# RECEIVED

SEP - 3 2020

# INLAND WETLANDS & WATERCOURSES COMMISSION TOWN OF BROOKLYN, CONECTICUT

Data	
Date	
	Charles Address of the Party of

Application # 090820 A

# **APPLICATION -- INLAND WETLANDS & WATERCOURSES**

APPLICANT Square 1 Building Associates MAILING ADDRESS 101 Mackin Drive, G	riswold. Ct 06351
APPLICANT'S INTEREST IN PROPERTY Builder PHONE 860-888-3129	EMAIL pollock_shane@yahoo.com
PROPERTY OWNER IF DIFFERENT Same PHONE	
ENGINEER/SURVEYOR (IF ANY) CLA Engineers, Inc. / Archer Surveying ATTORNEY (IF ANY) None	
PROPERTY LOCATION/ADDRESS Tripp Hollow Road  MAP #_7 LOT #_12-1 ZONE_RA TOTAL ACRES_23.3 ACRES OF WETLANDS ON PRO	OPERTY 5.0
PURPOSE AND DESCRIPTION OF THE ACTIVITY Residential building construction consisting of septic systems and associated grading.	houses, driveways, wells
WETLANDS EXCAVATION AND FILL:  FILL PROPOSED	
MITIGATION MEASURES (IF REQUIRED): WETLANDS/WATERCOURSES CREATED: CY_0SQFT_C	ACRES 0
IS PARCEL LOCATED WITHIN 500FT OF AN ADJOINING TOWN? _yes _ IF YES, WHICH TOWN(S) _ Cantel IS THE ACTIVITY LOCATED WITHIN THE WATERSHED OF A WATER COMPANY AS DEFINED IN CT GENERAL S	
THE OWNER AND APPLICANT HEREBY GRANT THE BROOKLYN IWWC, THE BOARD OF SELECTMAN AND THEIR AUTHOR SUBJECT PROPERTY FOR THE PURPOSE OF INSPECTION AND ENFORCEMENT OF THE IWWC REGULATIONS OF THE TOW DETERMINES THAT OUTSIDE REVIEW IS REQUIRED, APPLICANT WILL PAY CONSULTING FEE.	RIZED AGENTS PERMISSION TO ENTER THE IN OF BROOKLYN. IF THE COMMISSION
NOTE: DETERMINATION THAT THE INFORMATION PROVIDED IS INACCURATE MAY INVALIDATE THE IWWC DECISION AN	D RESULT IN ENFORCEMENT ACTION.
APPLICANT: 1 DATE 9-3-2	030
OWNER: X DATE 9-3-20	RECEIVED
	SEP - 3 2020

REQUIR	<u>EMENTS</u>		
	Application Fee \$	STATE FEE (\$60.00)	
	COMPLETION OF CT DEEP RE	PORTING FORM	
	ORIGINAL PLUS COPIES OF ALL	MATERIALS REQUIRED - NUMBER TO BE DETERMINED BY STAFF	
•	PRE-APPLICATION MEETING W	ITH THE WETLANDS AGENT IS RECOMMENDED TO EXAMINE THE SCOPE OF THE ACTIVITY	
TO HAVE	SITE PLAN SHOWING LOCATIO A CERTIFIED SOIL SCIENTIST IDENTI	N OF THE WETLANDS WITH EXISTING AND PROPOSED CONDITIONS. APPLICANT MAY BE REQUEST THE WETLANDS.	JIRED
	COMPLIANCE WITH THE CONN	ECTICUT EROSION & SEDIMENTATION CONTROL MANUAL	
FOLLOWI	ng information:  o Names and addresses	DEEMED TO BE A "SIGNIFICANT IMPACT ACTIVITY" A PUBLIC HEARING IS REQUIRED ALONG W OF ABUTTING PROPERTY OWNERS ON AS CONTAINED IN IWWC REGULATIONS ARTICLE 7.6	'ITH THE
ADDITIO	ONAL INFORMATION/ACTION	NEEDED:	
OTHER APPL	APPLICATIONS MAY BE REQUIRED. CONTACT THESE A APPLICATION TO STATE OF CONNECTICUT DEE INLAND WATER RESOURCES DIVI: 79 ELM ST. HARTFORD, CT. 06106 1-860-424-3019 DEPARTMENT OF THE ARMY CORPS OF ENGINE 696 VIRGINIA ROAD CONCORD, MA. 01742 1-860-343-4789	P SION	
STAFF USE			
	PERMIT REQUIRED: AUTHORIZED BY STAFF/ CHAIR, BROOKLYN IWWCAUTHORIZED BY IWWC	CHAIR (NO ACTIVITY IN WETLANDS/WATERCOURSE AND MINIMAL IMPACT)  WETLANDS OFFICER  ACTIVITY/PUBLIC HEARING	
**************************************	NO PERMIT REQUIRED OUTSIDE OF UPLAND RE	VIEW AREA	
	CHAIR, BROOKLYN IWWC	WETLANDS OFFICER	
	TIMBER HARVEST		



GIS CODE #:								
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79 Elm Street • Hartford, CT 06106-5127

FORM COMPLETED: YES NO

www.ct.gov/deep

Affirmative Action/Equal Opportunity Employer

# Statewide Inland Wetlands & Watercourses Activity Reporting Form

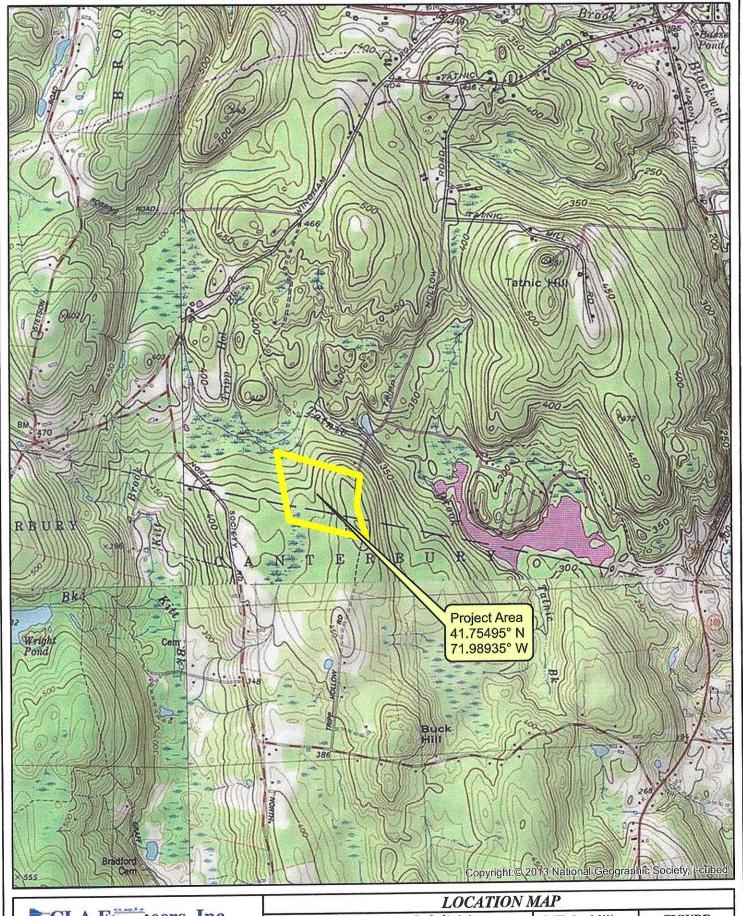
Please complete and mail this form in accordance with the instructions on pages 2 and 3 to:

DEEP Land & Water Resources Division, Inland Wetlands Management Program, 79 Elm Street, 3rd Floor, Hartford, CT 06106

Incomplete or incomprehensible forms will be mailed back to the municipal inland wetlands agency.

	PART I: Must Be Completed By The Inland Wetlands Agency
1.	DATE ACTION WAS TAKEN: year: Click Here for Year month: Click Here for Month
2.	CHOOSE ACTION TAKEN (see instructions for codes): Click Here to Choose a Code
3.	WAS A PUBLIC HEARING HELD (check one)? yes  no
4.	NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:
	(type name) (signature)
	PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant
5,	TOWN IN WHICH THE ACTION IS OCCURRING (type name): Brooklyn
	does this project cross municipal boundaries (check one)? yes   no   no
	if yes, list the other town(s) in which the action is occurring (type name(s)):
6.	LOCATION (click on hyperlinks for information): <u>USGS quad map name</u> : <u>Danielson</u> or <u>quad number</u> : <u>43</u>
	subregional drainage basin number: 3711
7.	NAME OF APPLICANT, VIOLATOR OR PETITIONER (type name): Square 1 Building Associates
8.	NAME & ADDRESS / LOCATION OF PROJECT SITE (type information): Tripp Hollow Road, Brooklyn, CT (map attached)
	briefly describe the action/project/activity (check and type information): temporary  permanent  description:  wetland  fill for a proposed driveway crossing. Work in the regulated areas for residentail lot development
9.	ACTIVITY PURPOSE CODE (see instructions for codes): <b>B</b>
10.	ACTIVITY TYPE CODE(S) (see instructions for codes): 1, 2, 9, 12
11.	WETLAND / WATERCOURSE AREA ALTERED (type acres or linear feet as indicated):
	wetlands: <u>0.06</u> acres open water body: <u>0.00</u> acres stream: <u>0.00</u> linear feet
12.	UPLAND AREA ALTERED (type acres as indicated): 4.3 acres
13.	AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (type acres as indicated): 0.00 acres
	TE RECEIVED:  PART III: To Be Completed By The DEEP  DATE RETURNED TO DEEF

FORM CORRECTED / COMPLETED: YES NO





317 Main Stree Norwich, Connecticut 860-886-1966 claengineers.com

# Proposed 4 Lot Subdivision Tripp Hollow Road Brooklyn, Connecticut USGS Quad #43 (Danielson)

IAP	
DATE: Sept. 3, 2020 SCALE: 1:24,000	FIGURE
SOURCE: USGS Quad	4
N I	1

# **CLA Engineers, Inc.**

Civil • Structural • Survey

317 MAIN STREET

NORWICH, CT 06360

(860) 886-1966

(860) 886-9165 FAX

September 3, 2020

Inland Wetlands Commission Town of Brooklyn 69 South Main Street Suite 22 Brooklyn, CT 06234

RE:

CLA 6503

Square 1 Subdivision Tripp Hollow Rd

# To the Commission:

CLA Engineers was retained by Square 1 Building Associates LLC to conduct a wetlands investigation and functional assessment on the parcel of land, located on Tripp Hollow Road, that is proposed to be developed for a residential subdivision. The 23+/- (Source NECOG GIS) acre site is located within the Town of Brooklyn on the Canterbury border. It is currently wooded undeveloped land. The approximate site location is shown on the cover sheet of the site plans. The purposes of the investigation were to: establish the wetland delineation, provide background data in the form of determining wetland functions, and assess the potential for wetland impacts due to the proposed development.

Wetlands were delineated by Robert Russo of CLA Engineers according to the State of Connecticut statutory definition as described in Section 22a of the State Statutes. CLA conducted field work in June and July of 2020.

After wetland delineation was complete, the wetland resources of the site were surveyed by conducting a deliberate walk through of the site, traversing each wetland in order to collect data characteristic of that wetland. During the walk through, vegetation identifiable was noted, and described.

# **Site Setting**

Much of the site had been used for agriculture up until the 20<sup>th</sup> century as demonstrated by abundant stonewalls. The Square 1 subdivision site currently has two vegetative cover types that were established after farming ceased. Both cover types, wooded upland and wooded swamp, are dominated by mixed hardwoods.

The areas of upland have mixed hardwoods such as red maple, red oak, white oak, black cherry and black birch. The wetlands are dominated by red maple trees with other species such as yellow birch and pin oak in lesser numbers.

The land uses surrounding the site include residential, agricultural and woodland. The residential development is primarily located to the east along Tripp Hollow Rd. Undeveloped farmland and woodland surrounds the site to the north, west and south.

Throughout the site slopes vary from moderate to nearly flat. The surface water drains forn the west and east to the centrally located wetland and flows northward off sit to Tatnic Brook. The slopes on the east and west side of the wetland are gentle at the edge of the wetland and are not prone to erosion.

# Surficial Geology and Soils

Southern New England was overlain by glacial ice as recently as 12,000-15,000 years ago. The materials that the glaciers deposited over top the local bedrock determine the surficial geology of the region and of the Square 1subdivision site. Connecticut's glacial deposits are generally divided into three categories: glacial till (un-stratified sand, silt and rock), glaciofluvial (water sorted, stratified sand and gravel), and glaciolacustrine (stratified sand, silt and clay that settled out in lakebeds). Only glacial till is present on the site. However, one of the wetland soil types is formed in post glacial deposits of organic matter. The soils formed in till deposits typically have sandy loam to silt loam textures and in this case they are the coarser, sandy loams. The slopes are moderate to flat throughout the site and this leads to differences in soil mapping classification as listed by the NRCS.

Table 1 is a summary table of the soils found on the site.

Table 1 - Soil Types and Properties at the Square 1 Subdivision Site

Soil Series	Parent Material	Drainage Class	Texture/Characteristics
*3 Ridgebury, Leicester and Whitman	Glacial Till	Somewhat poorly to very poorly drained	Stony sandy loam
*17 Timakwa and Natchuag	Decayed organic matter	Very poorly drained	Well to moderately decayed
47 Woodbridge	Glacial Till	Moderately Well Drained	Sandy loam

<sup>\*</sup> Wetland soil types

# Wetland Descriptions and Functions

The Square 1 Subdivision site has one wetland system that occupies a broad swale approximately 1000 west of Tripp Hollow Rd. The wetland itself varies from approximately 100 to 200 feet wide. It is nearly level but has hummocky microtopography Under the USFWS system is a palustrine deciduous swamp (PF01) that is seasonally flooded/saturated. This designation reflect its vegetation which is dominated by mature trees, and its hydrology which has shallow standing water in the winter and after storm events. The wetland lacks standing water in the summer and was not found to contain a perennial stream or vernal pool.

The typical vegetation of the wetlands includes: trees such as red maple trees and saplings, yellow birch trees and saplings; shrubs such as spice bush, highbush blueberry, winterberry holly, sweet pepperbush, clammy azalea, alder and plants such as skunk cabbage, cinnamon fern, sphagnum, royal fern, and sensitive fern.

The principle functions of this wetland system are typical to local red maple swamps and the wetland is generally undisturbed with an undisturbed wooded upland buffer. The CTDEEP NDDB (June 2020) shows no known habitat of threatened, endangered or special concern species.

The functions were found to include:

- Wildlife habitat
- Floodwater retention/detention
- Groundwater recharge/discharge
- Biomass production export
- Recreation
- Aesthetics

These values associated with the wetland and are supported by several important features of that wetland:

- Areas of undeveloped buffer
- Limited development within the watershed
- Evidence of use by a diversity of wildlife species.

# **Potential for Impacts**

As shown on the project plans there are proposed activities in the inland wetlands. The total area of wetland excavation and fill proposed is 2,800 square feet. These activities are limited to impacts necessary to provide a driveway for the lot located furthest from the road. This lot has significant developable area that cannot be accessed without wetland

impacts. The driveway crossing location is at a narrow point in the wetland to assist in minimizing wetland impacts. There is one other narrow point to the north, but this location would result in no further reduction of wetland impact. The width of the driveway has been kept to the minimum required and the use of multiple, smaller diameter culverts assists in keeping the elevation of the driveway low, minimizing the side slopes needed for the crossing. CLA believes that the proposed driveway crossing is the most feasible and prudent alternative.

As shown on the plans, work in the upland review zone will include:

- Clearing and grading
- Construction of driveways, a houses and a septic systems
- Installation of erosion and sedimentation controls
- Construction of utilities

These activities in the upland review zone present limited potential for wetland impacts. The site has only moderate slopes and short length of slope. CLA believes that the Best Management Practices (BMPs) measures shown on the plans for erosion and sediment control and stormwater management will be adequate in preventing wetland impacts if properly installed and maintained.

CLA notes that in order to minimize the potential for impacts to wetlands, the E&S has been designed in compliance with the CTDEEP 2002 E&S Manual.

# Summary

The proposed development activities will directly impact wetlands. The work in the upland review zone can be managed with BMPS so as to not impact wetlands during construction. In summary, if the proposed erosion and sedimentation control measures are adhered to, CLA believes that the wetland impacts will be limited to what is necessary to provide a driveway for a building lot.

Please contact me if you have any questions.

Very truly yours,

R C Russia

Robert C. Russo Soil Scientist

# **Appendix A Soils Data**

# **NRCS Soils descriptions**

- (3) The Ridgebury series consists of very deep, somewhat poorly and poorly drained soils formed in lodgment till derived mainly from granite, gneiss and/or schist. They are commonly shallow to a densic contact. They are nearly level to gently sloping soils in depressions in uplands. They also occur in drainageways in uplands, in toeslope positions of hills, drumlins, and ground moraines, and in till plains. Slope ranges from 0 to 15 percent. Saturated hydraulic conductivity is moderately high or high in the solum and very low to moderately low in the substratum. Mean annual temperature is about 9 degrees C. and the mean annual precipitation is about 1143 mm.
- (17) The Timakwa series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials over sandy deposits in depressions on lake plains, outwash plains, till plains, moraines, and flood plains. Saturated hydraulic conductivity is moderately high or high in the organic layers and high or very high in the sandy material. Slope ranges from 0 to 2 percent. Mean annual temperature is about 13 degrees C and the mean annual precipitation is about 1258 mm.
- (17 The Natchaug series consists of very deep, very poorly drained soils formed in woody and herbaceous organic materials overlying loamy deposits in depressions on lake plains, outwash plains, till plains, moraines, and flood plains. Saturated hydraulic conductivity is moderately high or high in the organic layers and moderately low to high in the loamy material. Slope ranges from 0 to 2 percent. Mean annual temperature is about 9 degrees Celsius and mean annual precipitation is about 1205 millimeters.)
- (47) The Woodbridge series consists of moderately well drained loamy soils formed in lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to moderately steep soils on hills, drumlins, till plains, and ground moraines. Slope ranges from 0 to 25 percent. Saturated hydraulic conductivity ranges from moderately high to high in the surface layer and subsoil and low or moderately low in the dense substratum. Mean annual temperature is about 9 degrees C., and mean annual precipitation is about 1168 mm.

41° 45' 33" N



USDA

Natural Resources Conservation Service

Web Soil Survey National Cooperative Soil Survey

USDA

MAP LEGEND

Area of In	Area of Interest (AOI)	W	Spoil Area
	Area of Interest (AOI)	<b>(</b>	Stony Spot
Soils	Coll Man I last Dollars	0	Very Stony Spo
]	Soil wap Unit Polygons	Ę):	Wet Spot
	Soil Map Offit Lifes	. <	Other
	Soil Map Unit Points	ງ ,	Oriental Angelon
Special	Special Point Features	ţ	opedal Lilie T

₽

# eatures

confrasting soils that could have been shown at a more detailed misunderstanding of the detail of mapping and accuracy of soil

line placement. The maps do not show the small areas of

Enlargement of maps beyond the scale of mapping can cause

Warning: Soil Map may not be valid at this scale.

The soil surveys that comprise your AOI were mapped at

1:12,000.

MAP INFORMATION

# Water Features

# Streams and Canals **Transportation**

Borrow Pit

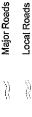
Blawout

Clay Spot

凝  $\Diamond$ 

Kalis	Interstate Highways	US Routes
3 P	1	

Closed Depression



Gravelly Spot

**Gravel Pit** 

distance and area. A projection that preserves area, such as the Maps from the Web Soil Survey are based on the Web Mercator

Albers equal-area conic projection, should be used if more

accurate calculations of distance or area are required.

projection, which preserves direction and shape but distorts

Source of Map: Natural Resources Conservation Service

Coordinate System: Web Mercator (EPSG:3857)

Web Soil Survey URL:

Please rely on the bar scale on each map sheet for map

measurements.

# Background

# Aerial Photography

Marsh or swamp

-(K

ava Flow

Landfill

Mine or Quarry

Miscellaneous Water

0

Perennial Water

0 D

Rack Outcrop

Saline Spot Sandy Spot

# This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil map units are labeled (as space allows) for map scales

Soil Survey Area: State of Connecticut Survey Area Data: Version 20, Jun 9, 2020

1:50,000 or larger.

Date(s) aerial images were photographed: Mar 30, 2011—May

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Severely Eroded Spot

Slide or Slip

Sinkhole

١ , Q. Sodic Spot

Soil Map-State of Connecticut

# **Map Unit Legend**

Barane Bareer et elemente para par cuerta	Arthurstung (1965) in the special Cala			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI	
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	28.9	16.4%	
17	Timakwa and Natchaug soils, 0 to 2 percent slopes	6.7	3.8%	
46B	Woodbridge fine sandy loam, 0 to 8 percent slopes, very stony	7.1	4.0%	
47C	Woodbridge fine sandy loam, 3 to 15 percent slopes, extremely stony	79.2	45.0%	
52C	Sutton fine sandy loam, 2 to 15 percent slopes, extremely stony	0.1	0.1%	
73C	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	2.5	1.4%	
84B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes	1.0	0.5%	
85B	Paxton and Montauk fine sandy loams, 3 to 8 percent slopes, very stony	13.8	7.8%	
85C	Paxton and Montauk fine sandy loams, 8 to 15 percent slopes, very stony	26.9	15.3%	
86D	Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony	9.9	5.6%	
W	Water	0.1	0.0%	
Totals for Area of Interest		176.1	100.0%	

# SUBDIVISION APPLICATION

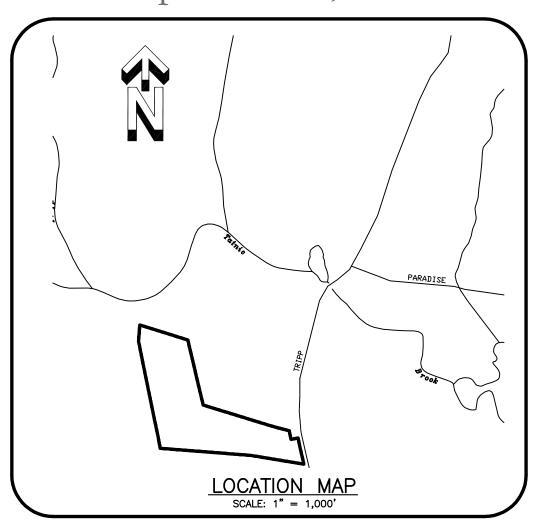
# PROPOSED 4 LOT SUBDIVISION

# TRIPP HOLLOW ROAD BROOKLYN, CONNECTICUT

# PROPERTY OWNER/APPLICANT:

# SQUARE 1 BUILDING ASSOCIATES

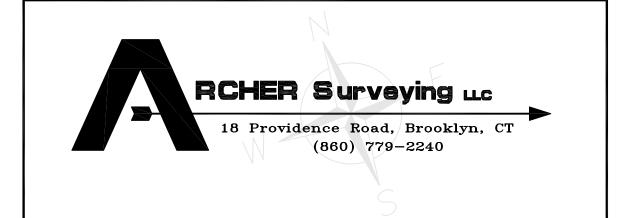
# September 1, 2020



# INDEX OF DRAWINGS

COVER SHEET EXISTING CONDITION PLAN SUBDIVISION SITE DEVELOPMENT PLAN 1 SITE DEVELOPMENT PLAN 2 DETAIL SHEET PARCEL HISTORY PLAN SITE ANALYSIS	SHEET 1 OF 8 SHEET 2 OF 8 SHEET 3 OF 8 SHEET 4 OF 8 SHEET 5 OF 8 SHEET 6 OF 8 SHEET 7 OF 8
SITE ANALYSIS	SHEET 8 OF 8

# PREPARED BY:



# APPROVED BY THE BROOKLYN INLAND WETLANDS COMMISSION

CHAIRMAN DATE

Expiration date per section 22A-42A of the Connecticut

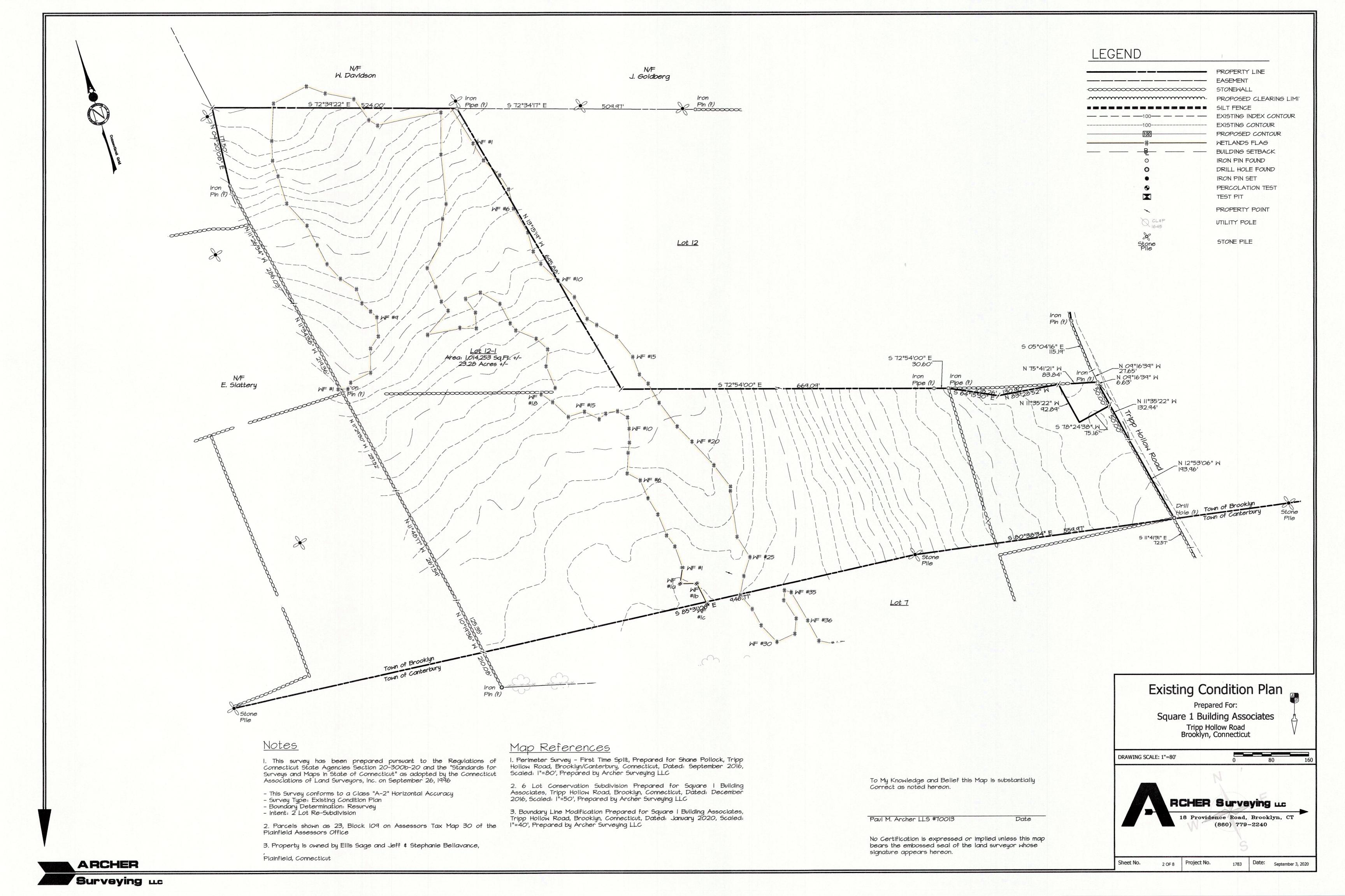
# APPROYED BY THE BROOKLYN PLANNING AND ZONING COMMISSION

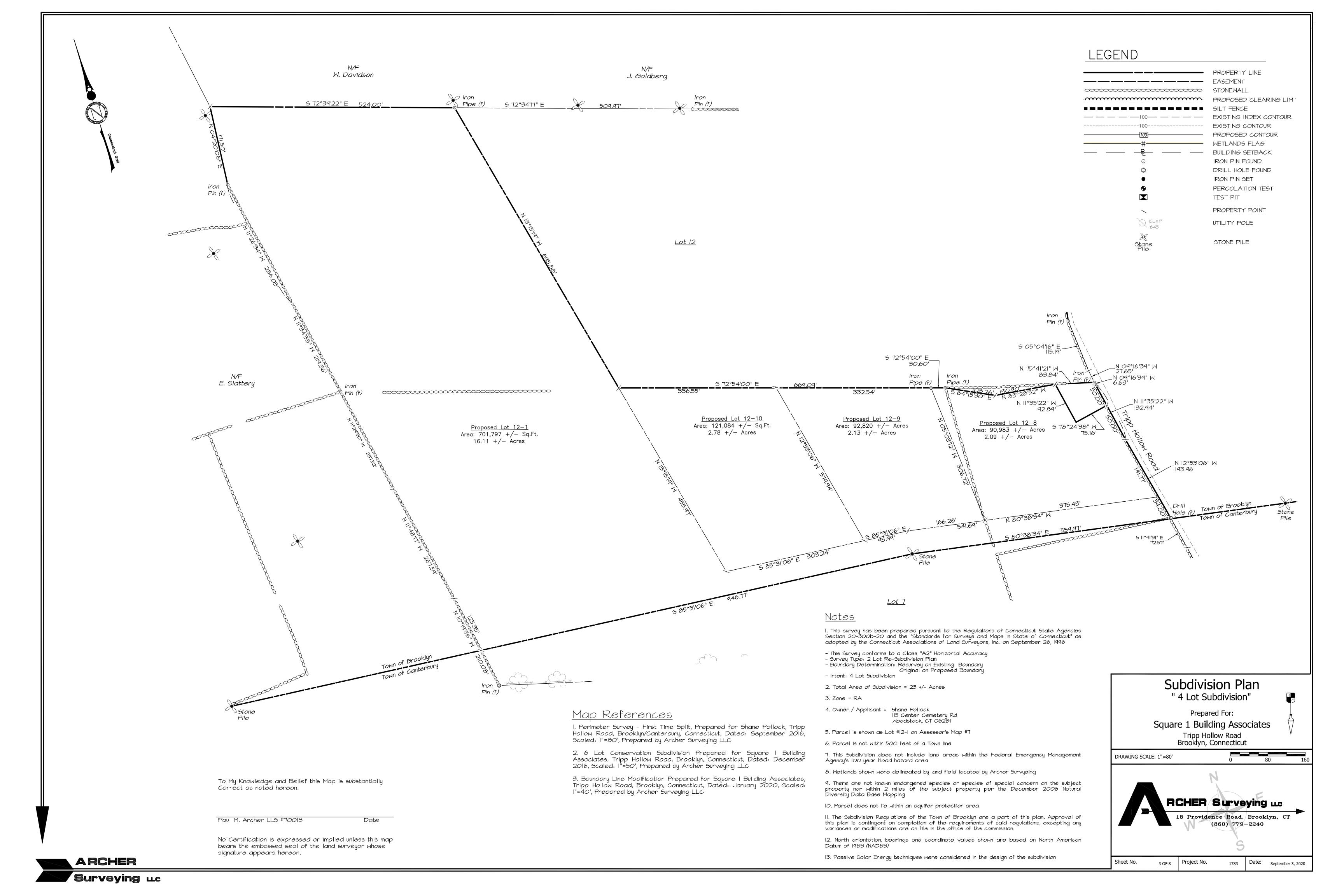
CHAIRMAN DATE

Expiration date per section 8.26C of the Connecticut General Statutes. Date:

I have reviewed the inland-wetlands shown on this plan and they appear to be substantially the same as those which I delineated in the field.

Certified Soil Scientist





# **SELECT FILL SPECIFICATION**

SELECT FILL PLACED WITHIN AND ADJACENT TO LEACHING SYSTEM AREAS SHALL BE COMPRISED OF CLEAN SAND, OR SAND AND GRAVEL, FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES. THE SELECT FILL SHALL MEET THE FOLLOWING REQUIREMENTS PER THE CONNECTICUT PUBLIC HEALTH

- 1. THE SELECT FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THE THREE (3) INCH SLEEVE.
- 2. UP TO 45% OF THE DRY WEIGHT OF THE REPRESENTATIVE SAMPLE MAY BE RETAINED ON THE #4 SLEEVE (THIS IS THE GRAVEL PORTION OF THE
- 3. THE MATERIAL THAT PASSES THE #4 SIEVE IS THEN REWEIGHED AND THE SIEVE ANALYSIS STARTED, 4. THE REMAINING SAMPLE SHALL MEET THE FOLLOWING CRITERIA:

SIEVE SIZE DRY SIEVE WET SIEVE 70-100 70-100 10-50\* 10-75 #100 0-20 0-5 0 - 2.5

\* PERCENT PASSING THE #40 SIEVE CAN BE INCREASED TO NO GREATER THAN 75 IF THE PERCENT PASSING THE #100 SIEVE DOES NOT EXCEED 10 AND THE #200 SIEVE DOES NOT EXCEED 5.

# **SEPTIC NOTES**

- 1. PROPOSED SEPTIC SYSTEM TO BE STAKED IN THE FIELD BY A LAND SURVEYOR LICENSED IN THE STATE OF CONNECTICUT.
- 2. A BENCHMARK SHALL BE SET WITHIN 10'-15' OF THE PROPOSED SEPTIC SYSTEM PRIOR TO CONSTRUCTION.
- 3. ALL WORK AND MATERIAL (SEPTIC TANK, DISTRIBUTION BOX, PIPE) SHALL CONFORM TO THE CONNECTICUT PUBLIC HEALTH CODE REGULATIONS AND STANDARDS FOR SUBSURFACE SEWAGE DISPOSAL SYSTEM.
- 4. SEWER LINE FROM FOUNDATION WALL TO SEPTIC TANK SHALL BE 4" SCHEDULE 40 PVC ASTM D 1785 AND JOINTS PER HEALTH DEPT. CODE. PIPE FROM SEPTIC TANK TO DISTRIBUTION LINES SHALL BE 4" SOLID PVC CONFORMING TO STMD-3034 AND SDR-35.
- 5. SYSTEMS SHALL BE SET LEVEL FOR ENTIRE LENGTH AND HAVE A CENTER TO CENTER SPACING AS CALLED FOR IN THE CONNECTICUT PUBLIC HEALTH CODE. THERE ARE PRESENTLY NO KNOWN WATER WELLS WITHIN 75' OF THE PROPOSED SEPTIC SYSTEMS.
- 6. CLEAR AND GRUB THE AREA WHERE THE SEPTIC SYSTEMS AND HOUSES ARE TO BE CONSTRUCTED. ALL TOPSOIL IS TO BE STRIPPED AND
- ALL FILL MATERIAL SHALL BE CLEAN EARTH FREE OF STUMPS, ORGANICS, CONSTRUCTION DEBRIS AND TOPSOIL.
- 8. TOPSOIL SHALL BE RE-APPLIED OVER ALL FILL AREAS AND ALL DISTURBED AREAS TO PROVIDE A MINIMUM DEPTH OF FOUR INCHES IN ACCORDANCE WITH THE SLOPE STABILIZATION DETAILS..

# **CONCEPT SEPTIC SYSTEM DESIGN**

LOT 12-8
PRIMARY LEACHING AREA
3 BEDROOM RESIDENCE

PERCOLATION RATE: 13.3 MIN./INCH (NDDH FILE #21000003) LEACHING AREA REQUIRED: <u>675 SF</u>

USE TRADITIONAL TRENCH

EFFECTIVE LEACHING AREA OF LEACHING TRENCH 3.0 SF/LF REQUIRED LENGTH = 675 SF / 3 SF/LF = 225 LF

MLSS CALCULATION HYDRAULIC FACTORS

DEPTH TO RESTRICTIVE LAYER = 28"

SLOPE = 4.0%HYDRAULIC FACTOR (HF) = 34

FLOW FACTOR (FF) = 1.5PERCOLATION FACTOR (PF) = 1.25 (10.1 TO 20.0 MIN./INCH)

PROPOSED SYSTEM
USE 2 ROWS OF 114 LF LEACHING AREA PROVIDED = 684 SF

MLSS REQUIRED: 34 x 1.5 x 1.25  $\stackrel{.}{=}$  63.75 LF

RESERVE LEACHING AREA
USE SAME AS PRIMARY SYSTEM

3 BEDROOM RESIDENCE PERCOLATION RATE: 10 MIN./INCH (NDDH FILE #21000003)

LEACHING AREA REQUIRED: 495 SF

USE TRADITIONAL TRENCH EFFECTIVE LEACHING AREA OF LEACHING TRENCH 3.0 SF/LF REQUIRED LENGTH = 495 SF / 3 SF/LF = 165 LF

MLSS CALCULATION HYDRAULIC FACTORS

Ledge: N/O

0-10" Topsoil

DEPTH TO RESTRICTIVE LAYER = 24"

SLOPE = 10.5%HYDRAULIC FACTOR (HF) = 26

FLOW FACTOR (FF) = 1.5PERCOLATION FACTOR (PF) = 1.00 (UP TO 10.0 MIN./INCH)

MLSS REQUIRED:  $26 \times 1.5 \times 1.00 = 39 \text{ LF}$ PROPOSED SYSTEM
USE 2 ROWS OF 84 LF

LEACHING AREA PROVIDED = 504 SF

RESERVE LEACHING AREA USE SAME AS PRIMARY SYSTEM

Lot 12-8 Lot 12-9 Mottles: 28" Mottles: 24" Ground Water: N/O Ground Water: N/0 Roots: 28" Roots: 24"

0-11" Topsoil 0-8" Topsoil 8-24" OB Fine Sandy Loam 11-28" OB Very Fine Sandy Loam 28-86" GR Mottled Sandy Loam Till 24-92" GR Mottled Sandy Loam Till

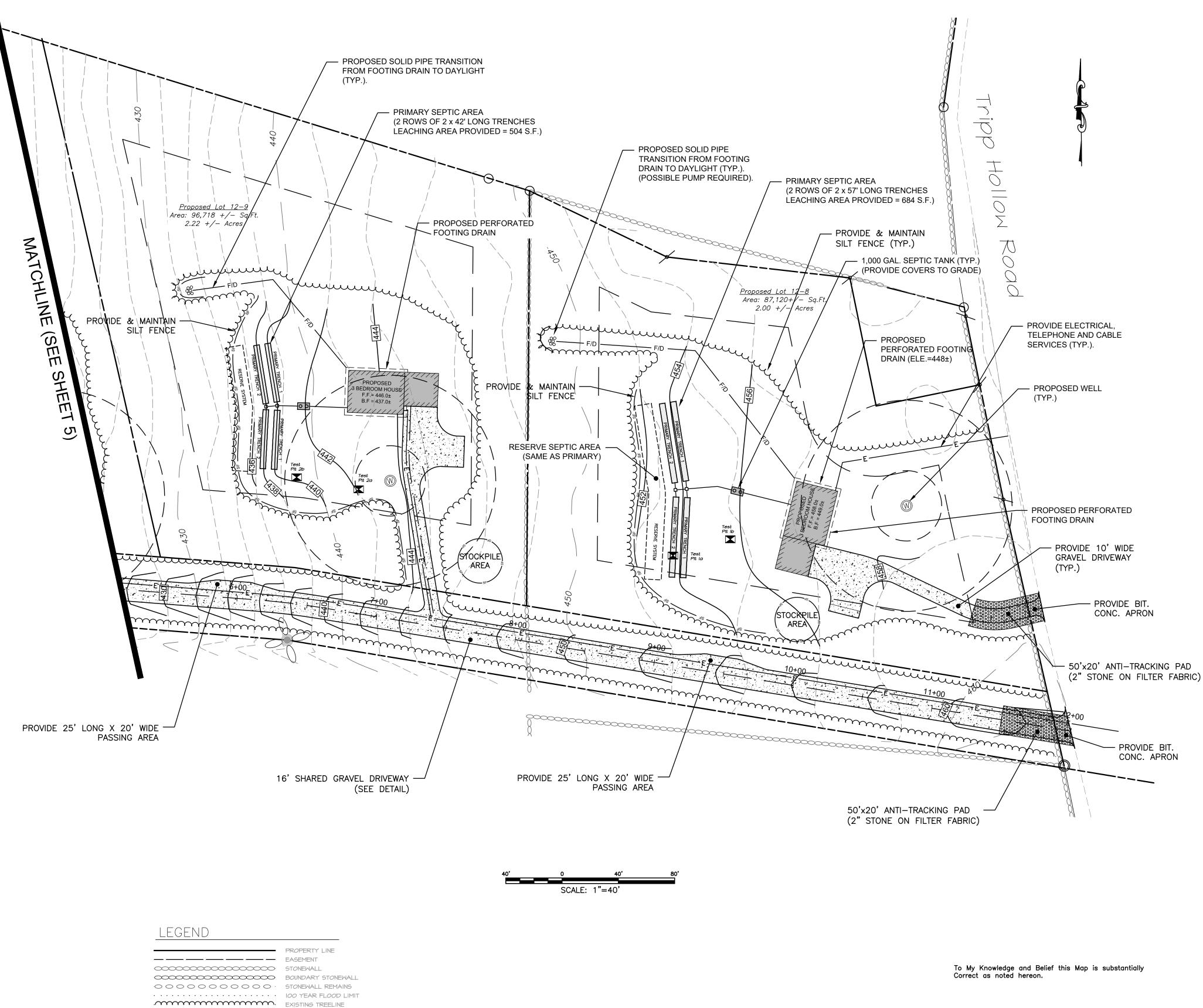
Ledge: N/0

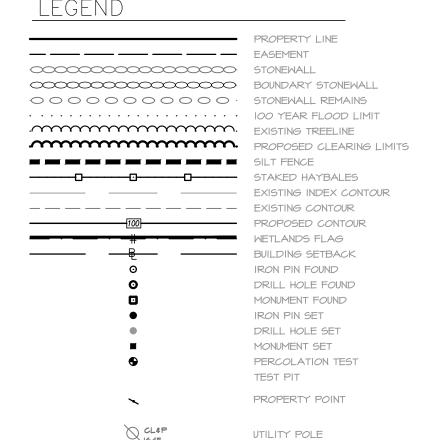
0-9" Topsoil

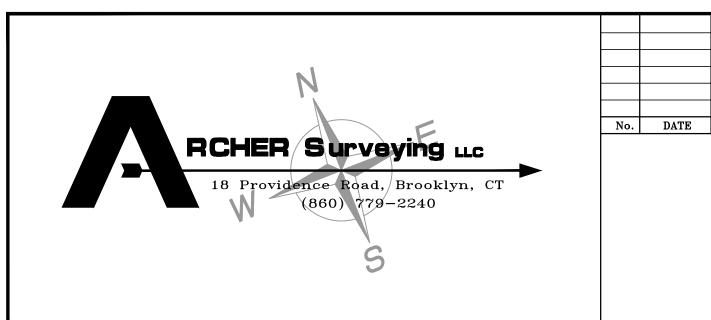
<u>TP 2-B</u> Mottles: 28" Mottles: 26" Ground Water: N/0 Ground Water: N/0 Roots: 28" Roots: 26" Ledge: N/0 Ledge: N/0

10-28" OB Very Fine Sandy Loam 9-26" OB Fine Sandy Loam 26-91" GR Mottled Sandy Loam Till 28-91" GR Mottled Sandy Loam Till

Perc 1A 10:36 3" Perc 2A 1 :38 2" 10:46 5" 1 :48 5 1/4" 10:56 7 ½" 1:58 71/4" 11:05 8 3/4" 2:08 9" 11: 15 9 ½" <u>2:18 10"</u> <u>11:25 10¼"</u> 10.0 minutes/inch 13.33 minutes/inch







Robert A. DeLuca, P.E. #18756 CLA Engineers, Inc. CIVIL • STRUCTURAL • SURVEYING 317 Main Street Norwich, CT 06360

(860) 886-1966 Fax (860) 886-9165

D.H.

Sheet No.

Project No. SQUARE 1 BUILDING ASSOCIATES, LLC CLA-6503 Proj. Engineer 4-LOT SUBDIVISION Date: BROOKLYN, CT 08/24/20

**GRADING & CONCEPT SITE DESIGN** 

CLA

# SELECT FILL SPECIFICATION

SELECT FILL PLACED WITHIN AND ADJACENT TO LEACHING SYSTEM AREAS SHALL BE COMPRISED OF CLEAN SAND, OR SAND AND GRAVEL, FREE FROM ORGANIC MATTER AND FOREIGN SUBSTANCES. THE SELECT FILL SHALL MEET THE FOLLOWING REQUIREMENTS PER THE CONNECTICUT PUBLIC HEALTH CODE FOR USE WITHIN THE LEACHING AREA:

- 1. THE SELECT FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN THE THREE (3) INCH SLEEVE.
  2. UP TO 45% OF THE DRY WEIGHT OF THE REPRESENTATIVE SAMPLE MAY BE RETAINED ON THE #4 SLEEVE (THIS IS THE GRAVEL PORTION OF THE
- 3. THE MATERIAL THAT PASSES THE #4 SIEVE IS THEN REWEIGHED AND THE SIEVE ANALYSIS STARTED, 4. THE REMAINING SAMPLE SHALL MEET THE FOLLOWING CRITERIA:

0-2.5

PERCENT PASSING
SIEVE SIZE WET SIEVE DRY SIEVE
#4 100 100
#10 70-100 70-100
#40 10-50\* 10-75
#100 0-20 0-5

\* PERCENT PASSING THE #40 SIEVE CAN BE INCREASED TO NO GREATER THAN 75 IF THE PERCENT PASSING THE #100 SIEVE DOES NOT EXCEED 10 AND THE #200 SIEVE DOES NOT EXCEED 5

# **SEPTIC NOTES**

1. PROPOSED SEPTIC SYSTEM TO BE STAKED IN THE FIELD BY A LAND SURVEYOR LICENSED IN THE STATE OF CONNECTICUT.

- A BENCHMARK SHALL BE SET WITHIN 10'-15' OF THE PROPOSED SEPTIC SYSTEM PRIOR TO CONSTRUCTION.
   ALL WORK AND MATERIAL (SEPTIC TANK, DISTRIBUTION BOX, PIPE) SHALL CONFORM TO THE CONNECTICUT PUBLIC HEALTH CODE REGULATIONS AND STANDARDS FOR SUBSURFACE SEWAGE DISPOSAL SYSTEM.
- 4. SEWER LINE FROM FOUNDATION WALL TO SEPTIC TANK SHALL BE 4" SCHEDULE 40 PVC ASTM D 1785 AND JOINTS PER HEALTH DEPT. CODE. PIPE FROM SEPTIC TANK TO DISTRIBUTION LINES SHALL BE 4" SOLID PVC CONFORMING TO STMD—3034 AND SDR—35.

  5. SYSTEMS SHALL BE SET LEVEL FOR ENTIRE LENGTH AND HAVE A CENTER TO CENTER SPACING AS CALLED FOR IN THE CONNECTICUT PUBLIC
- HEALTH CODE. THERE ARE PRESENTLY NO KNOWN WATER WELLS WITHIN 75' OF THE PROPOSED SEPTIC SYSTEMS.
- 6. CLEAR AND GRUB THE AREA WHERE THE SEPTIC SYSTEMS AND HOUSES ARE TO BE CONSTRUCTED. ALL TOPSOIL IS TO BE STRIPPED AND
- ALL FILL MATERIAL SHALL BE CLEAN EARTH FREE OF STUMPS, ORGANICS, CONSTRUCTION DEBRIS AND TOPSOIL.
   TOPSOIL SHALL BE RE-APPLIED OVER ALL FILL AREAS AND ALL DISTURBED AREAS TO PROVIDE A MINIMUM DEPTH OF FOUR INCHES IN ACCORDANCE WITH THE SLOPE STABILIZATION DETAILS..

# **CONCEPT SEPTIC SYSTEM DESIGN**

LOT 12-1
PRIMARY LEACHING AREA
3 BEDROOM RESIDENCE
PERCOLATION RATE: 5.7 MIN./INCH (NDDH FILE #21000003)

PERCOLATION RATE: 5.7 MIN./INCH (NDDH FILE #21000003 LEACHING AREA REQUIRED: 495 SF

USE TRADITIONAL TRENCH

EFFECTIVE LEACHING AREA OF LEACHING TRENCH 3.0 SF/LF REQUIRED LENGTH = 495 SF / 3 SF/LF = 165 LF

MLSS CALCULATION HYDRAULIC FACTORS

DEPTH TO RESTRICTIVE LAYER = 24" (POSSIBLE LEDGE) SLOPE = 2.7% HYDRAULIC FACTOR (HF) = 48 FLOW FACTOR (FF) = 1.5

PERCOLATION FACTOR (PF) = 1.5 PERCOLATION FACTOR (PF) = 1.00 (UP TO 10.0 MIN./INCH) MLSS REQUIRED:  $48 \times 1.5 \times 1.00 = \underline{72 \text{ LF}}$ 

PROPOSED SYSTEM

USE 2ROWS OF 84 LF

LEACHING AREA PROVIDED = 504 SF

RESERVE LEACHING AREA
USE SAME AS PRIMARY SYSTEM

LOT 12-10
PRIMARY LEACHING AREA
3 BEDROOM RESIDENCE

PERCOLATION RATE: 10.0 MIN./INCH (NDDH FILE #21000003)
LEACHING AREA REQUIRED: 495 SF

USE TRADITIONAL TRENCH
EFFECTIVE LEACHING AREA OF LEACHING TRENCH 3.0 SF/LF
REQUIRED LENGTH = 495 SF / 3 SF/LF = 165 LF

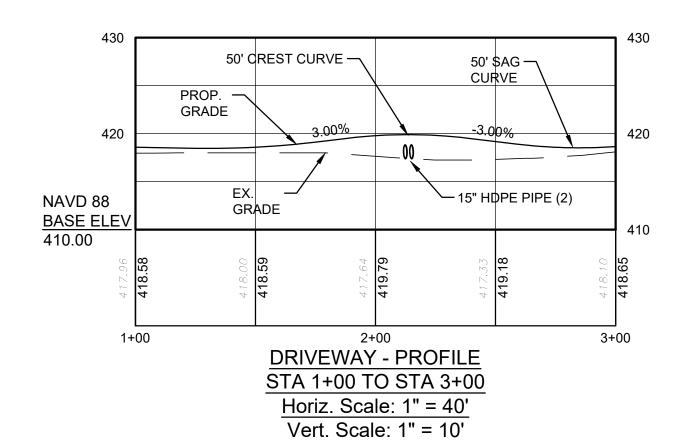
MLSS CALCULATION
HYDRAULIC FACTORS
DEPTH TO RESTRICTIVE LAYER = 24" (MOTTLES)
SLOPE = 5.5%

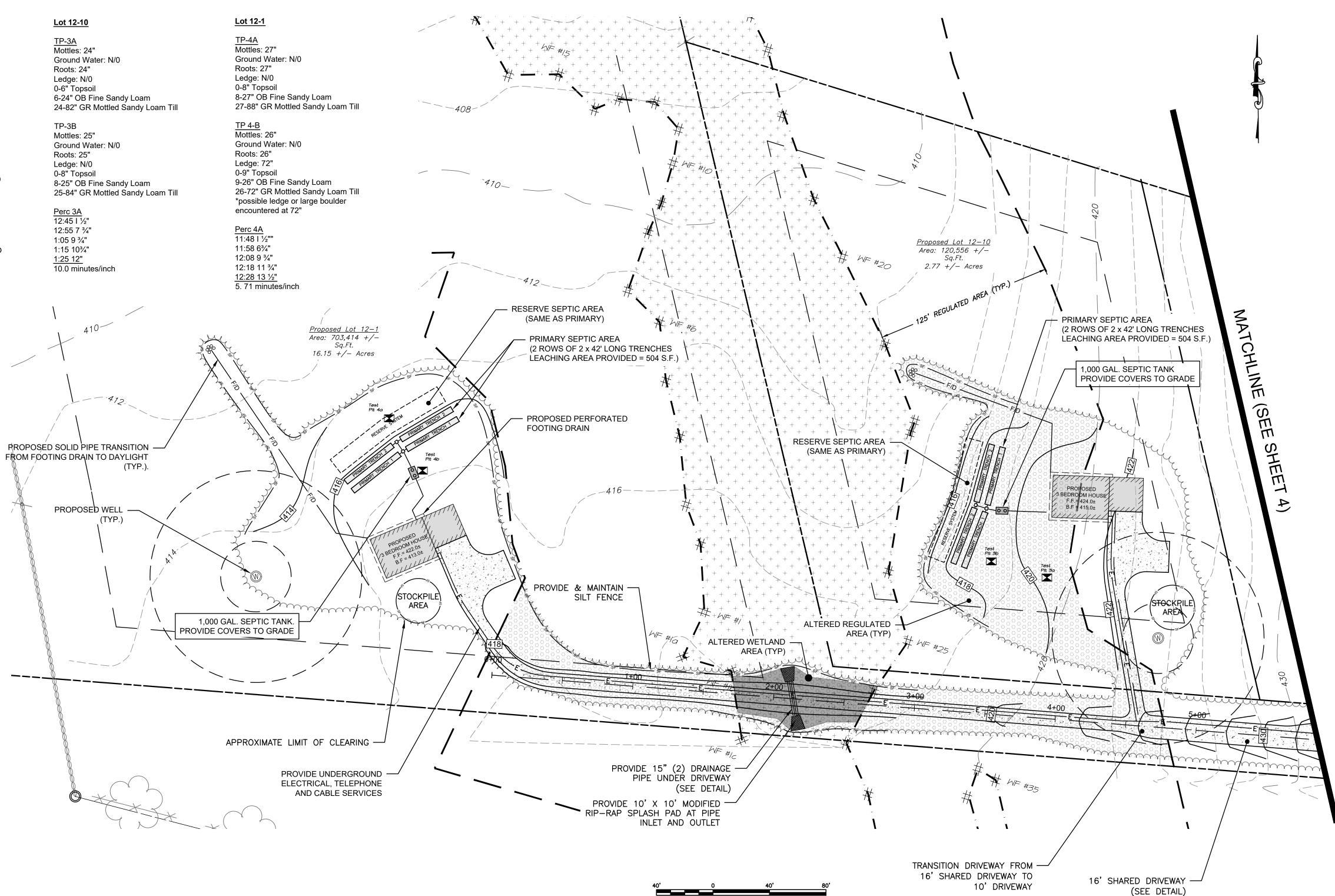
FLOW FACTOR (FF) = 1.5 PERCOLATION FACTOR (PF) = 1.0 (UP TO 10.0 MIN./INCH) MLSS REQUIRED:  $34 \times 1.5 \times 1.0 = 51.0 \text{ LF}$ 

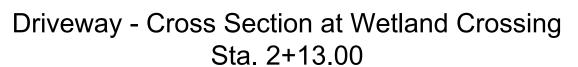
PROPOSED SYSTEM
USE 2 ROWS OF 84 LF
LEACHING AREA PROVIDED = 504 SF

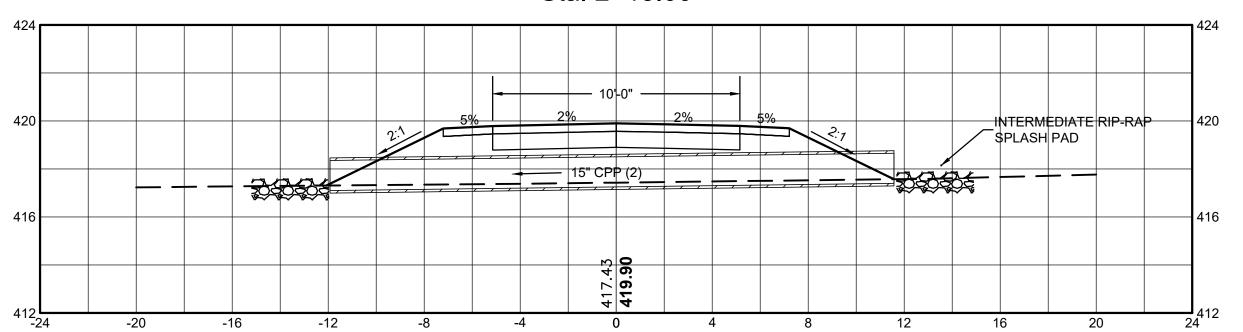
RESERVE LEACHING AREA
USE SAME AS PRIMARY SYSTEM

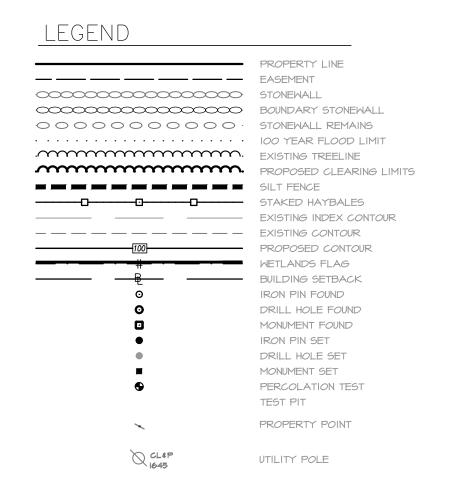
HYDRAULIC FACTOR (HF) = 34

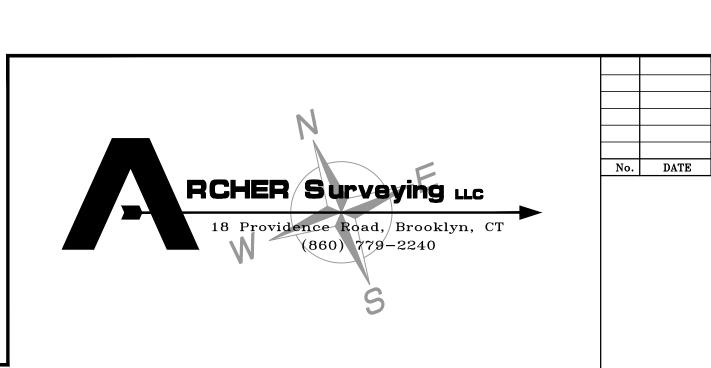












To My Knowledge and Belief this Map is substantially Correct as noted hereon.

Robert A. DeLuca, P.E. #18756



CLA

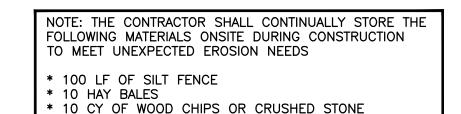
# **EROSION & SEDIMENTATION CONTROL NARRATIVE**

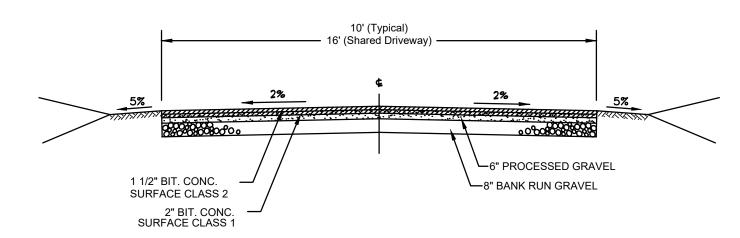
- 1. THE EROSION & SEDIMENTATION CONTROL PLAN AND DETAILS HAVE BEEN DEVELOPED AS A STRATEGY TO CONTROL SOIL EROSION AND SEDIMENTATION DURING AND AFTER CONSTRUCTION. THIS PLAN IS BASED ON THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE
- CONNECTICUT DEP.

  2. THE PROPOSED LOCATIONS OF SILTATION AND EROSION CONTROL MEASURES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROVIDED SILT FENCE, STONE CHECK DAMS AND/OR OTHER EROSION CONTROL MEASURES AS NEEDED OR DIRECTED BY THE ENGINEER OR TOWN STAFF TO ADEQUATELY PREVENT SEDIMENT TRANSPORT.
- 3. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SITE DISTURBANCE.
- 4. THE CONTRACTOR SHALL INSPECT, REPAIR AND/OR REPLACE EROSION CONTROL MEASURES EVERY 7 DAYS AND IMMEDIATELY FOLLOWING ANY SIGNIFICANT RAINFALL OR SNOW MELT. SEDIMENT DEPOSITS MUST BE REMOVED WHEN WHEN DEPOSITS REACH APPROXIMATELY ONE HALF THE HEIGHT OF THE BARRIER. SEDIMENT CONTROL DEVICES SHALL REMAIN IN PLACE AND BE MAINTAINED BY THE CONTRACTOR UNTIL AREAS UPSLOPE ARE PERMANENTLY STABILIZED.
- 5. STAKED HAY BALE SILT BARRIERS OR SILT FENCE SHALL BE INSTALLED AROUND ANY TEMPORARY
- STOCKPILE AREAS. TEMPORARY VEGETATIVE COVER MAY BE REQUIRED (SEE NOTE).

  6. INLET SEDIMENTATION CONTROL DEVICES SHALL BE INSTALLED UNDER THE GRATES OF ALL NEW CATCH BASINS AT THE TIME OF INSTALLATION, AND UNDER THE GRATES OF EXISTING CATCH BASINS
- IN THE CONSTRUCTION AREA.

  7. CONTINUOUS DUST CONTROL USING WATER, CALCIUM CHLORIDE OR APPROVED EQUAL SHALL BE PROVIDED FOR ALL EARTH STOCKPILES, EARTH PILED ALONG EXCAVATIONS, SURFACES OF BACKFILLED TRENCHES AND GRAVELED ROADWAY SURFACES.
- 8. IF DEWATERING IS NECESSARY DURING ANY TIME OF CONSTRUCTION A CLEAR WATER DISCHARGE SHALL BE PROVIDED AS SHOWN IN THE HAY—BALE BARRIER DEWATERING DETAIL OR ALTERNATE METHOD PROPOSED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
- 9. ALL DISTURBED AREAS SHALL BE RESTORED PER THE SLOPE STABILIZATION AND PERMANENT VEGETATION DETAILS. ALL DISTURBED AREAS THAT ARE SLOPED LESS THAN THREE HORIZONTAL TO ONE VERTICAL (3:1) SLOPE SHALL BE LOAMED, SEEDED, FERTILIZED AND MULCHED PER THE PERMANENT VEGETATIVE COVER SPECIFICATIONS. EROSION CONTROL MATTING SHALL BE PROVIDED ON ALL DISTURBED AREAS IS NOT TO BE COMPLETED REFORE OCTOBER 15. THE
- 10. IF FINAL SEEDING OF DISTURBED AREAS IS NOT TO BE COMPLETED BEFORE OCTOBER 15, THE CONTRACTOR SHALL PROVIDE TEMPORARY MULCHING (DORMANT SEEDING MAY BE ATTEMPTED AS WELL) TO PROTECT THE SITE AND DELAY PERMANENT SEEDING.
- 11. WHEN FEASIBLE, TEMPORARY SEEDING OF DISTURBED AREAS THAT HAVE NOT BEEN FINISHED GRADED SHALL BE COMPLETED PRIOR TO OCTOBER 15.
- 12. ANY EROSION WHICH OCCURS WITHIN THE DISTURBED AREAS SHALL BE IMMEDIATELY REPAIRED AND STABILIZED. DURING THE CONSTRUCTION PHASE, INTERCEPTED SEDIMENT SHALL BE RETURNED TO THE SITE. POST SEEDING, INTERCEPTED SEDIMENT, IF ANY, SHALL BE DISPOSED OF IN A MANNER APPROVED BY THE TOWN AND ENGINEER.
- 13. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL VEGETATION IS RE-ESTABLISHED OR SLOPES ARE STABILIZED AND REMOVAL IS APPROVED BY THE TOWN.
- 14. UNFORESEEN PROBLEMS WHICH ARE ENCOUNTERED IN THE FIELD SHALL BE SOLVED ACCORDING TO THE "2002 CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" BY THE CONNECTICUT COUNCIL ON SOIL AND WATER CONSERVATION IN COOPERATION WITH THE CONNECTICUT DEP.
- 15. THE CONTRACTOR SHALL PROVIDE THE NAME AND EMERGENCY CONTACT INFORMATION FOR THE PROJECT PERSONNEL RESPONSIBLE FOR EROSION AND SEDIMENTATION CONTROLS PRIOR TO THE START OF CONSTRUCTION.





TYPICAL DRIVEWAY CROSS SECTION

NOT TO SCALE

# TEMPORARY VEGETATIVE COVER

A TEMPORARY SEEDING OF RYE GRASS WILL BE COMPLETED WITHIN 15 DAYS OF THE FORMATION OF STOCKPILES. IF THE SOIL IN THE STOCKPILES HAS BEEN COMPACTED BY CONSTRUCTION OPERATIONS IT SHALL BE LOOSENED TO A DEPTH OF 2 INCHES BEFORE THE FERTILIZER, LIME AND SEED IS APPLIED. 10–10–10 FERTILIZER AT A RATE OF 7.5 POUNDS PER 1000 S.F. LIMESTONE AT A RATE OF 90 LBS. PER 1000 S.F. SHALL BE USED. RYE GRASS APPLIED AT A RATE OF 1 LB. PER 1000 S.F. SHALL PROVIDE THE TEMPORARY VEGETATIVE COVER. STRAW FREE FROM WEEDS AND COARSE MATTER SHALL BE USED AT A RATE OF 70–90 LBS. PER 1000 S.F. AS A TEMPORARY MULCH. APPLY MULCH AND DRIVE TRACKED EQUIPMENT UP AND DOWN SLOPE OVER ENTIRE SURFACE SO CLEAT MARKS ARE PARALLEL TO THE CONTOURS.

# PERMANENT VEGETATIVE COVER

TOPSOIL WILL BE REPLACED ONCE THE EXCAVATIONS HAVE BEEN COMPLETED AND THE SLOPES ARE GRADED AS SHOWN ON THE PLANS. PROVIDE SLOPE PROTECTION AS CALLED FOR ON THE PLANS AND DETAILS. TOPSOIL SHALL BE SPREAD AT A MINIMUM COMPACTED DEPTH OF <u>4 INCHES</u>. ONCE THE TOPSOIL HAS BEEN SPREAD, ALL STONES TWO INCHES OR LARGER IN ANY DIMENSION WILL BE REMOVED AS WELL AS DEBRIS.

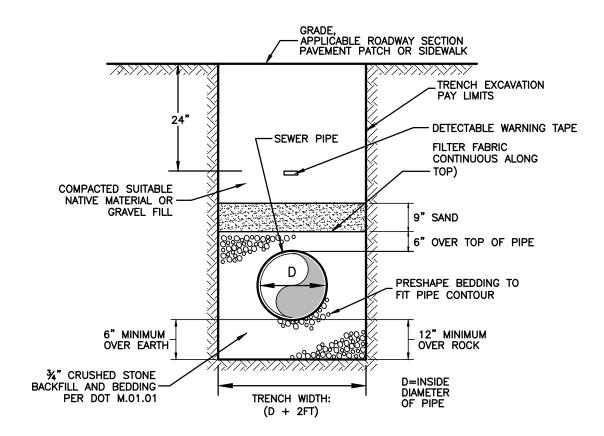
- APPLY AGRICULTURAL GROUND LIMESTONE AT THE RATE OF TWO TONS PER ACRE OR 100 LBS. PER 1000 S.F.
- LBS. PER 1000 S.F.

   APPLY 10–10–10 FERTILIZER OR EQUIVALENT AT A RATE OF 300 LBS. PER ACRE OR
- 7.5 LBS. PER 1000 S.F.

   WORK LIMESTONE AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCHES.
- WORK LIMESTONE AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCH
   INSPECT SEEDBED BEFORE SEEDING.
- IF TRAFFIC HAS COMPACTED THE SOIL, RETILL COMPACTED AREAS.

# APPLY THE FOLLOWING GRASS SEED MIX:

TYPICAL SEED MIXTURE		
ALL DISTURBED AREAS	LBS./ACRE	LBS./1000 S.
KENTUCKY BLUEGRASS	20	0.45
CREEPING RED FESCUE	20	0.45
PERENNIAL RYEGRASS	5	0.10
	45	1.00

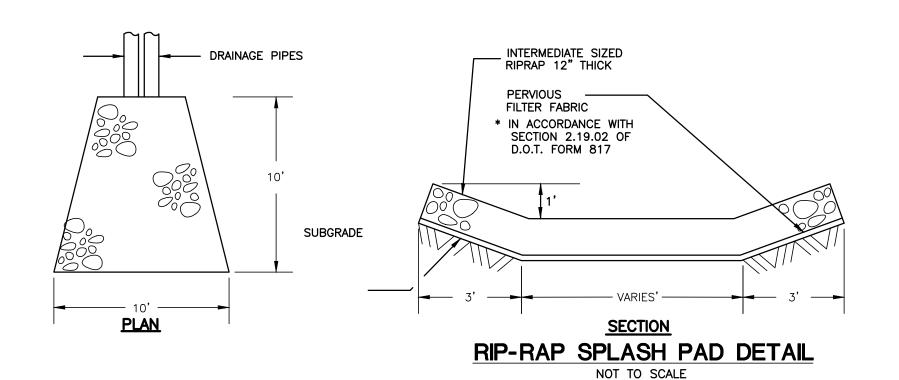


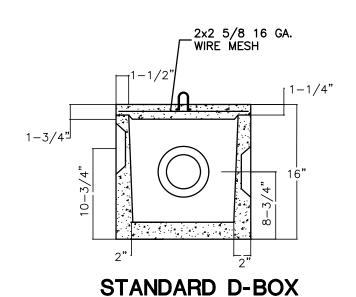
NOTES:

1. D=INSIDE DIAMETER OF PIPE.
2. TRENCH WIDTHS NOTED ARE SET TO ESTABLISH PAY LIMITS ONLY.
3. ALL EXCAVATIONS MUST MEET OSHA STANDARDS.
4. CONTRACTOR TO PROVIDE COMPACTION ON ALL TRENCH BACKFILLS, EXCAVATIONS AND PAVEMENT BASES TO NOT LESS THAN 95% OF THE DRY

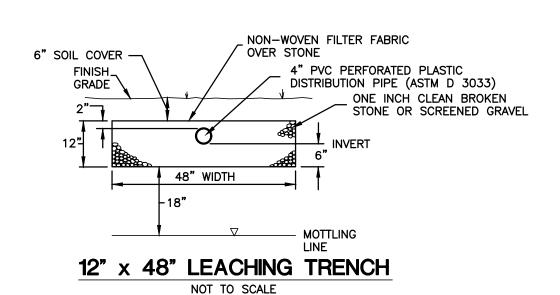
TRENCH DETAIL: SANITARY SEWER PIPE

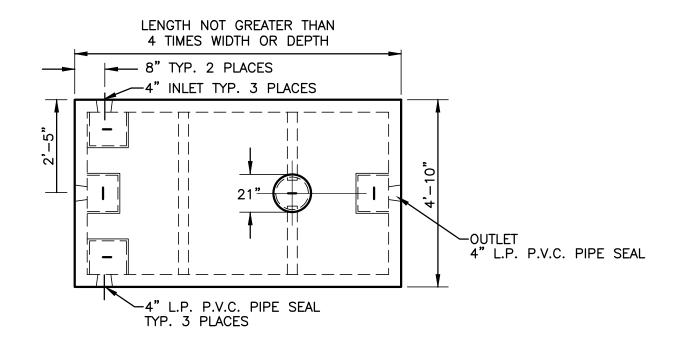
NOT TO SCALE

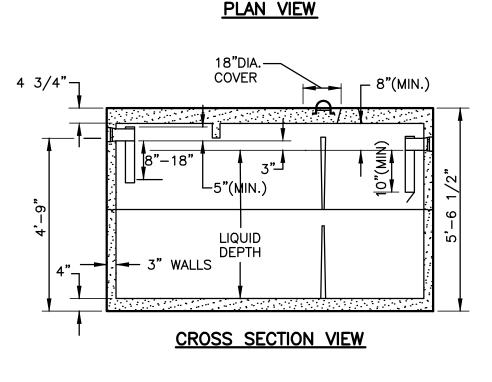




NOT TO SCALE







1,000 GALLON SEPTIC TANK

GEOTEXTILE FABRIC: FABRIC
SHALL BE CERTIFIED TO
CONFORM WITH FIGURE GSF—1
OF THE E&S GUIDELINES.

6"x6" TRENCH W/
COMPACTED BACKFILL

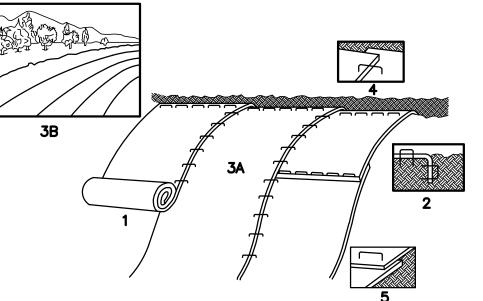
FLOW

NATIVE SOIL

SILT FENCE SECTION

NOT TO SCALE

— 2"x2"x48" WOOD STAKE

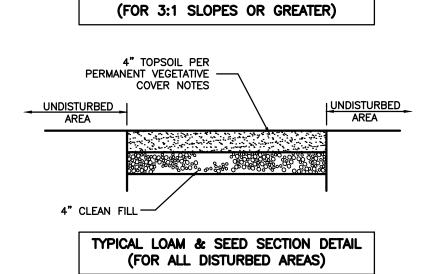


- 1. PROVIDE 4" THICKNESS OF TOPSOIL OVER CLEAN FILL. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF LIME, FERTILIZER, AND SEED MIX PER PERMANENT VEGETATIVE COVER NOTES. (SHALL BE PAID FOR AT THE UNIT PRICE FOR LOAM, SEED, FERTILIZE & MULCH)

  2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN 6" DEEP x 6" WIDE TRENCH, BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

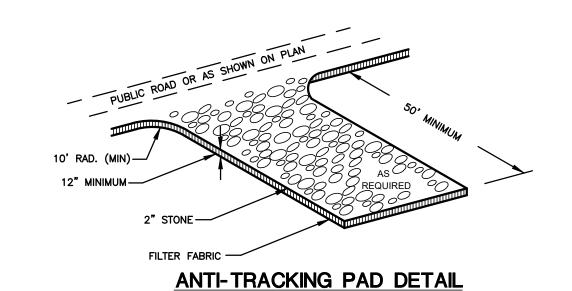
  3. ROLL THE BLANKET (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE.
- 4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" OVERLAP.
  5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 4" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.

# NOTE: ALL PERMANENT EROSION CONTROL BLANKETS ARE TO BE NORTH AMERICAN GREEN BIONET C125BN OR APPROVED EQUAL. EROSION CONTROL MATTING DETAIL



SLOPE STABILIZATION DETAILS

NOT TO SCALE



NOT TO SCALE

DRAINAGE PIPE

6" MIN.

PRESHAPE BEDDING TO FIT PIPE CONTOUR

12" MINIMUM OVER EARTH

OVER EARTH

3.5' TRENCH WIDTH

BACKFILL AND BEDDING

DRAINAGE PIPE BEDDING DETAIL

NOT TO SCALE



