Town of Truro

P.O. Box 2030, Truro, MA 02666
Tel: 508-349-7004 Fax: 508-349-5505

ZONING BOARD OF APPEALS

Agenda

DATE OF MEETING:	**Thursday, September 24, 2020**
TIME OF MEETING:	**5:30 pm**
LOCATION OF MEETING:	**Remote Meeting** **www.truro-ma.gov**

Open Meeting

This will be a remote meeting. Citizens can view the meeting on Channel 18 in Truro and on the web on the "Truro TV Channel 18" button under "Helpful Links" on the homepage of the Town of Truro website (www.truro-ma.gov). Click on the green "Watch" button in the upper right corner of the page. Please note that there may be a slight delay (approx. 15-30 seconds) between the meeting and the television broadcast/live stream.

Citizens can join the meeting to listen and provide public comment via the link below, which can also be found on the calendar of the Board's webpage along with the meeting Agenda and Packet, or by calling in toll free at 1-866-899-4679 and entering the following access code when prompted: 983-197-413. Citizens will be muted upon entering the meeting until the public comment portion of the hearing. If you are joining the meeting while watching the television broadcast/live stream, please lower the volume on your computer or television during public comment so that you may be heard clearly. Citizens may also provide written comment via postal mail or by emailing the Town Planner at *planner1@truro-ma.gov*.

Meeting link: global.gotomeeting.com/join/983197413

Hearing materials can be found at the following web address:
www.truro-ma.gov/zoning-board-of-appeals/pages/cloverleaf-40b-application

Review of Comments

- Letter from the Truro Town Manager, Rae Ann Palmer

Public Hearing – Continued

2019-008 ZBA – Community Housing Resource, Inc. seeks approval for a Comprehensive Permit pursuant to G.L. c. 40B, §§20-23 to create 40 residential rental units, of which not less than 25% or 10 units shall be restricted as affordable for low or moderate income persons or families, to be constructed on property located at 22 Highland Road, as shown on Assessor's Map 36 and Parcel 238-0 containing 3.91 acres of land area.

- Responses to Third Peer Review
- Review Updated Building Plans
- Waivers:
  - Prioritize

Public Comment

Adjourn

J.M. O'REILLY & ASSOCIATES, INC.
PROFESSIONAL ENGINEERING, LAND SURVEYING & ENVIRONMENTAL SERVICES
Site Development • Property Line • Subdivision • Sanitary • Land Court • Environmental Permitting

September 16, 2020

MEMORANDUM JMO-8446A

FROM: J.M. O'REILLY & ASSOCIATES, INC.
John O'Reilly, P.E., P.L.S.

RE: Third Peer Review, September 3, 2020
Cloverleaf Project

Responses to the third Peer review by Horsley-Witten are as follows:

Contingency Plan:

Our office is in agreement with the suggestion put forth by Horsley-Witten:

- At the time the Board of Health received Disposal Works Permit, the application will include a detailed Sampling & Contingency Plan as outline in the August 14, 2020 Memo, prepared by J.M. O'REILLY & ASSOCCIATES, INC.
- Sampling & Contingency Plan will also include any and all requirements set forth in the Massachusetts DEP Pilot Approval Permit for the proposed sewage treatment process.

Groundwater Monitoring:

Our office is in agreement with the suggestion put forth by Horsley-Witten

- The Sampling and Contingency Plan will include the testing and reporting frequency of the groundwater and shall be part of the Board of Health's approval process.

Pipe sizes:

- Final Construction Plans will include the necessary detailed information as required for complete construction plans.

Setbacks:

- The location of the drywell for building 22-24 has not changed, the reserve area to the rear of the building eliminates the possibility of shifting the drywell to the north. The contractor will need to install the drywell and piping at the time of the foundation work for the buildings. Slope shall be established during the backfilling of the foundations.

Specific Comments on Stormwater Management Facilities:

- A stamped MA Stormwater Report will be provided with the final permit plans to the ZBA.
- A typical cross section of the drainage swales has been developed on Sheet 5 of 6.

- The still water within the swale will be about 1 foot deep, prior to the discharge into the subsurface leaching facility. Refer to the TSS calculation sheet for TSS reductions for the site.

- The Pre and Post stormwater runoff calculations have been updated to reflect a reduction of the post-development stormwater runoff than currently exists from the property.
- Drainage Facility #4: The swale and associated grading has been adjusted to allow for a forebay, prior to the actual swale, so as to receive stormwater from the adjacent gravel emergency road.

Page 5: Item #2 & #3 – Contributory Area:

- The Plan Sheet 2 of 6 has been updated to reflect the flow patterns of the project site once the proposed grading is complete.
- Contributory areas are updated so as to capture the offsite drainage patterns towards the project site. Refer to the Drainage calculations and Contributory Area Plan

Page 6: Item 4 – Roof Runoff:

- The construction drawings will include an overflow opening so as to allow for stormwater to discharge at times of exceedance of drywell capacity.

Page 7: Item 10 & 12 – Additional Comments:

- #10 –The elevations have been corrected.
- #12 – Sheet 2 of 6 now reflects boulders along the entrance off Highland and along Drainage Swale #4, so as to protect the drainage swales.

Page 7: Item #2 – Comments on Other Utilities:

- The cover over the leaching facilities for the wastewater will range from a maximum of 3 feet to about 1.5 feet. The electrical conduit for the small post lights will run about 12 inches below grade. the installation of the electrical or post lights will not impact the leaching facility.
- Contractor should take the necessary care during the installation of the posts and associated conduit.

Page 7 to 9: Other Site Design Comments:

- #1
  - The phasing of the project will still need to be worked out given the water main work by the Town. See the Stormwater Management During Construction section below.
- #2
  - Sheet 6 of 6 has been prepared to address the erosion controls through-out the site. The protocols identified on Sheet 6 and within the Safe Harbor Documents shall be incorporated into the phasing of the project, in conjunction with the Town's work.
- #11
  - Snow removal: The D.P.W. for the Town of Truro, is going to be responsible for the plowing and removal of the snow. Areas will be designated, by the DPW, for snow storage.
  - Snow shall not be stockpiled within the drainage swales or over leaching facility.

- #14
    - Landscape Plan will be finalized to address specific species and quantities. Planting protocols and details shall be included within the final Landscape Plan.
    - The vegetation within the drainage swales, up to the outlet invert to the catch basin grates for the drainage structures, is outlined below and on the Typical Swale Detail on Sheet 5 of 6.

Page 9, Item 15 - Landscape Plan:

- The final landscape plans shall include planting details and specifications.
- The area within the drainage swales are to be loamed and seeded with a wet-meadow seed mix. Refer to Sheet 5 of 6 for Swale detail and notes.

Parking Spaces:

- The Sheet 1 of 6 and 2 of 6 include the spot grades necessary to show the slope and grade of the parking stalls. Flow directions have also been added to Sheet 1 of 6 for additional detail.

Stormwater Management During Construction:

The coordination of the water main installation and the housing development needs to be finalized and determine prior to start of any construction activities on the site. The following points are meant to offer an outline/recommendation in preparing the Coordination Plans for the site.

The ideal Coordination Plan would include that the water main installation and the site work for housing development being completed in one phase. The Plan would include some, if not all, of the suggested construction steps outlined below. It is imperative that the ground surfaces be stabilized and secured as quickly as possible so as to minimize negative impacts to the site or Highland Road, during an intense storm event.

Prior to any disturbance to the site, all protocols and requirements for the protection of the turtles shall be implemented and followed. Refer to the Turtle Protection Plan as filed with the Natural Heritage Program (MESA).

- Suggested Construction Stages for the water main and/or housing development:
    - Contractor and project engineer shall identify areas of stockpiling of the existing vegetation materials to be used for slope stabilization.
    - Contractor and project engineer shall identify the areas to be used to store stormwater during the construction actives. The proposed drainage swales shall not be used for the temporary drainage areas.
        - The temporary drainage controls could include the natural low area to the north of buildings 22-24 and 23-25 and creating collection area(s) within the building locations around the center court area.
            - Note: The location and number of the collection areas to be created would be determined prior to start of any component of the water and/or housing development improvements.

- Area to be cleared of all trees and stumps.
- Vegetation shall be removed and stockpiled within identified areas.
  - The stockpile shall be protected along the base with erosion controls. (silt fence, or Biolog to be used)
- Area shall be rough graded as shown on the project documents.
  - The stockpile of materials shall be protected along the base with erosion controls. (silt fence and/or biology).
  - As the areas are graded, the contractor shall create the needed collection areas which are to be used for the temporary drainage controls.
- The slopes, once established shall be stabilized per the Erosion Control Practices of Safe Harbor and SWPPT.
- Irrigation shall be supplied for the slopes so as to enhance the establishment of the applied existing ground cover material.

- <u>Temporary Drainage Controls During Construction Activities:</u>
  - The temporary low points, as established, shall be shallow in nature so as to prevent ponding over 18 inches.
  - The ground surface within the low point shall be scraped clean of silt and debris after any rain event were ponding occurred within the low point. The area shall be scrapped once construction activities resume on the site, after a rain event.
- <u>Disturbance of the Southern Portion of the Site – Highland Road Access:</u>
  - Our Office strongly recommends the final plans to construct the water main and housing development includes a requirement that the project area up to and including buildings 5-7 and 10-12 be graded and stabilized prior to clearing and grading the remaining southern area of the site.

Thank You

J.M. O'Reilly & Associates, Inc.
Professional Engineering, Land Surveying & Environmental Services
Site Development • Property Line • Subdivision • Sanitary • Land Court • Environmental Permitting

Riprap Splash Pad Design:

Splash Pad is designed using the Federal Highway Administration Specifications 2006

Determine the Riprap Size:

$$D(50) = 0.2D(Q / \sqrt{g}D^{2.5})^{4/3} (\frac{D}{TW})$$

D(50):	riprap Size (ft)
Q:	Design Discharge at Outlet (cfs); 4.27 cfs (100 year outfall for Drainage Facility #4
D:	Culvert Diameter (Circular), (ft); 1 foot
TW:	Tailwater Depth (ft); Per Guidelines, TW=0.4D
g:	Acceleration Due to Gravity; g=32.2 ft/sec

$$D(50) = 0.2(1)\{(4.27 / \sqrt{32.2}(1)^{2.5})^{4/3}\}(1 / 0.4(1))$$
$$D(50) = 0.2\{(4.27 / 5.67)^{4/3}\}(2.5)$$
$$D(50) = 0.34 \text{ feet} = 4 \text{ inches}$$

Riprap stone, within splash pad, shall be 4 to 6 inch chink stone

Size of Splash Pad:

Using the attached Figure 10.4 and Table 10.1 from the Federal Highway Administration Publication July 2006 Hydraulic Engineering Circular No. 14, Third Edition Hydraulic Design of Energy Dissipators for Culverts and Channels

Length of Apron:	4 x D = 4 feet minimum
Depth of Apron:	3.5(D) = 3.5(4) = 14 inches = 1.2 feet
Width of Apron at Culvert:	3 x D = 3 x 1 = 3 feet
Width of Apron at End:	3:1 angle) x Length = 3 x 4 = 12 feet

Note: The apron sizing is based on Drainage Facility #4 with a outflow of 4.27 cfs, 100 year storm event. All stone riprap splash pads shall be the same size.

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www.jmoreillyassoc.com

Publication No. FHWA-NHI-06-086
July 2006

U.S. Department of Transportation

Federal Highway Administration

Hydraulic Engineering Circular No. 14, Third Edition

Hydraulic Design of Energy Dissipators for Culverts and Channels

National Highway Institute

L_B min = $4W_o$ = 4(6) = 24 ft, use L_B = 24 ft

$W_B = W_o + 2(L_B/3) = 6 + 2(24/3) = 22$ ft

However, since the trial D_{50} is not available, the next larger riprap size (D_{50} = 0.83 ft) would be used to line a basin with the given dimensions.

Step 4 (3rd iteration). Determine the basin exit depth, $y_B = y_c$ and exit velocity, $V_B = V_c$.

$Q^2/g = (A_c)^3/T_c = [y_c(W_B + zy_c)]^3/ (W_B + 2zy_c)$

$135^2/32.2 = 566 = [y_c(22 + 2y_c)]^3/ (22 + 4y_c)$

By trial and success, y_c = 1.02 ft, T_c =26.1 ft, A_c = 24.5 ft^2

$V_c = Q/A_c = 135/24.5 = 5.5$ ft/s (acceptable)

Two feasible options have been identified. First, a 2.3-ft-deep, 23-ft-long pool, with an 11.5-ft-apron using D_{50} = 0.5 ft. Second, a 1.4-ft-deep, 18-ft-long pool, with a 6-ft-apron using D_{50} = 0.83 ft. The choice between these two options will likely depend on the available space and the cost of riprap.

Step 5. For the design discharge, determine if $TW/y_o \leq 0.75$

$TW/y_o = 2.0/2.7 = 0.74$, which satisfies $TW/y_o \leq 0.75$. No additional riprap needed.

10.2 RIPRAP APRON

The most commonly used device for outlet protection, primarily for culverts 1500 mm (60 in) or smaller, is a riprap apron. An example schematic of an apron taken from the Federal Lands Division of the Federal Highway Administration is shown in Figure 10.4.

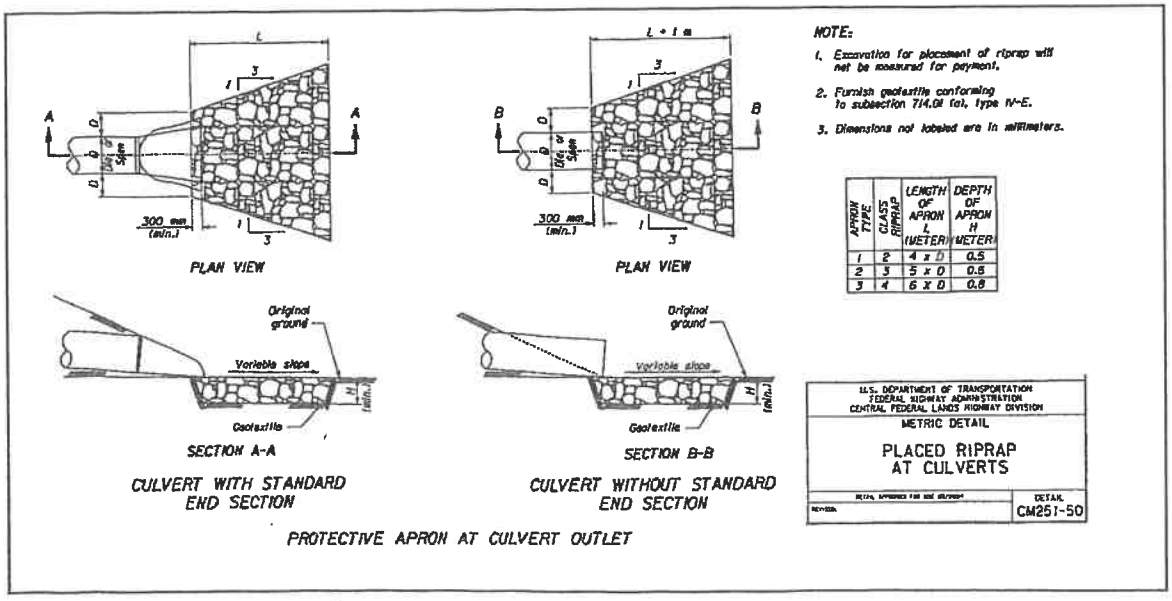


Figure 10.4. Placed Riprap at Culverts (Central Federal Lands Highway Division)

They are constructed of riprap or grouted riprap at a zero grade for a distance that is often related to the outlet pipe diameter. These aprons do not dissipate significant energy except

Table 10.1. Example Riprap Classes and Apron Dimensions

Class	D_{50} (mm)	D_{50} (in)	Apron Length[1]	Apron Depth
1	125	5	4D	$3.5D_{50}$
2	150	6	4D	$3.3D_{50}$
3	250	10	5D	$2.4D_{50}$
4	350	14	6D	$2.2D_{50}$
5	500	20	7D	$2.0D_{50}$
6	550	22	8D	$2.0D_{50}$

[1]D is the culvert rise.

The apron dimensions must also be specified. Table 10.1 provides guidance on the apron length and depth. Apron length is given as a function of the culvert rise and the riprap size. Apron depth ranges from $3.5D_{50}$ for the smallest riprap to a limit of $2.0D_{50}$ for the larger riprap sizes. The final dimension, width, may be determined using the 1:3 flare shown in Figure 10.4 and should conform to the dimensions of the downstream channel. A filter blanket should also be provided as described in HEC 11 (Brown and Clyde, 1989).

For tailwater conditions above the acceptable range for Equation 10.4 (TW > 1.0D), Figure 10.3 should be used to determine the velocity downstream of the culvert. The guidance in Section 10.3 may be used for sizing the riprap. The apron length is determined based on the allowable velocity and the location at which it occurs based on Figure 10.3.

Over their service life, riprap aprons experience a wide variety of flow and tailwater conditions. In addition, the relations summarized in Table 10.1 do not fully account for the many variables in culvert design. To ensure continued satisfactory operation, maintenance personnel should inspect them after major flood events. If repeated severe damage occurs, the location may be a candidate for extending the apron or another type of energy dissipator.

Design Example: Riprap Apron (SI)

Design a riprap apron for the following CMP installation. Available riprap classes are provided in Table 10.1. Given:

Q = 2.33 m^3/s
D = 1.5 m
TW = 0.5 m

Solution

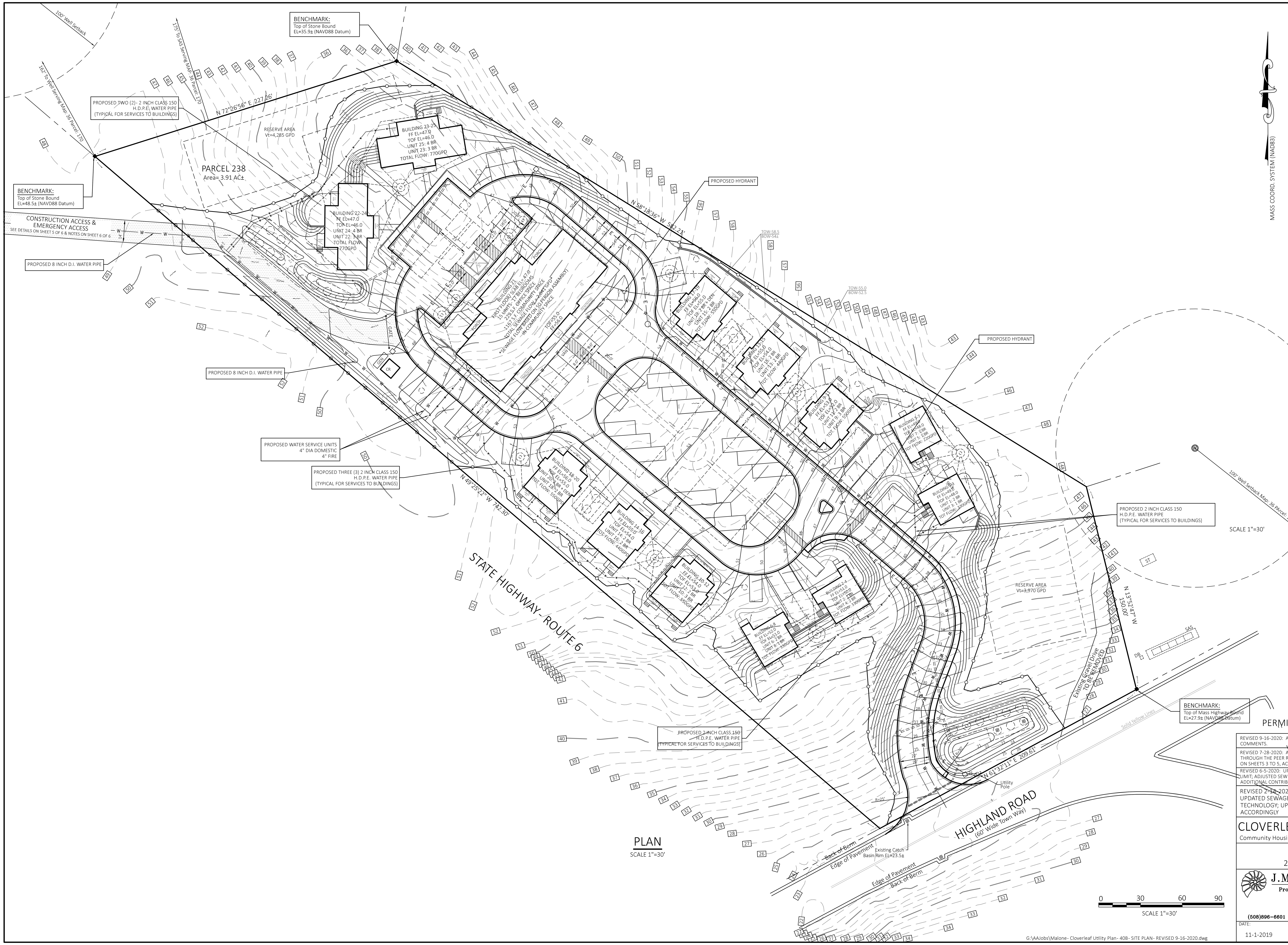
Step 1. Calculate D_{50} from Equation 10.4. First verify that tailwater is within range.

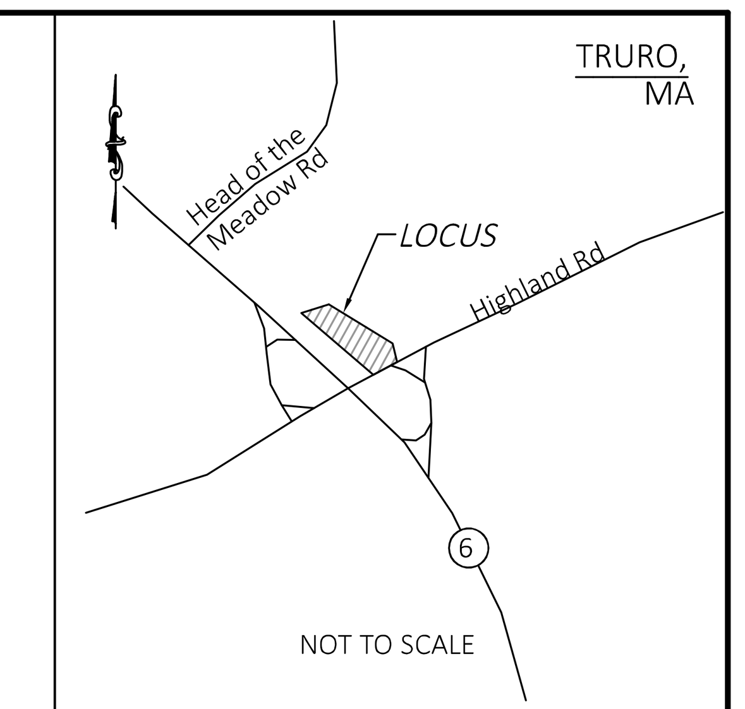
TW/D = 0.5/1.5 = 0.33. This is less than 0.4D, therefore,

use TW = 0.4D = 0.4(1.5) = 0.6 m

$$D_{50} = 0.2\,D\left(\frac{Q}{\sqrt{g}D^{2.5}}\right)^{4/3}\left(\frac{D}{TW}\right) = 0.2\,(1.5)\left(\frac{2.33}{\sqrt{9.81}(1.5)^{2.5}}\right)^{4/3}\left(\frac{1.5}{0.6}\right) = 0.13\ \text{m}$$

Step 2. Determine riprap class. From Table 10.1, riprap class 2 (D_{50} = 0.15 m) is required.





PLAN BOOK 672 PAGE 34
ASSESSORS' MAP 36 PARCEL 238

LEGEND

32	EXISTING CONTOUR
32	PROPOSED CONTOUR
×12.34	EXISTING SPOT GRADE
24x5	PROPOSED SPOT GRADE
—W—	WATER SERVICE LINE
—E—	UNDERGROUND UTILITY SERVICE
—G—	GAS SERVICE LINE
TP	TEST HOLE / BORING LOCATION
ST	SEPTIC TANK
DB	DISTRIBUTION BOX
SAS	SOIL ABSORPTION SYSTEM
Reserve	RESERVED FOR FUTURE
	UTILITY POLE
	CATCH BASIN
	FIRE HYDRANT
	WELL
	DRAINAGE MANHOLE
	CONCRETE BOUND, FOUND
	TOP OF BANK
	LIMIT OF WORK
	FENCE
PT	UNDERGROUND PROPANE TANK
	12' x 6' LEACHING DRYWELL (ROOF)
	TRANSFORMER PAD- UTILITY CLUSTER
GEN	GENERATOR

SHEET 1 OF 6
PERMIT SET- NOT FOR CONSTRUCTION

REVISED 9-16-2020: ADJUSTED GRADING AND DRAINAGE SO AS TO ADDRESS PEER REVIEW COMMENTS.

REVISED 7-28-2020: ADJUSTED SEWAGE SYSTEM AND DRAINAGE FACILITIES AS REQUESTED THROUGH THE PEER REVIEW. MODIFIED SWALE AND DRAINAGE FACILITIES; MODIFIED NOTES ON SHEETS 3 TO 5, ACCORDINGLY.

REVISED 6-5-2020: UPDATED SEWAGE SYSTEM TREATMENT TO INCLUDE 10 PPM NITROGEN LIMIT; ADJUSTED SEWER MANHOLE LAYOUT; ADJUSTED DRAINAGE TO INCLUDE SWALES AND ADDITIONAL CONTRIBUTORY AREAS; UPDATED NOTES AND DETAILS ACCORDINGLY

REVISED 2-14-2020: UPDATED BUILDING LAYOUT, ADJUSTED ENTRANCE; UPDATED SEWAGE SYSTEM COLLECTION AND ADDED I.A. TREATMENT TECHNOLOGY; UPDATED WATER SERVICE LAYOUT AND DRAINAGE ACCORDINGLY

CLOVERLEAF TRURO RENTAL HOUSING

Community Housing Resource, Inc.; P.O. Box 1015, Provincetown, MA 02657

SITE PLAN

22 HIGHLAND ROAD, TRURO, MA

J.M. O'REILLY & ASSOCIATES, INC.
Professional Engineering & Land Surveying Services
1573 Main Street – Route 6A
P.O. Box 1773
(508)896-6601 Office Brewster, MA 02631 (508)896-6602 Fax

DATE:	SCALE:	BY:	CHECK:	JOB NUMBER:
11-1-2019	As Noted	RFR	JMO	JMO-8446A

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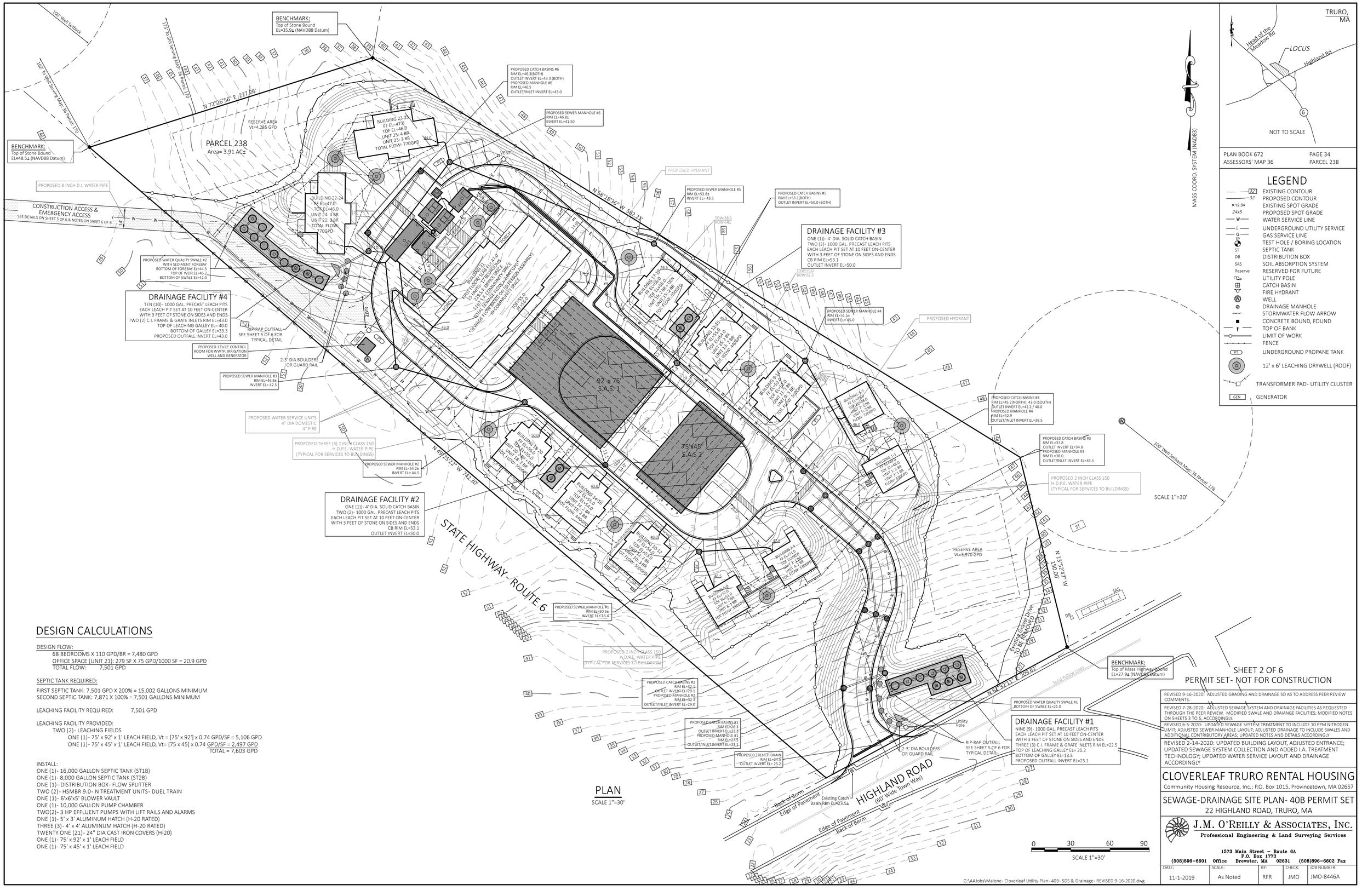

DESIGN CALCULATIONS

DESIGN FLOW:
68 BEDROOMS X 110 GPD/BR = 7,480 GPD
OFFICE SPACE (UNIT 21): 279 SF X 75 GPD/1000 SF = 20.9 GPD
TOTAL FLOW: 7,501 GPD

SEPTIC TANK REQUIRED:

FIRST SEPTIC TANK: 7,501 GPD X 200% = 15,002 GALLONS MINIMUM
SECOND SEPTIC TANK: 7,871 X 100% = 7,501 GALLONS MINIMUM

LEACHING FACILITY REQUIRED: 7,501 GPD

LEACHING FACILITY PROVIDED:
TWO (2)- LEACHING FIELDS
ONE (1)- 75' x 92' x 1' LEACH FIELD, Vt = [75' x 92'] x 0.74 GPD/SF = 5,106 GPD
ONE (1)- 75' x 45' x 1' LEACH FIELD, Vt= [75 x 45] x 0.74 GPD/SF = 2,497 GPD
TOTAL = 7,603 GPD

INSTALL:
ONE (1)- 16,000 GALLON SEPTIC TANK (ST1B)
ONE (1)- 8,000 GALLON SEPTIC TANK (ST2B)
ONE (1)- DISTRIBUTION BOX- FLOW SPLITTER
TWO (2)- HSMBR 9.0- N TREATMENT UNITS- DUEL TRAIN
ONE (1)- 6'x6'x5' BLOWER VAULT
ONE (1)- 10,000 GALLON PUMP CHAMBER
TWO(2)- 3 HP EFFLUENT PUMPS WITH LIFT RAILS AND ALARMS
ONE (1)- 5' x 3' ALUMINUM HATCH (H-20 RATED)
THREE (3)- 4' x 4' ALUMINUM HATCH (H-20 RATED)
TWENTY ONE (21)- 24" DIA CAST IRON COVERS (H-20)
ONE (1)- 75' x 92' x 1' LEACH FIELD
ONE (1)- 75' x 45' x 1' LEACH FIELD

PLAN BOOK 672 PAGE 34
ASSESSORS' MAP 36 PARCEL 238

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT GRADE
- PROPOSED SPOT GRADE
- WATER SERVICE LINE
- UNDERGROUND UTILITY SERVICE
- GAS SERVICE LINE
- TEST HOLE / BORING LOCATION
- ST SEPTIC TANK
- DB DISTRIBUTION BOX
- SAS SOIL ABSORPTION SYSTEM
- Reserve RESERVED FOR FUTURE
- UTILITY POLE
- CATCH BASIN
- FIRE HYDRANT
- WELL
- DRAINAGE MANHOLE
- STORMWATER FLOW ARROW
- CONCRETE BOUND, FOUND
- TOP OF BANK
- LIMIT OF WORK
- FENCE
- PT UNDERGROUND PROPANE TANK
- 12' x 6' LEACHING DRYWELL (ROOF)
- TRANSFORMER PAD- UTILITY CLUSTER
- GEN GENERATOR

SHEET 2 OF 6
PERMIT SET- NOT FOR CONSTRUCTION

REVISED 9-16-2020: ADJUSTED GRADING AND DRAINAGE SO AS TO ADDRESS PEER REVIEW COMMENTS.

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REVISED 2-14-2020: UPDATED BUILDING LAYOUT, ADJUSTED ENTRANCE; UPDATED SEWAGE SYSTEM COLLECTION AND ADDED I.A. TREATMENT TECHNOLOGY; UPDATED WATER SERVICE LAYOUT AND DRAINAGE ACCORDINGLY

CLOVERLEAF TRURO RENTAL HOUSING

Community Housing Resource, Inc.; P.O. Box 1015, Provincetown, MA 02657

SEWAGE-DRAINAGE SITE PLAN- 40B PERMIT SET

22 HIGHLAND ROAD, TRURO, MA

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DATE:	SCALE:	BY:	CHECK:	JOB NUMBER:
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GENERAL NOTES:

A.) NEITHER DRIVEWAYS NOR PARKING AREAS ARE ALLOWED OVER SEPTIC SYSTEM UNLESS H-20 COMPONENTS ARE USED.

B.) THE DESIGNER WILL NOT BE RESPONSIBLE FOR THE SYSTEM AS DESIGNED UNLESS CONSTRUCTED AS SHOWN. ANY CHANGES SHALL BE APPROVED IN WRITING.

C.) CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO COMMENCEMENT OF WORK.

CONSTRUCTION NOTES:

1.) ALL CONSTRUCTION SHALL CONFORM TO THE STATE ENVIRONMENTAL CODE, TITLE 5, AND THE REQUIREMENTS OF THE LOCAL BOARD OF HEALTH.

2.) SEPTIC TANK(S), GREASE TRAP(S), DOSING CHAMBER(S) AND DISTRIBUTION BOX(ES) SHALL BE SET ON A LEVEL STABLE BASE WHICH HAS BEEN MECHANICALLY COMPACTED, OR ON A 6 INCH CRUSHED STONE BASE.

3.) SEPTIC TANK(S) SHALL MEET ASTM STANDARD C1127-93 AND SHALL HAVE AT LEAST THREE 20" DIAMETER MANHOLES. THE MINIMUM DEPTH FROM THE BOTTOM OF THE SEPTIC TANK TO THE FLOW LINE SHALL BE 48".

4.) SCHEDULE 40 PVC INLET AND OUTLET TEES SHALL EXTEND A MINIMUM OF 6" ABOVE THE FLOW LINE OF THE SEPTIC TANK AND SHALL BE INSTALLED ON THE CENTERLINE OF THE TANK DIRECTLY UNDER THE CLEANOUT MANHOLE.

5.) RAISE COVERS OF THE SEPTIC TANK AND DISTRIBUTION BOX WITH PRECAST CONCRETE WATER TIGHT RISERS OVER INLET AND OUTLET TEES TO WITHIN 6" OF FINISH GRADE, OR AS APPROVED BY THE LOCAL BOARD OF HEALTH AGENT.

6.) ALL SEWER PIPING SHALL CONSIST OF 6" SDR-35 OR EQUIVALENT. PIPE SHALL BE LAID ON A MINIMUM CONTINUOUS GRADE OF NOT LESS THAN 1% OR AS SPECIFIED.

7.) DISTRIBUTION LINES FOR SOIL ABSORPTION SYSTEM (AS REQUIRED) SHALL BE 1 1/2" DIA. SCHEDULE 40 PVC. SEE DETAILS FOR ADDITIONAL INFORMATION

8.) OUTLET PIPES FROM DISTRIBUTION BOX SHALL REMAIN LEVEL FOR AT LEAST 2' BEFORE PITCHING TO SOIL ABSORPTION SYSTEM. WATER TEST DISTRIBUTION BOX TO ASSURE EVEN DISTRIBUTION.

9.) DISTRIBUTION BOX SHALL HAVE A MINIMUM SUMP OF 6" MEASURED BELOW THE OUTLET INVERT.

10.) BASE AGGREGATE FOR THE LEACHING FACILITY SHALL CONSIST OF 3/4" TO 1-1/2" DOUBLE WASHED STONE FREE OF IRON, FINES AND DUST AND SHALL BE INSTALLED BELOW THE CROWN OF THE DISTRIBUTION LINE TO THE BOTTOM OF THE SOIL ABSORPTION SYSTEM. BASE AGGREGATE SHALL BE COVERED WITH A 2" LAYER OF 1/8" TO 1/2" DOUBLE WASHED STONE FREE OF IRON, FINES AND DUST.

11.) VENT SOIL ABSORPTION SYSTEM WHEN DISTRIBUTION LINES EXCEED 50 FEET; WHEN LOCATED EITHER IN WHOLE OR IN PART UNDER DRIVEWAYS, PARKING AREAS, TURNING AREAS OR OTHER IMPERVIOUS MATERIAL; OR WHEN PRESSURE DOSED.

12.) SOIL ABSORPTION SYSTEM SHALL BE COVERED WITH A MINIMUM OF 9" OF CLEAN MEDIUM SAND (EXCLUDING TOPSOIL).

13.) FINISH GRADE SHALL BE A MAXIMUM OF 36" OVER THE TOP OF ALL SYSTEM COMPONENTS, INCLUDING THE SEPTIC TANK, DISTRIBUTION BOX, DOSING CHAMBER AND SOIL ABSORPTION SYSTEM. SEPTIC TANKS SHALL HAVE A MINIMUM COVER OF 9".

14.) FROM THE DATE OF INSTALLATION OF THE SOIL ABSORPTION SYSTEM UNTIL RECEIPT OF A CERTIFICATE OF COMPLIANCE, THE PERIMETER OF THE SOIL ABSORPTION SYSTEM SHALL BE STAKED AND FLAGGED TO PREVENT THE USE OF SUCH AREA FOR ALL ACTIVITIES THAT MIGHT DAMAGE THE SYSTEM.

15.) THE BOARD OF HEALTH SHALL REQUIRE INSPECTION OF ALL CONSTRUCTION BY AN AGENT OF THE BOARD OF HEALTH (OR THE DESIGNER IF THIS SYSTEM REQUIRES A VARIANCE) AND MAY REQUIRE SUCH PERSON TO CERTIFY IN WRITING THAT ALL WORK HAS BEEN COMPLETED IN ACCORDANCE WITH THE TERMS OF THE PERMIT AND APPROVED PLANS. 48 HOURS ADVANCE NOTICE IS REQUESTED.

16.) two (2) 4" PVC INSPECTION PORT TO BE RAISED TO WITHIN 3" OF FINISH GRADE FOR EACH LEACHING FIELD. BOTH INSPECTION PORTS TO BE PROVIDED WITH CAST IRON CLEANOUT COVERS AT FINISH GRADE. REFER TO S.A.S. DETAIL.

17.) INSTALLER TO CONFIRM LOCATION OF ALL UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO START OF CONSTRUCTION.

18.) WATER/SEWER CROSSING: WASTELINE SHALL BE A 20' SECTION OF PVC PIPE CENTERED OVER THE WATER LINE TO MAXIMIZE DISTANCE TO JOINTS.

19.) BUILDING SEWER CLEAN-OUT: A 4" DIA PVC CLEAN OUT PIPE SHALL BE PROVIDED AT AT ALL BUILDING CONNECTIONS FOR THE SEWER LINES. CLEAN-OUT PIPE SHALL BE FINISHED WITH A 4 INCH DIA SCREW CAP BROUGHT TO FINISH GRADE.

20.) SEWER BENDS: A 4" DIA PVC CLEAN OUT SHALL BE PROPOVED AT ALL SEWER PIPE BENDS GREATER THAN 22.5°. THE CLEAN-OUT SHALL BE FINISHED WITH A 4" DIA SCREW CAP BROUGHT TO FINISH GRADE. THE SCREW CAP SHALL BE PROTECTED BY INSTALLING AN 8" DIA C.I. CURB BOX.

SOIL LOGS:

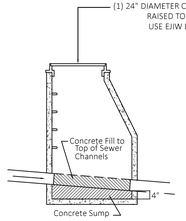
HAND AUGER 1: EL = 58.0±

DEPTH FROM SURFACE (INCHES)	SOIL HORIZON	SOIL TEXTURE (USDA)	SOIL COLOR (MUNSELL)	SOIL MOTTLING	OTHER
0-6	A	FINE LOAMY SAND	10YR3/1		
6-24	C1	COARSE SAND	10YR7/8	NONE	
24-186	C2	COARSE SAND	10YR6/4		
					NO WATER ENCOUNTERED

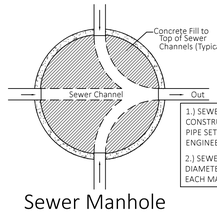
DATE OF TESTING: 10-16-2019
PERCOLATION RATE: LESS THAN 52 MIN/INCH IN C1 LAYERS (ASSUMED)
WITNESSED BY: ROBERT REEDY, EIT, J.M. O'REILLY & ASSOCIATES, INC.
NO GROUNDWATER WAS ENCOUNTERED
USE A LOADING RATE OF 0.74 GPD/SF FOR SIZING OF SOIL ABSORPTION SYSTEM.

PROFILE OF SEWER MANHOLES:

NOT TO SCALE



Sewer Manhole
600 Gallon
Pre-cast Concrete Manhole with Off-set Cover



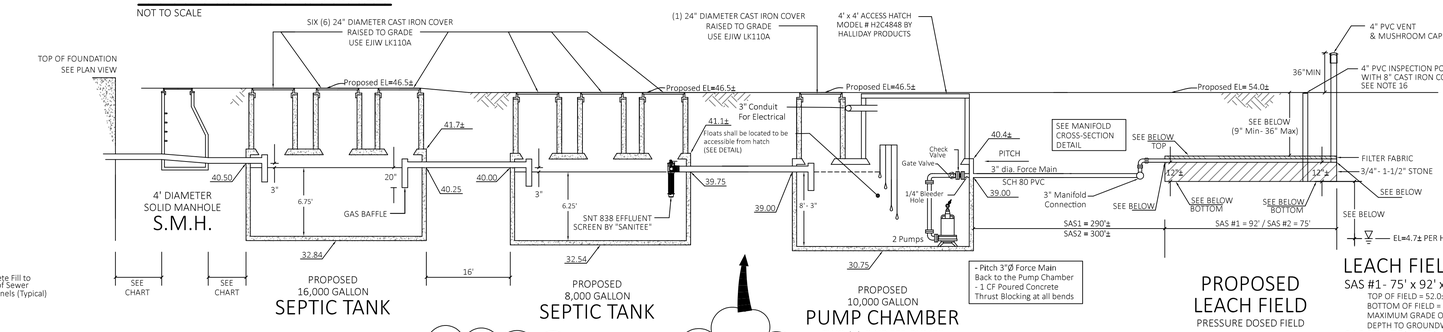
Sewer Manhole
PLAN VIEW
Not To Scale

1.) SEWER CHANNELS SHALL BE CONSTRUCTED OF BRICK OR PVC PIPE SET IN CONCRETE OR OF ENGINEER APPROVED EQUAL.

2.) SEWER CHANNELS MUST MATCH DIAMETER OF OUTLET PIPE FOR EACH MANHOLE

SCHEMATIC FLOW PROFILE:

NOT TO SCALE



LEACH FIELD ELEVATIONS:

SAS #1- 75' x 92' x 1' LEACH FIELD
TOP OF FIELD = 52.0±
BOTTOM OF FIELD = 51.0±
MAXIMUM GRADE OVER FIELD = 55.0±
DEPTH TO GROUNDWATER = 46'±

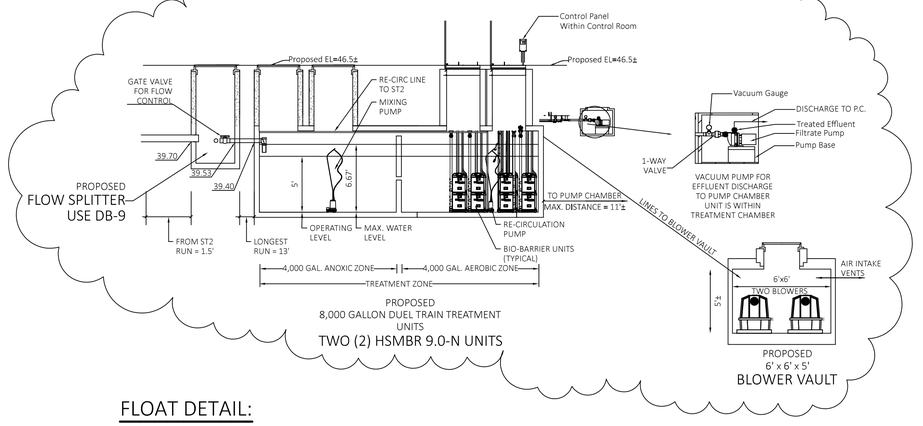
SAS #2- 75' x 45' x 1' LEACH FIELD
TOP OF FIELD = 49.5±
BOTTOM OF FIELD = 48.5±
MAXIMUM GRADE OVER FIELD = 52.5±
MINIMUM GRADE OVER FIELD = 50.5±
DEPTH TO GROUNDWATER = 43'±

PROPOSED LEACH FIELD
PRESSURE DOSED FIELD

PUMP DOSING PROGRAM:

1. BOTH PUMPS MUST BE CAPABLE OF PUMPING AT LEAST 90 GPM AGAINST A TOTAL DYNAMIC HEAD OF 30'± (USE (2) MYERS EFF. PUMP- 2 HP OR ENGINEER APPROVED EQUIVALENT).
2. BOTH PUMPS SHALL BE OPERATED ON A TIMER CYCLE.
   SAS #1 PUMP: SHALL RUN FOR MAXIMUM OF 5 MINUTES EVERY 30 MINUTES:
   TOTAL DOSE PER HOUR = 900 GALLONS;
   SAS #2 PUMP: PUMP SHALL RUN FOR A MAXIMUM OF 3 MINUTES EVERY 30 MINUTES:
   TOTAL DOSE PER HOUR = 540 GALLONS
3. FLOAT SYSTEM:
   LOW WATER FLOAT- BOTH PUMPS OFF
   OPERATIONAL FLOAT- BOTH PUMPS ARE AVAILABLE FOR CYCLE PUMPING
   HIGH WATER FLOAT- ALTERNATE PUMP ENGAUGES AND PUMPS TO LOW WATER FLOAT IS ENGAUGED
   HIGH WATER ALARM FLOAT- ALARM SOUNDS- REMOTE DIALER IS ENGAGED TO WWTP OPERATOR.

NOTE:
ONCE PUMPS INSTALLED WITHIN CHAMBER, TIMING AND DOSAGE SHALL BE ADJUSTED TO REFLECT ACTUAL PUMP DISCHARGE AND FLOW RATES.



SEWER MANHOLE ELEVATION SCHEDULE : SMH #1-3			
COMPONENT	RIM EL	PIPE INVERT EL	6" SEWER PITCH (%), LENGTH FROM PREV
SMH #1	50.5±	46.4±	
SMH #2	54.7±	44.5±	1.1% PITCH , 172' OF 6" SEWER LINE
SMH #3	46.8±	42.5±	2% PITCH, 98' OF 6" SEWER
ST #1 INLET	46.5±	40.5±	2.4% PITCH, 84' OF 6" SEWER

SEWER MANHOLE ELEVATION SCHEDULE : SMH #4-6			
COMPONENT	RIM EL	PIPE INVERT EL	6" SEWER PITCH (%), LENGTH FROM PREV
SMH #4	51.5±	45.0±	
SMH #5	53.8±	43.5±	1.1% PITCH , 142' OF 6" SEWER LINE
SMH #6	46.8±	41.5±	1.2% PITCH, 164' OF 6" SEWER
ST #1 INLET	46.5±	40.5±	1.2% PITCH, 83' OF 6" SEWER

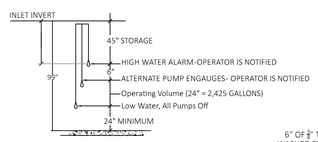
SEWER NOTES:
1.) THE SEWER PIPER SHALL BE 6" DIA. SDR35 PIPE OR APPROVED EQUAL.
2.) EACH WASTE LINE UPON EXITING THE BUILDINGS, SHALL BE CONNECTED TO A 4" CLEAN-OUT, TO GRADE, FOR FUTURE MAINTENANCE.
3.) SEWER LINE: AT ANY BEND, GREATER THAN 22.5° SHALL HAVE A SEWER CLEANOUT TO GRADE FOR FUTURE MAINTANCE.

OPERATIONAL NOTES & REQUIREMENTS:

1.) ALL WIRING AND CONNECTIONS SHALL BE IN COMPLIANCE WITH THE MA STATE ELECTRICAL CODE AS WELL AS TO THE MANUFACTURER'S SPECIFICATIONS. ALL WORK SHALL BE COMPLETED BY A LICENSED ELECTRICIAN.
2.) THE ALARM SHALL CONSIST OF A RED WARNING LIGHT, AN AUDIBLE ALARM AND A REMOTE DIALER SO AS TO NOTIFY THE WWTP OPERATOR OF THE ALARM EVENT. LIGHT AND ALARM SHALL BE MOUNTED TO THE SIDE OF THE CONTROL BUILDING.
3.) ALL CORDS FOR PUMPS AND FLOATS SHALL BE CONTINUOUS FROM THE TREATMENT WORKS TO THE JUNCTION DISCONNECT BOX.
4.) JUNCTION DISCONNECT BOX SHALL BE LOCATED ADJACENT TO THE CONTROL BUILDING.

FLOAT DETAIL:

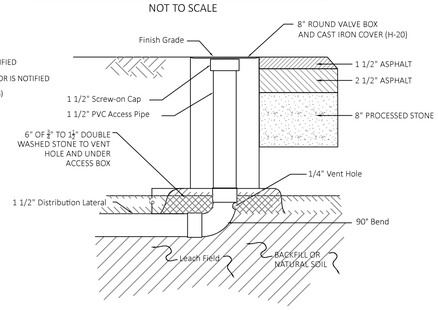
NOT TO SCALE

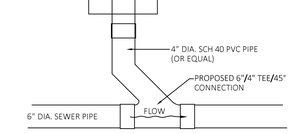


*FLOAT INSTALLATION NOTES:
1.) FLOATS SHALL BE INSTALLED WITH A CABLE WEIGHT AND SHALL NOT BE TETHERED TO THE DISCHARGE LINE IN ORDER TO ALLOW FOR THEM TO BE PULLED UP TO THE TOP OF PUMP CHAMBER.
2.) FLOATS SHALL BE INSTALLED SO THAT THEY CAN BE ACCESSED FROM OUTLET MANHOLE COVER.
3.) FLOATS MUST BE INSTALLED SO THAT THEY ARE FREE TO MOVE THROUGHOUT IT'S TRAVEL AND NOT CONTACT THE PUMP BODY, PIPING, OR OTHER OBJECTS.

DETAIL OF LATERAL ACCESS CAP

NOT TO SCALE



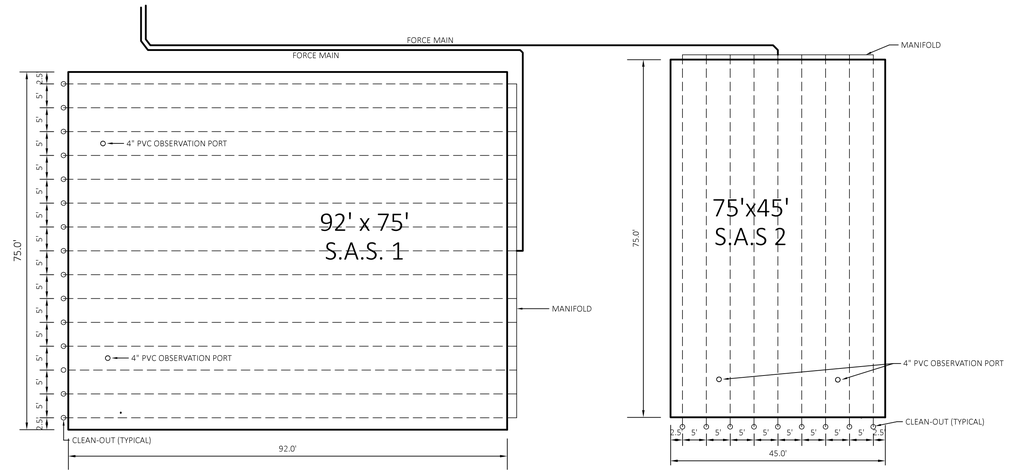


CLEAN-OUT DETAIL

NOT TO SCALE:

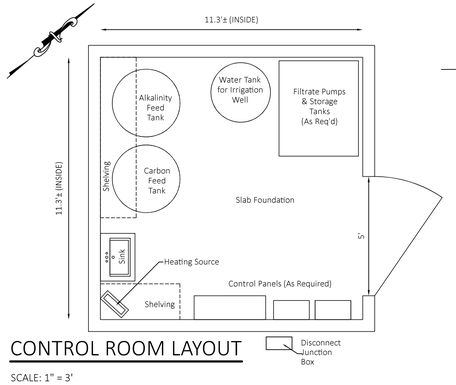
SOIL ABSORPTION SYSTEM DETAIL:

NOT TO SCALE



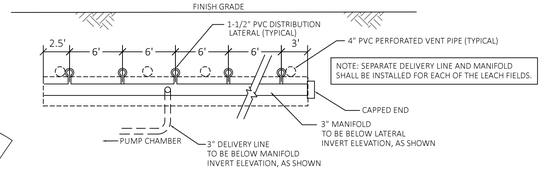
CONTROL ROOM LAYOUT

SCALE: 1" = 3'



MANIFOLD CROSS-SECTION DETAIL

NOT TO SCALE



0 30 60 90
SCALE 1"=30'

SHEET 3 OF 6
PERMIT SET- NOT FOR CONSTRUCTION

REVISED9-16-2020: ADJUSTED GRADING AND DRAINAGE SO AS TO ADDRESS PEER REVIEW COMMENTS.

REVISED 7-28-2020: ADJUSTED SEWAGE SYSTEM AND DRAINAGE FACILITIES AS REQUESTED THROUGH THE PEER REVIEW. MODIFIED SWALE AND DRAIANGE FACILITIES; MODIFIED NOTES ON SHEETS 3 TO 5, ACCORDINGLY.

REVISED 6-5-2020: UPDATED SEWAGE SYSTEM TREATMENT TO INCLUDE 10 PPM NITROGEN LIMIT; ADJUSTED SEWER MANHOLE LAYOUT; ADJUSTED DRAINAGE TO INCLUDE SWALES AND ADDITIONAL CONTRIBUTORY AREAS; UPDATED NOTES AND DETAILS ACCORDINGLY.

REVISED 2-14-2020: UPDATED BUILDING LAYOUT, ADJUSTED ENTRANCE; UPDATED SEWAGE SYSTEM COLLECTION AND ADDED I.A. TREATMENT TECHNOLOGY; UPDATED WATER SERVICE LAYOUT AND DRAINAGE ACCORDINGLY

CLOVERLEAF TRURO RENTAL HOUSING
Community Housing Resource, Inc.; P.O. Box 1015, Provincetown, MA 02657

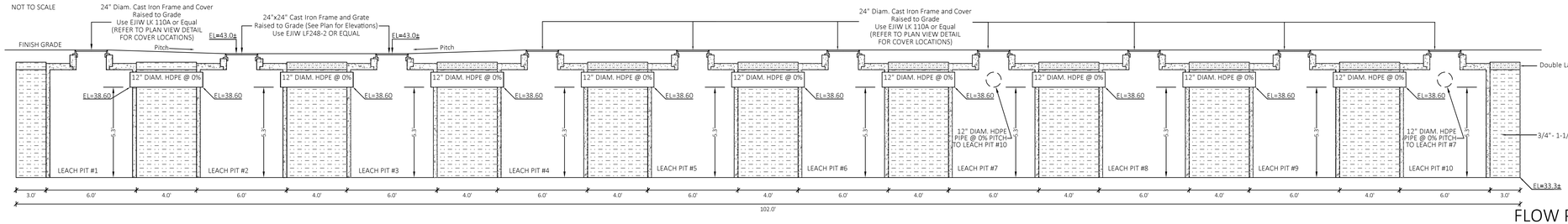
SEWAGE DETAILS- 40B PERMIT SET
22 HIGHLAND ROAD, TRURO, MA

J.M. O'REILLY & ASSOCIATES, INC.
Professional Engineering & Land Surveying Services
1573 Main Street - Route 6A
P.O. Box 1773
(508)896-6601 Office Brewster, MA 02631 (508)896-6602 Fax

DATE:	SCALE:	BY:	CHECK:	JOB NUMBER:
11-1-2019	As Noted	RFR	JMO	JMO-8446A

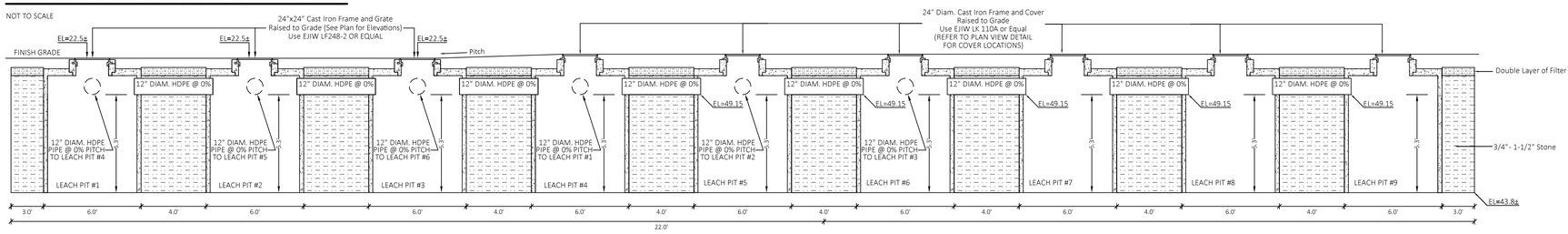
G:\AAJobs\Malone- Cloverleaf Utility Plan- 40B- SDS & Drainage- REVISED 9-16-2020.dwg

FLOW PROFILE OF DRAINAGE FACILITY #4



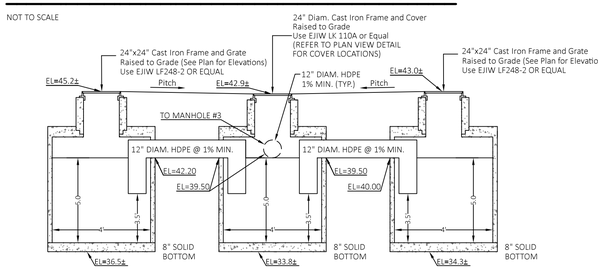
PROPOSED LEACHING FACILITY
USE TEN (10) 1000 GALLON PRECAST LEACHING PIT UNITS
H-20 RATED UNITS AS MFG. BY SHOREY PRECAST OR EQUAL

FLOW PROFILE OF DRAINAGE FACILITY #1



PROPOSED LEACHING FACILITY
USE NINE (9) 1000 GALLON PRECAST LEACHING PIT UNITS
H-20 RATED UNITS AS MFG. BY SHOREY PRECAST OR EQUAL

FLOW PROFILE OF CATCH BASINS & MANHOLE #4



PROPOSED SOLID 4-FOOT DIA. CATCH BASINS #4 (NORTH SIDE)

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

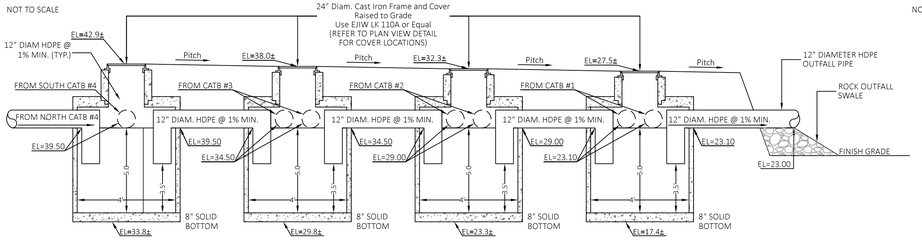
PROPOSED SOLID 4-FOOT DIA. MANHOLE #4

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

PROPOSED SOLID 4-FOOT DIA. CATCH BASINS #4 (SOUTH SIDE)

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

FLOW PROFILE OF CATCH BASINS #1 - #4 AND OUTFALL PIPE



PROPOSED SOLID 4-FOOT DIA. MANHOLE #4

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

PROPOSED SOLID 4-FOOT DIA. MANHOLE #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

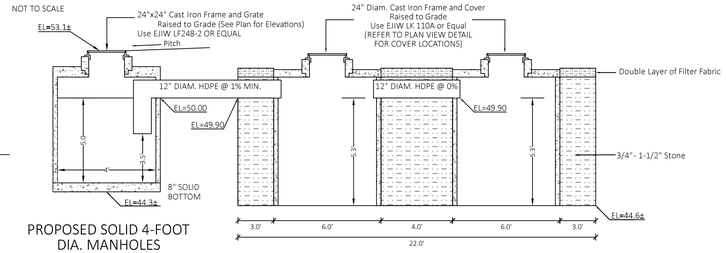
PROPOSED SOLID 4-FOOT DIA. MANHOLE #2

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

PROPOSED SOLID 4-FOOT DIA. MANHOLE #1

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

FLOW PROFILE OF CATCH BASINS #5 & DRAINAGE FACILITIES #2 & #3

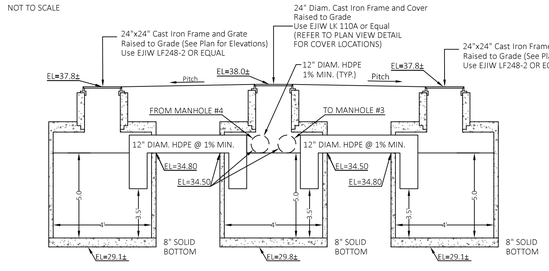


PROPOSED SOLID 4-FOOT DIA. MANHOLES (CATCH BASINS #5)

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

PROPOSED LEACHING FACILITY
USE TWO (2) 1000 GALLON PRECAST LEACHING PIT UNITS
H-20 RATED UNITS AS MFG. BY SHOREY PRECAST OR EQUAL

FLOW PROFILE OF CATCH BASINS & MANHOLE #3



PROPOSED SOLID 4-FOOT DIA. CATCH BASIN #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

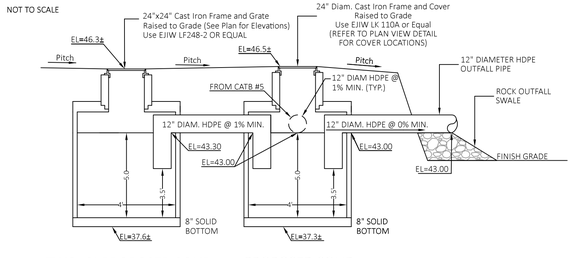
PROPOSED SOLID 4-FOOT DIA. MANHOLE #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

PROPOSED SOLID 4-FOOT DIA. CATCH BASIN #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

FLOW PROFILE OF CATCH BASINS #6 MANHOLE AND OUTFALL PIPE



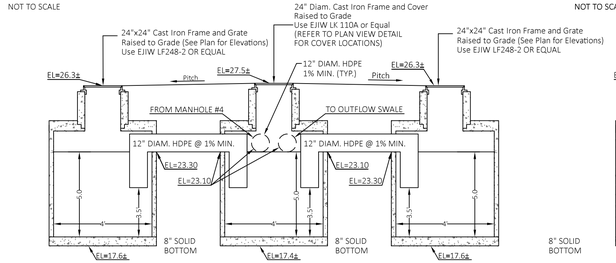
TWO (2) PROPOSED SOLID 4-FOOT DIA. MANHOLE (CATCH BASINS #6)

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

PROPOSED SOLID 4-FOOT DIA. MANHOLE #6

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

FLOW PROFILE OF CATCH BASINS & MANHOLE #1



PROPOSED SOLID 4-FOOT DIA. CATCH BASIN #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

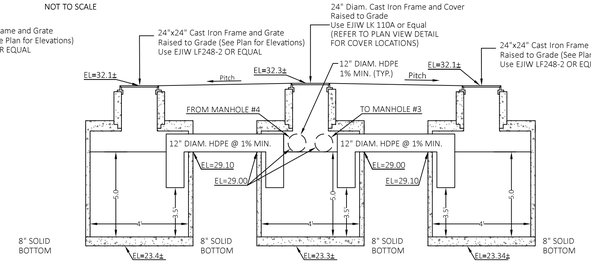
PROPOSED SOLID 4-FOOT DIA. MANHOLE #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

PROPOSED SOLID 4-FOOT DIA. CATCH BASIN #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

FLOW PROFILE OF CATCH BASINS & MANHOLE #2



PROPOSED SOLID 4-FOOT DIA. CATCH BASIN #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

PROPOSED SOLID 4-FOOT DIA. MANHOLE #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

PROPOSED SOLID 4-FOOT DIA. CATCH BASIN #3

USE SOLID CATCH BASIN WITH BOTTOM AS MFG. BY SHOREY OR EQUAL
5-FOOT SUMP BELOW
INVERT IS REQUIRED

0 30 60 90
SCALE 1"=30'

SHEET 4 OF 6
PERMIT SET- NOT FOR CONSTRUCTION

REVISED9-16-2020: ADJUSTED GRADING AND DRAINAGE SO AS TO ADDRESS PEER REVIEW COMMENTS.
REVISED 7-28-2020: ADJUSTED SEWAGE SYSTEM AND DRAINAGE FACILITIES AS REQUESTED THROUGH THE PEER REVIEW. MODIFIED SWALE AND DRAINAGE FACILITIES; MODIFIED NOTES ON SHEETS 3 TO 5, ACCORDINGLY.
REVISED 9-5-2020: UPDATED SEWAGE SYSTEM TREATMENT TO INCLUDE 10 PPM NITROGEN LIMIT; ADJUSTED SEWER MANHOLE LAYOUT; ADJUSTED DRAINAGE TO INCLUDE SWALES AND ADDITIONAL CONTRIBUTORY AREAS; UPDATED NOTES AND DETAILS ACCORDINGLY
REVISED 2-14-2020: UPDATED BUILDING LAYOUT, ADJUSTED ENTRANCE; UPDATED SEWAGE SYSTEM COLLECTION AND ADDED I.A. TREATMENT TECHNOLOGY; UPDATED WATER SERRVICE LAYOUT AND DRAINAGE ACCORDINGLY

CLOVERLEAF TRURO RENTAL HOUSING
Community Housing Resource, Inc.; P.O. Box 1015, Provincetown, MA 02657

SITE DETAILS- 40B PERMIT SET
22 HIGHLAND ROAD, TRURO, MA

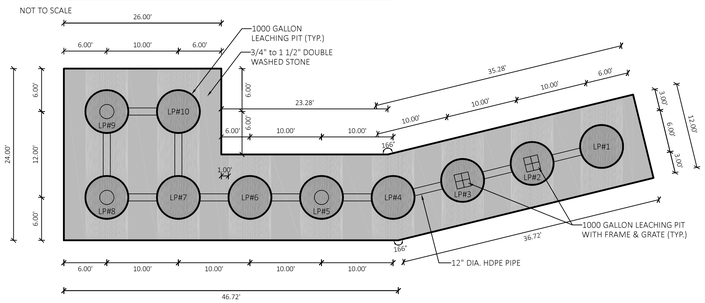
J.M. O'REILLY & ASSOCIATES, INC.
Professional Engineering & Land Surveying Services
1573 Main Street – Route 6A
P.O. Box 1773
(508)896-6601 Office Brewster, MA 02631 (508)896-6602 Fax

DATE:	SCALE:	BY:	CHECK:	JOB NUMBER:
11-1-2019	As Noted	RFR	JMO	JMO-8446A

G:\AAJobs\Malone- Cloverleaf Utility Plan- 40B- SDS & Drainage- REVISED 9-16-2020.dwg

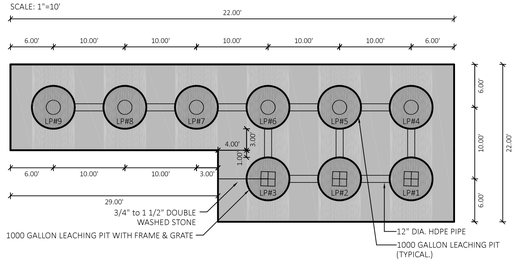
FLOW PROFILE OF DRAINAGE FACILITY #4

NOT TO SCALE



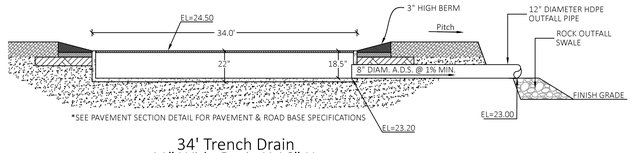
LEACHING FACILITY #1

SCALE: 1"=10'



DETAIL OF TRENCH DRAIN:

NOT TO SCALE



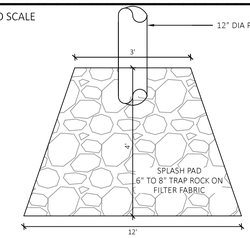
*SEE PAVEMENT SECTION DETAIL FOR PAVEMENT & ROAD BASE SPECIFICATIONS

34' Trench Drain
11" Wide Drain X 16" Ht

USE H-20 TRENCH DRAIN
AS MANUFACTURED BY ACME-SHOREY

RIP-RAP DETAIL FOR OUTFALL PIPE:

NOT TO SCALE



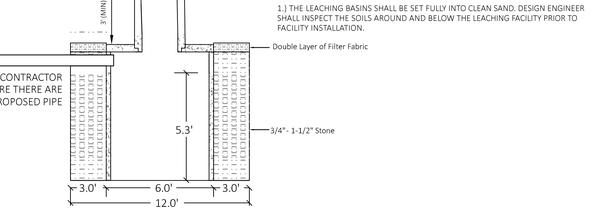
RIPRAP NOTES:
1.) RIPRAP SHALL BE PLACED INTO CLEAN SAND, FREE OF SILT AND DEBRIS.
2.) RIPRAP STONE SHALL BE 6" TO 8" CHINK STONE PLACED IN RANDOM PATTERN WITH UNEVEN SURFACE SO AS TO REDUCE DISCHARGE ENERGY.
3.) THE BED OF RIPRAP SHALL BE 1.5 FEET THICK.
4.) RIPRAP STONE SHALL BE LAID ON A DOUBLE LAYER OF FILTER FABRIC.

LEACHING FACILITIES #2 & #3

SCALE: 1"=10'

TYPICAL SWALE DETAIL

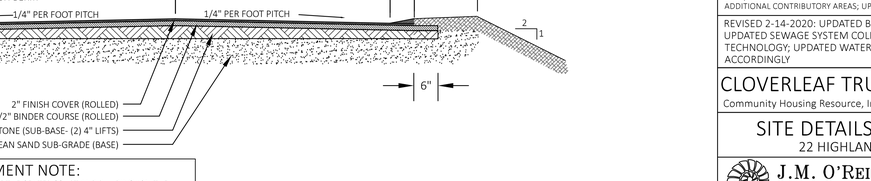
SCALE: 1"=10'



SWALE NOTES:
1.) THE BOTTOM AND SIDE SLOPES OF THE SWALE, UP TO THE TOP OF THE OUTFLOW PIPE FROM THE MANHOLE, SHALL BE COVERED WITH 6 INCHES OF LOAM AND SEEDED WITH A WET MEADOW SEED MIX. APPLICATION RATE SHALL BE PER MFG'S SPECIFICATIONS
2.) THE SLOPES ABOVE THE OUTFALL PIPE FROM MANHOLE SHALL BE COVERED WITH A MINIMUM OF 4 INCHES OF LOAM, COVERED WITH THE ON-SITE GROUND VEGETATION.
3.) ALL SLOPED AREAS SHALL BE COVERED WITH JUTE NETTING EROSION CLOTH, SECURED IN PLACE.

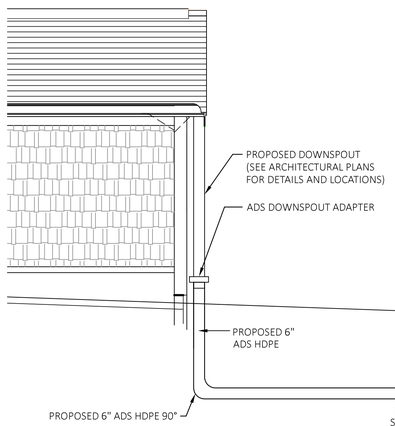
SIDEWALK SECTION FOR MODIFIED CAPE COD BERM

NOT TO SCALE



EMERGENCY ACCESS DRIVE SECTION

NOT TO SCALE



ROOF/LAWN DRYWELL DETAIL:

NOT TO SCALE

ROOF RUN-OFF:

1.) ALL ROOF GUTTERS SHOULD BE DIRECTLY CONNECTED TO DRYWELLS USING 6" ADS PIPE

2.) DRYWELLS SHALL BE SET FULLY INTO CLEAN SAND. DESIGN ENGINEER SHALL INSPECT THE SOILS AROUND AND BELOW THE LEACHING FACILITY PRIOR TO FACILITY INSTALLATION.

1000 Gallon
Leach Pit

USE (6) LP-1000-H-20
AS MANUFACTURED BY SHOREY OR EQUAL
WITH 4' STONE AROUND

DRIVEWAY PAVEMENT SECTION (WITH CROWN):

NOT TO SCALE

PAVEMENT NOTE:
IN AREAS OF THE CENTER COURT AND BUILDING #21, THE PAVEMENT IS NOT CROWNED BUT SUPER-ELEVATED SO AS TO PUSH THE WATER TOWARDS THE RECEIVING CATCH BASINS.

0 30 60 90
SCALE 1"=30'

G:\AAJobs\Malone- Cloverleaf Utility Plan- 40B- SDS & Drainage- REVISED 9-16-2020.dwg

SHEET 5 OF 6
PERMIT SET- NOT FOR CONSTRUCTION

REVISED 9-16-2020: ADJUSTED GRADING AND DRAINAGE SO AS TO ADDRESS PEER REVIEW COMMENTS.

REVISED 7-28-2020: ADJUSTED SEWAGE SYSTEM AND DRAINAGE FACILITIES AS REQUESTED THROUGH THE PEER REVIEW. MODIFIED SWALE AND DRAIANGE FACILITIES; MODIFIED NOTES ON SHEETS 3 TO 5, ACCORDINGLY.

REVISED 6-5-2020: UPDATED SEWAGE SYSTEM TREATMENT TO INCLUDE 10 PPM NITROGEN LIMIT; ADJUSTED SEWER MANHOLE LAYOUT; ADJUSTED DRAINAGE TO INCLUDE SWALES AND ADDITIONAL CONTRIBUTORY AREAS; UPDATED NOTES AND DETAILS ACCORDINGLY

REVISED 2-14-2020: UPDATED BUILDING LAYOUT, ADJUSTED ENTRANCE; UPDATED SEWAGE SYSTEM COLLECTION AND ADDED I.A. TREATMENT TECHNOLOGY; UPDATED WATER SERVICE LAYOUT AND DRAINAGE ACCORDINGLY

CLOVERLEAF TRURO RENTAL HOUSING

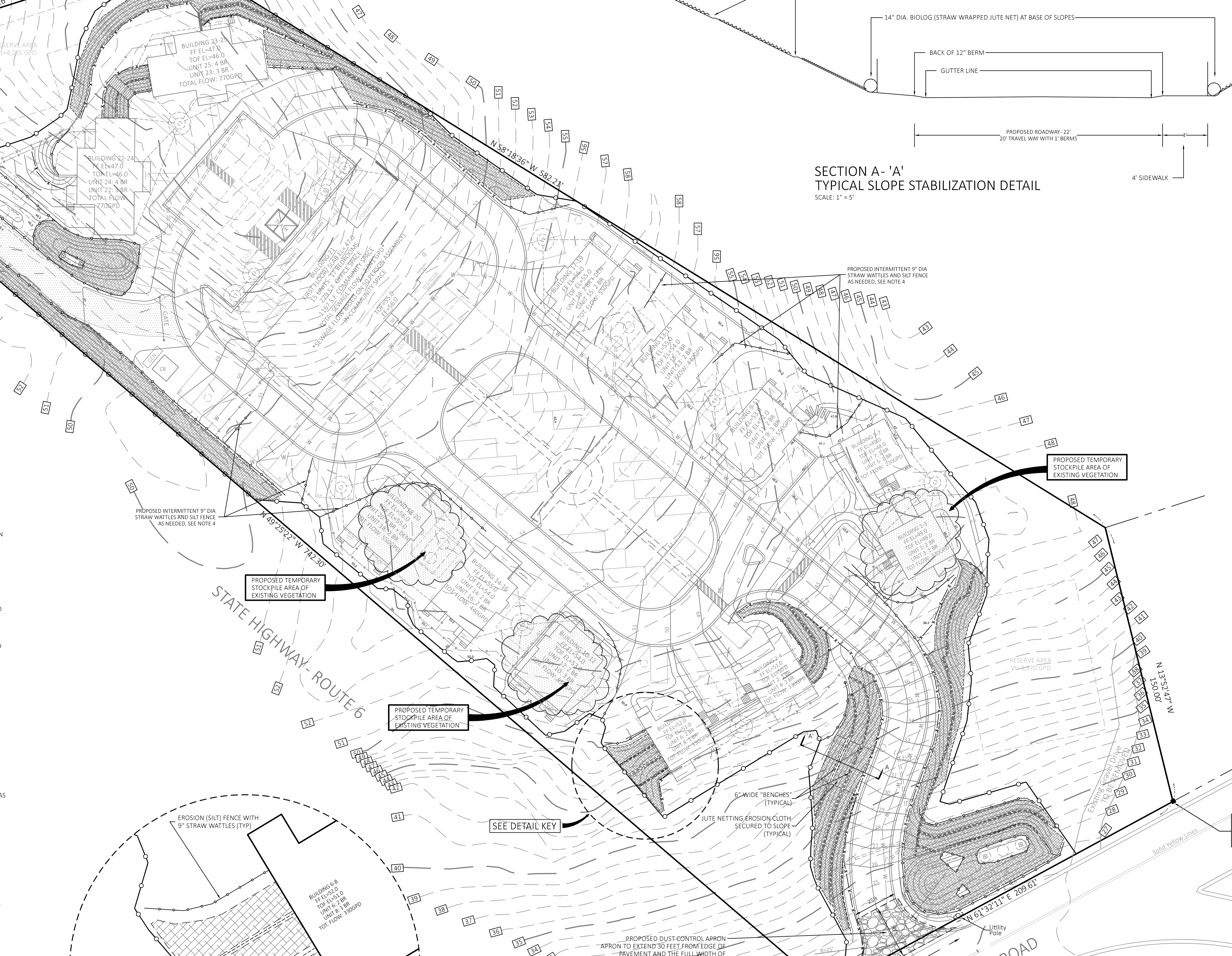
Community Housing Resource, Inc.; P.O. Box 1015, Provincetown, MA 02657

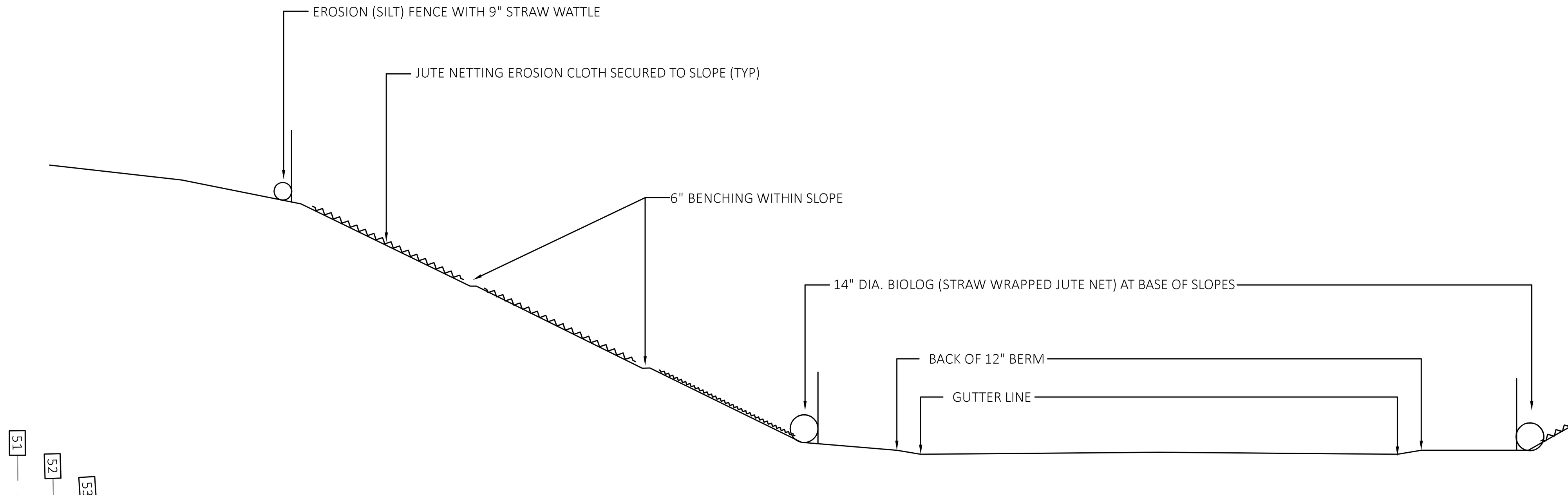
SITE DETAILS- 40B PERMIT SET

22 HIGHLAND ROAD, TRURO, MA

J.M. O'REILLY & ASSOCIATES, INC.
Professional Engineering & Land Surveying Services
1573 Main Street – Route 6A
P.O. Box 1773
(508)896-6601 Office Brewster, MA 02631 (508)896-6602 Fax

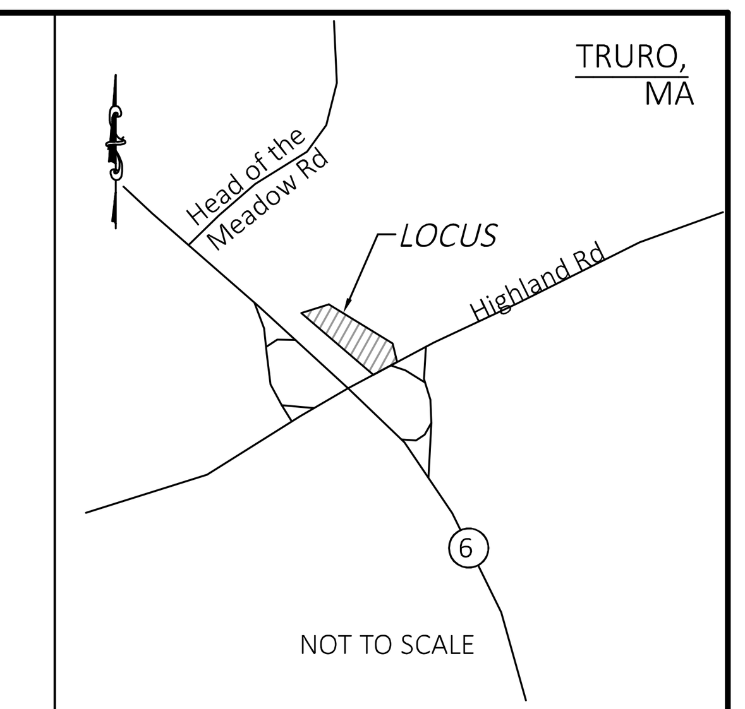
DATE:	SCALE:	BY:	CHECK:	JOB NUMBER:
11-1-2019	As Noted	RFR	JMO	JMO-8446A





SECTION A- 'A'
TYPICAL SLOPE STABILIZATION DETAIL
SCALE: 1" = 5'

MASS COORD. SYSTEM (NAD83)



PLAN BOOK 672	PAGE 34
ASSESSORS' MAP 36	PARCEL 238

LEGEND

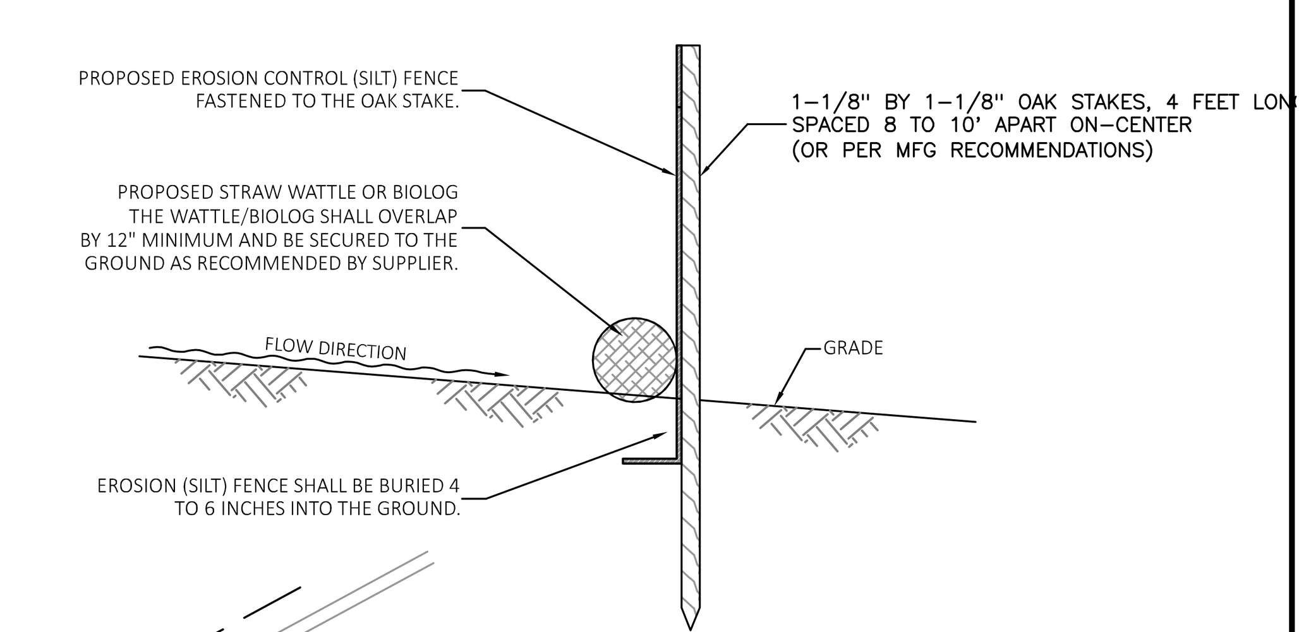
Symbol	Description
32	EXISTING CONTOUR
32	PROPOSED CONTOUR
×12.34	EXISTING SPOT GRADE
24x5	PROPOSED SPOT GRADE
—W—	WATER SERVICE LINE
—E—	UNDERGROUND UTILITY SERVICE
—G—	GAS SERVICE LINE
TP	TEST HOLE / BORING LOCATION
ST	SEPTIC TANK
DB	DISTRIBUTION BOX
SAS	SOIL ABSORPTION SYSTEM
Reserve	RESERVED FOR FUTURE
	UTILITY POLE
	CATCH BASIN
	FIRE HYDRANT
W	WELL
D	DRAINAGE MANHOLE
■	CONCRETE BOUND, FOUND
	TOP OF BANK

EROSION CONTROL KEY

Symbol	Description
—o—o—o—	LIMIT OF WORK TURTLE FENCE
—·—·—·—	EROSION (SILT) FENCE & 9" STRAW WATTLE
—x—x—x—	EROSION (SILT) FENCE & 14" DIA BIOLOG
- - - - -	6" WIDE "BENCHES" FOR BREAK IN SLOPE
(hatched)	EROSION CONTROL BLANKETS

SILT FENCE/EROSION CONTROL DETAIL:

TYPICAL SECTION



EROSION CONTROL NOTES:

TURTLE FENCE:

1.) IN ACCORDANCE WITH THE TURTLE PROTECTION PLAN, AS APPROVED BY THE NATURAL HERITAGE ENDANGERED SPECIES PROGRAM, THE TURTLE FENCE SHALL BE INSTALLED, AS SPECIFIED, PRIOR TO ANY ALTERATION OF THE PROJECT SITE. THE REQUIREMENTS OF THE APPROVED TURTLE PROTECTION PLAN SHALL BE FULLY EXECUTED AND FOLLOWED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

CONSTRUCTION STEPS:

2.) SITE CONTROL DURING CONSTRUCTION: THE CONTRACTOR SHALL FOLLOW THE PROTOCOLS IDENTIFIED IN THE EROSION CONTROL PRACTICES OF SAFE HARBOR AND THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP).

3.) UPON THE COMPLETION OF TASK #1, THE FOLLOWING IS A SUGGESTED CLEARING & ROUGH GRADING PROTOCOL:

A.) A 14 TO 16 FOOT ACCESS ROADWAY FROM ROUTE 6, SHALL BE CLEARED AND GRADED SO AS TO PROVIDE THE NECESSARY CONSTRUCTION ACCESS INTO THE SITE FROM HIGHLAND.

B.) A 25 FOOT APRON SHALL BE CONSTRUCTED ADJACENT TO THE PAVEMENT OF ROUTE 6 AND, WHEN APPLICABLE, AT THE ENTRANCE TO HIGHLAND ROAD FOR DUST AND SILT CONTROL.

C.) A CONSTRUCTION FENCE WITH GATE SHALL BE ERECTED AFTER THE GRAVEL APRON IS CONSTRUCTED SO AS TO MINIMIZE SITE ACCESS TO PERIOD OF CONSTRUCTION ACTIVITIES.

D.) A ROW OF 9" DIA STRAW WATTLES WITH SILT FENCE SHALL BE INSTALLED ALONG THE EDGES OF THE CONSTRUCTION ACCESS DRIVE.

4.) ONCE THE CONSTRUCTION ACCESS DRIVE IS ESTABLISHED: THE SITE CAN BE CLEARED OF VEGETATION AND THE SITE ROUGH GRADED. THE CONTRACTOR SHALL COORDINATE THE STOCKPILING OF THE TOPSOIL AND GROUND COVER FOR USE IN THE STABILIZATION OF THE SLOPES. THE FOLLOWING SHALL BE AN OUTLINE OF THE EROSION CONTROLS PROPOSED:

A.) THE PROPOSED SLOPES OF THE CUTS AND FILLS OF THE SITE SHALL BE ESTABLISHED.

B.) AS THE SLOPES ARE ESTABLISHED THE CONTRACTOR SHALL INSTALL THE EROSION CONTROL.
- ALONG THE BOTTOM OF SLOPE A 14" DIA. BIOLOG WITH SILT FENCE.
- ALONG THE TOP OF THE SLOPES A 9" STRAW WATTLE WITH SILT FENCE.
- "BENCHES" SHALL BE INSTALLED AS SHOWN AND AS NEEDED.
- SLOPES TO BE COVERED WITH THE MATERIAL STOCKPILED DURING CLEARING.
- SLOPE SHALL BE COVERED WITH JUTE NETTING EROSION CLOTH AND SECURED PER MFG SPEC.
- SLOPES SHALL BE IRRIGATED SO AS TO PROMOTE STABILITY OF THE SLOPES.

C.) THE PROJECT AREA TO THE SOUTH OF UNITS 1-3, 2-4 & 6-8, SHALL BE COMPLETED IN ONE PHASE SO AS TO MINIMIZE SITE EROSION AND POSSIBLE WASHOUT. THE CONSTRUCTION OF THE SOUTHERN AREA SHOULD BE STARTED ONCE THE REMAINING PORTIONS OF THE SITE ARE ROUGH GRADED, STABILIZED AND IRRIGATION IS AVAILABLE.

D.) CONTRACTOR SHALL REFER TO THE DOCUMENTS PREPARED BY SAFE HARBOR FOR ADDITIONAL DETAILS AND PROTOCOLS.

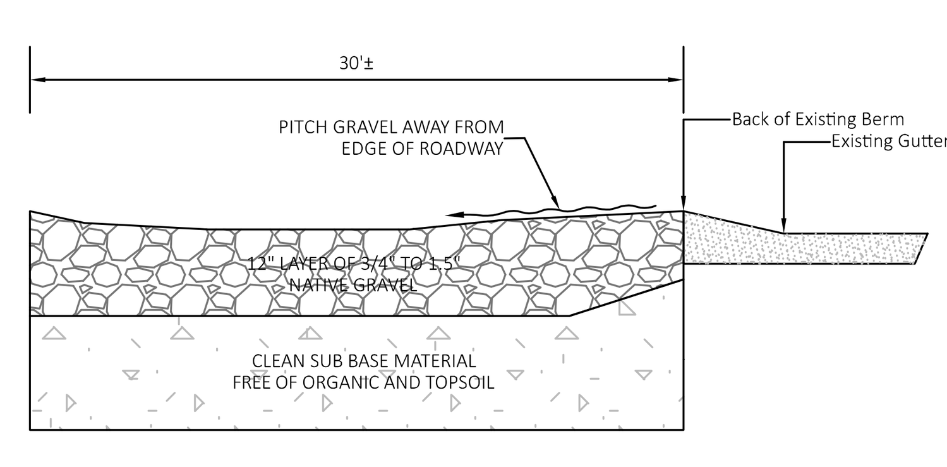
5.) ONCE ROUGH GRADE IS ESTABLISHED, THE CONTRACTOR SHALL INSTALL INTERMEDIATE EROSION CONTROLS, 9" DIA. STRAW WATTLE WITH SILT FENCE, PERPENDICULAR WITH THE SLOPE OF THE GROUND SO AS TO INTERRUPT THE SURFACE FLOW OF STORM WATER AND REDUCE POTENTIAL FOR WASHOUTS, PER SAFE HARBOR'S GUIDANCE DOCUMENTS.

6.) ONCE THE STOCKPILE AREAS ARE ESTABLISHED THE CONTRACTOR SHALL INSTALL A ROW OF EROSION CONTROLS, 9" DIA STRAW WATTLE WITH SILT FENCE, AROUND THE BASE OF THE PILE, ON THE DOWNWARD SLOPE SO AS TO MITIGATE EROSION AND POSSIBLE WASHOUT.

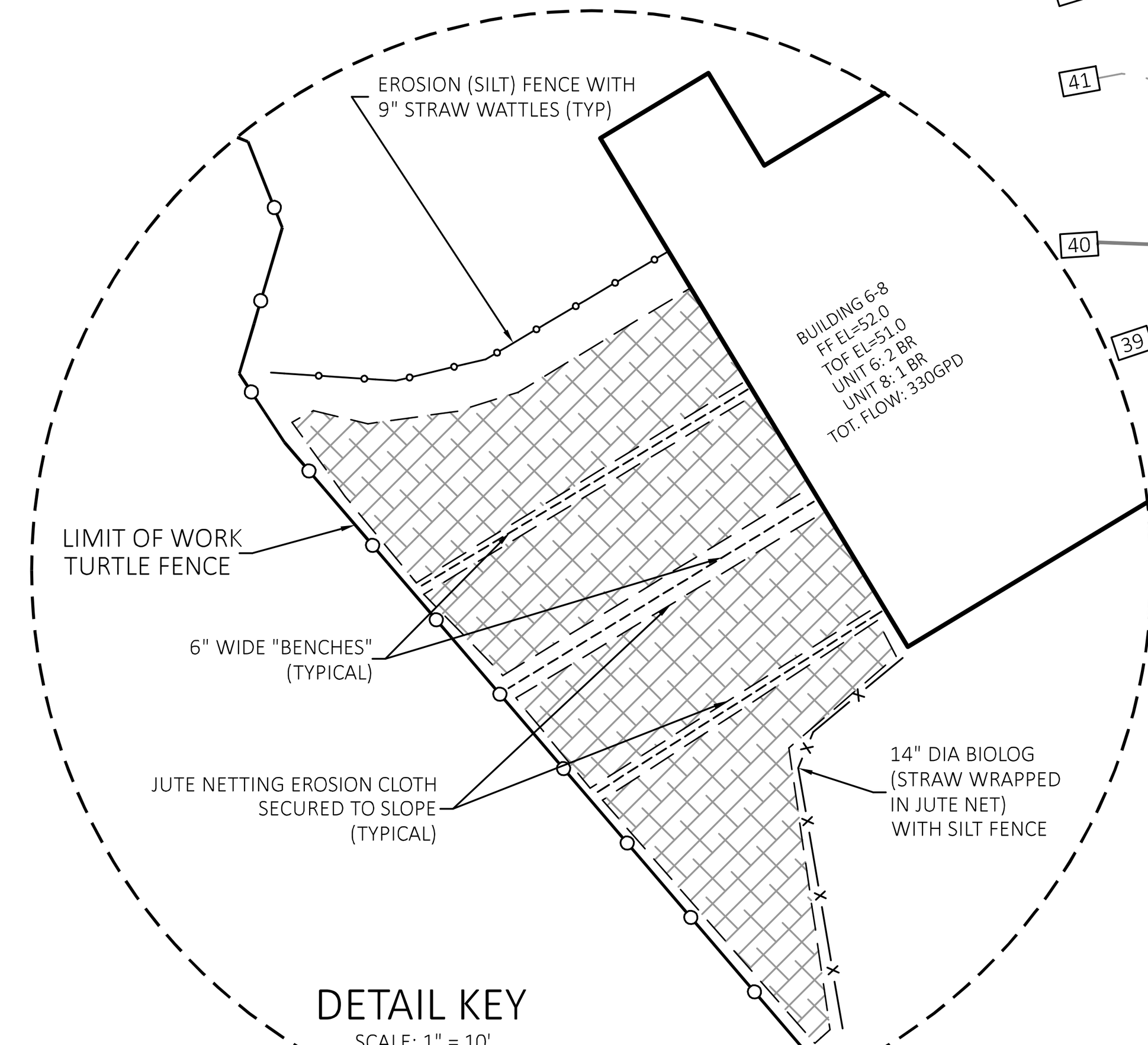
7.) THE EXISTING CATCH BASINS SHALL BE EQUIPPED WITH A SILT SOCK DURING CONSTRUCTION SO AS TO MITIGATE POTENTIAL SILTATION INTO THE EXISTING DRAINAGE SYSTEM.

8.) THE PROPOSED DRAINAGE FACILITIES, ONCE INSTALLED, SHALL BE EQUIPPED WITH SILT SOCKS SO AS TO PROTECT THE DRAINAGE FACILITIES DURING THE CONSTRUCTION PHASE. IN ADDITION TO THE SILT SOCK, THE CATCH BASINS SHALL BE SURROUNDED BY A ROW OF 9" DIA STRAW WATTLES AND SILT FENCE.

9.) SITE CONTRACTOR SHALL HAVE EXTRA EROSION CONTROLS ON THE SITE SO AS TO IMMEDIATELY CORRECT A BREAK THROUGH OF THE INSTALLED EROSION CONTROL ITEMS.



GRAVEL APRON DETAIL
NOT TO SCALE



DETAIL KEY
SCALE: 1" = 10'

0 30 60 90
SCALE 1"=30'

SHEET 6 OF 6
PERMIT SET- NOT FOR CONSTRUCTION

REVISED 9-16-2020: ADJUSTED GRADING AND DRAINAGE SO AS TO ADDRESS PEER REVIEW COMMENTS.

CLOVERLEAF TRURO RENTAL HOUSING

Community Housing Resource, Inc.; P.O. Box 1015, Provincetown, MA 02657

EROSION CONTROL SITE PLAN

22 HIGHLAND ROAD, TRURO, MA

J.M. O'REILLY & ASSOCIATES, INC.
Professional Engineering & Land Surveying Services
1573 Main Street - Route 6A
P.O. Box 1773
(508)896-6601 Office Brewster, MA 02631 (508)896-6602 Fax

DATE:	SCALE:	BY:	CHECK:	JOB NUMBER:
7-28-2020	As Noted	JMO	JMO	JMO-8446A

G:\AAJobs\Malone- Cloverleaf- 40B- EROSION CONTROL PLAN- 9-16-2020dwg

CLOVERLEAF TRURO RENTAL HOUSING
BUILDINGS 1-3, 2-4, AND 6-8 (Buildings may be mirrored)

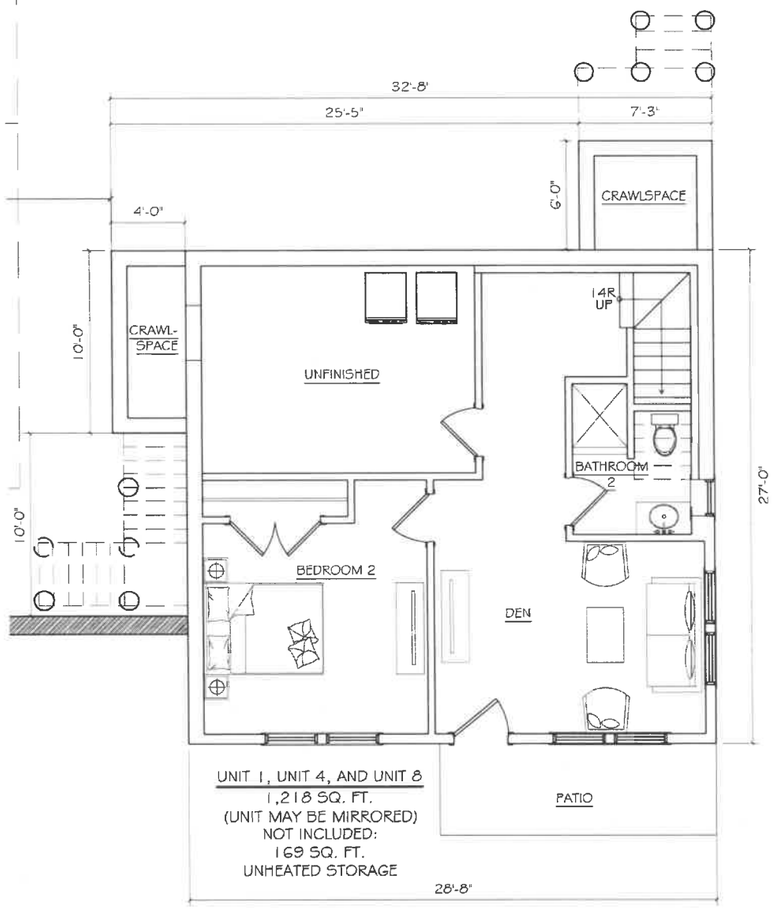
Truro, Massachusetts

Friday, September 4, 2020

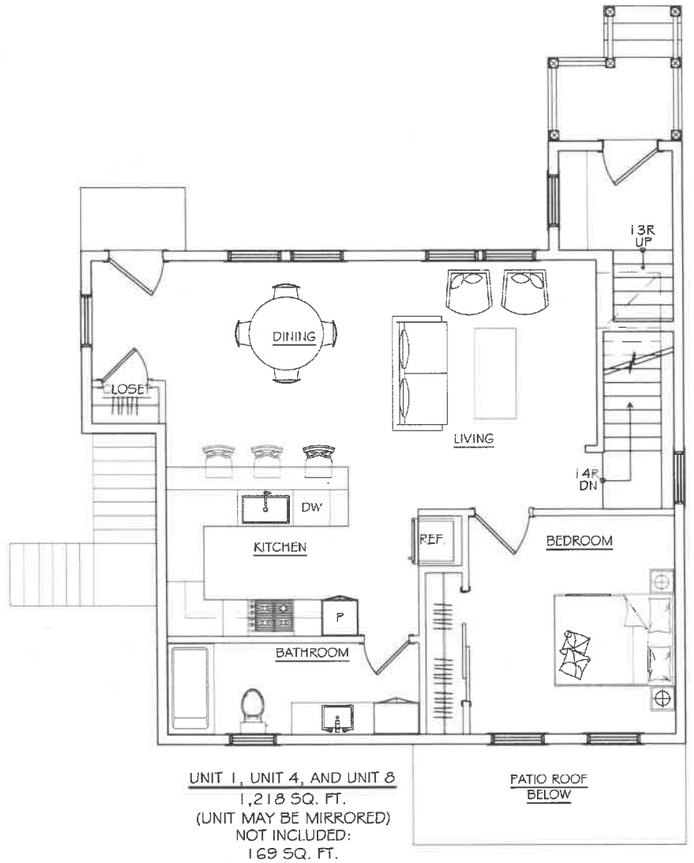
Spring Hill Design

INTERIORS ARCHITECTURE SPACE PLANNING

158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622



1 FIRST/GARDEN LEVEL PLAN UNIT 1, UNIT 4, AND UNIT 8
SCALE: 1/8" = 1'-0"



2 SECOND/MAIN ENTRY LEVEL PLAN UNIT 1, UNIT 4, AND UNIT 8
SCALE: 1/8" = 1'-0"

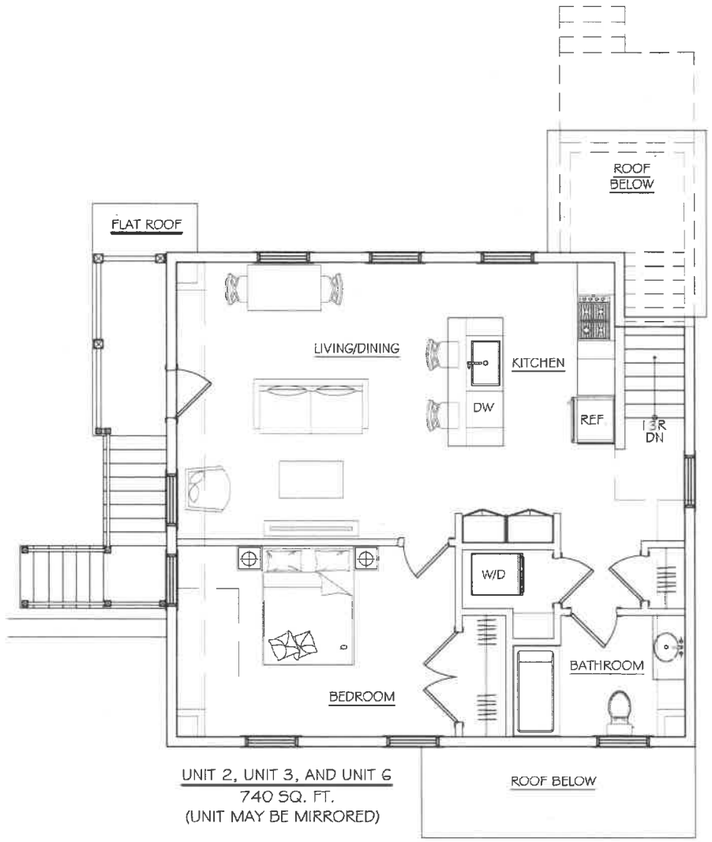
DATE:
09.04.20

UNIT 1, UNIT 4, AND UNIT 8 PLANS
CLOVERLEAF BUILDINGS 1-3, 2-4, AND 6-8
CLOVERLEAF TRURO RENTAL HOUSING

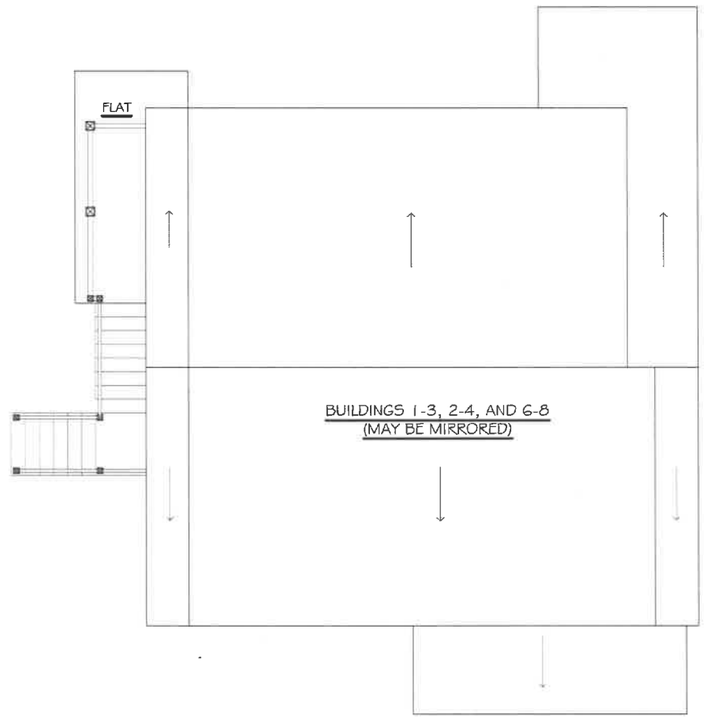
SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622

1/8" = 1'-0"

A1.1



1 THIRD LEVEL PLAN UNIT 2, UNIT 3, AND UNIT 6
SCALE: 1/8" = 1'-0"



2 BUILDINGS 1-3, 2-4, AND 6-8 ROOF PLAN
SCALE: 1/8" = 1'-0"

THIRD LEVEL AND ROOF PLANS

CLOVERLEAF BUILDINGS 1-3, 2-4, AND 6-8
CLOVERLEAF TRURO RENTAL HOUSING

DATE:
09.04.20

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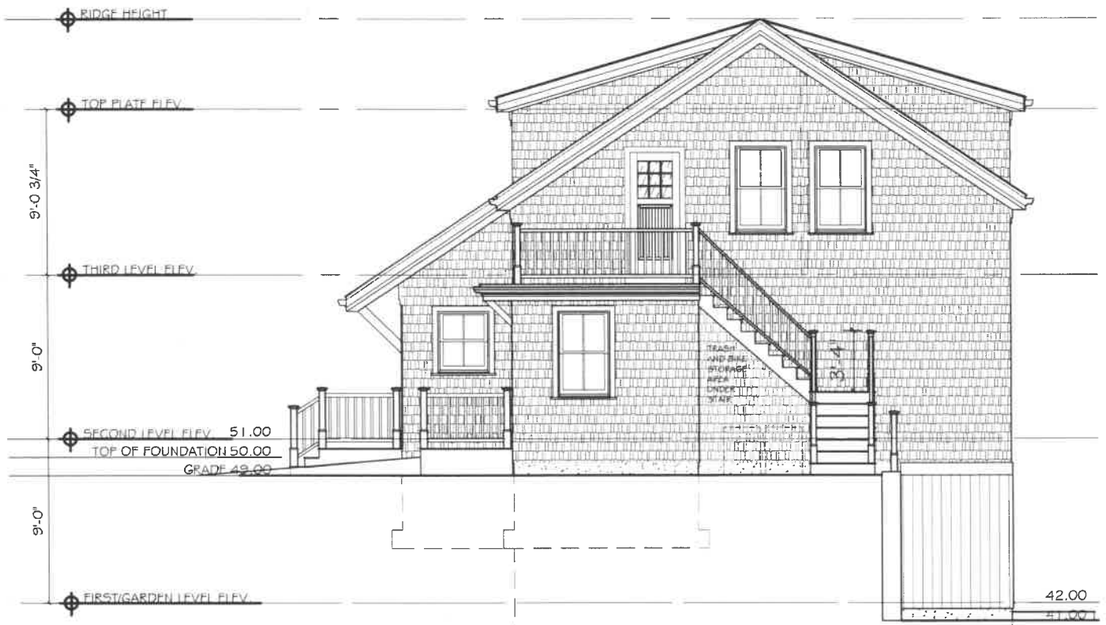
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 - 617.6702.4622

1/8" = 1'-0"

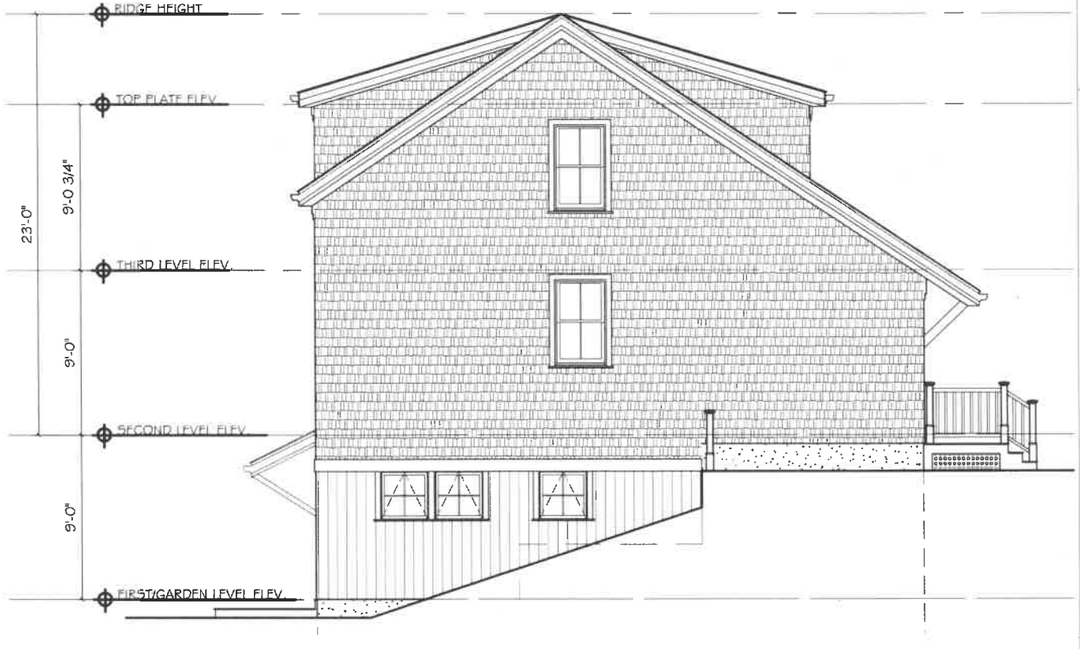
A1.2

1 FRONT ELEVATION
SCALE: 1/8" = 1'-0"



2 RIGHT SIDE ELEVATION
SCALE: 1/8" = 1'-0"

3 BACK ELEVATION
SCALE: 1/8" = 1'-0"



4 LEFT SIDE ELEVATION
SCALE: 1/8" = 1'-0"

DATE:
09.04.20

FRONT ELEVATION

CLOVERLEAF BUILDINGS 1-3, 2-4, AND 6-8
CLOVERLEAF TRURO RENTAL HOUSING

SPRING HILL DESIGN
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1/4" = 1'-0"

A2.1

CLOVERLEAF TRURO RENTAL HOUSING
BUILDING 5-7

Truro, Massachusetts

Friday, September 4, 2020

Spring Hill Design

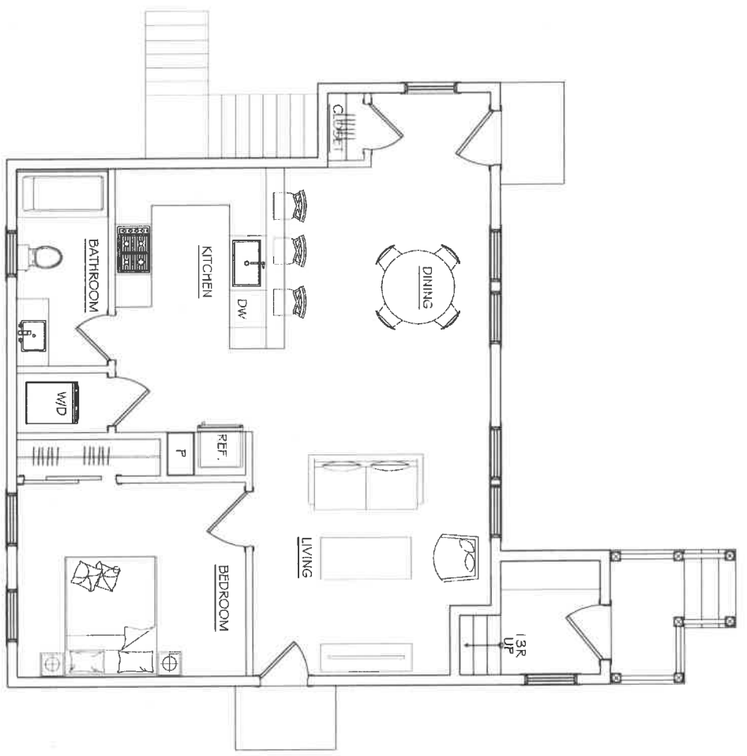
INTERIORS ARCHITECTURE SPACE PLANNING

158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622

1 UNIT 5 FLOOR PLAN
SCALE: 1/8" = 1'-0"

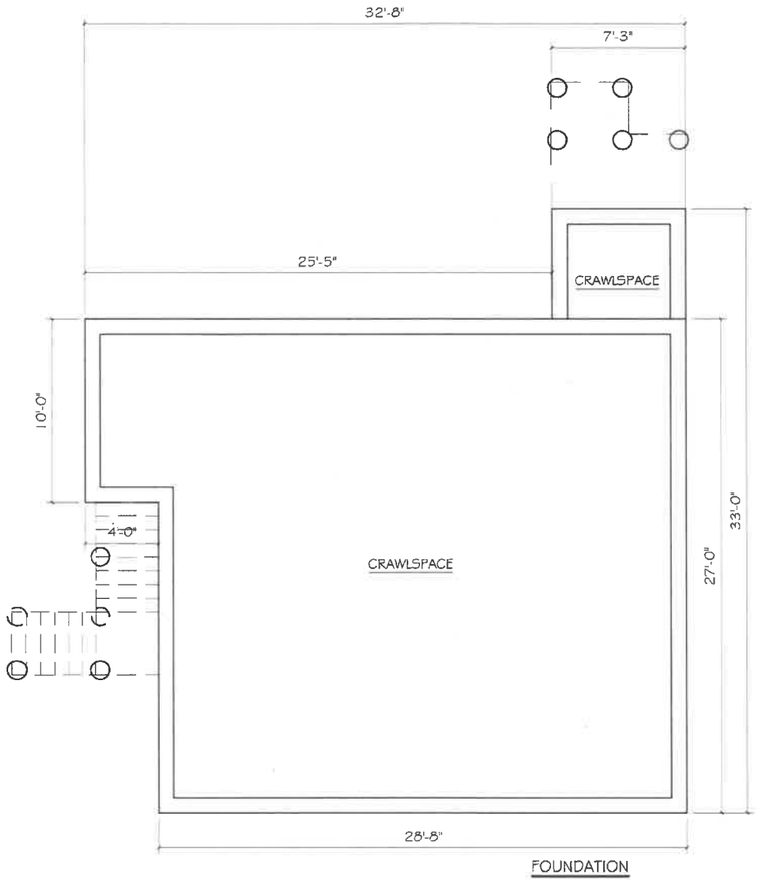
UNIT 5
752 SQ. FT.

2 UNIT 7 FLOOR PLAN
SCALE: 1/8" = 1'-0"

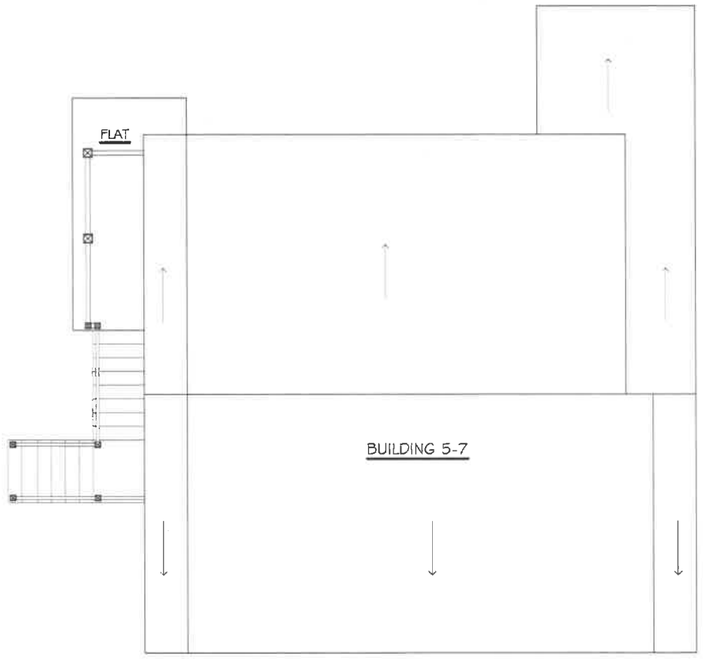


UNIT 7
742 SQ. FT.

A1.1	1/8" = 1'-0"	SPRING HILL DESIGN ARCHITECTURE INTERIORS SPACE PLANNING 158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622	UNITS 5 AND UNIT 7 FLOOR PLANS CLOVERLEAF BUILDING 5-7 CLOVERLEAF TRURO RENTAL HOUSING	DATE: 09.04.20



1 FOUNDATION PLAN
SCALE: 1/8" = 1'-0"



2 BUILDING 5-7 ROOF PLAN
SCALE: 1/8" = 1'-0"

FOUNDATION AND ROOF PLANS

CLOVERLEAF BUILDING 5-7

CLOVERLEAF TRURO RENTAL HOUSING

DATE:
09.04.20

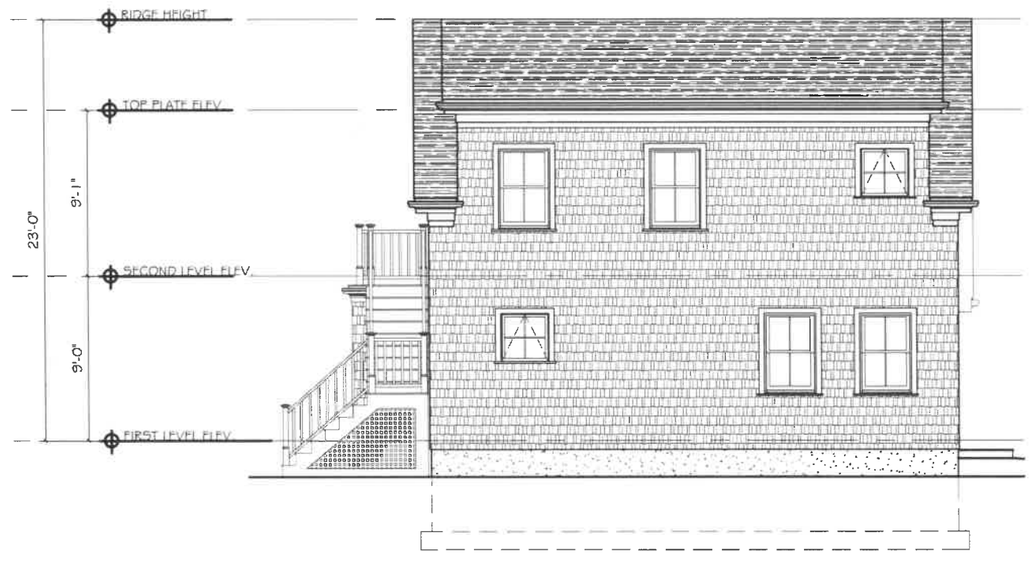
SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 617.6702.4622

1/8" = 1'-0"

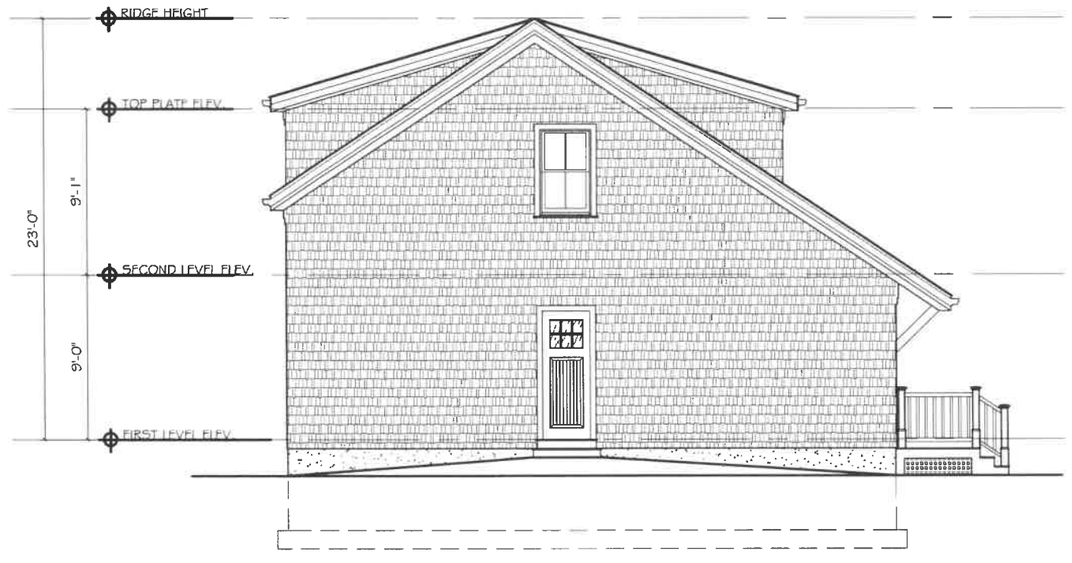
A1.2

1 FRONT ELEVATION
SCALE: 1/8" = 1'-0"

2 RIGHT SIDE ELEVATION
SCALE: 1/8" = 1'-0"



3 BACK ELEVATION
SCALE: 1/8" = 1'-0"



4 LEFT SIDE ELEVATION
SCALE: 1/8" = 1'-0"

DATE:
09.04.20

FRONT ELEVATION

CLOVERLEAF BUILDING 5-7
CLOVERLEAF TRURO RENTAL HOUSING

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ARCHITECTURE INTERIORS SPACE PLANNING
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1/8" = 1'-0"

A2.1

CLOVERLEAF TRURO RENTAL HOUSING
BUILDINGS 9-11, 10-12, 17-19, AND 18-20

Truro, Massachusetts

Friday, September 4, 2020

Spring Hill Design

INTERIORS ARCHITECTURE SPACE PLANNING

158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622

1 BASEMENT PLAN
SCALE: 1/8" = 1'-0"

2 FIRST LEVEL PLAN
SCALE: 1/8" = 1'-0"

3 SECOND LEVEL PLAN
SCALE: 1/8" = 1'-0"

2 ROOF PLAN
SCALE: 1/8" = 1'-0"

DATE:
09.04.20

FLOOR PLANS

CLOVERLEAF BUILDINGS 9-11, 10-12, 17-19, AND 18-20
CLOVERLEAF TRURO RENTAL HOUSING

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
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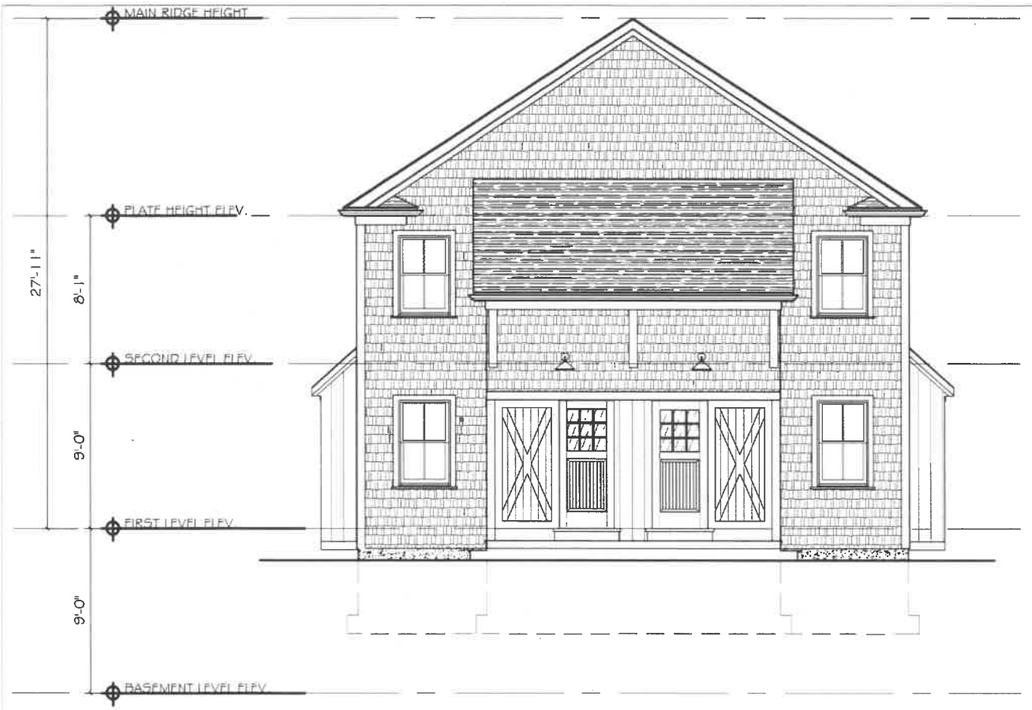
1/8" = 1'-0"

A1.0



1 FRONT ELEVATION
SCALE: 1/8" = 1'-0"

2 SIDE ELEVATION 1 (SIDE MAY BE MIRRORED DEPENDING ON THE BUILDING)
SCALE: 1/8" = 1'-0"

3 BACK ELEVATION
SCALE: 1/8" = 1'-0"

4 SIDE ELEVATION 2 (SIDE MAY BE MIRRORED DEPENDING ON THE BUILDING)
SCALE: 1/8" = 1'-0"

DATE:
09.04.20

ELEVATIONS

CLOVERLEAF BUILDINGS 9-11, 10-12, 17-19, AND 18-20
CLOVERLEAF TRURO RENTAL HOUSING

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622

1/8" = 1'-0"

A2.1

CLOVERLEAF TRURO RENTAL HOUSING
BUILDINGS 13-15 AND 14-16

Truro, Massachusetts

Friday, September 4, 2020

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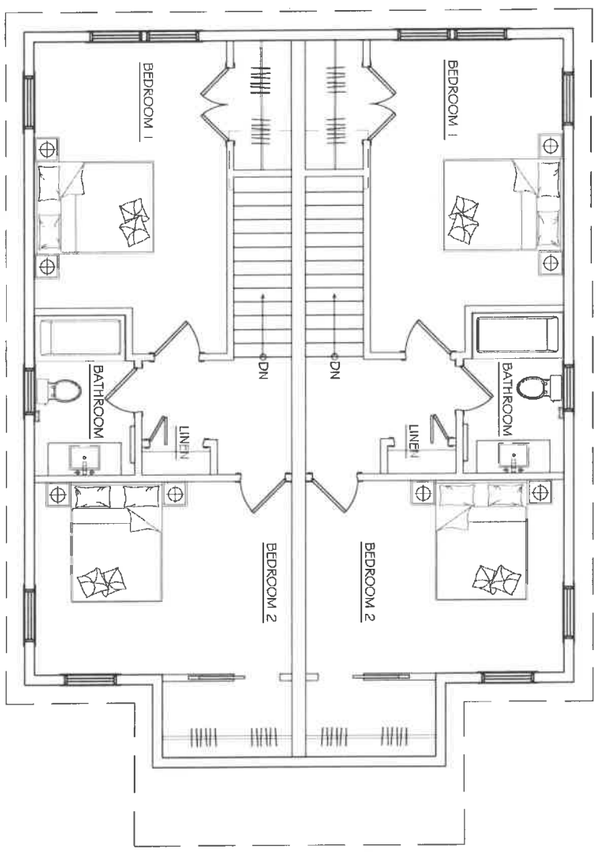
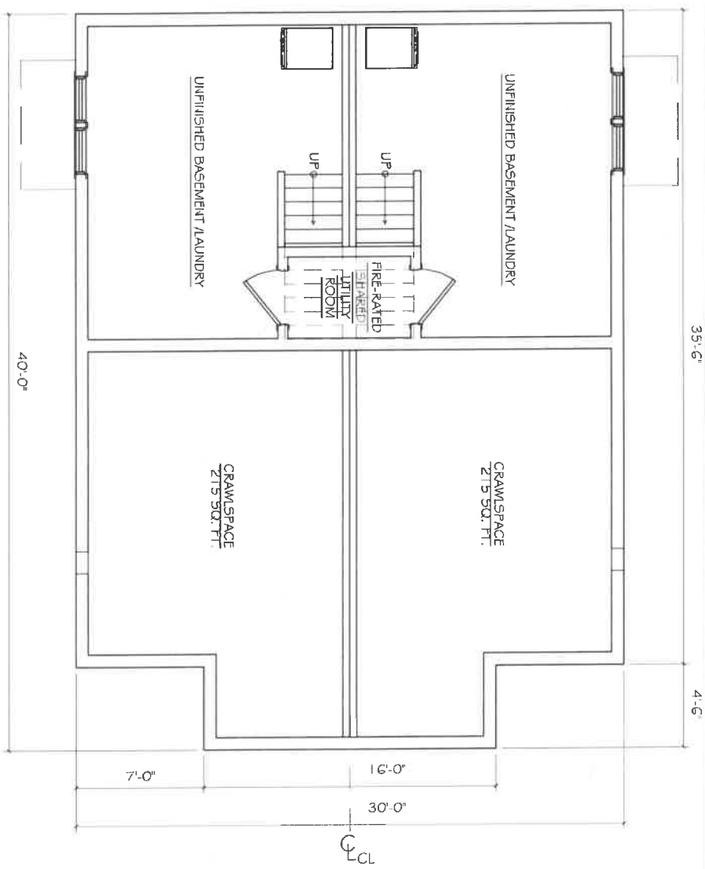
INTERIORS ARCHITECTURE SPACE PLANNING

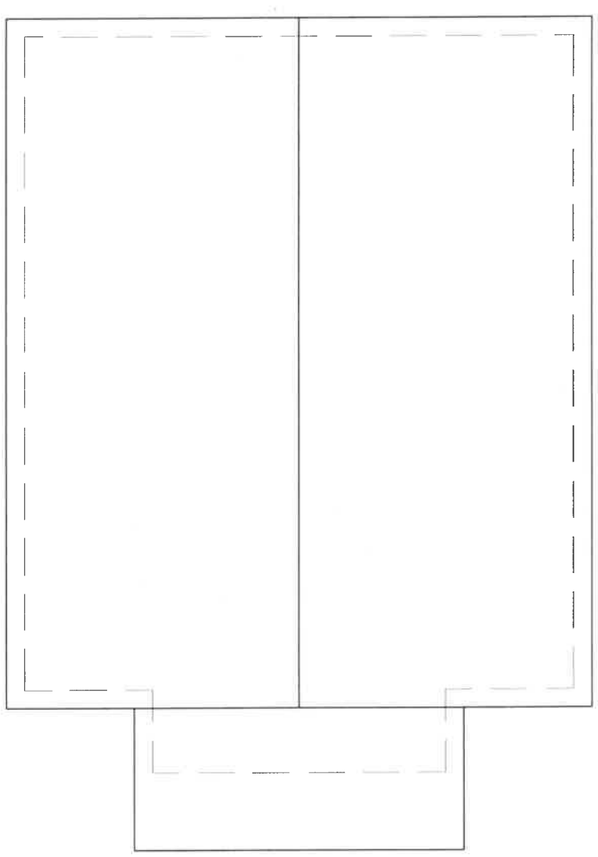
158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622



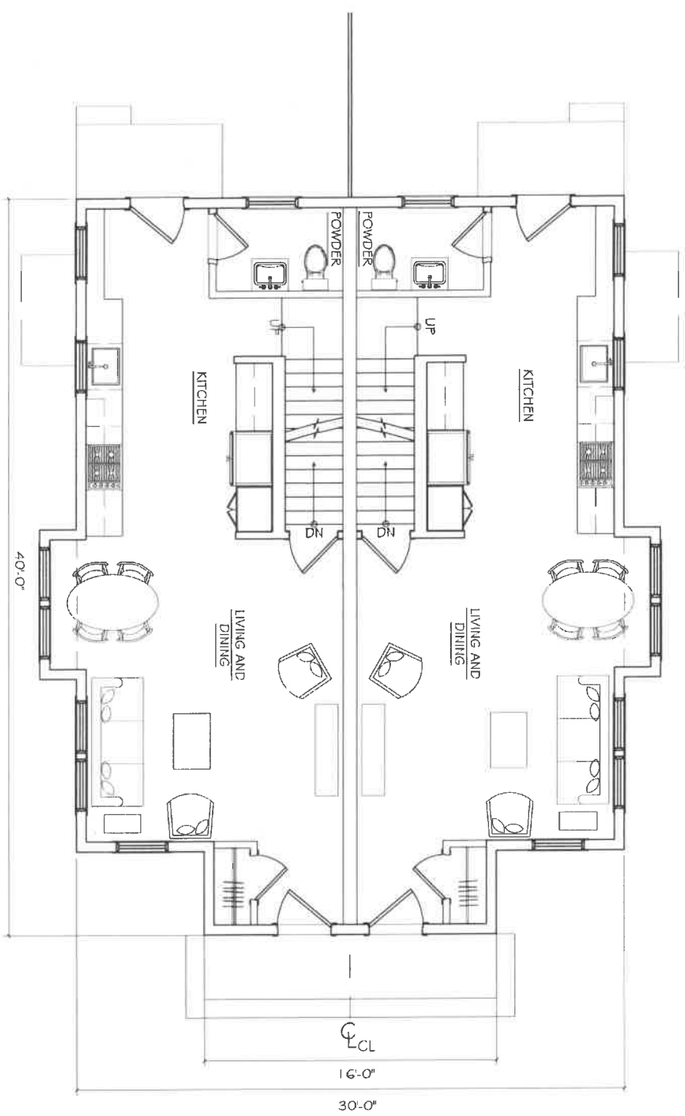
3 SECOND LEVEL PLAN
SCALE: 1/8" = 1'-0"



1 BASEMENT PLAN
SCALE: 1/8" = 1'-0"



2 ROOF PLAN
SCALE: 1/8" = 1'-0"



2 FIRST LEVEL PLAN
SCALE: 1/8" = 1'-0"

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622

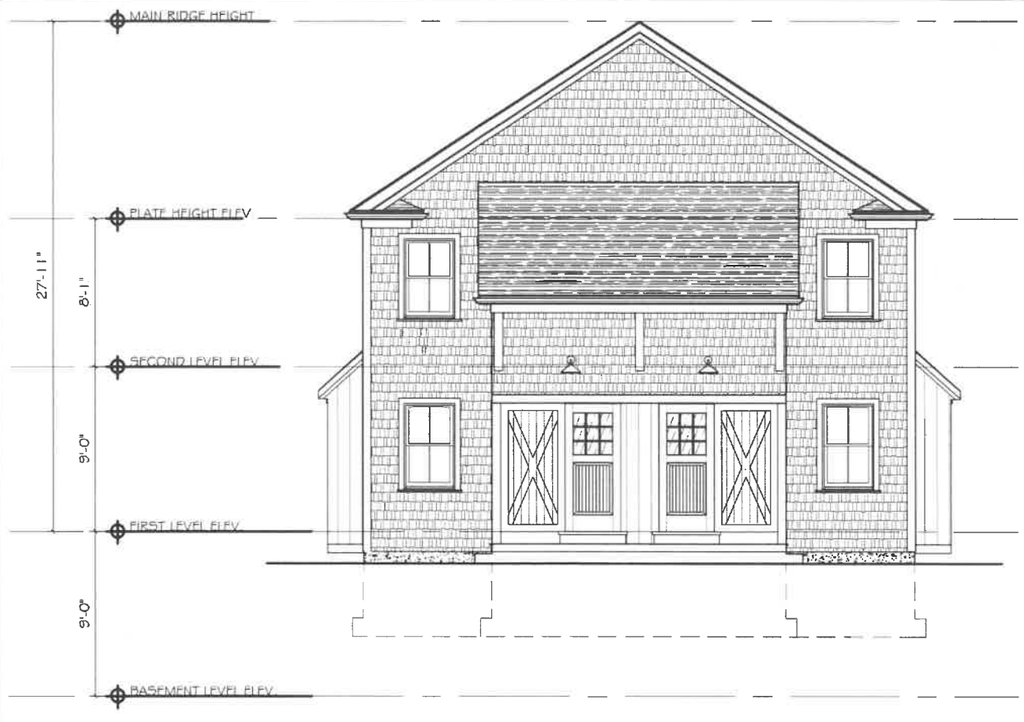
FLOOR PLANS

CLOVERLEAF BUILDINGS 13-15 AND 14-16
CLOVERLEAF TRURO RENTAL HOUSING

DATE:
09.04.20

1/8" = 1'-0"

A1.0



1 FRONT ELEVATION
SCALE: 1/8" = 1'-0"

2 SIDE ELEVATION 1 (SIDE MAY BE MIRRORED DEPENDING ON THE BUILDING)
SCALE: 1/8" = 1'-0"

3 BACK ELEVATION
SCALE: 1/8" = 1'-0"

4 SIDE ELEVATION 2 (SIDE MAY BE MIRRORED DEPENDING ON THE BUILDING)
SCALE: 1/8" = 1'-0"

DATE:
09.04.20

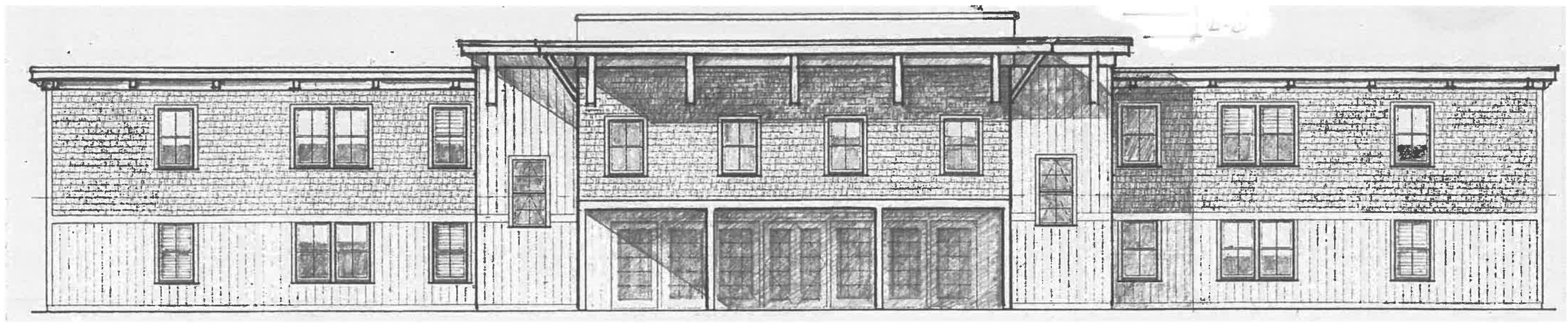
ELEVATIONS

CLOVERLEAF BUILDINGS 13-15 AND 14-16
CLOVERLEAF TRURO RENTAL HOUSING

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 617.6702.4622

1/8" = 1'-0"

A2.1



CLOVERLEAF TRURO RENTAL HOUSING
BUILDING 21

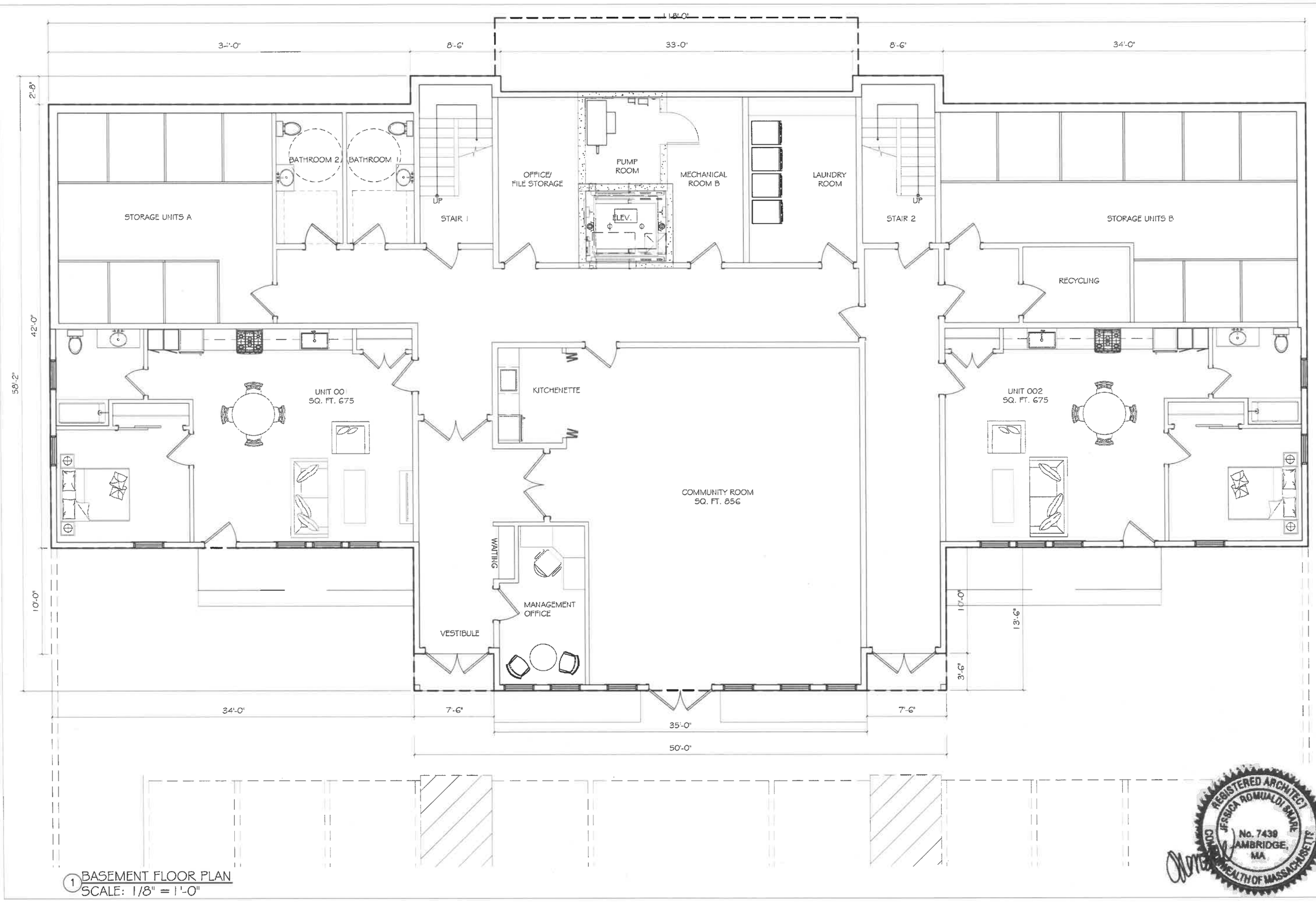
Truro, Massachusetts

Thursday, September 17, 2020

Spring Hill Design

INTERIORS ARCHITECTURE SPACE PLANNING

21 Dartmouth Street, Somerville, MA, 02145 ~ 617.623.1833



1 BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

REGISTERED ARCHITECT
JESSICA ROMUALDI SHARE
No. 7439
CAMBRIDGE, MA
COMMONWEALTH OF MASSACHUSETTS

DATE:
09.17.20

BASEMENT FLOOR PLAN

CLOVERLEAF BUILDING 21
CLOVERLEAF TRURO RENTAL HOUSING

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
21 Dartmouth Street, Somerville, Massachusetts 02145 ~ 617.623.1833

1/8" = 1'-0"

A1.0

ENTRY PORT

34'-0" | 8'-6" | 33'-0" | 8'-6"

2'-8"

42'-0"

58'-2"

13'-6"

34'-0" | 50'-0"

UNIT 101
SQ. FT. 639

UNIT 102
SQ. FT. 603

UNIT 103
SQ. FT. 861

UNIT 104
SQ. FT. 861

UNIT 105
SQ. FT. 603

UNIT 106
SQ. FT. 639

LOBBY

UP DN
STAIR 1

ELEV.

LAUNDRY

DN UP
STAIR 2

1 FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

REGISTERED ARCHITECT
JESSICA ROMUALDI SWARE
No. 7430
CAMBRIDGE, MA
COMMONWEALTH OF MASSACHUSETTS

DATE:
09.17.20

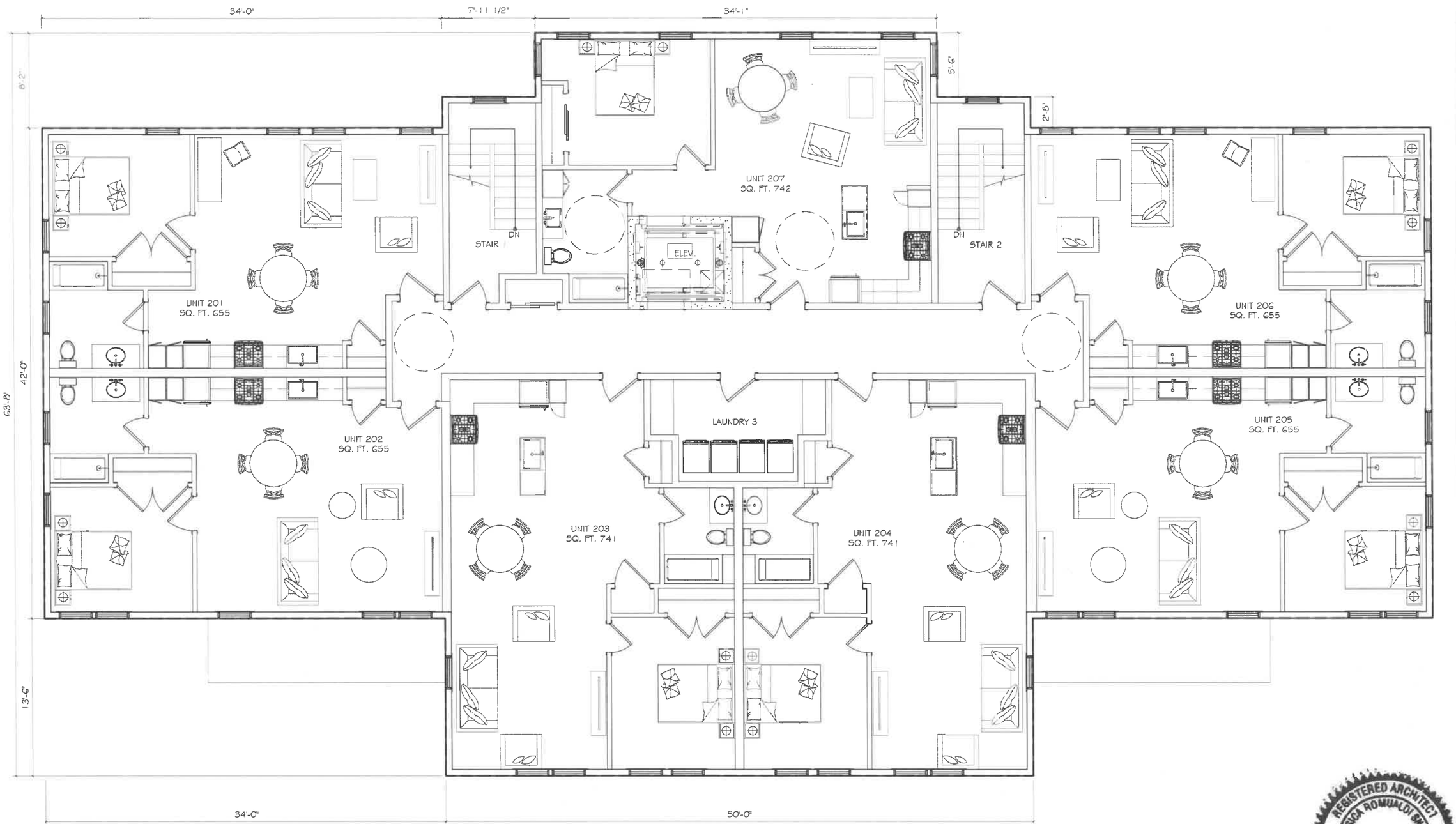
FIRST FLOOR PLAN

CLOVERLEAF BUILDING 21
CLOVERLEAF TRURO RENTAL HOUSING

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
21 Dartmouth Street, Somerville, Massachusetts 02145 ~ 617.623.1833

1/8" = 1'-0"

A1.1



1 SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"

REGISTERED ARCHITECT
JESSICA ROMUALDI SMART
No. 7430
CAMBRIDGE, MA
COMMONWEALTH OF MASSACHUSETTS

DATE:
09.17.20

SECOND FLOOR PLAN

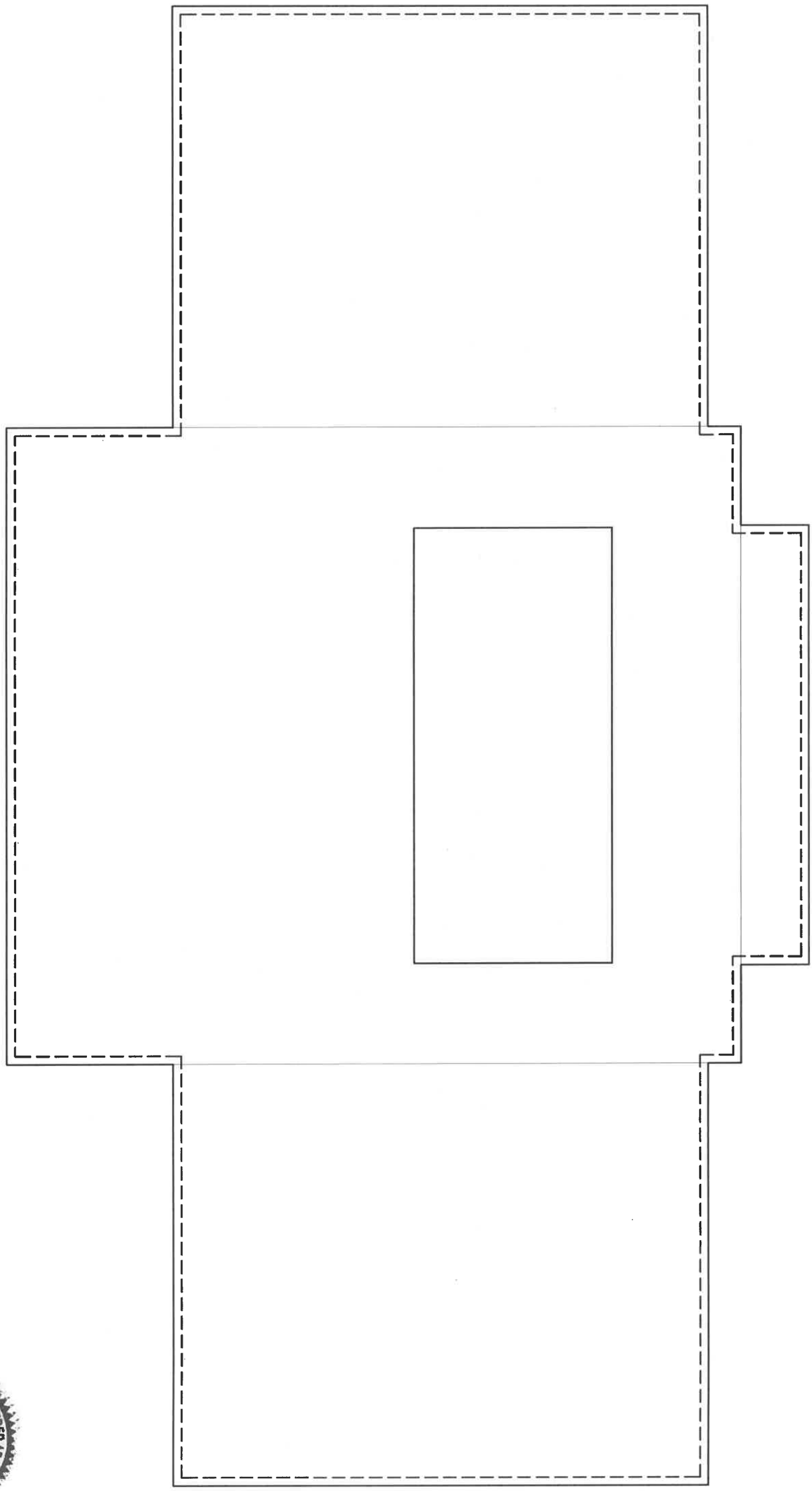
CLOVERLEAF BUILDING 21
CLOVERLEAF TRURO RENTAL HOUSING

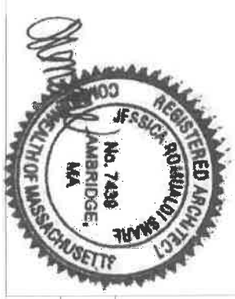
SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
21 Dartmouth Street, Somerville, Massachusetts 02145 ~ 617.623.1833

1/8" = 1'-0"

A1.2

1 ROOF PLAN
SCALE: 1/8" = 1'-0"





A1.3

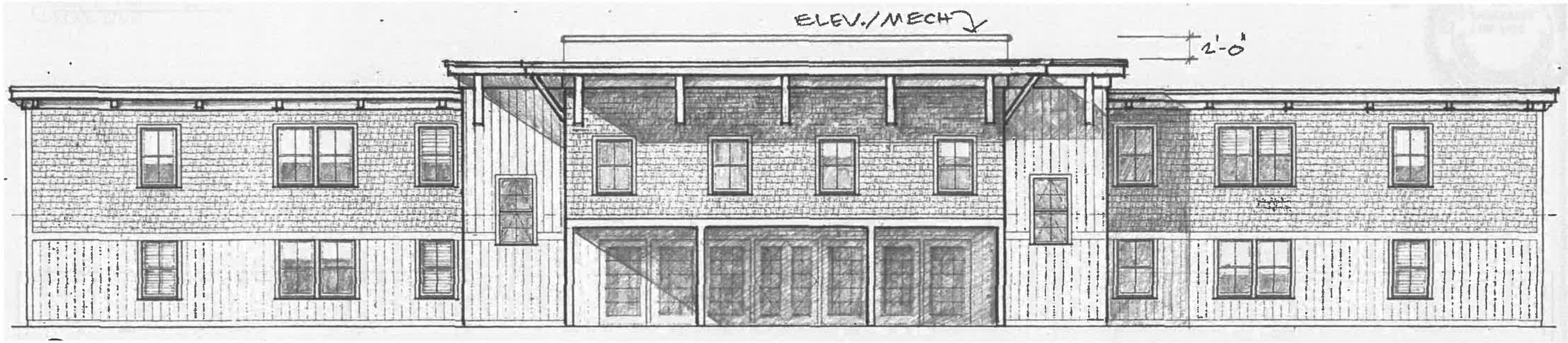
1/8" = 1'-0"

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
21 Dartmouth Street, Somerville ,Massachusetts 02145 ~ 617.623.1833

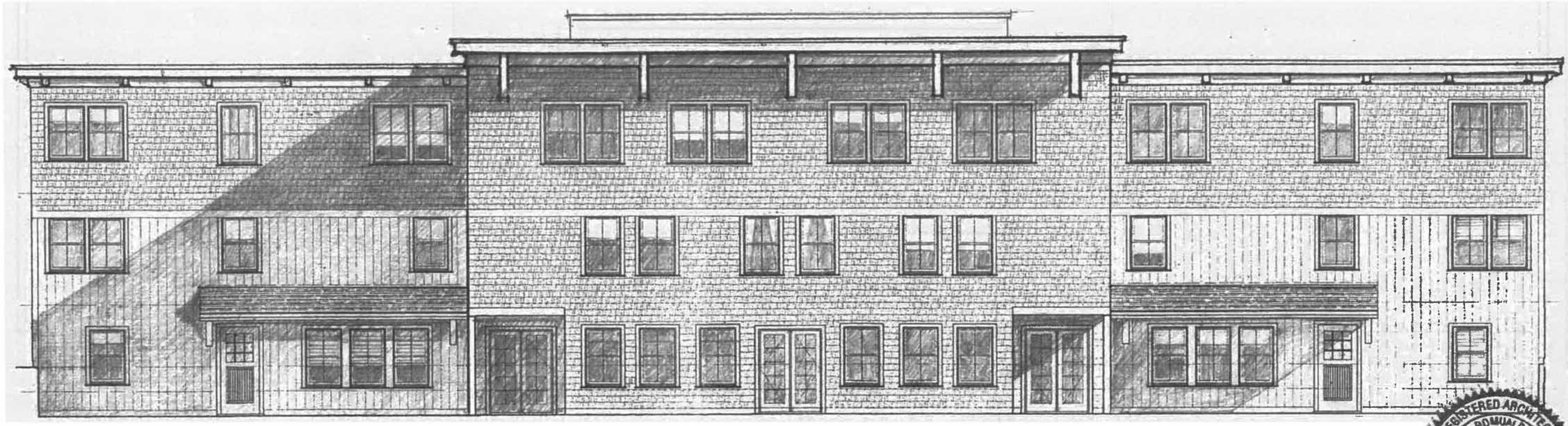
ROOF PLAN

CLOVERLEAF BUILDING 21
CLOVERLEAF TRURO RENTAL HOUSING

DATE:
09.17.20



1 FRONT ELEVATION
SCALE: 1/8" = 1'-0"



2 BACK ELEVATION
SCALE: 1/8" = 1'-0"

REGISTERED ARCHITECT
JESSICA ROMUALDI SHARE
No. 7439
CAMBRIDGE, MA
COMMONWEALTH OF MASSACHUSETTS

DATE:
09.17.20

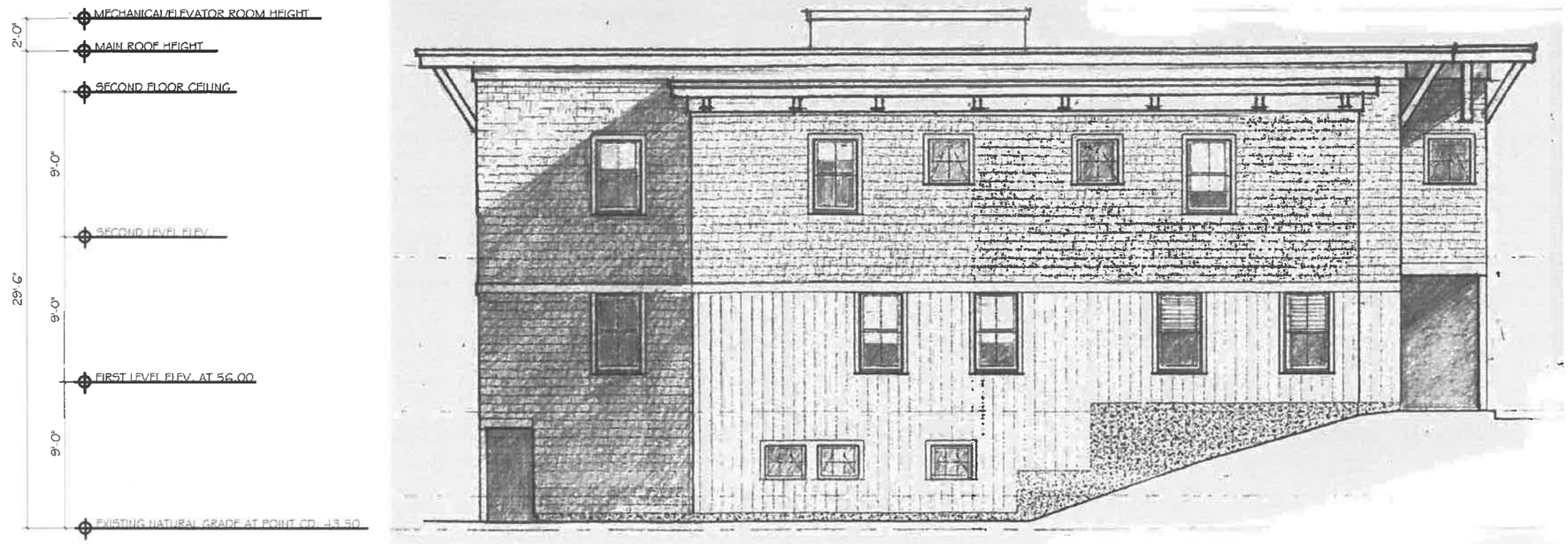
FRONT AND BACK ELEVATIONS

CLOVERLEAF BUILDING 21
CLOVERLEAF TRURO RENTAL HOUSING

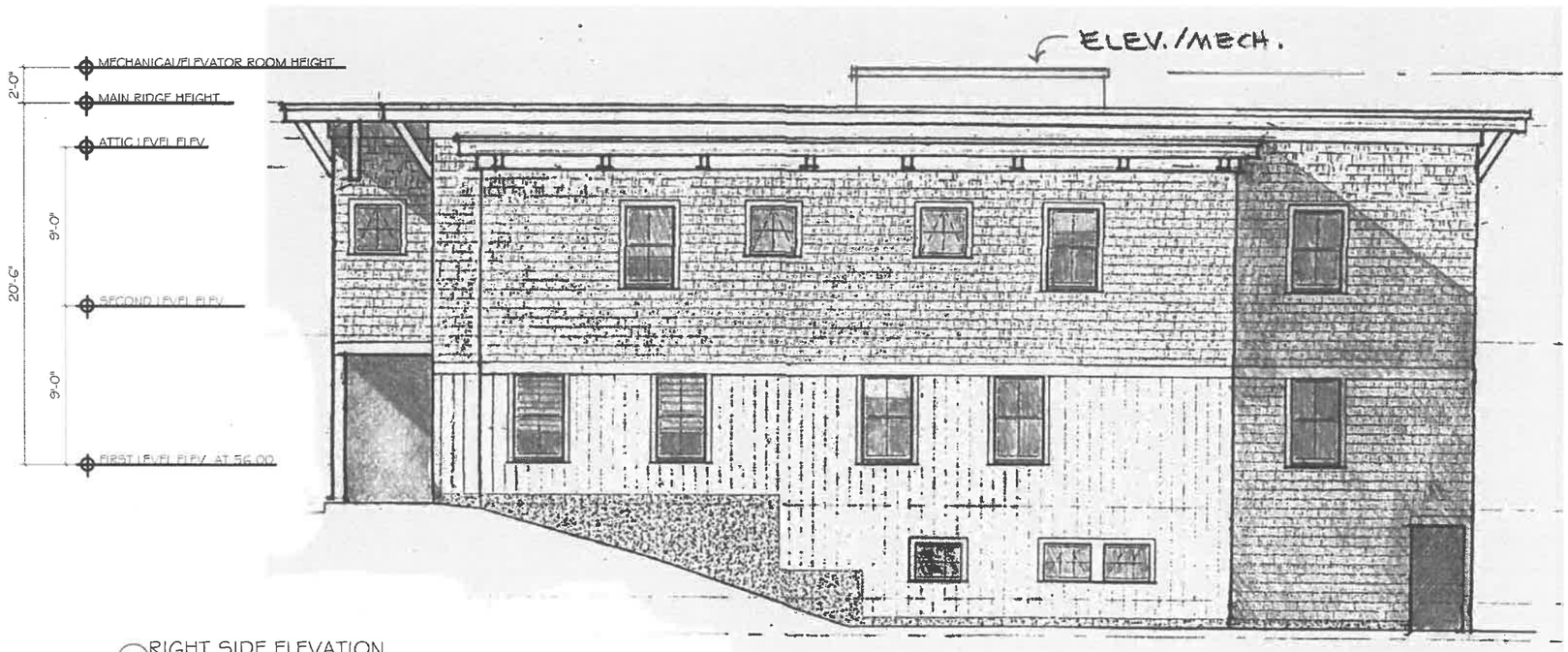
SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
21 Dartmouth Street, Somerville, Massachusetts 02145 ~ 617.623.1833

1/8" = 1'-0"

A2.1



1 LEFT SIDE ELEVATION
SCALE: 1/8" = 1'-0"



2 RIGHT SIDE ELEVATION
SCALE: 1/8" = 1'-0"

LEFT AND RIGHT SIDE ELEVATIONS

CLOVERLEAF BUILDING 21
CLOVERLEAF TRURO RENTAL HOUSING

DATE: 09.17.20

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
21 Dartmouth Street, Somerville, Massachusetts 02145 ~ 617.623.1833

REGISTERED ARCHITECT
JESSICA ROMUALDI SHARE
No. 7439
CAMBRIDGE, MA
COMMONWEALTH OF MASSACHUSETTS

1/8" = 1'-0"

A2.2

CLOVERLEAF TRURO RENTAL HOUSING
BUILDING 22-24 AND 23-25(MIRRORED)

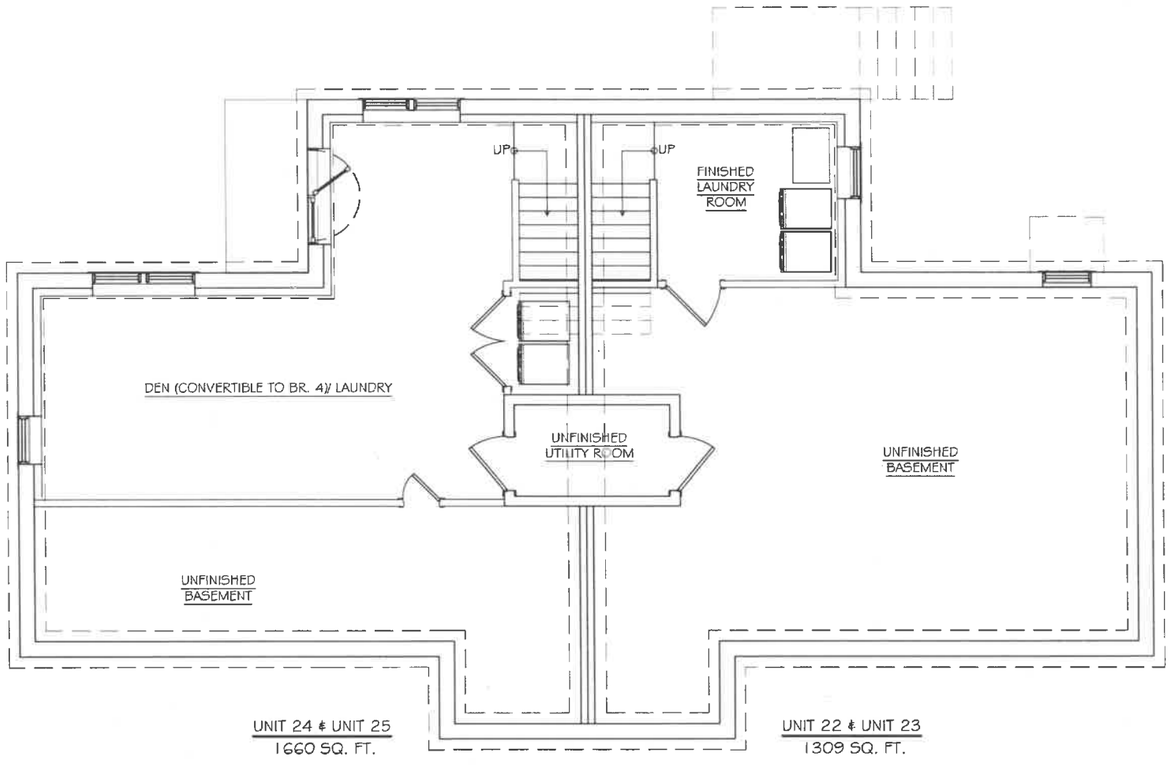
Truro, Massachusetts

Friday, September 4, 2020

Spring Hill Design

INTERIORS ARCHITECTURE SPACE PLANNING

158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622



1 BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"

BASEMENT FLOOR PLAN

CLOVERLEAF BUILDING 22-24 AND 23-25 (MIRRORED)

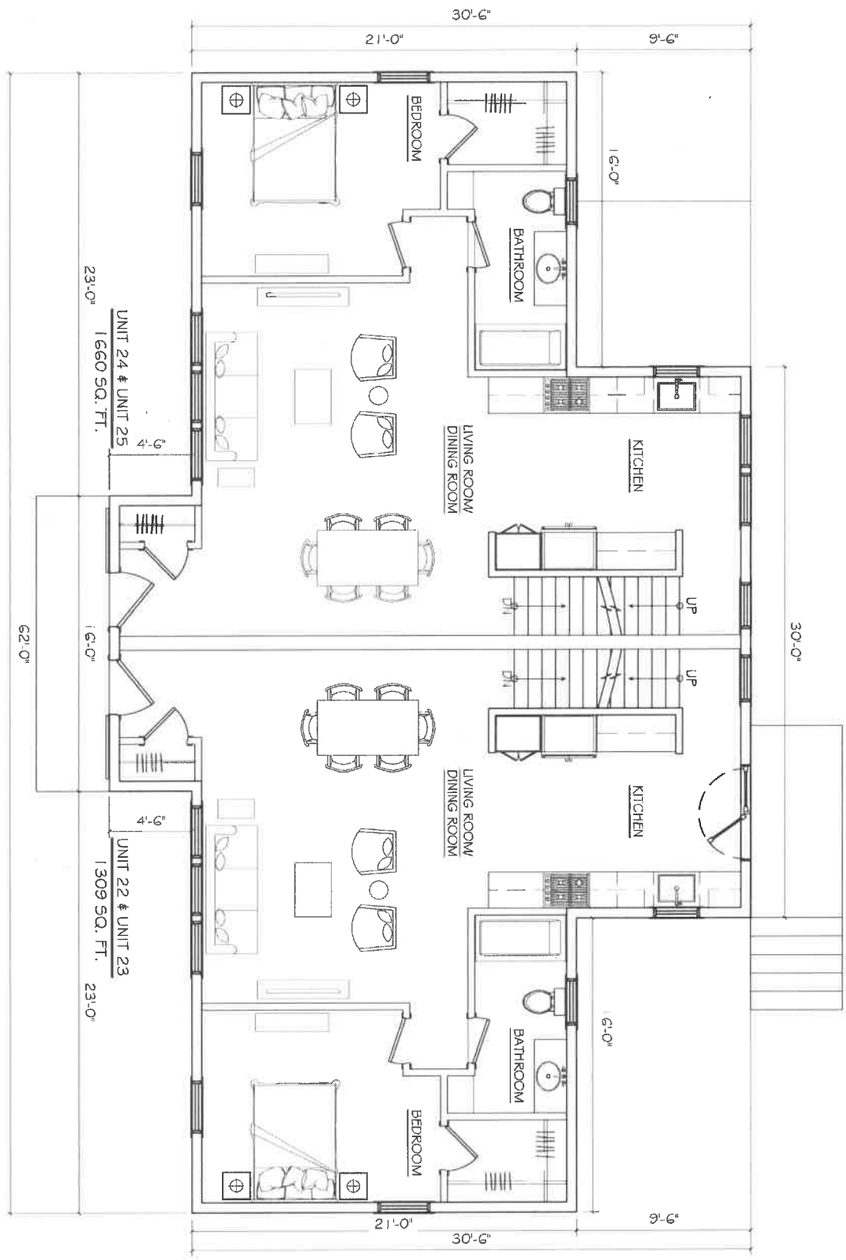
CLOVERLEAF TRURO RENTAL HOUSING

DATE:
09.04.20

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622

1/8" = 1'-0"

A1.0



1 FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

A1.1

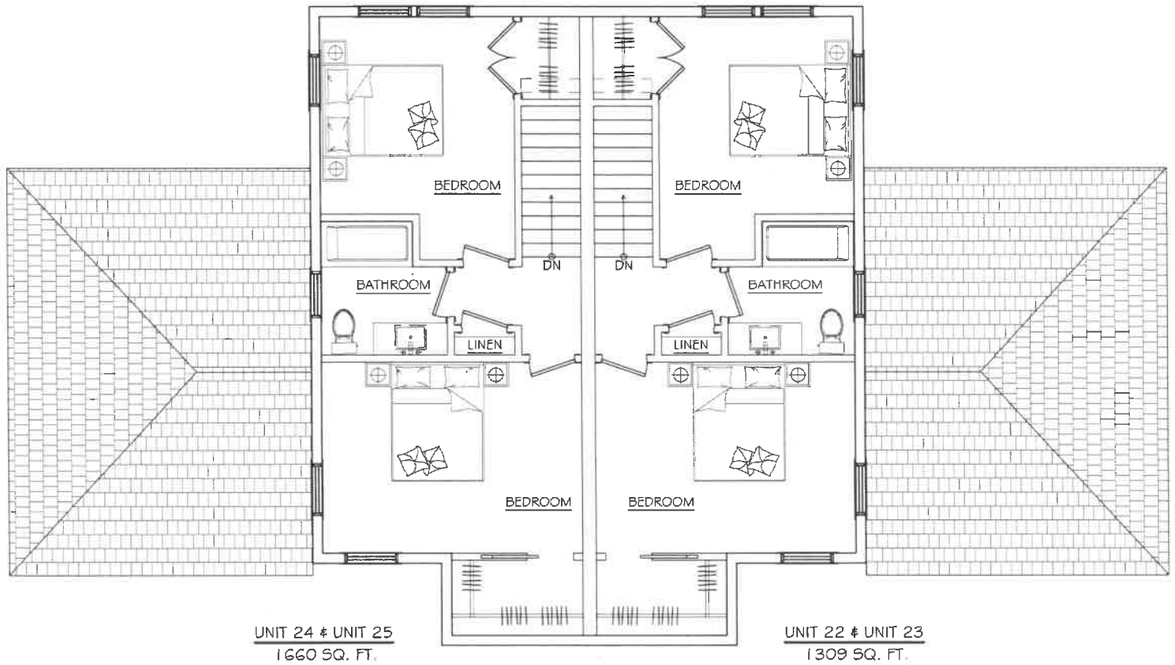
1/8" = 1'-0"

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 617.6702.4622

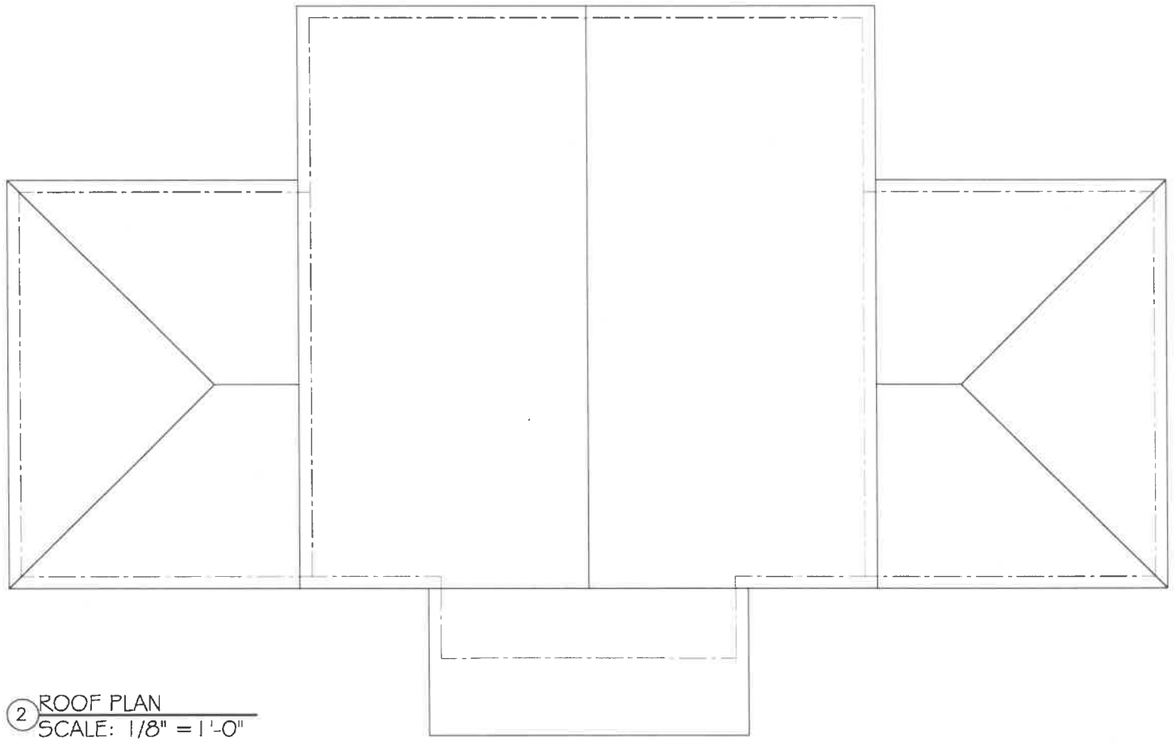
FIRST FLOOR PLAN

CLOVERLEAF BUILDING 22-24 AND 23-25 (MIRRORED)
CLOVERLEAF TRURO RENTAL HOUSING

DATE:
09.04.20



1 SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"



2 ROOF PLAN
SCALE: 1/8" = 1'-0"

SECOND FLOOR AND ROOF PLANS

CLOVERLEAF BUILDING 22-24 AND 23-25 (MIRRORED)
CLOVERLEAF TRURO RENTAL HOUSING

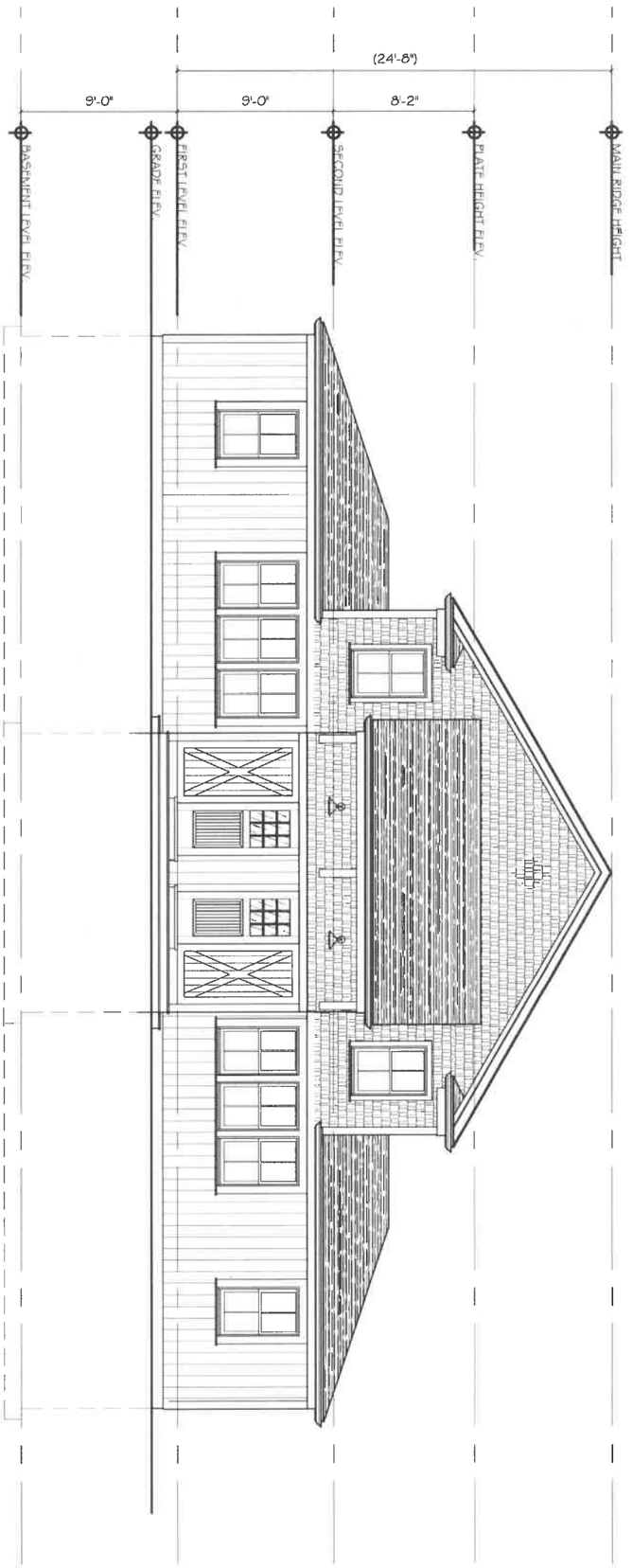
DATE:
09.04.20

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 617.6702.4622

1/8" = 1'-0"

A1.2

1 BACK ELEVATION
SCALE: 1/8" = 1'-0"



1 FRONT ELEVATION
SCALE: 1/8" = 1'-0"

A2.1

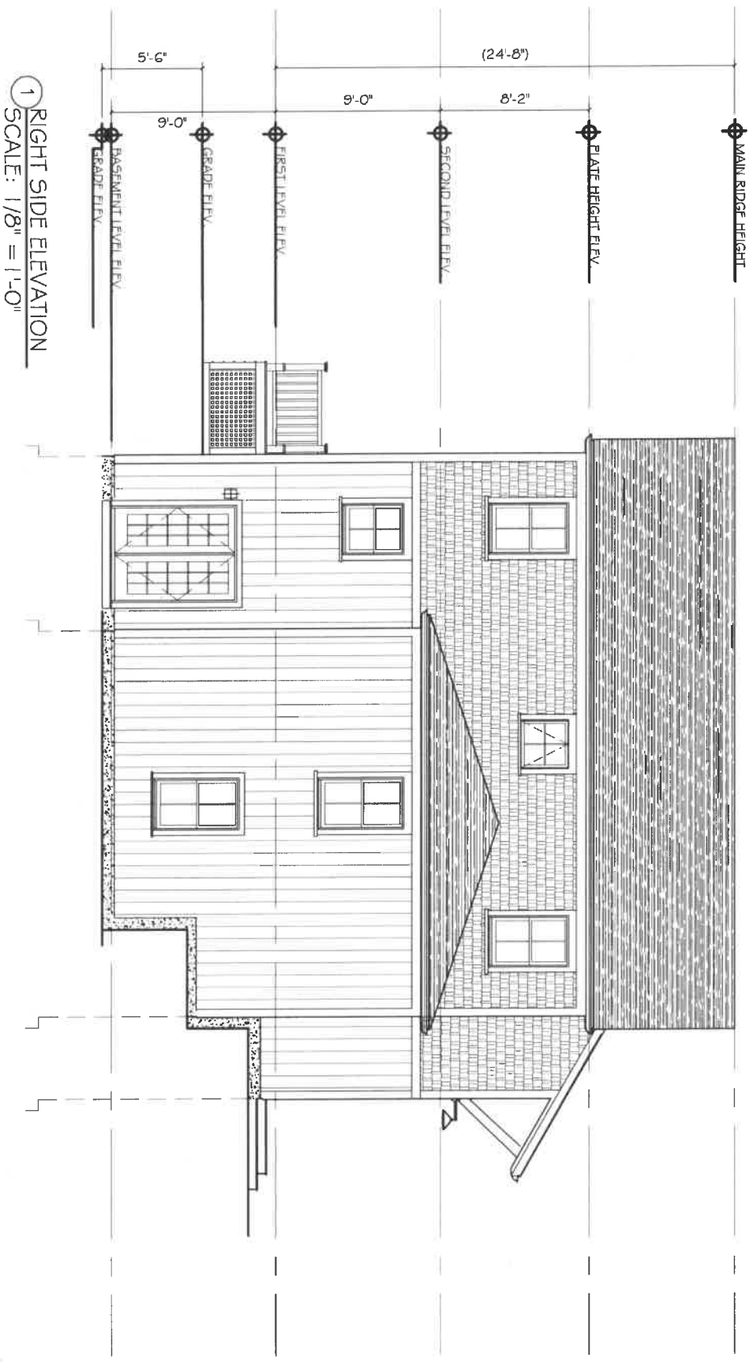
1/8" = 1'-0"

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 617.6702.4622

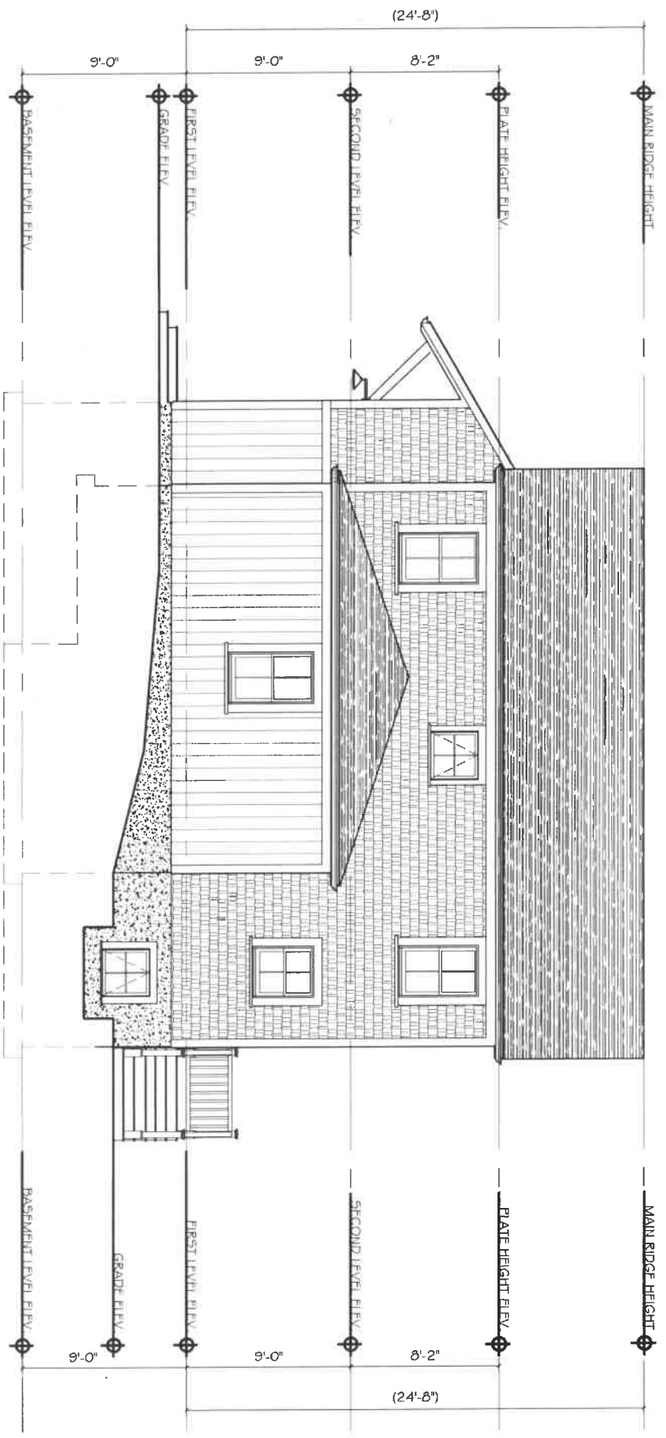
FRONT AND BACK ELEVATIONS

CLOVERLEAF BUILDING 22-24 AND 23-25 (MIRRORED)
CLOVERLEAF TRURO RENTAL HOUSING

DATE:
09.04.20



1 RIGHT SIDE ELEVATION
SCALE: 1/8" = 1'-0"



1 LEFT SIDE ELEVATION
SCALE: 1/8" = 1'-0"

A2.2

1/8" = 1'-0"

SPRING HILL DESIGN
ARCHITECTURE INTERIORS SPACE PLANNING
158 Central Street, Somerville, MA, 02145 ~ 617.6702.4622

SIDE ELEVATIONS

CLOVERLEAF BUILDING 22-24 AND 23-25 (MIRRORED)
CLOVERLEAF TRURO RENTAL HOUSING

DATE:
09.04.20