

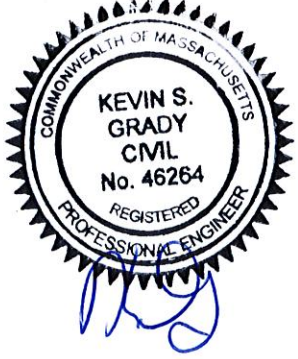
SITE PLAN - LOVELL ACADEMY

PLAN NORTH



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SITE PLAN APPROVAL

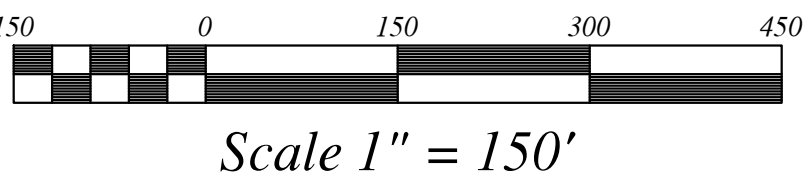
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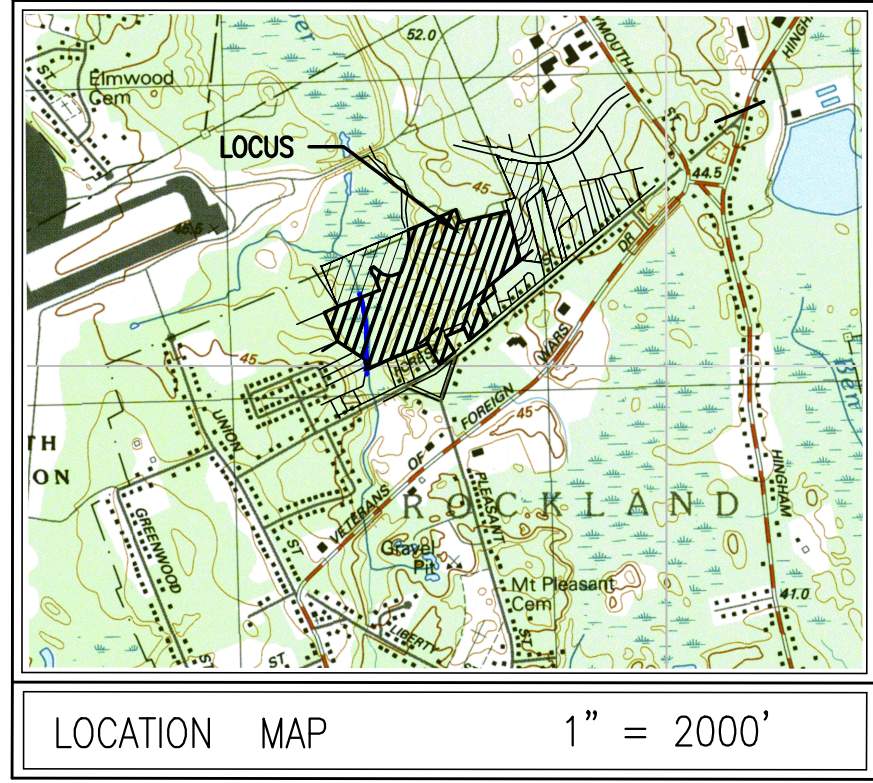
SITE PLAN
LOVELL ACADEMY
120 BILL DELAHUNT BOULEVARD
ASSESSORS LOT 14-092
ROCKLAND, MASSACHUSETTS

PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
LAUREN MONAHAN MANAGING PARTNER
129 JACOBS LANE
NORWELL MA 02061

AUGUST 16, 2021
SCALE: 1"=150'
JOB No. 17-276

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors &
Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378



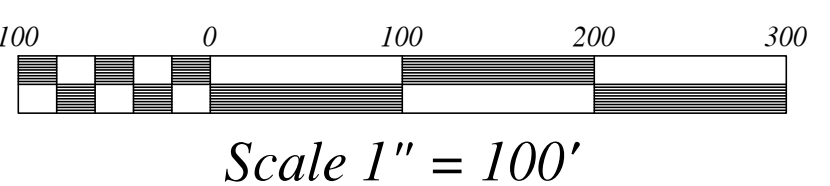


BILL DELAHUNT PARKWAY

PROPOSED SCHOOL
(15,209 SF)

HOCKEY RINK
(UNDER CONSTRUCTION)

PROPOSED WELL



ZONE: I-2 INDUSTRIAL PARK & R-2 RESIDENCE ZONE
EXISTING USE: VACANT, SKATING RINK (UNDER CONSTRUCTION)
PROPOSED USE: EDUCATIONAL FACILITY SCHOOL
MGL CH 40A SECTION 3— NO ZONING ORDINANCE OR BY-LAW SHALL REGULATE OR RESTRICT THE INTERIOR AREA OF A SINGLE FAMILY RESIDENTIAL BUILDING NOR SHALL ANY SUCH ORDINANCE OR BY-LAW PROHIBIT, REGULATE OR RESTRICT THE USE OF LAND OR STRUCTURES FOR RELIGIOUS PURPOSES OR FOR EDUCATIONAL PURPOSES ON LAND OWNED OR LEASED BY THE COMMONWEALTH OR ANY OF ITS AGENCIES, SUBDIVISIONS OR BODIES POLITIC OR BY A RELIGIOUS SECT OR DENOMINATION, OR BY A NONPROFIT EDUCATIONAL CORPORATION; PROVIDED, HOWEVER, THAT SUCH LAND OR STRUCTURES MAY BE SUBJECT TO REASONABLE REGULATIONS CONCERNING THE BULK AND HEIGHT OF STRUCTURES AND DETERMINING YARD SIZES, LOT AREA, SETBACKS, OPEN SPACE, PARKING AND BUILDING COVERAGE REQUIREMENTS.
PARCEL SIZE 2,569,937 S.F. (58.99 ACRES)
1,620,473 S.F. (37.2 ACRES) CONTIGUOUS UPLAND

DIMENSIONAL REQUIREMENTS: 415-5 INTERPRETATION OF BOUNDARIES:
WHERE A DISTRICT BOUNDARY LINE DIVIDES A LOT EXISTING AT THE TIME SUCH LINE IS ADOPTED, THE REGULATIONS APPLYING TO THE PORTION OF SUCH LOT IN THE LESS RESTRICTED DISTRICT MAY BE CONSIDERED AS EXTENDING NOT MORE THAN 30 FEET INTO THE MORE RESTRICTED PORTION, BUT ONLY IF THE LOT HAS FRONTAGE ON A STREET IN THE LESS RESTRICTED DISTRICT. THE PROVISION SHALL NOT BE USED TO DIMINISH THE BUFFER ZONE (REAR YARD DIMENSIONS) REQUIREMENTS BETWEEN RESIDENTIAL AND NON-RESIDENTIAL DISTRICTS AS CONTAINED IN§ 415-22.

REQUIRED	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT AREA	-----	2,569,937 S.F.	2,569,937 S.F.
LOT FRONTAGE	110 FT	203.22 FT	203.22 FT
LOT WIDTH @ 50' SETBACK	110'	203.22 FT	203.22 FT
FRONT YARD	50 FT	-----	348.7 FT
SIDE YARD**	30 FT	-----	33.5 & 41.9 FT
REAR YARD**	30 FT	-----	51 FT
** 50 FT IF THE ABUTTING LAND IS IN ANY RESIDENTIAL DISTRICT			
MAX BUILDING COVERAGE	ALLOWED 50%	-----	4.2% (94750+15209/2,569,937)
BUILDING HEIGHT	-----	-----	-----
STORIES	3	-----	3
HEIGHT	36 FT	-----	36 FT

PARKING ANALYSIS

ZBL 415-35 — OFF STREET PARKING REQUIREMENTS: D.(4) SCHOOLS 1.5 SPACES PER CLASSROOM AND 1 SPACE FOR EVERY NON-PROFESSIONAL EMPLOYEE
COLLEGE DORM PARKING = 1 SPACE PER 2 RESIDENCES

REQUIRED PARKING: 10 CLASSROOMS , 5 NON-PROFESSIONAL EMPLOYEES

REQUIRED:	CLASSROOMS: 10 X 1.5 + 5	= 20 SPACES REQUIRED
DORMITORY:	62 RESIDENCES (31 DORMS)	= 31 SPACES REQUIRED
PROPOSED		= 51 SPACES REQUIRED
		= 51 SPACES PROPOSED

(30% ALLOWED TO BE COMPACT 9'X18': 16 ALLOWED, 16 PROPOSED)

RECORD OWNER:

ASSESSOR MAP 14 LOT 92
0 BILL DELAHUNT PARKWAY
FOREST DELAHUNT DEVELOPMENT LLC
DEED BOOK 54183 PAGE 246
PLAN BOOK 64 PAGE 822

ASSESSOR MAP 19 LOT 47
0 FOREST STREET
FOREST DELAHUNT DEVELOPMENT LLC
DEED BOOK 54183 PAGE 246
PLAN BOOK 64 PAGE 822
CERTIFICATE 131245
LC PLAN 35481A

ASSESSOR MAP 19 LOT 108
0 FOREST STREET
FOREST DELAHUNT DEVELOPMENT LLC
BOOK 53981 PAGE 301
CERTIFICATE 131244
LC PLAN 35481B

ASSESSOR MAP 13 LOT 3
338 FOREST STREET
FOREST DELAHUNT DEVELOPMENT LLC
DEED BOOK 53980 PAGE 301
PLAN BOOK 25 PAGE 423

ASSESSOR MAP 13 LOT 1
0 FOREST STREET
FOREST DELAHUNT DEVELOPMENT LLC
DEED BOOK 54183 PAGE 246
PLAN BOOK 64 PAGE 822

SITE PLAN APPROVAL

DATE	
REVISIONS	

SITE PLAN

LOVELL ACADEMY
120 BILL DELAHUNT BOULEVARD
ASSESSORS LOT 14-092
ROCKLAND, MASSACHUSETTS

PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
LAUREN MONAHAN MANAGING PARTNER
129 JACOBS LANE
NORWELL MA 02061

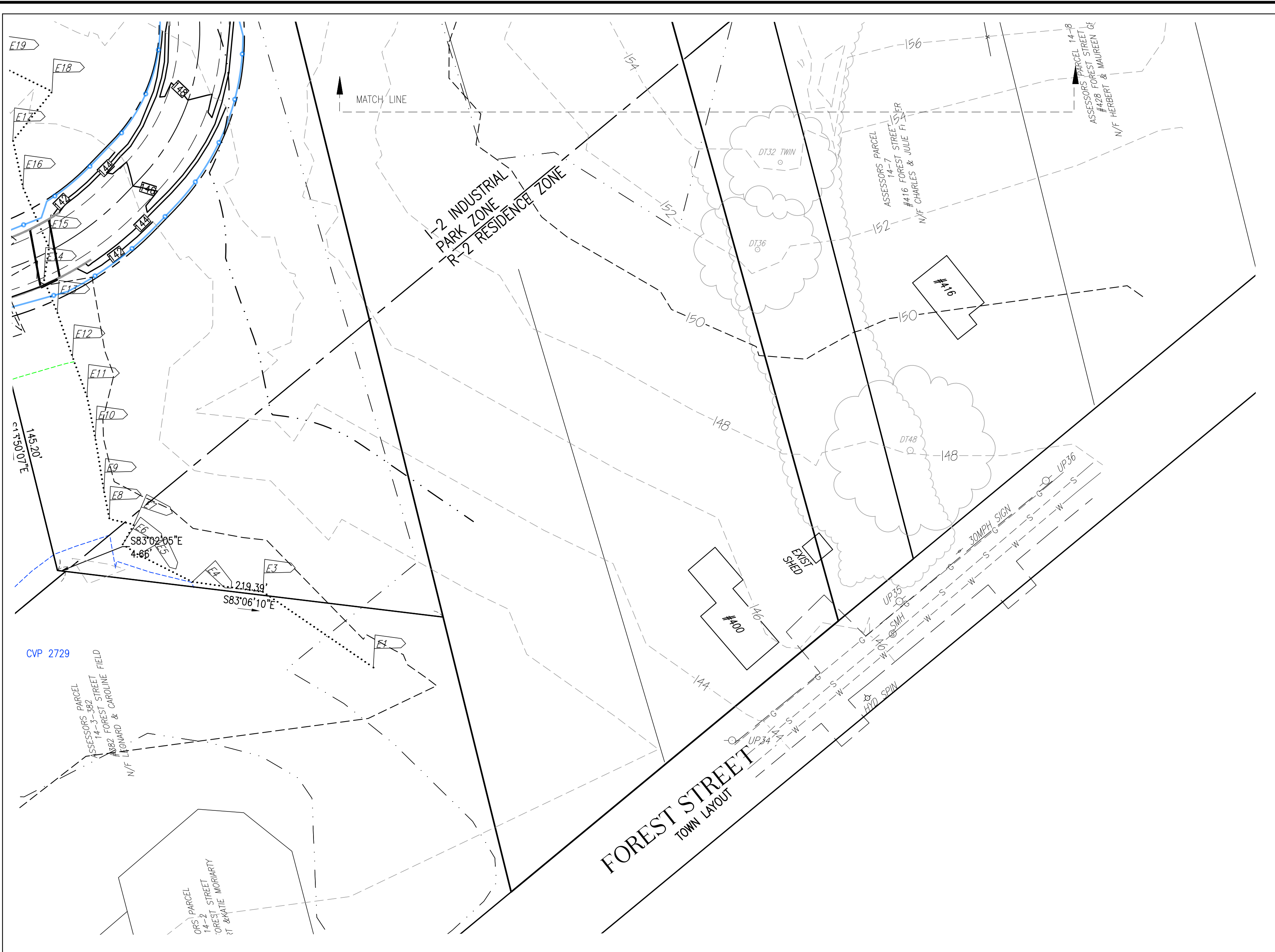
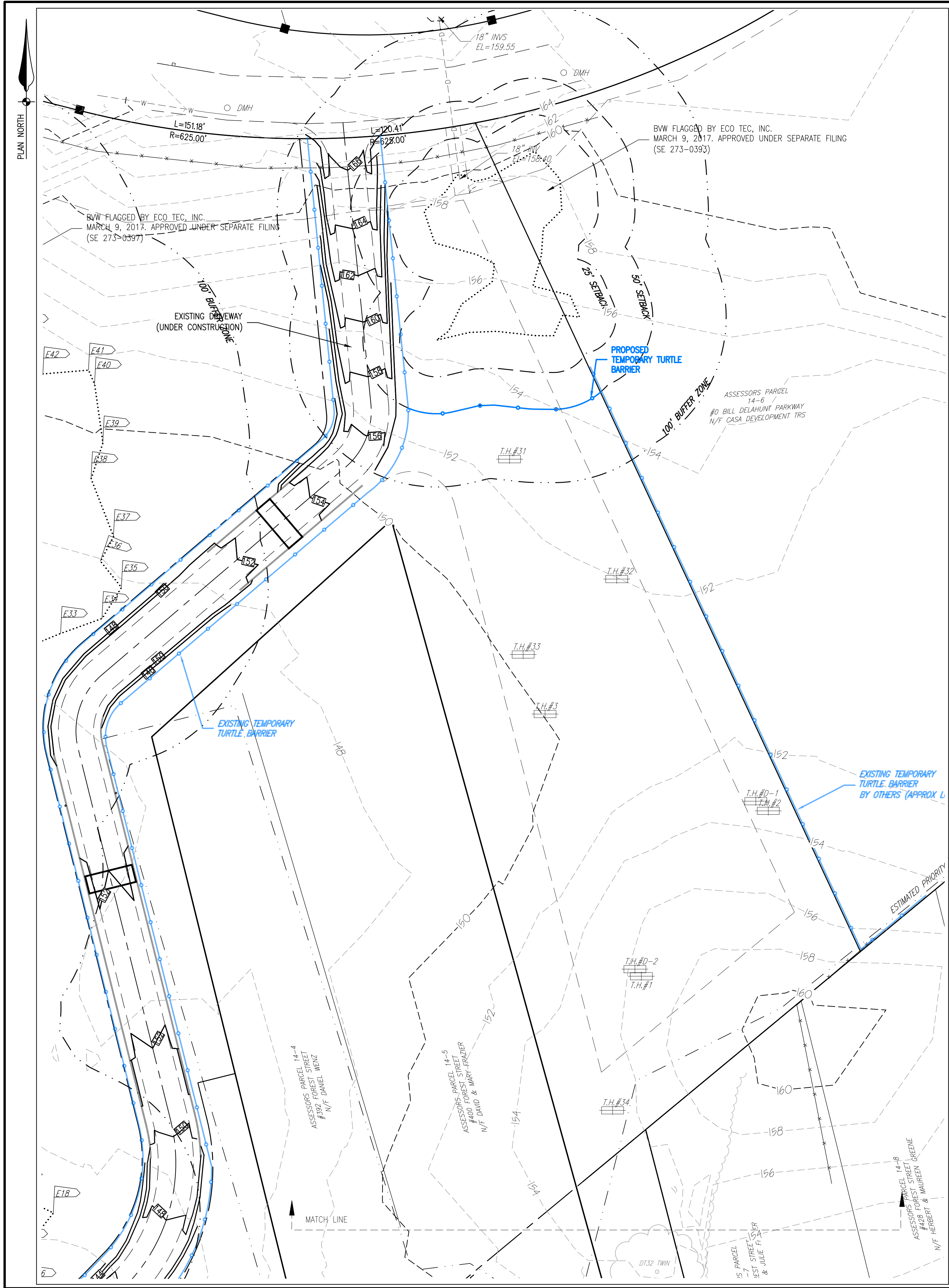
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- WAIVERS FROM THE RULES AND REGULATIONS OF THE ROCKLAND PLANNING BOARD
- SECTION III.C.2.e.1 TO USE HDPE DRAIN PIPE INSTEAD OF CLASS III RCP AND REDUCTION IN PIPE COVER REQUIREMENTS TO LESS THAN 2.5 FT.
 - SECTION III.C.2.F.1 SUBSURFACE DETENTION/RETENTION BASINS SHALL NOT BE PERMITTED WITHOUT A WAIVER.





SITE PLAN APPROVAL

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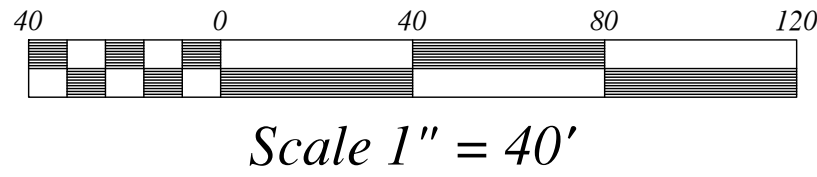
REVISIONS

SITE PLAN **LOVELL ACADEMY** **120 BILL DELAHUNT BOULEVARD** **ASSESSORS LOT 14-092** **ROCKLAND, MASSACHUSETTS**

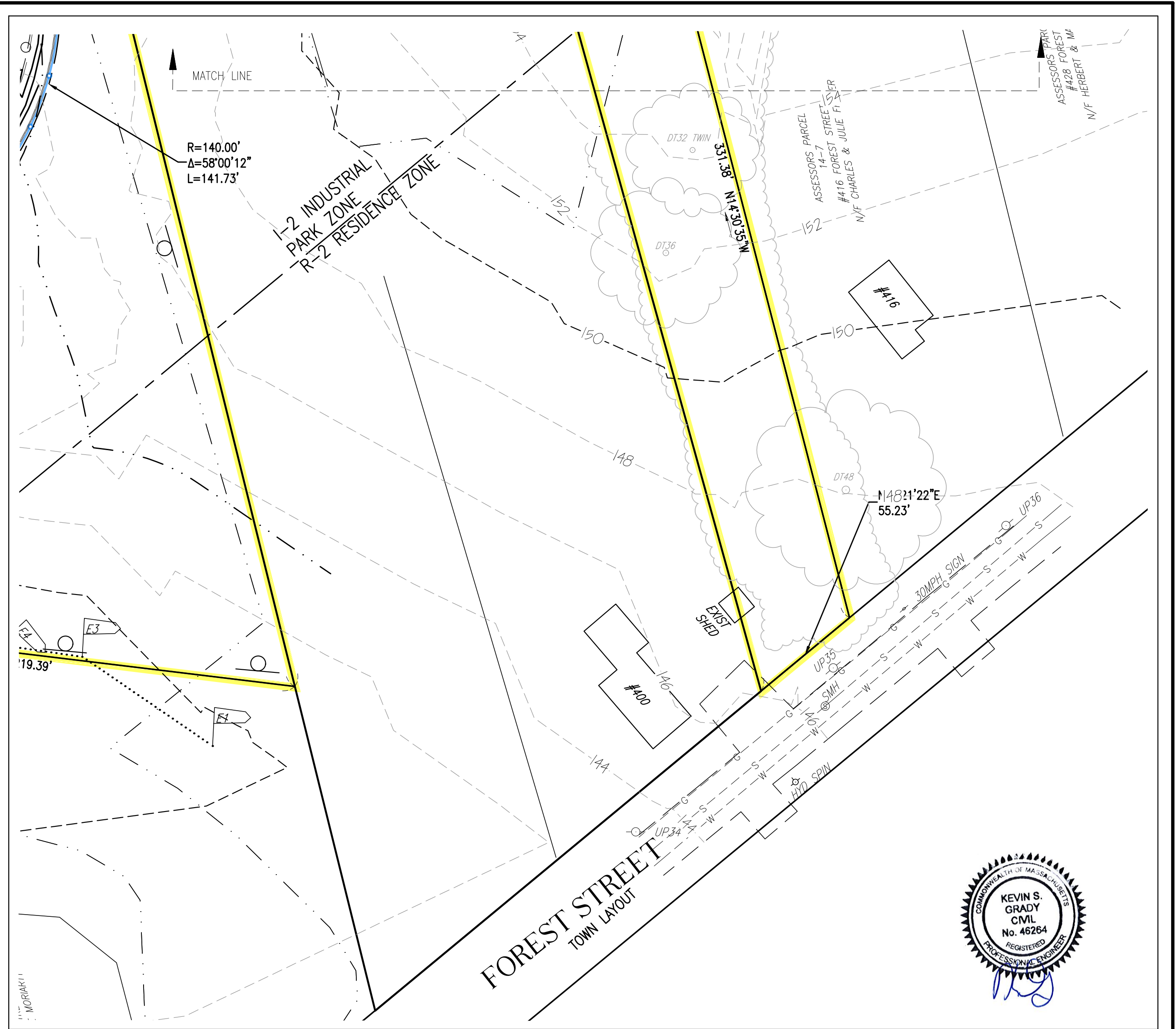
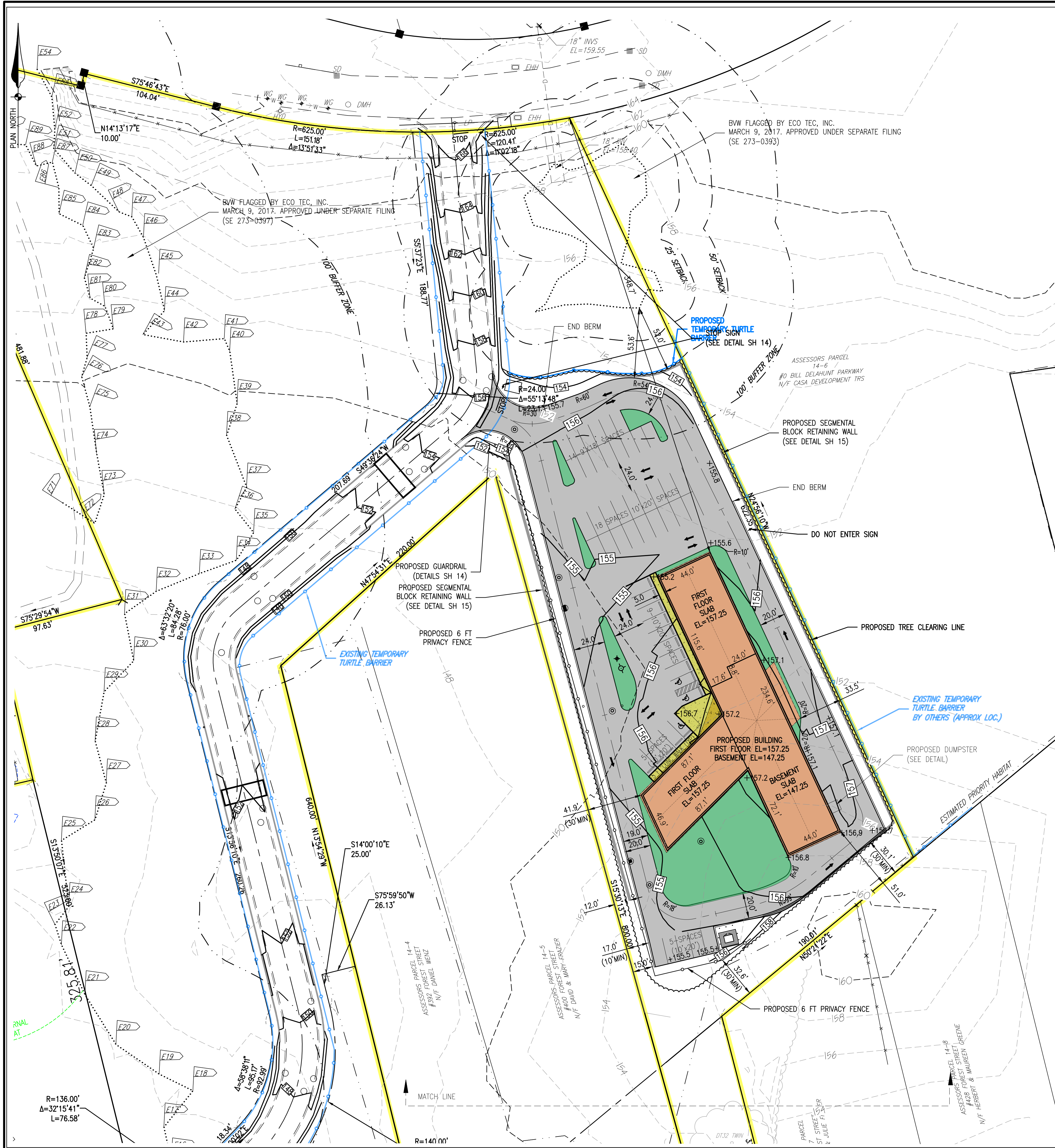
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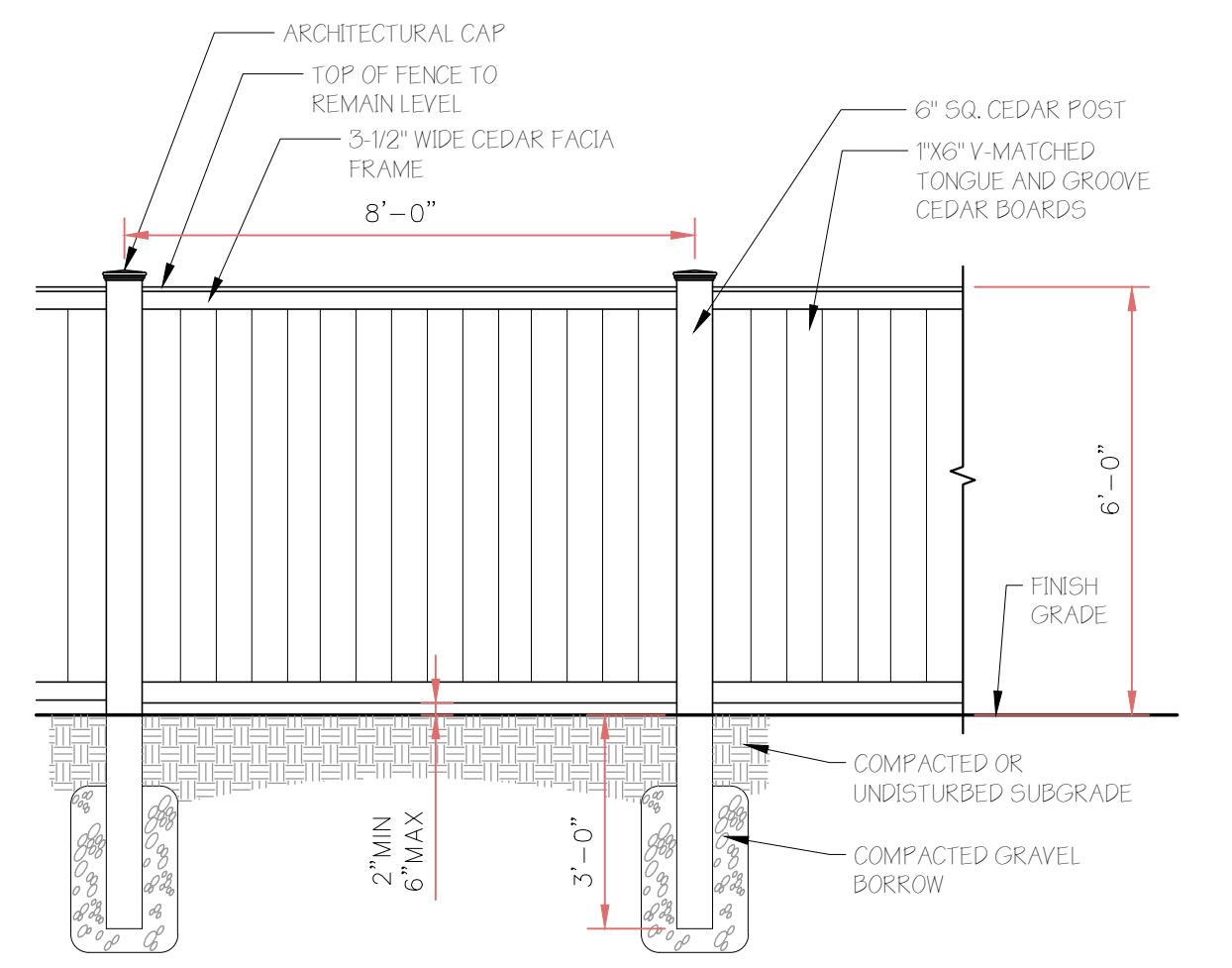
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EXISTING CONDITIONS



- NOTE:
1. SEE SHEET 12 FOR EROSION CONTROL PLAN
 2. SEE SHEET 13 FOR TURTLE BARRIER LOCATION

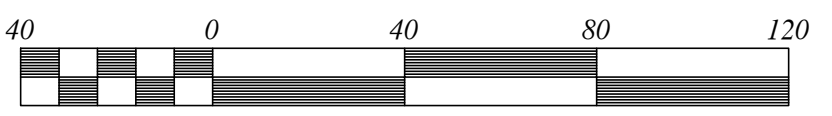


- NOTE:
1. TOP CAP TO HAVE 5% WATER SHED
 2. ALL SCREWS AND FASTENERS TO BE STAINLESS STEEL
 3. ALL FASTENERS AND PLUGS SHOULD BE ALIGNED TO FORM A PATTERN

OR APPROVED EQUAL PER APPROVAL OF SITE ENGINEER AND PLANNING BOARD

PRIVACY FENCE - 6' CEDAR

3/8" = 1'-0" P.S. 3/23/20-02



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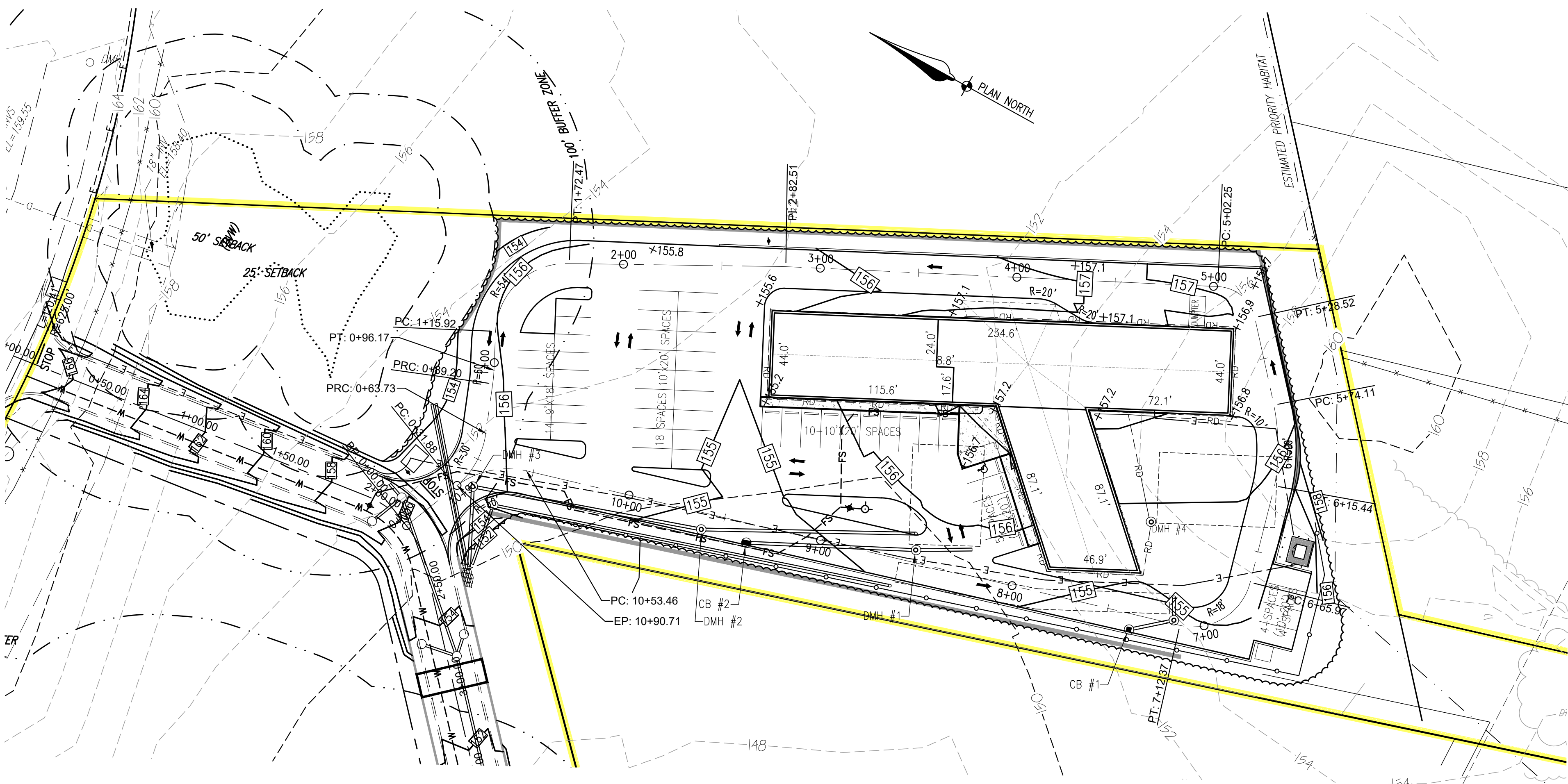
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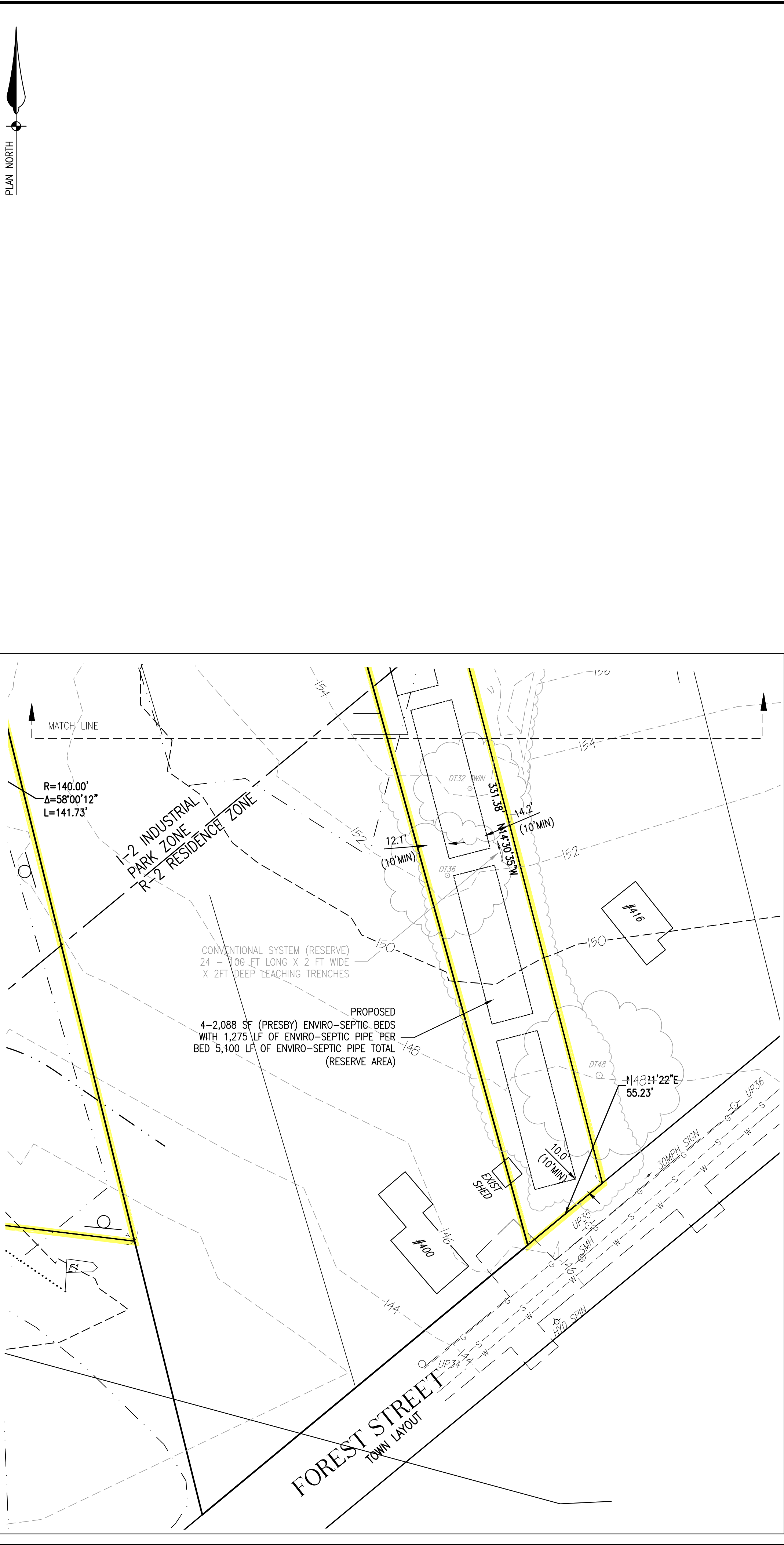
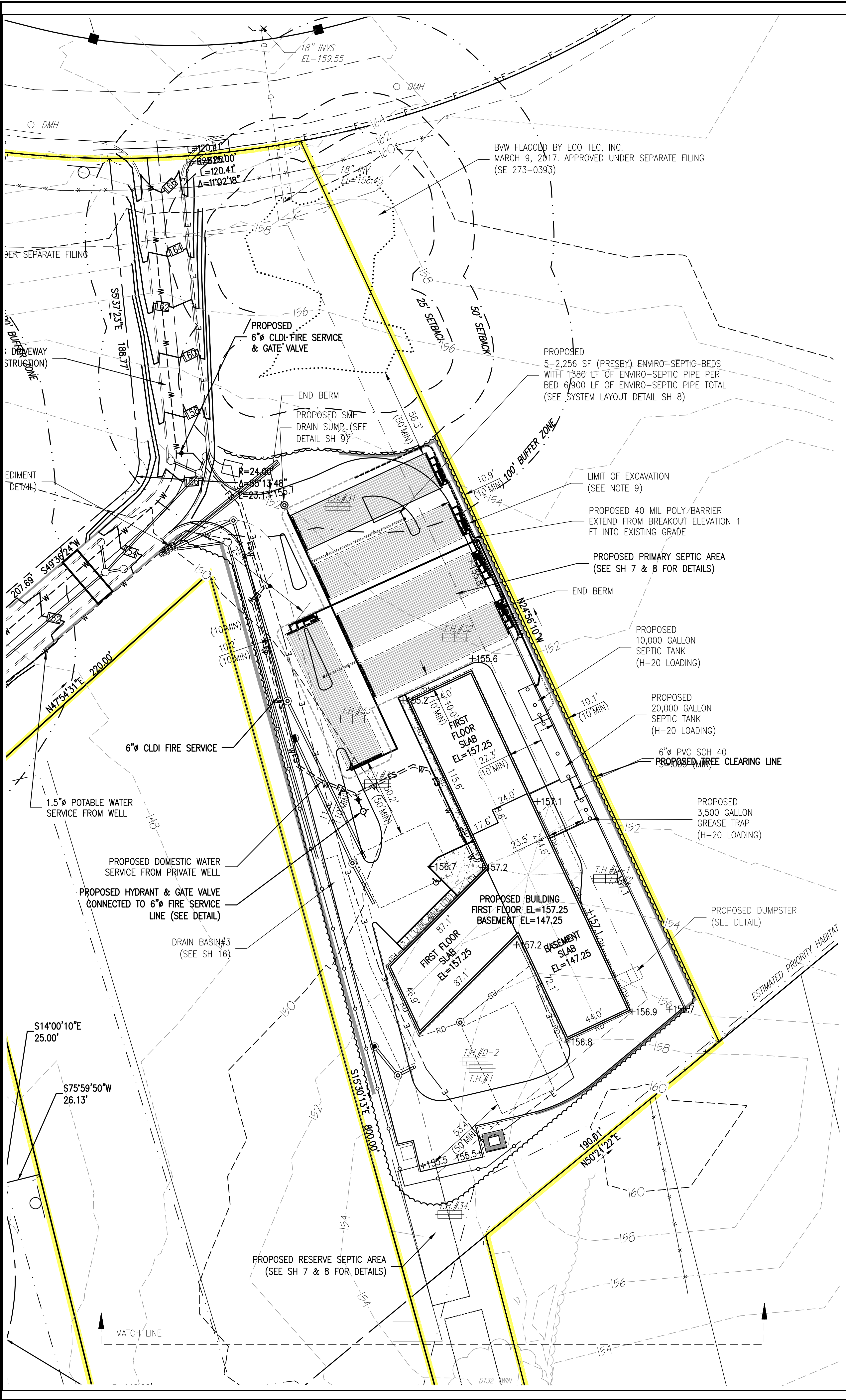

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SHEET 6 OF 21

PLAN & PROFILE



SEPTIC DESIGN (NOT DESIGNED FOR GARBAGE GRINDER)

DESIGN DAILY FLOW: 153 SEATS X 65 GPD/PERSON =9,945 GPD

*USE 9,945 GPD FOR ENVIRO-SEPTIC DESIGN CRITERIA

SEPTIC TANKS:

TWO COMPARTMENT TANK REQUIRED:
48 HOURS DETENTION 1ST COMPARTMENT 9,945 GPD X 2 = 19,890 GAL. USE: 20,000 GAL
24 HOURS DETENTION 2ND COMPARTMENT 9,945 GPD X 1 = 9,945 GAL. USE:10,000 GAL.

GREASE TRAP:

208 SEATS x 15 GPD/SEAT = 3,120 GPD 24 HOURS DETENTION REQ. USE: 3,500 GAL.

LEACHING FIELDS: P.R. = 20 MIN/IN

TITLE 5 MINIMUM AREA = 9,945 GPD / 0.53 GPD/S.F. = 18,764 S.F.
PER CERTIFICATION FOR GENERAL USE SECTION II(3) 40% REDUCTION IN SOIL ABSORPTION
SYSTEM ALLOWED REQUIRED AREA =18,764 S.F. LESS 40% = 11,259 S.F.

USE: 5-94' LONG x 24' WIDE ENVIRO-SEPTIC PIPE LEACHING BED SYSTEMS

PROPOSED AREA(PER SYSTEM): 94 x 24 =2,256
2,256 x 5 = 11,280 S.F. > 11,259 S.F.

ENVIRO-SEPTIC PIPE REQUIRED

9,945 GPD x 65 LF/100 GPD = 6,465 LF PROPOSED 6,900 LF

1. SOILS TESTING BY KEVIN GRADY AND ROBERT CARLEZON, GRADY CONSULTING WITNESSED BY WILL BARRETT JULY 30, 2021.
2. CALL DIG SAFE 1-888-344-7233 AT LEAST 4 DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
3. NOTIFY TOWN AND GRADY CONSULTING PRIOR TO BACKFILLING OF SYSTEM.
4. NO KNOWN WELLS EXIST WITHIN 200' OF THE PROPOSED SYSTEM
5. THE SITE IS NOT LOCATED IN AN AQUIFER PROTECTION ZONE II.
6. ALL SYSTEM COMPONENTS SHALL BE MARKED WITH MAGNETIC MARKING TAPE OR A COMPARABLE MEANS IN ORDER TO LOCATE THEM ONCE BURIED (310 CMR 15.221(12))
7. THE SITE IS LOCATED IN A FLOOD PLAIN DISTRICT ZONE X.
8. NO KNOWN EASEMENTS ARE IN THE AREA OF THE PROPOSED SYSTEM.
9. EXCAVATE ALL MATERIAL (A, B LAYER) TO LOAMY SAND C1 LAYER (24"±), 5' AROUND SYSTEM. REPLACE WITH CLEAN COURSE SAND IN ACCORDANCE WITH 310 CMR 15.255 (3). EXCAVATION TO BE INSPECTED BY GRADY CONSULTING L.L.C. AND TOWN PRIOR TO SOIL REPLACEMENT

APPROXIMATE PRESBY (C-33 SAND) SAND VOLUME = 11,280 SF X (151.67 - 149.67) / 27 + 20% = 1,000± C.Y.

APPROXIMATE PERC SAND VOLUME = 17,634 SF x (151.67 - 148.75±) / 27 + 20% = 2,200± - 1,000 =1,200± C.Y.

REQUIRED INSPECTIONS

1. AFTER EXCAVATION OF LEACHING AREA PRIOR TO INSTALLING SAND
 2. AFTER SYSTEM CONSTRUCTION PRIOR TO BACKFILLING.
 3. AFTER FINAL GRADING IS COMPLETED.
- (ADDITIONAL INSPECTIONS MAY BE REQUIRED BY THE TOWN OF ROCKLAND)

NOTE:

1. SEE SHEET 12 FOR EROSION CONTROL PLAN
2. SEE SHEET 13 FOR TURTLE BARRIER LOCATION

SITE PLAN APPROVAL

DATE

REVISIONS

SITE PLAN

LOVELL ACADEMY
120 BILL DELAHUNT BOULEVARD
ASSESSORS LOT 14-092
ROCKLAND, MASSACHUSETTS

PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
LAUREN MONAHAN MANAGING PARTNER
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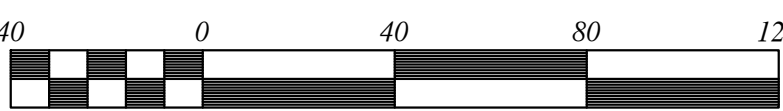
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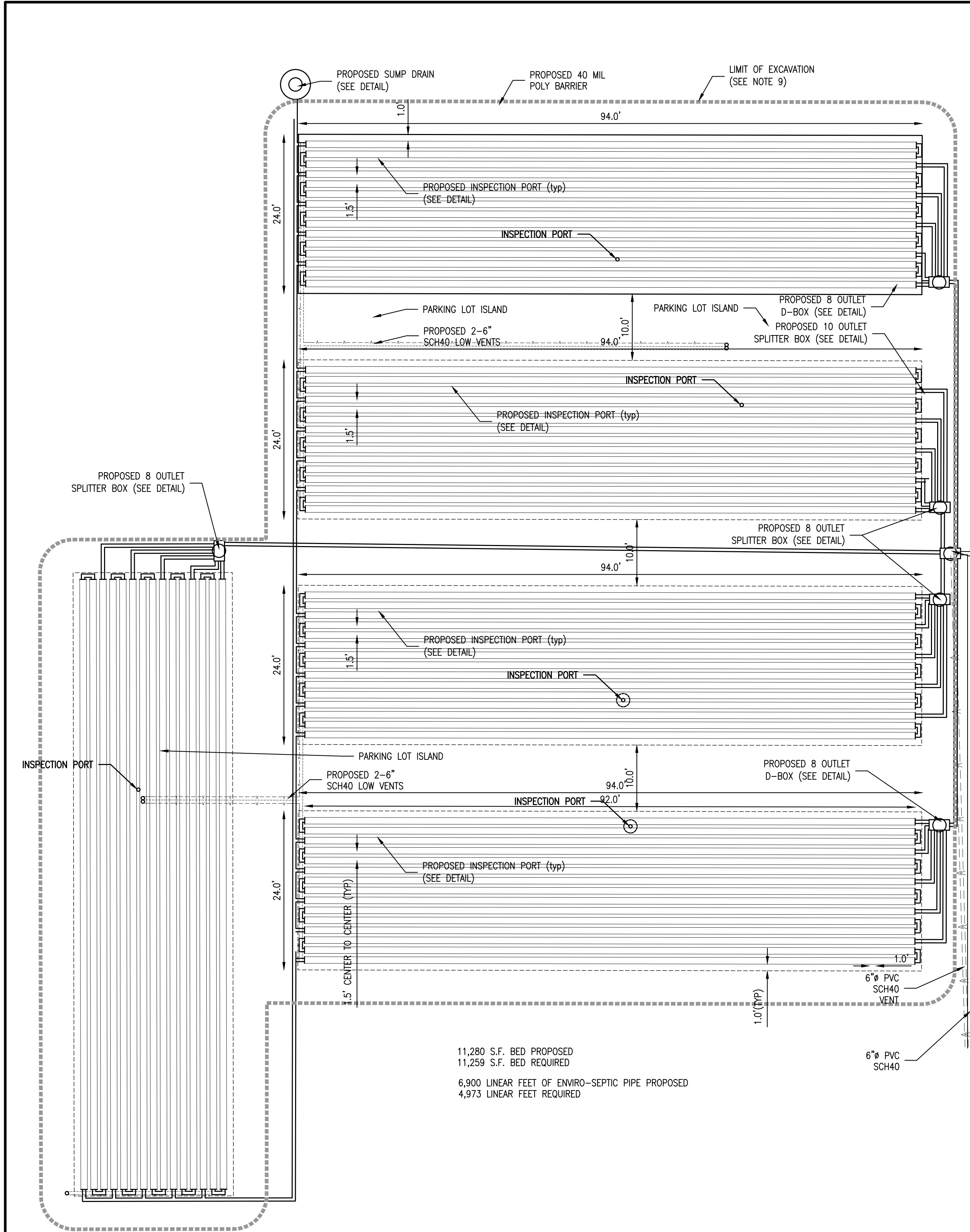


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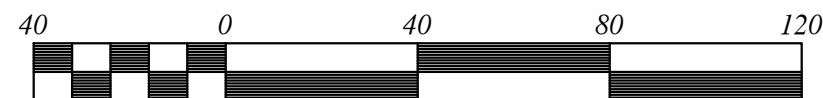
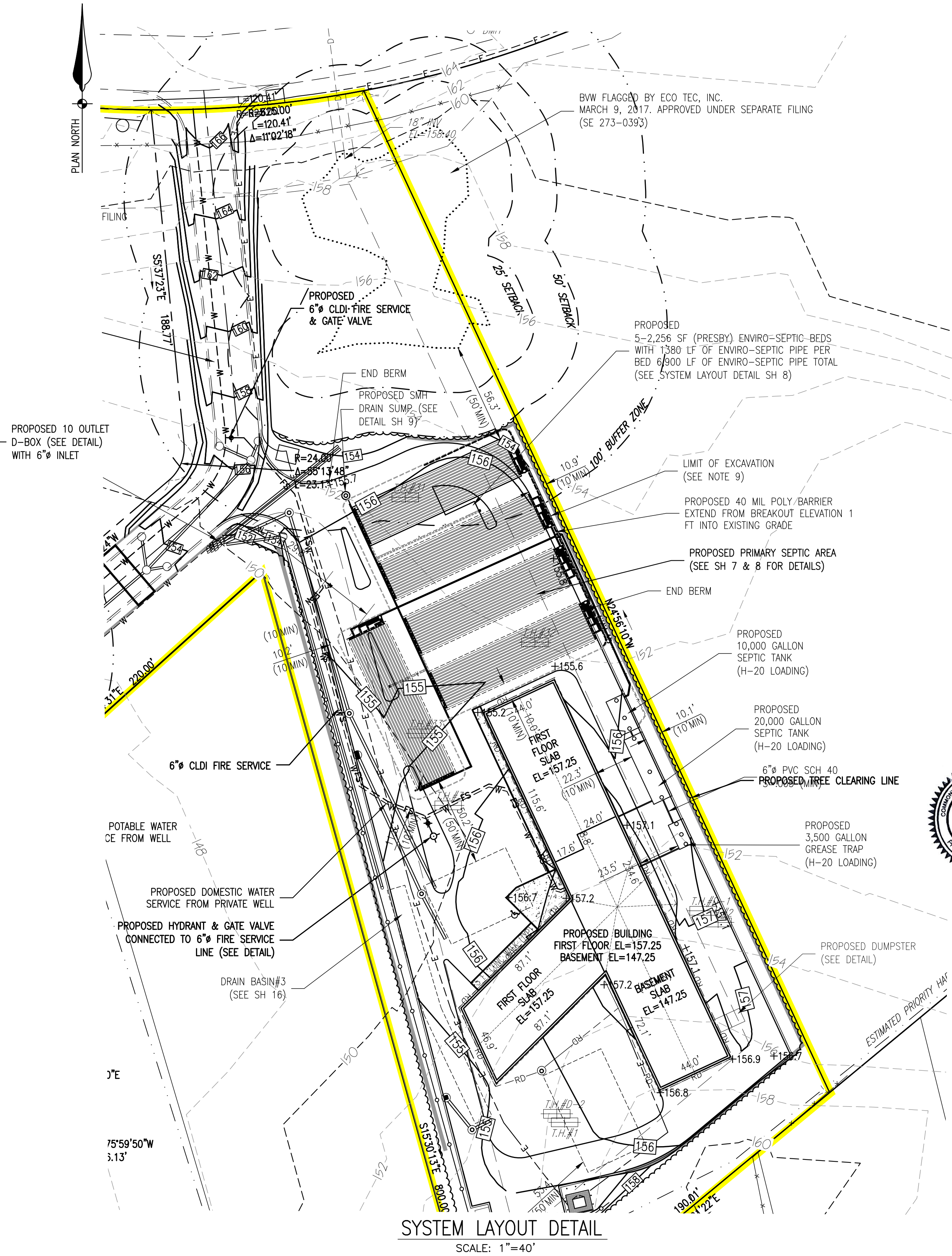
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Scale 1" = 40'



11,280 S.F. BED PROPOSED
11,259 S.F. BED REQUIRED
6,900 LINEAR FEET OF ENVIRO-SEPTIC PIPE PROPOSED
4,973 LINEAR FEET REQUIRED



Scale 1" = 40'

SYSTEM NOTES

- 1) SYSTEM TO BE INSTALLED IN ACCORDANCE WITH PRODUCT DESIGN AND INSTALLATION MANUAL, STATE AND LOCAL REGULATIONS. FOR PRODUCT INFORMATION OR THE NEAREST DEALER CONTACT PRESBY ENVIRONMENTAL, INC., 143 AIRPORT ROAD, WHITEFIELD, NEW HAMPSHIRE 03598 - PHONE 1-800-473-5298 - WWW.PRESBY-ENVIRONMENTAL.COM
- 2) MINIMUM OF 6" OF MEDIUM TO COARSE SAND WITH LESS THAN 2% PASSING A # 200 SIEVE REQUIRED AROUND CIRCUMFERENCE OF ENVIRO-SEPTIC PIPES. (SEE ENVIRO-SEPTIC & SIMPLE-SEPTIC LEACHING SYSTEMS DESIGN AND INSTALLATION MANUAL FOR COMPLETE SAND AND FILL SPECIFICATIONS.)
- 3) DO NOT INSTALL SYSTEM ON FROZEN GROUND OR LEAVE SYSTEM UNCOVERED FOR EXTENDED PERIODS OF TIME.
- 4) NO VEHICLE TRAFFIC, SNOW REMOVAL, OR DEEP ROOTED VEGETATION IS PERMITTED OVER SYSTEM COMPONENTS UNLESS OTHERWISE SPECIFIED.
- 5) NO DRAINS, HOT TUBS, SAUNAS, GARBAGE DISPOSALS, WATER SOFTENERS, ETC., SHALL BE INCORPORATED INTO THIS SYSTEM UNLESS OTHERWISE SPECIFIED.
- 6) THE SYSTEM OWNER SHALL HAVE THE SYSTEM INSPECTED ANNUALLY BY AN OPERATOR TRAINED BY THE COMPANY AND SHALL SUBMIT THE RESULTS OF THAT INSPECTION, ON A TECHNOLOGY CHECKLIST, TO THE LOCAL APPROVING AUTHORITY AND THE MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION.
- 7) THE SYSTEM OWNER SHALL RECORD AT THE APPROPRIATE REGISTRY OF DEEDS, A NOTICE DISCLOSING THE EXISTENCE OF THE ALTERNATIVE SEPTIC SYSTEM ON THE PROPERTY AND D.E.P.'S APPROVAL OF THE SYSTEM. WHEN THE PROPERTY IS UNREGISTERED LAND THE NOTICE SHALL BE MARGINALLY REFERENCED ON THE OWNER'S DEED TO THE PROPERTY. WITHIN 30 DAYS OF RECORDING THE NOTICE, THE SYSTEM OWNER SHALL SUBMIT TO THE DEPARTMENT AND THE LOCAL APPROVING AUTHORITY (i) A CERTIFIED REGISTRY COPY OF THE NOTICE BEARING THE BOOK AND PAGE AND (ii) A REGISTRY COPY OF THE OWNER'S DEED TO THE PROPERTY, BEARING THE MARGINAL REFERENCE.
- 8) INSTALLER SHALL BE CERTIFIED BY PRESBY ENVIRONMENTAL INC.

SYSTEM SAND

ALL CONFIGURATIONS OF ENVIRO-SEPTIC REQUIRE A MINIMUM OF 6" OF SYSTEM SAND SURROUNDING THE CIRCUMFERENCE OF THE PIPE WITH A MINIMUM OF 12" OF SAND BELOW THE PIPE.

PERCENTAGE RESTRICTIONS: 35% OR LESS OF THE TOTAL SAND MAY BE GRAVEL 40%-90% OF THE TOTAL SAND IS TO BE COARSE AND VERY COARSE SAND.

GRAVEL QUALITY RESTRICTIONS: NO GRAVEL IS TO EXCEED 3/4" DIAMETER. NO GRAVEL IS SMALLER THAN 2MM/.787" IN DIAMETER. (IT MUST NOT PASS THROUGH A #10 SIEVE.)

COARSE AND QUALITY SAND RESTRICTIONS: NO COARSE SAND IS SMALLER THAN 0.5MM/.0196" IN DIAMETER. (IT MUST NOT PASS THROUGH A #35 SIEVE.)

FINES QUALITY RESTRICTIONS: NO MORE THAN 2% OF THE TOTAL SAND MAY PASS THROUGH A #200 SIEVE.

ASTM STANDARD: C-33 (CONCRETE SAND) MEETS THE ABOVE REQUIREMENTS.

SURROUNDING SAND

SURROUNDING SAND SHOULD BE EITHER SYSTEM SAND OF TITLE 5 FILL, 310 CMR 15.255 (3). ONLY SURROUNDING SAND MAY BE PLACED UNDER RAISED SYSTEMS OR WHERE TOP SOIL AND SOIL HORIZONS WITH ORGANIC MATTER HAVE BEEN REMOVED.



SITE PLAN APPROVAL

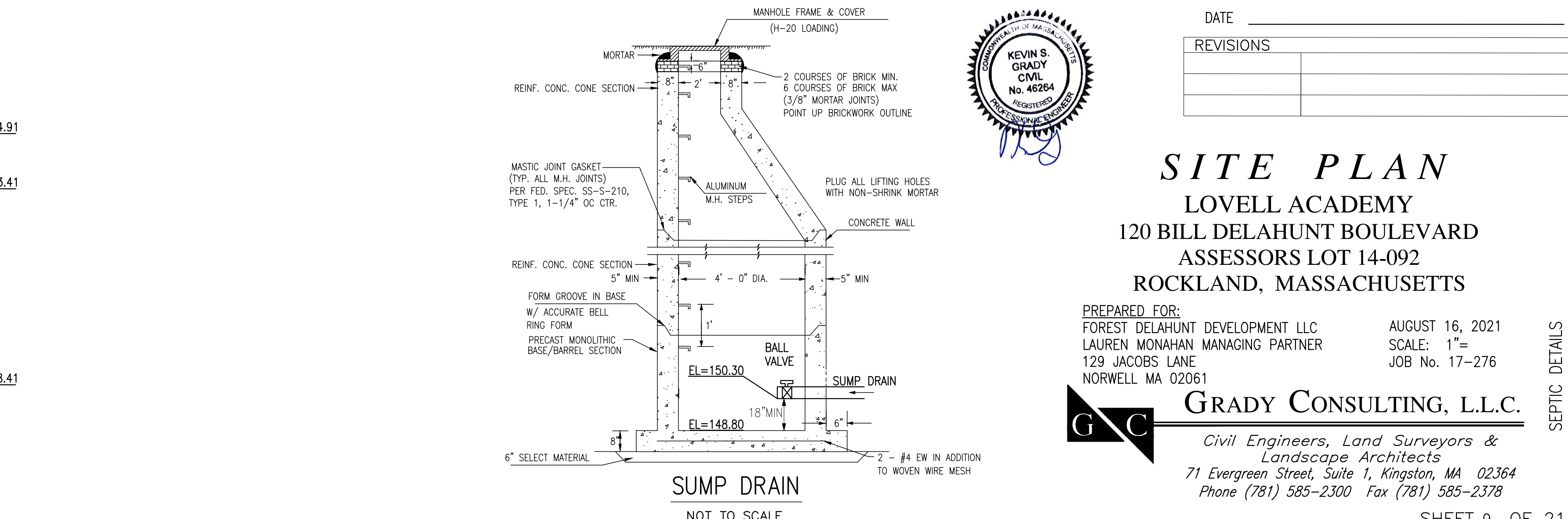
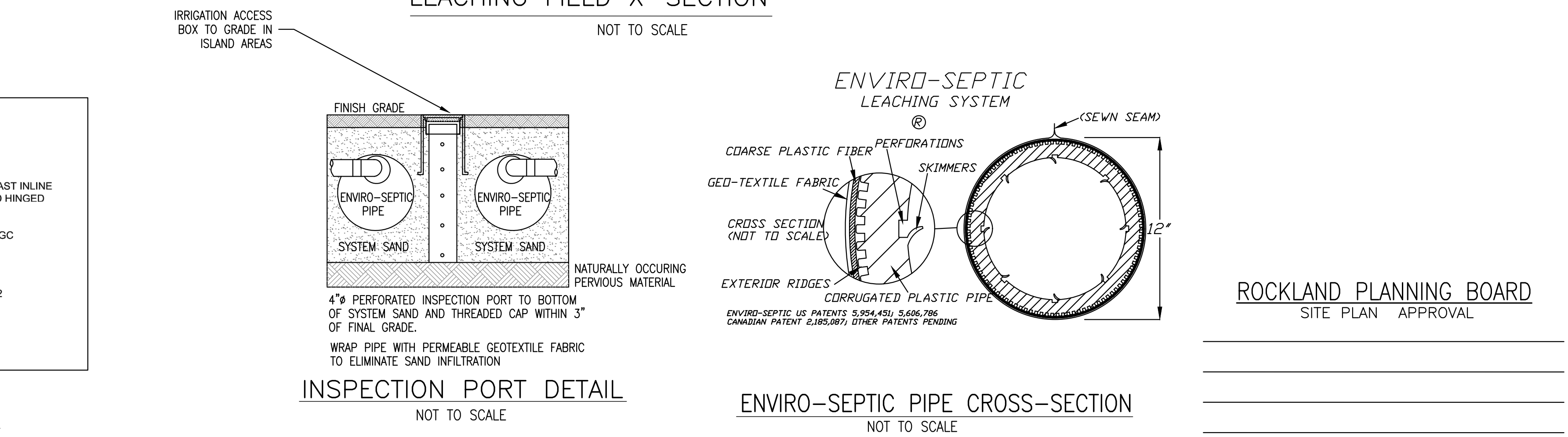
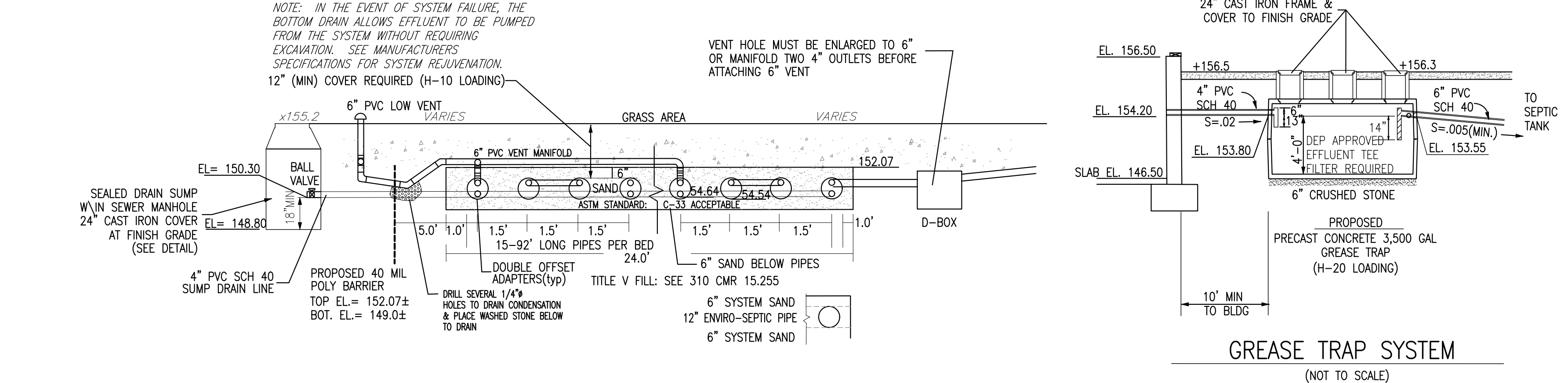
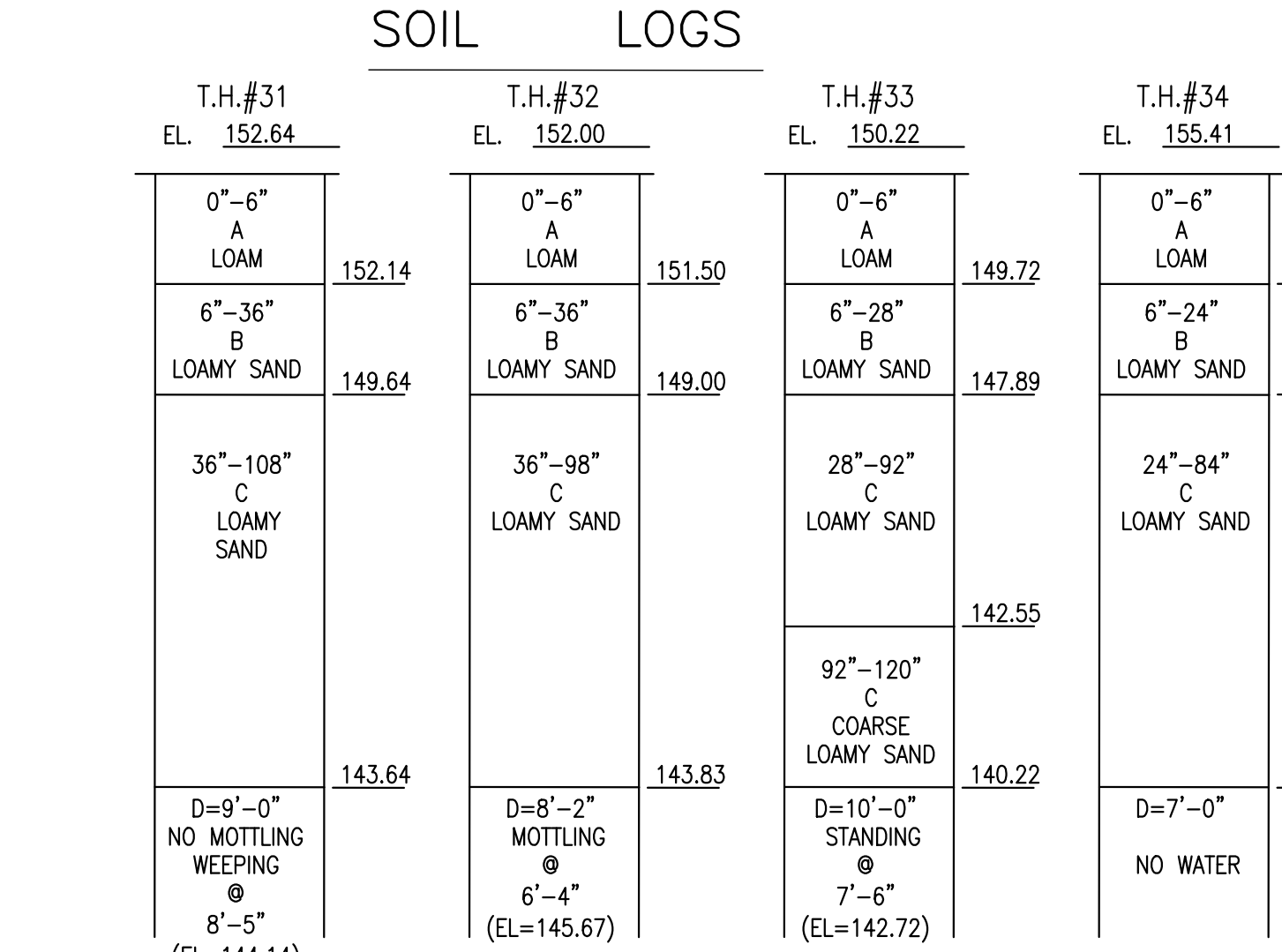
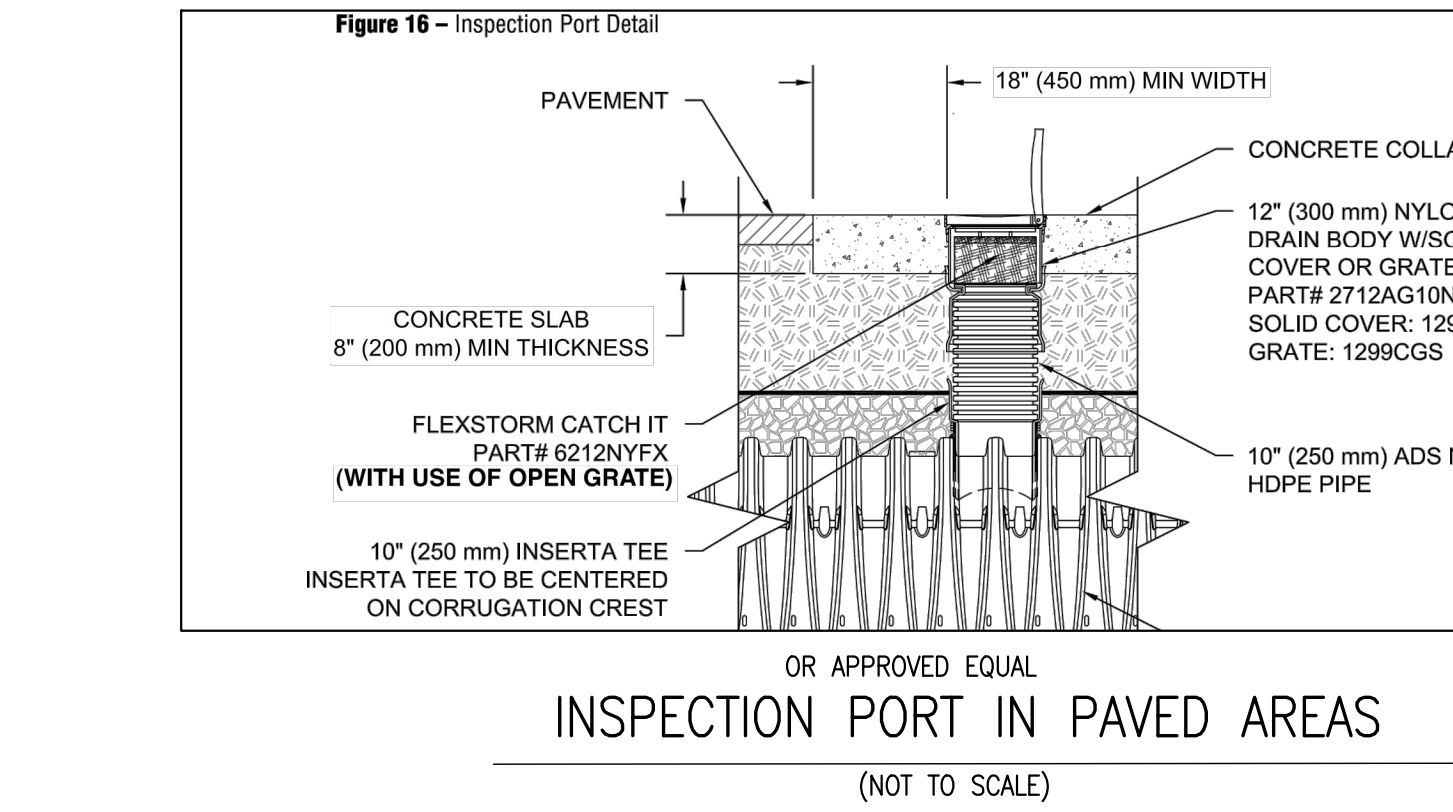
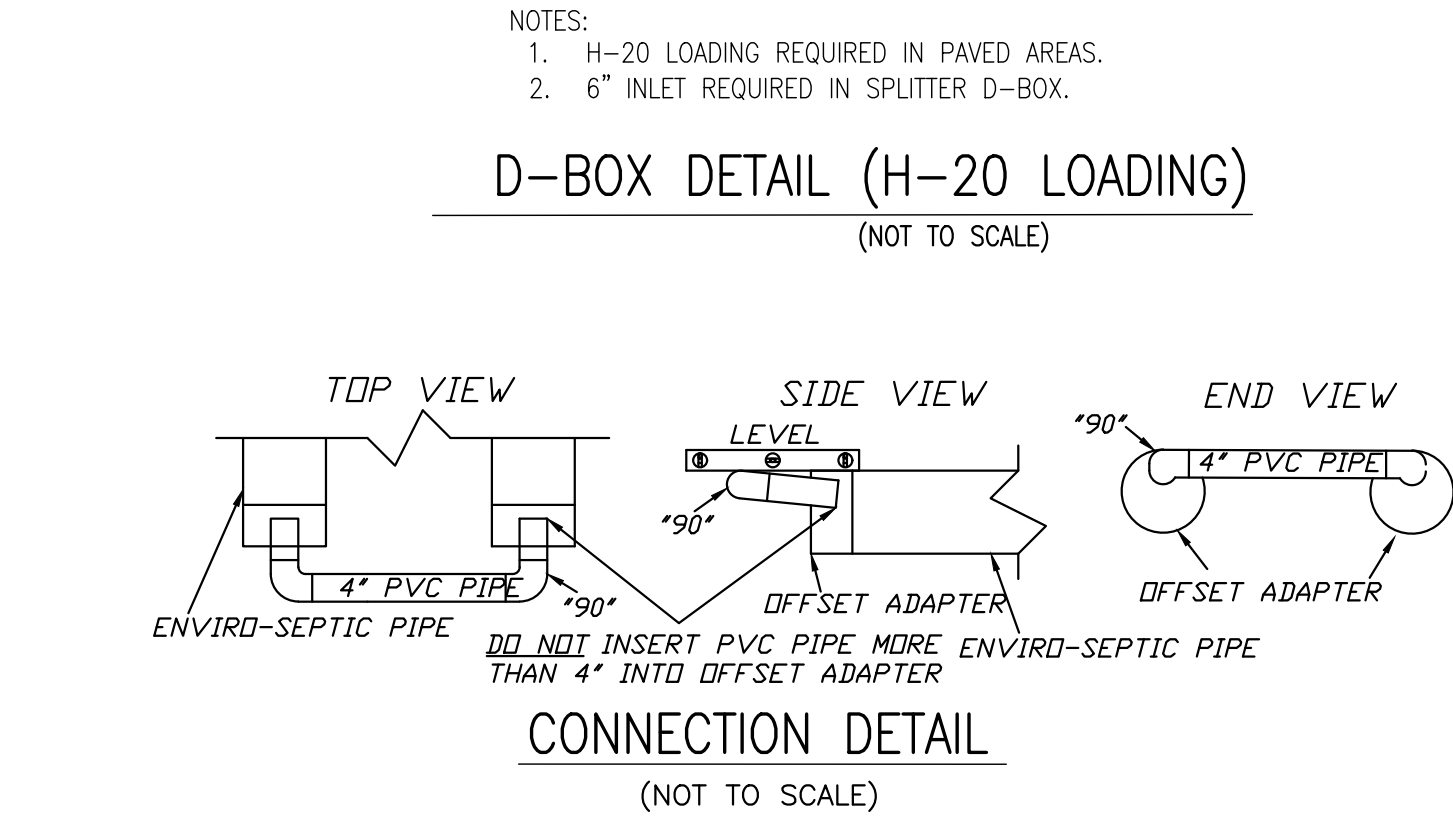
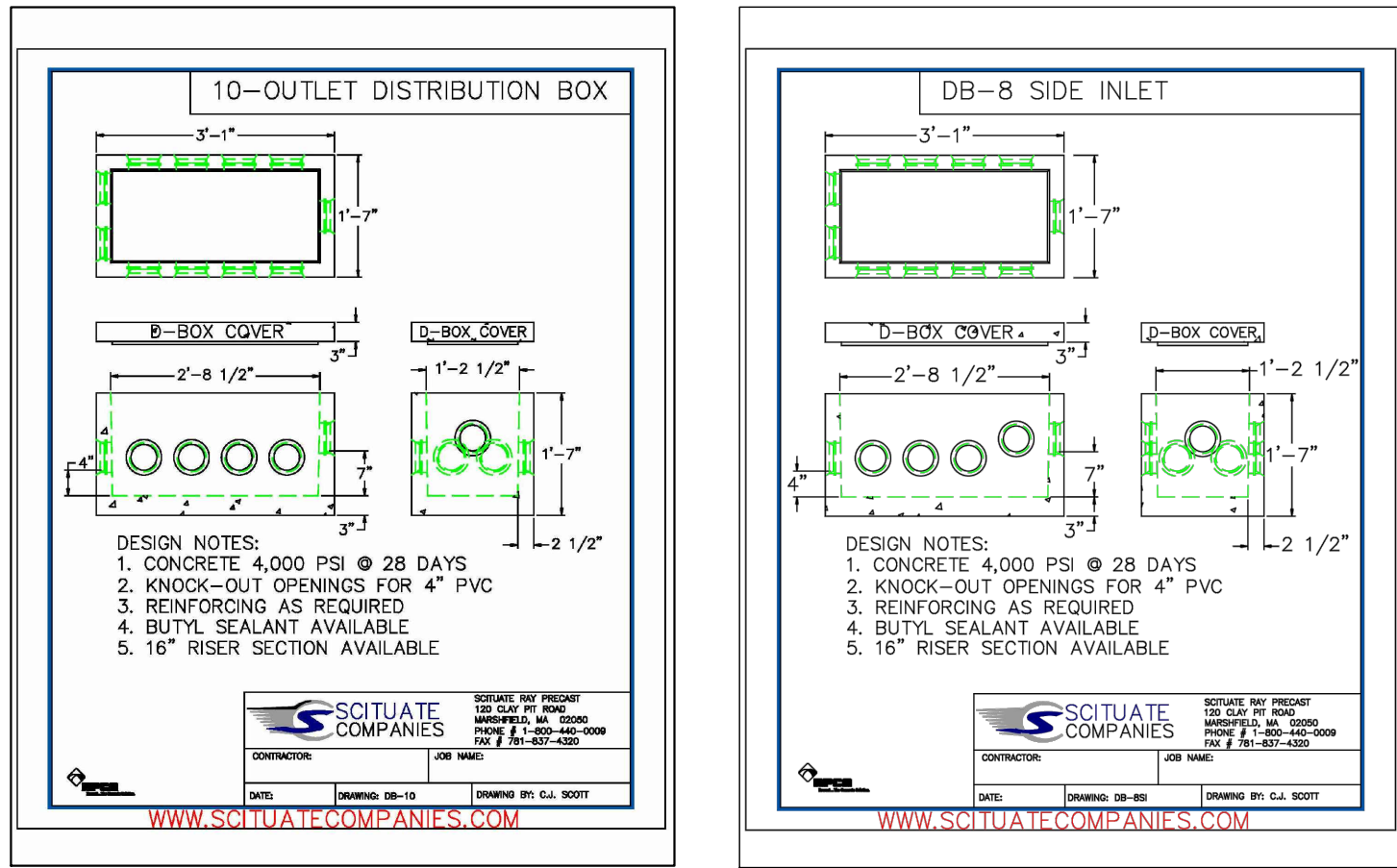
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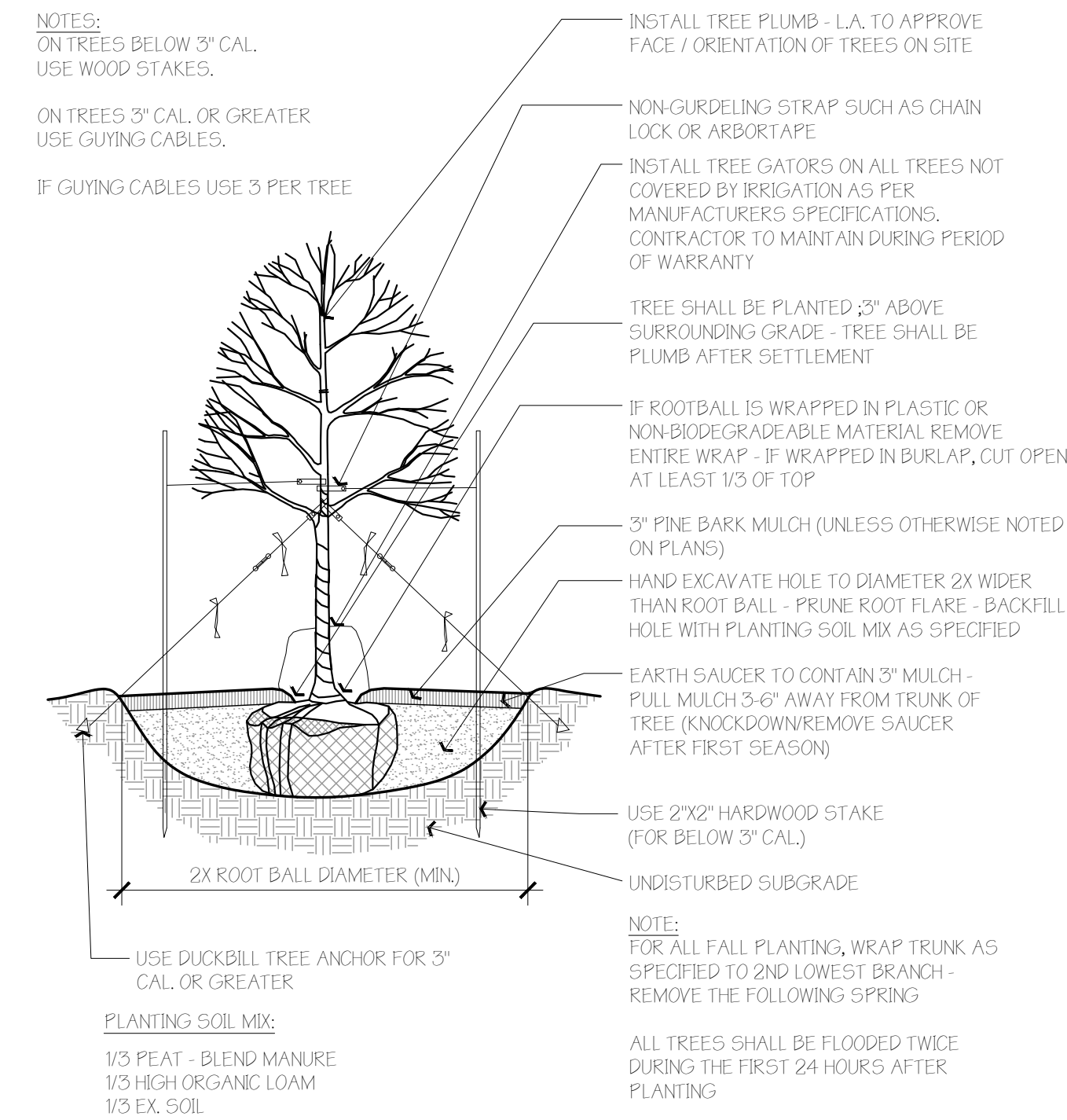
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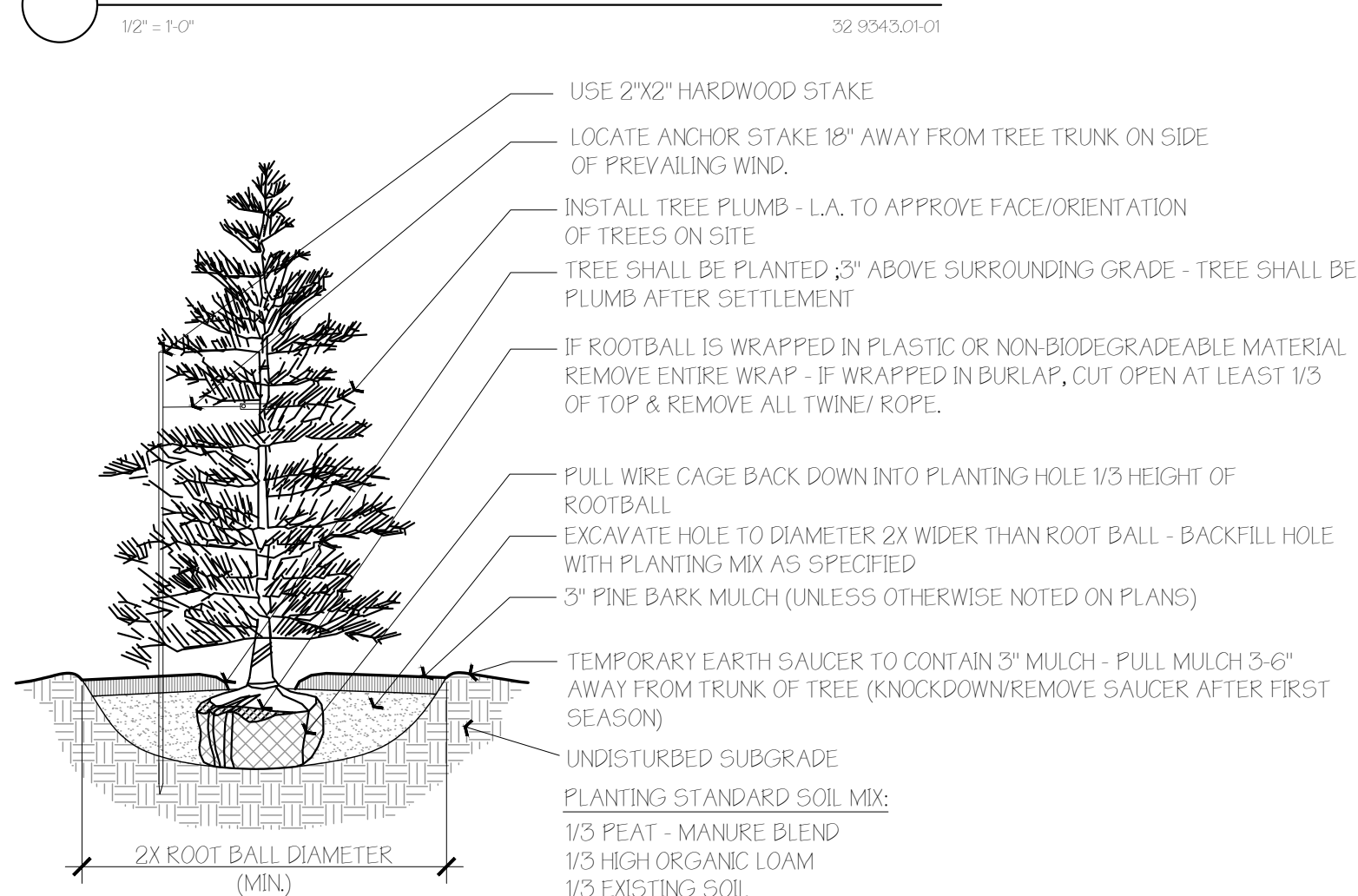
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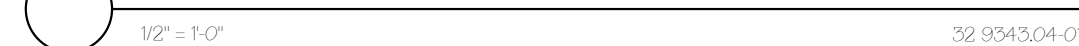




SHADE / FLOWERING TREE DETAIL

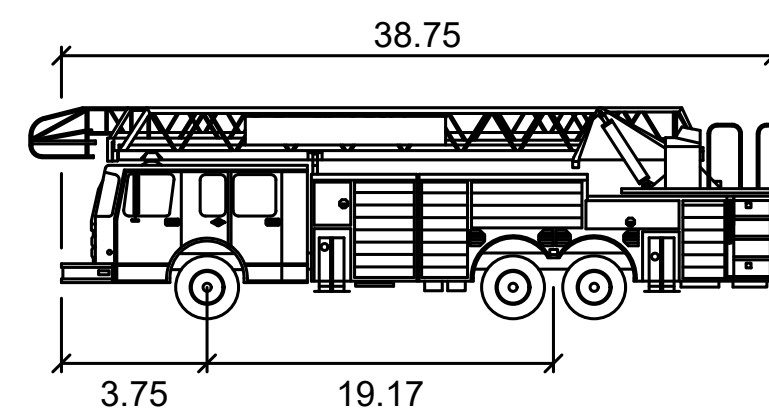


EVERGREEN TREE DETAIL

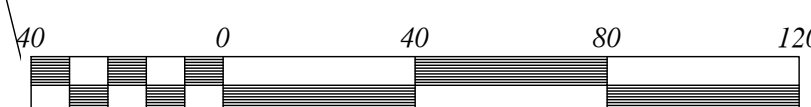


PLANT SCHEDULE

DECIDUOUS TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE
ACE RUB	2	ACER RUBRUM 'RED SUNSET' / RED SUNSET MAPLE	B & B	2-25" CAL.	
GLE TRI	2	GLEDTISIA TRIACANTHOS INERMIS / THORNLASS COMMONHONEYLOCUST	B & B	2-25" CAL.	
PLA XLP	2	PLATANUS X ACERIFOLIA / LONDON PLANE TREE	B & B	2-25" CAL.	
EVERGREEN TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE
PIN STR	3	PINUS STROBUS / WHITE PINE	B & B		5-6' HGT.
FLOWERING TREES	QTY	BOTANICAL / COMMON NAME	CONT	CAL	SIZE
PYR CAL	17	PYRUS CALLERYANA 'CHANTICLEER' / CHANTICLEER PEAR	B & B	2-25" CAL.	



Rockland2	feet
Width	: 8.50
Track	: 7.50
Lock to Lock Time	: 6.0
Steering Angle	: 40.0



Scale 1" = 40'

SITE PLAN APPROVAL

DATE	
REVISIONS	

SITE PLAN

LOVELL ACADEMY
120 BILL DELAHUNT BOULEVARD
ASSESSORS LOT 14-092
ROCKLAND, MASSACHUSETTS

PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
LAUREN MONAHAN MANAGING PARTNER
129 JACOBS LANE
NORWELL, MA 02061

AUGUST 16, 2021
SCALE: 1"= 120'
JOB No. 17-276

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors &
Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378

SHEET 10 OF 21

LANDSCAPE

- PLAN NORTH



DATE _____

REVISIONS	

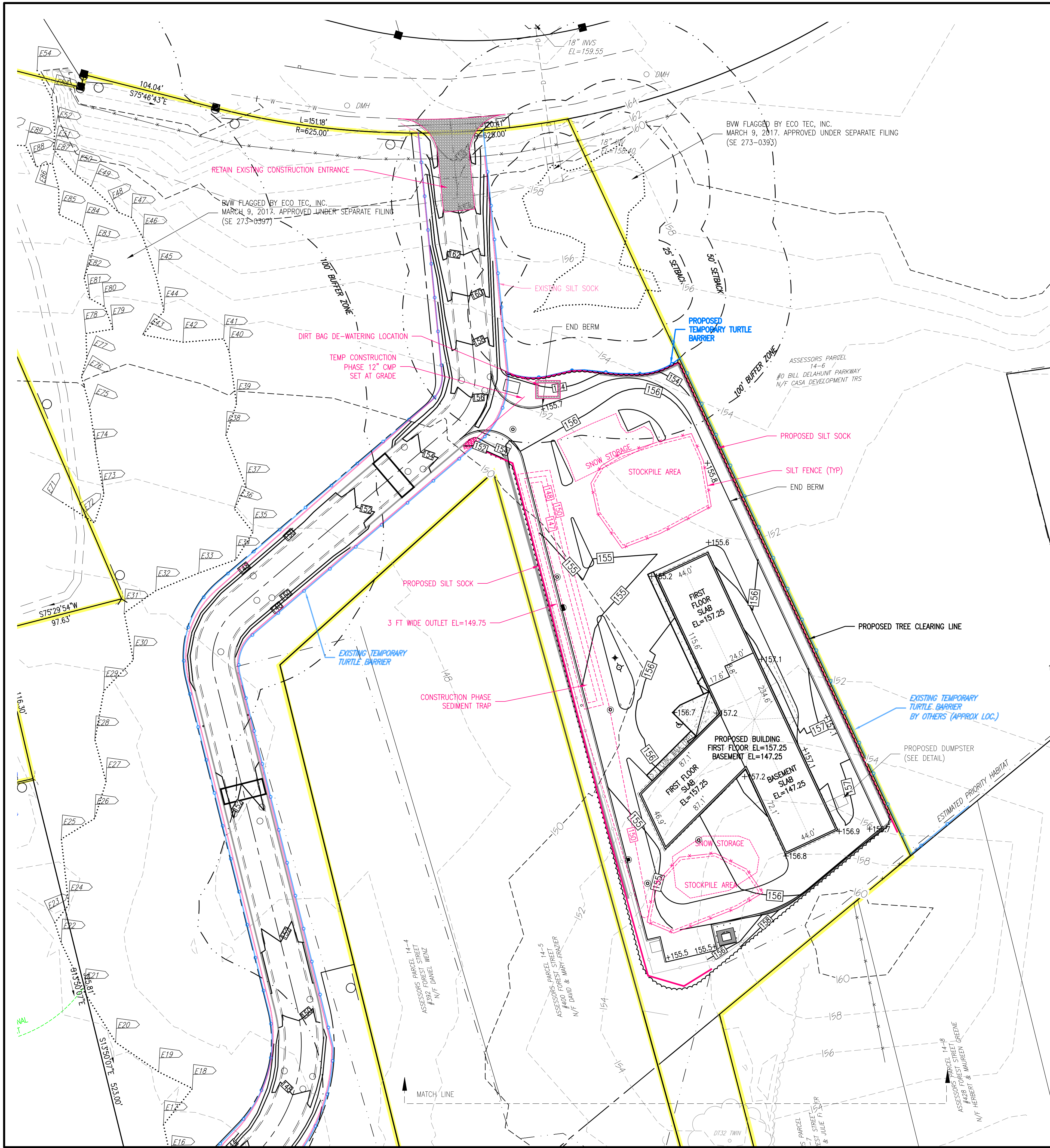
PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
LAUREN MONAHAN MANAGING PARTNER
129 JACOBS LANE
NORWELL MA 02061

AUGUST 16, 2021
SCALE: 1"=
JOB No. 17-276

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SHEET 11 OF 21

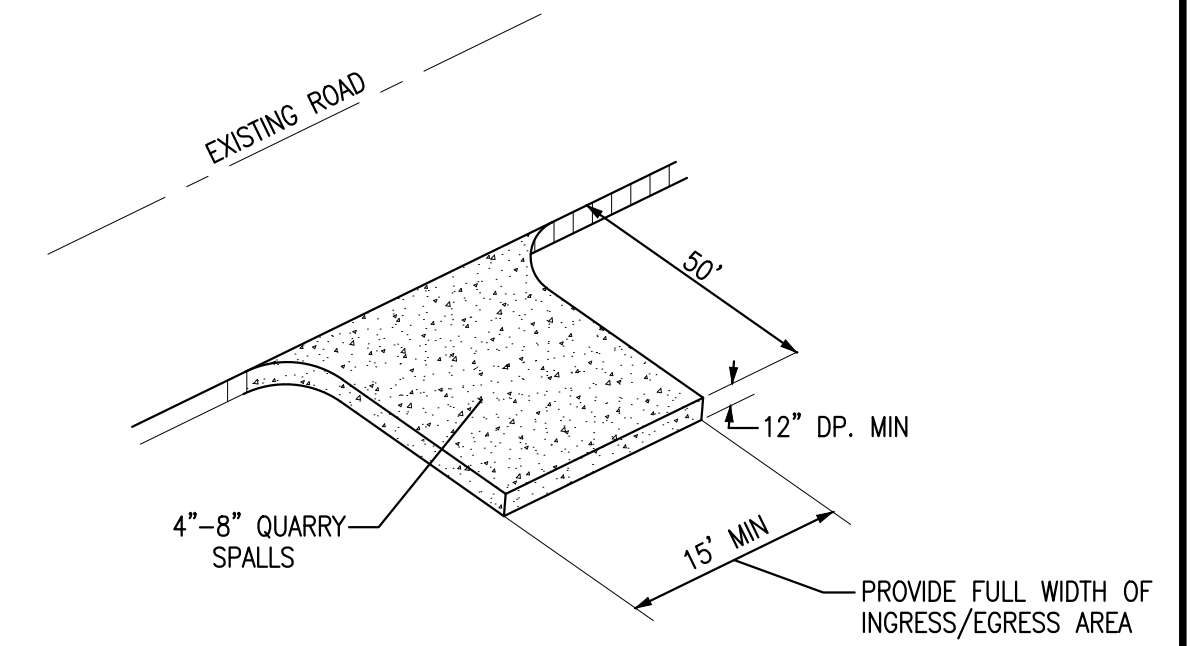
WELL PLAIN



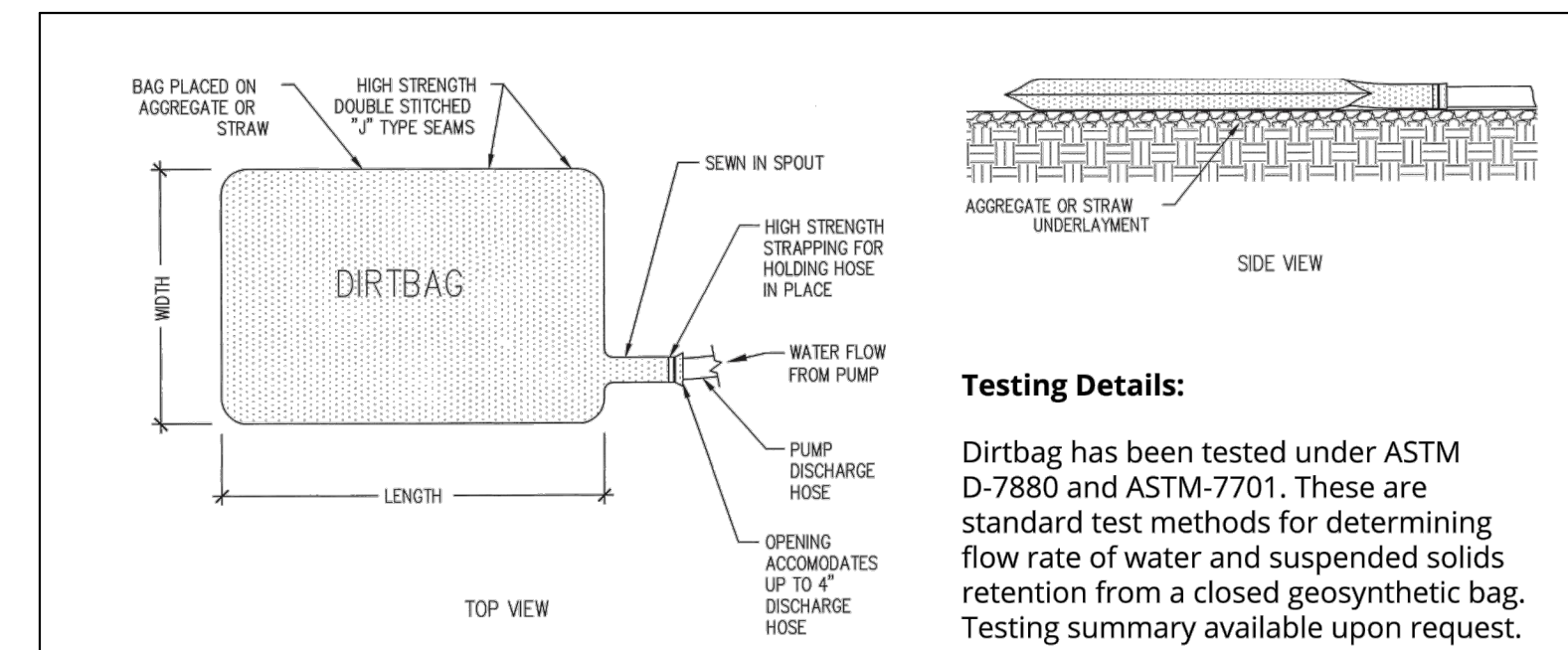
Project:
Basin Description: CONSTRUCTION PHASE SEDIMENT TRAP

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)
147.000	1,190.28	N/A	N/A	0.00
148.000	2,703.43	1.000	1946.86	1946.86
150.000	6,639.87	2.000	9343.30	11290.16

10972 CF OF RUNOFF IN 2 YEAR STORM SET 3 FT TRAPEZOIDAL WEIR AT ELEV= 149.75

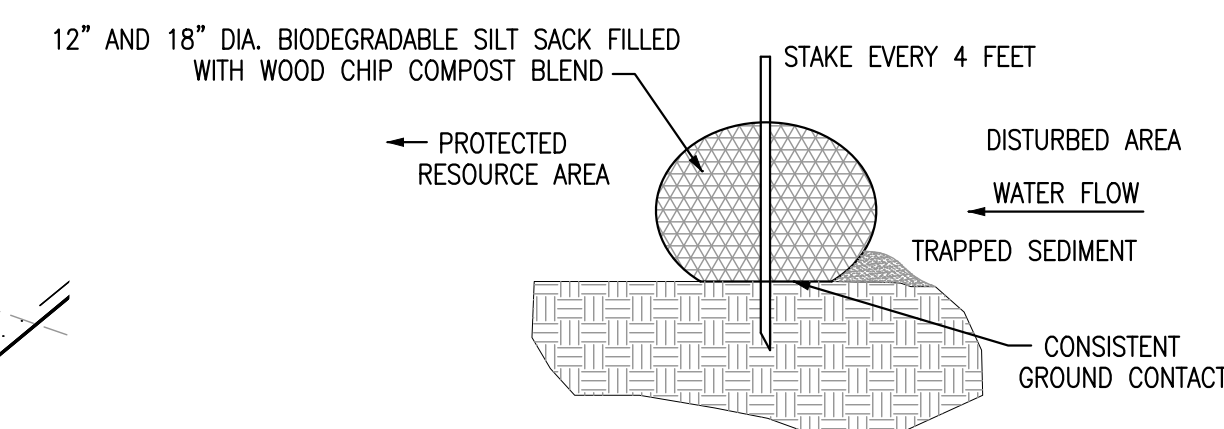


CRUSHED STONE CONSTRUCTION ENTRANCE
(NOT TO SCALE)

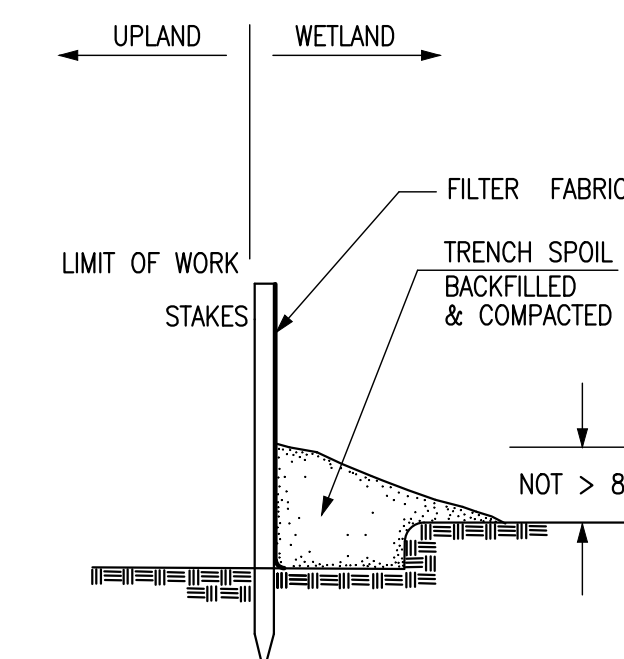


- DEWATERING BAG NOTES:
1. ANY PUMP DISCHARGES SHALL BE DIRECTED TO THE DEWATERING BAG.
 2. 10'x15' PART #9725-SED AS MANUFACTURED BY BOOM ENVIRONMENTAL PRODUCTS, 1 COFFIN AVENUE, NEW BEDFORD, MA 02746 617-965-0007 SALES@BOOMENVIRO.COM (OR APPROVED EQUAL)
 3. MONITOR BAG AND REPLACE IF DAMAGED OR OVERLOADED WITH SEDIMENT.
 4. MONITOR WATER DISCHARGE AND INSTALL ADDITIONAL EROSION CONTROL SURROUNDING BAG AS NEEDED.
- DEWATERING SHALL BE DIRECTED TO DIRTBAGS, CONSTRUCTION PERIOD SILT TRAPS OR APPROVED ALTERNATIVE PRIOR TO DISCHARGE.

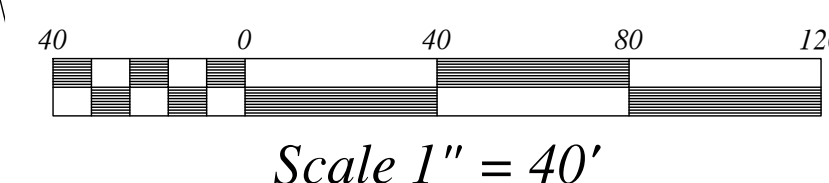
NOTE:
SNOW TO BE REMOVED FROM SITE IF SNOW STORAGE CAPACITY IS EXCEEDED.
SNOW SHALL NOT BE PLACED ON ABUTTING PROPERTIES OR WITHIN 50 FT OF A WETLAND RESOURCE AREA.



SILT SOCK DETAIL
NOT TO SCALE



SILT FENCE/TURTLE BARRIER (CONSTRUCTION PHASE)
(NOT TO SCALE)



Scale 1" = 40'



SITE PLAN APPROVAL

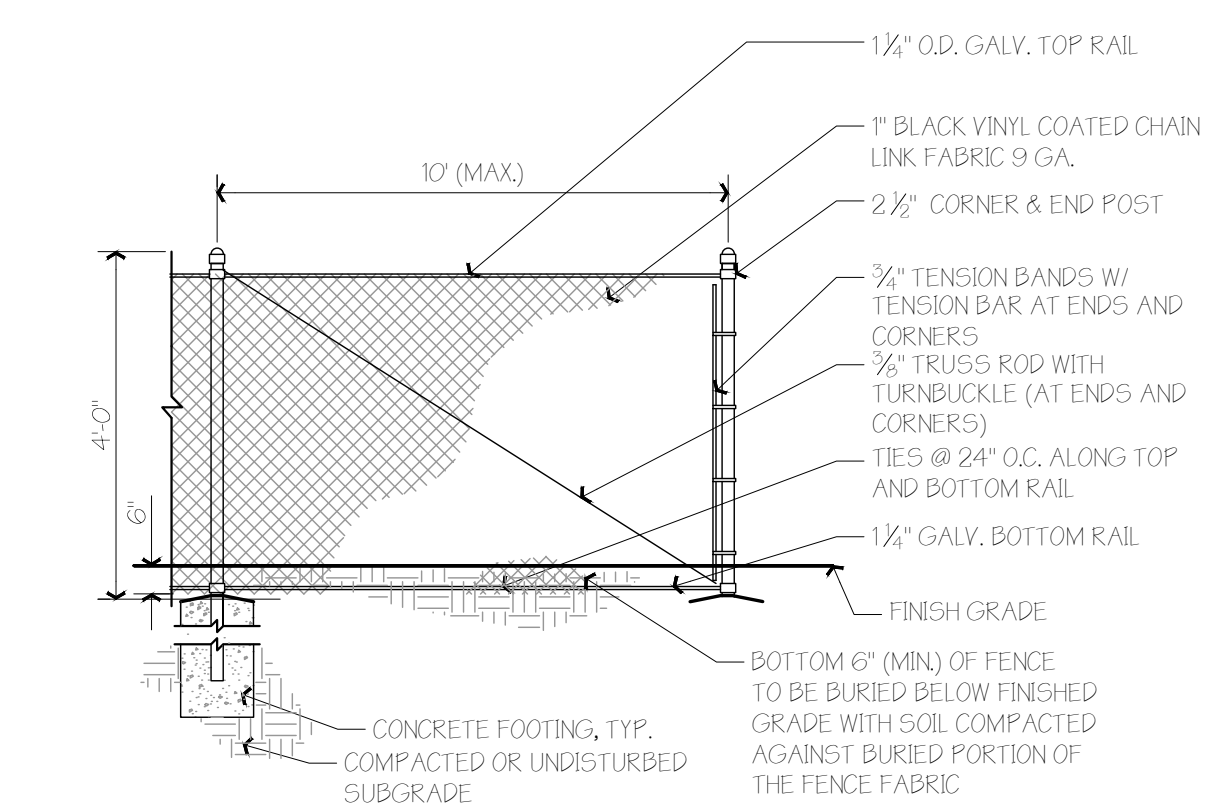
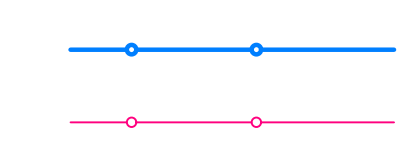
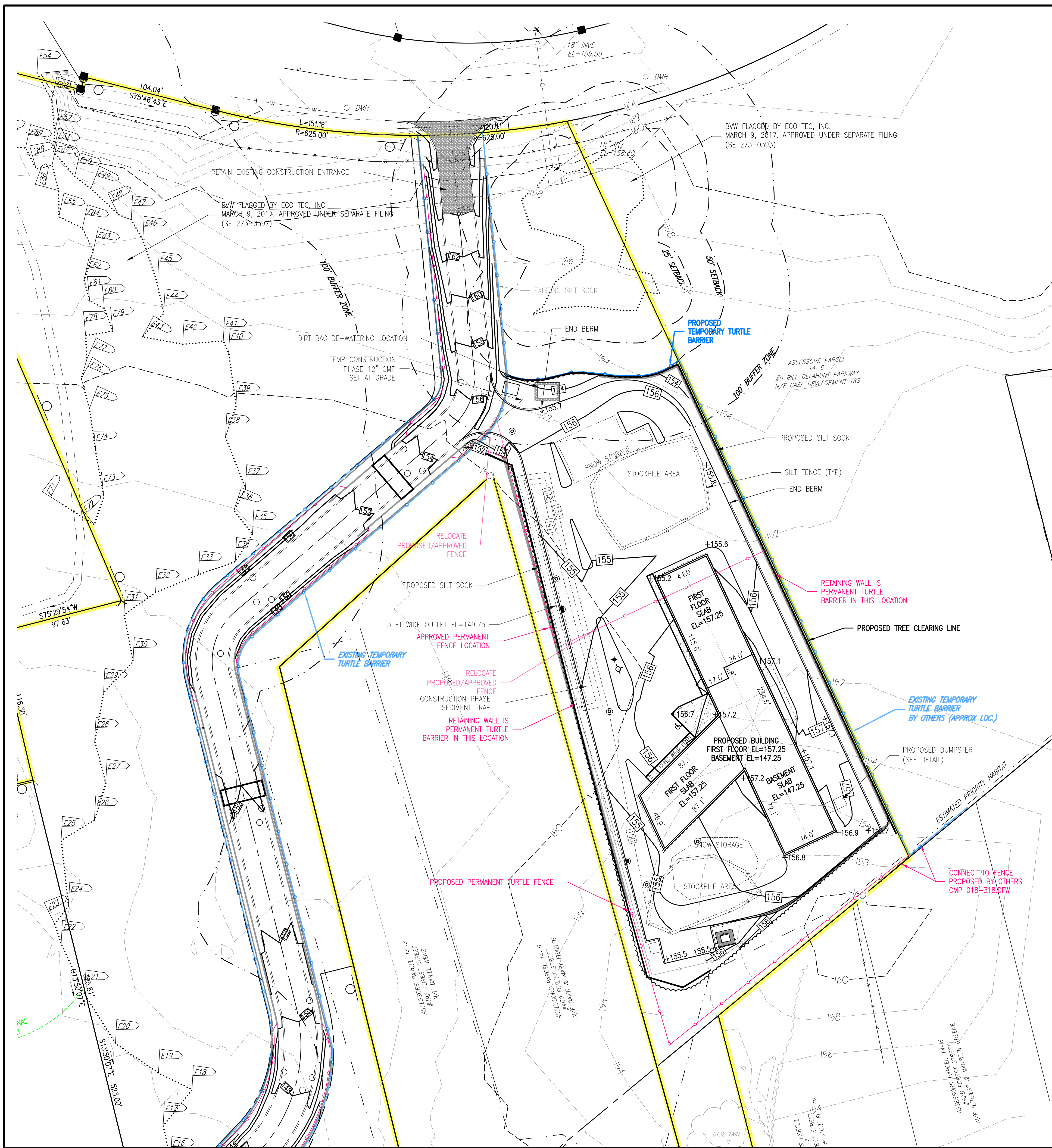
DATE _____	
REVISIONS	

SITE PLAN
LOVELL ACADEMY
120 BILL DELAHUNT BOULEVARD
ASSESSORS LOT 14-092
ROCKLAND, MASSACHUSETTS

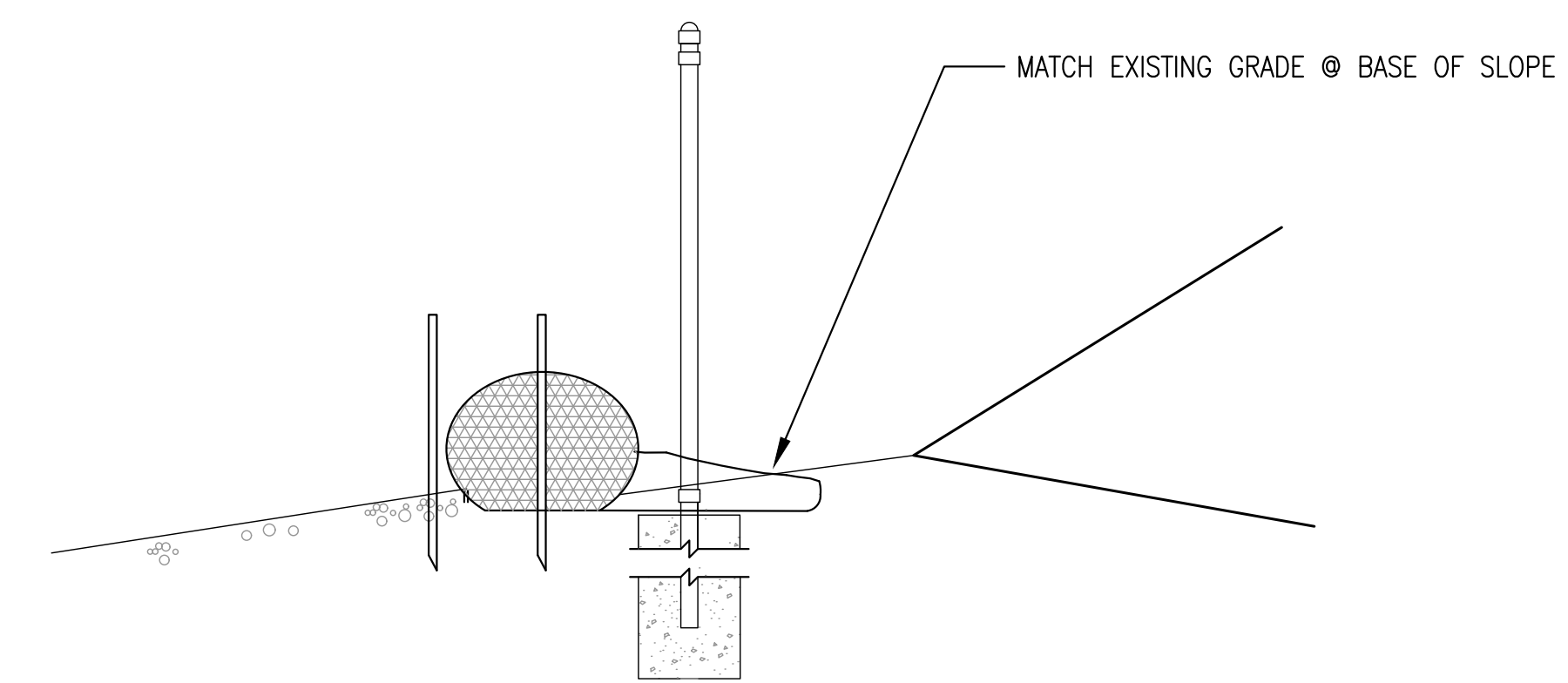
PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
LAUREN MONAHAN MANAGING PARTNER
129 JACOBS LANE
NORWELL MA 02061

AUGUST 16, 2021
SCALE: 1"= _____
JOB No. 17-276

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71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378



00 PERMANENT TURTLE BARRIER DETAIL
N.T.S. DETAIL FILE



SITE PLAN APPROVAL

DATE	
REVISIONS	

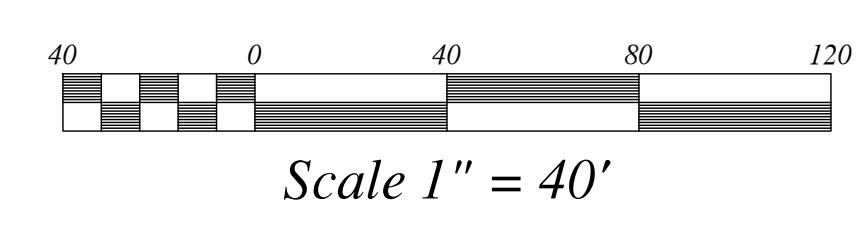
SITE PLAN

LOVELL ACADEMY
120 BILL DELAHUNT BOULEVARD
ASSESSORS LOT 14-092
ROCKLAND, MASSACHUSETTS

PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
LAUREN MONAHAN MANAGING PARTNER
129 JACOBS LANE
NORWELL MA 02061

AUGUST 16, 2021
SCALE: 1"= 100'
JOB No. 17-276

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EROSION CONTROL

23.4.6 *Access aisles:* All accessible spaces shall have access aisles that comply with the following:

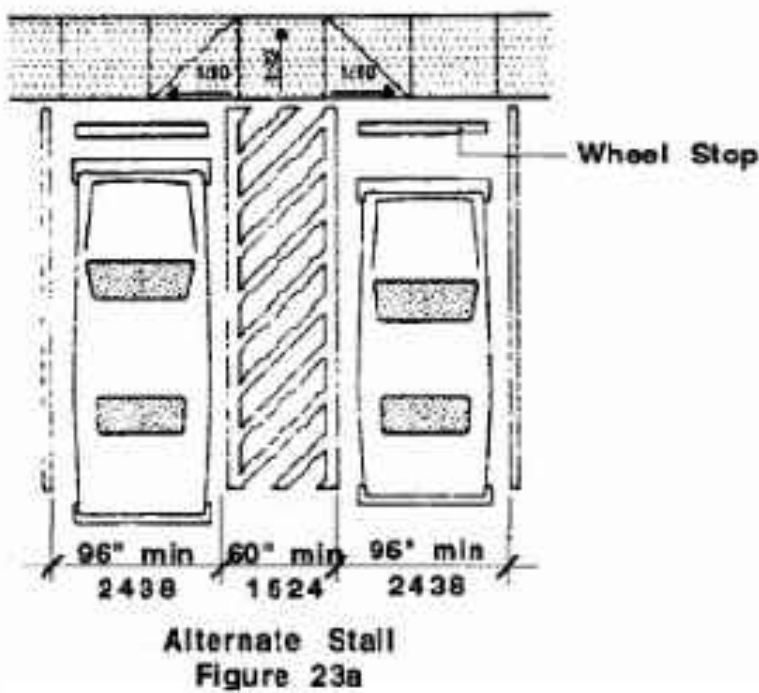
- a. Parking access aisles shall be part of an accessible route to the building or facility entrance and shall comply with 521 CMR 20.00: ACCESSIBLE ROUTE.

Exception: For temporary accessible parking, directional signage along the entire accessible route, using the international symbol of accessibility and an arrow, shall be used to direct people to the closest accessible entrance.

- b. Access aisles adjacent to accessible spaces shall be five feet (5' = 1524mm) wide minimum, except adjacent to van accessible spaces the access aisle shall be a minimum of eight feet (8' = 2438mm) wide.

Exception: When temporary accessible parking is located within a field or otherwise unimproved site, when such area has not been improved in accordance with 521 CMR, the spaces shall be located on the least sloping area of the parking lot in conjunction with the temporary accessible parking spaces.

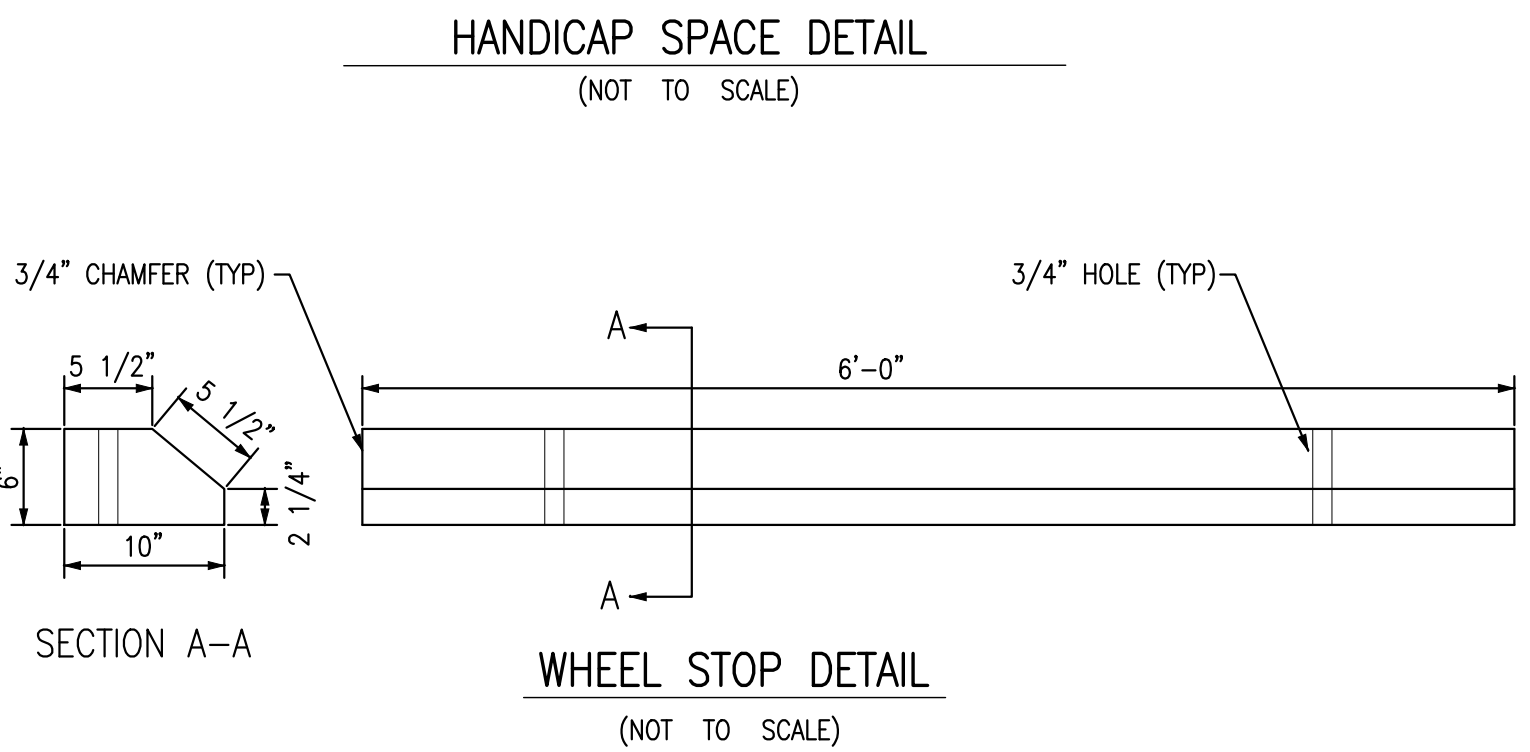
- c. Two accessible parking spaces may share a common access aisle. See Fig. 23a and 23b.



- d. Access aisles shall be level with surface slopes not exceeding 1:50 (2%) in all directions.
e. Access aisles shall be clearly marked by means of diagonal stripes.

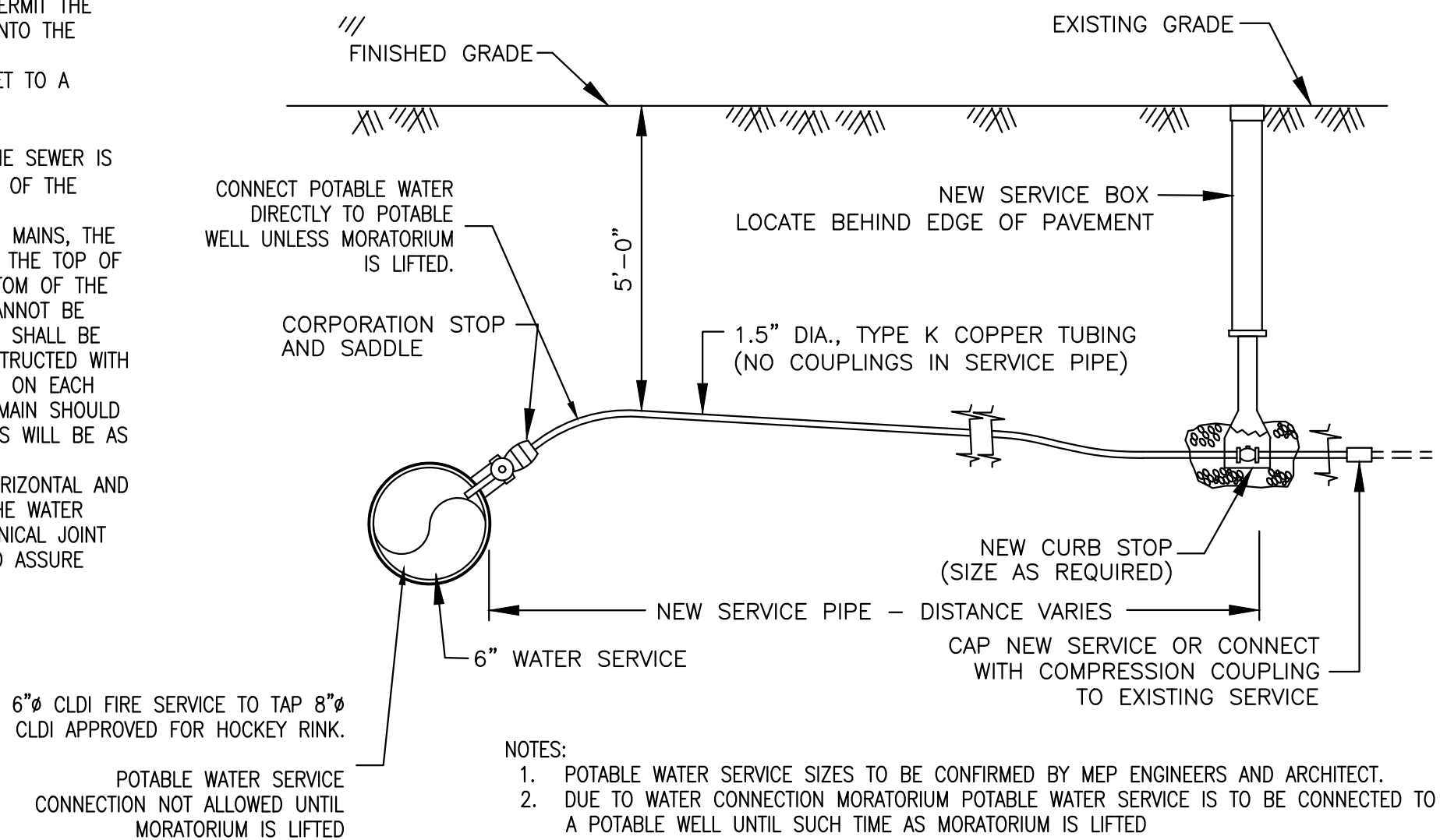
23.4.7 Van Accessible spaces shall comply with the following:

- a. Provide minimum vertical clearance of eight feet, two inches (8'2" = 2489mm) at the parking space and along at least one vehicle access route to such spaces from site entrance(s) and exit(s). See Fig. 23c.



WATER SUPPLY NOTES

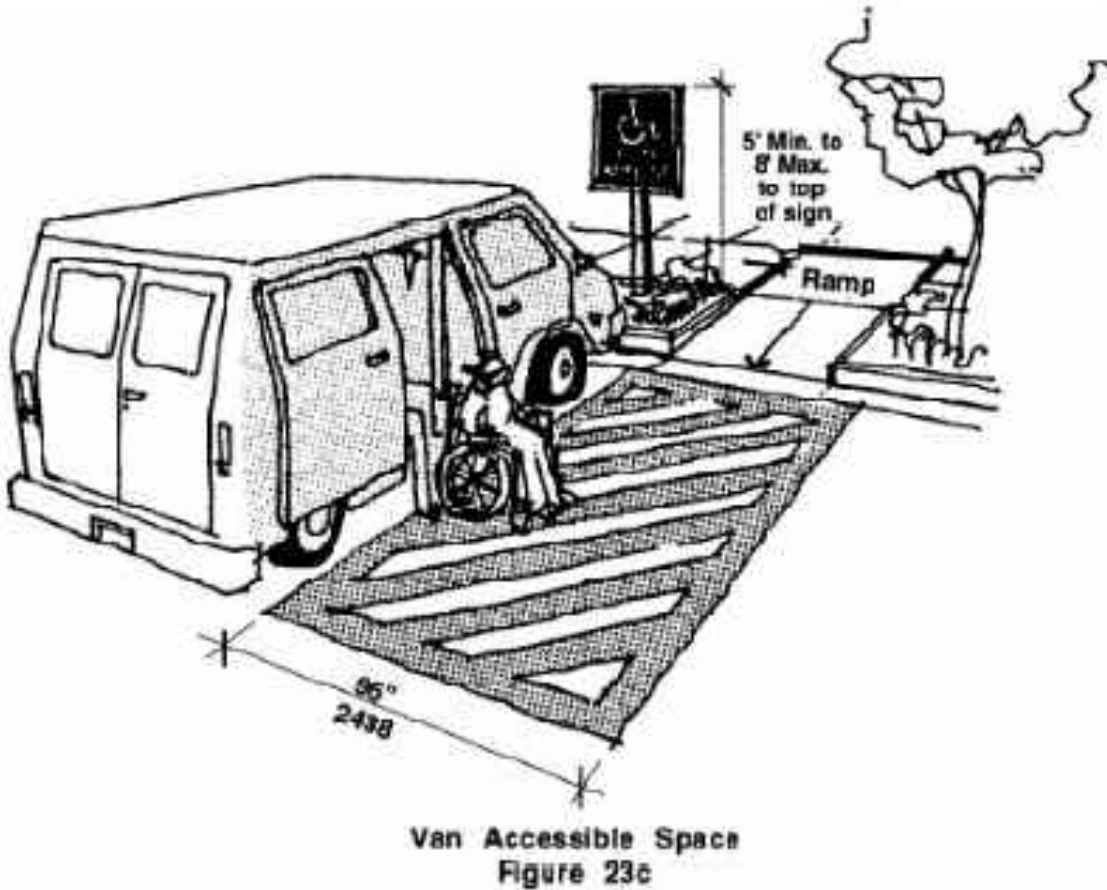
1. THERE SHALL BE NO PHYSICAL CONNECTION BETWEEN A PUBLIC OR PRIVATE POTABLE WATER SUPPLY SYSTEM AND A SEWER, OR APPURTENANCE THERETO WHICH WOULD PERMIT THE PASSAGE OF ANY WASTEWATER OR POLLUTED WATER INTO THE POTABLE SUPPLY.
2. THE SEWER MAY BE LAID CLOSER THAN 10 FEET TO A WATER MAIN PROVIDED THAT IT IS:
A. LAID IN A SEPARATE TRENCH, AND
B. THE ELEVATION OF THE TOP(CROWN) OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM(INVERT) OF THE WATER MAIN.
3. WHENEVER SEWERS MUST CROSS UNDER WATER MAINS, THE SEWER SHALL BE LAID AT SUCH AN ELEVATION THAT THE TOP OF THE SEWER IS AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN. WHEN THE ELEVATION OF THE SEWER CANNOT BE VARIED TO MEET THIS REQUIREMENT, THE WATER MAIN SHALL BE RELOCATED TO PROVIDE THIS SEPARATION OR RECONSTRUCTED WITH MECHANICAL JOINT PIPE FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE SEWER. ONE FULL LENGTH OF WATER MAIN SHOULD BE CENTERED OVER THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.
4. WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF MECHANICAL JOINT CAST IRON PIPE AND SHALL BE PRESSURE TESTED TO ASSURE WATER-TIGHTNESS.



- NOTES:
1. POTABLE WATER SERVICE SIZES TO BE CONFIRMED BY MEP ENGINEERS AND ARCHITECT.
 2. DUE TO WATER CONNECTION MORATORIUM POTABLE WATER SERVICE IS TO BE CONNECTED TO A POTABLE WELL UNTIL SUCH TIME AS MORATORIUM IS LIFTED

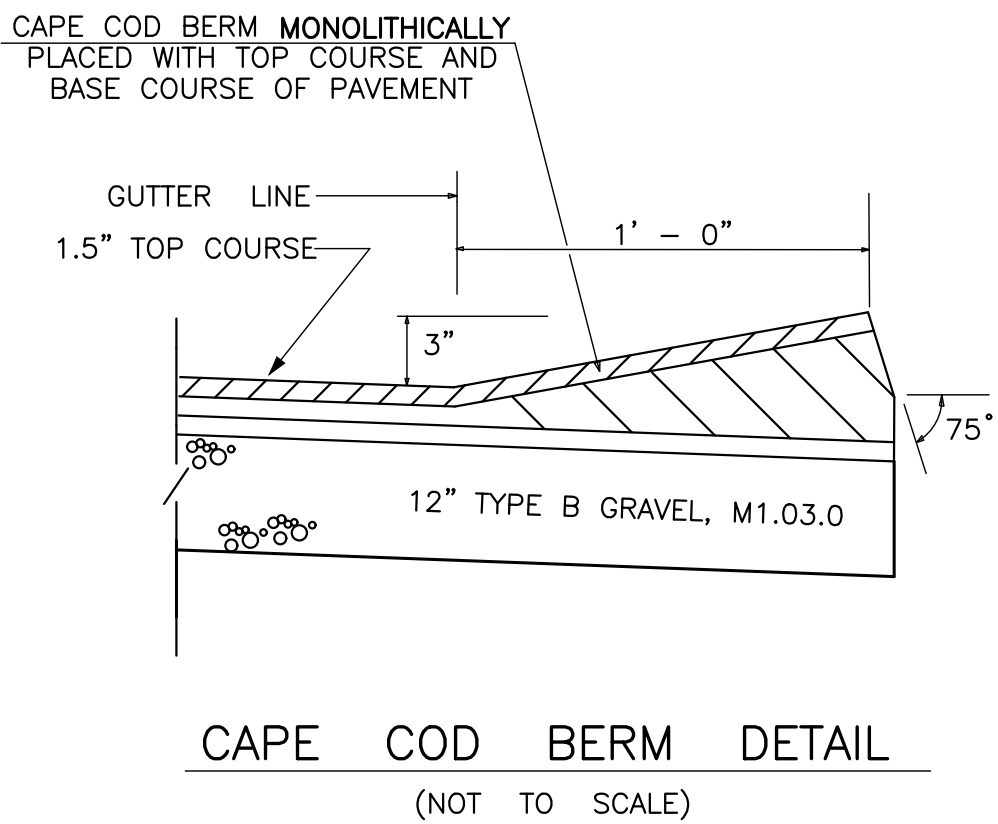
1.5" DOMESTIC WATER SERVICE DETAIL

23.00: PARKING AND PASSENGER LOADING ZONES



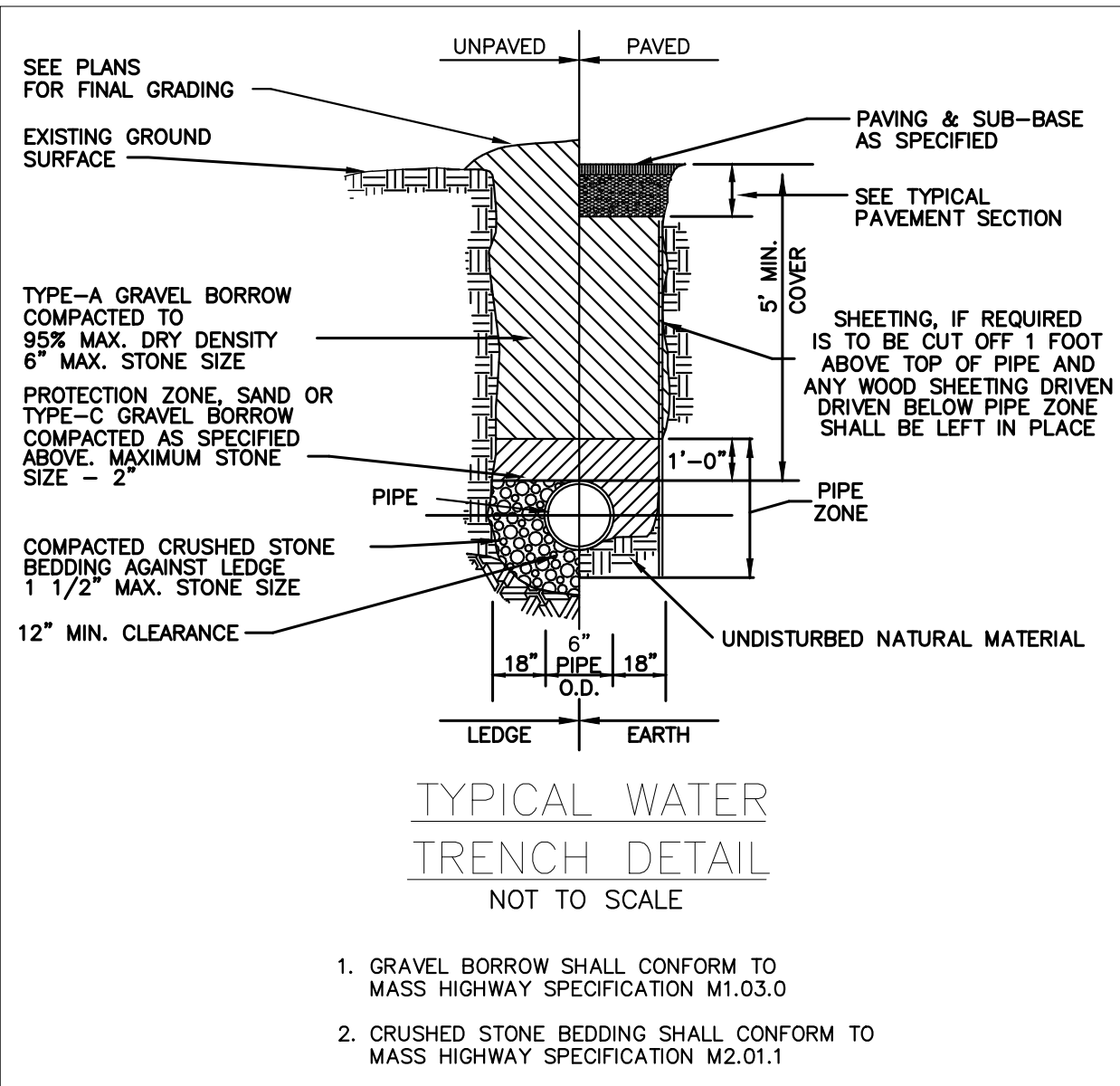
- b. Each space shall have a sign designating it "Van Accessible" as required by 521 CMR 23.6, Signage.
c. All such spaces may be grouped on one level of a parking structure.
d. Eight foot minimum (8' = 2438mm) wide space.
e. Provide an access aisle of eight feet (8' = 2438mm).

ACCESSIBILITY LOADING ZONE
(NOT TO SCALE)



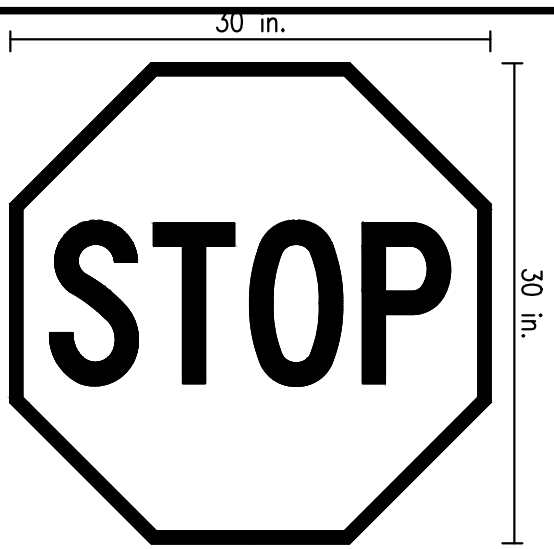
CAPE COD BERM DETAIL
(NOT TO SCALE)

UTILITY NOTE:
CLAY DAMS ARE TO BE INSTALLED AT 200 FT INTERVALS ALONG DRIVEWAY ENTRANCE FOR ALL UTILITIES. ADDITIONALLY, CLAY DAMS ARE TO BE INSTALLED AT EACH END OF WETLAND CROSSING FOR ALL UTILITIES.



TYPICAL WATER TRENCH DETAIL
NOT TO SCALE

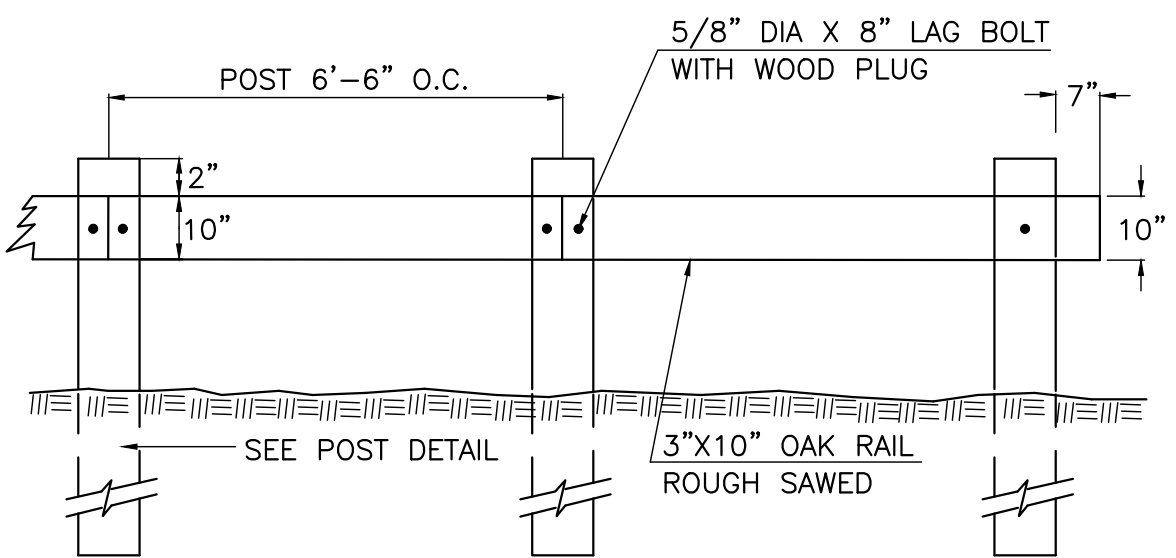
1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0
2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1



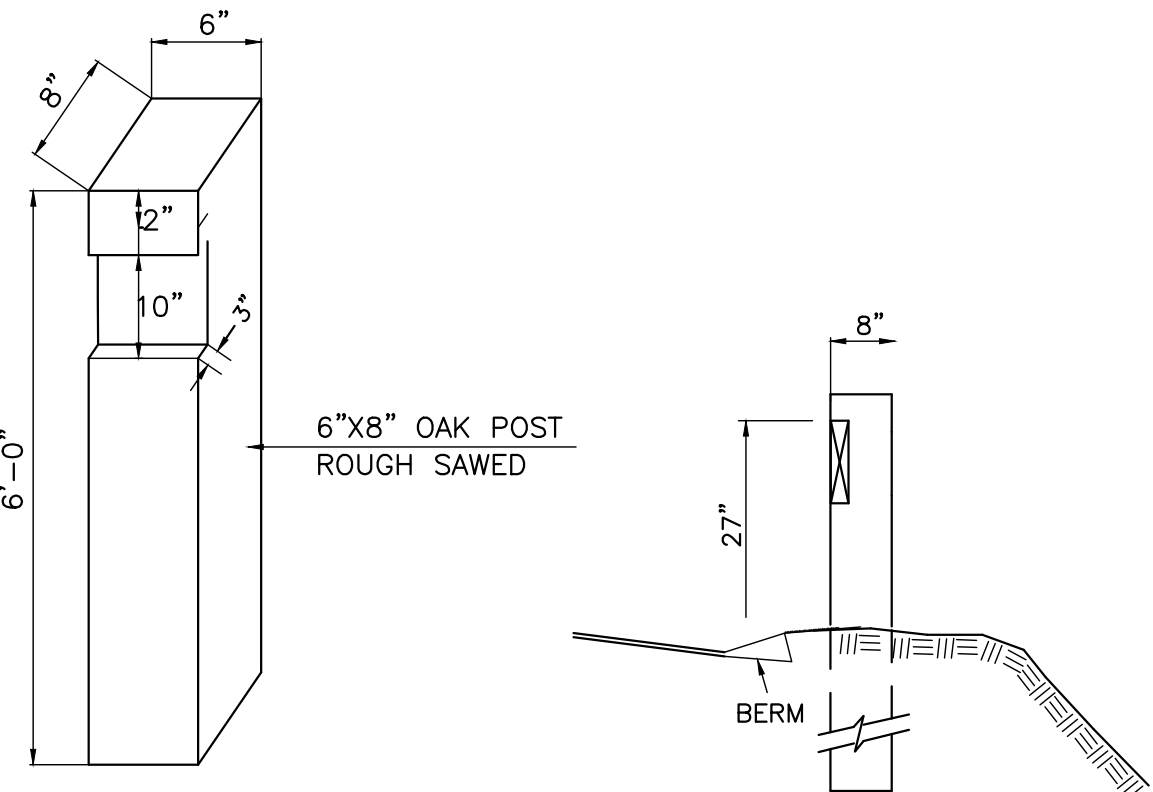
ALL SIGNS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES WITH THE EXCEPTION OF BEING DIAMOND GRADE
12" WIDE X 12 FT LONG STOP LINE TO BE PLACED 4 FT IN ADVANCE OF NEAREST CROSSWALK.

IN THE ABSENCE OF MARKED CROSSWALK THE STOP LINE SHALL BE PLACED NO MORE THAN 30 FT NOR LESS THAN 4 FT FROM THE NEAREST EDGE OF THE INTERSECTING TRAVELED WAY.

STOP SIGN DETAIL
(NOT TO SCALE)

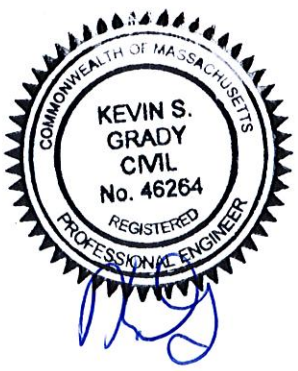


FRONT ELEVATION



WOOD POST DETAIL

WOOD GUARD RAIL
(NOT TO SCALE)



ROCKLAND PLANNING BOARD
SITE PLAN APPROVAL

DATE	
REVISIONS	

SITE PLAN
LOVELL ACADEMY
120 BILL DELAHUNT BOULEVARD
ASSESSORS LOT 14-092
ROCKLAND, MASSACHUSETTS

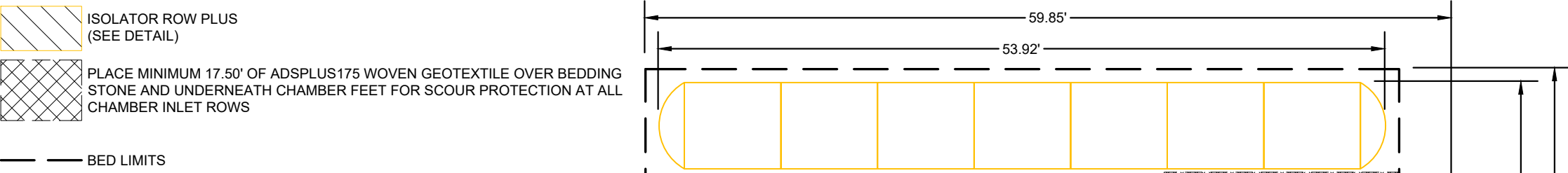
PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
LAUREN MONAHAN MANAGING PARTNER
129 JACOBS LANE
NORWELL MA 02061

AUGUST 16, 2021
SCALE: NTS
JOB No. 17-276

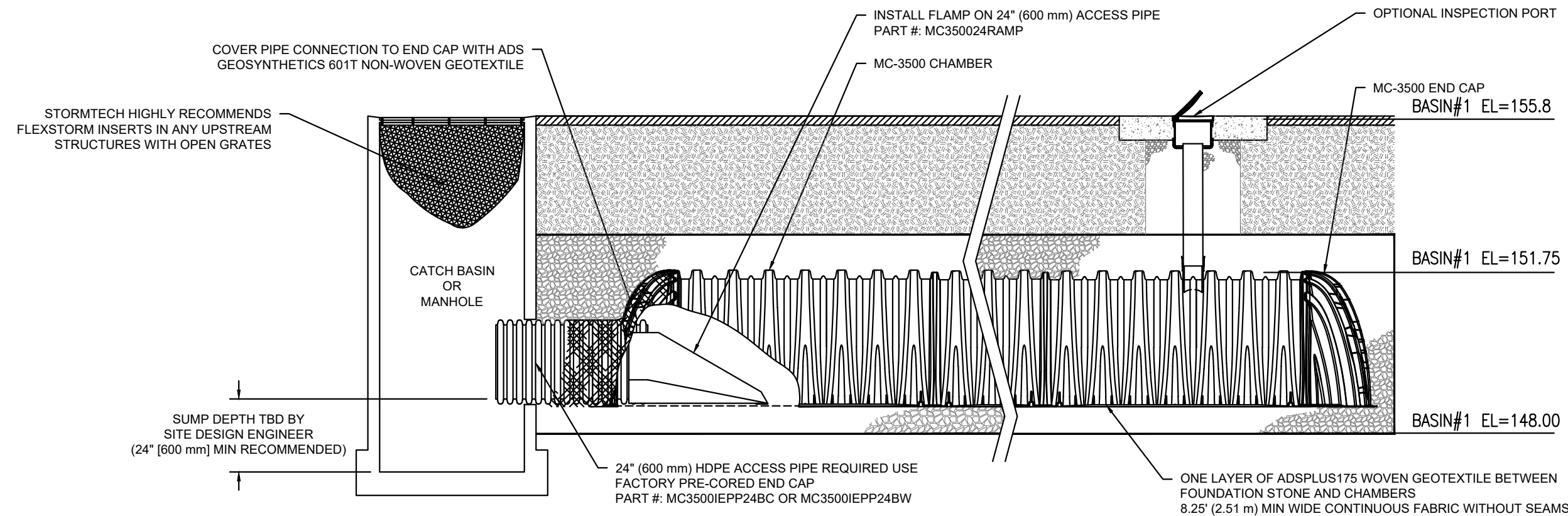
GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors &
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71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378

HYDRANT DETAIL
(NOT TO SCALE)

PROPOSED LAYOUT	PROPOSED ELEVATIONS	PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT	MAX FLOW
40 STORMTECH MC-4500 CHAMBERS	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT UNPAVED):	159.50	PREFABRICATED END CAP	A 12" TOP PARTIAL CUT END CAP, PART#: MC4500IEPP12T / TYP OF ALL 12" TOP CONNECTIONS	35.69"	
8 STORMTECH MC-4500 END CAPS	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	159.50	PREFABRICATED END CAP	B 24" BOTTOM PARTIAL CUT END CAP, PART#: MC4500IEPP24B / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.26"	
12 STONE ABOVE (in)	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	159.50	FLAMP	C INSTALL FLAMP ON 24" ACCESS PIPE / PART#: MC450024RAMP		
12 STONE BELOW (in)	MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	154.50	MANIFOLD	D 12" x 12" TOP MANIFOLD, ADS N-12	35.69"	
33 STONE VOID	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	154.50	CONCRETE STRUCTURE	E (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		7.4 CFS IN
7536 INSTALLED SYSTEM VOLUME (CF)	TOP OF STONE	153.50				
PERIMETER STONE INCLUDED)	TOP OF MC-4500 CHAMBER	152.50				
ADDITIONAL PIPES (NOT REQUIRED)	12" x 12" TOP MANIFOLD INVERT:	150.41				
1825 BASE STONE INCLUDED)	24" ISOLATOR ROW PLUS INVERT:	147.69				
SYSTEM AREA (SF)	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	147.50				
1781 SYSTEM PERIMETER (ft)	BOTTOM OF MC-4500 CHAMBER	147.50				
	BOTTOM OF STONE	148.50				



NOTES
 1. UNFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6-32 FOR MANIFOLD SIZING GUIDANCE.
 2. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE COMPONENTS IN THE FIELD.
 3. THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
 4. THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
 5. **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVIDE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.



MC-3500 ISOLATOR ROW PLUS DETAIL
NTS

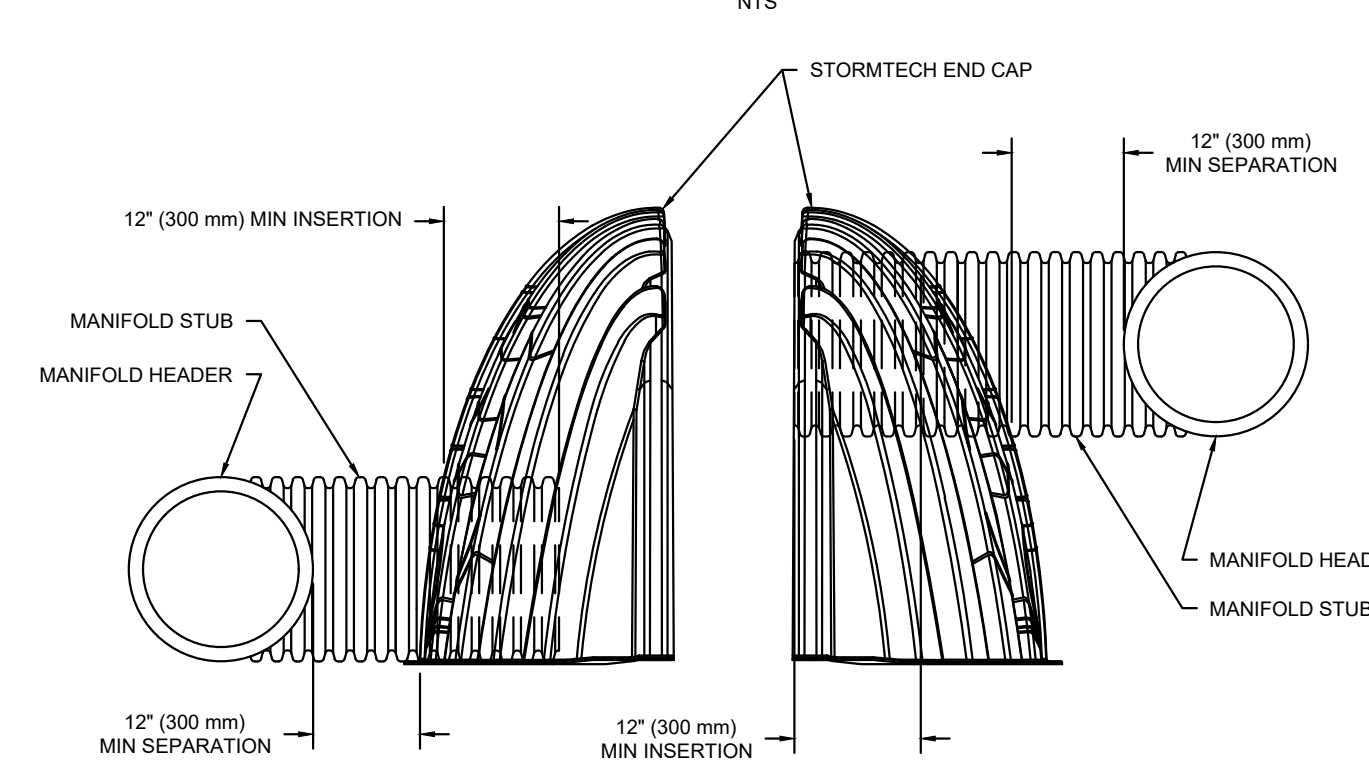
INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
 A. INSPECTION PORTS (IF PRESENT)
 A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN.
 A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED.
 A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG.
 A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL).
 A.5. IF SEDIMENT IS AT OR ABOVE 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
 B. ALL ISOLATOR PLUS ROWS
 B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS.
 B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE.
 i) MIRRORS OR POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY.
 ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE.
 IF SEDIMENT IS AT OR ABOVE 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
 B.3. IF SEDIMENT IS AT OR ABOVE 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
 STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
 A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED.
 B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN.
 C. VACUUM STRUCTURE SUMP AS REQUIRED.
 STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS, RECORD OBSERVATIONS AND ACTIONS.
 STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

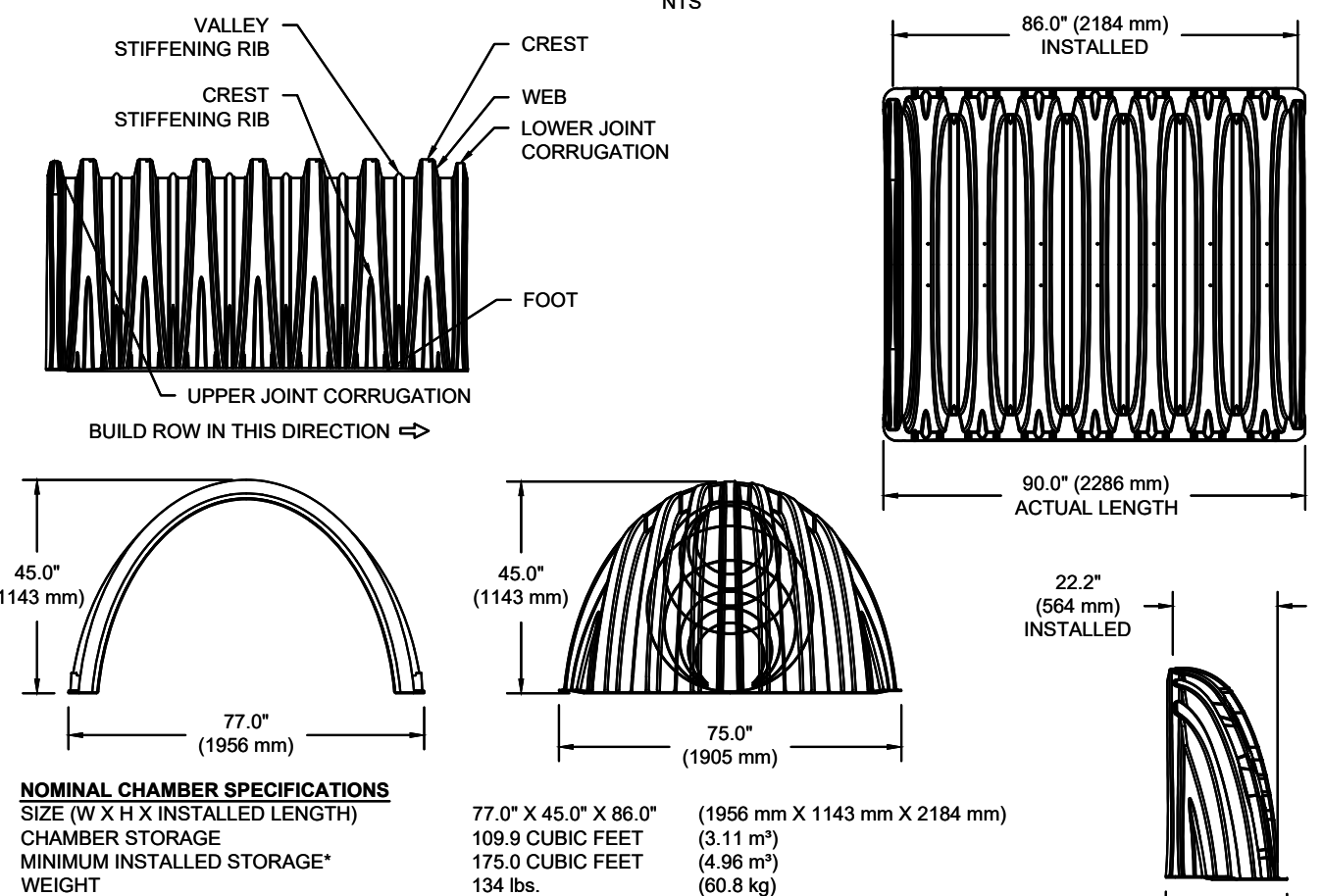
- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

MC-SERIES END CAP INSERTION DETAIL



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

MC-3500 TECHNICAL SPECIFICATION



NOMINAL CHAMBER SPECIFICATIONS
 SIZE (W X H X INSTALLED LENGTH)
 CHAMBER STORAGE
 MINIMUM INSTALLED STORAGE*
 WEIGHT
 77.0" X 45.0" X 86.0" (1956 mm X 1143 mm X 2184 mm)
 109.9 CUBIC FEET (3.11 m³)
 175.0 CUBIC FEET (4.96 m³)
 134 lbs. (60.8 kg)

NOMINAL END CAP SPECIFICATIONS
 SIZE (W X H X INSTALLED LENGTH)
 END CAP STORAGE
 MINIMUM INSTALLED STORAGE*
 WEIGHT
 75.0" X 45.0" X 22.2" (1905 mm X 1143 mm X 564 mm)
 14.9 CUBIC FEET (0.42 m³)
 45.1 CUBIC FEET (1.26 m³)
 49 lbs. (22.2 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION, 6" SPACING BETWEEN CHAMBERS, 8" (152 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY

PART #	STUB	B	C
MC3500IEPP06T	6" (150 mm)	33.21" (844 mm)	—
MC3500IEPP06B	—	31.16" (791 mm)	0.66" (17 mm)
MC3500IEPP08T	8" (200 mm)	31.16" (791 mm)	0.81" (21 mm)
MC3500IEPP08B	—	29.04" (738 mm)	—
MC3500IEPP10T	10" (250 mm)	—	0.93" (24 mm)
MC3500IEPP10B	—	26.36" (670 mm)	—
MC3500IEPP12T	12" (300 mm)	—	1.35" (34 mm)
MC3500IEPP12B	—	23.39" (594 mm)	—
MC3500IEPP15T	15" (375 mm)	—	1.50" (38 mm)
MC3500IEPP15B	—	20.03" (509 mm)	—
MC3500IEPP18TC	18" (450 mm)	—	1.77" (45 mm)
MC3500IEPP18TB	—	14.48" (368 mm)	—
MC3500IEPP24TC	24" (600 mm)	—	2.06" (52 mm)
MC3500IEPP24TB	—	—	2.75" (70 mm)
MC3500IEPP24BW	30" (750 mm)	—	—
MC3500IEPP30BC	—	—	—

NOTE: ALL DIMENSIONS ARE NOMINAL

MC-3500 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-3500.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

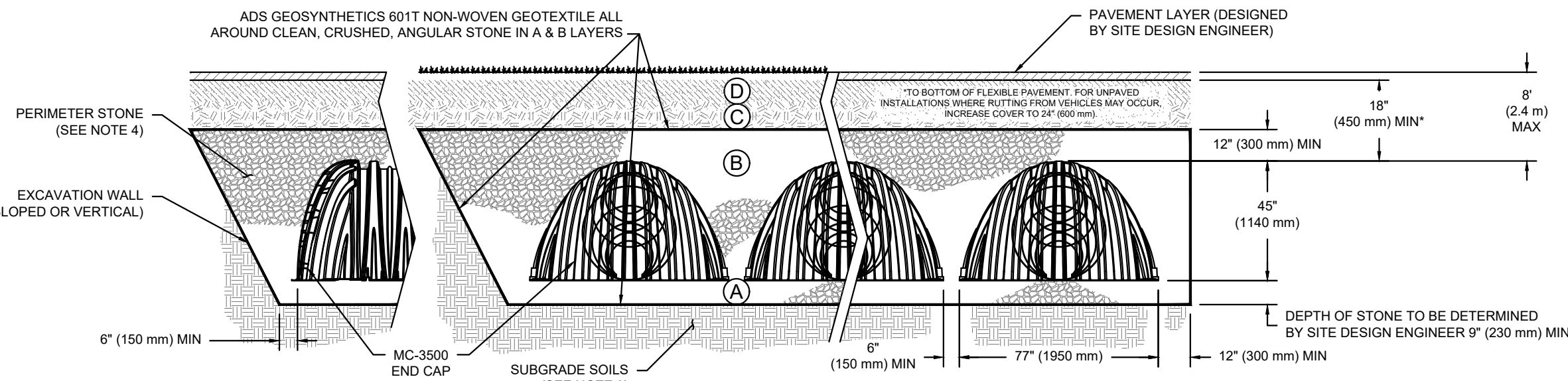
CUSTOM PRECURED INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-3500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

ACCEPTABLE FILL MATERIALS: STORMTECH MC-3500 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145¹ A-1, A-2.4, A-3 OR AASHTO M43³ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL-GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43³ 3.4	
A FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43³ 3.4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.¹,² NO COMPACTION REQUIRED.

PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". CHAMBER CLASSIFICATION 45x76 designation SS.
- MC-3500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.



ROCKLAND PLANNING BOARD
SITE PLAN APPROVAL

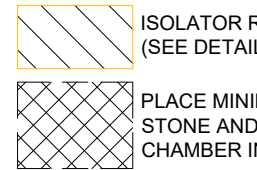
DATE

REVISIONS

SITE PLAN
 LOVELL ACADEMY
 120 BILL DELAHUNT BOULEVARD
 ASSESSORS LOT 14-092
 ROCKLAND, MASSACHUSETTS

PREPARED FOR:
 FOREST DELAHUNT DEVELOPMENT LLC
 LAUREN MONAHAN MANAGING PARTNER
 129 JACOBS LANE
 NORWELL MA 02061
 AUGUST 16, 2021
 SCALE: NTS
 JOB No. 17-276
GRADY CONSULTING, L.L.C.
 Civil Engineers, Land Surveyors &
 Landscape Architects
 71 Evergreen Street, Suite 1, Kingston, MA 02364
 Phone (781) 585-2300 Fax (781) 585-2378

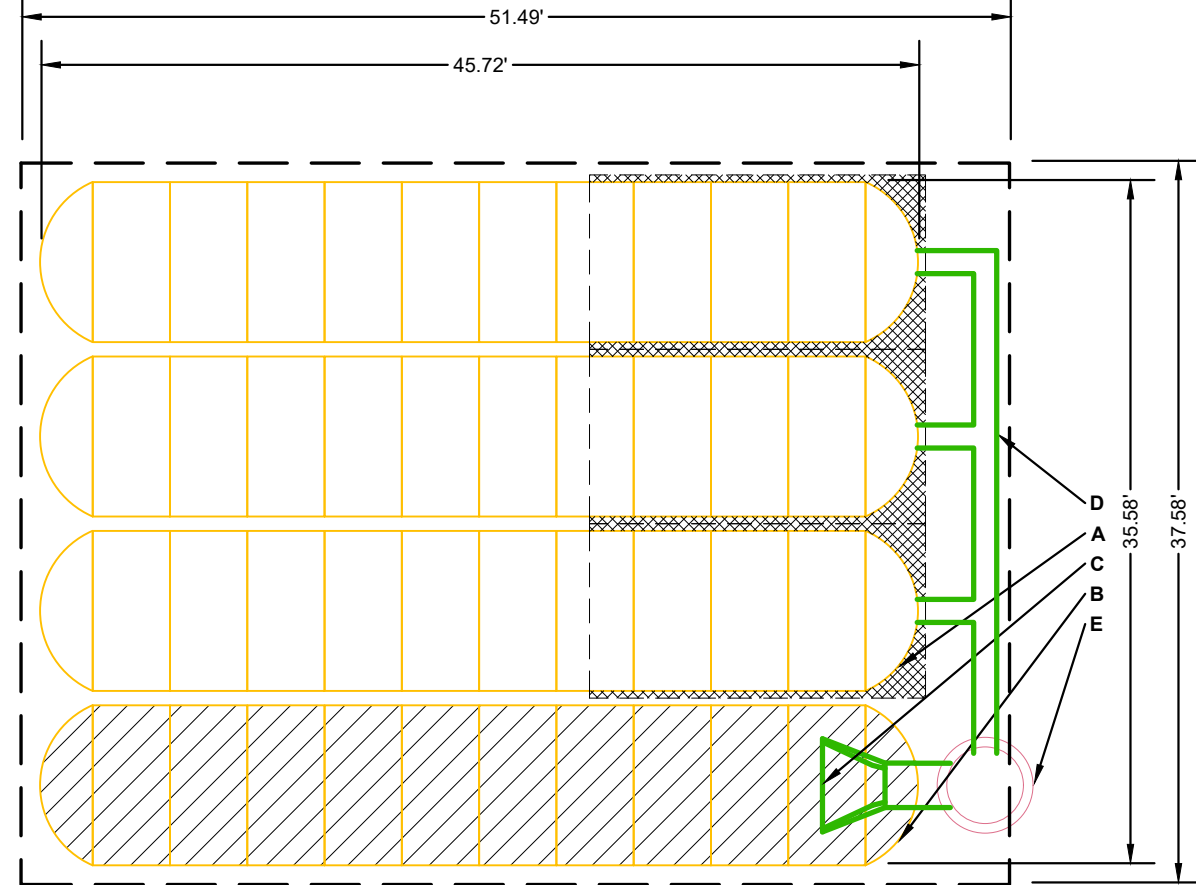
PROPOSED ELEVATIONS	PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT	MAX FLOW
MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	155.50	PREFABRICATED END CAP	A 12" TOP PARTIAL CUT END CAP, PART # MC4500IEPP12T / TYP OF ALL 12" TOP CONNECTIONS	35.69'	
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	155.00	PREFABRICATED END CAP	B 24" BOTTOM PARTIAL CUT END CAP, PART # MC4500IEPP24B / TYP OF ALL 24" BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	2.26"	
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	154.50	FLAMP	C INSTALL FLAMP ON 24" ACCESS PIPE / PART # MC450024RAMP		
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	154.50				
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	154.50	MANIFOLD	D 12" X 12" TOP MANIFOLD ADS	35.69'	
TOP OF STONE:	153.50	CONCRETE STRUCTURE	E (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		7.4 CFS IN
TOP OF MC-4500 CHAMBER:	152.50				
12" X 12" TOP MANIFOLD INVERT:	150.47				
24" ISOLATOR ROW PLUS INVERT:	147.69				
BOTTOM OF MC-4500 CHAMBER:	147.50				
BOTTOM OF STONE:	146.50				



— BED LIMITS

NOTES

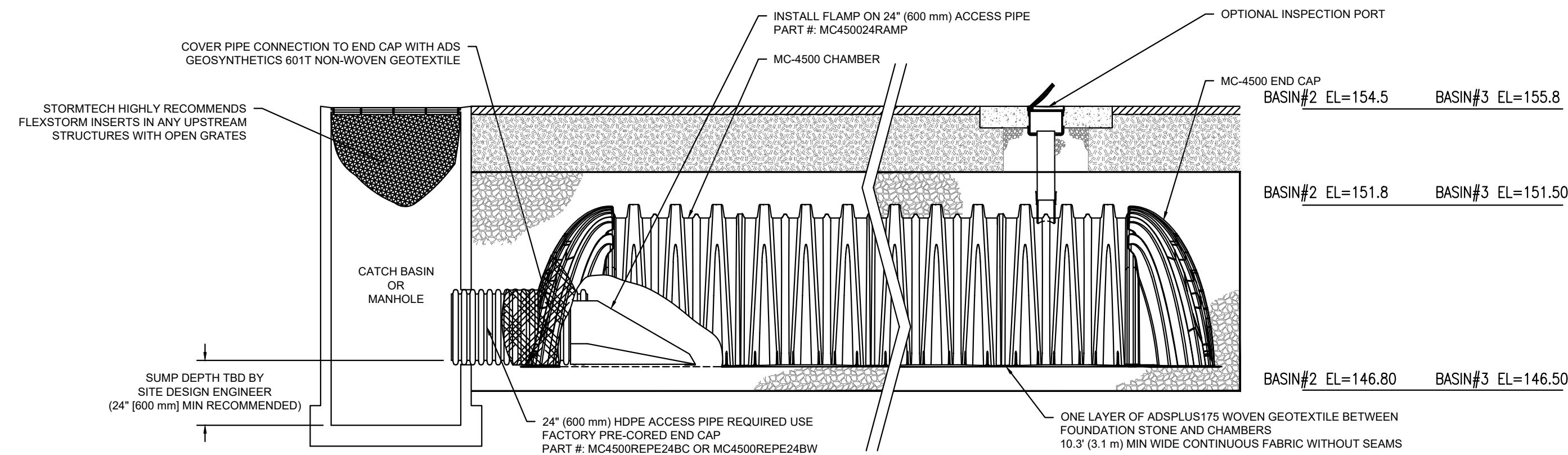
- TURNFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY. TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.



BASIN #1
ADS STORMTECH MC 3500, 35 CHAMBERS, 12.00 IN STONE BASE, 6.00 IN ADDITIONAL WIDTH ON BOTH SIDES, WITH STONE FILL, 6.00 IN STONE COVER, 40 % STONE VOIDS, WITH A TOTAL STORAGE VOLUME OF 5894.876 FT³ 5 ROWS OF 11 CHAMBERS

BASIN #2
ADS STORMTECH MC 4500, 44 CHAMBERS, 12.00 IN STONE BASE, 12.00 IN ADDITIONAL WIDTH ON BOTH SIDES, WITH STONE FILL, 12.00 IN STONE COVER, 40 % STONE VOIDS, WITH A TOTAL STORAGE VOLUME OF 7434.421 FT³ 4 ROWS OF 11 CHAMBERS

BASIN #3
ADS STORMTECH MC 4500, 34 CHAMBERS, 12.00 IN STONE BASE, 12.00 IN ADDITIONAL WIDTH ON BOTH SIDES, WITH STONE FILL, 12.00 IN STONE COVER, 40 % STONE VOIDS, WITH A TOTAL STORAGE VOLUME OF 5744.773 FT³ 1 ROW OF 34 CHAMBERS



MC-4500 ISOLATOR ROW PLUS DETAIL
NTS

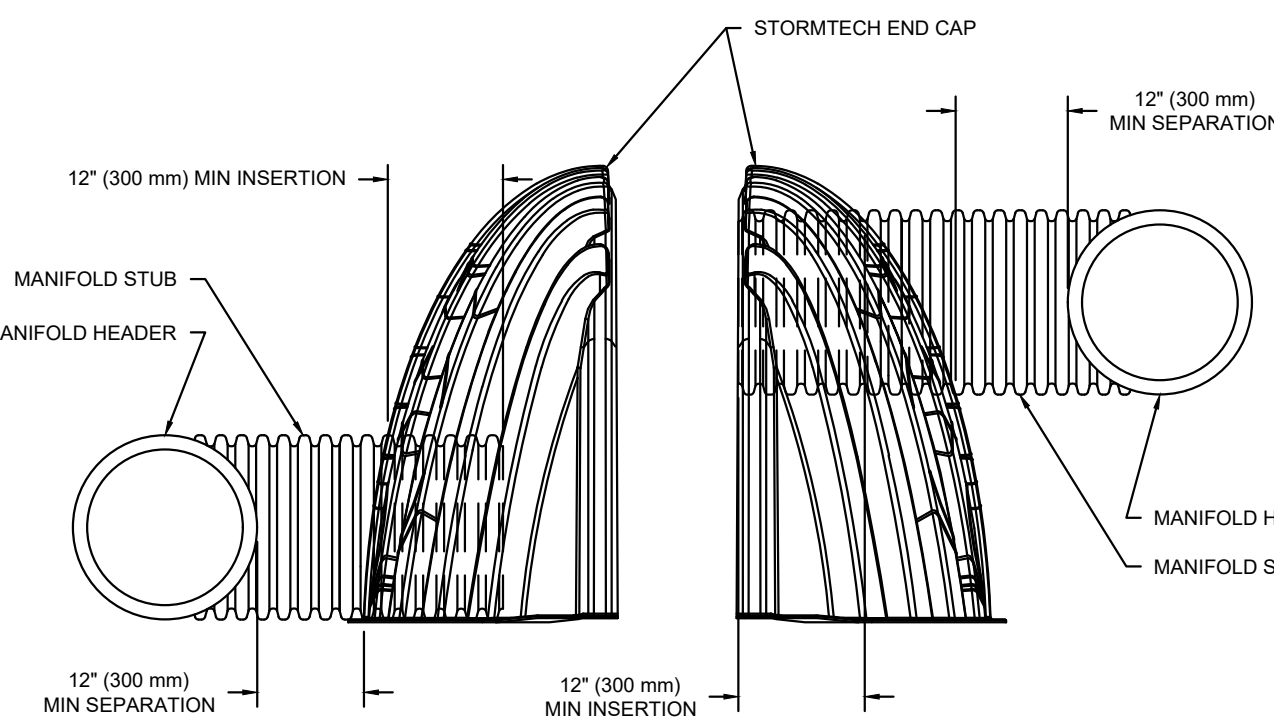
INSPECTION & MAINTENANCE

- STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
 - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
 - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
 - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2; IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
 - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
 - B.3. MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - B.4. FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - B.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2; IF NOT, PROCEED TO STEP 3.
- STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45° (1.1 m) OR MORE IS PREFERRED
 - B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
 - C. VACUUM STRUCTURE SUMP AS REQUIRED
- STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.
- STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

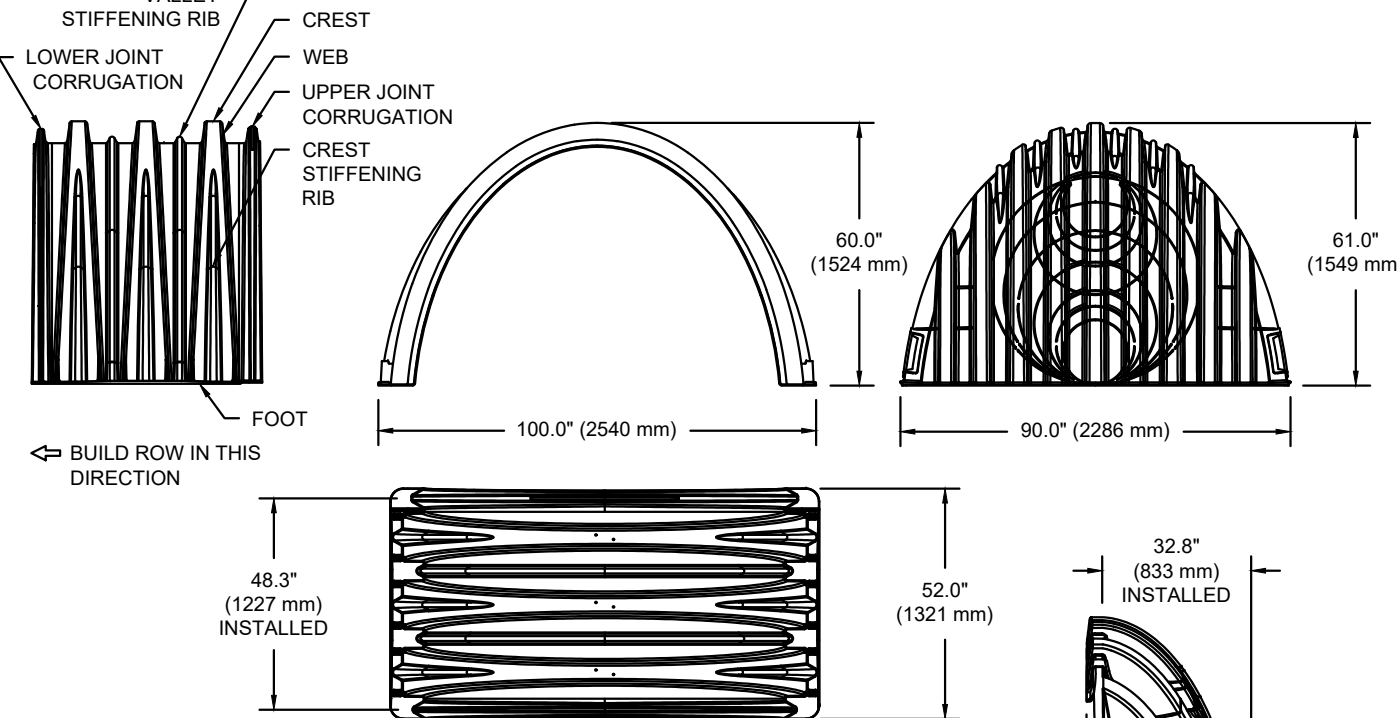
- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

MC-SERIES END CAP INSERTION DETAIL
NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

MC-4500 TECHNICAL SPECIFICATION
NTS



NOMINAL CHAMBER SPECIFICATIONS
SIZE (W X H X INSTALLED LENGTH)
CHAMBER STORAGE
MINIMUM INSTALLED STORAGE*
WEIGHT (NOMINAL)

100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
106.5 CUBIC FEET	(3.01 m ³)
102.6 CUBIC FEET	(4.80 m ³)
125.0 lbs.	(56.7 kg)

NOMINAL END CAP SPECIFICATIONS
SIZE (W X H X INSTALLED LENGTH)
END CAP STORAGE
MINIMUM INSTALLED STORAGE*
WEIGHT (NOMINAL)

90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
39.5 CUBIC FEET	(1.12 m ³)
115.5 CUBIC FEET	(3.28 m ³)
90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC4500IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC4500IEPP06B	---	40.50" (1029 mm)	0.86" (22 mm)
MC4500IEPP08T	8" (200 mm)	---	1.01" (26 mm)
MC4500IEPP08B	---	38.37" (975 mm)	---
MC4500IEPP10T	10" (250 mm)	---	1.33" (34 mm)
MC4500IEPP10B	---	35.69" (907 mm)	1.55" (39 mm)
MC4500IEPP12T	12" (300 mm)	---	---
MC4500IEPP12B	---	32.72" (831 mm)	---
MC4500IEPP15T	15" (375 mm)	---	1.70" (43 mm)
MC4500IEPP15B	---	29.36" (746 mm)	---
MC4500IEPP18T	---	---	---
MC4500IEPP18B	18" (450 mm)	---	1.97" (50 mm)
MC4500IEPP19B	---	23.05" (585 mm)	---
MC4500IEPP24T	---	---	---
MC4500IEPP24TW	24" (600 mm)	---	2.26" (57 mm)
MC4500IEPP24B	---	---	---
MC4500IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC4500IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC4500IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

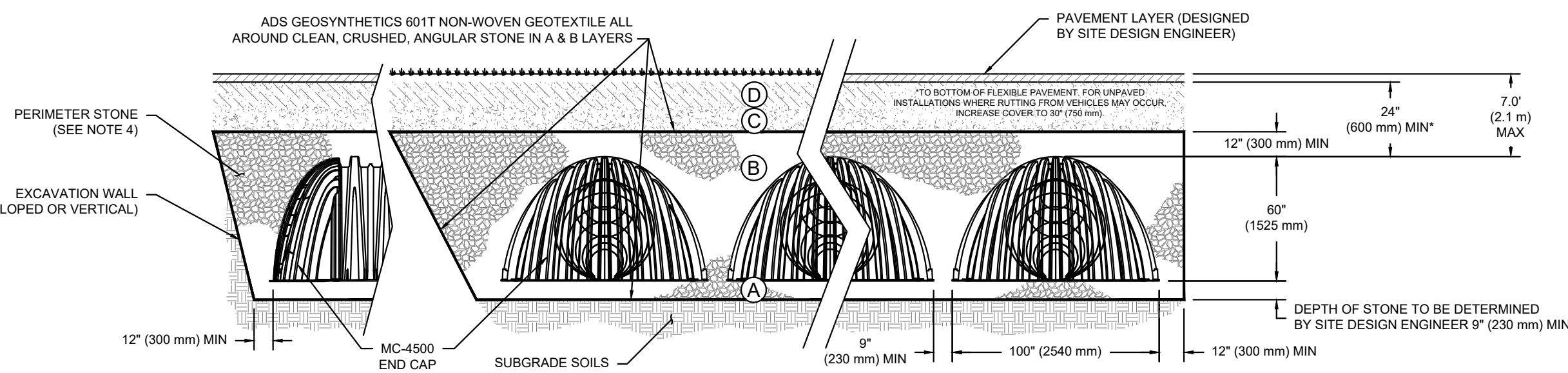
NOTE: ALL DIMENSIONS ARE NOMINAL

CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVERT ORIED MANIFOLDS INCLUDE 12" (305 mm) SIZE ON SIZE AND 15" (381 mm) (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (B LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE.	AASHTO M145 ¹ A-1, A-2-4, A-3 OR AASHTO M43 ¹ 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL. OVER THE CHAMBERS IS REACHED, COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4	
A FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43 ¹ 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

- PLEASE NOTE:
- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
 - STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
 - WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
 - ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
- MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN² AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

MC-4500 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH MC-4500.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418-16a, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1 WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 500 LBS/IN² AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.65 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

- STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONESHOOTER LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM 9" (230 mm) SPACING BETWEEN THE CHAMBER ROWS.
- INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 12" (300 mm) INTO CHAMBER END CAPS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE MEETING THE AASHTO M43 DESIGNATION OF #3 OR #4.
- STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 12" (300 mm) BETWEEN ADJACENT CHAMBER ROWS.
- STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 - NO RUBBER Tired LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.



ROCKLAND PLANNING BOARD
SITE PLAN APPROVAL

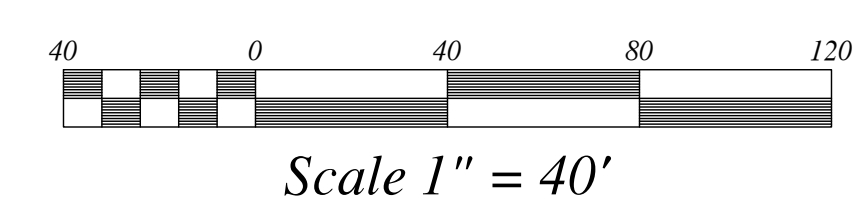
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REVISIONS	

SITE PLAN
LOVELL ACADEMY
120 BILL DELAHUNT BOULEVARD
ASSESSORS LOT 14-092
ROCKLAND, MASSACHUSETTS

PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
LAUREN MONAHAN MANAGING PARTNER
129 JACOBS LANE
NORWELL MA 02061

AUGUST 16, 2021
SCALE: NTS
JOB No. 17-276

GRADY CONSULTING, L.L.C.
Civil Engineers, Land Surveyors & Landscape Architects
71 Evergreen Street, Suite 1, Kingston, MA 02364
Phone (781) 585-2300 Fax (781) 585-2378



DATE _____

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120 BILL DELAHUNT BOULEVARD
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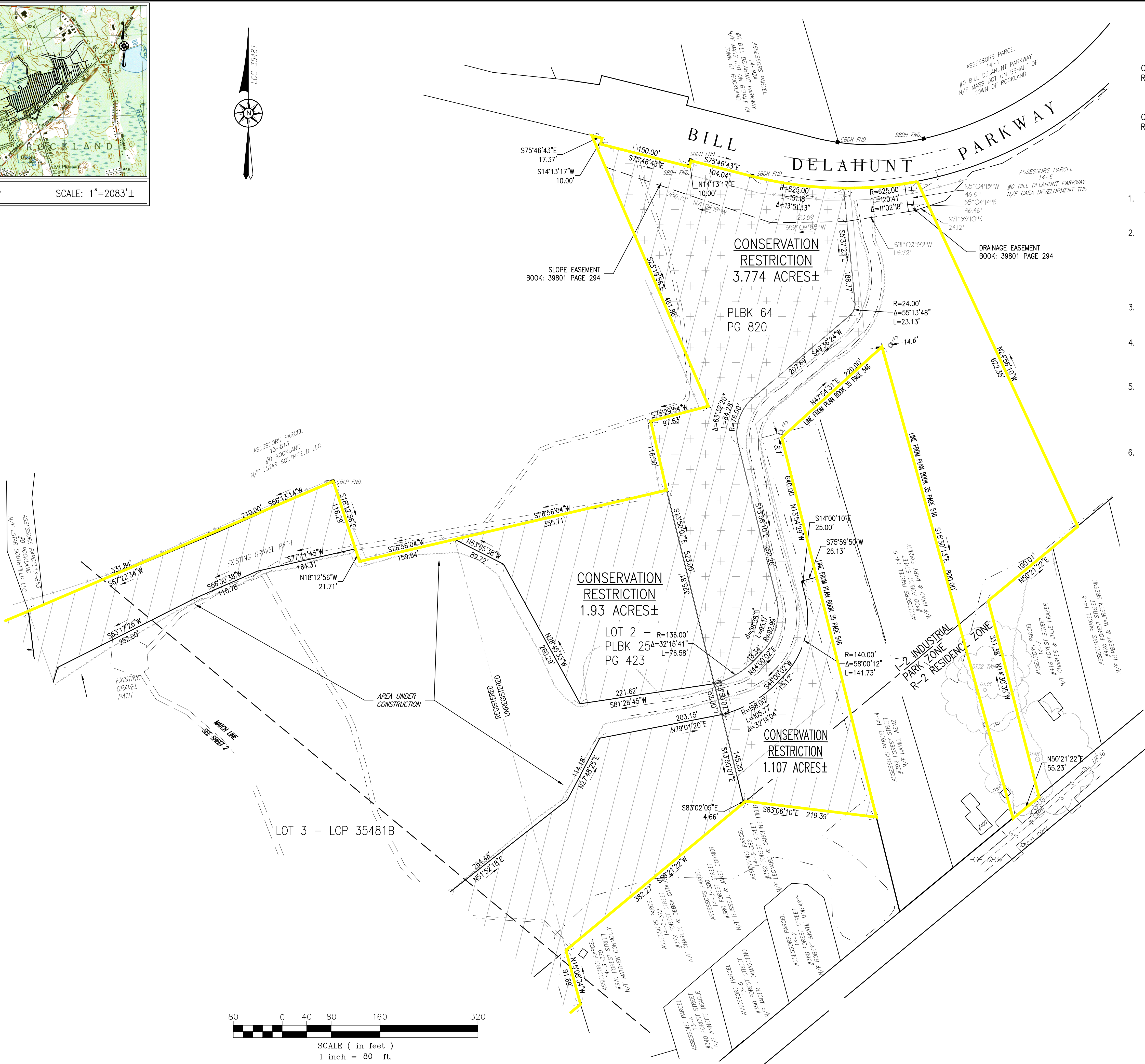
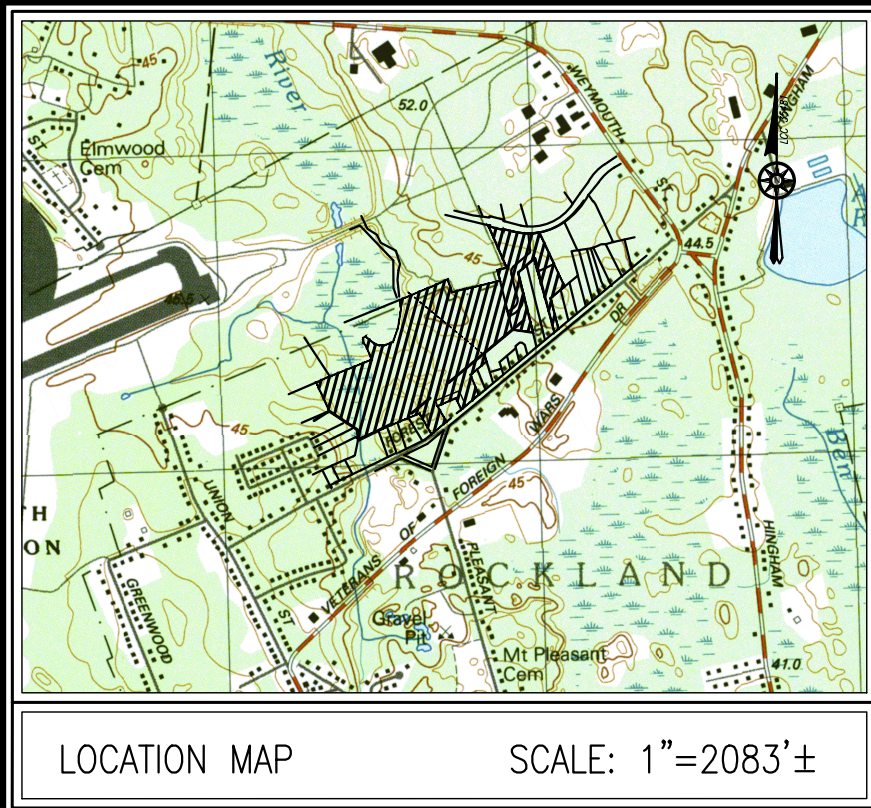
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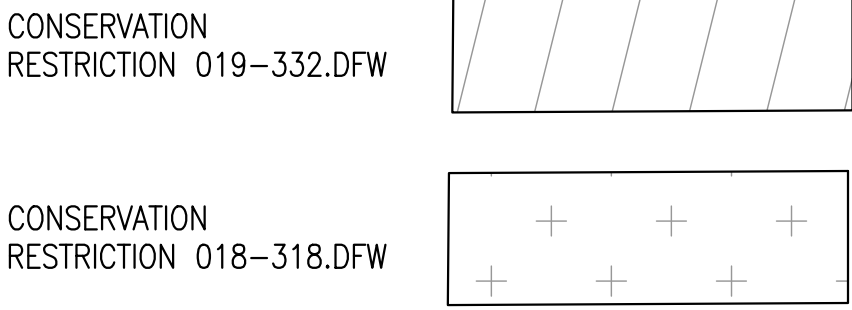
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LEGEND



NOTES

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- EXISTING UTILITIES, WHERE SHOWN, HAVE BEEN COMPILED BASED ON OBSERVED ABOVE GROUND EVIDENCE, AND RECORD INFORMATION, AND ARE TO BE CONSIDERED APPROXIMATE. GRADY CONSULTING, L.L.C. DOES NOT GUARANTEE THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN OR THAT ALL EXISTING UTILITIES AND/OR SUBSURFACE STRUCTURES ARE SHOWN.
- THE SITE IS NOT LOCATED IN A MASS. DEP WELLHEAD PROTECTION AREA (ZONE II, ZONE I, IWPA) BASED ON MASSGIS MAPPING DATED APRIL 2021
- THE SITE IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE AS DEPICTED ON FEMA FLOOD INSURANCE RATE MAPS 25023C091K AND 25023C093K EFFECTIVE DATE JULY 5, 2021.
- THE SITE IS SUBJECT TO A MASS. ENDANGERED SPECIES ACT CONSERVATION AND MANAGEMENT PERMIT No. 019-332-DFW, DATED 2/7/2019, RECORDED IN PLYMOUTH COUNTY REGISTRY OF DEEDS BOOK 53623 PAGE 299 AND AN AMENDED PERMIT IN DEED BOOK 53842 PAGE 157 DATED 11/17/2020.
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RECORD OWNER:

ASSESSOR PARCEL ID: 13-3, 14-92, 19-108, 19-47
FOREST DELAHUNT DEVELOPMENT LLC
BOB MONAHAN MANAGING PARTNER
276 WEYMOUTH STREET
ROCKLAND MA 02370

PLAN REFERENCES:

- LAND COURT PLAN 35481-A & B
- PLAN BOOK 25 PAGE 423
- PLAN BOOK 64 PAGE 820-822
- PLAN BOOK 64 PAGE 954
- PLAN BOOK 62 PAGE 780
- PLAN BOOK 35 PAGE 546
- PLAN IN BOOK 5154 PAGE 15
- PLAN BOOK 15 PAGE 74

SITE PLAN APPROVAL

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SITE PLAN

LOVELL ACADEMY
120 BILL DELAHUNT BOULEVARD
ASSESSORS LOT 14-092
ROCKLAND, MASSACHUSETTS

PREPARED FOR:
FOREST DELAHUNT DEVELOPMENT LLC
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