SCALE



DETENTION BASIN BERM

(REQUIRED FOR DETENTION BASIN CONSTRUCTION)
NO SCALE