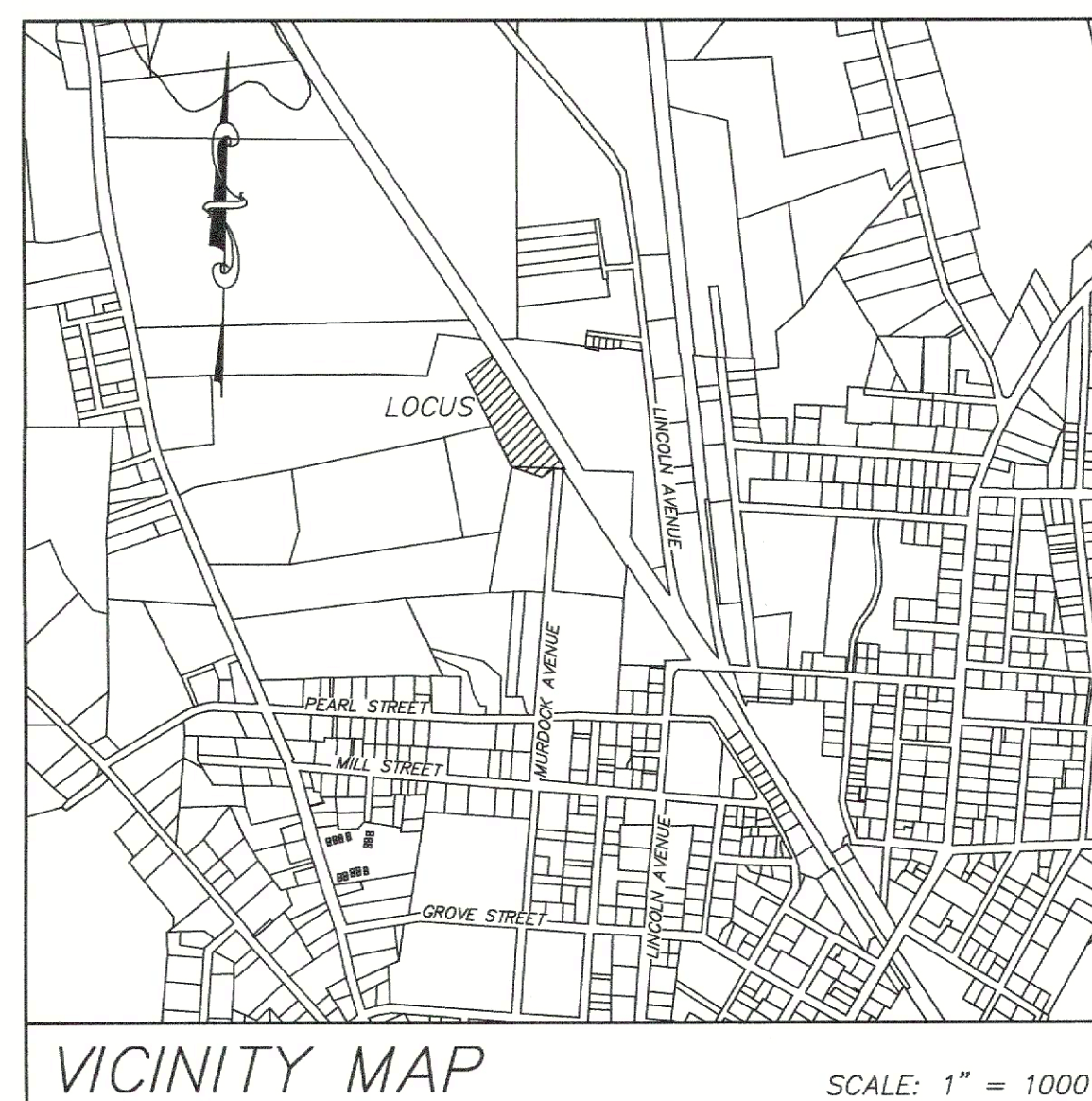


***SITE DEVELOPMENT PLAN
SOLAR ENERGY STORAGE SYSTEM (ESS)
256 MURDOCK AVENUE
IN
WINCHENDON, MASSACHUSETTS
MARCH 27, 2023***



APPLICANT:

ZP BATTERY DEVCO, LLC
PETE FORTE
1 MERCANTILE STREET, SUITE 630
WORCESTER, MASSACHUSETTS 01608

OWNER:

BOSTWICK REALTY TRUST
256 MURDOCK AVENUE
WINCHENDON, MASSACHUSETTS 01475

CIVIL ENGINEER & LAND SURVEYOR:

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

PLAN INDEX

SHEET 1	EXISTING CONDITIONS PLAN
SHEET 2	SITE DEVELOPMENT PLAN
SHEET 3	EROSION CONTROL PLAN
SHEET 4 - 5	CONSTRUCTION DETAILS

PERMITTING SET - NOT FOR CONSTRUCTION

PROJECT INFORMATION

LAND INFORMATION	
MAP/PARCEL:	202/11
DEED BOOK/PAGE:	17143/339
EXISTING FRONTAGE:	49.5 FT
EXISTING AREA:	3.75 ACRES ±
ZONING INFORMATION	
ZONING DISTRICT:	INDUSTRIAL
DIMENSIONAL REQUIREMENTS:	
MINIMUM AREA:	43,960 SF
MINIMUM FRONTAGE:	150 FEET
MAXIMUM HEIGHT:	50 FT
MAXIMUM COVERAGE:	NA
MINIMUM SETBACKS:	
FRONT YARD:	40 FT
SIDE YARD:	25 FT
REAR YARD:	50 FT

GENERAL NOTES:

- 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. TOPOGRAPHIC INFORMATION IS THE RESULT OF AN ON-THE-GROUND TOPOGRAPHIC SURVEY BY HANNIGAN ENGINEERING, INC. IN MAY OF 2022.
- AREAS SUBJECT TO PROTECTION UNDER THE WETLANDS PROTECTION ACT HAVE BEEN DELINEATED BY LEC ENVIRONMENTAL CONSULTANTS IN FEBRUARY OF 2022. THESE AREAS ARE DEPICTED ON THE PLANS BASED ON FIELD SURVEY LOCATION DURING THE TOPOGRAPHIC SURVEY.
- 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)
- 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.
- RELOCATION OF AND/OR CONNECTION TO EXISTING UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY.
- UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF THE TOWN OF WINCHENDON AND THE MASS DOT SPECIFICATIONS OF HIGHWAYS AND BRIDGES.
- ALL SLOPES UNLESS OTHERWISE SPECIFIED, SHALL BE LOAMED AND SEEDED FOR STABILIZATION.
- 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.
- 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.
- PLANS TO BE REVIEWED BY APPLICABLE UTILITY AGENCIES FOR COMPLIANCE WITH REGULATIONS. FINAL LOCATION IS SUBJECT TO CHANGE.
- 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)
- 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.
- 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.
- ALL SIDEWALKS AND RAMPS TO CONFORM TO REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA), AS REQUIRED. SEE ARCHITECTURAL PLANS FOR CONFORMANCE REQUIREMENTS FOR PROPOSED BUILDINGS.
- THE AREA PROPOSED FOR DEVELOPMENT IS NOT WITHIN A 100 YEAR FLOOD PLAIN PER F.E.M.A. FIRM PANEL #250348-00169, DATED: JUNE 15, 1982, COMPLIANCE WITH APPLICABLE REGULATIONS IS REQUIRED.
- ALL REINFORCED CONCRETE PIPE TO BE CLASS III UNLESS OTHERWISE NOTED.
- PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- ALL UTILITIES ARE TO BE INSTALLED BY A LICENSED UTILITY CONTRACTOR LICENSED BY THE TOWN OF WINCHENDON.



OWNER
BOSTWICK REALTY TRUST
 256 MURDOCK AVENUE
 WINCHENDON, MASSACHUSETTS

APPLICANT
ZP BATTERY DEVCO, LLC
 1 MERCANTILE STREET, SUITE 630
 WORCESTER, MASSACHUSETTS 01608

PROJECT NOTES:

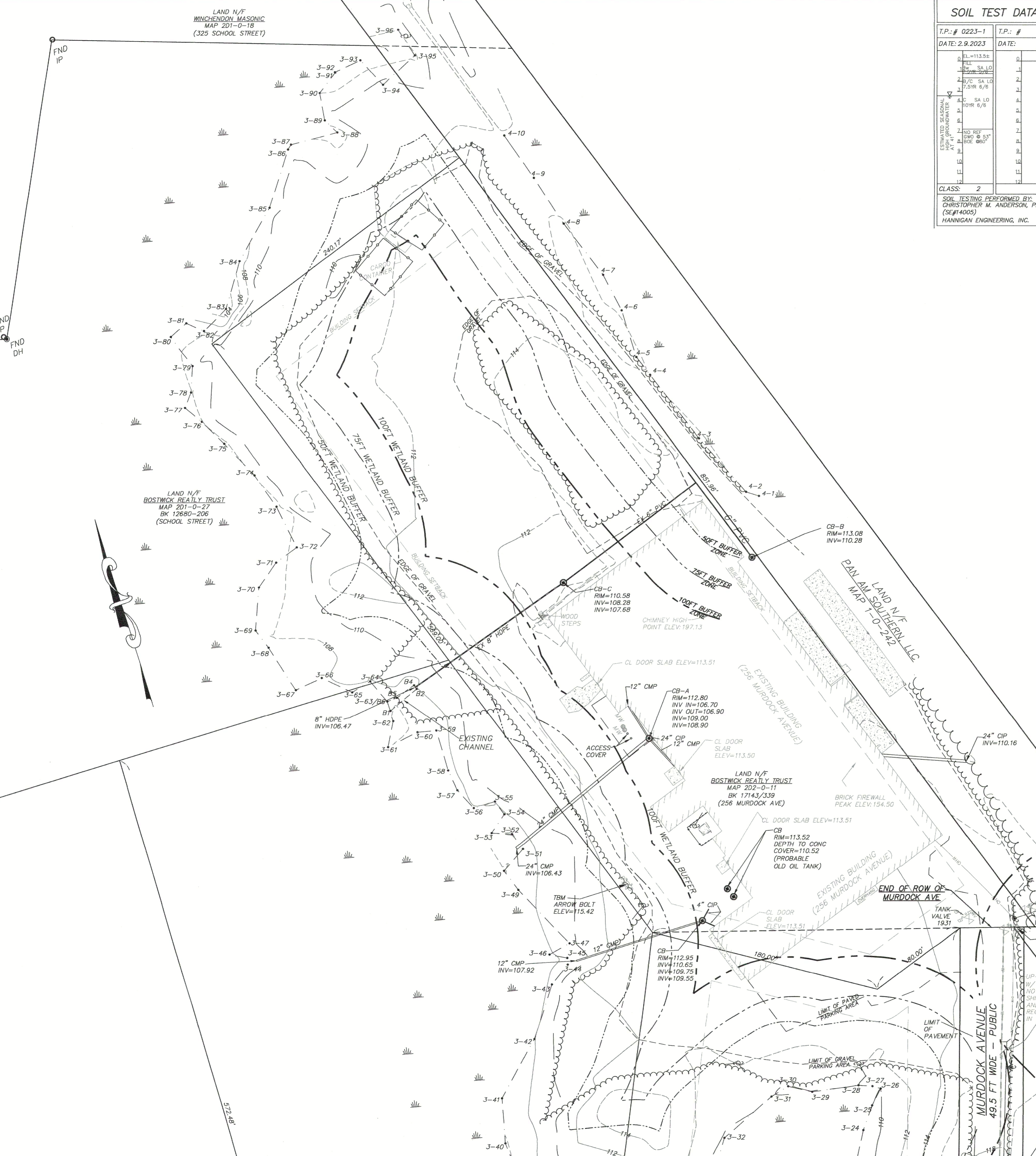
- EARTHEN MATERIALS UTILIZED AS FILL WITHIN THE PROJECT AREA SHALL BE CLEAN AND FREE OF DELETERIOUS MATERIALS AND SHALL NOT CONTAIN ANY HAZARDOUS MATERIALS.
- PRIOR TO THE START OF CONSTRUCTION AND CLEARING ACTIVITIES, THE APPROVED LIMITS OF CONSTRUCTIONS SHALL BE FIELD STAKED AND REVIEWED BY THIS OFFICE UPON THE COMPLETION OF CONSTRUCTION CATCHBASINS, SUMPS AND STORMWATER BASINS OR BEST MANAGEMENT PRODUCTS (BMPs) SHALL BE CLEANED AND ANNUALLY THEREAFTER.
- HAULING OF EARTHEN MATERIALS TO OR FROM THE CONSTRUCTION SITE SHALL BE LIMITED TO THE HOURS OF 9AM TO 4PM MONDAY THROUGH FRIDAY.
- IMPERVIOUS COVERAGE FROM THE PROPOSED PROJECT SHALL BE COMPRISED OF CONCRETE AND CRUSHED STONE/GRAVEL FOR ACCESS WAYS.

SOIL TEST DATA

T.P. # 0223-1	T.P. #
DATE: 2.9.2023	DATE:
0 EL=113.56	0
1 SA LO	1
2 3/4 SA LO	2
3 5/8 SA LO	3
4 3/4 SA LO	4
5 10/16 6/8	5
6 11/16	6
7 12/16	7
8 13/16	8
9 14/16	9
10 15/16	10
11	11
12	12

ESTIMATED SEASONAL WET PROSPECTOR

CLASS: 2
 SOIL TESTING PERFORMED BY:
 CHRISTOPHER M. ANDERSON, PE
 (SF#14005)
 HANNIGAN ENGINEERING, INC.



LEGEND

	EXISTING		PROPOSED
	DRAIN SEWER WATER		ELEC/TELE/CABLE
	EDGE OF PAVEMENT		CURBLINE
	EROSION CONTROL		TREELINE
	WETLAND WETLAND BUFFER ZONE		HYDRANTS
	SIGNS		LIGHTPOLE

APPROVAL OF THIS PLAN IS GRANTED ON THE CONDITIONS LISTED IN A SEPARATE STATEMENT OF CONDITIONS WHICH PART OF THE APPROVAL OF THIS SITE PLAN.

WINCHENDON PLANNING BOARD

DATE:	
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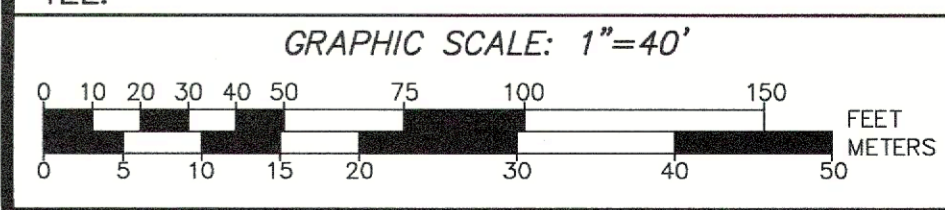


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 CIVIL ENGINEERS & LAND SURVEYORS

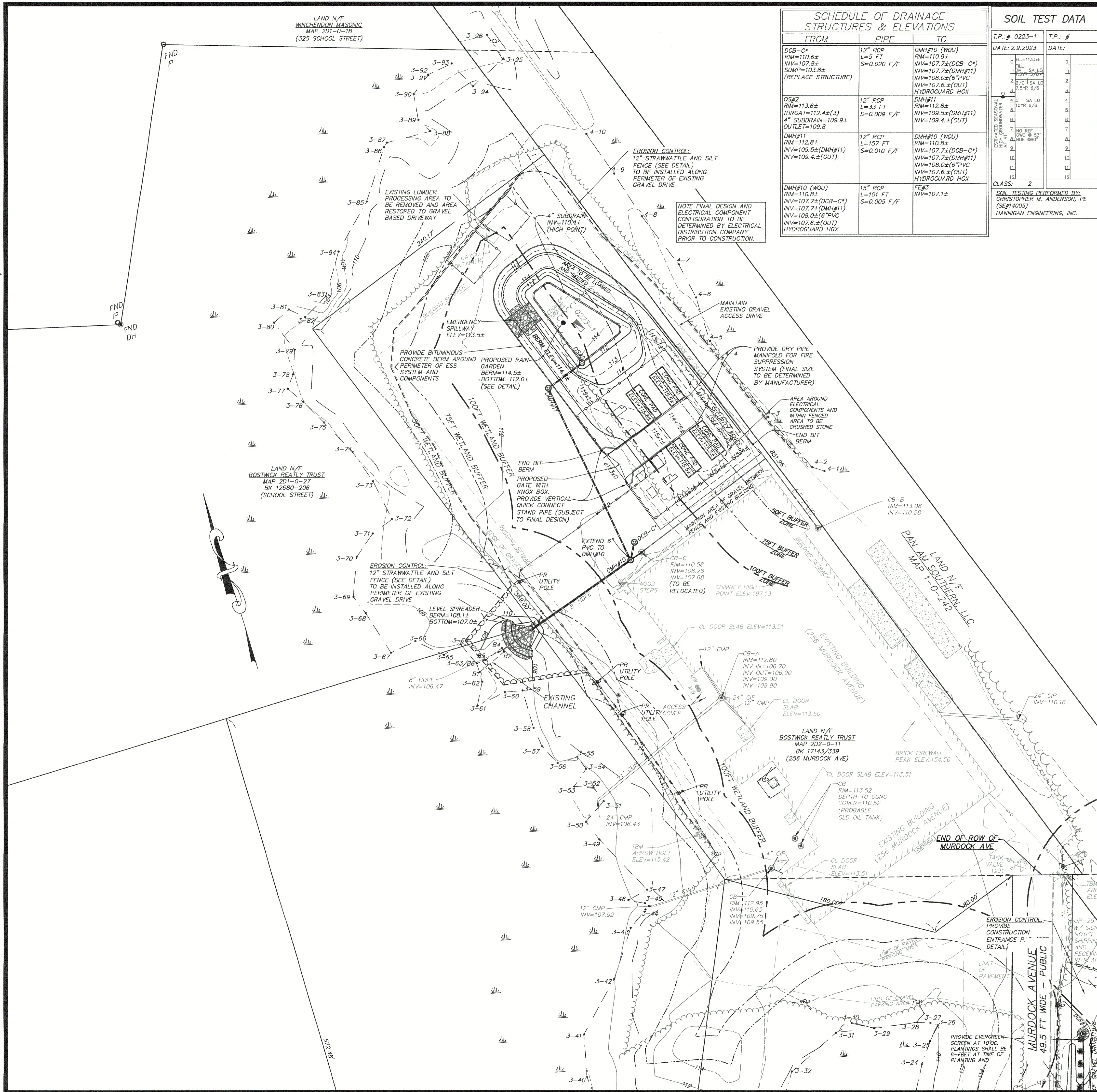
8 MONUMENT SQUARE LEOMINSTER, MASSACHUSETTS 01453
 (978) 534-1234 (T) (978) 534-6060 (F)
 WWW.HANNIGANENGINEERING.COM

EXISTING CONDITIONS PLAN
 IN
WINCHENDON, MASSACHUSETTS

PREPARED FOR:
ZP BATTERY DEVCO, LLC
 PETE FORTE
 1 MERCANTILE STREET, SUITE 630
 WORCESTER, MASSACHUSETTS 01608
 TEL: _____



CALC: CMA	DRWN: CMA	SCALE: 1"=40'
CHKD: WDH	APPD: CMA	DATE: MAR 27, 2023
SRV: JEF	FB: 75-130	JOB NO: 3101
TAB: (1)JEXCON A	SHEET 1 OF 5	PLAN NO: C-18-41



SCHEDULE OF DRAINAGE STRUCTURES & ELEVATIONS		
FROM	PIPE	TO
DCB-C* RIM=110.6± INV=107.8± SUMP=103.8± (REPLACE STRUCTURE)	12" RCP L=5 FT S=0.020 F/F	DMH#10 (WOU) RIM=110.8± INV=107.7±(DCB-C*) INV=108.0±(6" PVC) INV=107.6±(OUT) HYDROGUARD HGX
OS#2 RIM=113.6± THROW=112.4±(3) 4" SUBRAIN=109.9± OUTLET=109.8	12" RCP L=33 FT S=0.009 F/F	DMH#11 RIM=112.8± INV=109.5±(DMH#11) INV=107.7±(DMH#11) INV=108.0±(6" PVC) INV=107.6±(OUT) HYDROGUARD HGX
DMH#11 RIM=112.8± INV=109.5±(DMH#11) INV=107.7±(DMH#11) INV=108.0±(6" PVC) INV=107.6±(OUT) HYDROGUARD HGX	12" RCP L=157 FT S=0.010 F/F	DMH#10 (WOU) RIM=110.8± INV=107.7±(DCB-C*) INV=107.7±(DMH#11) INV=108.0±(6" PVC) INV=107.6±(OUT) HYDROGUARD HGX
DMH#10 (WOU) RIM=110.8± INV=107.7±(DCB-C*) INV=107.7±(DMH#11) INV=108.0±(6" PVC) INV=107.6±(OUT) HYDROGUARD HGX	15" RCP L=101 FT S=0.005 F/F	FE#3 INV=107.1±

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SOIL TESTING PERFORMED BY: CHRISTOPHER M. ANDERSON, PE (SE#14005) HANNIGAN ENGINEERING, INC.																																																																																																																																																																																																											



PROJECT INFORMATION

LAND INFORMATION
 MAP PARCEL: 202/11
 DEED BOOK/PAGE: 17143/339
 EXISTING FRONTAGE: 49.5 FT
 EXISTING AREA: 3.75 ACRES±

ZONING INFORMATION
 ZONING DISTRICT: INDUSTRIAL
 DIMENSIONAL REQUIREMENTS:
 MINIMUM AREA: 43,560 SF
 MINIMUM FRONTAGE: 150 FEET
 MAXIMUM HEIGHT: 50 FT
 MAXIMUM COVERAGE: NA
 MINIMUM SETBACKS:
 FRONT YARD: 40 FT
 SIDE YARD: 25 FT
 REAR YARD: 50 FT

GENERAL NOTES:

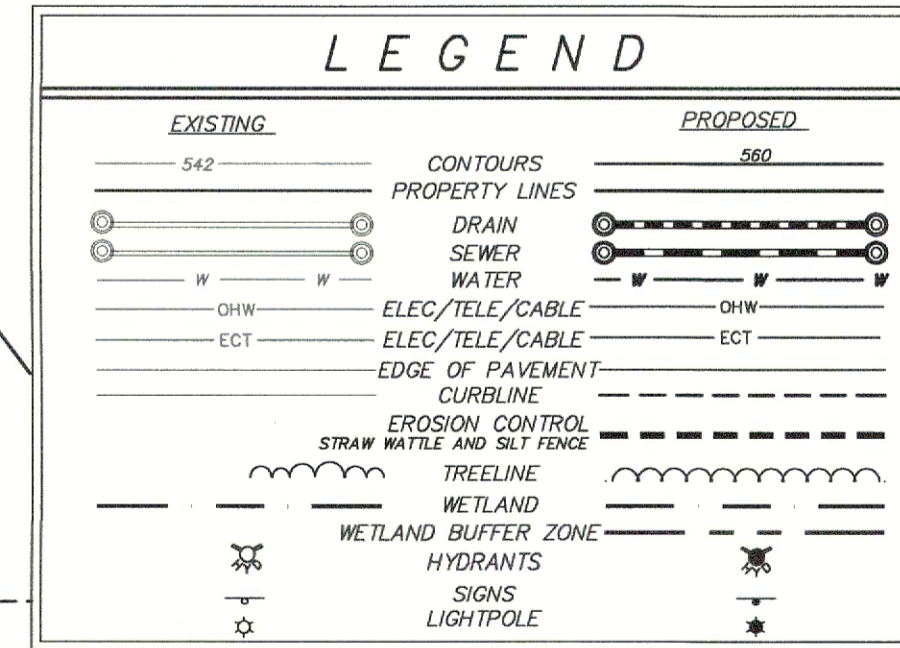
- PROPERTY LINE INFORMATION BASED DEEDS AND PLANS OF RECORD. NO CERTIFICATION OF PROPERTY LINES SHOWN ON THIS PLAN IS INTENDED OR IMPLIED BY HANNIGAN ENGINEERING, INC. TOPOGRAPHIC INFORMATION IS THE RESULT OF AN ON-THE-GROUND TOPOGRAPHIC SURVEY BY HANNIGAN ENGINEERING, INC. IN MAY OF 2022.
- AREAS SUBJECT TO PROTECTION UNDER THE WETLANDS PROTECTION ACT HAVE BEEN DELINEATED BY LEC ENVIRONMENTAL CONSULTANTS IN FEBRUARY OF 2022. THESE AREAS ARE SHOWN ON THE PLANS BASED ON FIELD SURVEY LOCATION THROUGH THE TOPOGRAPHIC SURVEY.
- 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)
- 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.
- RELOCATION OF AND/OR CONNECTION TO EXISTING UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY.
- UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF THE TOWN OF WINCHENDON AND THE MASS DOT SPECIFICATIONS OF HIGHWAYS AND BRIDGES.
- ALL SLOPES UNLESS OTHERWISE SPECIFIED, SHALL BE LOAMED AND SEEDED FOR STABILIZATION.
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- 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)
- 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.
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- THE AREA PROPOSED FOR DEVELOPMENT IS NOT WITHIN A 100 YEAR FLOOD PLAIN PER F.E.M.A. FIRM PANEL #20148-0188, DATED JUNE 15, 1982. COMPLIANCE WITH APPLICABLE REGULATIONS IS REQUIRED.
- ALL REINFORCED CONCRETE PIPE TO BE CLASS III UNLESS OTHERWISE NOTED.
- PRE-CONSTRUCTION CONFERENCE SHALL BE HELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- ALL UTILITIES ARE TO BE INSTALLED BY A LICENSED UTILITY CONTRACTOR LICENSED BY THE TOWN OF WINCHENDON.

OWNER
 BOSTWICK REALTY TRUST
 256 MURDOCK AVENUE
 WINCHENDON, MASSACHUSETTS

APPLICANT
 ZP BATTERY DEVCO, LLC
 1 MERCANTILE STREET, SUITE 630
 WORCESTER, MASSACHUSETTS 01608

PROJECT NOTES:

- EARTHEN MATERIALS UTILIZED AS FILL WITHIN THE PROJECT AREA SHALL BE CLEAN AND FREE OF DELETERIOUS MATERIALS AND SHALL NOT CONTAIN ANY HAZARDOUS MATERIALS
- PRIOR TO THE START OF CONSTRUCTION AND CLEARING ACTIVITIES, THE APPROVED LIMITS OF CONSTRUCTIONS SHALL BE FIELD STAKED AND REVIEWED BY THIS OFFICE UPON THE COMPLETION OF CONSTRUCTION CATCHBASINS, SUMPS AND STORMWATER BASINS OR BEST MANAGEMENT PRODUCTS (BMPs) SHALL BE CLEANED AND ANNUALLY THEREAFTER.
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- IMPERVIOUS COVERAGE FROM THE PROPOSED PROJECT SHALL BE COMPRISED OF CONCRETE AND CRUSHED STONE/GRAVEL FOR ACCESS WAYS.



APPROVAL OF THIS PLAN IS GRANTED ON THE CONDITIONS LISTED IN A SEPARATE STATEMENT OF CONDITIONS WHICH PART OF THE APPROVAL OF THIS SITE PLAN.

WINCHENDON PLANNING BOARD

DATE: _____

HANNIGAN ENGINEERING, INC.
 CIVIL ENGINEERS & LAND SURVEYORS

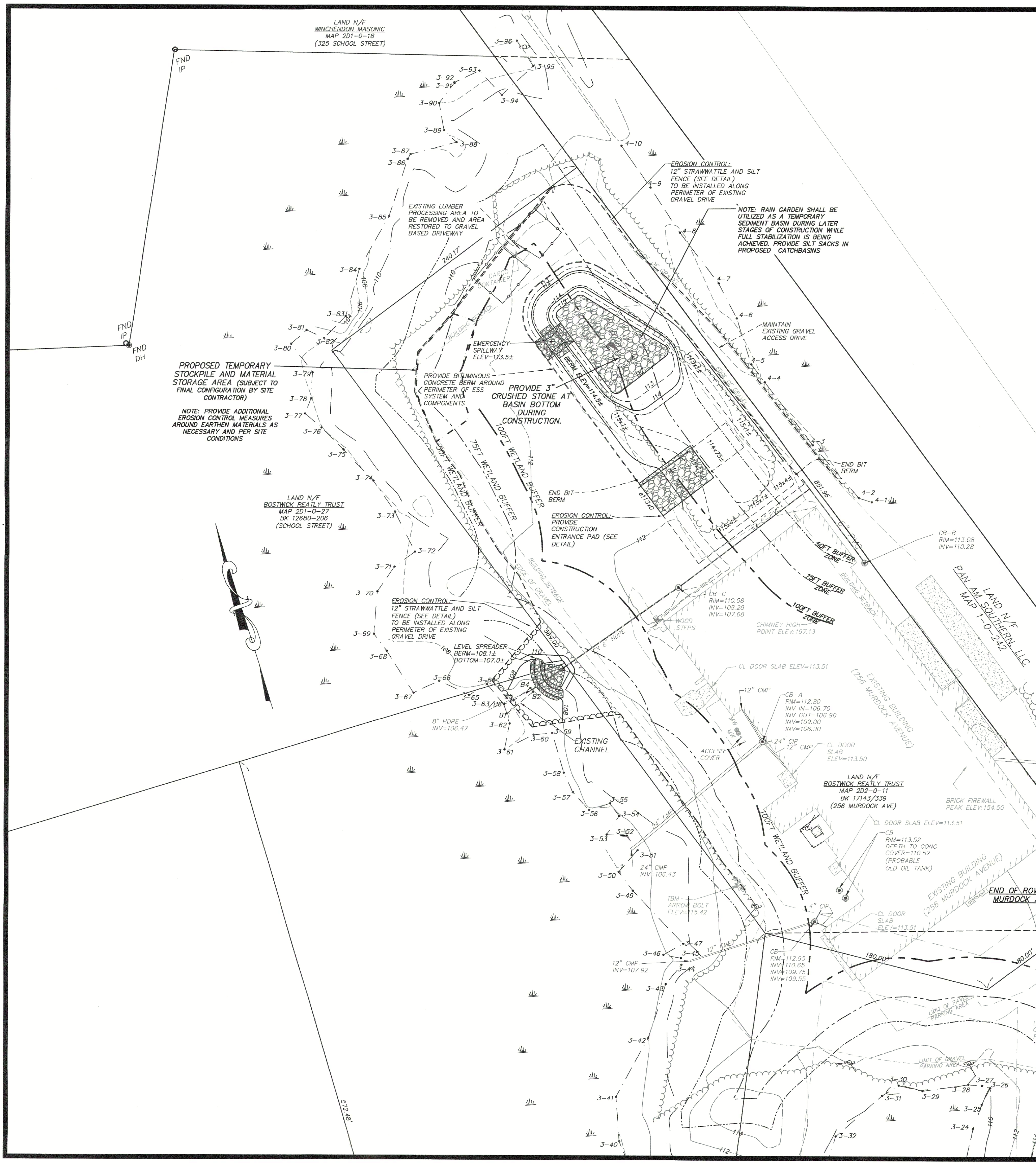
8 MONUMENT SQUARE (978) 534-1234 (T)
 LEONISTON, MASSACHUSETTS 01453 (978) 534-6060 (F)
 WWW.HANNIGANENGINEERING.COM

SITE DEVELOPMENT PLAN
 IN
WINCHENDON, MASSACHUSETTS

PREPARED FOR:
 ZP BATTERY DEVCO, LLC
 PETE FORTE
 1 MERCANTILE STREET, SUITE 630
 WORCESTER, MASSACHUSETTS 01608
 TEL: _____

GRAPHIC SCALE: 1"=40'
 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 FEET
 0 5 10 15 20 30 40 50 METERS

CALC: CMA DRWN: CMA SCALE: 1"=40'
 CHKD: WDH APPD: CMA DATE: MAR 27, 2023
 SRV: JEF FB: 75-130 JOB NO: 3101
 TAB: (2) SDP-A SHEET 2 OF 5 PLAN NO: C-18-41



SOIL TEST DATA	
T.P. # 0223-1	T.P. #
DATE: 2.9.2023	DATE:
ESTIMATED SEASONAL HIGH WATER TABLE	
0 EL=113.5±	0
1 1/2' SA LO	1
2 1/2' SA LO	2
3 1/2' SA LO	3
4 1/2' SA LO	4
5 1/2' SA LO	5
6 1/2' SA LO	6
7 1/2' SA LO	7
8 1/2' SA LO	8
9 1/2' SA LO	9
10 1/2' SA LO	10
11 1/2' SA LO	11
12 1/2' SA LO	12
CLASS: 2	
SOIL TESTING PERFORMED BY: CHRISTOPHER M. ANDERSON, PE (#E#14005) HANNIGAN ENGINEERING, INC.	



LOCUS MAP SCALE: 1" = 1000'

PROJECT INFORMATION

LAND INFORMATION	
MAP/PARCEL:	202/11
DEED BOOK/PAGE:	17143/339
EXISTING FRONTAGE:	49.5 FT
EXISTING AREA:	3.75 ACRES±
ZONING INFORMATION	
ZONING DISTRICT:	INDUSTRIAL
DIMENSIONAL REQUIREMENTS:	
MINIMUM AREA:	43,960 SF
MINIMUM FRONTAGE:	150 FEET
MAXIMUM HEIGHT:	50 FT
MAXIMUM COVERAGE:	NA
MINIMUM SETBACKS:	
FRONT YARD:	40 FT
SIDE YARD:	25 FT
REAR YARD:	50 FT

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OWNER
BOSTWICK REALTY TRUST
256 MURDOCK AVENUE
WINCHENDON, MASSACHUSETTS

APPLICANT
ZP BATTERY DEVCO, LLC
1 MERCANTILE STREET, SUITE 630
WORCESTER, MASSACHUSETTS 01608

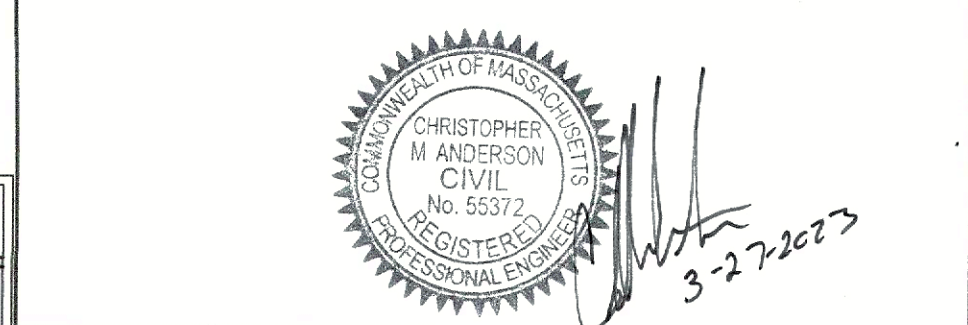
- PROJECT NOTES:**
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LEGEND	
EXISTING	PROPOSED
542	560
CONTOURS	CONTOURS
PROPERTY LINES	PROPERTY LINES
DRAIN	DRAIN
SEWER	SEWER
WATER	WATER
CHW	ELEC/TELE/CABLE
ECT	ELEC/TELE/CABLE
	EDGE OF PAVEMENT
	CURLBANE
	EROSION CONTROL
	STRAW MATS AND SILT FENCE
	TREELINE
	WETLAND BUFFER ZONE
	HYDRANTS
	SIGNS
	LIGHTPOLE

APPROVAL OF THIS PLAN IS GRANTED ON THE CONDITIONS LISTED IN A SEPARATE STATEMENT OF CONDITIONS WHICH PART OF THE APPROVAL OF THIS SITE PLAN.

WINCHENDON PLANNING BOARD

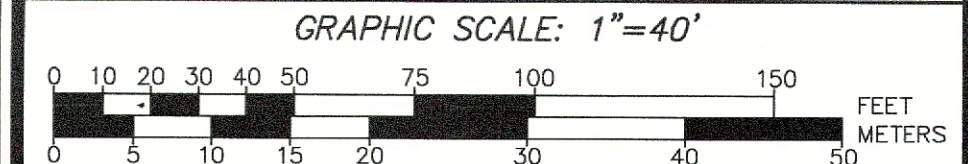
DATE: _____



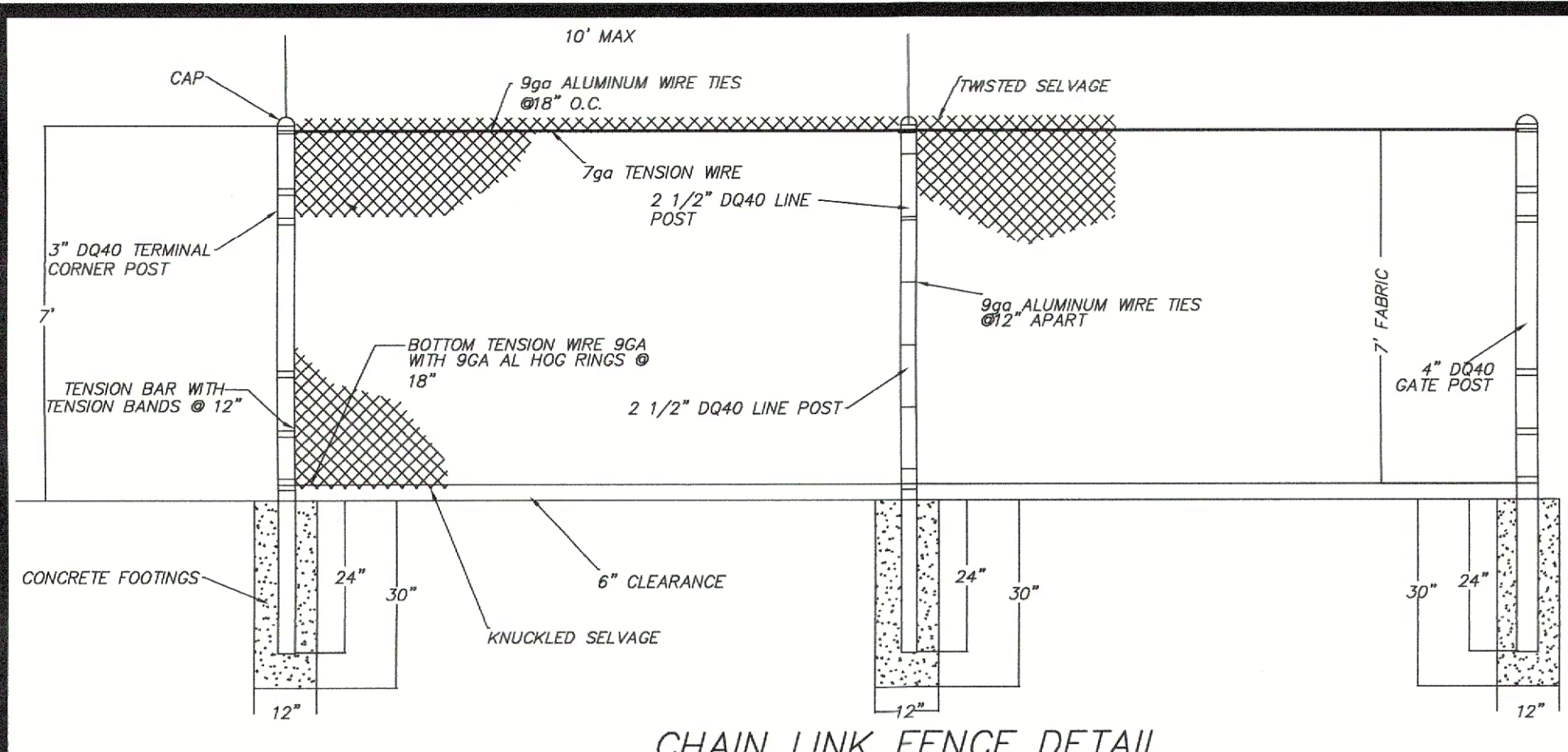
HANNIGAN ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS
8 MONUMENT SQUARE (978) 834-1234 (T)
LEONISTER, MASSACHUSETTS 01453 (978) 834-6200 (F)
WWW.HANNIGANENGINEERING.COM

EROSION CONTROL PLAN
IN
WINCHENDON, MASSACHUSETTS

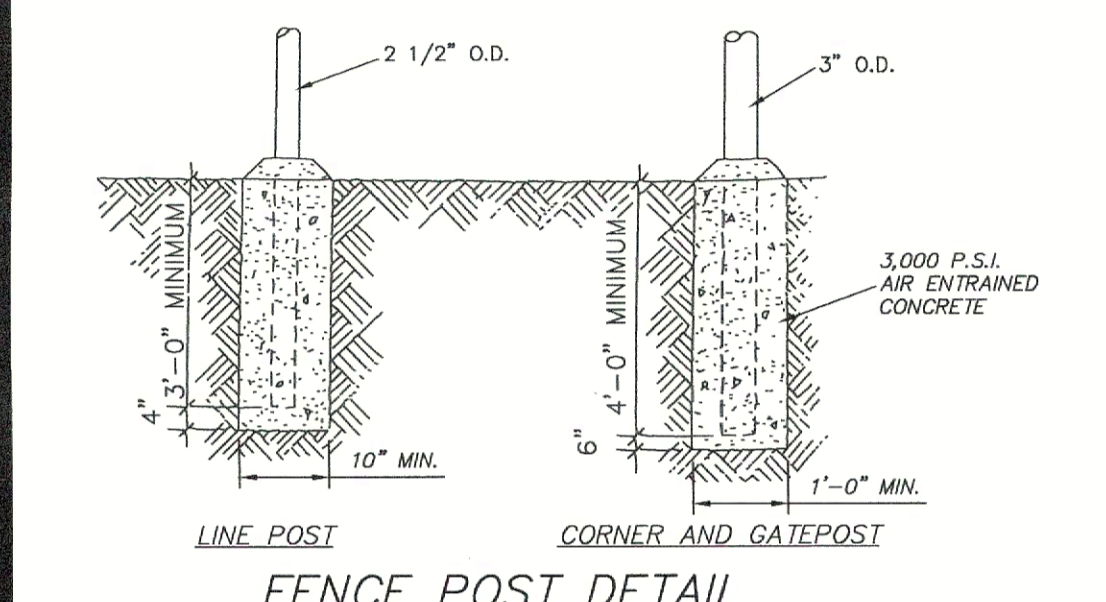
PREPARED FOR:
ZP BATTERY DEVCO, LLC
PETE FORTI
1 MERCANTILE STREET, SUITE 630
WORCESTER, MASSACHUSETTS 01608
TEL: _____



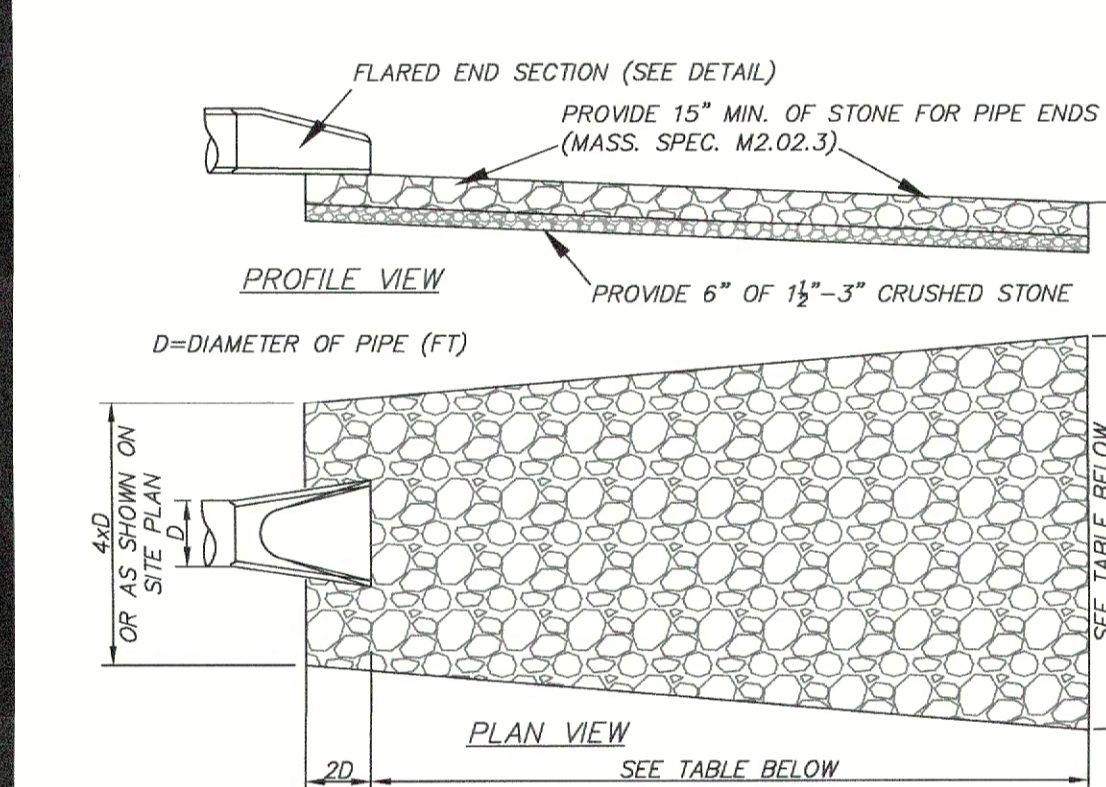
CALC: CMA	DRWN: CMA	SCALE: 1"=40'
CHKD: WDH	APPD: CMA	DATE: MAR 27, 2023
SRV: JEF	FB: 75-130	JOB NO: 3101
TAB: (3) EROS-A	SHEET 3 OF 5	PLAN NO: C-18-41



CHAIN LINK FENCE DETAIL
NO SCALE



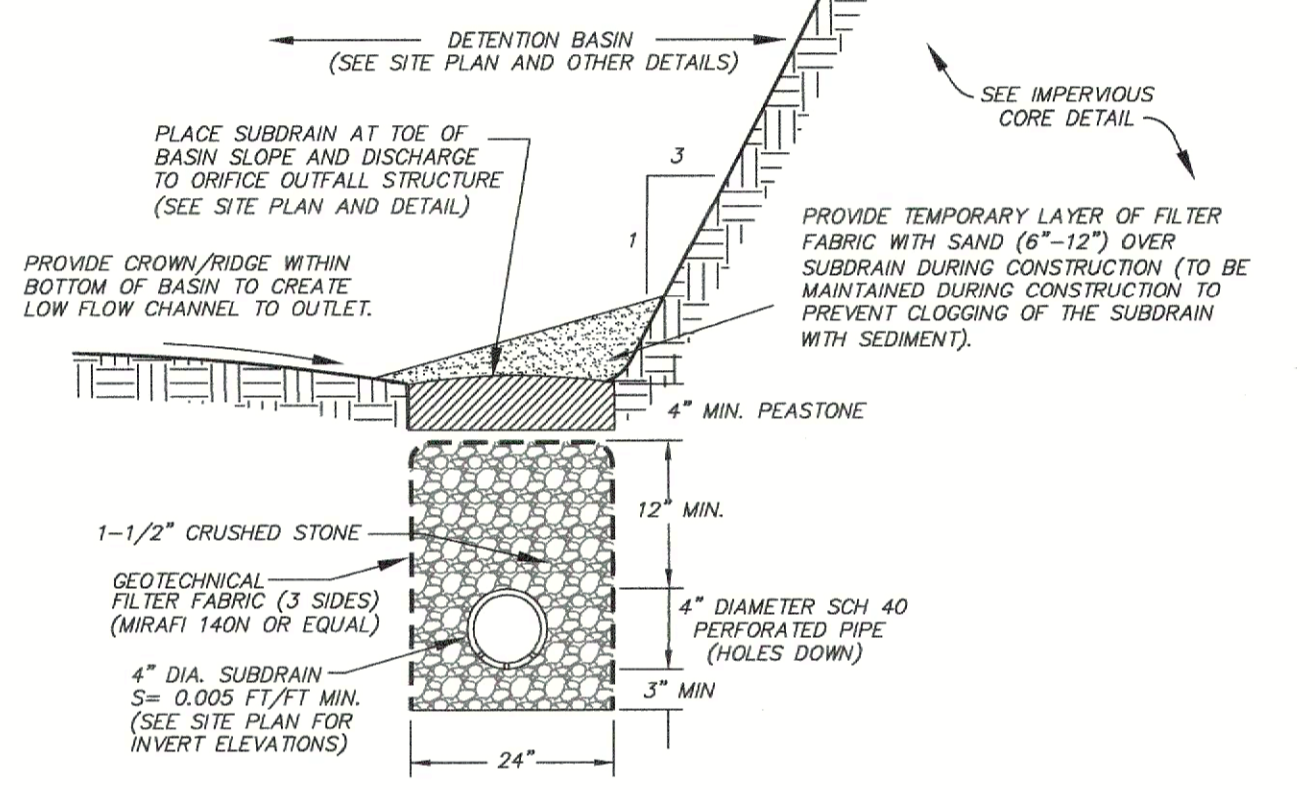
FENCE POST DETAIL
NO SCALE



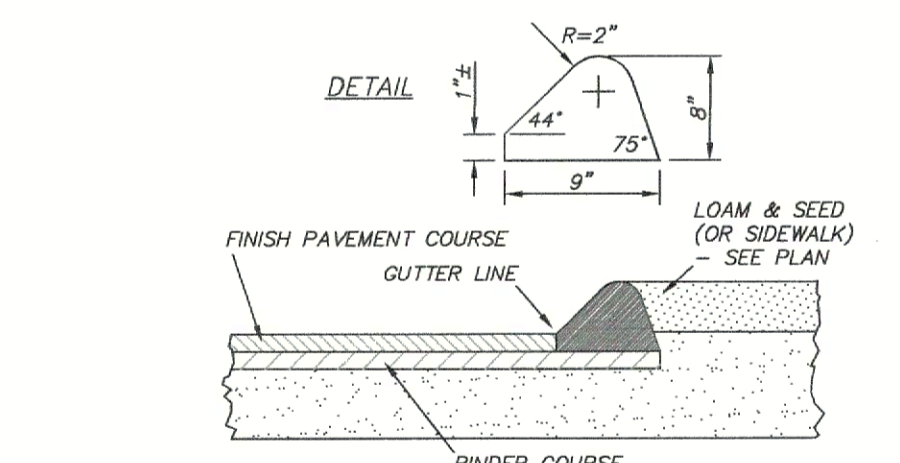
RIP RAP APRON DETAIL
NO SCALE

NOTES:
COLOR OF ALL MATERIALS ARE GALVANIZED
INCLUDES 10'x20' WIDE DOUBLE GATE
GATE POSTS 4" TERMINAL POSTS 3" LINE POSTS 2.5" TOP TENSION WIRE 7ga HIGH RINGS WITH STEEL CORE
TENSION BANDS @ 12" WIRE 9ga TENSION WIRE TO MATCH FABRIC
BOTTOM TENSION WIRE WITH 9ga AL HOC RINGS
DOME CAPS RAIL ENDS 9ga TIE WIRES WITH STEEL CORE
3" BRACE BANDS
STEEL CORE GALVANIZED WITH 9ga PVC EXTRUDED POLY VINYL CHLORIDE (PVC)
COATED STEEL CHAIN LINK FABRIC AS PER ASTM F668 CLASS 1

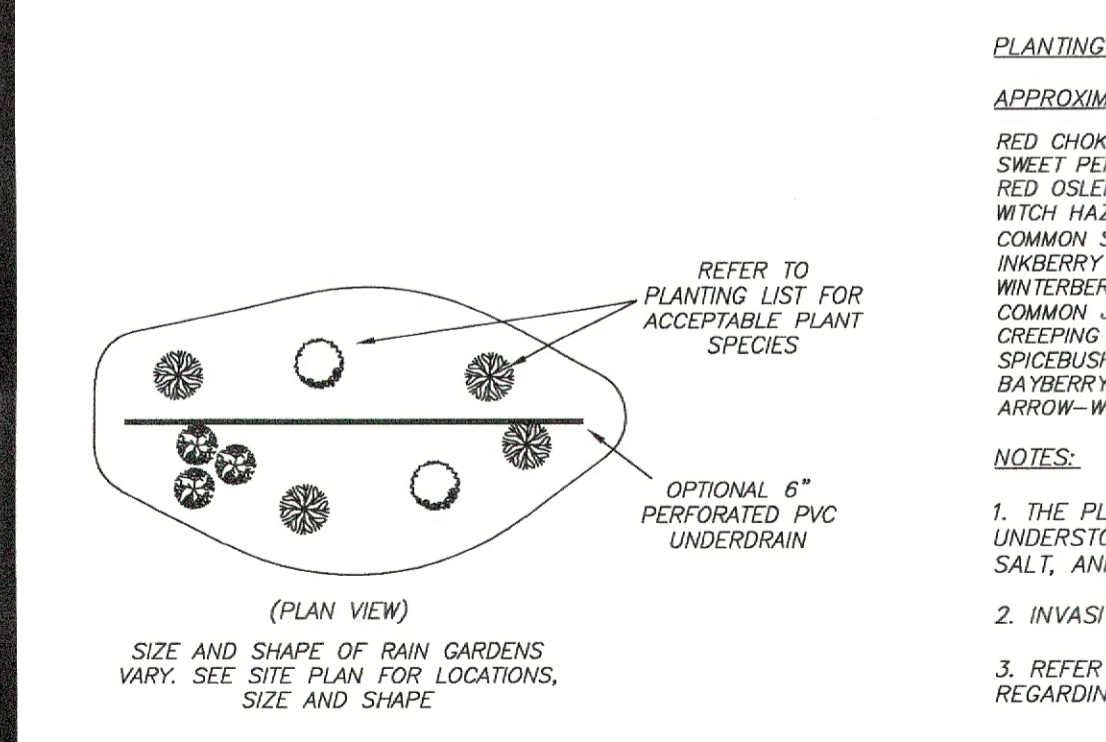
NOTE: EXFILTRATION FROM SUBDRAINS HAS NOT BEEN CONSIDERED IN OVERALL DRAINAGE DESIGN CALCULATIONS.



DETENTION BASIN 4"-SUBDRAIN DETAIL
NO SCALE



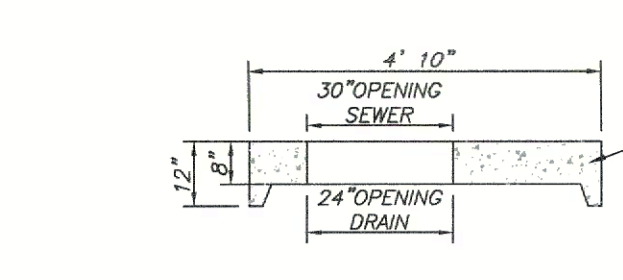
BITUMINOUS CONCRETE CURB
(MHD - TYPE 2)
NO SCALE



RAIN GARDEN DETAIL
(NO SCALE)

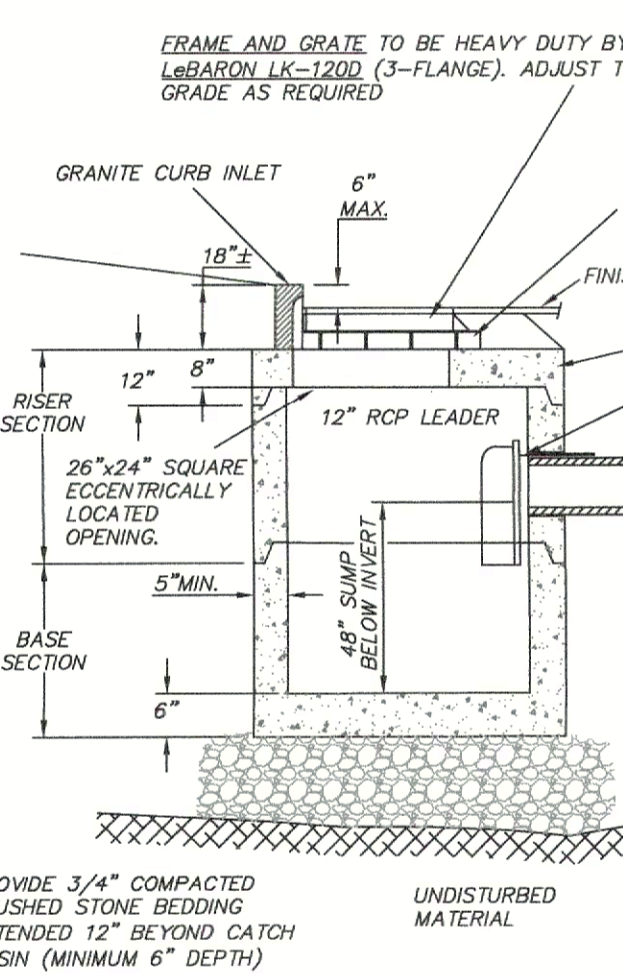
PLANTING LIST AND NOTES
APPROXIMATE SPECIES MIX
RED CHOKEBERRY - *Aronia arbutifolia*
SWEET PEPPERBUSH - *Clethra alnifolia*
RED OSLER DOGWOOD - *Cornus sericea*
WITCH HAZEL - *Hamamelis virginiana*
COMMON ST. JOHN'S WORT - *Hypericum perforatum*
INKBERRY - *Ilex glabra*
WINTERBERRY - *Islex verticillata*
COMMON JUNIPER - *Juniperus communis*
CREEPING JUNIPER - *Juniperus horizontalis*
SPICEBUSH - *Lindera benzoin*
BAYBERRY - *Myrica pensylvanica*
ARROW-WOOD - *Viburnum dentatum*
RED MAPLE - *Acer rubrum*
SWITCH GRASS - *Panicum virgatum*
SHADBUSH - *Amelanchier*
RIVER BIRCH - *Betula nigra*
GRAY BIRCH - *Betula populifolia*
WHITE ASH - *Fraxinus americana*
GREEN ASH - *Fraxinus pennsylvanica*
EASTERN RED CEDAR - *Juniperus virginiana*
SWEET GUM - *Liquidambar styraciflua*
BLACK GUM - *Nyssa sylvatica*
SYCAMORE - *Platanus occidentalis*
EASTERN COTTONWOOD - *Populus deltoides*
SWAMP WHITE OAK - *Quercus bicolor*
SCARLET OAK - *Quercus coccinea*
BUR OAK - *Quercus macrocarpa*
NOTES:
1. THE PLANTING PLAN SHALL INCLUDE A MIX OF HERBACEOUS PERENNIALS, SHRUBS AND (IF CONDITIONS PERMIT) UNDERSTORY TREES THAT CAN TOLERATE INTERMITTENT PONDING, OCCASIONAL SALINE CONDITIONS DUE TO ROAD SALT, AND EXTENDED DRY PERIODS.
2. INVASIVE OR EXOTIC SPECIES ARE PROHIBITED
3. REFER TO MASSACHUSETTS STORMWATER HANDBOOK (VOLUME 2, CHAPTER 2) FOR ADDITIONAL INFORMATION REGARDING PLANT SPECIES SUITABLE FOR USE IN BIORETENTION.

PLANTING SOIL NOTES
1. THE SOIL MIX SHALL BE A MIXTURE OF SAND COMPOST AND SOIL AS FOLLOWS: 40% SAND, 20-30% TOPSOIL AND 30-40% COMPOST.
2. THE SOIL MIX MUST BE UNIFORM, FREE OF STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN 2". CLAY CONTENT SHALL NOT EXCEED 5%.
3. SOIL PH SHOULD BE BETWEEN 5.5-6.5
4. USE SOILS WITH 1.5% TO 3% ORGANIC CONTENT AND MAXIMUM 500-PPM SOLUBLE SALTS.
5. THE SAND COMPONENT SHALL BE GRAVELLY SAND THAT MEETS ASTM D422.
6. THE TOPSOIL COMPONENT SHALL BE A SANDY LOAM, LOAMY SAND OR LOAM TEXTURE.
7. THE COMPOST COMPONENT MUST BE PROCESSED FROM YARD WASTE IN ACCORDANCE WITH MASS DEP GUIDELINES. THE COMPOST SHALL NOT CONTAIN BIOSOLIDS.



TYPICAL PRECAST MANHOLE
(SEWER OR DRAIN - USE APPROPRIATE COVER)
NO SCALE

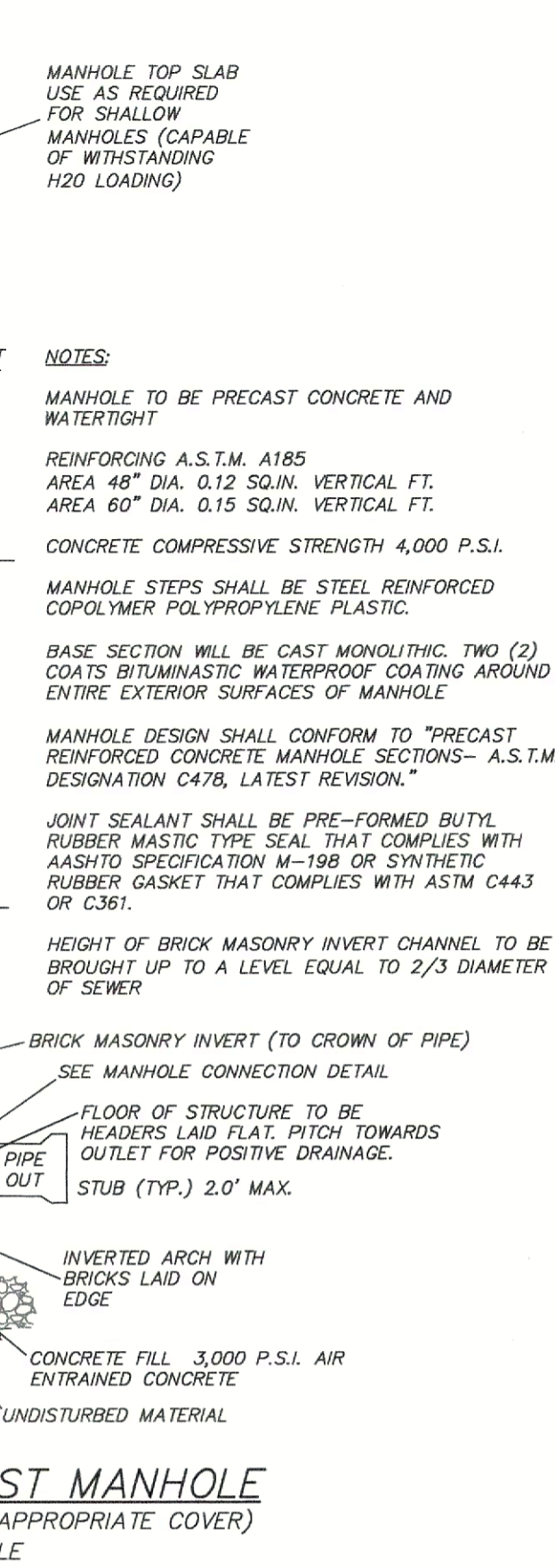
NOTE: FOUNDATION FOR BERM CONSTRUCTION SHALL BE CLEARED OF ALL TOP SOIL, ROCKS, DEBRIS, STUMPS, ETC. TO A FIRM SURFACE. IN NO CASE SHALL THIS EXCAVATION BE LESS THAN 12 INCHES SUBGRADE SHALL BE SCARIFIED AND MOISTENED TO A DEPTH OF 3 INCHES PRIOR TO PLACEMENT OF FILL.
REFER TO TYPICAL ACCESS LANE CROSS-SECTION (WHERE APPLICABLE)
PROVIDE 40-MIL HDPE PLASTIC BARRIER SEAMS SHALL BE SEALED (BONDED OR TAPED) AS SPECIFIED BY MANUFACTURER. POLY BARRIER SHALL EXTEND TO 2 FEET (MINIMUM) BELOW EXISTING GRADE OR TO A DEPTH 2" BELOW BOTTOM OF BASIN, WHICHEVER IS GREATER.
UNDISTURBED EARTH
REMOVE TOP & SUB SOILS TO STABILIZE SUB BASE MATERIAL PRIOR TO CONSTRUCTION OF BASIN.
PROVIDE JUTE MATTING, LOAM & HYDROSEED FOR SLOPE STABILIZATION
HEIGHT VARIES



TYPICAL PRECAST CATCH BASIN
WITH GRANITE CURB INLET
NO SCALE

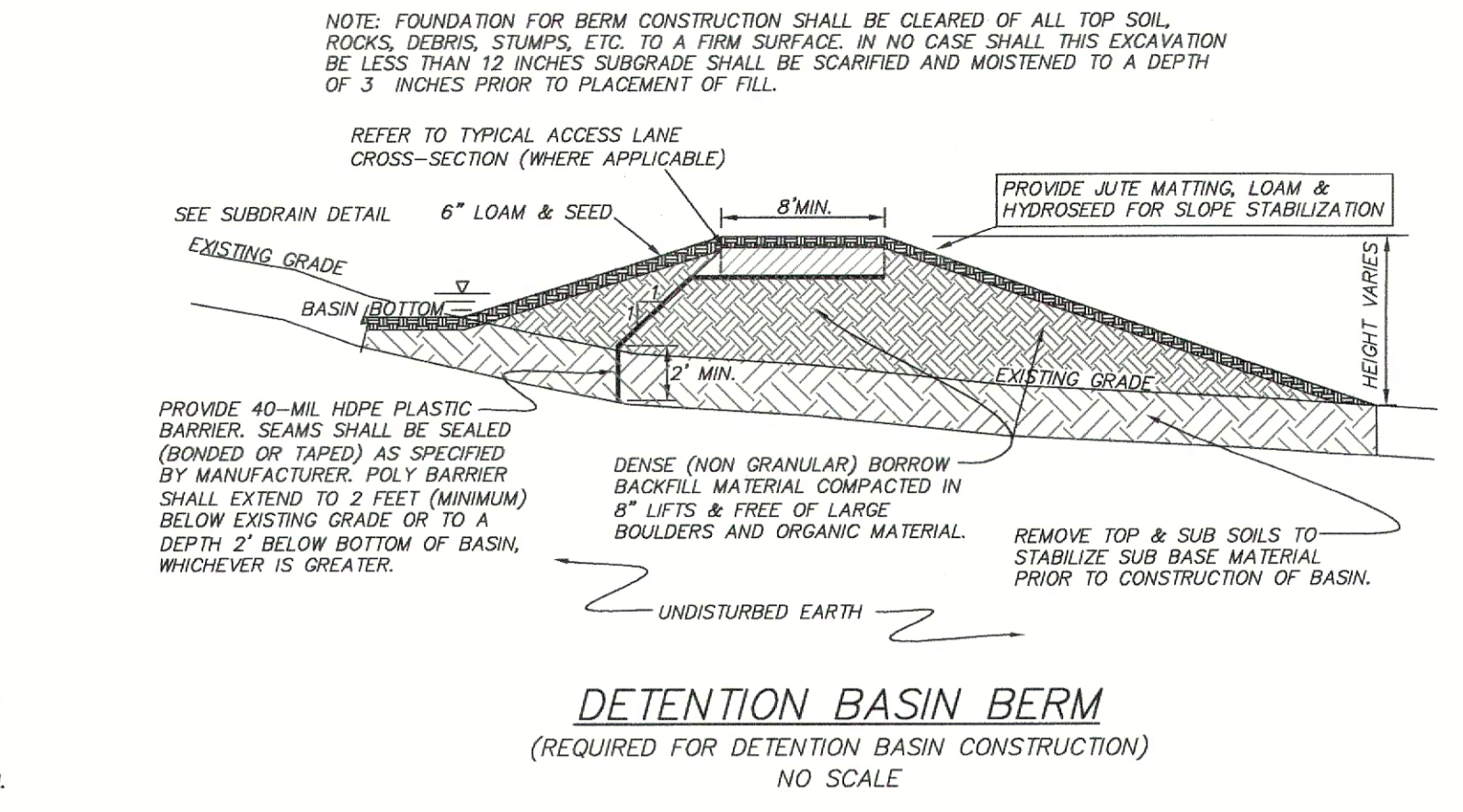
GENERAL NOTES:
1. CATCH BASIN TO BE PRECAST REINFORCED CONCRETE
2. STEEL REINFORCEMENT TO CONFORM TO A.S.T.M. A185 AREA 48" DIA. 0.12 SQ.IN. VERTICAL FT. AREA 60" DIA. 0.15 SQ.IN. VERTICAL FT.
3. CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 P.S.I. MANUFACTURER TO CERTIFY.
4. BASE SECTION TO BE MONOLITHIC CAST
5. JOINT SEALANT SHALL BE PRE-FORMED BUTYL RUBBER MASTIC TYPE SEAL THAT COMPLES WITH AASHTO SPECIFICATION M-198 OR SYNTHETIC RUBBER GASKET THAT COMPLES WITH ASTM C443 OR C361.
6. LEADERS FROM ALL CATCHBASINS SHALL BE 12" RCP UNLESS OTHERWISE NOTED.
BRICK & MORTAR MAY BE USED FOR GRADE ADJUSTMENT MINIMUM FIVE COURSES FRAME TO BE SET IN FULL BED OF MORTAR
TOP SLAB TO BE STEEL REINFORCED TO MEET OR EXCEED H-20 LOADING. SQUARE, 26"x24" OR 28"x34"

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

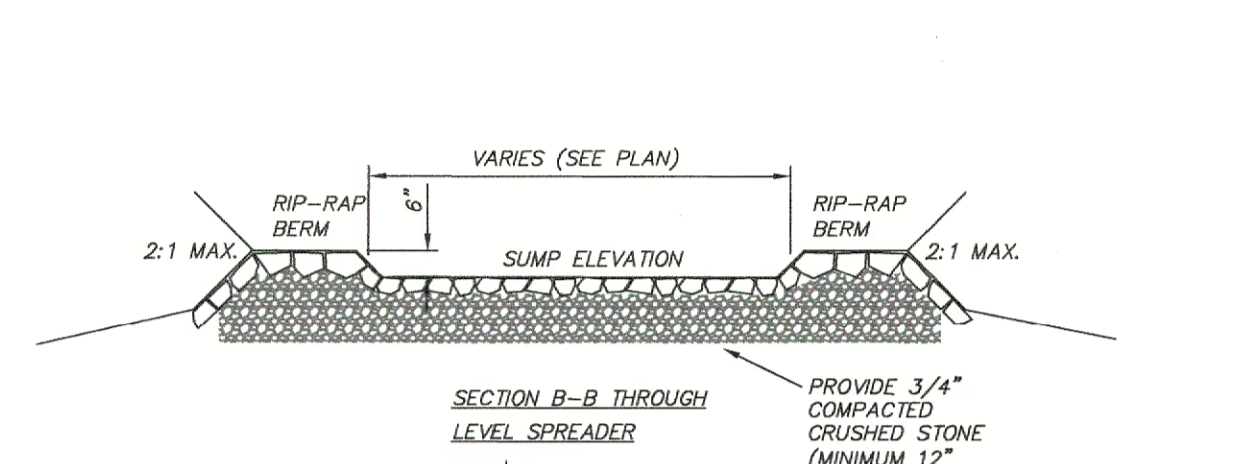


EMERGENCY SPILLWAY DETAIL
NO SCALE

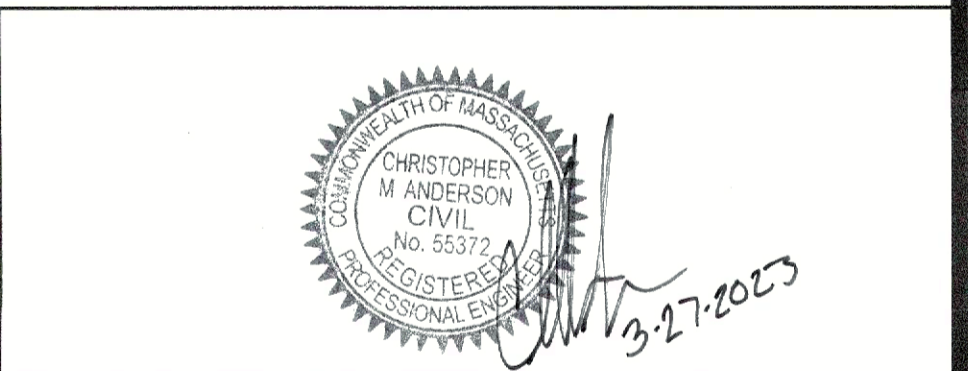
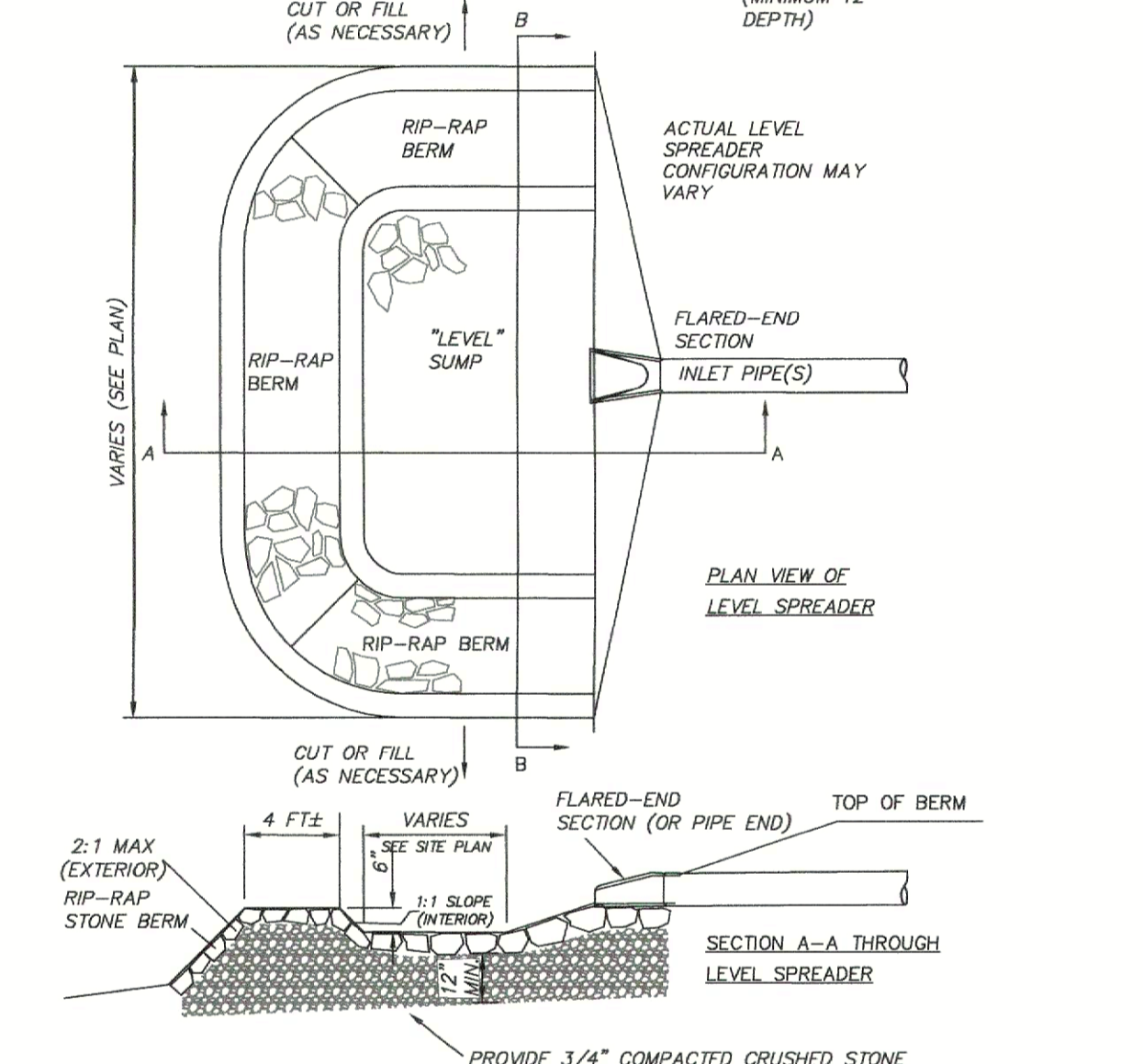
FRAME AND COVER TO BE: LeBARON LBF308 (SEWER) OR LBF268 (DRAIN) OR APPROVED EQUAL WITH DIAMOND PATTERN AND LETTERING "SEWER" OR "DRAIN" (H-20 LOADING). ADJUST TO GRADE AS REQUIRED. CONTRACTOR TO VERIFY IN-THE-FIELD THAT THE PROPOSED FRAME AND COVER WILL MATCH THOSE UTILIZED BY THE TOWN.
RED BRICKS MAY BE USED FOR GRADE ADJUSTMENT (MINIMUM TWO COURSES, MAXIMUM FIVE COURSES) FRAME TO BE SET IN FULL BED OF MORTAR
CONCRETE COMPRESSION STRENGTH 4,000 P.S.I.
MANHOLE STEPS SHALL BE STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC.
BASE SECTION WILL BE CAST MONOLITHIC TWO (2) COATS BITUMASTIC TWO COURSES - MAXIMUM ENTIRE EXTERIOR SURFACES OF MANHOLE
MANHOLE DESIGN SHALL CONFORM TO "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS- A.S.T.M. DESIGNATION C476, LATEST REVISION."
JOINT SEALANT SHALL BE PRE-FORMED BUTYL RUBBER MASTIC TYPE SEAL THAT COMPLES WITH AASHTO SPECIFICATION M-198 OR SYNTHETIC RUBBER GASKET THAT COMPLES WITH ASTM C443 OR C361.
HEIGHT OF BRICK MASONRY INVERT CHANNEL TO BE BROUGHT UP TO A LEVEL EQUAL TO 2/3 DIAMETER OF SEWER
BRICK MASONRY INVERT (TO CROWN OF PIPE)
SEE MANHOLE CONNECTION DETAIL
FLOOR OF STRUCTURE TO BE HEADERS LAD FLAT, PITCH TOWARDS OUTLET FOR POSITIVE DRAINAGE.
PIPE IN
PIPE OUT
STUB (TYP.) 2.0' MAX.
INVERTED ARCH WITH BRICKS LAD ON EDGE
CONCRETE FILL 3,000 P.S.I. AIR ENTRAINED CONCRETE
UNDISTURBED MATERIAL
PROVIDE 3/4" COMPACTED CRUSHED STONE BEDDING EXTENDED 12" BEYOND STRUCTURE (MIN. 6" DEPTH)
FRAME AND GRATE TO BE HEAVY DUTY BY LeBARON LK-1200 (3-FLANGE). ADJUST TO GRADE AS REQUIRED
GRANITE CURB INLET
6" MAX.
18"±
12" RCP LEADER
CAST IRON CATCH BASIN TRAP (LeBARON L202 OR EQUAL)
OUTLET PIPE (12" MIN.)
26"x24" SQUARE ECCENTRICALLY LOCATED OPENING
5" MIN.
6"±
6" MIN. CONC. CAP+ REINFORCED 4000 PSI MIN. TOP OF STRUCTURE
6" THROAT (x3) 9 IN V=112.5±
SEE SITE DEVELOPMENT PLAN FOR ELEVATIONS
TOP OF BERM
SEE EARTHEN DAM DETAIL
MORTAR ALL JOINTS
PRECAST REINFORCED CONCRETE RISER SECTIONS (1" TO 4" MIN 0.15 SQ.IN. STEEL PER VERTICAL FOOT ACCORDING TO AASHTO DESIGNATION M199 (4000 PSI MIN)
AS REQUIRED
4" MIN. RISER FOR TOP SECTION
6" DIA.
6" MIN. TYP.
PROVIDE MOISTURE TOLERANT GRASSES FOR DETENTION BASIN.
BOTTOM OF BASIN ELEV=109.0±
4" PVC SUBDRAIN INLET (4" IN=109.90)
HELP OUTLET WITH 1/8" THROAT THROUGH BASIN BERM
PRECAST REINFORCED CONC. MONOLITHIC BASE SECTION (4000 PSI MIN)
EXTEND RIP RAP TO BOTTOM OF SLOPE (TYP.)
3'-1" MAX.
3'-1" MAX.
OUTLET SIDE
BASIN SIDE
CROSS SECTION VIEW A-A
CROSS SECTION VIEW B-B



DETENTION BASIN BERM
(REQUIRED FOR DETENTION BASIN CONSTRUCTION)
NO SCALE



LEVEL SPREADER DETAIL
NO SCALE
(SEE PLAN FOR ACTUAL CONFIGURATION)



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CONSTRUCTION DETAILS
IN
WINCHENDON, MASSACHUSETTS

PREPARED FOR:
ZP BATTERY DEVCO, LLC
PETE FORTE
1 MERCANTILE STREET, SUITE 630
WORCESTER, MASSACHUSETTS 01608
TEL:

WINCHENDON PLANNING BOARD

CALC: CMA	DRWN: CMA	SCALE: NA
CHKD: WDH	APPD: CMA	DATE: MAR 27, 2023
SRV: JEF	FB: 75-130	JOB NO: 3101
TAB: (4-5)DET	SHEET 5 OF 5	PLAN NO: C-18-41

DATE: _____

OWNER
BOSTWICK REALTY TRUST
256 MURDOCK AVENUE
WINCHENDON, MASSACHUSETTS

APPLICANT
ZP BATTERY DEVCO, LLC
1 MERCANTILE STREET, SUITE 630
WORCESTER, MASSACHUSETTS 01608

APPROVAL OF THIS PLAN IS GRANTED ON THE CONDITIONS LISTED IN A SEPARATE STATEMENT OF CONDITIONS WHICH PART OF THE APPROVAL OF THIS SITE PLAN.