

HARWICH PLANNING BOARD
PUBLIC HEARING NOTICE

The Harwich Planning Board will hold a public hearing no earlier than 6:30 PM on Thursday, November 19, 2020 to consider the following applications. The meeting is via REMOTE PARTICIPATION ONLY. Written comments may be submitted to the Planning Board at the address shown below or emailing the Town Planner, Charleen Greenhalgh, at cgreenhalgh@town.harwich.ma.us. Anyone having interest the application is invited to access the meeting via GoToMeeting.com. Instructions regarding how to access and participate in the meeting will be posted on the Planning Board's Agenda page for the date of the meeting: <https://www.harwich-ma.gov/node/2451/agenda/2020>. The application and plans can also be viewed using the same website link noted above under Planning Board Legal Notice November 19, 2020 or by emailing the Planning Department.

PB2020-26 The Royal Apartments LLC, as owner, Benjamin E. Zender, Esq, Representative, seeks approval of Special Permits for Multifamily Use and Site Plan Review for the proposed use and additional parking and other appurtenances pursuant to the Code of the Town of Harwich §§325-51.Q (approved at the 9-26-2020 Town Meeting) and 325-55. The property is located at 328 Bank Street, Map 41, Parcel N4 in the M-R-L zoning district.

PB2020-27 NextGrid, Inc., as applicant, Brian G. Yergatian, P.E., as representative, and Steven Clark, as owner, seek approval of a Site Plan Review Special Permit pursuant to the Code of the Town of Harwich §325-55, in conjunction with §325, Article XXIII to establish a Large Scale Photovoltaic Array at property located at 0 Depot Road, Map 64, Parcel S-1 in the R-R zoning district. The property is only accessible via Mill Hill Road, Chatham.

All documents related to the above cases are on file with the Planning Department and the Town Clerk; however, they can only be viewed at the Town Hall (address noted above) by appointment only.

In accordance with state law, this legal notice will also be available electronically at 'www.masspublicnotices.org.' The Town is not responsible for any errors in the electronic posting of this legal notice.

Duncan Berry, Chair

Cape Cod Chronicle Print Dates: October 29 & November 5, 2020



**La Tanzi
Spaulding
& Landreth**

8 Cardinal Lane
Orleans

14 Center Street, Suite 4
Provincetown

3010 Main Street, Suite 2E
Barnstable

Benjamin E. Zehnder
Direct Tel: 508.255.2133 ext. 128
bzezhnder@latanzi.com

October 13, 2020

Anita N. Doucette, Town Clerk
Harwich Town Hall
732 Main Street
Harwich, MA 02645

Via hand delivery

Re: New Planning Board Application
328 Bank Street, Harwich / Map 41, Parcel N4



Dear Ms. Doucette:

Please find enclosed for filing the following new application submittals to the Harwich Planning Board for Site Plan Review and a use Special Permit, for the above property:

1. Application with Owner Authorization – 2 originals;
2. List of Waiver Requests – 2 copies;
3. Municipal Lien Certificate – 2 copies;
4. Narrative – 2 copies
5. Abutters List – 2 copies – original to be delivered by Assessor;
6. Copies of prior zoning and planning decisions – 2 sets
7. Coastal Engineering Plan Set – (6) full size and (11) 11x17 sets including sheets C.1.1.1 Existing Site Conditions, C2.2.2 Proposed Site Layout, 2.2.1 Proposed Grading and Drainage, C2.4.1 Site Details and C2.4.2 Utility Details;
8. David H. Dunlap Associates, Inc. Plan Set - (6) full size and (11) 11x17 sets including sheets SP-1 Landscape and Lighting, SP-2 Parking Lot Lighting, A-1 Ground Floor Plan, A-2 First Floor Plan, A-3 Second Floor Plan, A-4 Third Floor Plan, A-5 Accessory Building Plan, A-6 Exterior Elevations;
9. Drainage Calculations – 2 stamped original sets;

Please note that the Planning Board waived the filing fee for this matter at its meeting of May 12, 2020, minutes attached in the prior zoning and planning decisions.

Thank you for your attention.

A Legal Beacon since 1969



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Spaulding
& Landreth**

8 Cardinal Lane
Orleans

14 Center Street, Suite 4
Provincetown

3010 Main Street, Suite 2E
Barnstable

Very truly yours,

Benjamin E. Zehnder

BEZ/

cc via email only:

Charleen Greenhalgh, Town Planner
Client
David Michniewicz
Matt Nelson



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3010 Main Street, Suite 2E
Barnstable

Benjamin E. Zehnder
Direct Tel: 508.255.2133 ext. 128
bzehnder@latanzi.com

October 22, 2020

Anita N. Doucette, Town Clerk
Harwich Town Hall
732 Main Street
Harwich, MA 02645

Via hand delivery

Re: Planning Board Application PB2020-06
328 Bank Street, Harwich / Map 41, Parcel N4

Dear Ms. Doucette:

Please find enclosed for filing the following submittals to the Harwich Planning Board for Site Plan Review and a use Special Permit, for the above property:

1. Amended Narrative – 2 copies;
2. Coastal Engineering Plan replacement Sheet C.2.2.1 Revision Date 10-21-2020 – (2) full size and (11) 11x17 sheets;
3. David H. Dunlap Associates, Inc. replacement sheets A-1, A-2, A-3, A-4 and A-5 – Revision Date 10-19-2020 -

Thank you for your attention.

Very truly yours,


Benjamin E. Zehnder

BEZ/
cc via email only:
Charleen Greenhalgh, Town Planner
David Michniewicz, Client, Matt Nelson

A Legal Beacon since 1969

TOWN OF HARWICH PLANNING DEPARTMENT

PLANNING BOARD APPLICATION SPECIAL PERMITS & SITE PLAN REVIEW

FORM A



TO THE TOWN CLERK, HARWICH, MA

DATE October 13, 2020

PART A – APPLICANT INFORMATION/AUTHORIZATION

Applicant Name(s)	The Royal Apartments LLC 8 Alton Place, Brookline, MA 02446
Representative/Organization (Who will serve as the primary contact responsible for facilitating this application?)	Benjamin E. Zehnder La Tanzi, Spaulding & Landreth
Mailing address	P.O. Box 2300
Town, ST, Zip	Orleans, MA 02653
Phone	(508) 255-2133 ext. 128
Fax	(508) 255-3786
E-mail	bzehnder@latanzi.com

The applicant is one of the following: (please check appropriate box)

- ☒ Owner ☐ Prospective Buyer* ☒ Representative for Owner/Tenant/Buyer*
☐ Tenant* ☐ Other*

***Written permission of the owner(s) and a municipal lien certificate (where applicable) is required.**

All other forms and information as required in the Harwich Code Chapter 400, Rules and Regulations, shall be submitted as part of this application.

Authorization

Your signature hereby asserts, to the best of your knowledge, that the information submitted in this application is true and accurate; that you agree to fully comply with the Town of Harwich Zoning By-laws and the terms and conditions of any approval of this application by the Planning Board; and authorizes the Members of the Planning Board and/or Town Staff to visit and enter upon the subject property for the duration of the consideration of this application.

Applicant [Signature] 10/13/20

Owner(s) – Authorization must accompany application if the owner is not the applicant.

Official use only:

PLANNING DEPARTMENT	TOWN CLERK
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Case #

PART B – PROJECT LOCATION

Legal Street Address	328 Bank Street	Village/Zip Code	02645
Title Book/Page or L.C.C. #	B.C.R.D. Book 32263, Page 179 / Plan Book 389, Page 98		
Map(s) / Parcel(s)	Harwich Assessor's Map 41 Parcel N4		
Zoning & Overlay Districts	MRL; Harwich Center Overlay	*Historic?	Harwich Center Historic Dist.
Frontage (linear feet)	42,403		
Total land area (s.f.)	82,443		
Upland (s.f.)	71,444	Wetlands (s.f.)	10,999

PART C – PROJECT DESCRIPTION

PART C - PROJECT DESCRIPTION		
Existing Floor Area in Sq. Ft	Gross:	Net:
Proposed Floor Area in Sq. Ft	Gross:	Net:
Change in Sq. Ft + / -	Gross: 0	Net: 0
Existing # of parking spaces	Proposed # of parking spaces: 43	
Existing Use(s)	former nursing home / assisted living & senior day care	
Proposed Use(s)	Multifamily use containing 26 units.	
Attach a separate narrative if necessary.		

The undersign hereby files an application with the Harwich Planning Board for the following special permits as proposed under the provisions of the Harwich Zoning Code: **(check all that apply)**

Site Plan Review § 325-55:

- ☐ Any floor area expansion of any structure or expansion of exterior space, other than parking, serving any of the following: commercial, industrial, multi-family or educational use or personal wireless service facility or the creation of a drive-up or drive-through window
- ☒ Expansion or reconfiguration of an existing parking lot and/or driveway(s) serving said parking lot.
- ☒ Establishment of any new commercial, industrial, multi-family, educational, fast food/take out restaurant or personal wireless service facility.
- ☐ Establishment of any new retail use(s) in the Industrial (IL) Zone.
- ☐ Waiver of Site Plan § 325-55.F

Article V, Use Regulations:

- ☐ Paragraph____, sub-paragraph #____ ☐ Paragraph____, sub-paragraph #____
- ☐ Paragraph____, sub-paragraph #____, supplemental regulation #____ § 325-14

Article X, Special Permits:

- ☐ Structures w/ gross floor area of 7,500+ s.f. § 325-51
- ☐ Structures requiring 20 or more new parking spaces § 325-51
- ☐ Accessory Apt./Shared Elderly Housing § 325-51.H ☐ Mixed Use § 325-51.M
- ☐ Drinking Water Resource Protection § 325-51.C ☐ Two Family § 325-51.N
- ☐ Village Commercial, Harwich Port § 325-51.L ☐ *Harwich Center Overlay § 325-51.O
- ☐ Signage § 325-27.F Additional Cluster, Excess SF, Non-entry Facades

Other Special Permits:

- ☐ Six Ponds Special District - Article XVI
- ☐ Wind Energy Systems - Article XVIII ☐ Large Scale Wind Generation – Article XIX
- ☒ Other (i.e. Alternate Access § 325-18.P, Special Cases § 325-44.B) Multifamily Dwelling s. 325-51(Q)
- ☐ Repetitive Petition (MGL Ch 40A, §16): Proposed project evolved from a previously denied plan submitted to the Planning Board on _____ Year/Case # _____

**Note: Projects within the Harwich Center Overlay District may also be within the Harwich Center Historic District. This requires separate filing with the Historic District and Historical Commission. Please inquire for forms and instructions.*

September 2011

BZ

AMENDED Project Narrative

328 Bank Street
Assessor's Parcel ID 41-N4
The Royal Apartments LLC
Application for Planning Board Site Plan Approval and Special Permit

October 22, 2020

Prepared by Benjamin E. Zehnder / La Tanzi, Spaulding & Landreth

Applicant The Royal Apartments LLC ("Royal Apartments") owns the land at 328 Bank Street, Assessor's Parcel ID 41-N4, which is a developed 82,443 sq. ft. parcel of land in Harwich's MRL (Multifamily Residential - Low Density) zoning district and the Harwich Center Overlay District and the Harwich Center Historic District. The property has 424.3' of frontage along Parallel Street and Bank Street and is improved with two existing buildings. Locus has most recently been used for nursing home / assisted living facility and a senior day care facility uses.

The applicant intends to refit the existing two structures for 26 apartment units, which will constitute a Multifamily use allowable in the MRL district by grant of a Planning Board special permit under the Table of Use Regulations. In addition, the applicant has applied for Site Plan Approval pursuant to Bylaw § 325-55, as required by subsection (C)(2) [expansion or reconfiguration of an existing parking lot and/or driveway(s) in connection with a multifamily use] and (C)(3) [Establishment of any new multifamily facility.]

Locus is dimensionally conforming for the proposed multifamily use, having more than the required minimum 150' of continuous lot frontage and 25' side and rear setback distances to the existing structures under the §325-16 (Table 2) Area Regulations. (Because the property is a lawfully pre-existing structure proposed for conversion to multifamily use, the 82,443 sq. ft. lot size is allowable under §325-16). In addition, the property has a proposed site coverage percentage of 48.0%, well less than the maximum site coverage percentage requirement of 80% in the Harwich Center Overlay District under §325-51(O)(5)(c).

The applicant proposes minimal reconfiguration of the existing structure. It will renovate and update the buildings' interiors and perform exterior maintenance and painting. It will also reconfiguring the parking areas to create 43 parking spaces to accommodate the proposed 26 new apartments. In connection with this work the applicant will remove one curb cut from Parallel Street and install new retaining walls adjacent to the new parking areas.

The proposed apartments will be a mix of studio, 1- and 2-bedroom apartments in the two existing buildings (14 studios, 8 one-bedroom and 4 two-bedroom units). This proposal will benefit the community by increasing the stock of year-round, lower cost apartment housing in Harwich and by contributing to a livable, pedestrian friendly town center.

1. Harwich Zoning Bylaw §325-51(A)(1) Special Permit Responses:

Residential multifamily dwelling use is allowable in the MRL district by special permit. The applicant responds to the special permit granting criteria set forth at Bylaws §325-51(A)(1) as follows:

(a) *The use as developed will not adversely affect the neighborhood:*

The property has been used as the location of a lodging house or inn going back to the 19th century, and has been used as a nursing home / assisted living facility since the mid 1980s. This area of Harwich has developed over time in conjunction with a relatively intensive residential use of locus, and the use of the property to house unrelated individuals or households is not new.

The Harwich Center area will benefit from having a greater residential base within walking distance, which will make the area more pedestrian-oriented and increase the number of people visiting local businesses and benefiting the sense of community.

The neighborhood and Harwich Center will not be adversely affected by utilizing a presently unoccupied building for the multifamily apartment use, which is closely related to the former assisted living facility in terms of how the site will be accessed, traversed, and used, and the manner in which it relates to the surrounding area.

(b) *The specific site is an appropriate location for such a use, structure or condition:*

Locus is an appropriate location for multifamily use. The two buildings have already been divided into separate living areas and hallways, with plumbing and utilities serving all living areas, making it less costly and difficult to convert the buildings to multifamily use than it would be to convert to a retail or industrial building. In addition, the parking and walkways have all been designed to support the same type and approximate number of visitors multifamily use generates.

Furthermore, the property has historically been used as accommodations, including the most recent use as an assisted living facility. As such, there will be significantly less impact on the surrounding neighborhood than would result from the installation of a different use or the conversion of the buildings to support a different type of use. The property neighbors will not have to adapt to new traffic patterns, deliveries, or structures, and will not be negatively impacted.

Together, these factors make the property an appropriate site for the proposed multifamily use.

(c) *There will be no nuisance or serious hazard to vehicles or pedestrians:*

The property has been used for residential accommodations since the 19th century, and has been used recently as an assisted living facility since the mid 1980s. The uses have not presented a nuisance or serious hazard to vehicles or pedestrians, and the similar multifamily use will not materially change the manner in which the property is accessed or used, or its relationship to the neighborhood.

Furthermore, the applicant has proposed eliminating one of the three curb cuts on Parallel Street, converting a second driveway to emergency vehicle use only, slightly widening the one remaining curb cut, and rebuilding the parking and pedestrian access within the site. The applicant does not expect a risk of nuisance or serious hazard to vehicles or pedestrians from its proposal, and expects that the proposed configuration will improve traffic safety relative to the current layout

- (d) *Adequate and appropriate facilities will be provided for the proper operation of the proposed use. This includes the provision of appropriate sewage treatment facilities which provide for denitrification, when the permit granting authority deems such facilities necessary for protection of drinking water supply wells, ponds or saltwater embayments:*

The site has adequate and appropriate facilities for the proper operation of the proposed residential use. The property is served by existing utility services sufficient for the proposed 26 apartment units, including town water. The applicant proposes two new stormwater drainage systems designed to infiltrate the runoff from a 100 year storm, and the existing sewage disposal system has a permitted design flow of 4,773 g.p.d., which is in excess of the 3,300 g.p.d required for the 30 bedrooms proposed.

The applicant does not propose any new use or intensification of existing uses which would impact any water supply well, pond, or saltwater embayment, and does not propose any use within the 100' wetland buffer zone.

2. Harwich Zoning Bylaw §325-51(Q) Multifamily Special Permit Responses:

The applicant responds to the additional criteria for granting a Planning Board multifamily special permit set forth at Bylaws §325-51(Q) as follows:

- (1) *The Planning Board shall serve as the special permit granting authority for multifamily developments, including conversion of existing structures/uses to multifamily and/or new construction:*

The applicant has submitted its within application for conversion of the existing structures to multifamily dwellings.

- (2) *A Site Plan Review special permit pursuant to §325-55 is also required:*

The applicant has simultaneously filed for Site Plan Review.

- (3) *All multifamily dwellings must be connected to a municipal water system:*

The property is connected to the Harwich water system.

- (4) *A habitable room in a multifamily dwelling unit shall have a minimum floor area of not less than 120 square feet and shall have no major width or length dimension less than 10 feet. Closets, storage spaces, bathrooms and kitchens are not habitable rooms for the purpose of these minimum area and dimension requirements:*

No proposed habitable room has a minimum floor area of less than 120 sq. ft. or a major width or length dimension of less than 10 feet.

- (5) *The number of multifamily dwelling units shall be determined by the ability to place an adequately sized septic system for the number of bedrooms; and required parking per number of units and landscaping on the site pursuant to Article IX Off-Street Parking and Loading Requirements:*

The existing sewage disposal system has a permitted design flow of 4,773 GPD. The applicant proposes 26 dwelling units containing a total of 30 bedrooms, which equals a daily flow of 3,300 gallons at 110 gallons per bedroom, in compliance with this requirement.

Per the parking and loading requirements, multifamily use requires 1.5 parking space per studio or one bedroom unit, and 2 spaces per two bedroom unit. The proposed 26 dwelling units (14 studios, 8 one-bedroom and 4 two-bedroom units) therefore require a total of 41 spaces. The applicant will provide 43 parking spaces, including two handicapped accessible spaces, and will provide in its leases and regulations that no unregistered vehicles, boats or trailers be parked on the property.

- (6) *All outside entrances to multifamily dwellings shall provide protection to the immediate area in front of said entrance from the weather:*

The applicant does not propose any exterior alterations to the buildings other than installation of an awning over the Parallel Street entrance. The applicant believes that the structures comply with the intent of the bylaw requirement.

- (7) *Whenever the land upon which a multifamily dwelling is to be erected is located partially within a Drinking Water Resource Protection District, maximum possible use of the area outside the Drinking Water Resource Protection District will be made for the disposal of stormwater runoff and sewage:*

Locus is not located within a Drinking Water Resource Protection District and the applicant is not proposing erecting any new buildings.

- (8) *Recreation areas. Where appropriate to the topography and natural features of the site, the Planning Board may require that at least 10% of the open space or two acres (whichever is less) shall be of a shape, slope, location and condition to provide an informal field for group recreation or community gardens for the residents of the multifamily development:*

The existing site has areas of lawn and patio along the Parallel Street side of the property and behind and in front of the main building. The applicant proposes these areas for use by the residents as recreation areas.

3. Harwich Zoning Bylaw §325-55 Site Plan Review Responses:

Pursuant to §325-55(C)(2), Site Plan Approval by the Planning Board is required for any expansion or reconfiguration of an existing parking lot and/or driveway in connection with multifamily use, and pursuant to §325-55(E)(1) approval may be reasonably conditioned to ensure certain minimum standards are met. The applicant responds to the site plan review criteria as follows:

- (a) *Reasonable measures are implemented to provide for screening of parking areas or other parts of the premises, for adjoining premises or from the street, by walls, fences, plantings or other devices:*

Locus is screened to the south, southwest, and southeast (where there is an existing wetland) by natural vegetation and trees, and no change is proposed to these areas. The applicant proposes numerous additional screening plantings of Alberta Spruce and Emerald Green Arborvitae at the westerly, northwesterly and northeasterly areas of the property, all as shown on the landscape plan. The applicant also proposes new tree clusters at five additional locations on the interior of the site. Together, these plantings will effectively provide visual screening of the parking and other areas of locus for adjoining properties and from the street.

- (b) *The convenience and safety of vehicular and pedestrian traffic are enhanced:*

The applicant has proposed a redesigned parking area, with newly reconstructed sidewalks, retaining walls, fences, and landings and ramps, and has proposed elimination of one vehicle entrance to the property, construction or reconstruction of berming at the edge of Parallel Street, and construction of a new entrance with stop sign to the road. These changes are expected to improve the convenience and safety of pedestrian and vehicular traffic to and within the site.

- (c) *Surface water from parking areas and driveways will be efficiently and safely disposed of by means of a proper drainage system as specified in the Board's approval:*

The applicant has designed two new stormwater drainage systems designed with capacity sufficient to infiltrate the runoff from a 100 year storm, based on field measured soil infiltration rates and computer modeling of the site, and submits that the proposed system will dispose of surface water from the parking areas and driveways efficiently and safely. Please see proposed drainage and grading plan filed herewith.

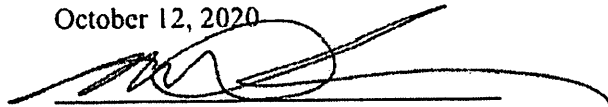
– END –

Owner Authorization

328 Bank Street
Assessor's Parcel ID 41-N4
The Royal Apartments LLC
Application for Planning Board Site Plan Approval and Special Permit

The Royal Apartments LLC hereby authorizes Benjamin E. Zehnder and La Tanzi, Spaulding & Landreth, LLP to prosecute all necessary applications before the Town of Harwich Planning Board for development of the property at 328 Bank Street, Harwich, MA.

October 12, 2020


Matthew Newman, Manager

List of Waiver Requests

328 Bank Street
Assessor's Parcel ID 41-N4
The Royal Apartments LLC
Application for Planning Board Site Plan Approval and Special Permit

October 13, 2020

Prepared by Benjamin E. Zehnder / La Tanzi, Spaulding & Landreth

Pursuant to Harwich Town Code §400-6 applicant The Royal Apartments LLC requests the following waivers from the requirements Harwich Town Code §400-16(B)(1)(a) and Appendix 4:

1. Filing Fee – Waiver was approved by the Planning Board at its meeting of May 12, 2020.
2. Variance Notations on Plan – Copies of variances and special permits provided in application package.
3. Existing Driveways within 100 feet of site – The site plan shows existing driveways across Parallel and Bank Streets from locus. Showing driveways within 100 feet would require significant increase in the scale of the plan and there is no proposed increase in traffic.
4. Lighting – The applicant requests a waiver of the requirement to show lighting on the existing buildings as there are no changes proposed.
5. Freestanding Signs – The applicant has not determined the location of signage and will conform all signage to the sign bylaw.

END

State Tax Form 290
Certificate: 380
Issuance Date: 10/09/2020

MUNICIPAL LIEN CERTIFICATE
TOWN OF HARWICH - LIVE DATA
COMMONWEALTH OF MASSACHUSETTS

Requested by LATANZI, SPAULDING & LANDRETH, ATTYS

I certify from available information that all taxes, assessments and charges now payable that constitute liens as of the date of this certificate on the parcel of real estate specified in your application received on 10/09/2020 are listed below.

DESCRIPTION OF PROPERTY

Parcel ID: 41/N4-E

328 BANK ST

THE ROYAL APARTMENTS LLC
8 ALTON PL UNIT 5
BROOKLINE MA 02446

Land area : 1.89 AC
Land Value : 412,300
Impr Value : 1,085,300
Land Use : 0
Exemptions : 0
Taxable Value: 1,497,600

Deed date: 08/30/2019 Book/Page: 32263/179
Class: 0100-GENL

FISCAL YEAR	2021	2020	2019
DESCRIPTION			
COMMUNITY PRESERVATION ACT	\$196.11	\$392.22	\$480.35
REAL ESTATE TAX	\$6,537.03	\$13,074.05	\$16,011.76
TOTAL BILLED:	\$6,733.14	\$13,466.27	\$16,492.11
Charges/Fees	\$0.00	\$0.00	\$0.00
Abatements/Exemptions	\$0.00	\$0.00	-\$1,039.02
Payments/Credits	-\$3,366.57	-\$13,466.27	-\$15,453.09
Interest to 10/09/2020	\$0.00	\$0.00	\$0.00
TOTAL BALANCE DUE:	\$3,366.57	\$0.00	\$0.00

NOTE: Actual 2021 taxes not yet issued.

OTHER UNPAID BALANCES:
2021 UTILITY BILLING \$125.62
TOTAL OTHER UNPAID BALANCES: \$125.62

IF CHECKED, contact Treasurer's Office at 508-430-7501 for update
☐ This property is in TAX TITLE.
☐ This property has a BETTERMENT.
☐ This property has a DEFERRAL.
☐ This property is currently EXEMPT.

Amy Bullock

AMY BULLOCK
TOWN COLLECTOR/TREASURER

THIS FORM APPROVED BY THE COMMISSIONER OF REVENUE

41-N4

DECISION

#79-17

On Tuesday, May 29, 1979, the Harwich Board of Appeals heard the appeal of Eleanor L. Stevens, 23 Snow Inn Road, Harwich Port, MA, 02646. The Petitioner, who is the owner of the property at Bank and Parallel Streets, Harwich, MA, 02645, known as the Old Harwich Inn, sought a continuation of a non-conforming use in the name of Forrest A. Eaton, Jr. and Gregory Y. Winston to allow the "Inn" to be restored for the purpose of renting ten (10) rooms, serving breakfast and retail sale of antiques. Under Table 1, Use Regulations, such uses are prohibited in an MRL Zone.

The Board found the following:

1. The property in question has a history as an Inn, Lodging House, Guest House, etc., dating back to the 19th century;
2. Petitioner plans to rent rooms, serve breakfast and sell antiques;
3. The Building will be restored as closely as possible to the way it was in its early history.

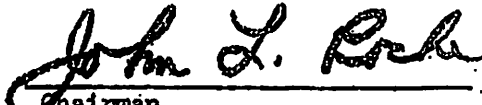
In consideration of all the evidence in this case, the Board voted unanimously to grant the relief on the grounds that in a renovated state, the property would be an asset to the Town as well as to the petitioner. Further, the Board saw no evidence that this relief would be a deregation from the intent of the By-Law since in fact the proposed use would be the asset referred to above.

Extension to non-conforming use granted.

Members present and voting:

John L. Roche
Walter Hemeon
William Jussila
George Vagenas
Ernest Elge

HARWICH BOARD OF APPEALS


Chairman

DECISION

#83-39

On October 25, 1983, the Harwich Board of Appeals heard the Petition of Gregory Winston, 328 Bank Street, Harwich, Mass., by his Attorney, Howard C. Cahoon, Jr., Old Colony Road, Harwich, Mass. 02645. The Petitioner, who is the owner of the Bank Street property as shown on Assessors' Map 41-N4 sought an extension of a non-conforming use to allow the construction of an apartment on the third floor of the premises at 328 Bank Street, Harwich, Ma., and/or a variance from the Harwich Protective By-Laws, Section VI, Paragraph D, Sub-paragraph 14 and Paragraph F to allow habitation on the third floor and a variance from Section V, Table 1, Use Regulations, Paragraph 1, Sub-paragraph 2, to allow a second kitchen on the premises. The approval of the Board of Appeals is required in the granting of an extension of a non-conforming use and a variance.

In the evidence taken in this case, the Board found:

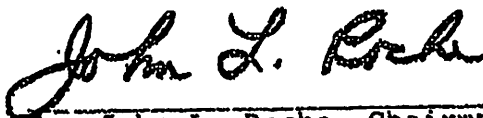
1. The building in question has a long history as a lodging guest house;
2. The Petitioner has done a considerable amount of renovation since purchasing the property;
3. The Petitioner has approval to rent to ten (10) people, and his clients are elderly men and women;
4. The proposed apartment would be for the Petitioner's private use.

In consideration of all of the evidence, the Board voted unanimously to grant the variance on the grounds that the building is unique because of its history as a lodging/guest house. The Petitioner faces undue hardship if denied the chance to enjoy much needed privacy in his own home. Further, the Board saw no evidence that the granting of this variance would be a detriment. In fact, the Board found that the entire project, under Mr. Winston's supervision, is an asset to the community. There was no evidence that the granting of this variance would derogate from the intent of the By-Law since the use of the third-floor apartment is for Gregory Winston, personally, and in the event of the sale of the property, the approval of the use ceases.

Variance granted with condition noted.

Members present and voting: John L. Roche, Walter Hemen, Eleanor Tobey, Alice Dalzell, and John Ferreira.

HARWICH BOARD OF APPEALS



Dr. John L. Roche, Chairman

DECISION

#84-55

On October 30, 1984, the Harwich Board of Appeals heard the petition of Gregory Winston, 328 Bank Street, Harwich, MA. The Petitioner, who is the owner of the above property, as shown on Assessors' Map 41-N4, sought an extension of a non-conforming use to allow the construction and rental of eight (8) bedrooms, four (4) of which have adjoining living rooms.

In the evidence taken in this case, the Board found:

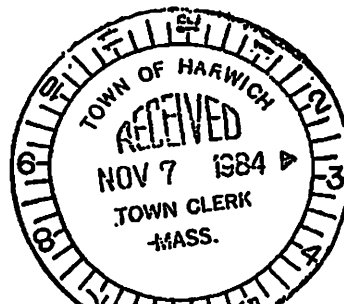
1. The property in question is non-conforming since it fails to have the required setback from a road;
2. Without kitchen facilities, the proposed project is not classified as multi-family.

In consideration of all the evidence in this case, the Board voted unanimously to grant the extension to a non-conforming use on the grounds that the evidence did not suggest that the extended use would be substantially more detrimental than the present use.

Extension to non-conforming use granted.

HARWICH BOARD OF APPEALS


Dr. John L. Roche, Chairman



HEARING #85-52

The petition of Gregory Y. Winston, 328 Bank Street, Harwich, MA 02645. The petitioner who is the owner of the property as shown on Assessor's Map 41, Parcel N-4 seeks an extension of a non-conforming use to allow eight units to have efficiency kitchens at the Winstead Retirement Center under By-Law Section X, Paragraph J. In the alternative, the petitioner seeks a variance under Section VI Paragraph 13 to accomplish the same. The approval of the Board of Appeals is required in the granting of an extension of a non-conforming use or a variance.

Mr. Winston was represented by Attorney Richard Cain. Mr. Cain told the Board that Mr. Winston has owned and operated the Winstead Retirement Center since 1979. His client is asking the Board's approval to add eight extremely small, executive-type kitchenettes to eight of sixteen new units to be added to the Retirement Center, thus the Winstead Retirement Center might now be considered a multi-family unit. Mr. Cain emphatically stated to the Board that the need for such kitchen facilities, although very compact in nature with no accessory appliances, such as dishwashers, microwaves and the like, is more emotional than a need or necessity as the proposed facilities meet the emotional needs of senior citizens transferring from their homes to retirement center lifestyles. Winstead, Cain went on to say, is senior citizen group living with an excellent community life aspect.

The attorney told the Board his client is seeking an extension to a non-conforming use because the proposed additions do not vary the facility from guest house status to multi-dwelling facility. The Retirement Center has extremely good relations with its neighbors in the area and Mr. Winston has no plans to sell this property in the near future.

Building Inspector: Mr. Lovinsky stated that a dwelling unit that can be used separately falls under zoning for multi-family dwelling. This he felt would be a multi-family dwelling with kitchen and a Variance for this would be necessary to be obtained from the Board. Bradgate, a proposed Condominium, was previously granted a Variance for multi-family use.

Town Officials: Freeman Allison, Selectman, felt that "a kitchen is a kitchen" and also felt that Mr. Winston should come before the Board for a Variance.

± No one spoke in favor of the petition.

George Cavanaugh, an attorney for Bradgate Condominiums, spoke in opposition to the project. He stated that Winstead is a multi-family use and if this project were allowed, Bradgate would still have the right to build 70 Condominium units.

There was no correspondence.

Board Member John Ferreira felt that the substantial amount of space devoted to appliances would be installed in the units. Philip Lindquist, architect for the project, stated that appliances would be of necessity extremely small (i.e. 9 cubic foot refrigerator, two-burner stove, tiny sink) as Mr. Winston wants to retain control of what takes place in his units. The units are only a symbol of independence to the residents of Winstead, nothing more than the means by which residents could partake of a small snack or a very light breakfast. Chairman Jussila wanted to know who controls meals at the Center, Mr. Winston replying that Winstead offers a full meal service and he would welcome restrictions on the kitchens if the Board so desired. He is asking for the kitchenettes, so to speak, to wean individuals from a home lifestyle to a retirement center lifestyle.

Freeman Allison again told the Board that a Variance was necessary and the Planning Board's past opposition to the project re density.

Sara Ayer moved that petition be granted for non-conforming use, adding that in addition to her work with the elderly, she felt that seniors moving from home to the center still needed to retain some type of independence and most retirement centers offer some adjunct to their main kitchen facilities.

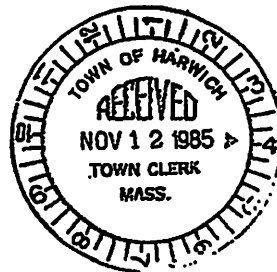
DECISION #85-52

On October 29, 1985, the Harwich Board of Appeals voted unanimously to allow Gregory Y. Winston, 328 Bank Street, Harwich, MA 02645 to withdraw Petition #85-52 without prejudice.

HARWICH BOARD OF APPEALS

William J. Jussila

William J. Jussila, Chairman



Dean Derby approved of the petition for non-conforming use so long as restrictions were placed on the use of small appliances in them. Walter Hemeon stated that the Board has a legal obligation to protect the property abutting Winstead, namely Bradgate Condominiums.

Chairman Jussila suggested meeting with Town Counsel Falla to resolve this problem and return for next month's meeting. He preferred tabling the motion until October when the Board was able to receive Town Counsel Falla's opinion as to what legally constitutes a kitchen.

On motion by Walter Hemeon, seconded by Sara Ayer, it was the unanimous vote of the Board to table the motion until the October meeting.

BOARD OF APPEALS

1986-1987

1986-30

On June 25, 1986, the Harwich Board of Appeals held a public hearing on the petition of Gregory V. Winston, 100 Bank Street, Harwich, MA 02645, as shown on the record as 44, appeal N4 who sought an extension of a non-conforming structure to add to an existing third floor bedroom.

After the hearing, the Board made the following findings:

1. The addition has already been completed.
2. The addition is to a third story bedroom of the original structure.
3. Access to the addition is only through the original structure that is only 2 stories.
4. The addition in question is the same as the addition the Board gave permission to construct last year so that the Petitioner could enlarge existing rooms on the original structure.

Based on the facts found, the Board voted 4 to 0 to grant the extension to a non-conforming structure.

Members voting in favor:

Peterson, Hemeon, Ferreira,
Jussila

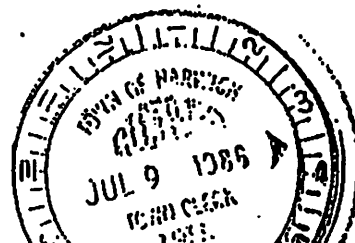
Abstaining:

Ayer

Harwich Board of Appeals

William J. Jussila

William J. Jussila, Chairman



The Board of Appeals met in the meeting room of Proctor Academy Building, Sisson Road, Harwich, MA, on June 22, 1986 to hear the appeal of the following:

- 6.30 Gregory Y. Inston. Property owned at 58 Bank Street, Harwich, MA, 02645. Petition is for extension of nonconforming structure. Pictures of the existing structure were presented. Petitioner wants to add to an existing third floor bedroom.

This is an unique situation in that the addition can be seen as either a second or third floor level. From Bank Street, it appears to be a second floor room. From another, it may be seen as level with a third floor addition built last summer, with a building permit granted by this Board.

The original house is one of two levels, on which this bedroom was added. However, later additions were of three levels. The question is whether this bedroom is part of the original building.

Roger Peterson questioned if the entrance to the bedroom was on Bank Street, where it is two levels. Mr. Inston replied that it was.

Thomas Lovinsky, Building Inspector, stated that without the new addition, the bedroom would be allowable, because it could not appear as three levels. He, himself, had gone by the house a few times without noticing this. The confusion was whether it was part of the old or new house.

Sara Ayer asked if access to the room was from the old house only. The response was yes. She interpreted the situation for clarification that the room was part of the original house on the second floor, and the only access is from the original house.

The hearing was closed at 8:00 p.m. by the chairman.

A motion was made and seconded to approve the extension. There was a 4-0 vote in favor, with Sara Ayer abstaining.



FILE COPY



Royal Health Group

8 Lewis Point Road • Buzzards Bay, Massachusetts 02532 • Tel 508 759-5752 • Fax 508 759-3628

October 25, 2005

OCT 26 2005

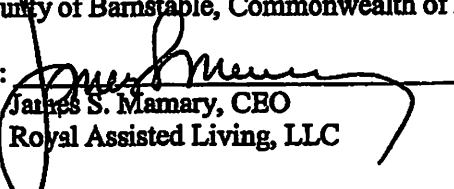
Mr. Jeff Larson
Building Inspector
Town of Harwich
732 Main Street
Harwich, MA 02645

Re: Royal at Harwich Village
328 Bank St. Harwich
Dear Mr. Larson:

This letter is to confirm the following details. The property located at 328 Bank Street now known as The Royal; was earlier know as the Winstead. As the Winstead; the prior owners of the property were most recently licensed to operate an Assisted Living Facility. This was confirmed to us in writing by the Town of Harwich; Banknorth; and the Commonwealth of Massachusetts, Office of Elder Affairs. As you may be aware; Banknorth (Cape Cod Bank); had foreclosed on the property and operated it for a period of almost two years; subsequently closing the property prior to our acquisition. Prior to our occupancy, we installed a fire suppression system throughout the entire building. The facility was licensed for a capacity of up to 41 residents; and to the best of our knowledge every unit in the building was licensed for occupancy and at one time or another was occupied by elderly clients. The total occupancy permit was corroborated by the septic system certification. The particular unit in question, known today as the penthouse and occupying the third floor above ground level; will be occupied by no more than two residents at a time. Under separate cover, we are providing to your office a floor plan with a maximum occupancy by unit for the entire facility.

I swear that the above statements are true and correct to the best of my knowledge.

Signed and sworn before a Notary Public on this 25th day of October, in the year 2005;
County of Barnstable, Commonwealth of Massachusetts.

SS: 
James S. Mamary, CEO
Royal Assisted Living, LLC

Notary Public: 
Peter L. LeBrun

My Commission expires:

Peter L. LeBrun
NOTARY PUBLIC
My commission expires Apr 5, 2007

Affiliate Members of the Royal Health Group

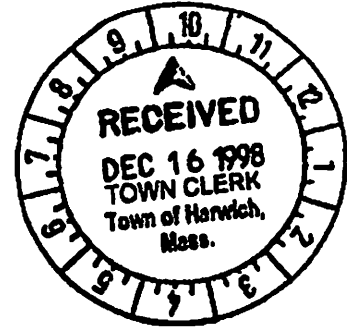
Cape Cod Nursing & Rehabilitation Center
8 Lewis Point Road
Buzzards Bay, MA 02532
Tel 508-759-5752
Fax 508-759-3628

Royal Moganett Nursing & Retirement Home
209 County Road
North Falmouth, MA 02556
Tel 508 563-5913
Fax 508 564-4163

Royal Nursing Center
545 Main Street
Falmouth, MA 02540
Tel 508 548-3800
Fax 508 548-6936

Taber Street Nursing & Rehabilitation Center
19 Taber Street
New Bedford, MA 02740
Tel 508 997-0791
Fax 508 991-6013

**TOWN OF HARWICH
BOARD OF APPEALS
DECISION**



PETITION NO.: 98-80

FILED WITH TOWN CLERK: 02-17-1999 @ 02:47

HEARING DATE: December 2, 1998

PETITIONER: Gregory Y. Winston
328 Bank Street
Harwich, MA 02645

OWNER: Gregory Y. Winston and David Plunkett
328 Bank Street
Harwich, MA 02645

PROPERTY: 113, 109 and 118 Parallel Street, Harwich, MA, shown as
Parcels N4, N3-A and D1-1 on Assessor's Map 41

The Petitioner requested a Special Permit under Section X, Paragraph J of the Zoning By-Law and Variances from Section V, Paragraph E, Table 1 (Use Regulations) and Section IX, Subsections A through C, including Table 4, (Off-Street Parking Regulations) of the Zoning By-Law to change, extend or alter pre-existing nonconforming structures, parking and uses at 113, 109 and 118 Parallel Street known as The Winstead Retirement and Elderly Day Care Center from a thirty (30) unit inn/retirement facility with a forty (40) seat dining room to an inn/hotel, restaurant and tavern use with 31 guest rooms, a forty (40) seat tavern on the first level and a one hundred (100) seat restaurant on the second level, with eighty-one (81) outdoor parking spaces and six (6) garage spaces. Twenty-six (26) outdoor parking spaces to the west of the present day care center building will not be constructed until the restaurant and tavern are in use. All parking is to be located on all three parcels. The request is herein referred to as the "Project".

Members of the Board present:

William J. Jussila, Chairman; John E. Ferreira; George Cavanaugh; Christopher Hemeon;
and Donna Peterson.

Notice of the hearing has been given by sending notice thereof to the Petitioner and all those owners of property deemed by the Board to be affected thereby and as required by statute,

5

and that public notice of such hearing has been given by publication in the Cape Cod Chronicle. The hearing was opened on December 2, 1998.

The following appeared in person or through correspondence in favor of the Petition:

Myer R. Singer, Attorney for the Petitioner; Gregory Y. Winston; and numerous people who spoke in support of the Project. A petition signed by more than seventy (70) people was presented in support of the Project.

The following appeared in opposition or with questions regarding the Petition:

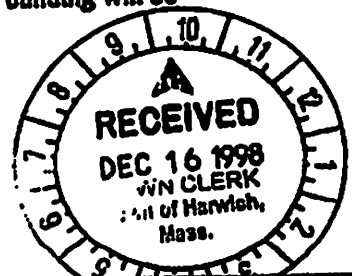
A lady appeared on behalf of a Mr. Nickerson with a question regarding the potential for late night noise as a result of the Project.

The Petitioner presented the following information and the Board finds the following as facts in support of its decision.

113 and 109 Parallel Street are located in the MR-L Zoning District. 118 Parallel Street is located in the C-V Zoning District. 109 Parallel Street is a nonconforming lot that is improved with one structure containing a nonconforming residential duplex. 113 Parallel Street is improved with two structures and is currently used as The Winstead Retirement and Day Care Center, which are nonconforming uses. 118 Parallel Street on the north side of the street, is improved with a retail sales building and is nonconforming as to its front yard setback.

The Petitioner desires to have a destination resort in Harwich Center by changing the use of the existing buildings located at 113 Parallel Street from a thirty (30) unit inn/retirement facility with a forty (40) seat dining room and day care center to an inn/restaurant and tavern use containing thirty-one (31) guest rooms, a forty (40) seat tavern on the first level and a one hundred (100) seat restaurant on the second level of the building. Parking with a total of 92 spaces for the Project will be located on all three parcels that comprise the Property. The Project includes remodeling the structures on 113 Parallel Street, revising the parking areas and access driveways on all three parcels and upgrading all three Parcels. The Project will be constructed in two (2) or more phases and the Petitioner seeks permission to not construct the 26 parking spaces to the west of the present day care center building until the restaurant and tavern are in use. The two (2) family house will remain at 109 Parallel Street and the antique shop will be an upscale Antique and Inn Shop with plumbing and bathroom.

The physical alteration to the exterior of the principal structure will not be substantially more detrimental to the neighborhood because the only exterior change will be the addition of an awning and entrance on Parallel Street. Moving the entrance from Bank Street which is more heavily traveled than Parallel Street is seen as positive rather than detrimental. The shop at 118 Parallel Street will be upgraded with a new roof and it and the daycare center building will be painted and rehabilitated to the extent needed.



The interior changes at the day care center building will be to remodel it into three guest units. The retirement center building will be a tavern on the first or lower level, a restaurant and guest units on the second or street level and guest units in the remainder of the building. The parking at 118 Parallel Streets is conforming and permitted in the commercial zone.

The parking at 113 Parallel Street is nonconforming but will remain substantially screened from view because it will be behind the buildings and at a lower grade than the road. Most of the parking at 109 Parallel Street will be new but will also be substantially screened from view. This parking will not be built until the restaurant and tavern use open.

The remodeled buildings will meet all applicable building and safety code requirements. In-lot and buffer vegetation and screening will be provided as shown on the plans. The Project will result in increased traffic. However, the site will be a destination resort and with the available amenities at and within walking distance of the Inn, the guest units at the Inn are not expected to have a significant traffic impact. With the restaurant, swimming pool and Inn shop, people will be encouraged to stay at the Inn. With additional antique and other stores in the area, as well as the Library, tennis courts, Brooks Academy, band concerts and White House Field with public activities, the Inn guests are more likely to stay and relax in a revitalized Harwich Center.

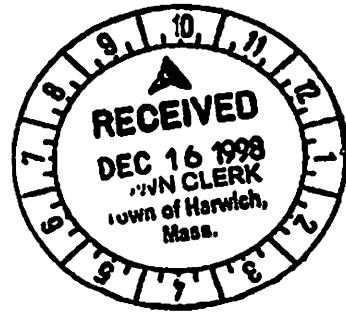
The tavern and restaurant will also result in traffic but less than most similar facilities. With the potential of package programs and ambiance of the Inn many Inn guests will also be the restaurant guests without increasing traffic. Also, the nature of the service is not expected to be attractive to persons seeking a quick, casual meal and therefore frequent short stops are not expected. The tavern tables will be set with white linen table cloths. It will be a place to come and relax in a quiet atmosphere rather than have an upbeat and contemporary atmosphere.

The change will have a positive effect on Harwich Center and not be detrimental.

Based on all of the above reasons, the Board determined that the change of uses and the building alterations will not be substantially more detrimental to the neighborhood than the existing, nonconforming uses. This will be particularly true because the Property will be physically improved — building, parking, lighting, septic and landscaping.

The Board of Appeals, after giving due consideration to the facts and information presented, is satisfied that the Special Permit requested can be granted in conformity with the Town of Harwich Zoning By-Law and the General Laws of the Commonwealth of Massachusetts.

Variances are needed for parking on 109 Parallel Street and to have fewer parking spaces than required. A literal enforcement of the provisions of the Zoning By-Law will deny the Applicant the opportunity to rehabilitate the Property and will result in a substantial hardship to the Applicant and the surrounding neighborhood.



The main building has been devoted to a particular use. Due to changes in the assisted living community on the Cape, continued operation of the Retirement and Day Care Center have become uneconomical.

113 Parallel Street was first an inn and dining establishment in 1913 as the New Winslow Hotel started by Sam Ellis. Thereafter it was owned by a Perry family and called the Harwich Inn. For a period in the 1940's and 1950's, when the Hall family owned the property, rooms were rented out to actors in play groups, summer league baseball players and employees of local restaurants. For a period in the late 1960's and 1970's the property was a dormitory for Snow Inn employees.

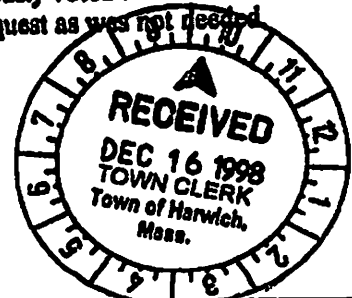
The Inn building, the Day Care Center and the land adjoining and across the street from them are all unique for the area, have a special setting in the area and have limited value for single family houses. Enforcement of the Zoning By-law requiring a single family use when it has been used for transient guests for 85 years would be a hardship on the owner.

The requested variances will not cause any substantial detriment to the public good nor substantially derogate from the overall intent of the Zoning By-Law because the property will be maintained for its historic use. Those buildings in need of remodeling will receive it, the "antique" shop will be made useful with new plumbing and bathroom facilities, an in Town resort with transportation to the beach will benefit the area, property values will be enhanced and the public protected from potential deterioration.

Based on the above reasons, the Board finds that the requested variances will neither cause any substantial detriment to the public good nor nullify or substantially derogate from the overall intent and purpose of the Zoning By-Law. The site changes will provide a benefit to the community and will help revitalize Harwich Center. The Town is in need of lodging and accommodations and a fine dining restaurant. The site upgrade will benefit all three parcels and the neighborhood. The Project as proposed will not adversely affect the public health, safety, convenience or general welfare of the Town. Parking will be safe and adequate. Landscaping will be attractive and well-maintained.

The Board of Appeals, after giving due consideration to the facts and information presented, is satisfied that the criteria for the issuance of the requested Variances under both the Town of Harwich Zoning By-Law and the General Laws of the Commonwealth of Massachusetts have been met by the Petitioner.

The Board members discussed whether a Variance was necessary in order to change the buildings. The Board determined that the requested Special Permit for the change of a nonconforming use and structures was adequate and that the requested Variance was not necessary. At the request of the Petitioner, it was moved and unanimously voted in favor of the request to withdraw without prejudice for so much of the Variance request as was not needed.



Christopher Hemeon moved to grant a Special Permit and Variances as applied for and presented at the hearing. After discussion, the Board voted to grant the Special Permit under Section X, Paragraph J of the Harwich Zoning By-Law to change, extend or alter the pre-existing nonconforming structures and pre-existing nonconforming uses and parking, and the Petitioner's request for Variances from Section V, Paragraph E, Table I (Use Regulations) and Section IX, subsections A through C, including Table 4 (Off Street Parking Regulations).

Members of the Board voting in favor:

William J. Jussila, Chairman; John E. Ferreira; George Cavanaugh; Christopher Hemeon; and Donna Peterson.

Members of the Board voting in opposition:

None.

Therefore, by a vote of five (5) in favor and zero (0) opposed, the Petitioner's request for a Special Permit under Section X, Paragraph J of the Harwich Zoning By-Law to change, extend or alter the pre-existing nonconforming structures and pre-existing nonconforming uses and parking, and the Petitioner's request for Variances from Section V, Paragraph E, Table I (Use Regulations) and Section IX, subsections A through C, including Table 4 (Off Street Parking Regulations) are granted.

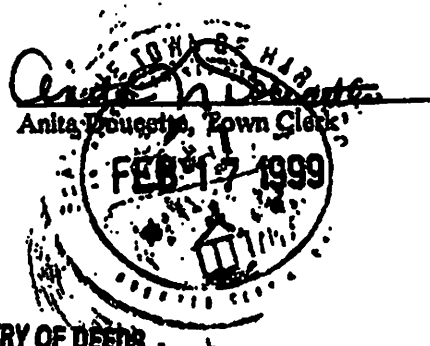
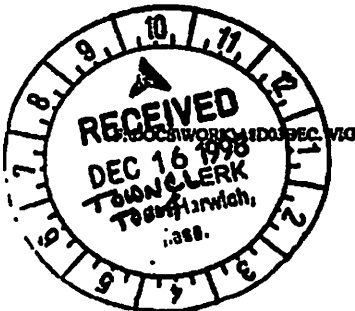
No permit shall issue until 20 days from the date of filing the decision with the Town Clerk.


William J. Jussila, Chairman EL

#98-80

CERTIFICATION OF TOWN CLERK:

I, Anita Doucette, Town Clerk, Town of Harwich, do hereby certify that 20 days have elapsed since the filing with me of the above Board of Appeals Decision No. 98-80 and that no notice of appeal of the decision has been filed with me, or if such appeals has been filed, it has been dismissed or denied.



BARNSTABLE REGISTRY OF DEEDS

To: BOS

To: Ms. M. Eldredge Health Director; Ms. C. Greenhalgh and Planning Board: Zoning Board; BOS (care of Ms. S. Delaney)

From: Alan C. Wirsul 2 Englewood Dr. Harwich Ma 908 239-1287

Subject: Royal Apartments, LLC Toxic Building materials in Structures Built prior to 1978-homes and Children occupied facilities. Federal Toxic Substances Control Act (TSCA) Section IV And Office of Chemical Safety and Pollution Prevention (OCSPP)

Dear Folks:

With regards to the Royal Oaks Apts. There is at least one structure on the property that dates back to the 1800's and where Toxic Building Materials were more than likely used (ie Lead and asbestos/Mesithelloma) and I would like to focus this writing to lead. Why? Local Governments do not focus on this subject until children are found with elevated harmful lead blood levels of lead and its too late. You wish an example, one need only look to Marthas Vineyard and the US Coast Guard Personnel who have young children found with harmful High levels of lead in government provided housing, reported only 2 weeks ago. What is even more interesting is that protocol testing was conducted and did not detect the levels of lead, most probably because the equipment used to measure could not detect the levels of lead most probably due to how the samples were taken or the equipment used to measure the appropriate restricted quantities. Please also find a short note on asbestos which I am sure you are aware of.

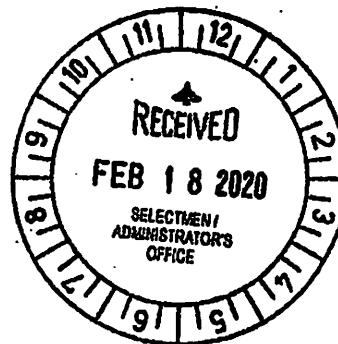
Please note that the Federal Office of Chemical Safety and Pollution Control (OCSPP) have taken important steps to further protect children from exposure to lead contaminate dust. The Royal Oaks Apts. certainly falls under these possible circumstances. And these regulations far supersede an MA. EPA Regulations.

Why you might ask? Lead is a soft metal and a potent neurotoxin with no known safe exposure thresholds according to the US National Library of Medicine. Lead is particularly harmful to the development of children brains, but can also have a variety of deleterious effects on people of all ages. It is especially important to note that elevated harmful levels of lead can show up in children's blood after only 2 years of living conditions. The consumer Product Safety commission, in 1977, limited lead in most paints to be at 0.06% (600ppm) by dry weight. Since 2009, the allowable lead level was reduced to 0.009%. Now the OCSPP and Federal EPA have lowered dust-lead Hazard standards on floors to 40 micrograms of lead per square foot (UG/ft2) Who will the future occupants be in the Royal Oak Apts.?

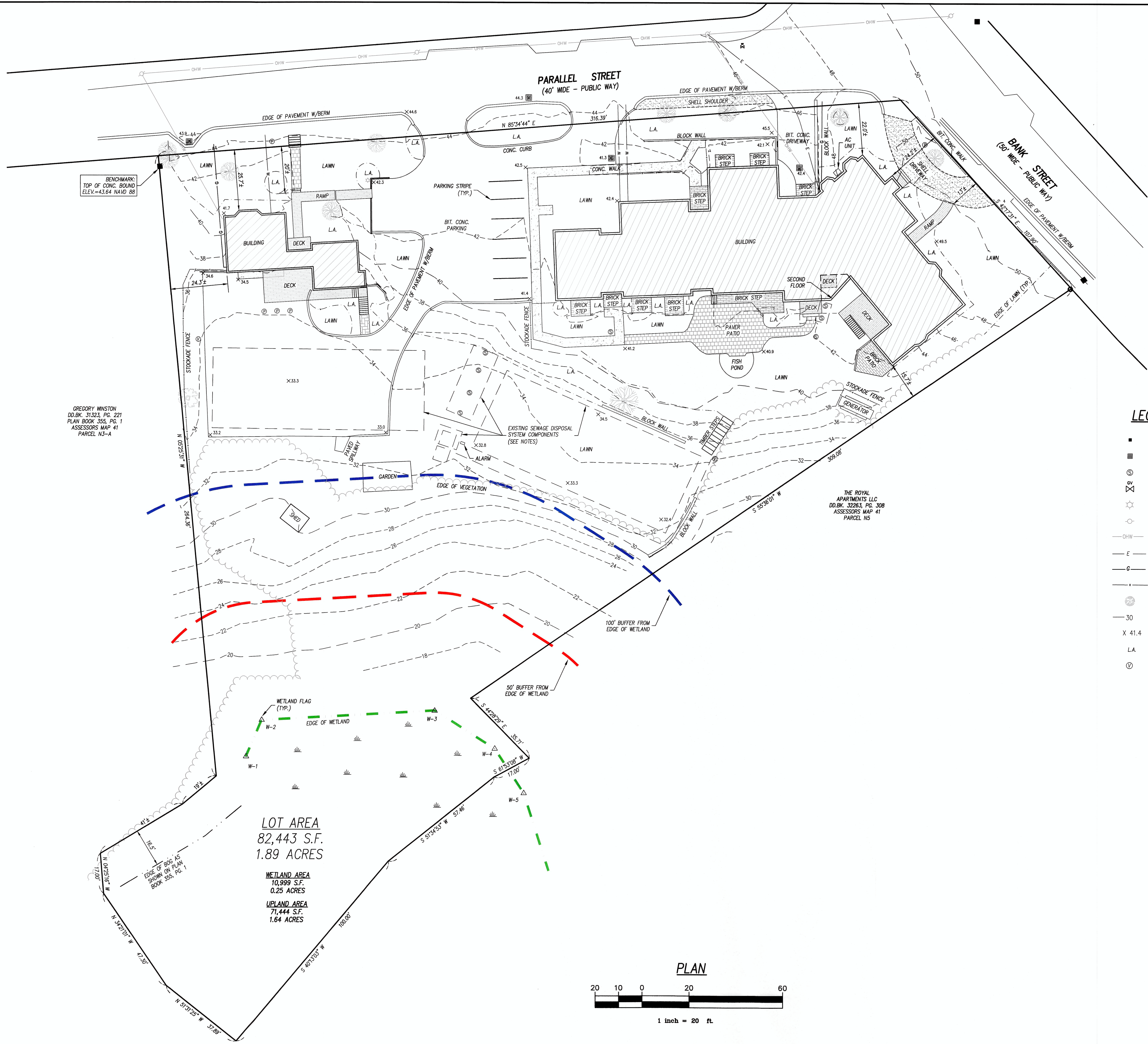
These are facts which cannot be disputed. Should the Town of Harwich have an obligation to impose a lead inspection and a risk assessor to Royal Oaks for any variance granted? Should there be an obligation to have a plan in place to abate interior level of lead paint (LBP) Obviously, the office of OCSPP has taken these steps to be certain that a place like the Royal Oaks Apts. are suitable of young children habitation by families with young children. Federal Regulations go far beyond the meer chipping of paint and have placed much tighter standards for lead. For Example, and as demonstrated

above in the presentation, OCSPP is very concerned about lead dust and frequently finds it a common occurrence on floors, in window sills, and believe it or not soils surrounding aged structures.

In conclusion, might I suggest that the Town Harwich pay close attention to the OCSPP newly established standards for Royal Oaks LLC Apts. for lead and not to be neglected asbestos. It is well known that Asbestos, as long as it is encapsulated and not brought out to dust levels, it can be contained. However, again, any asbestos incorporated in structures prior to 1980, should assume that asbestos is present and handled properly with "interior reconstruction" in aged building like at least part of the Royal Oaks LLC Apts.



F:\slg\proj\16000\16014\16014-04-C16014-V.dwg Oct 09, 2020 - 9:16am



LEGEND

- BOUND
- CATCH BASIN
- SEWER MANHOLE
- GAS VALVE
- LIGHTPOST
- UTILITY POLE
- OVERHEAD UTILITY LINE
- UNDERGROUND ELECTRIC LINE
- GAS LINE
- FENCE
- TREE
- CONTOUR
- SPOT GRADE
- LANDSCAPED AREA
- SEPTIC VENT

REFERENCES:

ASSESSORS MAP 41, PARCEL N4

DEED BOOK 32263, PAGE 179

PLAN BOOK 389, PAGE 98

ZONING CLASSIFICATION:
MULTI FAMILY RESIDENTIAL LOW
DENSITY (MR-L)

HARWICH CENTER OVERLAY
DISTRICT

HARWICH CENTER HISTORIC
DISTRICT

DATUM NOTE:

ELEVATIONS SHOWN HEREON ARE BASED
ON THE NORTH AMERICAN VERTICAL
DATUM 1988 (NAVD 1988)

NOTES

- EXISTING SEWAGE DISPOSAL SYSTEM
COMPONENTS SHOWN HEREON ARE FROM
ON THE GROUND "AS-BUILT" LOCATION
PERFORMED BY COASTAL ENGINEERING
COMPANY, INC (DEC. 2003).

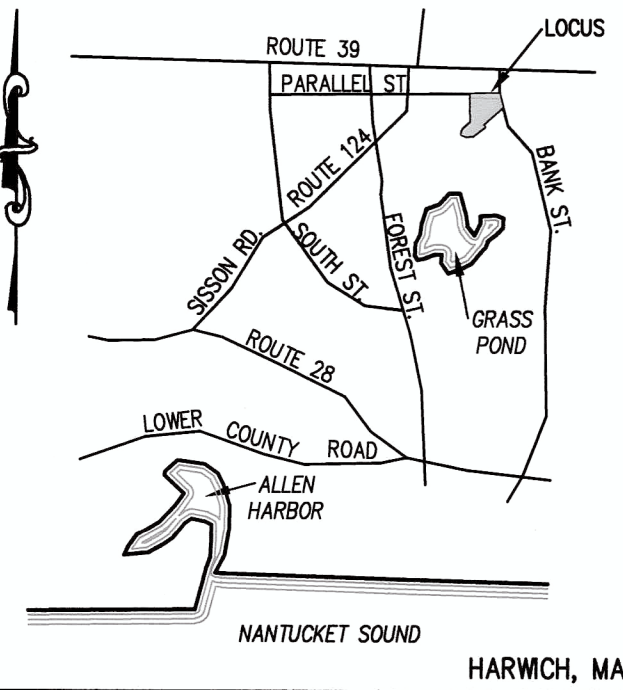
UTILITY NOTES:

- EXISTING UTILITIES, INCLUDING DRAINAGE
FACILITIES, HAVE BEEN SHOWN WHENEVER
POSSIBLE AND ARE SHOWN AS APPROXIMATE
FROM EXISTING RECORDS. THE CONTRACTOR SHALL
VERIFY THE LOCATION OF ALL EXISTING
UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO
COMMENCEMENT OF ANY WORK. ANY DAMAGE TO
EXISTING UTILITIES SHALL BE THE CONTRACTOR'S
RESPONSIBILITY AND ANY EXPENSE BORNE BY THE
CONTRACTOR.
- EXISTING UTILITIES, UNDERGROUND AND OVERHEAD,
MAY EXIST IN ADDITION TO THE UTILITY
INFORMATION SHOWN ON THESE PLANS.
- CONTRACTOR SHALL NOTIFY ALL UTILITIES PRIOR
TO EXCAVATION.
- CONTRACTOR SHALL NOTIFY "DIG-SAFE" AT
1-800-344-7233 PRIOR TO ANY EXCAVATION.
LOCATIONS OF WATER, SEWER, ELECTRIC AND GAS
ARE APPROXIMATE AND FOR REFERENCE ONLY.
CONTRACTOR SHALL INSPECT SITE AND FOLLOW
ALL DIG-SAFE MARKINGS.

I HEREBY CERTIFY THAT THE CONDITIONS
SHOWN HEREON ARE LOCATED AS THEY
EXISTED ON THE GROUND AS OF 10-24-19.

DATE 10/09/2020

P.L.S.

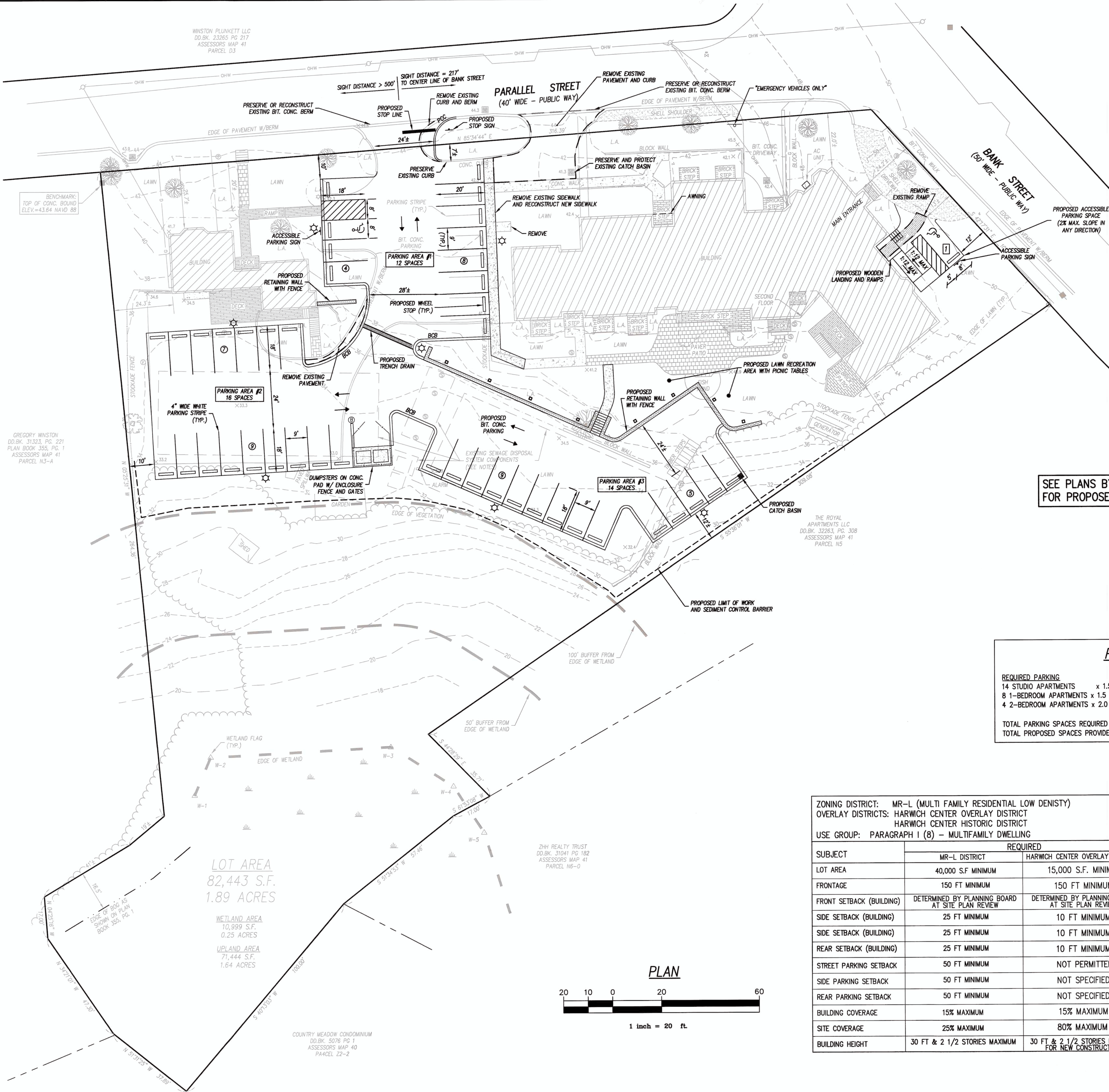


KEY MAP
NO SCALE

260 Cranberry Hwy, Orleans, MA 02653 508.255.6511 P 508.255.6700 F	
CEM	BY
CEM	REVISION
ADD SECTION OF SIDE WALK	
ADD SUPPLEMENTARY UTILITY LOCATIONS	
DATE	NO.
2	10-9-2020
1	1-6-2020
SEAL	
HARWICH, MA	
ROYAL APARTMENTS, LLC	
328 BANK STREET	
SHEET TITLE	
PLAN SHOWING EXISTING SITE CONDITIONS	
SCALE AS NOTED	
DRAWING FILE C16014-V.dwg	
DATE 10-31-19	
DRAWN BY J.L.H	
CHECKED BY J.D.M	
C1.1.1	
1 OF 1 SHEETS	
PROJECT NO. C16014.04	

Coastal Engineering Co., Inc. © 2020

C:\SSS\PROJECTS\16014\16014-04\16014-04-C.dwg Oct 21, 2020 9:58am



SEE PLANS BY D.H. DUNLAP ASSOCIATES, INC.
FOR PROPOSED LIGHTING AND LANDSCAPING

PARKING TABLE

REQUIRED PARKING	
14 STUDIO APARTMENTS	x 1.5 SPACES/UNIT = 21 SPACES
8 1-BEDROOM APARTMENTS	x 1.5 SPACES/UNIT = 12 SPACES
4 2-BEDROOM APARTMENTS	x 2.0 SPACES/UNIT = 8 SPACES
TOTAL PARKING SPACES REQUIRED = 41 SPACES	
TOTAL PROPOSED SPACES PROVIDED = 43 SPACES (INCLUDING 2 ACCESSIBLE SPACES)	

ZONING DISTRICT: MR-L (MULTI FAMILY RESIDENTIAL LOW DENSITY)
OVERLAY DISTRICTS: HARWICH CENTER OVERLAY DISTRICT
HARWICH CENTER HISTORIC DISTRICT
USE GROUP: PARAGRAPH 1 (8) - MULTIFAMILY DWELLING

SUBJECT	REQUIRED		EXISTING	PROPOSED
	MR-L DISTRICT	HARWICH CENTER OVERLAY DISTRICT		
LOT AREA	40,000 S.F. MINIMUM	15,000 S.F. MINIMUM	82,443 S.F.	NO CHANGE
FRONTAGE	150 FT MINIMUM	150 FT MINIMUM	424.3 FT	NO CHANGE
FRONT SETBACK (BUILDING)	DETERMINED BY PLANNING BOARD AT SITE PLAN REVIEW	DETERMINED BY PLANNING BOARD AT SITE PLAN REVIEW	22.0 FT	NO CHANGE
SIDE SETBACK (BUILDING)	25 FT MINIMUM	10 FT MINIMUM	15.7 FT (EAST)	NO CHANGE
SIDE SETBACK (BUILDING)	25 FT MINIMUM	10 FT MINIMUM	24.3 FT (WEST)	NO CHANGE
REAR SETBACK (BUILDING)	25 FT MINIMUM	10 FT MINIMUM	>250 FT	NO CHANGE
STREET PARKING SETBACK	50 FT MINIMUM	NOT PERMITTED	7.0 FT	NO CHANGE
SIDE PARKING SETBACK	50 FT MINIMUM	NOT SPECIFIED	10.0 FT	NO CHANGE
REAR PARKING SETBACK	50 FT MINIMUM	NOT SPECIFIED	182.0± FT	175.0± FT
BUILDING COVERAGE	15% MAXIMUM	15% MAXIMUM	10.7% (8,834 S.F.)	NO CHANGE
SITE COVERAGE	25% MAXIMUM	80% MAXIMUM	25.8% (21,318 S.F.)	48.0% (39,536± S.F.)
BUILDING HEIGHT	30 FT & 2 1/2 STORIES MAXIMUM	30 FT & 2 1/2 STORIES MAXIMUM FOR NEW CONSTRUCTION	EXISTING	NO CHANGE

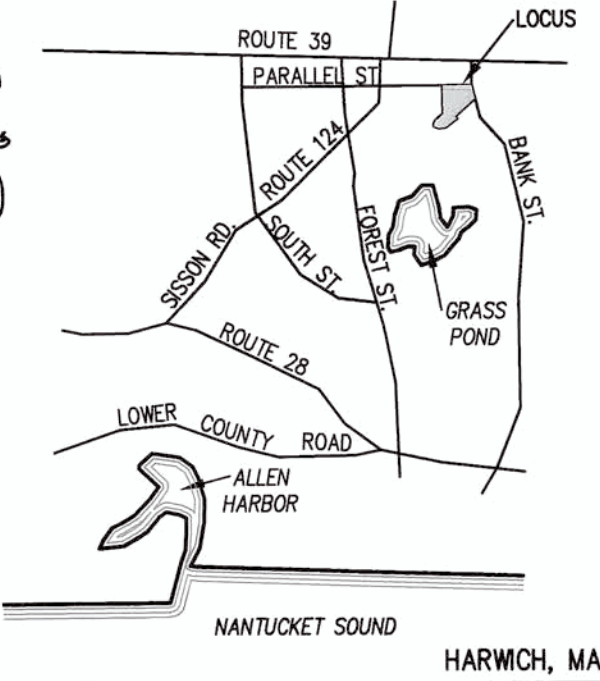
LEGEND

EXISTING

- BOUND
- CATCH BASIN
- SEWER MANHOLE
- GAS VALVE
- LIGHTPOST
- UTILITY POLE
- OVERHEAD UTILITY LINE
- FENCE
- TREE
- CONTOUR
- X 41.4 SPOT GRADE
- L.A. LANDSCAPED AREA

PROPOSED

- CONTOUR
- +41.4 SPOT GRADE
- CATCH BASIN
- AREA DRAIN
- BITUMINOUS CONCRETE BERM
- PRECAST CONCRETE CURB
- VEHICLE TRAVEL DIRECTION (NOT PAINTED)
- BOLLARD
- TRAFFIC SIGN
- LIGHT POLE



REFERENCES:

ASSESSORS MAP 41, PARCEL N4
DEED BOOK 32263, PAGE 179
PLAN BOOK 389, PAGE 98

OWNER:

ROYAL APARTMENTS LLC
8 ALTON PLACE
BROOKLINE, MA 02446

APPLICANT:

ROYAL APARTMENTS LLC
8 ALTON PLACE
BROOKLINE, MA 02446

DATUM NOTE:

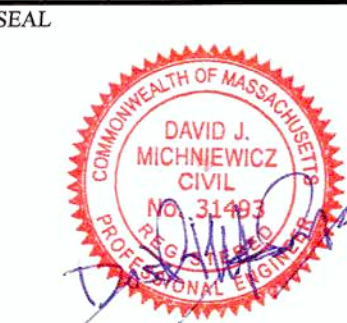
ELEVATIONS SHOWN HEREON ARE BASED
ON THE NORTH AMERICAN VERTICAL
DATUM 1988 (NAVD 1988)

NOTES

- EXISTING SEWAGE DISPOSAL SYSTEM COMPONENTS SHOWN HEREON ARE FROM ON THE GROUND "AS-BUILT" LOCATION PERFORMED BY COASTAL ENGINEERING COMPANY, INC. (DEC. 2003).
- THE EXISTING SEWAGE DISPOSAL SYSTEM HAS A PERMITTED DESIGN FLOW OF 4,773 GPD WHICH IS GREATER THAN THE PROPOSED DESIGN FLOW OF 3,300 GPD (30 BEDROOMS AT 110 GPD).
- THE EXISTING SEWAGE DISPOSAL SYSTEM COMPONENTS BENEATH PARKING AREAS ARE DESIGNED FOR VEHICLE LOADS.



BY	CEM	CEM	CEM
CHANGE APARTMENT UNIT MIX AND REVISE PARKING TABLE			
REVISIONS FOR NEW ZONING BYLAW REGULATIONS			
EDITS TO ADDRESS TOWN PLANNERS COMMENTS			
REVISION			
DATE			
NO.			



ROYAL APARTMENTS, LLC
328 BANK STREET
HARWICH, MA
SHEET TITLE
PLAN SHOWING PROPOSED
SITE LAYOUT AND MATERIALS

SCALE	AS NOTED
DRAWING FILE	C16014-04-C.dwg
DATE	12-5-2019
DRAWN BY	CEM
CHECKED BY	DJM

C2.1.1
OF SHEETS
PROJECT NO. C16014.04

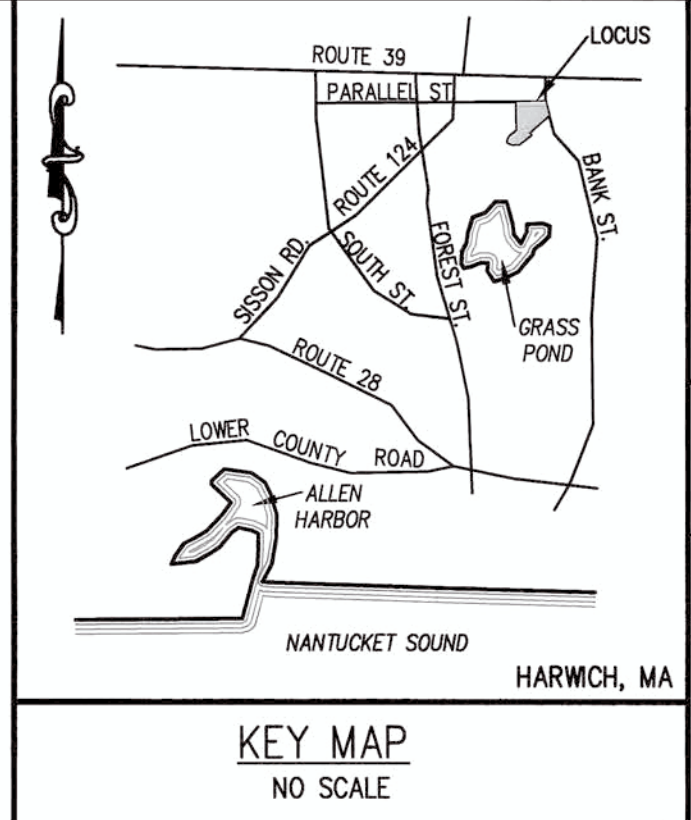
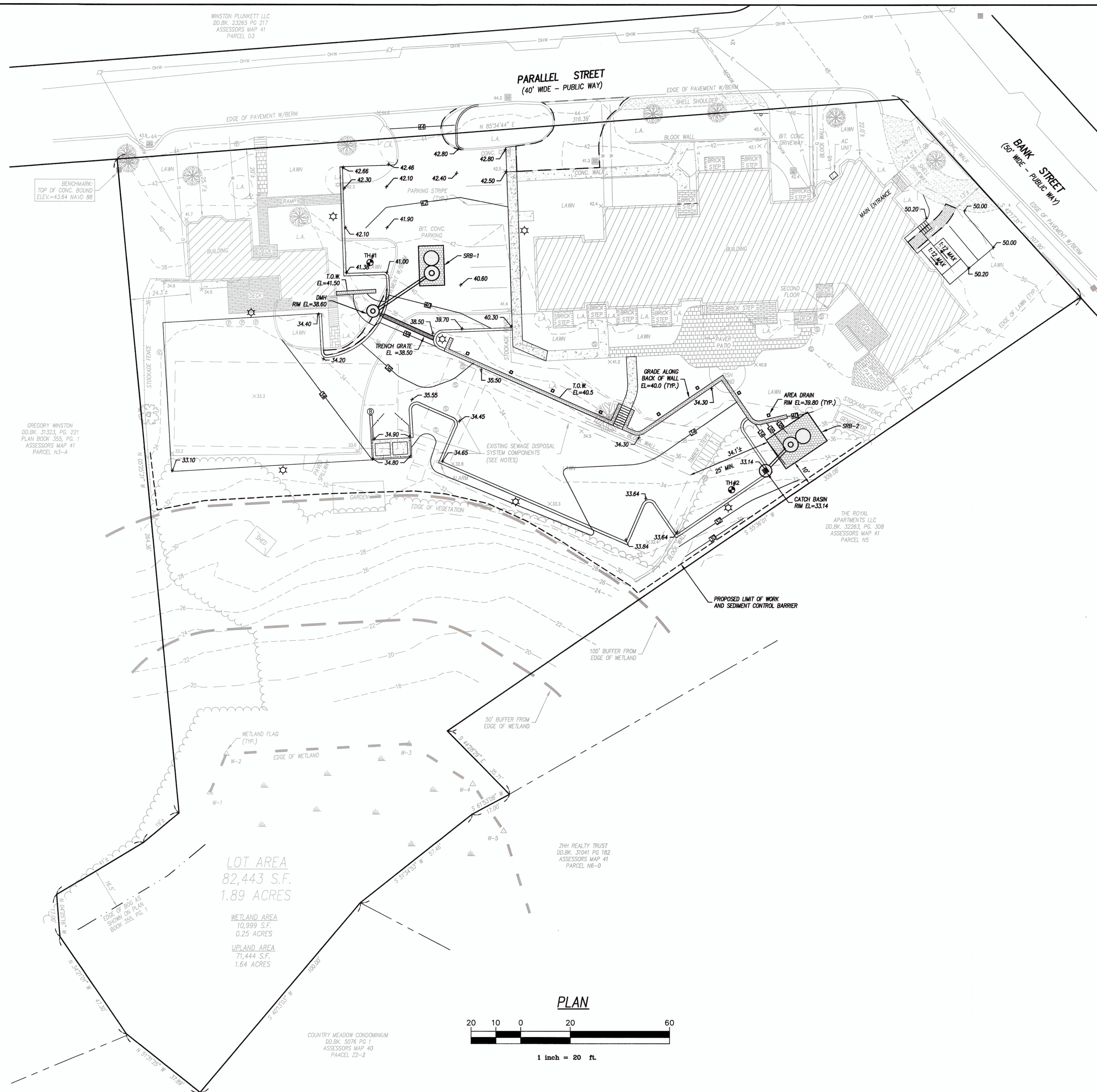
NO SCALE

DATE OF TESTS : DECEMBER 2, 2019

WITNESSED BY : JOHN SCHNAIBLE, CEO

DEPTH FROM SURFACE	SOIL HORIZON	SOIL TEXTURE
0" - 13"	A	TOPSOIL
13" - 33"	B	SUBSOIL
33" - 132"	C	MED TO COARSE SAND (LOOSE)

DEPTH FROM SURFACE	SOIL HORIZON	SOIL TEXTURE
0" - 18"	A	TOPSOIL
18" - 36"	B	SUBSOIL
36" - 120"	C	MED TO COARSE SAND (LOOSE)



ASSESSORS MAP 41, PARCEL N4
DEED BOOK 32263, PAGE 179
PLAN BOOK 389, PAGE 98













ROYAL APARTMENTS LLC
8 ALTON PLACE
BROOKLINE, MA 02446

ROYAL APARTMENTS LLC
8 ALTON PLACE
BROOKLINE, MA 02446

ELEVATIONS SHOWN HEREON ARE BASED
ON THE NORTH AMERICAN VERTICAL
DATUM 1988 (NAVD 1988)

1. EXISTING SEWAGE DISPOSAL SYSTEM COMPONENTS SHOWN HEREON ARE FROM ON THE GROUND "AS-BUILT" LOCATION PERFORMED BY COASTAL ENGINEERING COMPANY, INC (DEC. 2003).
2. THE EXISTING SEWAGE DISPOSAL SYSTEM HAS A PERMITTED DESIGN FLOW OF 4,773 GPD WHICH IS GREATER THAN THE PROPOSED DESIGN FLOW OF 4,730 GPD (43 BEDROOMS AT 110 GPD)

EXISTING

- | | |
|---|-----------------------|
|  | BOUND |
|  | CATCH BASIN |
|  | SEWER MANHOLE |
|  | GAS VALVE |
|  | LIGHT POLE |
|  | UTILITY POLE |
|  | OVERHEAD UTILITY LINE |
|  | FENCE |
|  | TREE |
|  | CONTOUR |
|  | SPOT GRADE |
|  | LANDSCAPED AREA |

	CONTOUR
	SPOT GRADE
	CATCH BASIN
	AREA DRAIN
	DRAINAGE TEST HOLE
	STORMWATER RECHARGE BASIN
	BOLLARD
	LIGHT POLE

[illegible]

ROYAL APARTMENTS, LLC
328 BANK STREET
HARWICH, MA

**PLAN SHOWING PROPOSED
GRADING AND DRAINAGE**

SHEET TITLE

SCALE	AS NOTED
DRAWING FILE	C16014.04-C.dwg
DATE	-12-5-2019
DRAWN BY	CEM
CHECKED BY	DJM

C2.2.1

— OF — SHEETS	
PROJECT NO.	C16014.04



Technical drawing of a window unit. The overall width is 16'-0" and the overall height is 8'-0". The unit is divided into two main sections, each 8'-0" wide. The top section is 34.80" high and contains two windows. The bottom section is 34.90" high and contains a sawcut contraction joint. The unit is finished with black vinyl coated with black slabs. The drawing also shows a detail of the sawcut contraction joint and a detail of the black vinyl coating.

Dimensions:

- Overall Width: 16'-0"
- Overall Height: 8'-0"
- Top Section Height: 34.80"
- Bottom Section Height: 34.90"
- Section Width: 8'-0" (each)

Labels:

- SAWCUT CONTRACTION JOINT
- BLACK VINYL COATED WITH BLACK SLABS

The drawing consists of two views: a side view at the top and a top view below it.

Side View: Shows a cross-section of the gate assembly. A horizontal rail is attached to a post. The post is labeled "16D BOX NAIL (GALVANIZED)". The horizontal rail is labeled "HORIZONTAL RAIL". The end of the rail is labeled "END CLEAT". The post is labeled "POST".

Top View: Shows the gate from above. The gate is labeled "TOP VIEW". The gate is composed of vertical rails and horizontal rails. The vertical rails are labeled "8\"x8\" POST WITH A CEMENT CONCRETE (TYP. AT GATE ONLY)". The horizontal rails are labeled "MID RAIL", "STOCKADE", and "BOTTOM RAIL". The gate is shown in relation to the "FINISH GRADE". The gate is shown in relation to the "FINISH GRADE". The gate is shown in relation to the "FINISH GRADE".

Dimensions:

- Gate height: 6'-0"
- Gate width: 3'-6" MIN.
- Post diameter: 18" DIA. (TYP.)
- Gate width: 8'-0" (TYP.)

Diagram illustrating the components of a standard mesh fence section:

- BLACK VINYL-COATED MESH
- TOP RAIL
- STEEL POST
- BOTTOM RAIL
- TOP OF WALL
- 48"

4" HIGH BLACK VINYL COATED CHAIN LINK FENCE ON TOP OF RETAINING WALL

CORE HOLE THROUGH BLOCK FOR CHAIN LINK FENCE POST AND GROUT POST INTO WALL

CAP BLOCK

TOP SOIL

YARD DRAIN

FINISH GRADE

SEE PLAN FOR TOP OF WALL ELEVATION

VERTICAL FACE HEIGHT DIM. (SEE PLAN)

PROVIDE WALL ANCHORING PER ENGINEERED DESIGN

DRAINAGE AGGREGATE 12" THICK MIN.

4" DIA. (MIN.) PERFORATED DRAIN PIPE PROVIDE WEEP HOLE OUTLETS THROUGH WALL AT 20'-FT ON CENTER

GRANULAR LEVELING PAD 6" THICK MIN.

MODULAR CONCRETE BLOCK RETAINING WALL DETAIL
NOT TO SCALE

Diagram illustrating the cross-section of a pavement structure, showing the following layers and dimensions:

- Top Layer:** 1" BITUMINOUS SURFACE COURSE CLASS 1, TYPE I-1
- Second Layer:** 2" BITUMINOUS BINDER COURSE CLASS 1, TYPE I-1
- Third Layer:** 12" PROCESSED GRAVEL BASE COURSE (COMPACTED) (M1.03.1)
- Bottom Layer:** COMPACTED SUBGRADE
- Dimensions:**
 - Overall width: 6" MIN. (on both sides)
 - Overall thickness: 12" MIN.
 - Width and slope varies (SEE SITE PLANS)

Diagram illustrating the dimensions for a 4' x 8' accessible parking space. The space is defined by a 4' x 8' rectangle. The wheelchair symbol is positioned within this space, with dimensions indicating the required clearances and offsets for the vehicle and the wheelchair user. Key dimensions include a 4' R (radius) for the front of the vehicle, a 5' offset for the rear of the vehicle, and a 1' offset for the wheelchair. The wheelchair symbol itself has a 4' width and a 1' offset from the side of the vehicle. The overall dimensions of the space are 4' x 8'.

4' ACCESSIBLE PARKING GRAPHIC SYMBOL PAINTED WHITE (SEE DETAIL)
SYMBOL TO BE PAINTED ON BLUE NON-SKID BACKGROUND

4' WIDE PAINTED WHITE LINES (TYP)

EDGE OF BERM
EDGE OF PAVEMENT

20'-0"

6'-0"

6'-0"

8'-0"

6'-0"

9'-0"

ACCESSIBLE PARKING SPACE OR 5'-0" (TYP.)

Diagram illustrating a slope protection method using straw wattles and wooden stakes:

- A **12" STRAW WATTLE** is placed vertically against the slope.
- A **2" X 2" X 3' WOODEN STAKE 10' ON CENTER (MAX.)** is driven through the wattle into the ground.
- The wattle is secured to the stake with a **1"** vertical strap or tie.
- The area between the wattle and the slope is labeled **AREA TO BE PROTECTED**.
- The slope is indicated by a line labeled **SLOPE**.
- The vertical distance from the ground to the top of the wattle is **3'**.



COASTAL
engineering co.

260 Cranberry Hwy, Orleans, MA 02653
508.255.6511 P 508.255.6700 F

2	10-9-2020	FENCE AND DUMPSTER DETAILS UPDATED		CEM
1	1-6-2020	ADDED BITUMINOUS CONCRETE BERM DETAIL		CEM
NO.	DATE:	REVISION:		PX

SEAL



PROJECT

ROYAL APARTMENTS, LLC

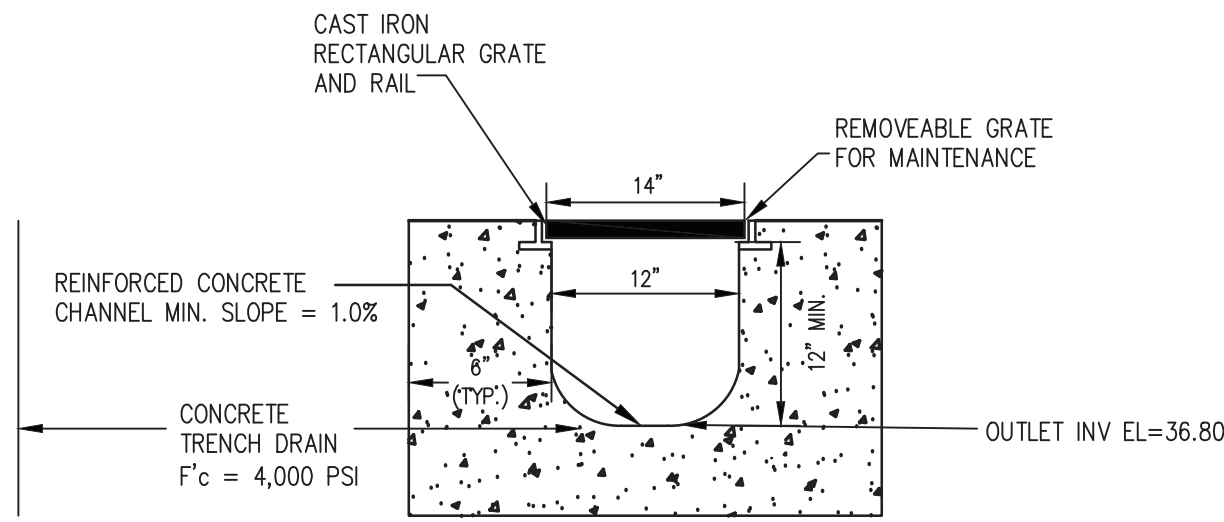
328 BANK STREET
HARWICH, MA

SITE DETAILS

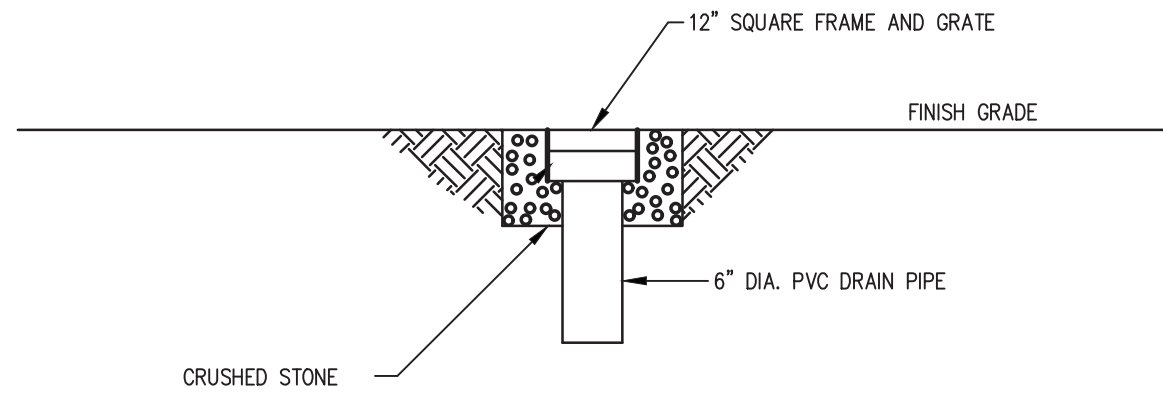
PROJECT

SCALE	AS NOTED
DRAWING FILE	C16014.04-C.dwg
DATE	12-5-19
DRAWN BY	CEM
CHECKED BY	DIM

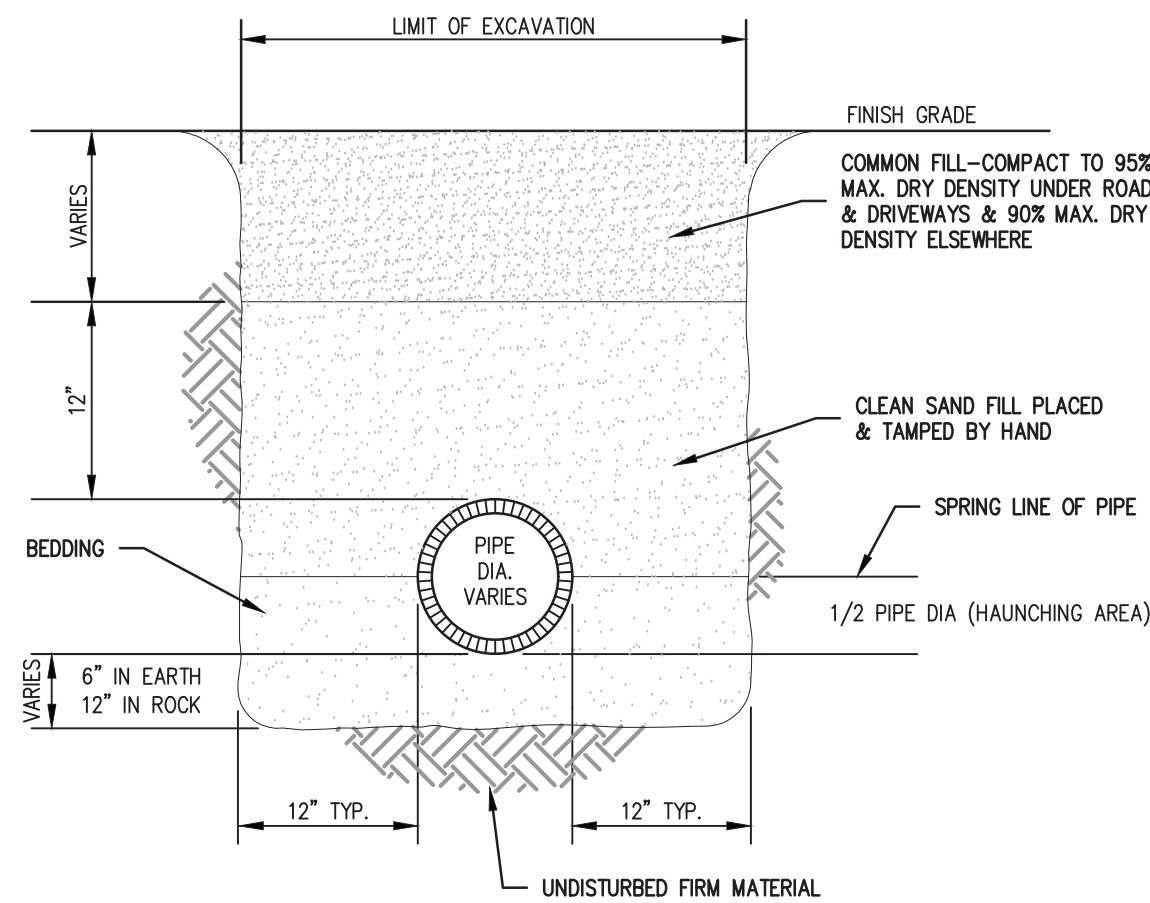
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 — OF — SHEETS
 PROJECT NO. C16014.04



TRENCH DRAIN DETAIL
(NOT TO SCALE)

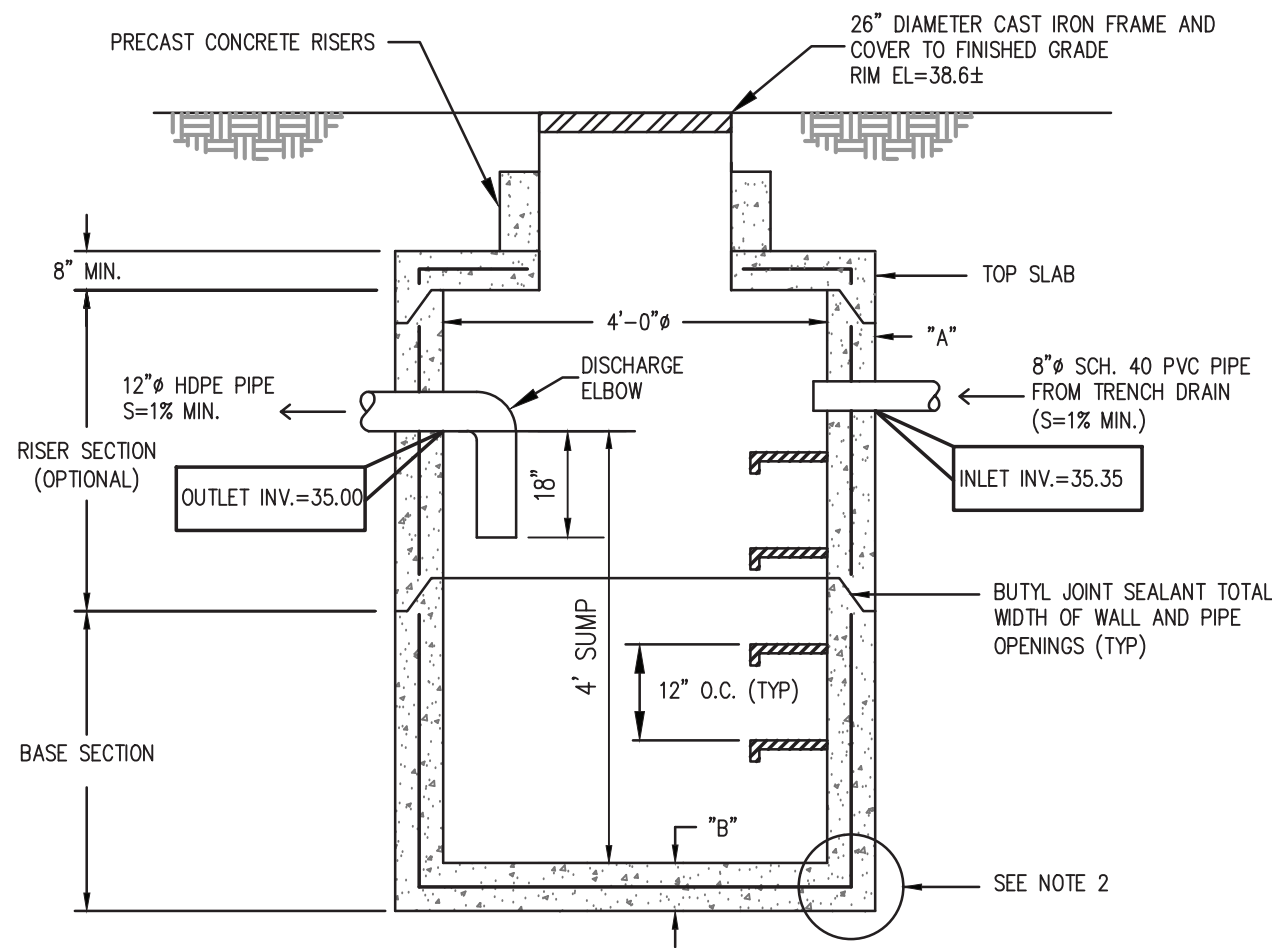


YARD DRAIN DETAIL
NOT TO SCALE



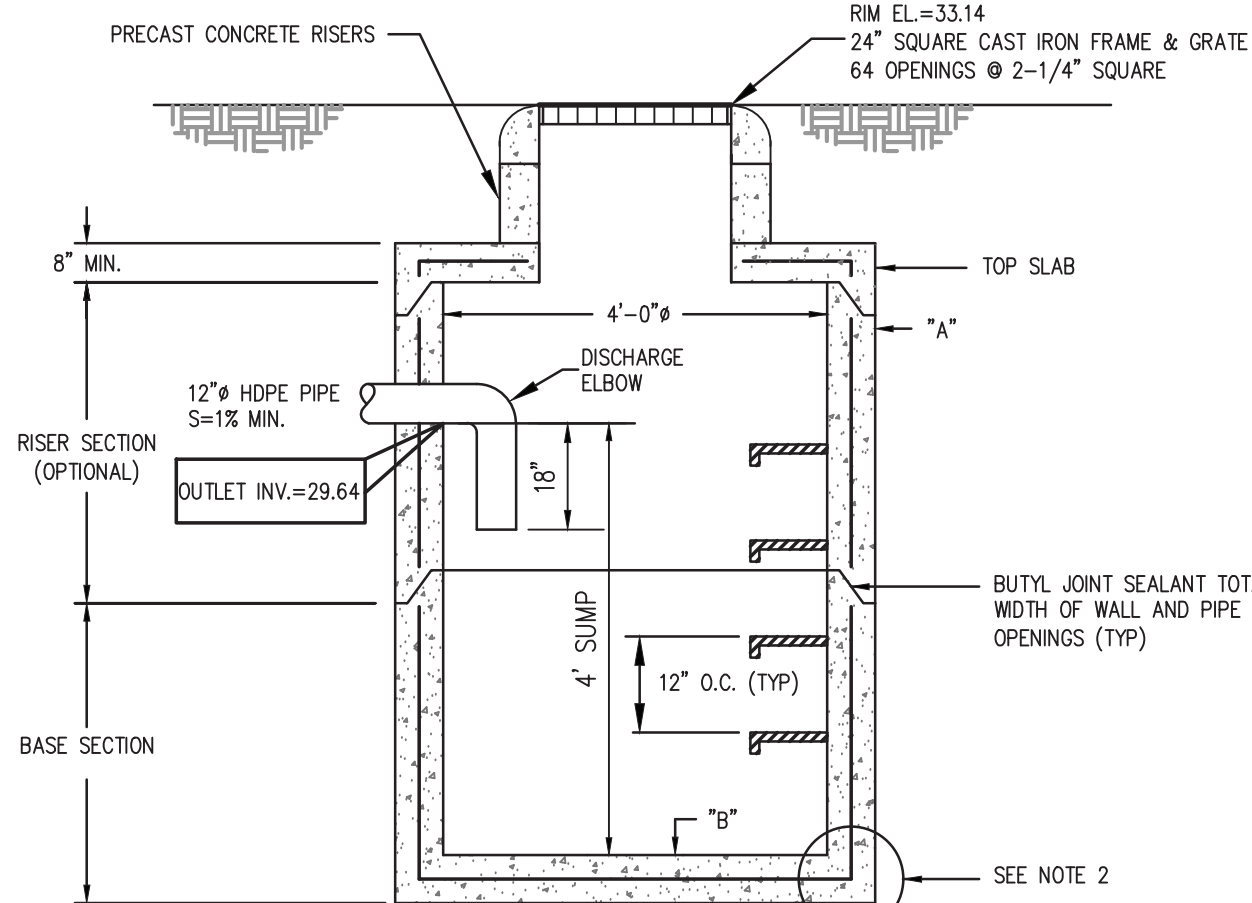
GENERAL NOTES:
1. FINISH GRADE MATERIAL VARIES (SEE SITE PLAN)
2. COMPACT SOIL IN HAUNCHING ZONE TO 85% MAX DRY DENSITY.

UTILITY TRENCH
NOT TO SCALE



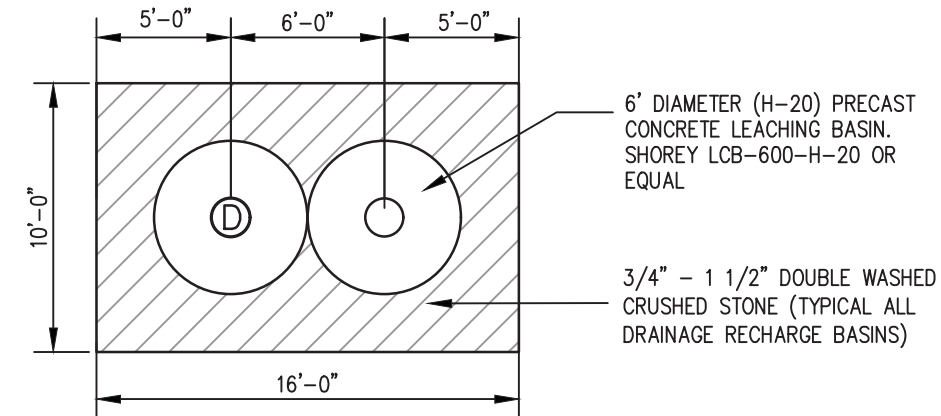
PRECAST CONCRETE DRAINAGE MANHOLE
NOT TO SCALE

GENERAL NOTES:
1. ALL REINFORCING STEEL MUST CONFORM TO THE LATEST ASTM A185 AND/OR A615 GRADE 60. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENT.
2. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MIN. OF 0.12 SQ. IN./LINEAL FT. (BOTH WAYS).
3. CATCH BASIN SPECS. CONFORM TO THE LATEST ASTM C478 SPEC. FOR "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS".
4. MORTAR SHALL CONFORM TO SECTION M4.02.15 OF THE MASSACHUSETTS D.P.W. STANDARD SPECS. FOR HIGHWAYS AND BRIDGES.
5. STEPS SHALL BE M.A. INDUSTRIES TYPE, STEEL REINFORCED COPOLYMER POLYPROPYLENE PLASTIC.
6. ONE POUR MONOLITHIC BASE SECTION.
7. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS, CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
8. RED CLAY BRICK SHALL CONFORM WITH SECTION M4.05.2 CLAY BRICK OF MASSACHUSETTS D.P.W. STANDARD SPECS. FOR HIGHWAY AND BRIDGES.

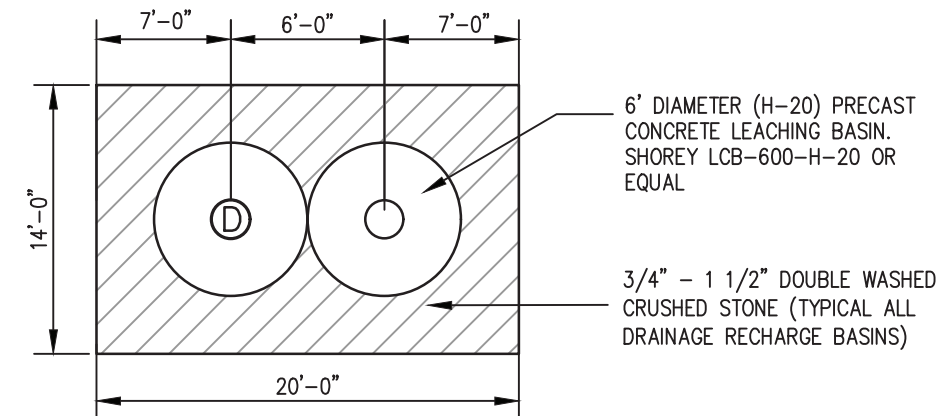


PRECAST CONCRETE CATCH BASIN
NOT TO SCALE

GENERAL NOTES:
1. ALL REINFORCING STEEL MUST CONFORM TO THE LATEST ASTM A185 AND/OR A615 GRADE 60. SEE TABLE 1 FOR STEEL REINFORCEMENT REQUIREMENT.
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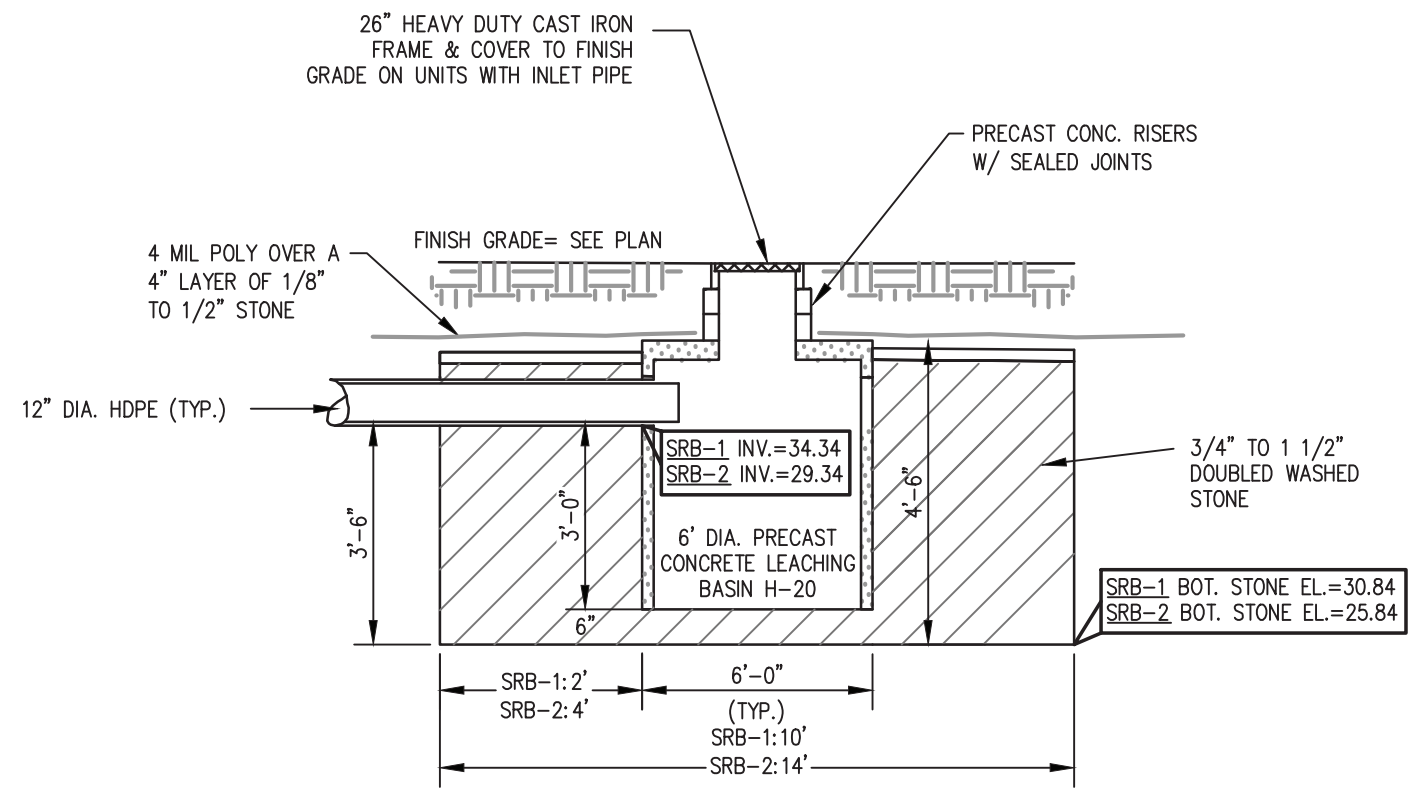
SRB-1



SRB-2

NOTES:
1. FILTER FABRIC & TURF REINFORCEMENT SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURERS SPECIFICATIONS.
2. THE INSTALLER SHALL ASCERTAIN THE LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATION, AND SHALL PROTECT UTILITIES WITHIN THE WORK AREA DURING CONSTRUCTION.
3. LEACHING RECHARGE BASINS SHALL REMAIN OFFLINE UNTIL THE SITE AND ALL VEGETATION HAS BEEN STABILIZED.

DETAILS OF STORMWATER RECHARGE BASINS
NOT TO SCALE

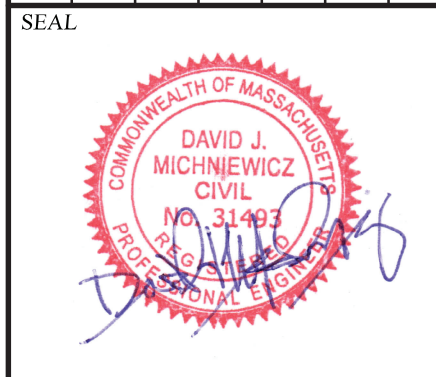


NOTES:
1. ** DRAINAGE RECHARGE STRUCTURES TO BE PLACED IN CLEAN COARSE SAND. CONTRACTOR TO PERFORM A SOIL TEST AND NOTIFY ENGINEER FOR ON SITE INSPECTION OF SOILS PRIOR TO INSTALLATION OF ANY DRAINAGE SYSTEM COMPONENTS. STRUCTURE MAY BE PLACED ABOVE COARSE SAND LAYER PROVIDED CONTRACTOR PERFORMS A 5' SOIL REMOVAL AROUND BASIN DOWN TO THE COARSE SAND HORIZON. REMOVAL TO BE FILLED IN ACCORDANCE WITH NOTE #2 TO TOP OF STRUCTURE. (CONTRACTOR SHALL INCLUDE A UNIT COST FOR REMOVAL AND REPLACEMENT IN THE BID PRICE).
2. FILL MATERIAL FOR SYSTEMS CONSTRUCTED IN FILL SHALL BE CLEAN GRANULAR SAND, FREE OF ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS. THE SAND SHALL BE GRADED SUCH THAT NOT MORE THAN 45% OF THE SAMPLE, BY WEIGHT, SHALL BE RETAINED ON THE #4 SIEVE. THE FILL SHALL NOT CONTAIN ANY MATERIAL LARGER THAN 2 INCHES. THE MATERIAL THAT PASSES THE #4 SIEVE SHALL MEET THE FOLLOWING GRADATION REQUIREMENTS:

SIEVE SIZE	PERCENT PASSING
# 4	100%
# 50	10%-100%
# 100	0%-20%
# 200	0%-5%

TYPICAL END VIEW OF STORMWATER RECHARGE BASIN
NOT TO SCALE

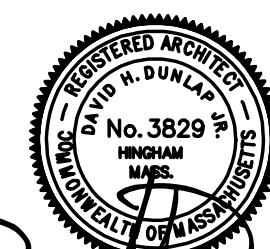
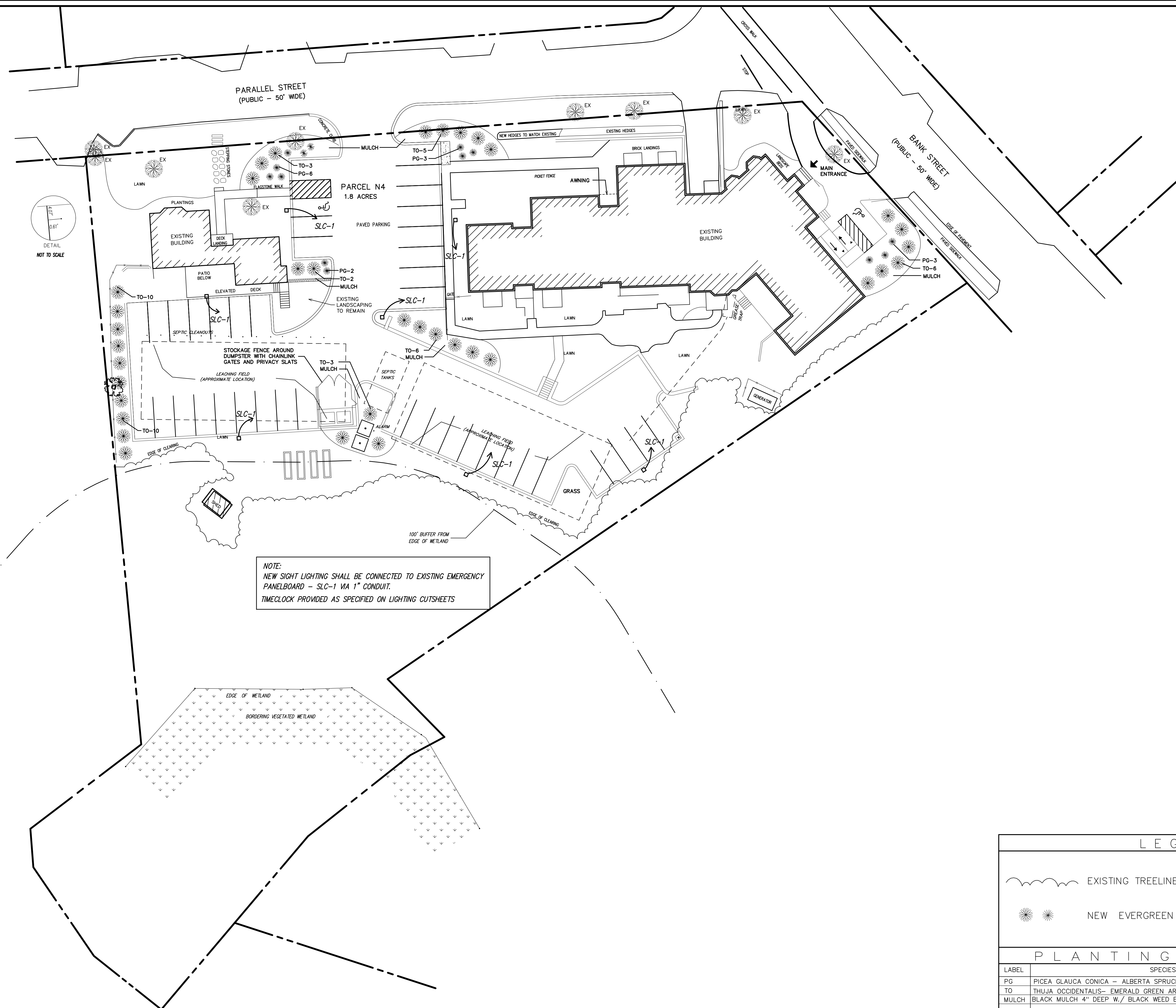
NO.	DATE	REVISION	BY
2	10-9-2020	MINOR REVISIONS	CEM
1	1-6-2020	NO CHANGES TO THIS SHEET	CEM



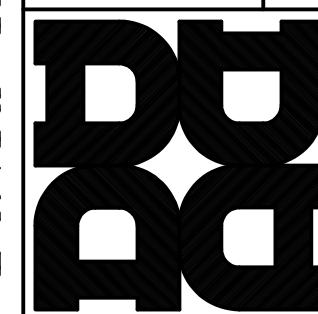
PROJECT	ROYAL APARTMENTS, LLC	HARWICH, MA
328 BANK STREET		
SHEET TITLE	UTILITY DETAILS	

SCALE	AS NOTED
DRAWING FILE	C16014.04-C.dwg
DATE	12-5-19
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CHECKED BY	DJM

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OF SHEETS
PROJECT NO. C16014.04



David H. Dunlap Associates Inc.



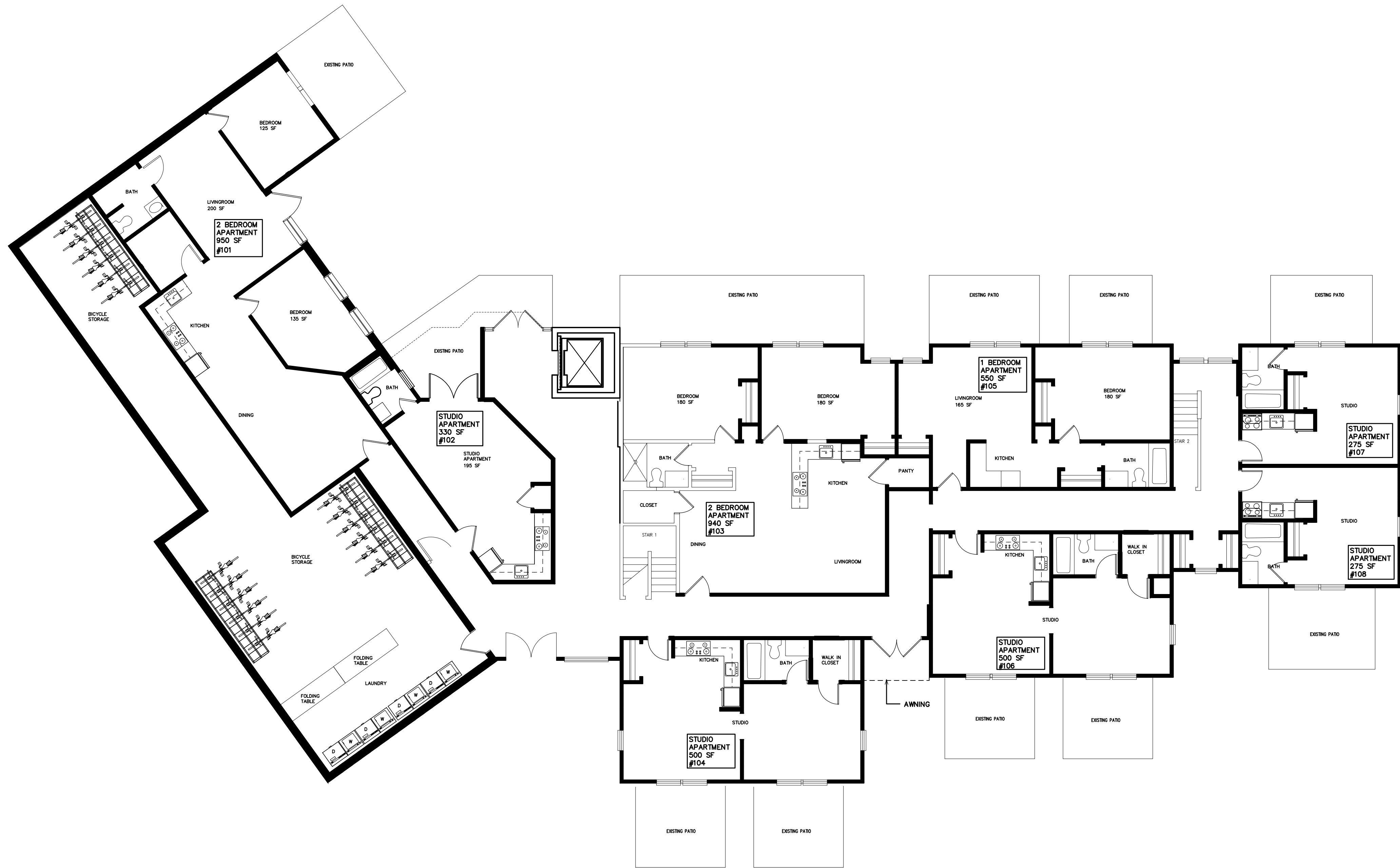
LANDSCAPE AND SITE ELECTRICAL PLAN

HARWICH, MA

DR. BY:
MCN

SP —

[illegible]



GROUND FLOOR PLAN
1/8"=1'-0"

NOTE: ALL HABITABLE ROOMS HAVE NO LESS THAN 120 SQUARE FEET FLOOR AREA AND NO MAJOR DIMENSION OF LESS THAN 10 FEET IN COMPLIANCE WITH THE HARWICH ZONING BYLAW SECTION 325-51(Q)(4).

APARTMENT MIX CHART				
LOCATION	STUDIO	1 BD RM	2 BD RM	TOTAL
GROUND FLOOR	5	1	2	8
FIRST FLOOR	4	4	1	9
SECOND FLOOR	3	1	0	4
THIRD FLOOR	0	0	1	1
ACCESSORY	2	2	0	4
TOTAL	14	8	4	26

David H. Dunlap Associates Inc.

ARCHITECTS * ENGINEERS * PLANNERS

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email: David@dhdunlap.com

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GROUND FLOOR PLAN

Royal Apartments

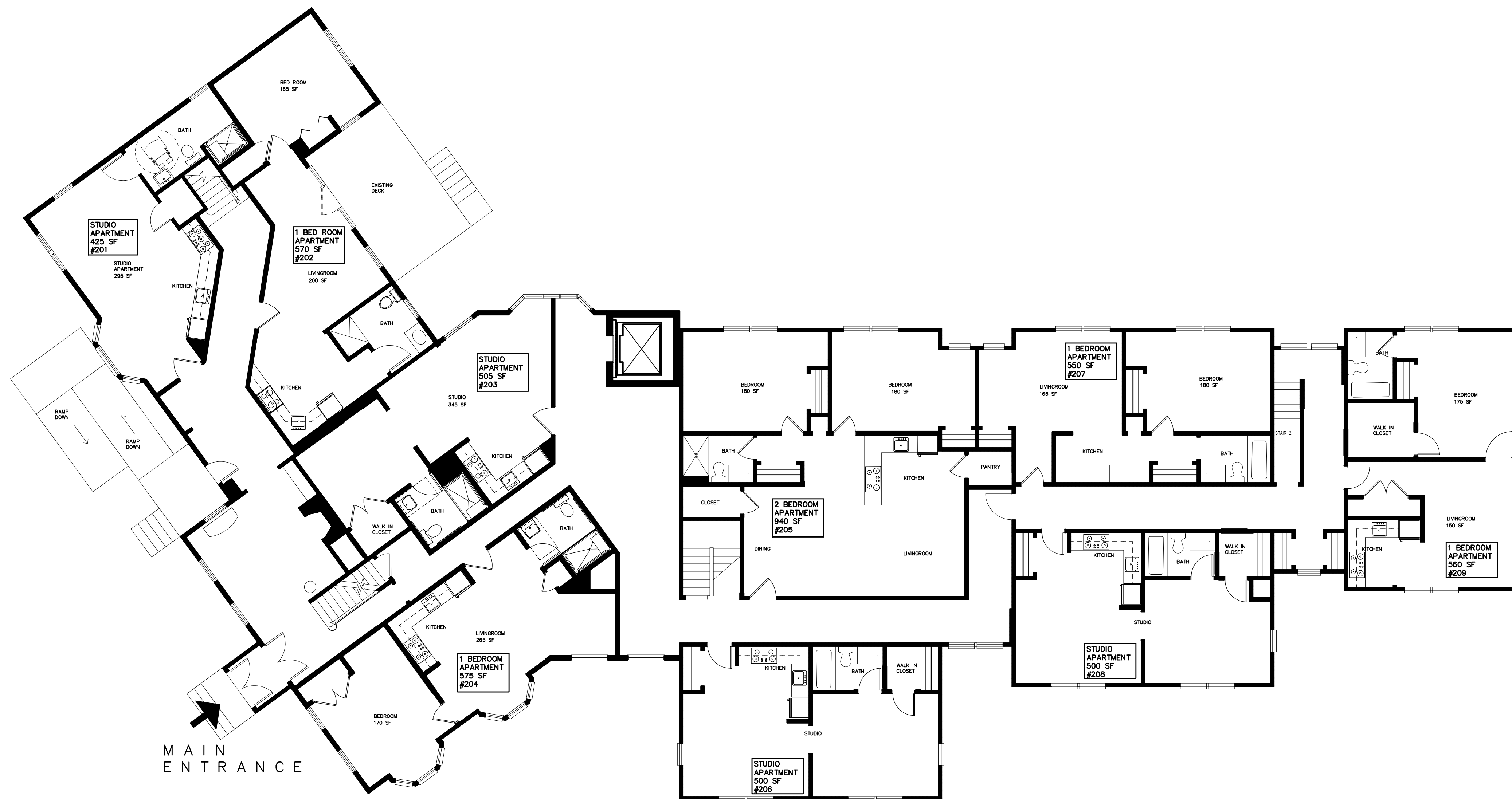
HARWICH MA

SCALE: 1/8" = 1'-0"
DATE: 10/19/20

DR. BY:
MCN

A-1

DATE MADE: 10/19/2020
CAUSED BY: 10/19/2020
DESIGNED BY: 10/19/2020
DRAWN BY: 10/19/2020
CHECKED BY: 10/19/2020
PROJECT: 10/19/2020
FLOOR: 10/19/2020
SHEET: 10/19/2020



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

NOTE: ALL HABITABLE ROOMS HAVE NO LESS THAN 120 SQUARE FEET FLOOR AREA AND NO MAJOR DIMENSION OF LESS THAN 10 FEET IN COMPLIANCE WITH THE HARWICH ZONING BYLAW SECTION 325-5I(Q)(4).

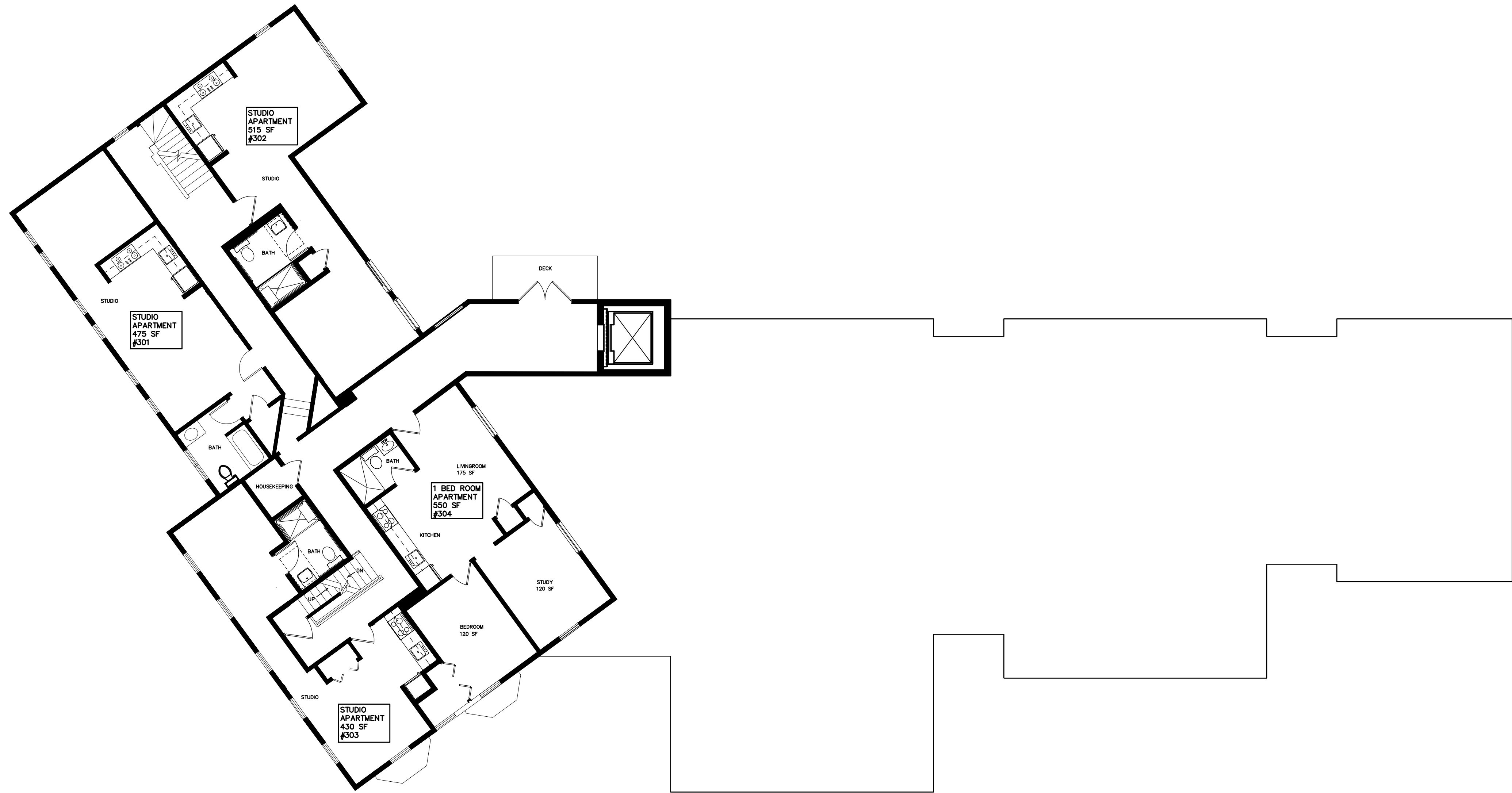
FIRST FLOOR PLAN

Royal Apartments

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HARWICH MA

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email: David@DHDunlap.com



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

NOTE: ALL HABITABLE ROOMS HAVE NO LESS THAN 120 SQUARE FEET FLOOR AREA AND NO MAJOR DIMENSION OF LESS THAN 10 FEET IN COMPLIANCE WITH THE HARWICH ZONING BYLAW SECTION 325-5(Q)(4).

SECOND FLOOR PLAN

Royal Apartments

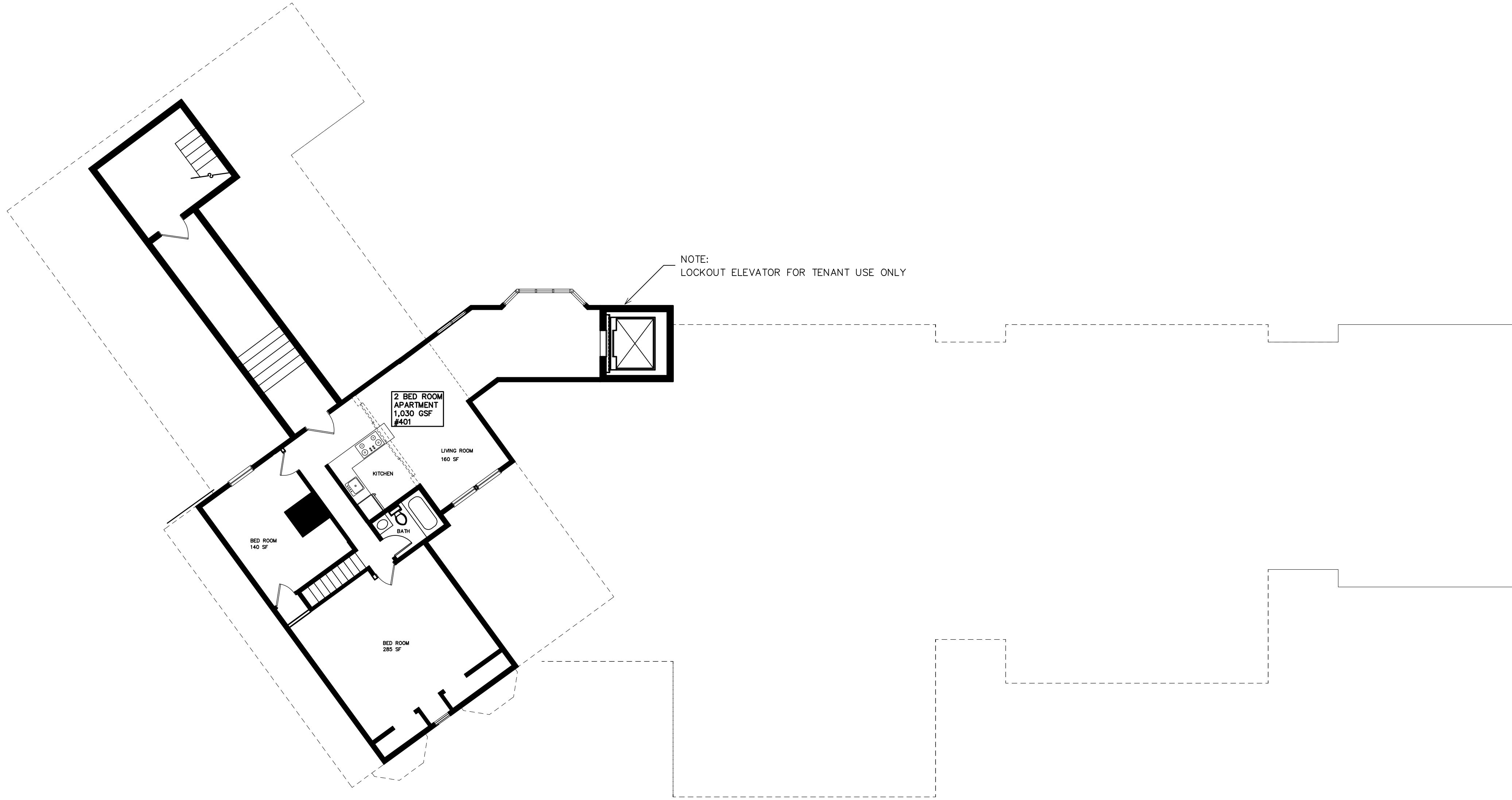
HARWICH MA

SCALE: 1/8" = 1'-0"
DATE: 10/19/20
DR. BY: MCN

David H. Dunlap Associates Inc.
ARCHITECTS * ENGINEERS * PLANNERS
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A-3



THIRD FLOOR PLAN
1/8"=1'-0"

NOTE: ALL HABITABLE ROOMS HAVE NO LESS THAN 120 SQUARE FEET FLOOR AREA AND NO MAJOR DIMENSION OF LESS THAN 10 FEET IN COMPLIANCE WITH THE HARWICH ZONING BYLAW SECTION 325-5(Q)(4).

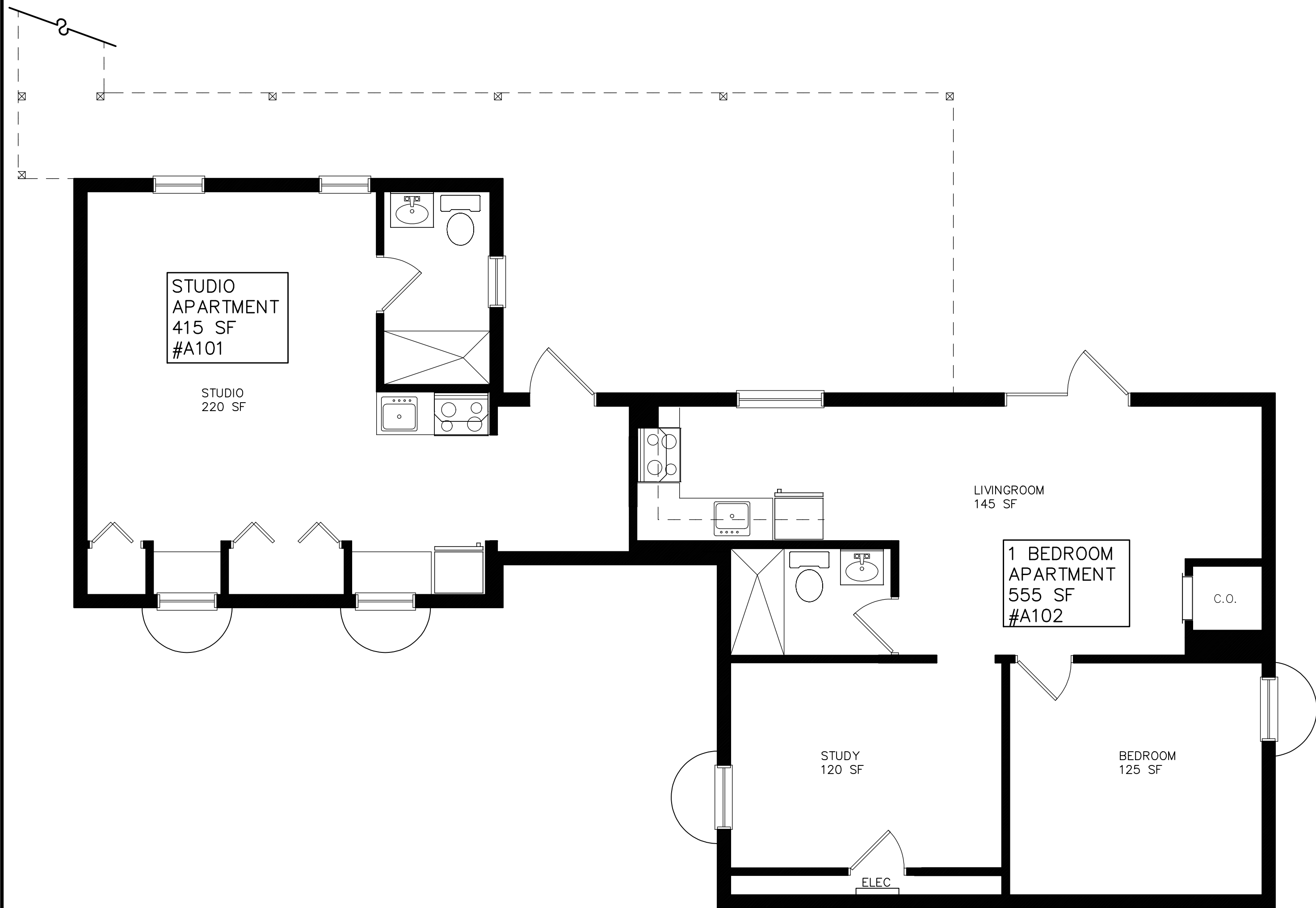
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THIRD FLOOR PLAN

Royal Apartments

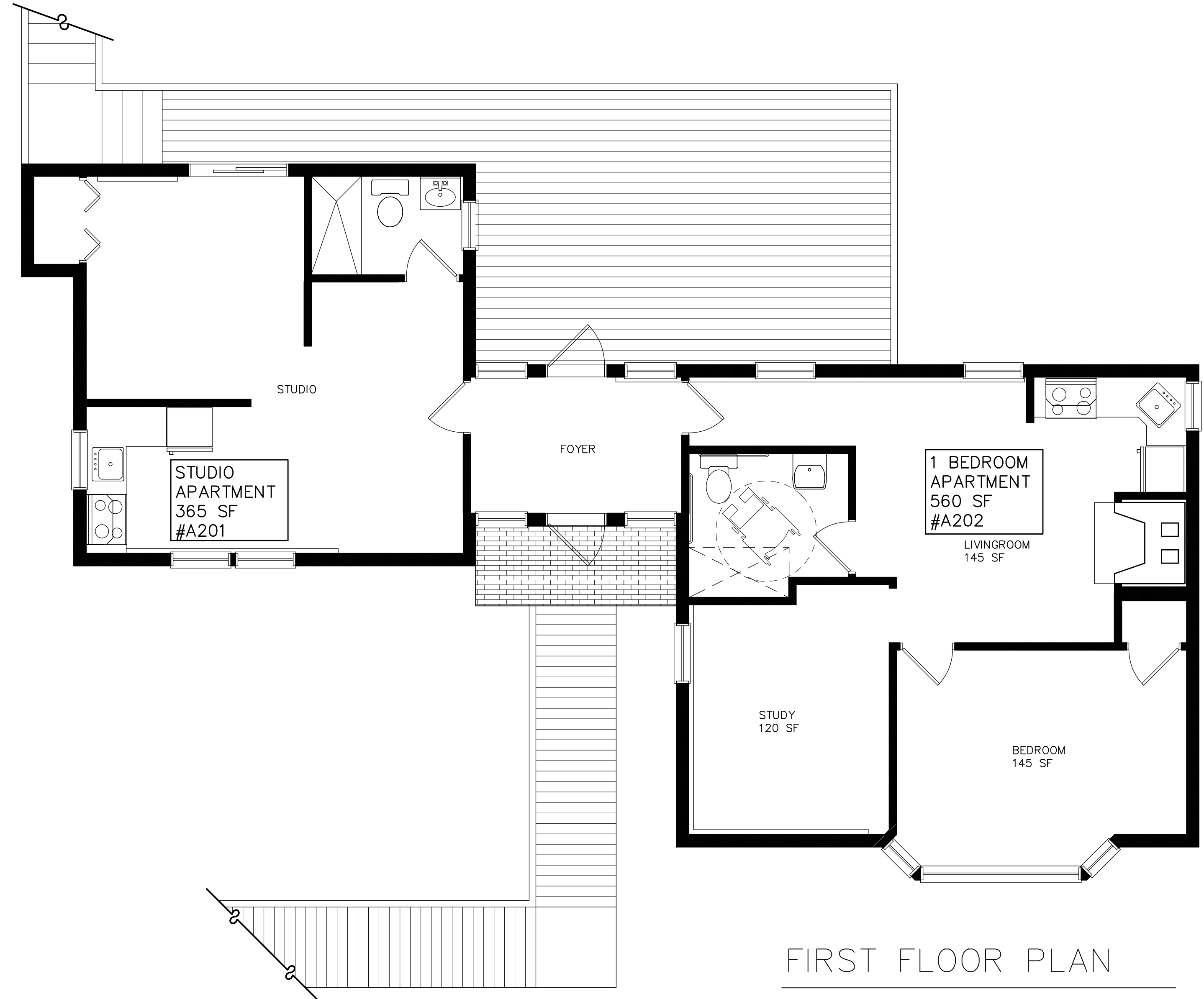
HARWICH MA

SCALE: 1/8" = 1'-0"
DATE: 10/19/20
DR. BY: MCN



GROUND FLOOR PLAN

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE: ALL HABITABLE ROOMS HAVE NO LESS THAN 120 SQUARE FEET FLOOR AREA AND NO MAJOR DIMENSION OF LESS THAN 10 FEET IN COMPLIANCE WITH THE HARWICH ZONING BYLAW SECTION 325-51(Q)(4).

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ACCESSORY BUILDING
FLOOR PLAN

HARWICH, MA

Royal Apartments

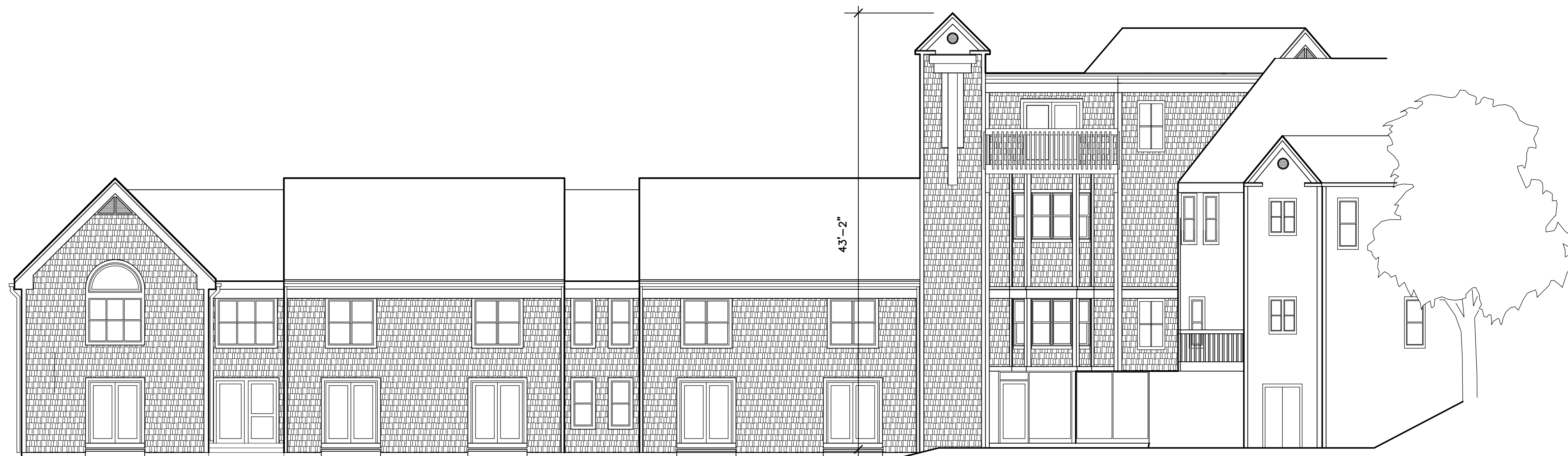
SCALE: 1/8" = 1'-0" DR. BY:
DATE: 10/19/20 MCN

A - 51



Front Elevation
1/8" = 1'-0"

AWNING

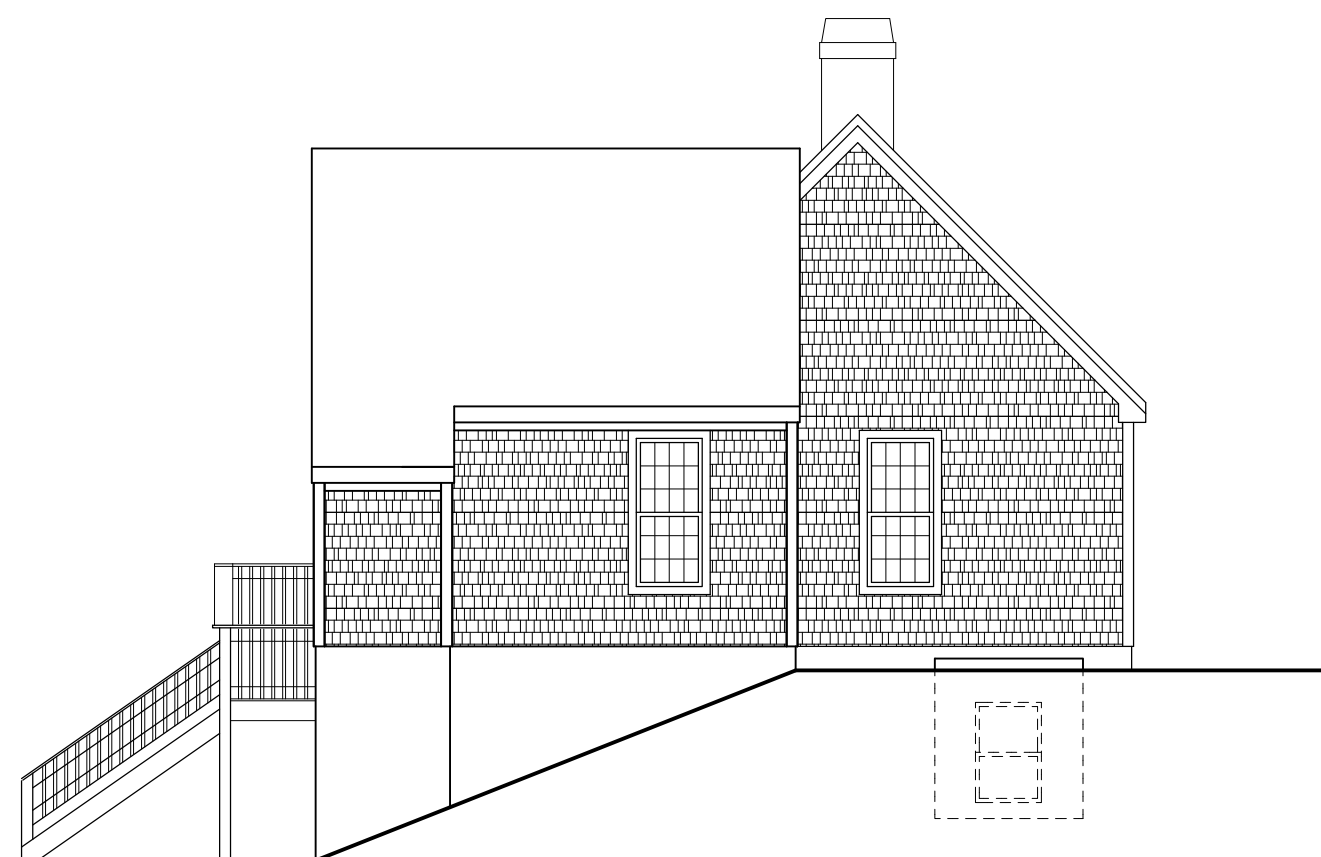


Rear Elevation
1/8" = 1'-0"

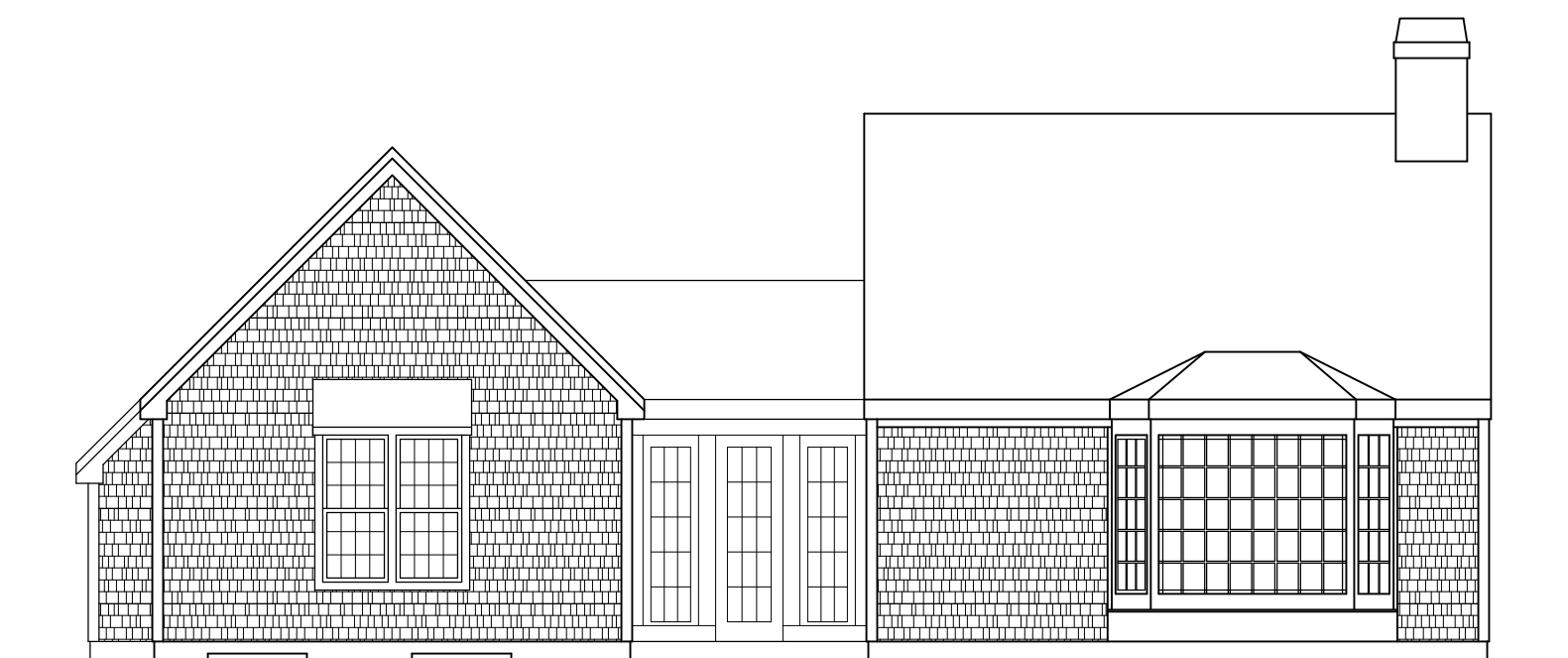
NOTE:
EXTERIOR FINISH MATERIAL TO REMAIN UNLESS REPAIR IS REQUIRED
AND WILL BE REPAIRED IN KIND.
EXISTING EXTERIOR FINISH CONSISTS OF A MIX OF CEDAR SHAKES AND CLAPBOARDS
BOTH NATURAL AND PAINTED YELLOW.



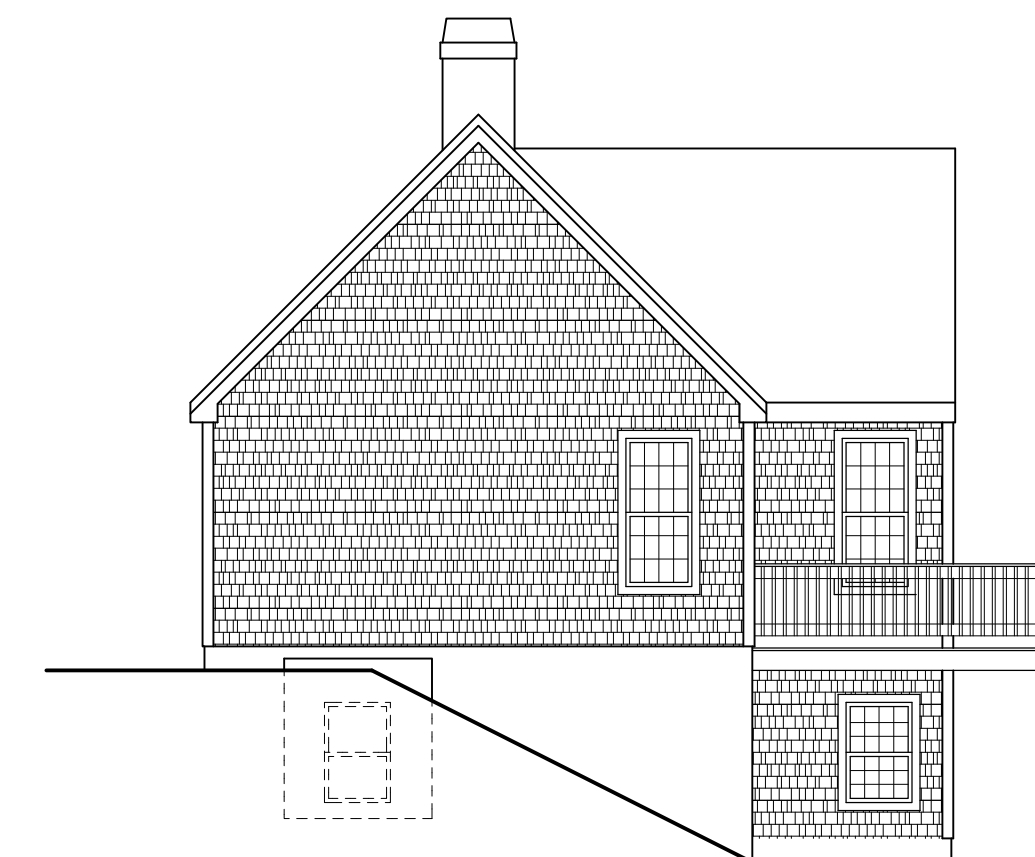
Rear Elevation
1/8" = 1'-0"



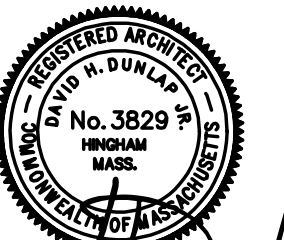
Side Elevation
1/8" = 1'-0"



Front Elevation
1/8" = 1'-0"

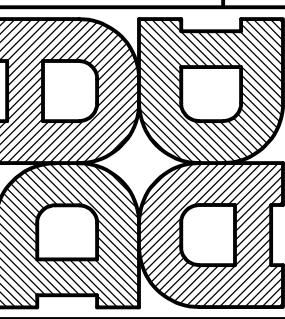


Side Elevation
1/8" = 1'-0"



David H. Dunlap

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EXTERIOR ELEVATIONS

HARWICH, MA

Royal Apartments

SCALE: 1/8" = 1'-0" DR. BY:
DATE: 10/13/20 MCN

A-6

A Stormwater Report was also filed with this application, but not included in this on-line packet due to the size and length of the document.

Please contact the Harwich Planning Office, 508-42-7511 or ebanta@town.harwich.ma.us to request a copy of the PB2020-26 Royal Apartments Stormwater Report.

October 1, 2020

Charleen Greenhalgh, Town Planner
Town of Harwich
732 Main Street
Harwich, MA 02645

**RE: Large-Scale Solar Review, 0 Depot Road, Harwich
BSC Project No. 50416.00**

Dear Ms. Greenhalgh:

The enclosed application package is submitted by BSC Group, Inc. on behalf of the Applicant, NextGrid, Inc., for a large-scale solar photovoltaic system at 0 Depot Road (Map 64, Parcel S1). The property contains 17.2± acres of land and is located in the Residential – Rural zoning district. Large-scale ground-mounted solar photovoltaic is not a permitted use in the underlying zoning district. A use variance was sought by the current owner of the property, Mr. Steven Clark, and on August 26, 2020 the Zoning Board of Appeals voted unanimously to approve the variance. A copy of this decision is included herein.

The property was formerly a sand and gravel pit. Mining operations on the property have now ceased, as conditioned by the Zoning Board of Appeals. NextGrid, Inc. is proposing a large-scale, ground-mounted solar photovoltaic system comprised of 10,710 solar modules, new utility poles and a battery storage area. The site will be enclosed by a 7-foot high chain link fence, encompassing 12.0± acres and will be secured by locking gate with Knox Box. The site's prior use renders this site ideal for the proposed use. The interior of the gravel pit will be re-graded to facilitate the management of stormwater runoff. From the middle of the site, the proposed ground surface will slope to the northeast and to the southwest. Three (3) subsurface infiltration systems will attenuate and recharge stormwater runoff.

Site access will be achieved via easement over the abutting land to the east, which is owned by the Town of Chatham. The existing gravel access road will continue to provide vehicular access to the site. Beginning at the easterly boundary of the site, a 135-foot long, 20-foot wide paved driveway will be constructed with a hammerhead turnaround area. Once the photovoltaic system is brought online, the site will require minimal access (8-10 times per year) for routine maintenance and inspection.

The proposed development has been prepared in accordance with the requirements of Chapter 325, Article XXIII (Large-Scale Ground-Mounted Photovoltaic Arrays) of the Town of Harwich Code. Enclosed with this application package are the following documents:

- Application Fee (\$525.00)
- Site Plans
- Interconnection Plans

349 Main Street
(Route 28), Unit D
West Yarmouth
MA 02673

Tel: 508-778-8919
800-288-8123

www.bscgroup.com

Engineers

Environmental
Scientists

Custom Software
Developers

Landscape
Architects

Planners

Surveyors



- Stormwater Report
- Operation & Maintenance Plan
- Decommissioning Plan
- Zoning Board of Appeals Case No. 2020-34

We look forward to presenting this project to the Planning Board at the next available public hearing. In the interim, please do not hesitate to contact our office with any inquiries you may have.

Very truly yours,

BSC GROUP, INC.

Brian G. Yergatian, P.E., LEED AP
Senior Project Manager & Senior Associate

cc: D. Serber

TOWN OF HARWICH PLANNING DEPARTMENT

PLANNING BOARD APPLICATION SPECIAL PERMITS & SITE PLAN REVIEW

FORM A



TO THE TOWN CLERK, HARWICH, MA

DATE October 1, 2020

PART A – APPLICANT INFORMATION/AUTHORIZATION

Applicant Name(s)	NextGrid, Inc.
Representative/Organization (Who will serve as the primary contact responsible for facilitating this application?)	Brian G. Yergatian, P.E. BSC Group, Inc.
Mailing address	349 Route 28, Unit D
Town, ST, Zip	West Yarmouth, MA 02673
Phone	508-404-4059
Fax	
E-mail	byergatian@bscgroup.com

The applicant is one of the following: (please check appropriate box)

- ☐ Owner ☒ Prospective Buyer* ☐ Representative for Owner/Tenant/Buyer*
☐ Tenant* ☐ Other*

***Written permission of the owner(s) and a municipal lien certificate (where applicable) is required.**

All other forms and information as required in the Harwich Code Chapter 400, Rules and Regulations, shall be submitted as part of this application.

Authorization

Your signature hereby asserts, to the best of your knowledge, that the information submitted in this application is true and accurate; that you agree to fully comply with the Town of Harwich Zoning By-laws and the terms and conditions of any approval of this application by the Planning Board; and authorizes the Members of the Planning Board and/or Town Staff to visit and enter upon the subject property for the duration of the consideration of this application.

Daniel Serber
Applicant

Owner(s) – Authorization must accompany application if the owner is not the applicant.

Official use only:

PLANNING DEPARTMENT

TOWN CLERK

Case # PB2020-27



PART B – PROJECT LOCATION

Legal Street Address	0 Depot Road	Village/Zip Code	Harwich/02645
Title Book/Page or L.C.C. #	Deed Book 6930, Page 82		
Map(s) / Parcel(s)	Map 64, Parcel S-1		
Zoning & Overlay Districts	Residential - Rural Estate	*Historic?	No
Frontage (linear feet)	0 (Access via easement)		
Total land area (s.f.)	745,625 s.f.		
Upland (s.f.)	745,625 s.f.	Wetlands (s.f.)	0

PART C – PROJECT DESCRIPTION

Existing Floor Area in Sq. Ft	Gross:	0	Net:
Proposed Floor Area in Sq. Ft	Gross:	0	Net:
Change in Sq. Ft + / -	Gross:	0	Net:
Existing # of parking spaces	0	Proposed # of parking spaces:	0
Existing Use(s)	Sand & gravel pit / stump dump		
Proposed Use(s)	Large-scale, ground-mounted photovoltaic array		
Attach a separate narrative if necessary.			

The undersign hereby files an application with the Harwich Planning Board for the following special permits as proposed under the provisions of the Harwich Zoning Code: **(check all that apply)**

Site Plan Review § 325-55:

- ☒ Any floor area expansion of any structure or expansion of exterior space, other than parking, serving any of the following: commercial, industrial, multi-family or educational use or personal wireless service facility or the creation of a drive-up or drive-through window
- ☐ Expansion or reconfiguration of an existing parking lot and/or driveway(s) serving said parking lot.
- ☒ Establishment of any new commercial, industrial, multi-family, educational, fast food/take out restaurant or personal wireless service facility.
- ☐ Establishment of any new retail use(s) in the Industrial (IL) Zone.
- ☐ Waiver of Site Plan § 325-55.F

Article V, Use Regulations:

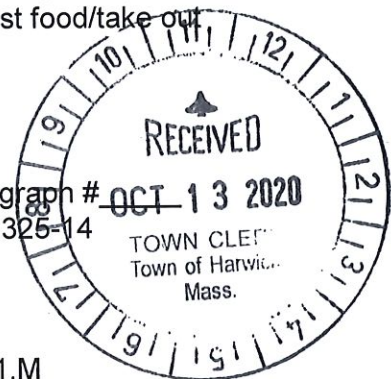
- ☐ Paragraph____, sub-paragraph #____ ☐ Paragraph____, sub-paragraph #____
- ☐ Paragraph____, sub-paragraph #____, supplemental regulation # S § 325-14

Article X, Special Permits:

- ☐ Structures w/ gross floor area of 7,500+ s.f. § 325-51
- ☐ Structures requiring 20 or more new parking spaces § 325-51
- ☐ Accessory Apt./Shared Elderly Housing § 325-51.H ☐ Mixed Use § 325-51.M
- ☐ Drinking Water Resource Protection § 325-51.C ☐ Two Family § 325-51.N
- ☐ Village Commercial, Harwich Port § 325-51.L ☐ *Harwich Center Overlay § 325-51.O
- ☐ Signage § 325-27.F Additional Cluster, Excess SF, Non-entry Facades

Other Special Permits:

- ☐ Six Ponds Special District - Article XVI
- ☐ Wind Energy Systems - Article XVIII ☐ Large Scale Wind Generation – Article XIX
- ☐ Other (i.e. Alternate Access § 325-18.P, Special Cases § 325-44.B) _____
- ☐ Repetitive Petition (MGL Ch 40A, § 16): Proposed project evolved from a previously denied plan submitted to the Planning Board on _____ Year/Case # _____



**Note: Projects within the Harwich Center Overlay District may also be within the Harwich Center Historic District. This requires separate filing with the Historic District and Historical Commission. Please inquire for forms and instructions.*

September 2011

Permit Application Narrative

This document is submitted in accordance with the requirements of the Town of Harwich Zoning Ordinance, as amended.

Introduction

NextGrid, Inc. (Applicant) proposes to construct a large-scale solar photovoltaic system at 0 Depot Road (Map 64, Parcel S1). The property contains 17.2± acres of land and is located in the Residential – Rural zoning district. Large-scale ground-mounted solar photovoltaic is not a permitted use in the underlying zoning district. A use variance was sought by the current owner of the property, Mr. Steven Clark, and on August 26, 2020 the Zoning Board of Appeals voted unanimously to approve the variance.

The property was formerly a sand and gravel pit. Mining operations on the property have now ceased, as conditioned by the Zoning Board of Appeals. The proposed solar photovoltaic system is comprised of 10,710 solar modules, new utility poles and a battery storage area. The site will be enclosed by a 7-foot high chain link fence, encompassing 12.0± acres and will be secured by locking gate with Knox Box. The site's prior use renders this site ideal for the proposed use.

Site access will be achieved via easement over the abutting land to the east, which is owned by the Town of Chatham. The existing gravel access road will continue to provide vehicular access to the site. Beginning at the easterly boundary of the site, a 135-foot long, 20-foot wide paved driveway will be constructed with a hammerhead turnaround area.

Waiver Requests

NextGrid, Inc. respectfully requests the following waivers from the Planning Board:

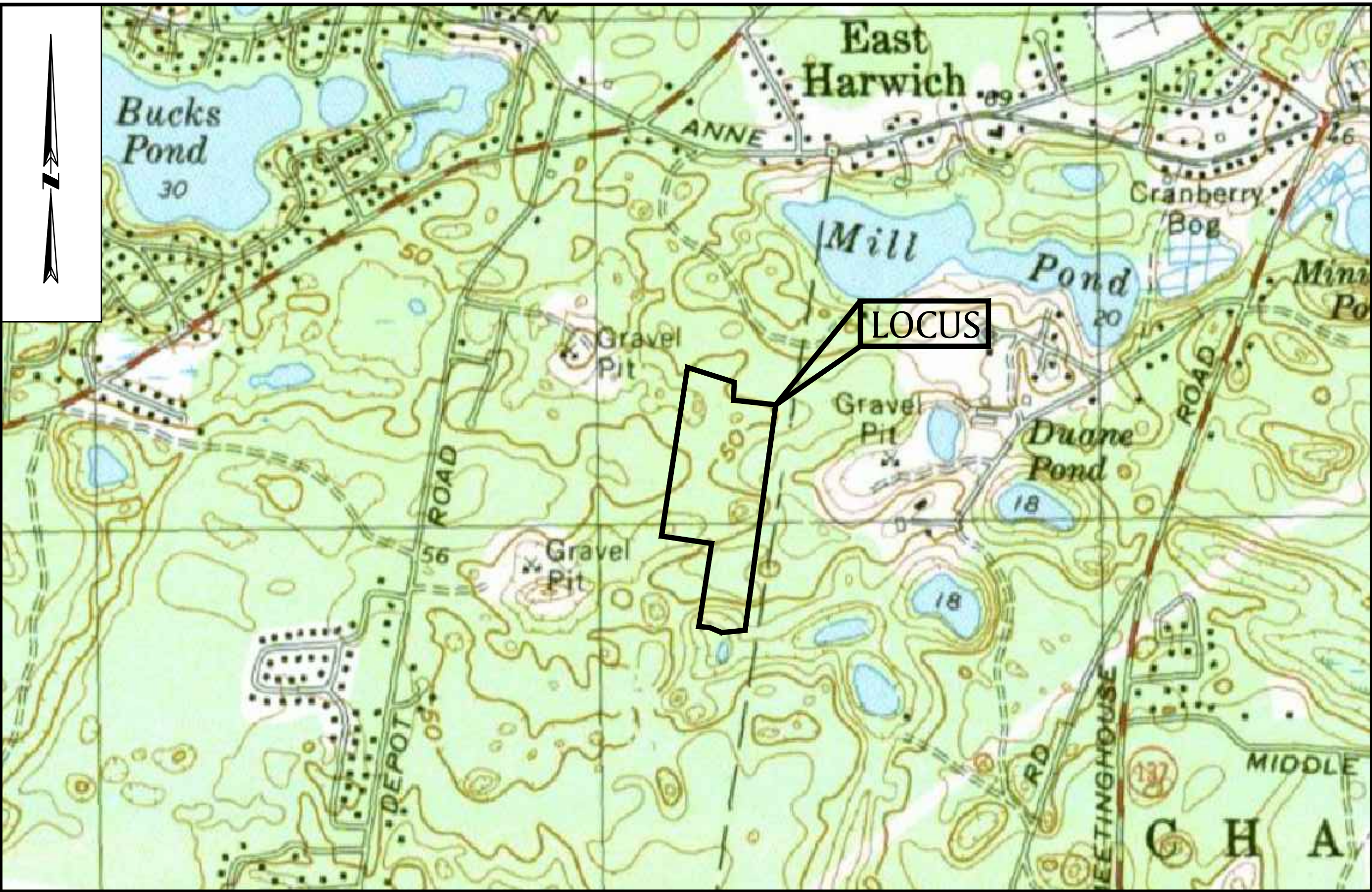
1. Waiver from Chapter 400, Article III Special Permits, Including Site Plans, Section 400-16B. The Applicant intends to follow the requirements imposed by Chapter 325, Article XXIII Large-Scale Ground-Mounted Photovoltaic Arrays, Section 325-140 Large-Scale Solar Review.
2. Waiver from Chapter 325, Article XXIII Large-Scale Ground-Mounted Photovoltaic Arrays, Section 325-140B (3)(h) as Section 400-18 Review Procedure will still apply.



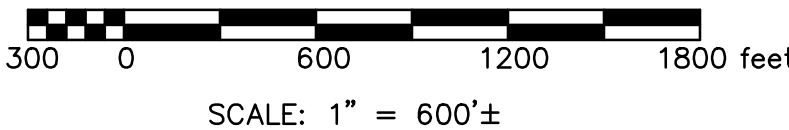
GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

0 DEPOT ROAD
HARWICH, MASSACHUSETTS

JULY 17, 2020



LOCUS MAP



INDEX OF DRAWINGS

- 1 TITLE SHEET
- 2 EXISTING CONDITIONS PLAN
- 3 SITE PREPARATION PLAN
- 4 LAYOUT & MATERIALS PLAN
- 5 GRADING & DRAINAGE PLAN
- 6 UTILITY PLAN
- 7 DETAIL SHEET

PREPARED FOR:

NEXTGRID, INC
PO BOX 7775, #73069
SAN FRANCISCO, CA 94120

PREPARED BY:

 **BSC GROUP**
349 Main Street - Route 28
W. Yarmouth, Massachusetts
02673
508 778 8919

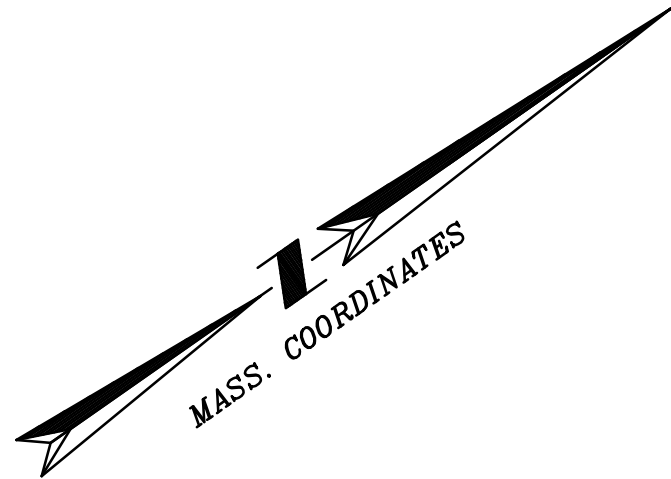


7/17/20

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

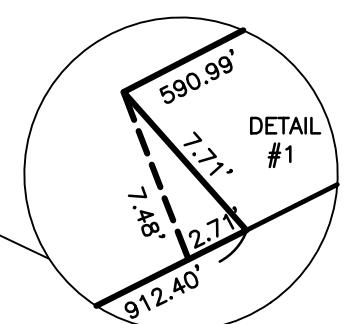
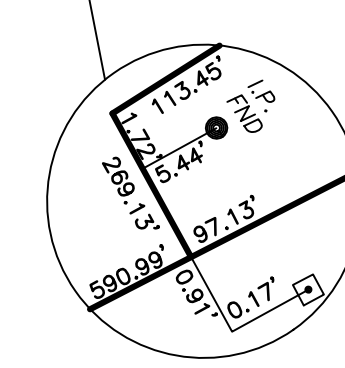
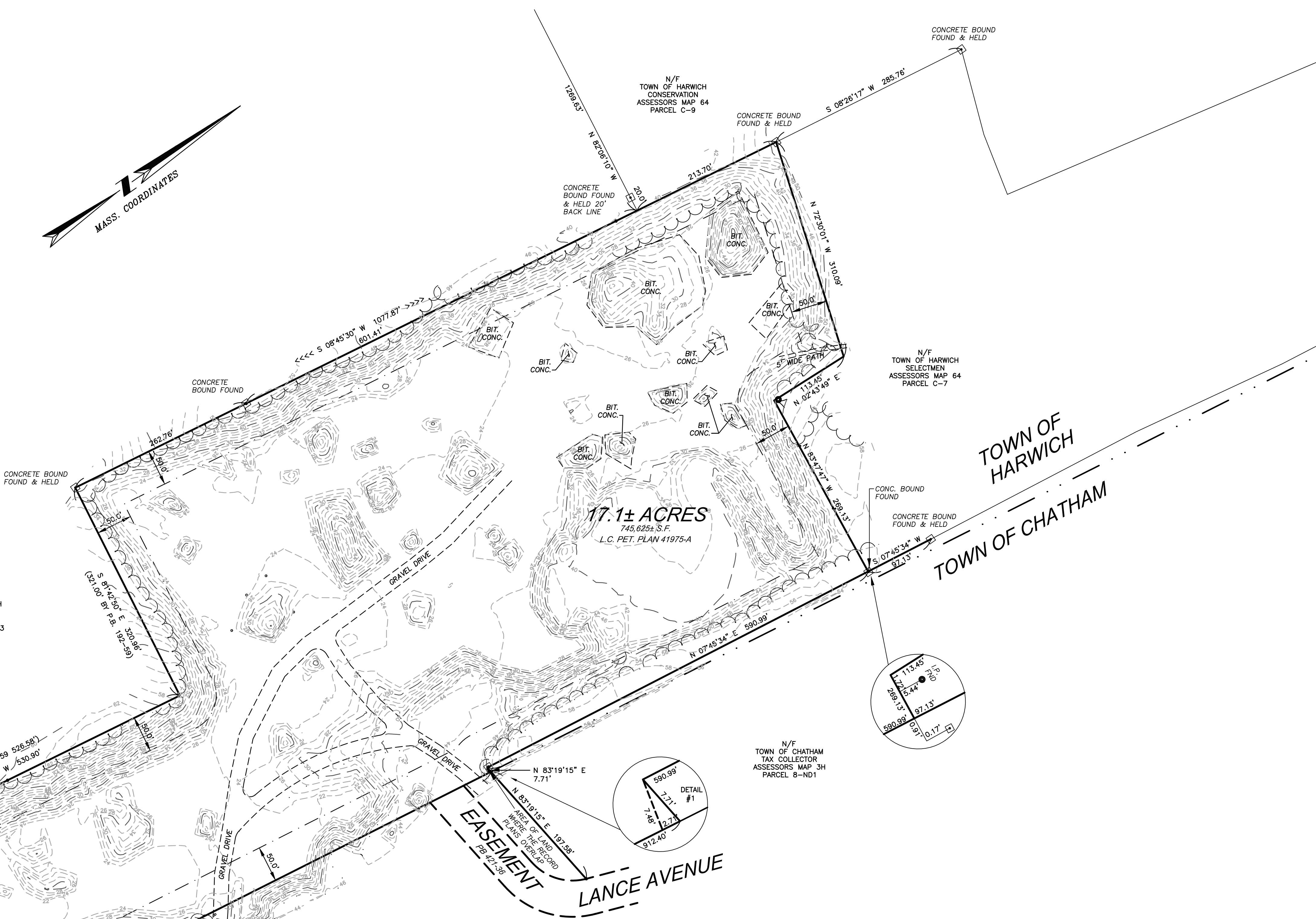
LOCUS INFORMATION

CURRENT OWNER: DFN, INC.
ADDRESS: 160 MILL HILL ROAD, CHATHAM
TITLE REFERENCE: DEED BOOK 6930, PAGE 82
PLAN REFERENCE: PETITIONERS PLAN 41975-A
ASSESSORS MAP: 64
PARCEL: S 1
ZONING DISTRICT: R-R (SOLAR FIELD)
SETBACKS: FRONT 50'
SIDE 50'
REAR 50'
EXISTING UPLAND LOT AREA: 17.1± ACRES
NITROGEN SENSITIVE ZONE: STATE ZONE II
FEMA FLOOD ZONE DISTRICT: "X"

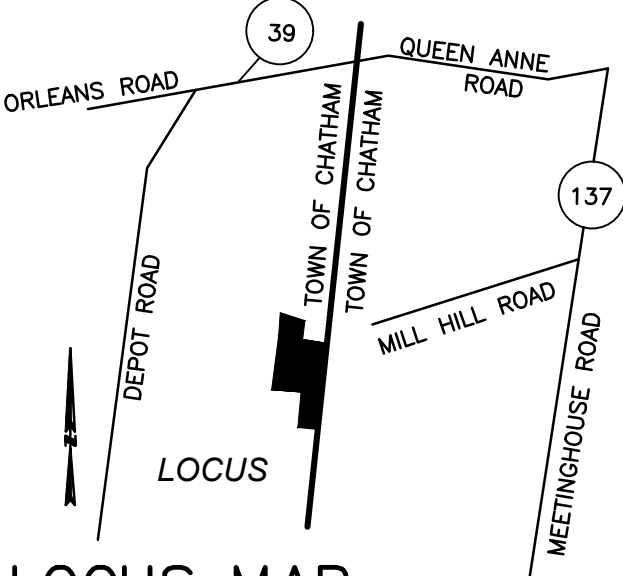


100' BUFFER TO DEE.
EDGE OF WETLANDS
4' STRIP OF LAND WHERE THE RECORD PLANS OVERLAP
EDGE OF WETLANDS
CONCRETE MONUMENTS FOUND
AREA OF LAND WHERE THE RECORD PLANS OVERLAP

TOWN OF HARWICH
TOWN OF CHATHAM



- NOTES:
- ASSESSORS MAP 63, PARCEL H3, CURRENTLY OWNED BY THE TOWN OF HARWICH TO THE SOUTH AND WEST OF THE LOCUS PROPERTY AND DEPICTED ON RECORD PLAN BOOK 192, PAGE 59 DOES NOT AGREE WITH THE PETITIONERS PLAN OF THE LOCUS PROPERTY. HOWEVER, RECORD MONUMENTS FOUND ARE MORE CONSISTENT WITH THE LOCUS PROPERTY INFORMATION AND AS DEPICTED ON PETITIONERS PLAN 41975-A.
 - THE ABUTTING PARCEL TO THE NORTHEAST OF THE LOCUS PROPERTY DEPICTS AN OVERLAP OF 10± S.F. WHERE THE PARCELS JOG FROM THE HARWICH / CHATHAM TOWN LINE. THIS AREA IS SHOWN ON PETITIONERS PLAN 39607-A AND IS DEPICTED IN DETAIL 1 ON THIS EXISTING CONDITIONS PLAN.
 - THE WETLANDS DELINEATED ON THE ABUTTING PROPERTY TO THE SOUTH DO NOT CROSS ONTO THE LOCUS PROPERTY, HOWEVER THE 100' CONSERVATION RESOURCE AREA BUFFER ASSOCIATED WITH THE WETLAND DELINEATION DOES CROSS ONTO THE LOCUS PROPERTY.
 - DUE TO THE EXTENSIVE EARTH MOVING THAT HAS OCCURRED ON SITE, THE TOPOGRAPHIC CONTOURS ARE DEPICTED AT A 2' INTERVAL.
 - THIS FIELD SURVEY WAS PERFORMED BETWEEN JUNE 1 AND JUNE 10, 2020.
 - THE DESCRIPTION IN THE RECORD DEED DOES NOT SPECIFY THE FULL SIZE OF THE LOCUS PROPERTY AND THE AREA DEPICTED ON THIS PLAN IS BASED ON THE LAND COURT PETITIONERS PLAN 41975-A. NO OTHER PLAN WAS FOUND FOR THE LOCUS PROPERTY.
 - THE LOCUS PROPERTY SITE ACCESS IS THROUGH A PORTION OF THE EASEMENT AREA ON THE CHATHAM SIDE OF THE PROPERTY LINE. THIS EASEMENT DEPICTED ON PLAN BOOK 421, PAGE 36 IS ALSO KNOWN AS LANCE AVENUE. NO WRITTEN DOCUMENTATION HAS BEEN FOUND OR PROVIDED TO BSC GROUP AT THIS TIME FOR THE USE OF THIS EASEMENT. THE EXISTING ACCESS ROAD DOES NOT LINE UP WITH THE RECORD EASEMENT LOCATION.



LOCUS MAP

NOT TO SCALE



7/17/20

KIERAN J. HEALY
PROFESSIONAL LAND SURVEYOR

DATE

PLAN OF LAND

0 DEPOT ROAD
IN
HARWICH
MASSACHUSETTS
(BARNSTABLE COUNTY)

EXISTING
CONDITIONS

JULY 17, 2020

REVISIONS:

NO.	DATE	DESC.

PREPARED FOR:
NEXTGRID, INC
P.O. BOX 7775
SAN FRANCISCO, CA 94120



349 Route 28, Unit D
W. Yarmouth, Massachusetts
02673
508 778 8919

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SCALE: 1" = 80'



FILE: ...Projects-YAR\5041600-Survey\Drawings\50416-EXC.DWG

DWG. NO: 6654-01

JOB. NO: 5-0416.00

SHEET 2 OF 7

LEGEND

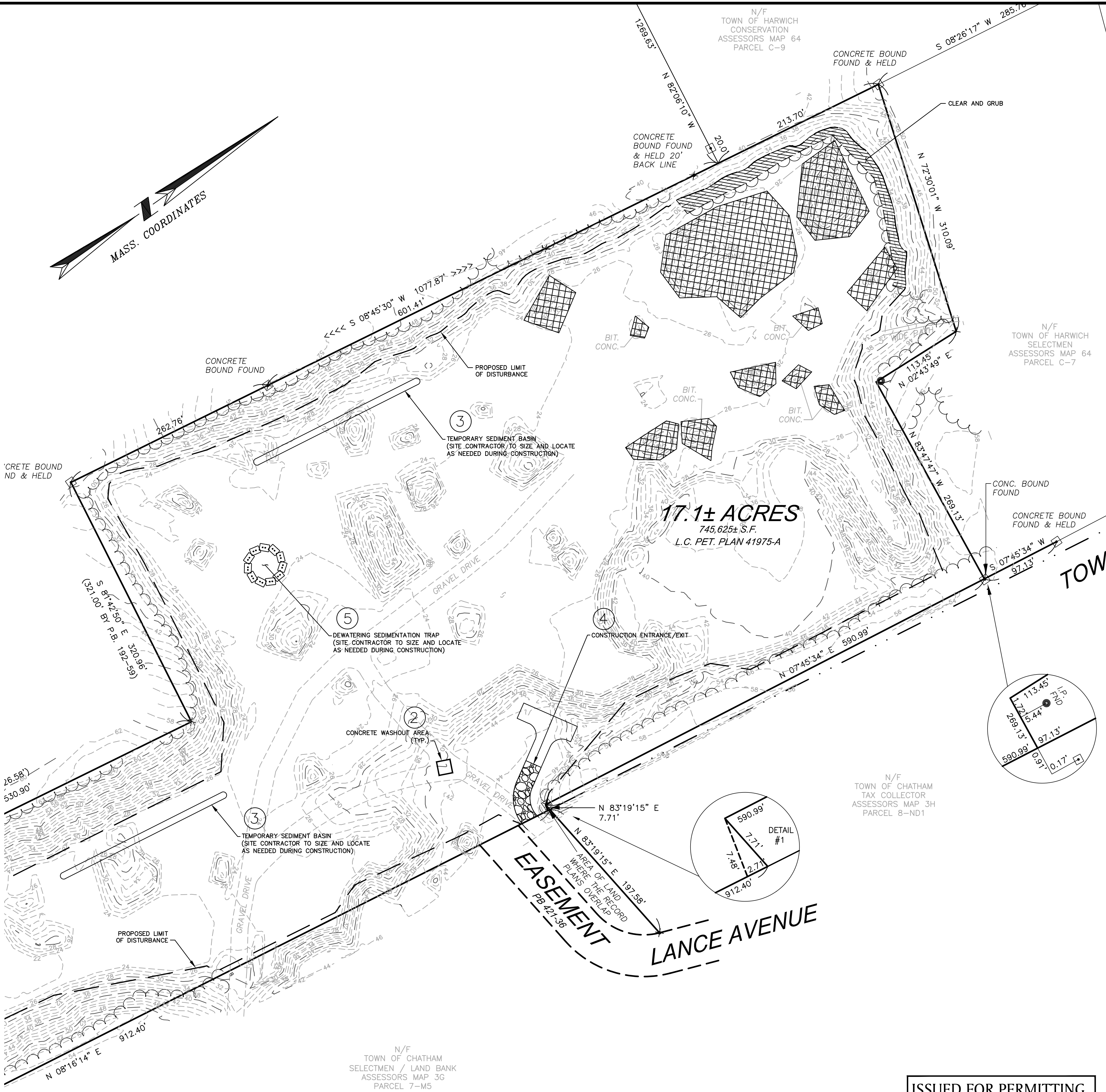
- SILT SOXX EROSION CONTROL BARRIER
- REMOVE TREES, CLEAR & GRUB
- STRUCTURE TO BE REMOVED & DEMOLISHED
- REMOVE & DISPOSE PAVEMENT

BEST MANAGEMENT PRACTICES (BMPs)

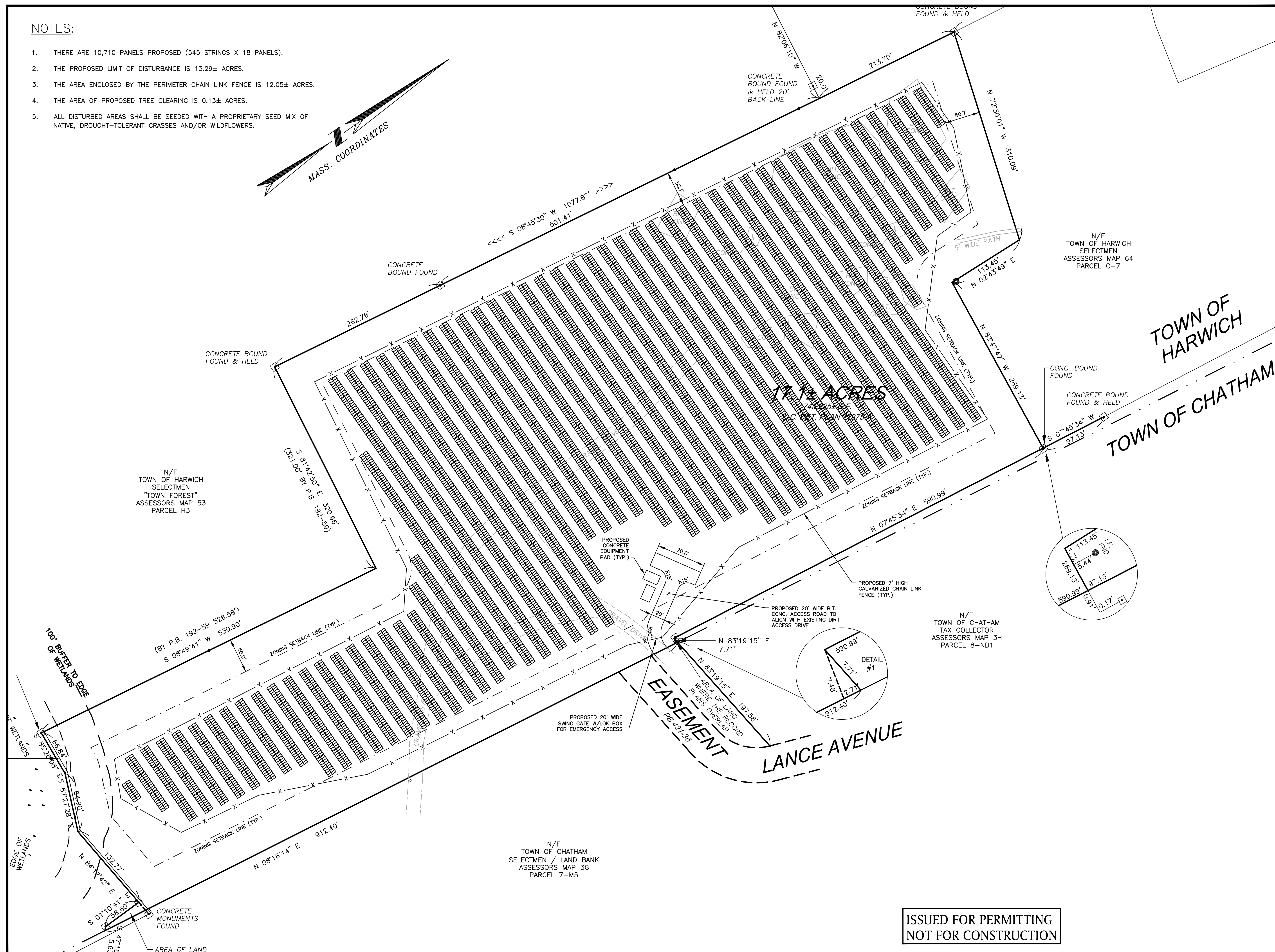
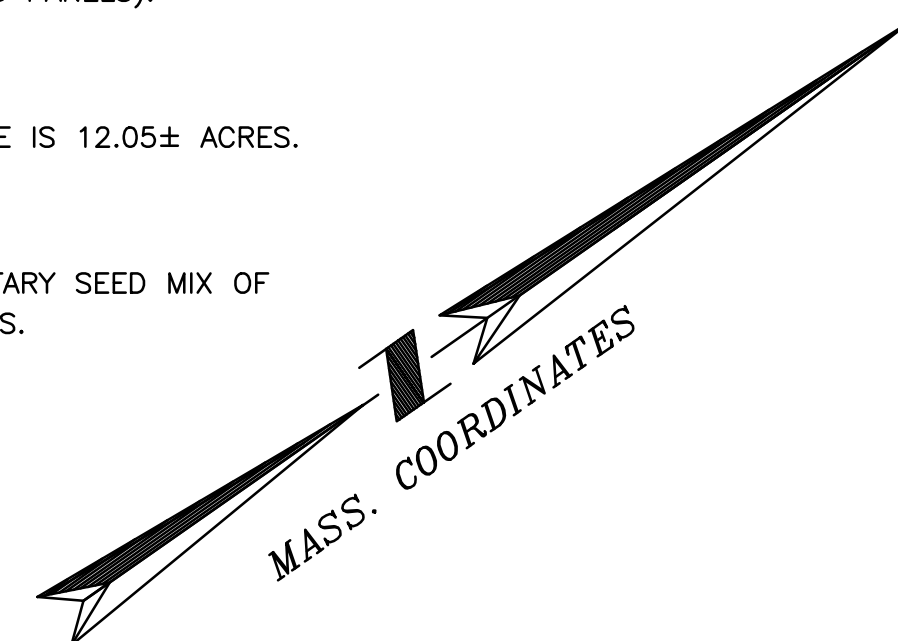
- ① SILT/EROSION CONTROL BARRIER
- ② CONCRETE WASH OUT AREA
- ③ TEMPORARY SEDIMENT BASIN WITH INTERCEPTOR SWALES
- ④ CONSTRUCTION ENTRANCE/EXIT
- ⑤ DEWATERING SEDIMENTATION TRAP

EROSION AND SEDIMENT CONTROL NOTES:

- PRIOR TO ANY LAND DISTURBANCE ACTIVITIES COMMENCING ON THE SITE, THE DEVELOPER SHALL PHYSICALLY MARK LIMITS OF NO LAND DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, SO THAT WORKERS CAN SEE THE AREAS TO BE PROTECTED. THE PHYSICAL MARKERS SHALL REMAIN IN PLACE UNTIL A CERTIFICATE OF COMPLETION HAS BEEN ISSUED.
- APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO SOIL DISTURBANCE. MEASURES SHALL BE TAKEN TO CONTROL EROSION WITHIN THE PROJECT AREA. SEDIMENT IN RUNOFF WATER SHALL BE TRAPPED AND RETAINED WITHIN THE PROJECT AREA. WETLAND AREAS AND SURFACE WATERS SHALL BE PROTECTED FROM SEDIMENT.
- MINIMIZE TOTAL AREA OF DISTURBANCE AND PROTECT NATURAL FEATURES AND SOIL.
- THE CONTRACTOR SHALL SEQUENCE ALL ACTIVITIES TO MINIMIZE SIMULTANEOUS AREAS OF DISTURBANCE. MASS CLEARING AND GRADING OF THE ENTIRE SITE SHALL BE AVOIDED.
- MINIMIZE SOIL EROSION AND CONTROL SEDIMENTATION DURING CONSTRUCTION.
- DIVERT UNCONTAMINATED WATER AROUND DISTURBED AREAS.
- INSTALL AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND GOOD ENGINEERING PRACTICES OR IN ACCORDANCE WITH THE 2017 EPA CONSTRUCTION GENERAL PERMIT.
- PROTECT AND MANAGE ON AND OFF-SITE MATERIAL STORAGE AREAS (OVERBURDEN AND STOCKPILES OF DIRT, BORROW AREAS, OR OTHER AREAS USED SOLELY BY THE PERMITTED PROJECT ARE CONSIDERED A PART OF THE PROJECT).
- COMPLY WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS INCLUDING WASTE DISPOSAL, SANITARY OR SEWER REGULATIONS, AND AIR QUALITY REQUIREMENTS, INCLUDING DUST CONTROL.
- SEDIMENT SHALL BE REMOVED ONCE THE VOLUME REACHES 1/4 TO 1/2 THE HEIGHT OF THE EROSION CONTROL DEVICE. SEDIMENT SHALL BE REMOVED FROM SILT FENCE PRIOR TO REACHING THE LOAD-BEARING CAPACITY OF THE SILT FENCE WHICH MAY BE LOWER THAN 1/4 TO 1/2 THE HEIGHT.
- SEDIMENT FROM SEDIMENT TRAPS OR SEDIMENTATION PONDS SHALL BE REMOVED WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT.
- BMPs TO BE USED FOR INFILTRATION AFTER CONSTRUCTION SHALL NOT BE USED AS BMPs DURING CONSTRUCTION UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER AND THE TOWN OF BREWSTER. MANY INFILTRATION TECHNOLOGIES ARE NOT DESIGNED TO HANDLE THE HIGH CONCENTRATIONS OF SEDIMENTS TYPICALLY FOUND IN CONSTRUCTION RUNOFF, AND THUS MUST BE PROTECTED FROM CONSTRUCTION RELATED SEDIMENT LOADINGS.
- SOIL STOCKPILES MUST BE STABILIZED OR COVERED AT THE END OF EACH WORKDAY. STOCKPILE SIDE SLOPES SHALL NOT BE GREATER THAN 2:1 UNLESS SPECIFIED BY ENGINEER. ALL STOCKPILES SHALL BE SURROUNDED BY SEDIMENT CONTROLS.
- FOR ACTIVE CONSTRUCTION AREAS SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS AND AREAS WITHIN 50 FEET OF A BUILDING UNDER CONSTRUCTION, A PERIMETER SEDIMENT CONTROL SYSTEM SHALL BE INSTALLED AND MAINTAINED TO CONTAIN SOIL.
- A TRACKING PAD OR OTHER APPROVED STABILIZATION METHOD SHALL BE CONSTRUCTED AT ALL ENTRANCE/EXIT POINTS OF THE SITE TO REDUCE THE AMOUNT OF SOIL CARRIED ONTO ROADWAYS AND OFF THE SITE.
- ON THE CUT SIDE OF ROADS, DITCHES SHALL BE STABILIZED IMMEDIATELY WITH ROCK RIP-RAP OR OTHER NON-ERODIBLE LINERS, OR WHERE APPROPRIATE, VEGETATIVE MEASURES SUCH AS HYDROSEEDING OR JUTE MATTING
- PERMANENT SEEDING SHALL BE UNDERTAKEN IN THE SPRING FROM MARCH THROUGH MAY, AND IN LATE SUMMER AND EARLY FALL FROM AUGUST TO OCTOBER 15. DURING THE PEAK SUMMER MONTHS AND IN THE FALL AFTER OCTOBER 15, WHEN SEEDING IS FOUND TO BE IMPRACTICAL, APPROPRIATE TEMPORARY STABILIZATION SHALL BE APPLIED. PERMANENT SEEDING MAY BE UNDERTAKEN DURING THE SUMMER IF PLANS PROVIDE FOR ADEQUATE MULCHING AND WATERING.
- ALL SLOPES STEEPER THAN 3:1 (H:V, 33.3%), AS WELL AS PERIMETER DIKES, SEDIMENT BASINS OR TRAPS, AND EMBANKMENTS MUST, UPON COMPLETION, BE IMMEDIATELY STABILIZED WITH SOD, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES. AREAS OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM MUST NOT BE DISTURBED.
- TEMPORARY SEDIMENT TRAPPING DEVICES MUST NOT BE REMOVED UNTIL PERMANENT STABILIZATION IS ESTABLISHED IN ALL CONTRIBUTORY DRAINAGE AREAS.
- ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED AFTER FINAL SITE STABILIZATION. DISTURBED SOIL AREAS RESULTING FROM THE REMOVAL OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED WITHIN 30 DAYS OF REMOVAL.
- PROPERLY MANAGE ON-SITE CONSTRUCTION AND WASTE MATERIALS.
- PREVENT OFF-SITE VEHICLE TRACKING OF SEDIMENTS,
- DUST SHALL BE CONTROLLED AT THE SITE.
- ALL PREVIOUSLY DISTURBED LAND SHALL BE STABILIZED BY APPROVED METHODS AFTER 14 DAYS IF LEFT UNDISTURBED, THIS INCLUDES STOCKPILES, CONSTRUCTION ENTRANCES, GRADED AREAS AND OTHER CONSTRUCTION ACTIVITY RELATED CLEARING,
- IF WORK IS HALTED OVER WINTER MONTHS THE CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZING THE AREA THROUGH GROUND COVER PRACTICES.



1. THERE ARE 10,710 PANELS PROPOSED (545 STRINGS X 18 PANELS).
2. THE PROPOSED LIMIT OF DISTURBANCE IS 13.29± ACRES.
3. THE AREA ENCLOSED BY THE PERIMETER CHAIN LINK FENCE IS 12.05± ACRES.
4. THE AREA OF PROPOSED TREE CLEARING IS 0.13± ACRES.
5. ALL DISTURBED AREAS SHALL BE SEEDDED WITH A PROPRIETARY SEED MIX OF NATIVE, DROUGHT-TOLERANT GRASSES AND/OR WILDFLOWERS.



7/17/20

BRIAN G YERGATIAN
PROFESSIONAL ENGINEER

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

0 DEPOT ROAD

IN
HARWICH
MASSACHUSETTS
(BARNSTABLE COUNTY)

LAYOUT & MATERIALS PLAN

JULY 17, 2020

REVISIONS:

[illegible]

PREPARED FOR:
NEXTGRID, INC.
PO BOX 7775 #73069
SAN FRANCISCO, CA 94120



349 Main Street - Route 28
West Yarmouth, Massachusetts
02673

508 778 8919

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SCALE: 1" = 60'



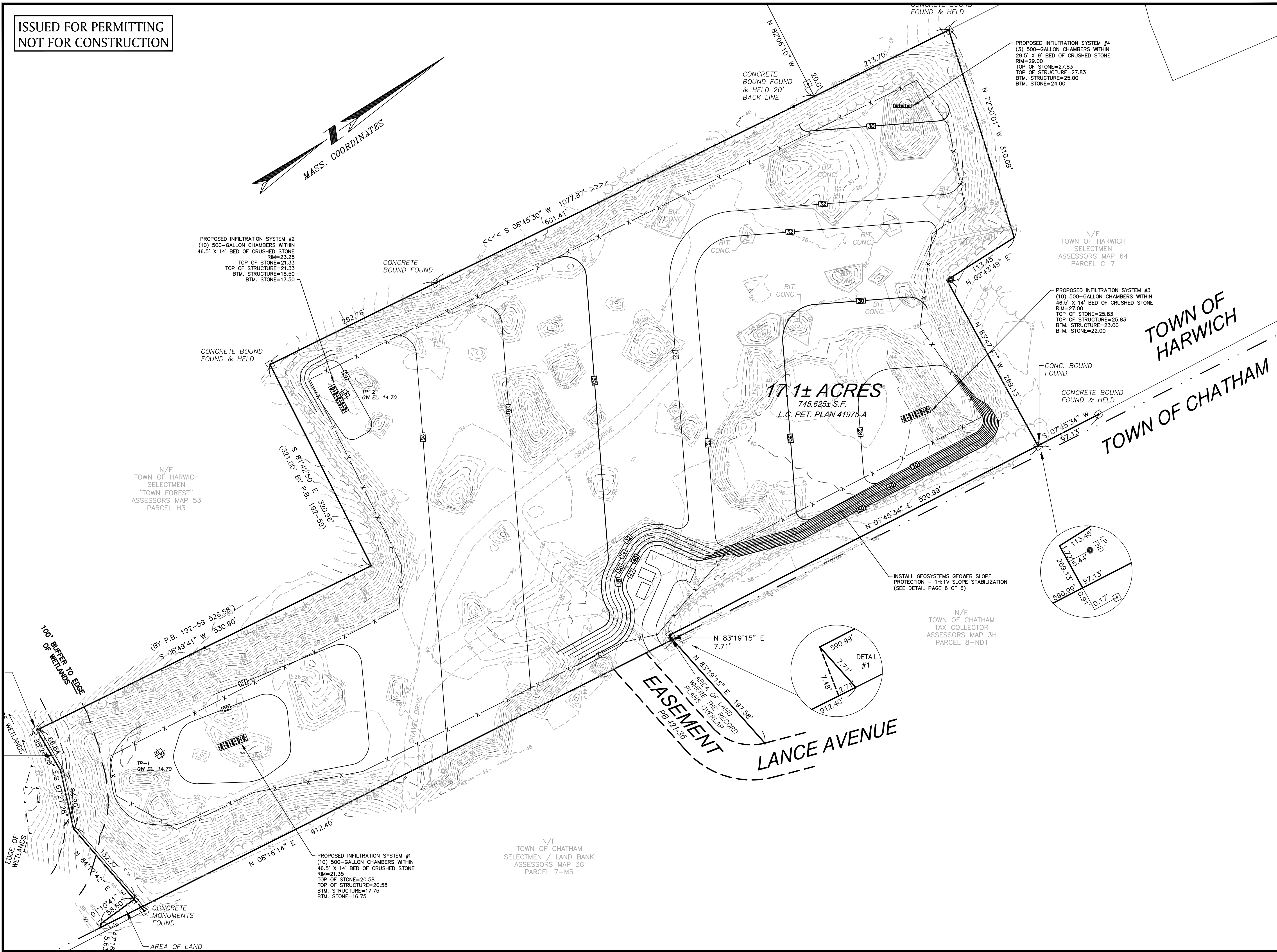
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DWG.: DWG

SHEET 4 OF 7

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION



7/17/20

BRIAN G. YERGATIAN
PROFESSIONAL ENGINEER

DATE

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

0 DEPOT ROAD

IN

HARWICH
MASSACHUSETTS
(BARNSTABLE COUNTY)

GRADING & DRAIANGE PLAN

JULY 17, 2020

REVISIONS:

NO.	DATE	DESC.

PREPARED FOR:
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PO BOX 7775 #73069
SAN FRANCISCO, CA 94120

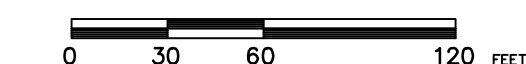


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02673

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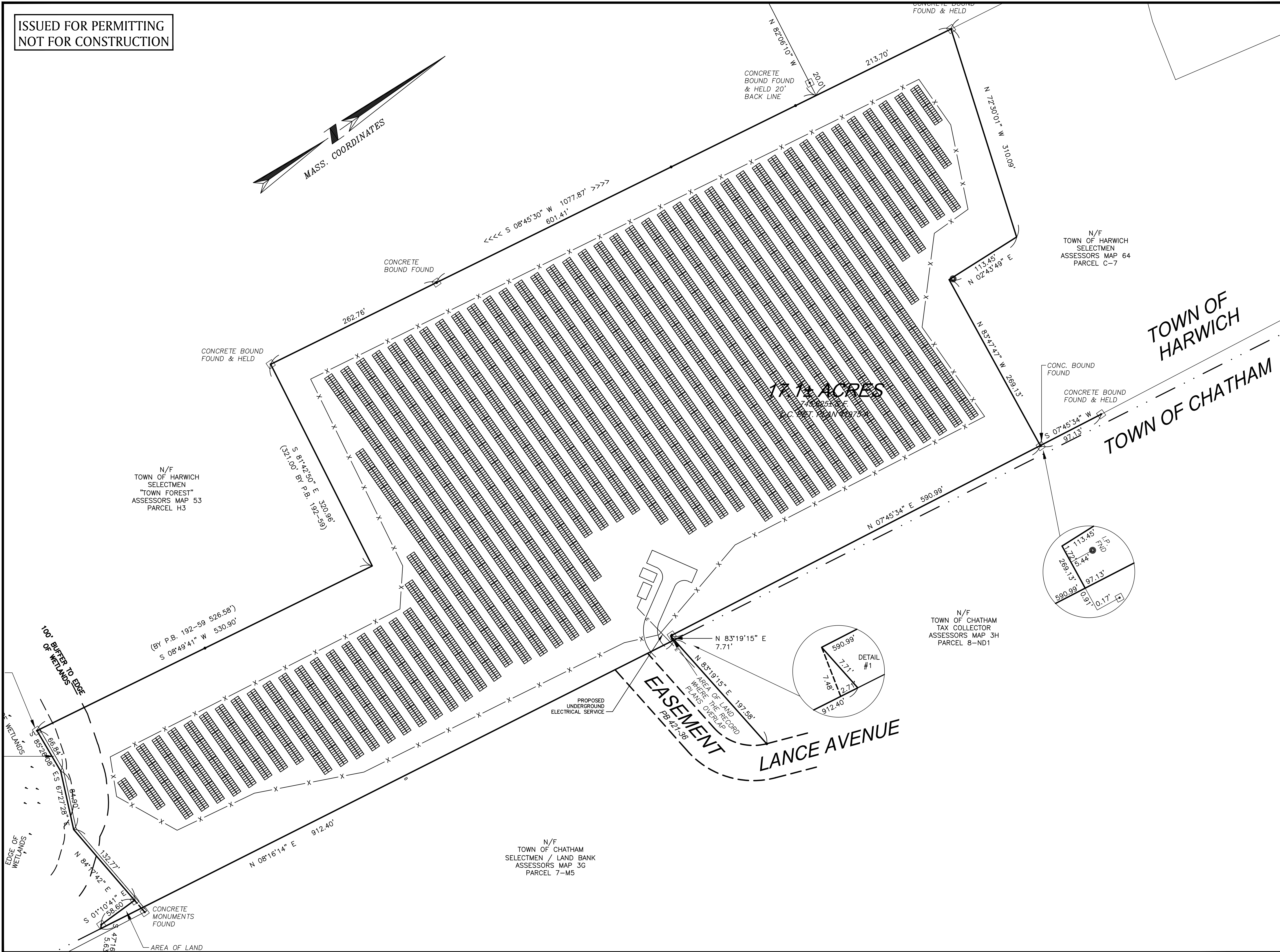
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DWG: DWG

JOB: NO: 5-0416.00

SHEET 5 OF 7

ISSUED FOR PERMITTING
NOT FOR CONSTRUCTION



7/17/20

BRIAN G. YERGATIAN
PROFESSIONAL ENGINEER

DATE

GROUND-MOUNTED
PHOTOVOLTAIC
SYSTEM

0 DEPOT ROAD

IN

HARWICH
MASSACHUSETTS
(BARNSTABLE COUNTY)

UTILITY PLAN

JULY 17, 2020

REVISIONS:

NO.	DATE	DESC.

PREPARED FOR:

NEXTGRID, INC.
PO BOX 7775 #73069
SAN FRANCISCO, CA 94120

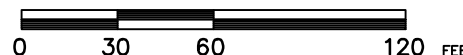


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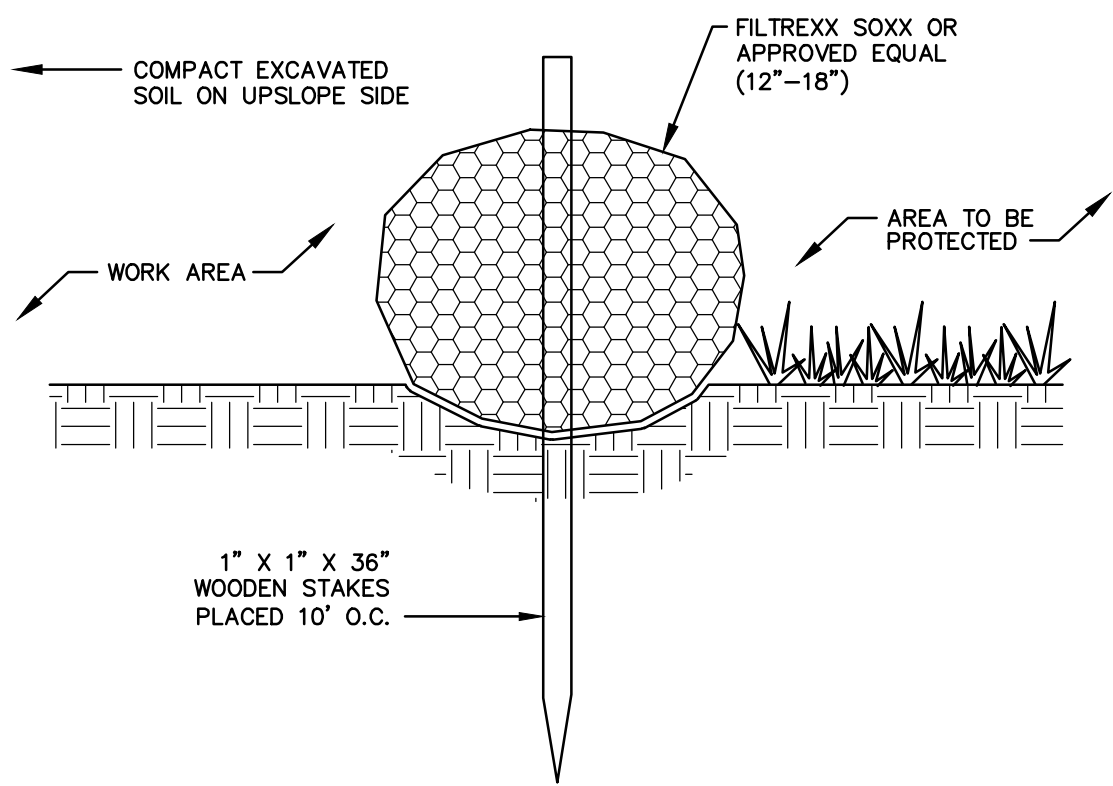


FILE: 5041600-SP.dwg

DWG: DWG

JOB: NO: 5-0416.00

SHEET 6 OF 7



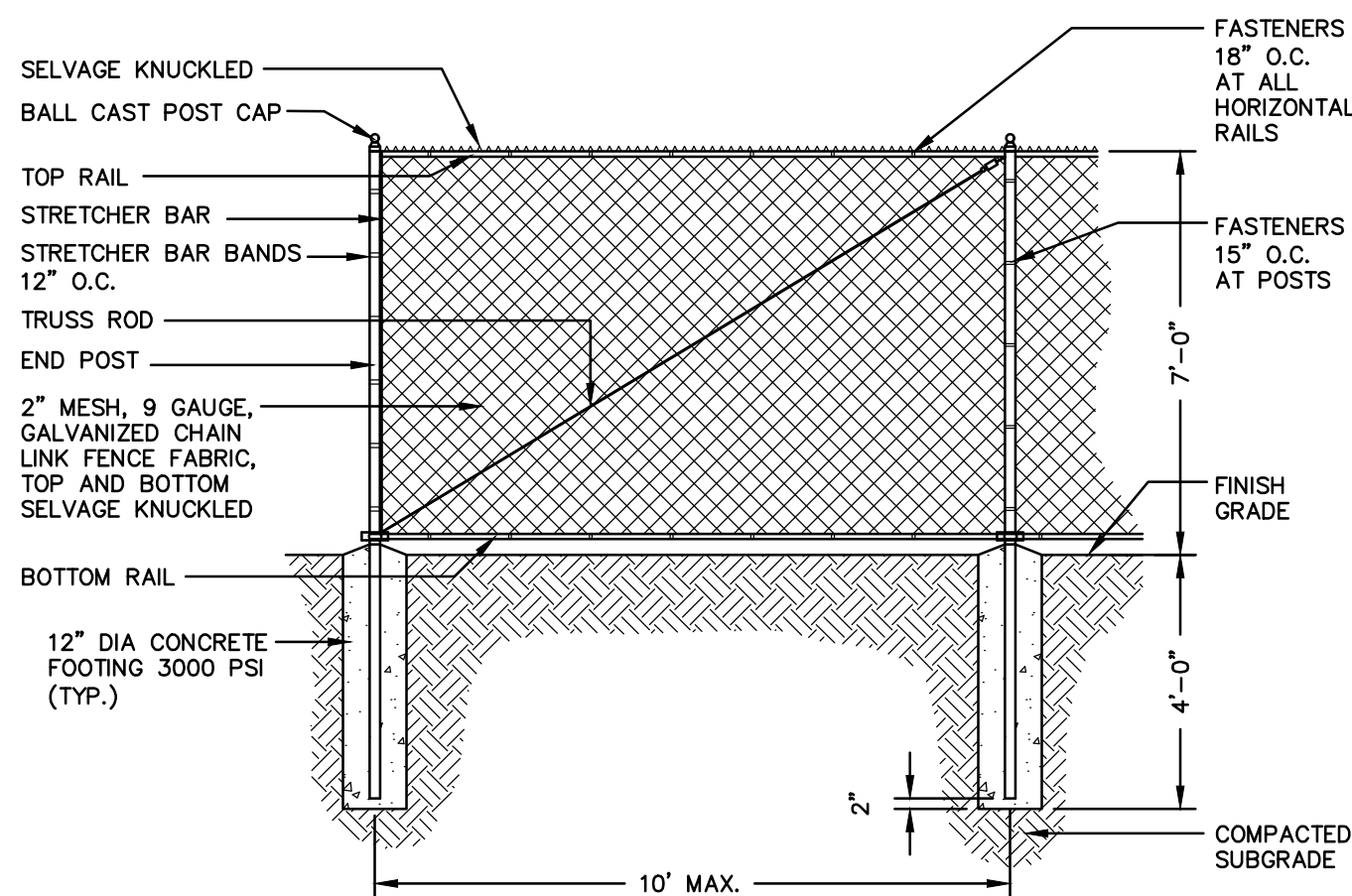
- NOTES:
1. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
 2. FILTER MEDIA FILL TO MEET APPLICATION REQUIREMENTS.
 3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.

SILTSOXX

SCALE: NONE

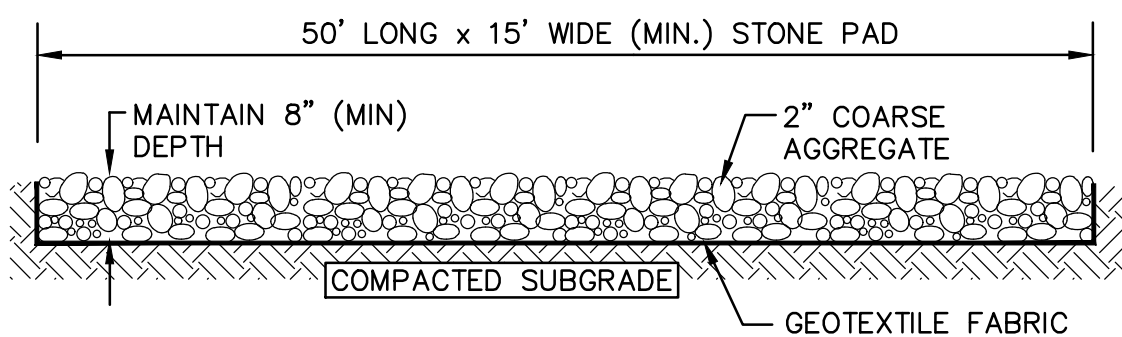
CHAIN LINK FENCE FRAMEWORK SCHEDULE

FABRIC HEIGHT	6' OR LESS	>6' - <10'	10' OR MORE
END, CORNER & PULL POST	2.375" O.D.	2.875" O.D.	4" O.D.
LINE POST	1.900" O.D.	2.375" O.D.	2.875" O.D.
TOP AND BOTTOM RAIL	1.660" O.D.	1.660" O.D.	1.660" O.D.
MIDDLE RAIL	NONE	1.660" O.D.	1.660" O.D.



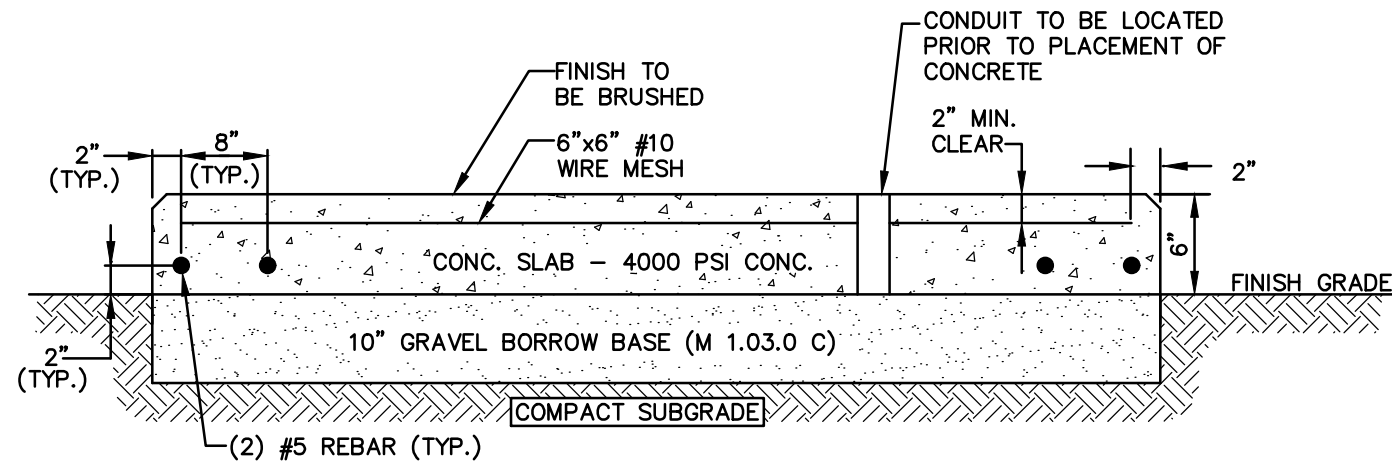
CHAIN LINK FENCE

SCALE: NONE



TEMPORARY CONSTRUCTION ENTRANCE

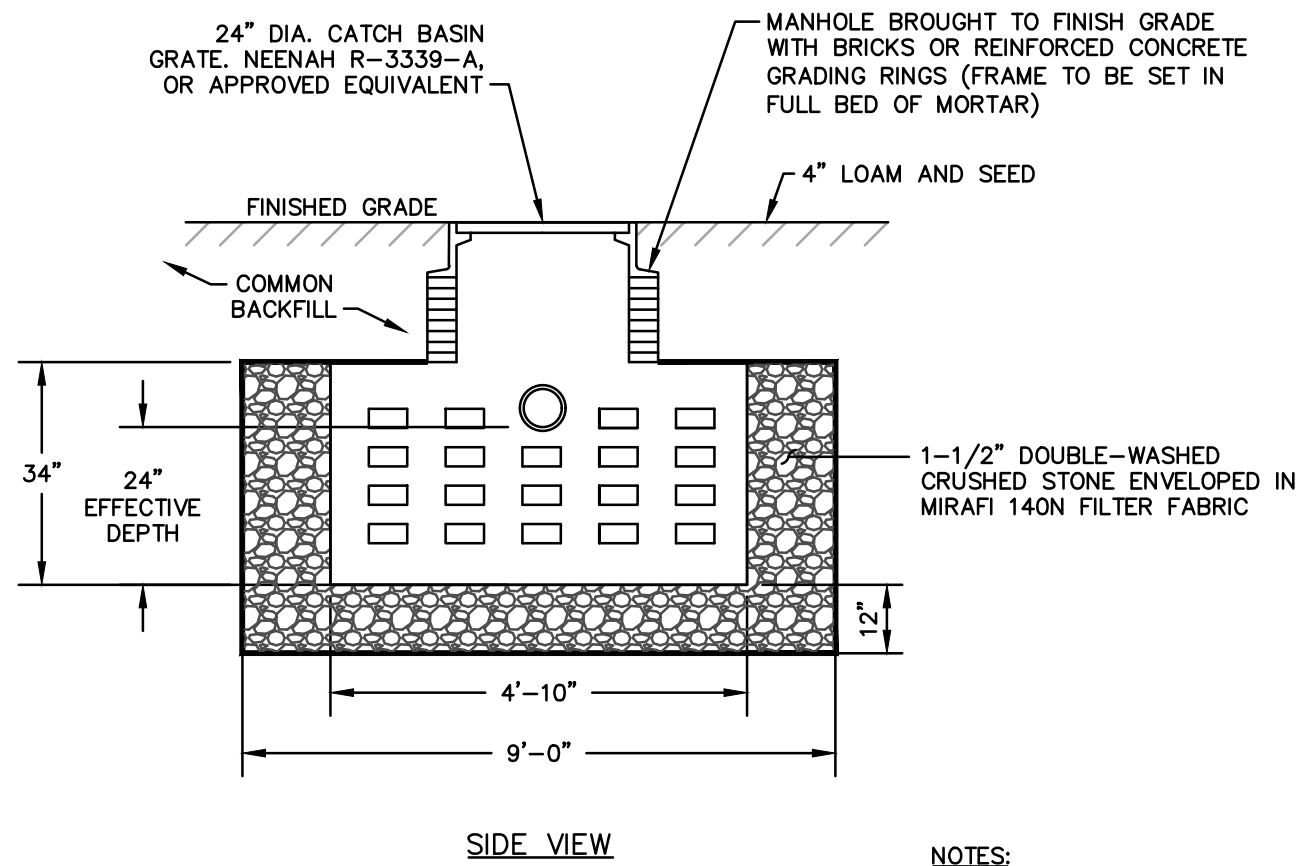
SCALE: NONE



- NOTE:
1. FOR REFERENCE ONLY. FINAL TRANSFORMER PAD TO BE DESIGNED BY OTHERS.

TRANSFORMER PAD

SCALE: NONE

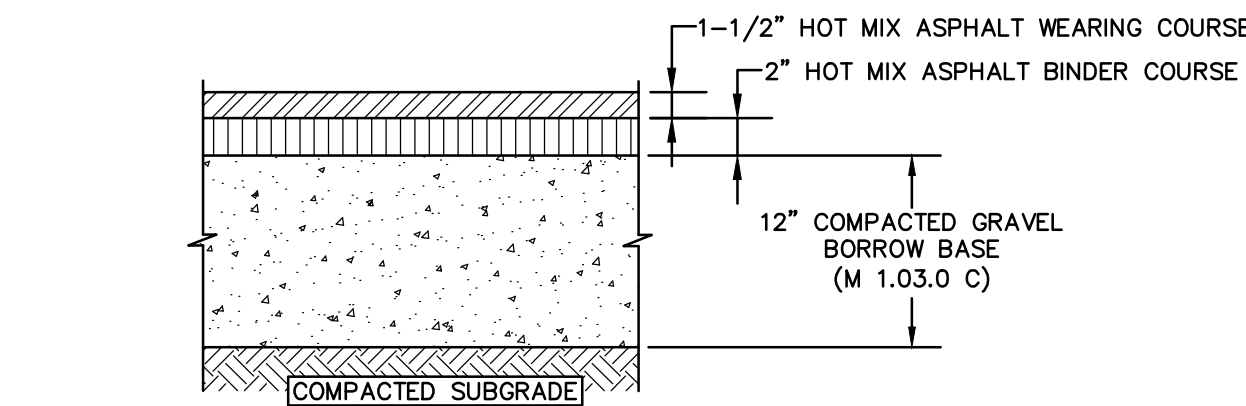


NOTES:

1. EACH LEACHING CHAMBER PER SYSTEM SHALL HAVE A GRATED INLET RAISED TO FINISHED GRADE.
2. COMMON BACKFILL SHALL BE FREE FROM LARGE ROCKS, DEBRIS AND OTHER OBJECTIONABLE MATERIALS.
3. CHAMBERS SHALL BE 500 GALLON LEACHING DRYWELL, MANUFACTURED BY ACME/SHOREY OR APPROVED EQUAL.

500 GALLON CONCRETE LEACHING CHAMBER

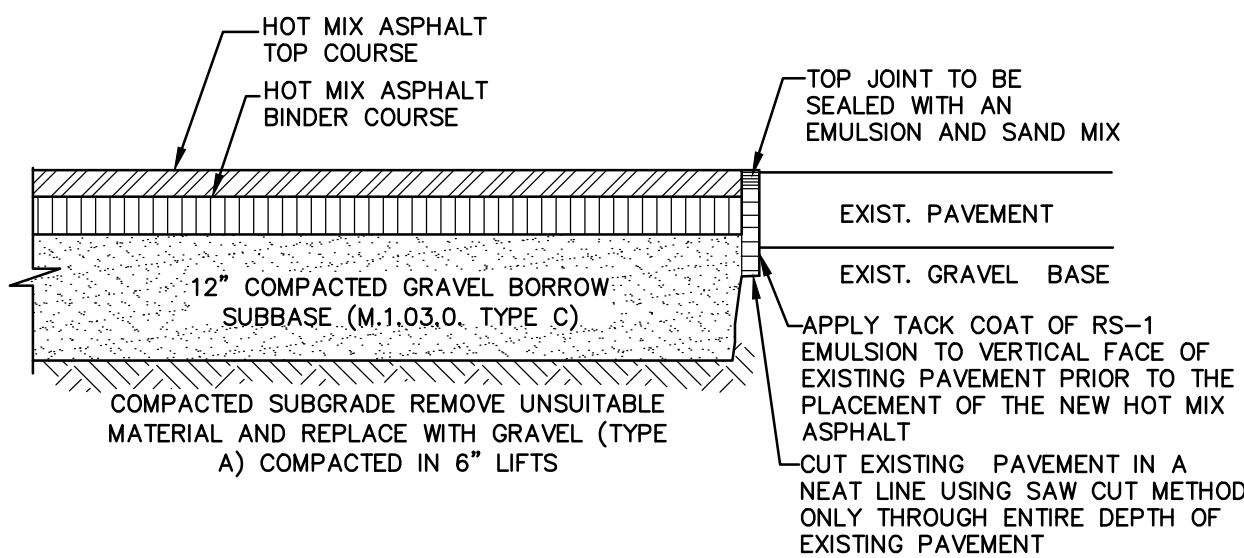
NOT TO SCALE



- NOTE:
- PAVEMENT SECTIONS ARE SUBJECT TO CHANGE AND WILL BE BASED ON THE RESULTS OF GEOTECHNICAL INVESTIGATIONS

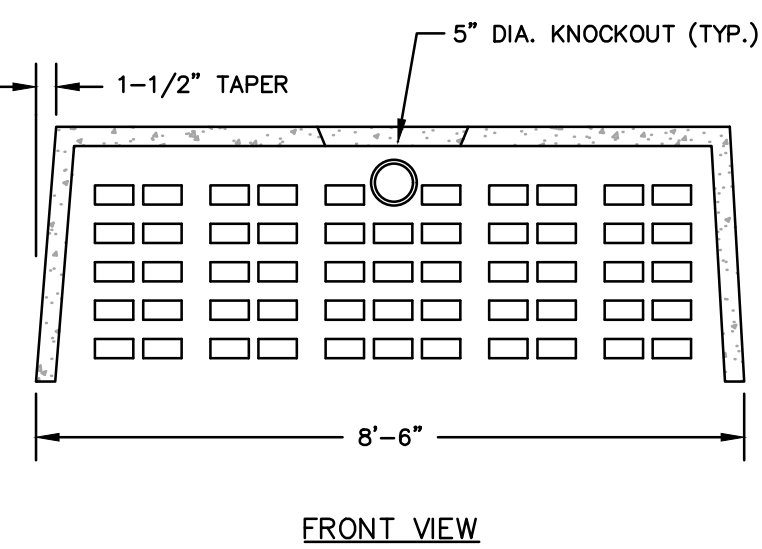
HOT MIX ASPHALT PAVEMENT SECTIONS

SCALE: NONE



HOT MIX ASPHALT PAVEMENT JOINTS

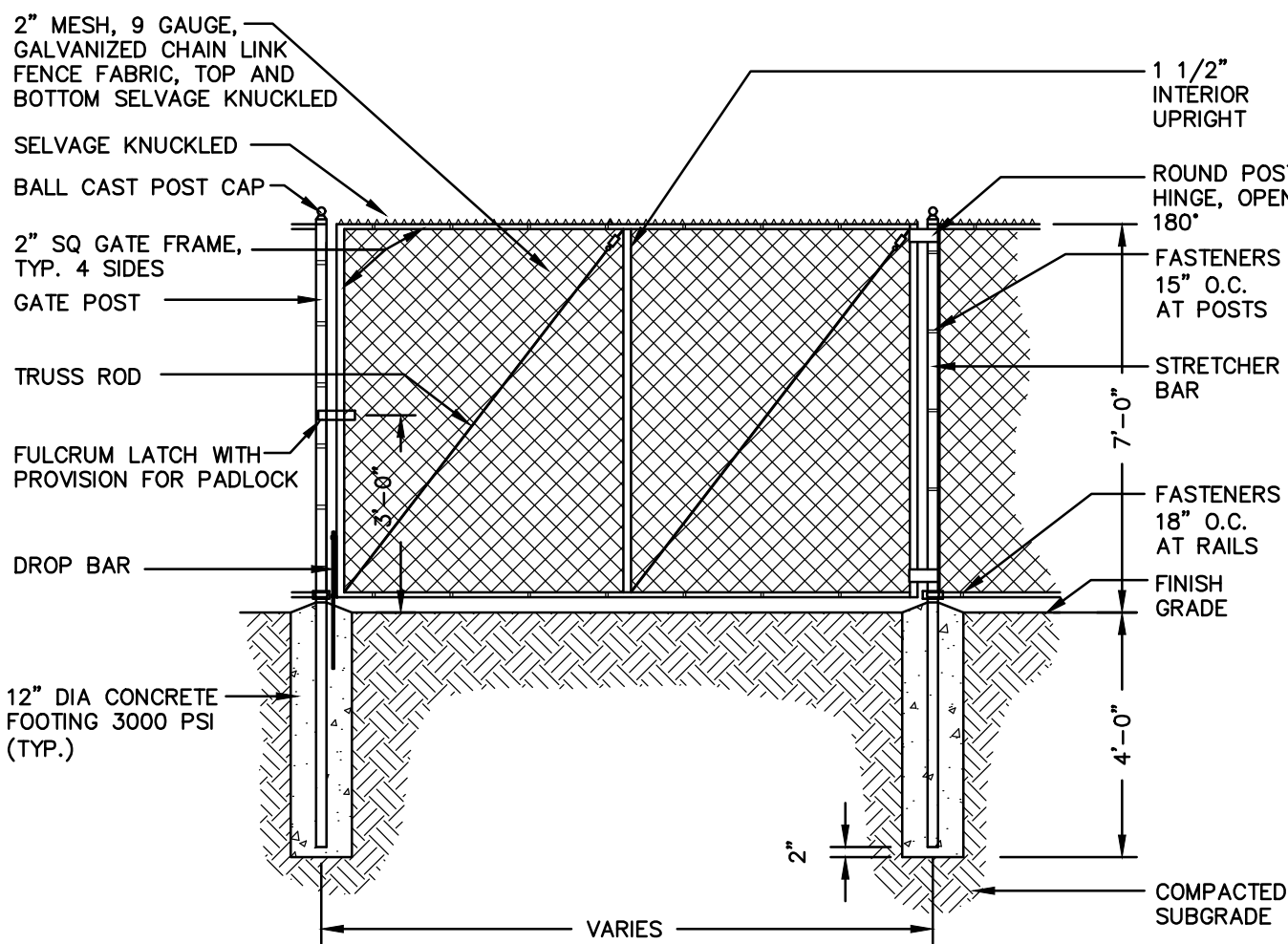
SCALE: NONE



FRONT VIEW

CHAIN LINK GATE FRAMEWORK SCHEDULE

GATE LEAF SINGLE WIDTH	6' OR LESS	>6' - <12'
GATE POST	2.875" O.D.	4" O.D.
GATE FRAME (4 SIDES)	2" SQ	2" SQ
INTERIOR UPRIGHT	NONE	1 1/2" SQ



CHAIN LINK FENCE GATE

SCALE: NONE



7/17/20

BRIAN G. YERGATIAN
PROFESSIONAL ENGINEER

DATE

GROUND-MOUNTED PHOTOVOLTAIC SYSTEM

0 DEPOT ROAD

IN

HARWICH
MASSACHUSETTS
(BARNSTABLE COUNTY)

DETAIL SHEET

JULY 17, 2020

REVISIONS:

NO.	DATE	DESC.

PREPARED FOR:
NEXTGRID, INC.
PO BOX 7775 #73069
SAN FRANCISCO, CA 94120

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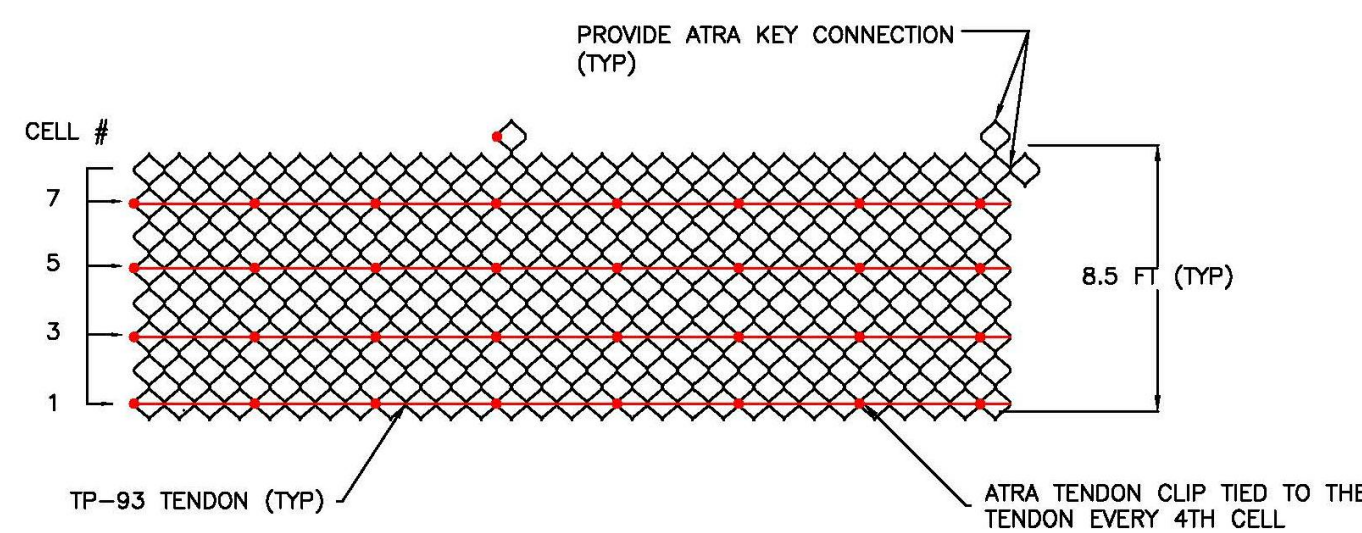
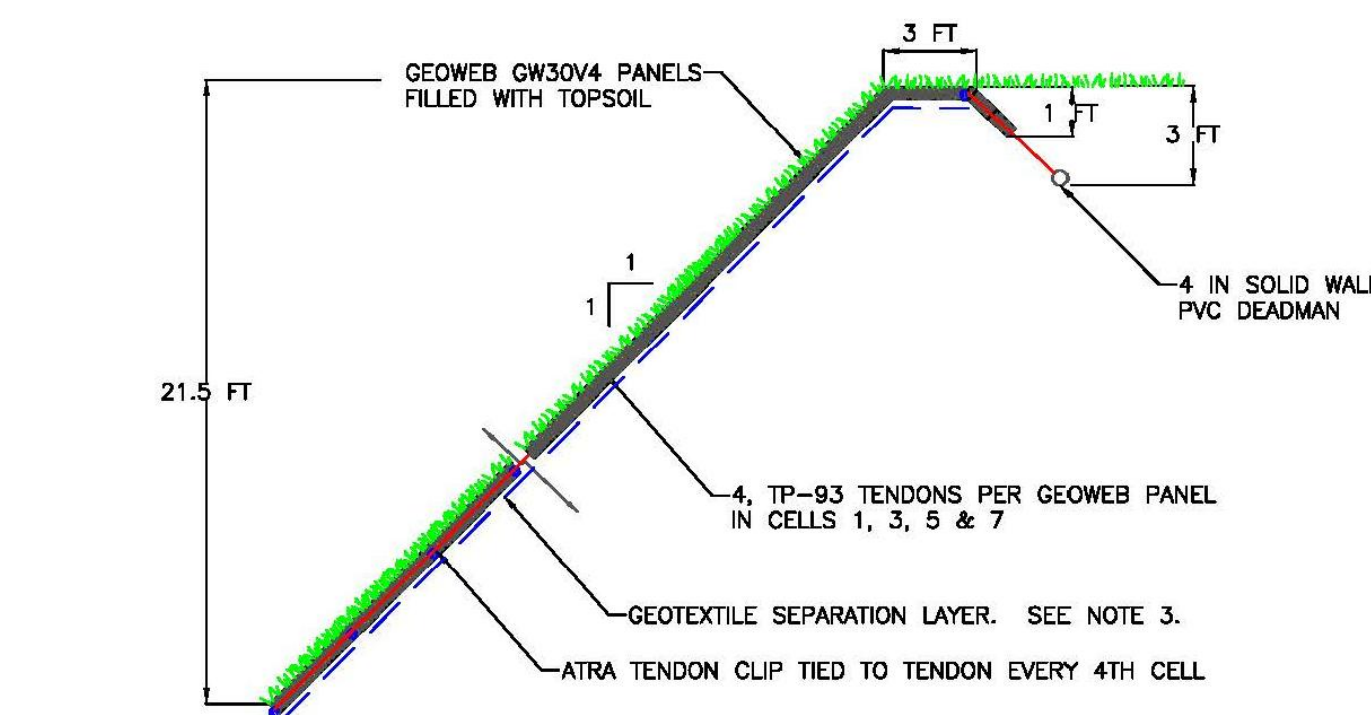
SCALE: AS NOTED

FILE: 5041600-DET

DWG.:

JOB. NO: 5-0416.00

SHEET 7 OF 7

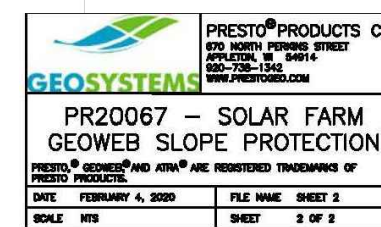


NOTES:

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2. THE EVALUATION ASSUMES THAT THE SLOPE IS GLOBALLY STABLE.
3. IF REQUIRED, PROVIDE A NON-WOVEN GEOTEXTILE SEPARATION LAYER AND INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS INCLUDING OVERLAPS.
4. THE GEOWEB PANELS SHALL BE CONNECTED WITH ATRA KEYS AT EACH INTERLEAF AND END TO END CONNECTION.
5. LIMIT THE DROP OF INFILL TO PREVENT DISTORTION OF THE CELL WALLS.
6. PROVIDE SURFACE PROTECTION (HYDROSEED, ECB, OR TRM) SIZED FOR HYDRAULIC CONDITIONS TO PREVENT SOIL WASH-OUT PRIOR TO ESTABLISHMENT OF VEGETATION.

GEOWEB SLOPE PROTECTION DETAIL

SCALE: NONE



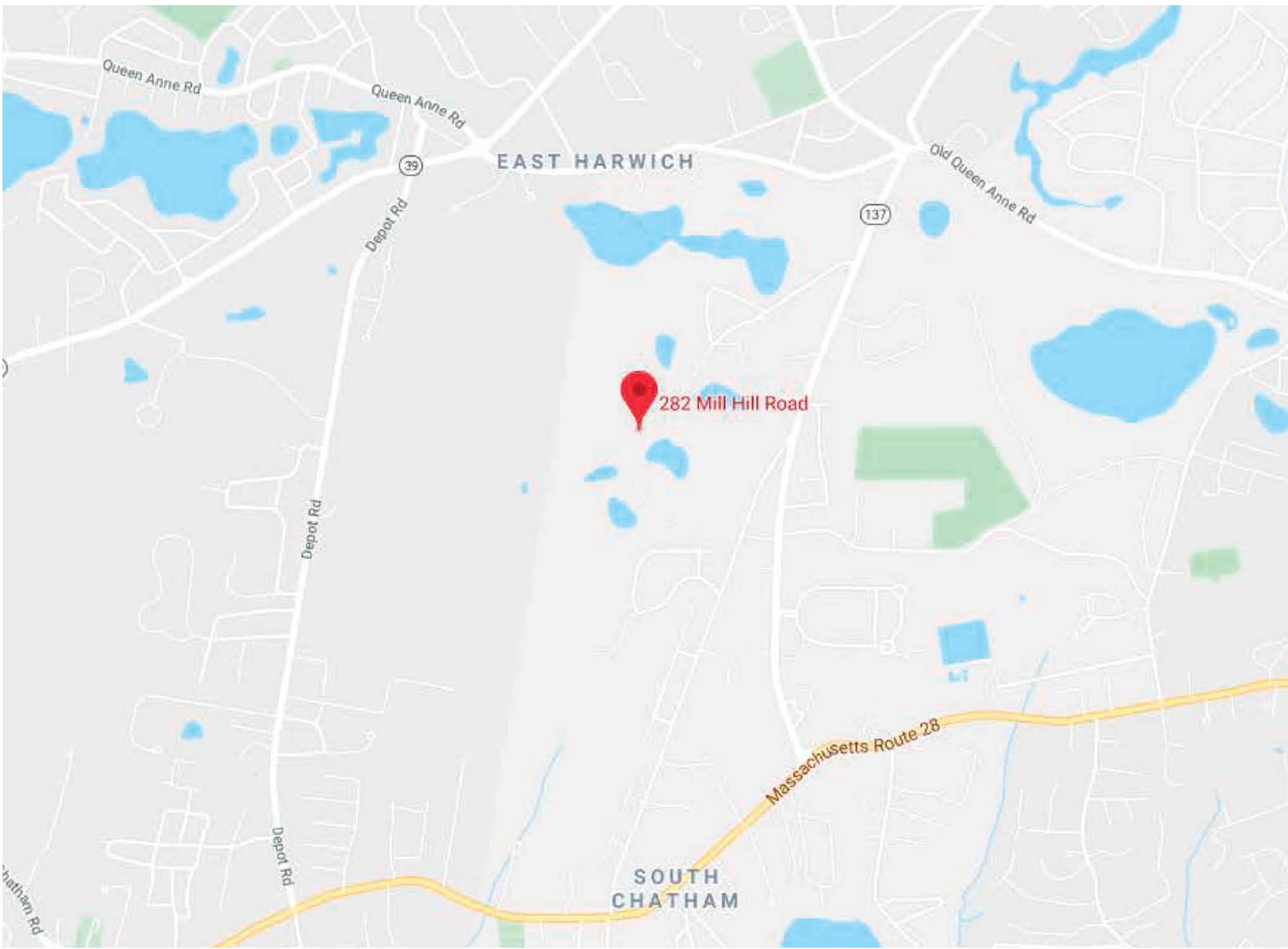
PRESTO PRODUCTS CO.
GEOSYSTEMS
PR20067 - SOLAR FARM
GEOWEB SLOPE PROTECTION
DATE: FEBRUARY 4, 2020 FILE NAME: SHEET 2 OF 2
SCALE: AS NOTED SHEET: 2 OF 2

PHOTOVOLTAIC SYSTEM FOR NEXTGRID -
CHATHAM, MILL HILL RD
0 DEPOT ROAD, HARWICH MA 02645



1 4.038 MWdc (3.150 MWac) PV ARRAY WITH 10,225QTY 395W MODULES AT 20° TILT
WITH 1.500 MWdc (6.094 MWhr) OF DC COUPLED STORAGE

0 64' 128' 256'



2 LOCUS MAP

0 1250' 2500'



3 SIMILAR ARRAY

APPLICABLE STANDARDS
- 2017 NATIONAL ELECTRIC CODE
- MASSACHUSETTS AMENDMENTS TO 2017 NEC
- 6TH EDITION MASSACHUSETTS BUILDING CODE
- 2017 NATIONAL ELECTRICAL SAFETY CODE
- EVERSOURCE CONSTRUCTION STANDARDS
- CHATHAM AND HARWICH, MA BUILDING & ELECTRICAL INSPECTORS (AHJs)

20° FIXED TILT PV ARRAY AZIMUTH: DUE SOUTH							
MODULES	DC POWER	AC POWER	TOTAL PV DC PRODUCTION	TOTAL AC PRODUCTION (NO BATTERY)	TOTAL AC PRODUCTION (w/ BATTERY)	PV ENERGY CLIPPED (w/ BATTERY)	PRODUCTION INCREASE %
10,225/395W	4.038 MWdc	3.150 MWac	4,972 MWhr/yr	4,859 MWhr/yr	4,879 MWhr/yr	0 MWhr/yr	0.42%

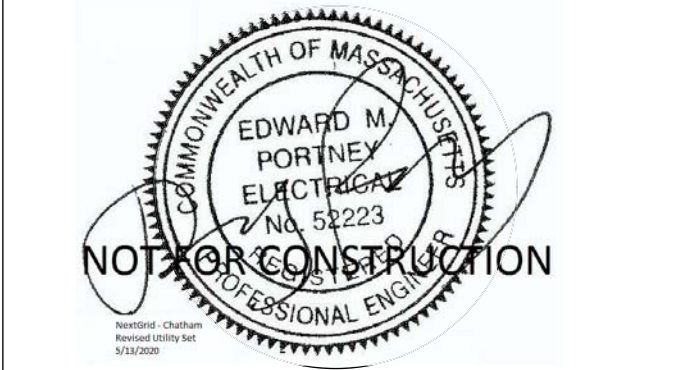
ESTIMATED ANNUAL ENERGY PRODUCTION BASED ON:
HELIOSCOPE CALCULATOR
SDA DC COUPLED STORAGE CALCULATOR

NOT FOR CONSTRUCTION

THIS DRAWING IS FOR INFORMATION PURPOSES ONLY. CERTIFICATION OR VALIDATION IS TO BE DONE BY A PROFESSIONAL WITH EXPERTISE IN THE REQUIRED FIELD AND A LICENSE IN THE STATE THAT THE INSTALLATION WILL RESIDE. CERTIFICATION OR VALIDATION TO BE INCLUDED AS PART OF THE SUBMITTALS FOR PERMITTING OF THE OVERALL PROJECT.

NEXTGRID - CHATHAM, MILL HILL RD

INTERCONNECTION APPLICATION
Wednesday, May 13, 2020



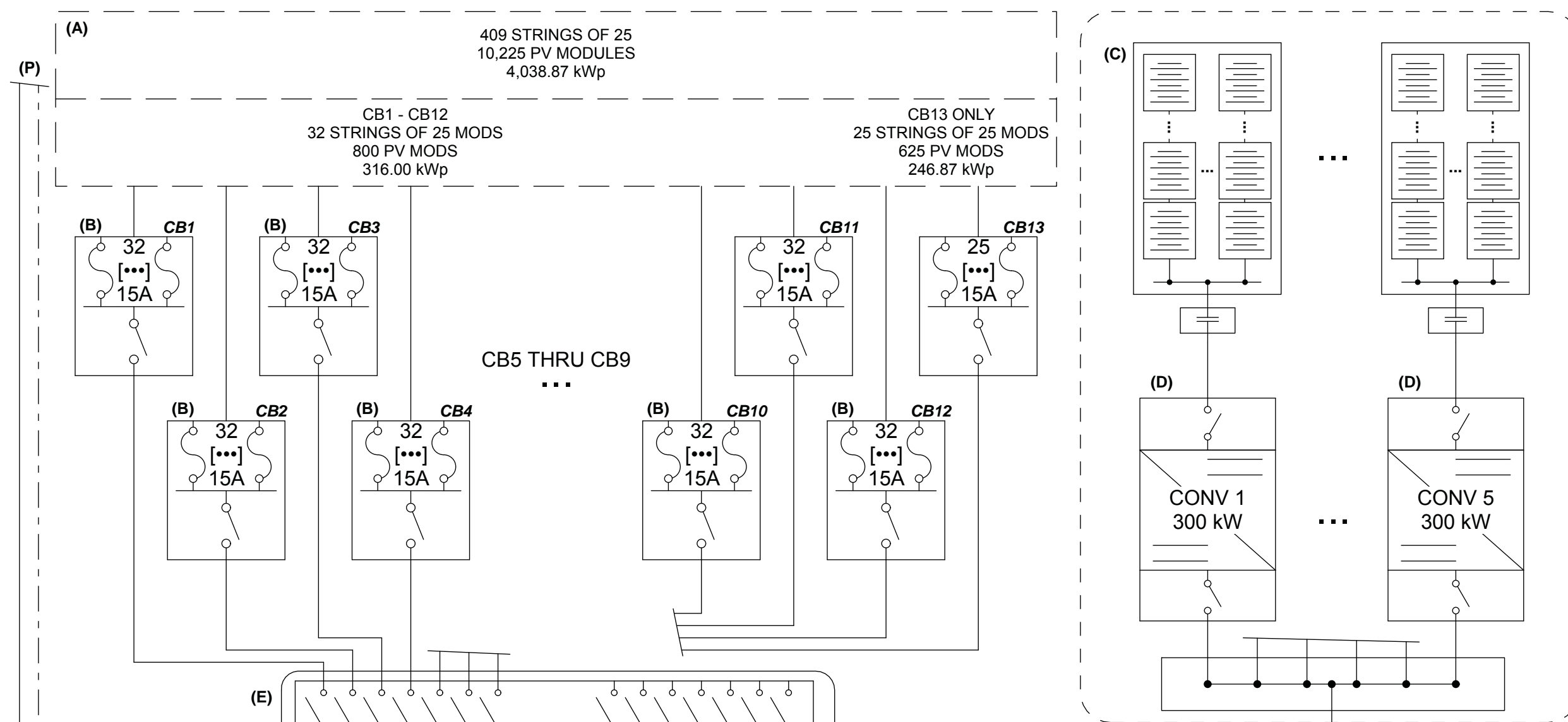
Edward Portney, PE
Digitally signed by Edward Portney, PE
DN: cn=Edward Portney, PE,
ou=Solar Design Associates, ou,
email=portney@solar-design.com, c=US
Date: 2020.05.13 15:23:39 -0400

MARK	DATE	DESCRIPTION
-	11/15/2019	INTERCONNECTION APPLICATION
1	03/03/2020	WIRING TABLE
2	05/13/2020	NGR CALCULATIONS

CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME
	STREET
	CITY/ST/ZIP
	NOTES

FILE NAME	2019-1112 NextGrid - Chatham, Mill Hill Rd.pln
SCALE	AS NOTED
DRAWN BY	NL
CHECKED BY	TP
DRAWING NO.	PV001
DRAWING TITLE	PV SITE PLAN



SITE CONDITIONS		HARWICH, MA	
LOCATION:	27 °C	Voc:	1,332.5 Vdc
MAX AVG TEMP:	-16 °C	Voc (Temp Adjusted):	1,490.9 Vdc
MIN EXPECTED TEMP:	-16 °C	Isc:	238.7 Adc
PV ARRAY CONFIGURATION		Vmp:	1,097.5 Vdc
Manufacturer:	Canadian Solar HIDM	Imp:	225.2 Adc
Model:	CS3U-395MS	PV INVERTER OUTPUT (SG3150U)*	
Module Qty:	10,225	Rated Nominal Power @ 50 °C:	3,150 kW
Modules per String:	25	Operating Voltage Output (Phase-to-Phase):	630 Vac
Total series strings:	409	Max Continuous Output Current (Per Phase):	2,886 Aac
PV MODULE OUTPUT*		Output Frequency:	60 Hz
Voc:	53.3 Vdc	TRANSFORMER OUTPUT (3150 kVA)	
Voc Temp Coeff:	-0.29 %/°C	Max Rated Power:	3,150 kVA
Voc (Temp Adjusted):	59.6 Vdc	Primary Voltage:	22,800 Vac L-L
Isc:	9.55 Adc	Secondary Voltage:	630 Vac
Vmp:	43.9 Vdc	Output Current:	79.74 Aac
Imp:	9.01 Adc	*BASED ON MODULE PERFORMANCE AT STANDARD TEST CONDITIONS (STC)	
25 MODULE SOURCE CIRCUIT OUTPUT*		Voc:	1,332.5 Vdc
Voc:	1,490.9 Vdc	Voc (Temp Adjusted):	1,490.9 Vdc
Isc:	9.55 Adc	Isc:	305.6 Adc
Vmp:	1,097.5 Vdc	Vmp:	1,097.5 Vdc
Imp:	9.01 Adc	Imp:	288.3 Adc
32 STRING COMBINER OUTPUT		Voc:	1,332.5 Vdc
Voc:	1,490.9 Vdc	Voc (Temp Adjusted):	1,490.9 Vdc
Isc:	9.55 Adc	Isc:	305.6 Adc
Vmp:	1,097.5 Vdc	Vmp:	1,097.5 Vdc
Imp:	9.01 Adc	Imp:	288.3 Adc

TABLE 1: PHOTOVOLTAIC SYSTEM EQUIPMENT LIST

(A) CANADIAN SOLAR HIDM 395W MODULES, CS3U-395MS	10,225
(B) CONNECTPV 1500Vdc COMBINER, 32 SPACES, 20A FUSES (+ POLE), 90C TERMINALS, 400A CONTINUOUS DUTY RATED DISCONNECT SWITCH, DISCONNECTING MEANS NEC 2017 COMPLIANT (+ & - POLES), NEMA4, CLASS 2 40kA INTEGRATED DC SURGE SUPPRESSION	13
(C) SUNGROW BATTERY ENCLOSURE, 6.094 MWhr OF BATTERY STORAGE (4.06hr RUNTIME), NEMA3R	1
(D) SUNGROW DC-DC CONVERTER, 300kW, 312.50Adc MAX OUTPUT CURRENT, 1500Vdc BATTERY INPUT, 1500V DC COMMON BUS OUTPUT, INTEGRATED DC DISCONNECT	5
(E) SUNGROW 3150kW INVERTER, SG3150U, 630Vac Δ OUTPUT, 2886A MAX OUTPUT CURRENT, INTEGRATED DC & AC SURGE PROTECTION, DC & AC FUSED DISCONNECTS, NEMA3R	1
(F) UNINTERRUPTIBLE POWER SUPPLY	1
(G) CUSTOMER OWNED DAS	1
(H) 3150KVA PAD MOUNTED TRANSFORMER, 630VAC Δ SECONDARY, 13.16/22.8KV Yg PRIMARY, Z=5.75%, %I ₀ =6.11, FIVE-LEG CORE DUAL SENSE BAY-O-NET FUSE, ELSP FUSE, PRIMARY TAPS 2.5% & 5% ABOVE & BELOW NOMINAL 22.8KV, 200A DEEP WELDED BUSHINGS	1
(I) NEUTRAL GROUNDING REACTOR, 29.80 NEUTRAL TO GROUND, 16.0A CONT. NEUTRAL CURRENT, 538.2A 5s FAULT CURRENT, %I ₀ =4, NEMA3R	1
(J) NEW CUSTOMER OWNED RISER POLE WITH G&W VIPER RECLOSER, 25kV, 600A BUSHING, 3 LEAs, WITH SEL-651R RELAY CONTROLLER AND UPS BACKUP POWER WITH BATTERY BACKUP, C20 CLASS, 0.15B-1.8 CTs W/ 45VA BURDEN (1.8Ω RESISTOR), RATIOS AS INDICATED	1
(K) CUSTOMER OWNED POLE WITH 25kV LOADBREAK SWITCH, MANUAL, THREE PHASE, GANG-OPERATED, VISIBLE, LOCKABLE INTERRUPTER DISPATCH POINT OF DEMARCATION, MOMENTARY 40kA ASY (25kA 3-SEC) INTERRUPT RATING, COOPER POWER M-FORCE #M2HA2SR2-CHTV2	1
(L) NEW UTILITY OWNED PRIMARY METERING POLE FOR MA SMART PROGRAM, POINT OF COMMON COUPLING	1
(M) NEW UTILITY OWNED RECLOSER POLE	1
(N) NEW UTILITY OWNED LOADBREAK POLE	1
(O) 18KV, 15.3KV MCOV LIGHTNING ARRESTORS, DISTRIBUTION CLASS	6
(P) WEATHER STATION WITHIN ARRAY; PLANE OF ARRAY IRRADIANCE, MODULE TEMP, AMBIENT TEMP	1

TABLE 3: TRIP LEVEL SETTINGS TO STOP INVERTER

ID	DESCRIPTION	SETPOINT	V _{NOM} = 630V L-L	TOTAL CLEAR TIME
1	LINE UNDER VOLTAGE (FAST)	315.0 V	1.1 SEC	
2	LINE UNDER VOLTAGE (SLOW)	554.4 V	2.0 SEC	
3	LINE OVER VOLTAGE (SLOW)	693.0 V	2.0 SEC	
4	LINE OVER VOLTAGE (FAST)	756.0 V	0.16 SEC	
5	LINE UNDER FREQUENCY (FAST)	56.5 Hz	0.16 SEC	
6	LINE UNDER FREQUENCY (SLOW)	58.5 Hz	300 SEC	
7	LINE OVER FREQUENCY (SLOW)	61.2 Hz	300 SEC	
8	LINE OVER FREQUENCY (FAST)	62.0 Hz	0.16 SEC	

INVERTER NOTES:

1. INVERTER TOTAL CLEARING TIME INCLUDES MECHANICAL OPERATION TIME OF 3 CYCLES (0.05s).
2. UTILITY RESTORATION DETECTION WILL USE THE FACTORY SETTINGS FOR A UL 1741 SA CERTIFIED INVERTER.

GENERAL EQUIPMENT NOTES:

1. ALL EQUIPMENT TO BE RATED FOR USE AS SERVICE ENTRANCE EQUIPMENT.

LOADBREAK NOTES:

1. LOADBREAK WILL BE SERVICE RATED AND ACCESSIBLE AND LOCKABLE 24/7.
2. LOADBREAK RATED FOR 20kA FAULT CURRENT

NOTE: UTILITY EQUIPMENT SHOWN FOR REFERENCE ONLY - FINAL DESIGN BY EVERSOURCE

UTILITY INSTALLED EQUIPMENT

- POLE #1 - UTILITY POLE W/ LOADBREAK
- POLE #2 - UTILITY OWNED RECLOSER POLE
- POLE #3 - UTILITY PRIMARY METERING POLE, MA SMART METER

CUSTOMER INSTALLED EQUIPMENT

- POLE #4 - CUSTOMER LOADBREAK POLE
- POLE #5 - CUSTOMER RISER POLE W/ RECLOSER

TABLE 2: PROPOSED SEL-651R RELAY SETTINGS

ELEMENT	PRI. PICKUP	SEC. PICKUP	TOTAL CLEAR TIME
UNDERVOLTAGE (27-1)	6,581.5V	24.68V	66 CYC (1.10 SEC)
UNDERVOLTAGE (27-2)	11,583.9V	43.43V	120 CYC (2.00 SEC)
OVERVOLTAGE (59-1)	14,479.9V	54.29V	120 CYC (2.00 SEC)
OVERVOLTAGE (59-2)	15,796.3V	59.23V	10 CYC (0.16 SEC)
UNDERFREQUENCY (81U-1)		56.5 Hz	10 CYC (0.16 SEC)
UNDERFREQUENCY (81U-2)		58.5 Hz	18,000 CYC (300 SEC)
OVERFREQUENCY (81O-1)		61.2 Hz	18,000 CYC (300 SEC)
OVERFREQUENCY (81O-2)		62.0 Hz	10 CYC (0.16 SEC)
INST. OVERCURRENT (50)	318.98A	3.19A	INSTANTANEOUS
OVERCURRENT (51P)	139.55A	1.40A	U4 CURVE, TD = 2.0
OVERCURRENT (51G)	39.8A	0.40A	U4 CURVE, TD = 1.5
AUTORECLOSING (79)	12,505V ≤ V ≤ 13,821V	46.89V ≤ V ≤ 51.83V	18k CYC (300 SEC)
	59.5 ≤ f ≤ 60.5		

RELAY NOTES:

1. SEL-651R RELAY TO BE HARDWIRED TO TRIP UNDER THE ABOVE VOLTAGE, CURRENT & FREQUENCY SETTINGS AND UPON LOSS OF DC SUPPLY POWER. RECLOSER WILL TRIP OFFLINE IN 2 SECONDS OR LESS UPON LOSS OF DC SUPPLY POWER AND WILL BLOCK AUTO-RECLOSE FUNCTIONALITY.
2. BASE SECONDARY VOLTAGE = $(13.8kV / (\sqrt{3} \cdot 10000)) \cdot (300/8) = 49.36V$
3. TIME DELAY SHOWN IS TOTAL CLEAR TIME, WHICH INCLUDES MECHANICAL OPERATION TIME OF 3 CYCLES (0.05 SEC).
4. ELEMENT 79 (RE-CLOSING) TO BE ENABLED WITH 5 MINUTE "HEALTHY GRID" RECONNECT FEATURE. THIS SHALL DEFEAT THE CLOSE BUTTON AND BLOCK CLOSE UNTIL THE 5 MINUTE TIMER HAS EXPIRED. RECLOSER FUNCTION SHALL BE DISABLED IF PRIOR TRIP WAS DUE TO AN OVERCURRENT EVENT.
5. ALL RELAY SETTINGS ARE TO BE REVIEWED BY UTILITY AND ARE SUBJECT TO CHANGE, PENDING FINAL UTILITY APPROVAL.
6. POWER SUPPLY SCHEMATIC WILL BE SUBMITTED FOR APPROVAL PRIOR TO WITNESS TEST.
7. INTERCONNECTION INTERRUPTING DEVICE SHALL HAVE DC TRIP COILS AND TRIPPING ENERGY SHALL BE DERIVED FROM 24VDC UPS-STYLE STATION BATTERY TO ALLOW FOR APPROXIMATELY 8 HR RUN TIME.
8. ELEMENT 79 TIMER WILL RESET IF UTILITY VOLTAGE OR FREQUENCY FALLS OUTSIDE OF NORMAL WINDOW

NGR REFERENCES

- IEEE STD 142-2007
- IEEE P1547.8/D8
- IEEE STD C62.92.1-2000
- IEEE STD C62.92.4-2000
- IEEE STD 32-1972

NEUTRAL REACTOR CALCULATIONS

kV =	22.8	(GROUNDING XFMR VOLTAGE)
MVA _{PV} =	3.150	(TOTAL PV PLANT MVA RATING)
Z _{BASE} = kV ² / MVA _{PV} =	165.0 Ω	
X _{0,DG} = 0.6 * Z _{BASE}	99.0 Ω	+/-10% Ω
X _{0,XFMR} = 0.0575 * Z _{BASE}	9.49 Ω	
X _{0,NGR}	89.5 Ω	
X _{NGR}	29.8 Ω	+/-10% Ω
VERIFY X _{0,DG} / R _{0,DG} = 4 OR GREATER		
R _{0,DG}	24.75 Ω	X ₀ / R ₀ RATIO MUST BE GREATER THAN OR EQUAL TO 4
ASSUMING VOLTAGE IMBALANCE (V ₀) OF	4%	
I _{BASE} = V _{BASE} / Z _{BASE}	79.7 A	
I _{0B0} = V ₀ / Z ₀	0.067 P.U.	
I ₀ = I _{BASE} * I _{0B0}	5.34 A	
I _{CONT} = 3 * I ₀	16.0 A	
USING INVERTER FAULT CURRENT CONTRIBUTION	119.6 A	
3 * I ₀	358.8 A	
150% OF 3 * I ₀	538.2 A	5 SEC WITHSTAND RATING

TRANSFORMER NOTES:

1. TRANSFORMER SHALL BE THREE PHASE, SELF COOLED, AND DESIGNED FOR STEP-UP OPERATION. TRANSFORMER SHALL BE UL LISTED. PAD MOUNT, DISTRIBUTION TYPE TRANSFORMERS SHALL COMPLY WITH THE LATEST ISSUE OF IEEE/ANSI C57.12.54.
2. TRANSFORMER SHALL OPERATE AT 60 HZ NOMINAL AND SHALL BE TOLERANT OF CONTINUOUS FREQUENCIES BETWEEN 56.5 HZ AND 62.0 HZ.
3. TRANSFORMER SHALL BE CAPABLE OF OPERATING AT 1.1 P.U. VOLTAGE AT FULL LOAD FOR PERIODS OF TIME TYPICAL OF THE EXPECTED GENERATION PROFILE.
4. LOW VOLTAGE WINDING CONFIGURATION IS REQUIRED TO BE 480V GROUNDED WYE WITH A FULLY INSULATED NEUTRAL.
5. TRANSFORMER SHALL BE FURNISHED WITH HIGH VOLTAGE TAPS WITH A MINIMUM OF TWO 2 1/2% TAPS ABOVE AND BELOW NAMEPLATE RATING.

GROUNDING NOTES:

1. PV INVERTER GEC TO BE SIZED PER NEC 250.166. COPPER GROUNDING ELECTRODE ROD 3/4" x 10' MIN TO BE USED.
2. TRANSFORMER GEC TO BE SIZED PER NEC 250.66. COPPER GROUNDING ELECTRODE ROD 3/4" x 10' MIN TO BE USED. FROM TRANSFORMER EARTH GROUND TO COPPER GEC, GROUND SYSTEM RESISTANCE SHALL BE 25 OHMS OR LESS.

TABLE 4: CONDUIT AND WIRING SCHEDULE

ID	AMPERAGE ¹	OC PD	FUNCTION	EST. LENGTH	# OF WIRES	WIRE SIZE (AWG)	NEUTRAL SIZE	GROUND SIZE	CONDUIT SIZE
(1)	2886 Aac	-	INVERTER OUTPUT	20 FT.	-	THROAT CONNECTION ²	-	-	THROAT CONNECTION
(2a)	79.74 Aac	-	XFMR OUTPUT (UG)	1500 FT.	3+G	1/0 25kV Al MV-105 ³	FULL CONCENTRIC	N/A	4" SCH 40 & 80 PVC
(2b)	79.74 Aac	-	XFMR OUTPUT (OH)	160 FT.	3+G	1/0 kcmil ACSR	-	N/A	OPEN AIR

WIRE TABLE NOTES:

1. ALL AC CURRENTS ARE NOMINAL PER-PHASE VALUES
2. 8 SETS OF 500KCMIL CU WIRE WITH 500KCMIL GROUND CAN BE USED AS AN ALTERNATIVE.
3. MV-105 CONDUCTORS TO BE SINGLE CONDUCTOR, 133% INSULATION, 15kV CLASS, WITH FULL CONCENTRIC NEUTRAL

1 3.150 MWac (4.038 MWdc) PV SINGLE LINE WITH 1.500 MWdc (6.094 MWhr) OF DC COUPLED STORAGE

NextGrid

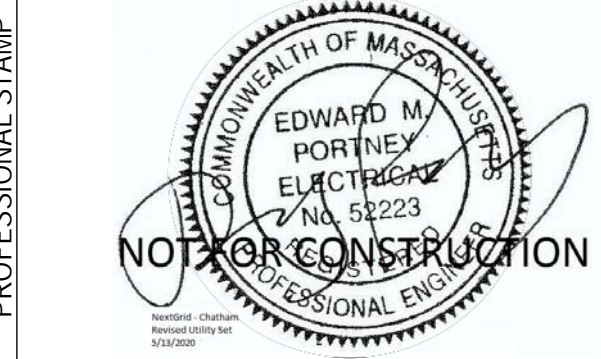
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NEXTGRID - CHATHAM, MILL HILL RD

INTERCONNECTION APPLICATION

Wednesday, May 13, 2020



NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION
1	11/15/2019	INTERCONNECTION APPLICATION
2	03/03/2020	WIRING TABLE
3	05/13/2020	NGR CALCULATIONS

CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME
	STREET
	CITY/ST/ZIP
	NOTES

FILE NAME	2019-1112 NextGrid - Chatham, Mill Hill Rd.pln
SCALE	AS NOTED
DRAWN BY	NL DATE DRAFTED: 5/13/2020
CHECKED BY	TP SHEET SIZE: ARCH D

DRAWING NO.	PV601
DRAWING TITLE	SINGLE LINE



HiDM

HIGH DENSITY MONO PERC MODULE
395 W ~ 410 W
CS1U-395|400|405|410MS

MORE POWER

- UP TO 19.89% Maximize the light absorption area, module efficiency up to 19.89 %
- 42°C Low temperature coefficient (Pmax): -0.37 % / °C

- Better shading tolerance

MORE RELIABLE

- Lower internal current, lower hot spot temperature
- Cell crack risk limited in small region, enhance the module reliability
- Heavy snow load up to 5400 Pa, wind load up to 2400 Pa

25 years linear power output warranty

10 years product warranty on materials and workmanship

MANAGEMENT SYSTEM CERTIFICATES*

ISO 9001:2015 / Quality management system
ISO 14001:2015 / Standards for environmental management system
OHSAS 18001:2007 / International standards for occupational health & safety

PRODUCT CERTIFICATES*

IEC 61215 / IEC 61730: VDE / CE / CEC AU
IEC61701 ED2: VDE / IEC62716: VDE
UL 1703: CSA
Take-a-way



* We can provide this product with special BOM specifically certified with salt mist, and ammonia tests. Please talk to our local technical sales representatives to get your customized solutions.

CANADIAN SOLAR (USA) INC. is committed to providing high quality solar products, solar system solutions and services to customers around the world. No. 1 module supplier for quality and performance/price ratio in IHS Module Customer Insight Survey. As a leading PV project developer and manufacturer of solar modules with over 30 GW deployed around the world since 2001.

CANADIAN SOLAR (USA) INC.
3000 Oak Road, Suite 400, Walnut Creek, CA 94597, USA | www.canadiansolar.com/na | sales.us@canadiansolar.com

SG3150U/SG2500U New

SUNGROW
Clean power for all

Turnkey Station for North America 1500 Vdc System



- HIGH YIELD**
 - Advanced three-level technology, max. efficiency 98.8%, CEC efficiency 98.5 %
 - Max. DC/AC ratio more than 1.5

SAVED INVESTMENT

- Low transportation and installation cost due to 10-foot container design
- 1500V DC system, low system cost
- Integrated LV auxiliary power supply

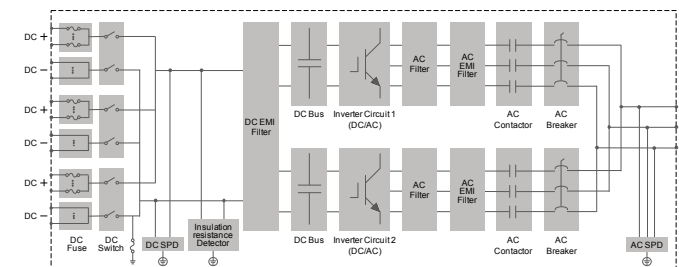
EASY O&M

- Integrated current and voltage monitoring function for online analysis and fast trouble shooting
- Modular design, easy for maintenance
- Convenient external LCD

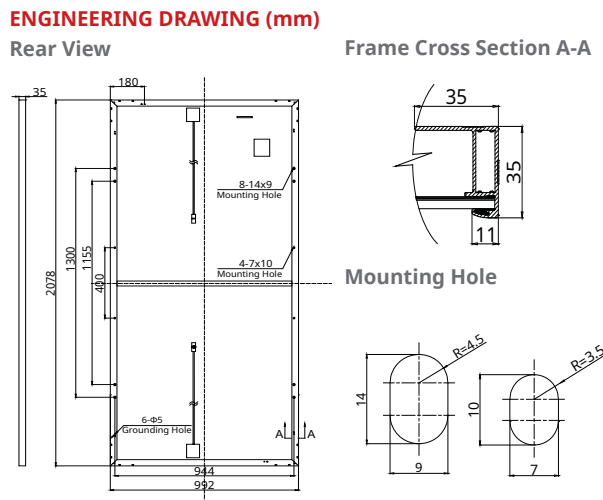
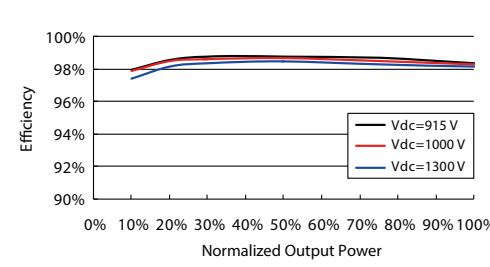
GRID SUPPORT

- Complies with UL 1741, UL 1741 SA, IEEE 1547, Rule 21 and NEC 2014/2017
- Grid support including L/HVRT, L/HFRT, power ramp rate control, active and reactive power support

CIRCUIT DIAGRAM



EFFICIENCY CURVE (SG3150U)



ELECTRICAL DATA | STC*

CS1U	395MS	400MS	405MS	410MS
Nominal Max. Power (Pmax)	395 W	400 W	405 W	410 W
Opt. Operating Voltage (Vmp)	43.9 V	44.1 V	44.3 V	44.5 V
Opt. Operating Current (Imp)	9.01 A	9.08 A	9.16 A	9.23 A
Open Circuit Voltage (Voc)	53.3 V	53.4 V	53.5 V	53.6 V
Short Circuit Current (Isc)	9.55 A	9.60 A	9.65 A	9.70 A
Module Efficiency	19.16%	19.40%	19.65%	19.89%
Operating Temperature	-40°C ~ +85°C			
Max. System Voltage	1500V (IEC/UL) or 1000V (IEC/UL)			
Module Fire Performance	TYPE 1 (UL 1703) or CLASS C (IEC 61730)			
Max. Series Fuse Rating	20 A			
Application Classification	Class A			
Power Tolerance	0 ~ +5 W			

* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

ELECTRICAL DATA | NMOT*

CS1U	395MS	400MS	405MS	410MS
Nominal Max. Power (Pmax)	295 W	298 W	302 W	306 W
Opt. Operating Voltage (Vmp)	40.1 V	40.2 V	40.4 V	40.6 V
Opt. Operating Current (Imp)	7.36 A	7.42 A	7.47 A	7.53 A
Open Circuit Voltage (Voc)	50.1 V	50.2 V	50.3 V	50.4 V
Short Circuit Current (Isc)	7.70 A	7.74 A	7.78 A	7.82 A

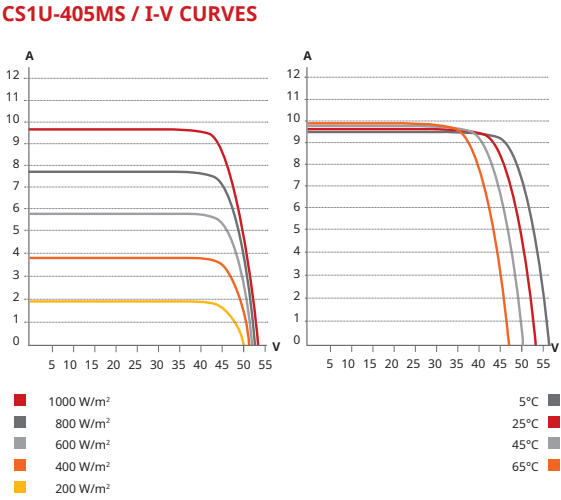
* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m², spectrum AM 1.5, ambient temperature 25°C, wind speed 1 m/s.

MECHANICAL DATA

Specification	Data
Cell Type	Mono-crystalline
Dimensions	2078 x 992 x 35 mm (81.8 x 39.1 x 1.38 in)
Weight	23.4 kg (51.6 lbs)
Front Cover	3.2 mm tempered glass
Frame	Anodized aluminium alloy
J-Box	IP67, 4 bypass diodes
Cable	4.0 mm² (IEC), 12 AWG (UL)
Cable length (including connector)	portrait: 750 mm (29.5 in); leap-frog connection: 1780 mm (70.1 in)*
Connector	T4 series
Per Pallet	30 pieces
Per Container (40' HQ)	660 pieces

* For detailed information, please contact your local Canadian Solar sales and technical representatives.

CANADIAN SOLAR (USA) INC., December 2018 | All rights reserved | PV Module Product Datasheet v5.57_F16_J1_NA



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* For detailed information, please contact your local Canadian Solar sales and technical representatives.

TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.37 % / °C
Temperature Coefficient (Voc)	-0.29 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	42±3 °C

PARTNER SECTION



CONNECTPV
Simplifying Solar PV

1500V Disconnect Combiners

ConnectPV Disconnect Combiner products are based on a core product architecture optimized for commercial and utility scale solar projects, simplifying design and specification. Options and accessories allow the designer to optimize the products for each project (reducing installation labor costs).

ConnectPV products incorporate (best-in-class) components combined with rugged mechanical designs to maximize reliability over the projected life of the project.

Compatible with grounded systems - negatively or positively grounded with fuses on the ungrounded string input conductors, or ungrounded systems with fuses on both string input conductors.

Standard Product Features

- 250A, 320A, and 400A UL988 Certified Manual Disconnects
- Lock-Out/Tag-Out on Disconnect Handle
- 8-32 Fused Inputs, #14-#6 AWG Wire Range
- Touch Safe Fuse-holders
- 15A Fuse Typical, 30A Maximum (user specified)
- M10 or M12 Studs provided for single or double hole lugs
- Accommodates 90C Cu/Al Mechanical or Compression Lugs
- Internal Safety Cover over all live components
- NEMA 3R, 4, and 4X Enclosures
- Padlock Latch for Door
- Unique Serial number per unit
- Labelling to meet NEC Requirements
- 5 Year Warranty

Product Options

- Class 2 40kA Surge Protective Device
- Mechanical Lugs Installed or Compression Lugs Included
- Breather Vents for High Humidity Locations
- H4 or MC4 Bulkhead or Whip Connectors Installed
- Upsized Enclosures for Larger Output Wires
- Mounting Brackets Installed
- Extended Warranty



Contact Toll Free: (844)-246-6140
Local: (858) 246-6140

www.connectpv.com
sales@connectpv.com

San Diego, CA
CBX15 Rev. 3.0

CONNECTPV
Simplifying Solar PV

ConnectPV reduces electrical BOS project costs by simplifying:

Configuration

Design Engineers easily configure our products to meet the project's requirements (Simplifying design and specification)

Regulation

AHJ Inspectors quickly review and approve our products because we have designed for 100% compliance with the NEC and UL Standards (Reducing project inspection and approval time)

Installation

Field Insulators quickly install our products because they provide ample wiring room - Reducing installation time and labor cost

Operation

O&M Personnel reduce field service time because our products use high quality components and are designed for a 20 year life expectancy (Maximizing system revenue generation)

Typical Input Characteristics		Input Wire Size	Output Type	Grounded Systems		Floating Systems	
Input Circuits	Standard Disconnect Ampacity			NEMA 4 Steel (inches)	NEMA 4X Fiberglass (inches)	NEMA 4 Steel (inches)	NEMA 4X Fiberglass (inches)
16	250	#14-#4 AWG Copper	M10 Stud	24x24x8	24x24x8	24x30x8	24x30x8
20	250		M12 Stud	24x24x8	24x24x8	24x30x8	24x30x8
24	320			30x24x8	30x24x8	30x30x8	30x30x8
28	400			30x30x8	36x30x8	36x36x8	36x36x8*
32	400			30x30x8	36x30x8	36x36x8	36x36x8*

* Painted Stainless Steel NEMA 4X

Standard Disconnects sized at 1.25x Sum(Isc) per UL1741.

Upsize Disconnect available at 1.56x Sum(Isc) for OCPD coordination.

High Ampacity Input Versions available:

e.g., 12 input, 400A with 30A fuses

Specifications Subject to Change

Model Numbers are derived from the following template: CBXVVT-##D(S)-FFAA-EE

VV	T	##	FF	AA	EE
Voltage	Topology	Disconnect Rating	String Count	Fuse Rating	Enclosure Type
15 = 1500V	G=Grounded F= Floating	250A, 320A, or 400A	08-32 2 string increments	02-30 15A Typical	N4 = Carbon Steel 4X = Fiberglass*

Additional Options and Accessories Available

Stainless Steel Available

ABOUT CONNECTPV INC.

Based in San Diego, CA, ConnectPV Inc. delivers expertise and experience. We bring over 10 years of Solar PV industry experience in electrical Balance of System products coupled with more than 25 years of high quality, ISO9001:2008 certified, manufacturing expertise. We actively work with our customers to deliver innovative, high quality, and cost effective solutions.

ST3577KWH-D1500HV

+SG3150U

Storage System

BATTERY STORAGE SIZE TO BE MODIFIED TO 6094kWhr



HIGH INTEGRATION

- DC coupled energy storage system integrated with PV inverter
- Prepared energy storage and PV interfaces for easy system integration

EFFICIENT AND FLEXIBLE

- Intelligent cell-level temperature control ensures higher efficiency and longer battery cycle life
- Modular design supports parallel connection and easy system expansion

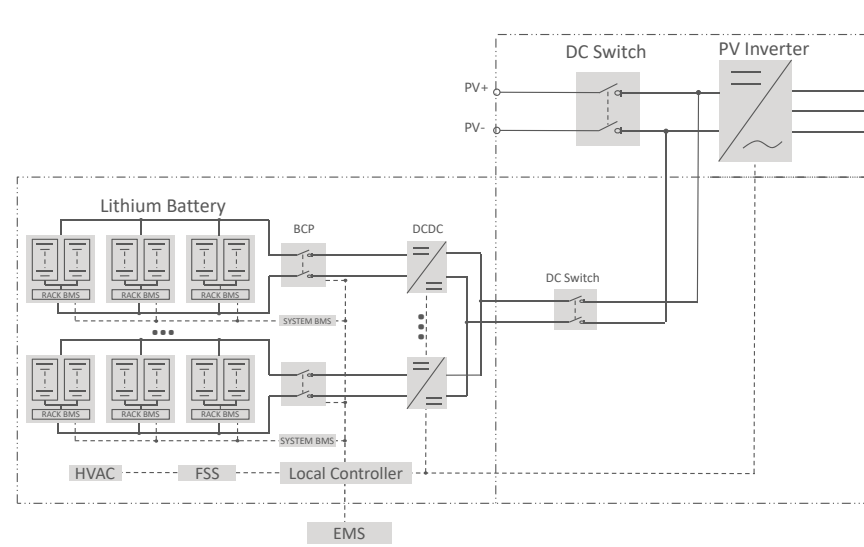
SAFE AND RELIABLE

- DC electric circuit safety management includes fast breaking and anti-arc protection
- Multi-state monitoring and linkage actions ensure battery system safety

SMART AND FRIENDLY

- Integrated local controller enables single point of communication interface
- Fast state monitoring and faults record enables pre-alarm and faults location

CIRCUIT DIAGRAM



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ST3577KWH-D1500HV+SG3150U

BATTERY STORAGE SIZE TO BE MODIFIED TO 6094kWhr

System Type	ST3577KWH-D1500HV+SG3150U
Inverter Data	
Product Model	SG3150U
AC output power	3150 kVA (@ 45 °C / 113 °F)
Max. AC output current	2,886 A
Nominal AC voltage	630 V
AC voltage range	554 ~ 690 V
Nominal grid frequency / Grid frequency range	60 Hz / 55 ~ 65 Hz
Power factor at nominal power / Adjustable power factor	> 0.99 / 0.8 leading ~ 0.8 lagging
Feed-in phases / Connection phases	1 / 1
Max. PV input voltage	1500 V
MPPT voltage range for nominal power	940 ~ 1300 V
Number of PV inputs	18 ~ 24
Max. PV input current	4,983 A
Energy Storage System Data	
Unit Model	ST3577KWH-D1500HV
Number of Unit	1
Cell type	Samsung SDI Mega E3, 3.68 V / 100 Ah
Configuration of Battery system	2P324S * 1S
Battery capacity (BDL)	3,577 kWh
Battery voltage range	1,036.8 ~ 1,344.6 V
Working voltage (DCDC)	500 ~ 1500 V
Voltage range for nominal power(DCDC)	960 ~ 1350 V
Nominal power(DCDC)	300 kW * 5
Max. current (DCDC)	312.5 A * 5
General Data	
Dimensions (W * H * D) of battery unit	12192 * 2,896 * 2,438 mm / 480.0" * 114.0" * 96.0"
Weight (with / without battery) of battery unit	40,000 kg / 17,000 kg 88,186 lbs / 37,478 lbs
Dimensions (W * H * D) of PV Inverter	2,991 * 2,896 * 2,438 mm / 117.8" * 114.0" * 96.0"
Weight of PV Inverter	6,900 kg / 15,219 lbs
Degree of protection	IP 54 / NEMA 3R
Operating temperature range	-30 to 50 °C / -22 to 122 °F
Relative humidity	0 ~ 95 % (non-condensing)
Max. working altitude	2,000 m / 6,562 ft
Cooling concept of battery unit	Heating, Ventilation and Air Conditioning
Fire suppression system of battery unit	FM200 extinguishment system
Communication interfaces	RS485, Ethernet
Communication protocols	Modbus RTU, Modbus TCP
Compliance	UL9540 (pending)

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solar design associates
HARVARD, MA 01451-0242 tel: 978-456-6855
www.solardesign.com fax: 978-772-9715

NextGrid

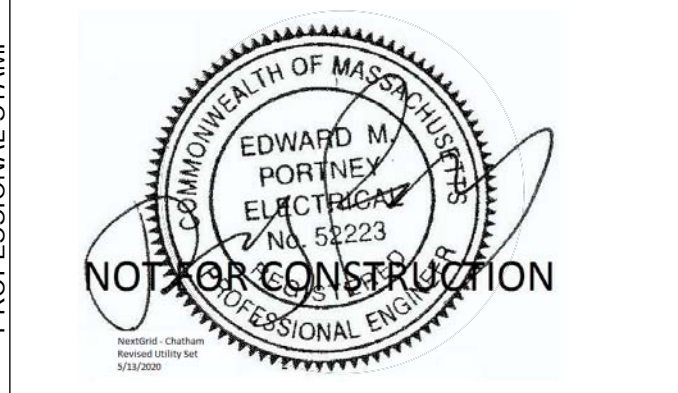
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NEXTGRID - CHATHAM, MILL HILL RD

INTERCONNECTION APPLICATION

Wednesday, May 13, 2020



MARK	DATE	DESCRIPTION
1	11/15/2019	INTERCONNECTION APPLICATION
2	03/03/2020	WIRING TABLE
2	05/13/2020	NGR CALCULATIONS

NAME	
STREET	
CITY/ST/ZIP	
NOTES	

NAME	NEXTGRID - CHATHAM, MILL HILL RD
STREET	0 DEPOT ROAD
CITY/ST/ZIP	HARWICH, MA 02645
NOTES	

FILE NAME	2019-1112 NextGrid - Chatham, Mill Hill Rd.pln
SCALE	AS NOTED
DRAWN BY	NL DATE DRAFTED: 5/13/2020
CHECKED BY	TP SHEET SIZE: ARCH D
DRAWING NO.	PV602
DRAWING TITLE	DATASHEETS (1)

SEL-651R

Advanced Recloser Control

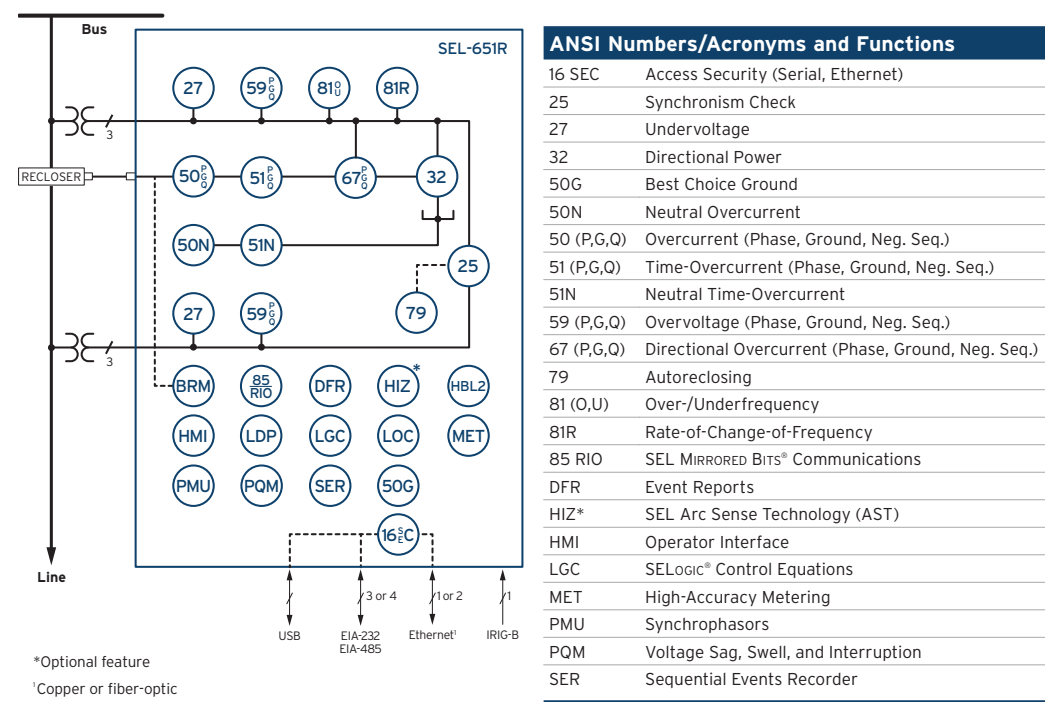


Powerful and flexible recloser control for many popular reclosers

- Plug-and-work operation with multiple recloser types simplifies installations, reduces training, and reduces operation errors.
- Six voltage inputs support measurements on both sides of the recloser for advanced distribution automation and monitoring.
- Arc Sense™ technology (AST) detects and clears high-impedance faults.
- Single-phase tripping minimizes outage times and improves reliability indices.
- Comprehensive communications protocols and interfaces ease integration into distribution automation systems.



Functional Overview



ANSI Numbers/Acronyms and Functions
16 SEC Access Security (Serial, Ethernet)
25 Synchronization Check
27 Under-voltage
32 Directional Power
50G Best Choice Ground
50N Neutral Overcurrent
50 (P.G.Q.) Overcurrent (Phase, Ground, Neg. Seq.)
51 (P.G.Q.) Time-Overcurrent (Phase, Ground, Neg. Seq.)
51N Neutral Time-Overcurrent
59 (P.G.Q.) Overvoltage (Phase, Ground, Neg. Seq.)
67 (P.G.Q.) Directional Overcurrent (Phase, Ground, Neg. Seq.)
79 Autoreclosing
81 (O.U.) Over/Under-frequency
81R Rate-of-Change-of-Frequency
85 RLO SEL Microsec Bim™ Communications
85R SEL Arc Sense Technology (AST)
HMI Operator Interface
LGC SELLoc™ Control Equations
MET High-Accuracy Metering
PMU Synchrophasors
PQM Voltage Sag, Swell, and Interruption
SEF Sequential Events Recorder

Additional Functions
BRM Breaker Wear Monitor
HBL2 Second Harmonic Blocking
LDP Load Data Profiling
LDC Fault Locator

Compatible With Popular Reclosers
The SEL-651R Advanced Recloser Control works with a wide range of reclosers for complete plug-and-work capability. All interfaces are designed and tested to exceed the IEEE C37.60 Standard. Certificates are available at www.selinc.com/SEL-651R.

Eaton/Cooper	ABB	Siemens
CIC	DVR (5 and 27 kV only)	SDR Triple-Single
NOVA™ Auxiliary Powered	NOVA Control Powered	SDR Three-Phase
NOVA Triple-Single	RE	Tavrida
RE	RVE	OSM 150
RVE	RXE	Thomas & Batts
RXE	VSD	Customized MVR
VSD	VWE	
VWE	VWVE 27	
VWVE 38k	WE	
WE	WWE 27	
WWE 38k	WWE 38k	

*When equipped with interface module.



Viper Reclosers with Six Integral Voltage Sensors



G&W Viper-S and Viper-ST three phase reclosers now have the option of incorporating six integral capacitive voltage sensors to allow for voltage measurement on both the line and load sides of the device without the need for costly and heavy potential transformers. This makes G&W Viper reclosers with Six Voltage Sensors (6VS) ideal for distribution automation applications and network reconfiguration schemes through 38kV.

APPLICATIONS

Open Bus-Tie Breaker - Either substation mounted or overhead, where the presence or loss of voltage is used to trigger the tie breaker to close and restore power.

FDR - Fault Detection Isolation and Restoration where communications are used between recloser controls to operate and restore power on a loop scheme.

Loss of Communication - In the event there is a loss of communication and six voltages are being monitored, the recloser control can be programmed to deploy FDR without the need for communications, providing the highest level of reliability.

Automatic Transfer - Monitoring two independent source voltages, 6VS permits the control to sense loss of voltage on the primary source and verify a stable voltage reading on the secondary source which assures a proper, safe transfer even if communications is lost.

Distributed Generation - Where the electric grid is synchronized with backup generators. Having six voltage sensors allows the recloser control to monitor phase angle and voltage amplitude of each phase to close the recloser safely when connecting the generator to the grid.

OPERATION

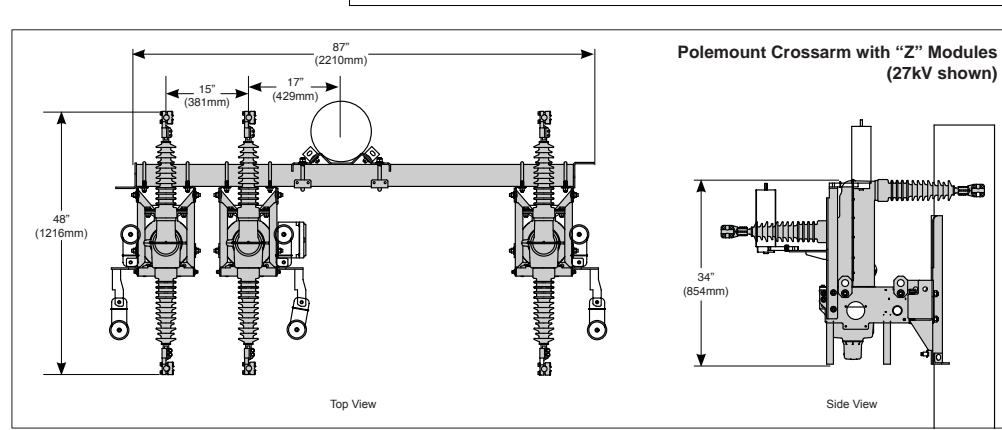
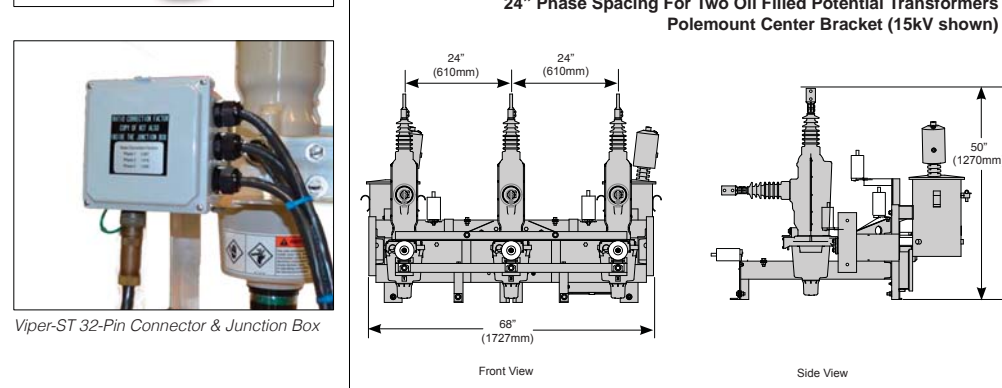
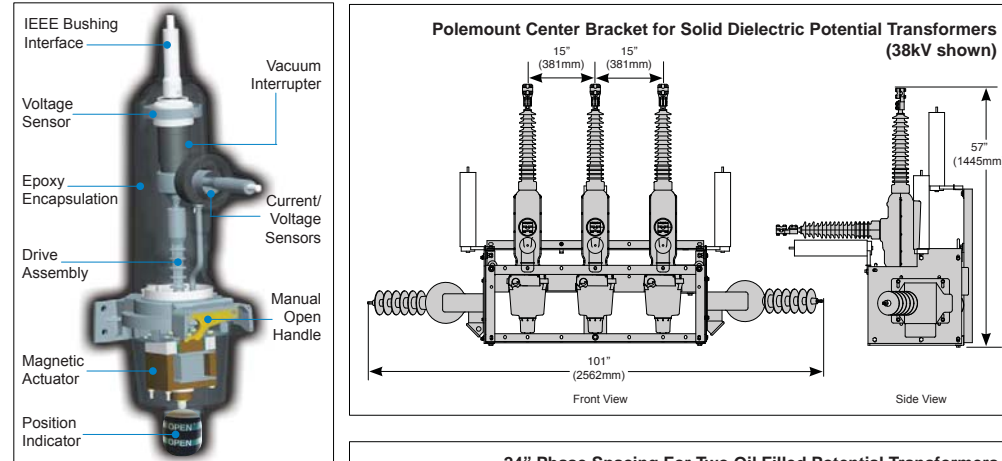
Technology - 6VS is accomplished through capacitive voltage dividers embedded in the epoxy insulation of each phase of the recloser. The sensors have a Low Energy Analog (LEA) output. The capacitive voltage sensors are isolated from the grid and are able to read phase angle and voltage amplitude with a relatively high accuracy. The sensors do not provide power to the recloser control. External sources such as PTs can be supplied to power the relay.

Accuracy - The voltage sensors have been tested in a third party laboratory. Voltage sensing amplitude accuracy is +/- 2 % when tested as a system from -10°C (14°F) to +45°C (113°F). The VS accuracy is +/-4% from -40°C (40°F) to +65°C (149°F). The phase angle accuracy is +/-1° throughout the full temperature range. Current monitoring is provided through integral multi-ratio current transformers encapsulated within the module of each phase. Ratios available are 1000:1 or 500:1. Inputs to the control are field changeable. CT accuracy is +/- 1%.

Configurations - The Viper-S and Viper-ST with 6 LEA VS are available with both L or Z modules. This allows the Vipers to be used for pole-top, substation or padmount applications. The padmount configuration is only available with Z modules and 38 kV IEEE interface regardless of the voltage level of the application. 38 kV class elbows are required for connections to the Viper.

Viper-ST

with six voltage sensors



FEATURES

Operator Safety - Vacuum interrupters are sealed within solid dielectric insulation providing fully shielded modules. The module housing, being at ground potential, provides additional safety. A hockstick operable, manual trip and lockout handle prohibits operation either from the control or remotely. A mechanical blocking device further assures against accidental close through the handle. An open and closed contact indicator verifies contact position. Contact status and lock-out condition can also be verified at the control. The maximum input to the SEL-651R is limited to 5 VAC, the 6 LEA VS feature is safe to the operator.

Reliability - Having both the current and voltage sensors embedded into the epoxy module protects them from environmental damage or contamination and makes for a cleaner, and less cluttered installation. Other manufacturers must use expensive, external add-on sensors or potential transformers to accomplish the same functionality which can significantly increase installation costs and result in a much more congested appearance, not to mention additional equipment to maintain.

Compact, Lightweight Construction - Built-in sensors eliminate the need for heavy, add-on potential transformers or other sensors significantly reducing the overall weight of the installation. The Viper-ST has one single control cable for all voltage, current, breaker status and trip/close information. The Viper-S comes with a 19-pin interface and an 8-pin cable for the voltage sensors.

VS Ratios - The 6 LEA VS measures the Line-to-Ground voltage. The Viper-ST and Viper-S come with two different voltage ratio boards depending on the application. The standard 10,000:1 ratio will allow voltage monitoring from a minimum of 0.3 kV to a maximum of 60kV L-G. While the optional 2,500:1 ratio will read voltages in a range from 825 V to 12.5 kV L-G for applications below 15 kV.

6VS LEA FEATURES COMPARISON CHART

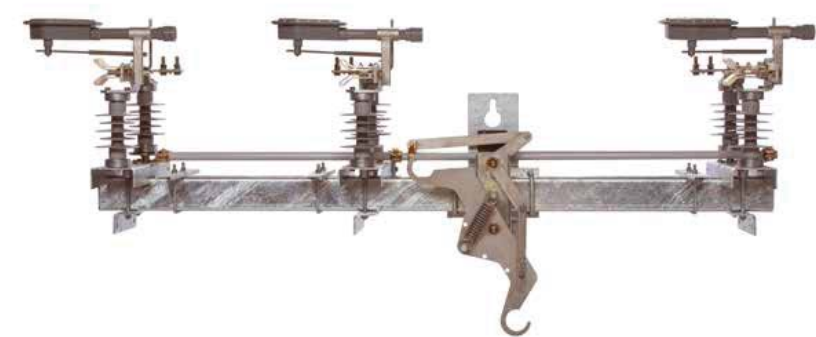
Feature	Viper-S	Viper-ST
Basic Features		
6VS LEA	S	S
Mechanically Ganged	S	-
Triple Option	-	S
Trip / Lock Out Handle	S	S
Mechanical Block	S	S
Removable Silicone Insulators	S	S
Magnetic Actuator	S	S
Trip Spring	S	S
Grounded Solid Dielectric Modules	S	S
Polemount Frame	S	S
Integrated 1000/500:1 CTs	S	S
Dead-line Operation	S	S
"L" Shaped Modules	S	S
32-pin Interface	-	S
19-pin Interface	S	-
10,000:1 ratio	S	S
Other Features and Options		
Six 0-144 VAC Analog VS	O	-
14-pin interface without dead-line operation	O	-
"Z" Shaped Modules	O	O
Padmount Application	O	O
Site-Ready Design	O	O
Substation Frames	O	O
External CTs	O	O
Customized Frames	O	O
2,500:1 ratio	O	O
Control Packages		
SEL-651R	S	S
Other Custom Relay Solutions	O	-

Legend	
Standard	S
Option	O
Not Applicable	-

G&W Electric Company • 305 W. Crossroads Pkwy • Bolingbrook, IL 60440 USA • 708.388.5010 • Fax 708.388.0755 • gwelec.com
Catalog VIPS-VS, October 2012

COOPER POWER SERIES

M-Force™ three-phase switch



Description

Eaton's Cooper Power™ series M-Force™ switch is a distribution-class, girth-operated, factory-installed three-phase overhead loadbreak switch. The M-Force switch is offered in distribution voltage classifications of 15.5 kV, 27 kV, and 38 kV. The M-Force switch may be used for line sectioning, paralleling, bypassing, or isolating. M-Force stands for "Magnetic Force". Eaton has the only reverse loop contacts found on distribution-class sidebreak switchgear, a contact usually reserved for higher priced transmission switches. The reverse loop contacts utilize high current magnetic forces for added reliability. The reverse loop design allows for high contact pressure to be maintained during fault conditions. This feature prevents pitting and distorting of the switch blade and contacts even under severe momentary overload.

Catalog Data CA008004EN
Effective January 2016

M-Force three-phase switch

Basic concept

Current-carrying conductors that are parallel to each other and have current flowing in the same direction, attract each other due to the magnetic forces acting on them (See Figure 1A). Current-carrying conductors that are parallel to each other and have current flowing in the opposite direction, repel due to the magnetic forces acting on them (See Figure 1B).

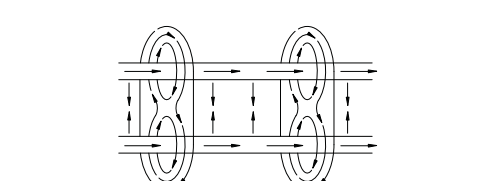


Figure 1A. Current flowing in same direction.

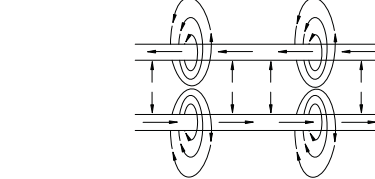


Figure 1B. Current flowing in opposite direction.

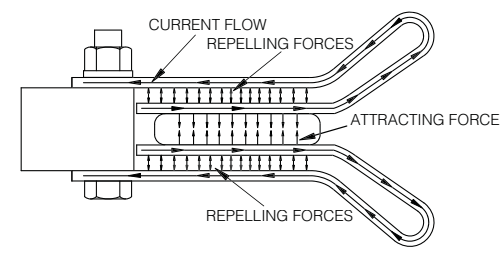


Figure 2. Magnetic forces acting on contacts.

Design features

Reverse loop contacts

The reverse loop contacts allow high current magnetic forces for added reliability. The reverse loop contacts were adapted from Eaton's Cooper Power series 19F Line Section Switch and have been field-proven for over 80 years. The reverse loop design allows for high contact pressure to be maintained during fault conditions. This feature prevents pitting and distorting of the switch blade and contacts even under severe momentary overload. These contacts are originally designed for high voltage transmission switches and maintain extremely cool temperatures even under the rated full load. The max temperature rise allowed per IEEE Std. 247™, 2005 standard for the blade and contact area is 65 °C. The max temperature rise observed on the reverse loop contact area was 38 °C, less than half of the allowed temperature. These types of test results, along with the proven field performance, undoubtedly make the Reverse Loop Contacts found in the M-Force switch the premiere choice in the industry.

Insulators

The M-Force switch comes standard with polymer (silicone rubber) insulators. These nonporcelain insulators offer exceptional dielectric and mechanical characteristics adding to the reliability of the M-Force switch, while lowering the weight. The M-Force switch can be provided in cyclophatic epoxy and porcelain housings. Insulators come standard with 2.25" bolt circles at 15 and 25 kV. Insulators require a 3.00" bolt circle at 38 kV.

Extended bearing assembly

The stainless steel shaft on the rotating insulator bearing assembly has been extended to four inches. This extra length will prevent horizontal movement of the rotating insulator during operation which ensures proper blade/contact alignment which is essential for smooth operation. Another feature of the bearing assembly is the oil impregnated bushings that provide maintenance-free operation for the life of the switch.

Insulated Reliabreak™ arm

The Reliabreak™ Pick-up Arm on the M-Force switch is insulated on one side, which isolates the interrupter from the current path during a close operation. This feature allows for a wide range of adjustments between the Reliabreak arm and the blade catch finger. This increased tolerance removes the possibility of misalignment during operation which ensures proper load interruption.

Positive locking dead-end brackets

The dead-end brackets on the M-Force switch are of a positive locking design. This design allows for dead-ends at an angle without any distortion of the brackets. This allows for a more flexible switch that can be used in a wider variety of installation requirements.

New interphase clamps

The interphase control rod clamps on the M-Force switch are designed with a jam nut through the side of the casting which locks the clamps after factory alignment. This feature eliminates any possibility of accidental slippage of the control mechanism which ensures proper operation even under icy conditions.

Optional ice shields

The standard M-Force switch is capable of operating under a 3/8" ice build-up. With the optional ice shields the M-Force switch is capable of opening and closing with a 3/4" ice build-up.

The unique shields are designed to prevent ice from building up between the contact clips as well as removing the ice from the blade during the closing operation. Per IEEE Std C37.39™-1984, a chopping action is allowed during the close operation to break the ice. Due to the shearing action of the M-Force ice shields, the closing operation can be accomplished with one motion. No chopping is needed.

Catalog Data CA008004EN
Effective January 2016

M-Force three-phase switch

Table 7. M-Force Three-Phase Switch Catalog Number Configuration

M 1 H 11 T R 2	
Voltage Class 1 - 15.5 kV/15.5 kV BL 2 - 27 kV/27 kV BL 3 - 38 kV/38 kV BL	Options (See Page 9 for details) Note: Mark that may be shown. Append codes in alphanumeric order. C - Castable Hardware on Terminal Posts (Standard) or Option (Optional) E - Extension Links (14") F - Bonded Repositioning Control Handle (Standard on Torsional Control) G - Repositioning Handle with Insulators H - Locking Interphase Brackets J - Steel Interphase Rod K - Provisions for Neutral Wire L - Additional Nameplate on Handle S - Ice Shields (S) Ice Break or Open or Close Operation T - Opening Connector on Crossarm U - Mounting Bracket V - Terminal, Copper #2-500 MCM (Incompatible with Option C above) W - Pole Mounting (S) (S) (S) X - Extra 1" of Control Rod Y - Extra 1" of Control Rod Z - Extra 1" of Control Rod Insulator Bolt Pattern 1 - 2.25" Bolt Circle at 15 and 27 kV switches 2 - 2.25" Bolt Circle at 38 kV switches 3 - 3.00" Bolt Circle for 38 kV switches Consult factory for other bolt circle options.
Mounting Configuration H - Horizontal (Up/Down Standard Option) A - Horizontal Pole Top P - Phase over Phase V - Vertical Pole Q - Horizontal (Up/Down Spacing) S - Vertical Pole (Up/Down Spacing) T - T-Bracket U - Underhung (Up/Down Spacing)	Control Rod and Mechanism Repositioning Mechanism 11 - 28" Round Pipe 1.0" O.D. (Standard Option) 21 - 28" Round Fiberglass 41 - 28" 1" Pipe w/ Fiberglass Top Section 81 - 28" 1" Pipe w/ Fiberglass Top Section Torsional Mechanism 42 - 28" 1.5" Pipe (Standard Universal Section) 62 - 28" 1.5" Pipe (Fiberglass Universal Section) C2 - 28" 1.5" Pipe (Cyclophatic Insulator) None G3 - Hockstick operated (no control rod)
Crossarm Options 1 - Steel with Two Point Lift (Standard Option) 2 - Steel with Single Point Lift D - Fiberglass with Single Point Lift F - Fiberglass with Two Point Lift	Insulator Material B - Polymer (Standard Option) C - Cyclophatic Epoxy P - Porcelain



Powering Business Worldwide

2 www.eaton.com/cooperpowerseries

8 www.eaton.com/cooperpowerseries



HARVARD, MA 01451-0242 tel: 978-456-6955
www.solardesign.com fax: 978-772-9715

NextGrid

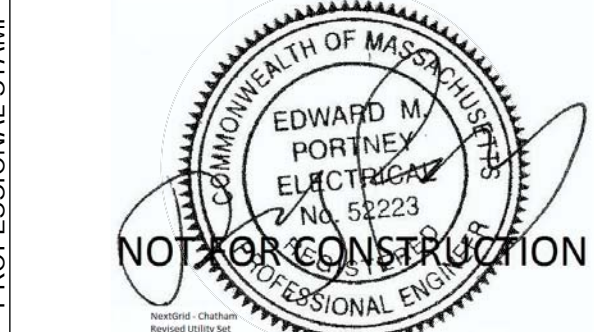
NOT FOR CONSTRUCTION

THIS DRAWING IS FOR INFORMATION PURPOSES ONLY. CERTIFICATION OR VALIDATION IS TO BE DONE BY A PROFESSIONAL WITH EXPERTISE IN THE REQUIRED FIELD AND A LICENSE IN THE STATE THAT THE INSTALLATION WILL RESIDE. CERTIFICATION OR VALIDATION TO BE INCLUDED AS PART OF THE SUBMITTALS FOR PERMITTING OF THE OVERALL PROJECT.

NEXTGRID - CHATHAM, MILL HILL RD

INTERCONNECTION APPLICATION

Wednesday, May 13, 2020



MARK	DATE	DESCRIPTION
1	11/15/2019	INTERCONNECITON APPLICATION
2	03/03/2020	WIRING TABLE
2	05/13/2020	NGR CALCULATIONS

REVISION NOTES	NAME
	STREET
	CITY/ST/ZIP
	NOTES

CONTRACTOR	NAME
	STREET
	CITY/ST/ZIP
	NOTES

SITE	NAME
	STREET
	CITY/ST/ZIP
	NOTES

DRAWING	FILE NAME
	2019-1112 NextGrid - Chatham, Mill Hill Rd.pln
	SCALE
	AS NOTED
	DRAWN BY
	NL DATE DRAFTED: 5/13/2020
	CHECKED BY
	TP SHEET SIZE: ARCH D

DRAWING NO.	PV603
DRAWING TITLE	DATASHEETS (2)

OPERATION AND MAINTENANCE PLAN

**Depot Road Solar Project
Harwich, Massachusetts**

July 2020

Project Owner/Responsible Party:

**NextGrid, Inc.
P.O. Box 7775 #73069
San Francisco, CA 94120-7775
(559) 731-4645
daniel@nextgrid.com**

Daniel Serber

Signature

7/17/2020

Date

The above designated party is responsible (financially and otherwise) for the operation and maintenance, including emergency repairs of the Depot Road Solar Project, including the arrays, the land occupied within and outside the fenced area, the access roads leading into the fenced-in area, the utility lines serving the array, and the stormwater facilities associated with the project, as shown on the Site Plans. This area is herein referred to as the Solar O&M Area.

The project owner/responsible party agrees to the following:

- A. At all times, the solar photovoltaic installation will be maintained in good working condition and regular maintenance will be performed in accordance with this approved operation and maintenance schedule. A record shall be kept of all maintenance performed, and said maintenance record will be provided to Town officials whenever requested to verify maintenance or status.
- B. A copy of the site plan and emergency shutdown procedures will be provided to the Police Chief and Fire Chief prior to issuance of an occupancy permit. The project owner/responsible party will cooperate with local emergency services in developing an emergency response plan.

- C. Contact information for a person responsible for responding to public inquiries and complaints throughout the life of the project will be provided to the Building Inspector and this information will be posted in a visible location at the installation. This contact information will be updated as necessary.
- D. The Town will be notified of changes in project ownership or assignment of operation and maintenance financial responsibility.
- E. The maintenance schedule in this operation and maintenance (O&M) Plan will only be amended by mutual agreement of the Town and the responsible party. Amendments will be made in writing and signed by the responsible party.

1.0 Service Visits

An O&M contractor that specializes in commercial scale solar farms will be contracted to provide service visits two times per calendar year, occurring approximately six (6) months apart. The service visits will incorporate the inspection and maintenance procedures outlined in Section 2.0 (Preventative Maintenance), Section 4.0 (Equipment Inspections), Section 5.0 (Vegetation Maintenance), Section 6.0 (Access Roadways, Perimeter Fences, and Access Gates), and Section 7.0 (Stormwater and Erosion Control Facilities). Note that Item 7.0 (Stormwater and Erosion Control Facilities) will require additional visits during certain rainfall events. After each service visit, the O&M contractor will issue a report to the project developer/owner. The report will summarize all maintenance and inspection activities conducted, identify any issues encountered, and provide recommendations to correct any of the issues. After review and any clarifications requested by the project developer/owner, the report will be forwarded to the Town, as required.

In addition to the Service Visits outlined above, the O&M contractor will be responsible for plowing the solar field access drive from Mill Hill Road (Chatham) to the electrical cabinet turnaround area sufficiently to provide emergency vehicle access at all times.

2.0 Preventative Maintenance

The following Preventative Maintenance (PM) services will be performed during each service visit:

- (a) Ensure the site is clean, secure and any site management such as cutting grass (see below) or cleaning of modules is performed as needed.

- (b) Ensure the proper structure and operation of all racking, modules, wiring, electrical boxes, conduit, string, inverters and sensors.
- (c) Visual checks of each module for broken glass, debris, or other causes of low performance.
- (d) Ensure that the racking system (posts, crossbeams, brackets, bolts, clips, etc.) that support the panels are free of major rust or corrosion.
- (e) Ensure that all signs/labels for inverters, disconnects, and safety warnings are intact and legible.
- (f) Ensure that all enclosures, fences, and facilities that are part of installation are maintained to retain original appearance, aside from reasonable wear and tear, including but not limited to paint, roadways, gates and access panels.

3.0 Continuous Monitoring

The following will be performed continuously for the duration of the project, by either the project developer/owner or a company that specializes in solar monitoring:

- (a) Monitoring of system production.
- (b) A monthly report will be produced comparing system output to expected production taking into account actual climatic conditions. The project developer/owner or the O&M contractor shall summarize this information.
- (c) Responding to alerts from the array's automated alert system(s) regarding potential system malfunction(s), and if necessary a service visit by an O&M contractor.

4.0 Equipment Maintenance

The project developer/owner and/or an O&M contractor will conduct regular, scheduled equipment maintenance biannually, including but not limited to the following:

Panels

- (a) Should panel washing be determined to be necessary, panels will be washed utilizing only water. Use of a squeegee is permitted for solar modules. Soap or any detergents are not required to clean the panels and are not allowed.
- (b) Conditions such as snow and ice will be removed as necessary.
- (c) Damaged or inoperative array panels observed during service visits will be investigated to determine the cause of the damage or inoperability with the plan to prevent, repair and/or replace as soon as possible.
- (d) Array panels that have deteriorated in efficiency in excess of the manufacturer's warranty will be reported to the manufacturer for repair or replacement as soon as possible.

String Inverters

Inverters will be checked for the following during inspections:

- (a) Power capacitors for any sign of damage.
- (b) Any visible discoloration.
- (c) Voltage and current readings.
- (d) Corrosion, dust and water ingress on terminals and cables.
- (e) Condition of both the AC and DC surge suppressors.
- (e) Operation of all safety devices.
- (f) Cleaning and replacement of air filters.

Racking

- (a) Racking system components that have major rust or corrosion will be repaired or replaced as soon as possible.

- (b) Visual inspections will be completed of the equipment, including sub-assemblies, wiring harnesses, contacts and major components.

Other Components

The following will also be checked during semi-annual inspections:

- (a) Visual inspection of all feeder terminations for corrosion and proper attachment.
- (b) Inspection and testing of surge arrestor and lightning protection operation.
- (c) Ground continuity testing, lightning protection and overall system safety inspection, to include correction of any unsafe or abnormal issues.
- (d) Inspection/survey of all combiner boxes, disconnects (AC&DC), switchgear, and inverters with an infrared camera, with the purpose of detecting hotspots, bad connections, and related issues.
- (e) Mechanical and structural integrity of the system, and correction of issues.
- (f) Modules for excessive dirt and debris.
- (g) Replacement of unserviceable or degraded system labeling.
- (h) Testing of voltage and amperage of all source conductors.
- (i) Documentation and inspections reporting to include:
 - i. PV System Quality Assurance and Quality Control Plan;
 - ii. PV System Commissioning Form; and
 - iii. System Component Torque Specifications Form.

5.0 Vegetation Maintenance

- (a) The Solar O&M area will be mowed to maintain a maximum grass height of approximately 12 inches. Use of a weed whacker is recommended underneath the panels and around the posts of the racking system. Woody seedlings may also be

- removed by hand. No pesticides, fertilizers, herbicides or chemicals will be used to manage vegetation.
- (b) An O&M contractor shall monitor the ground cover growth rate and system performance to determine whether vegetation maintenance frequency requires modifications.
 - (c) An O&M contractor should be aware of the locations of any wiring associated with the system. The project developer/owner shall complete a site walk of the Solar O&M area with any new O&M contractor before scheduling the first vegetation maintenance event.
 - (d) The state of vegetation will be monitored during normal maintenance visits and, as appropriate, a landscape professional will be contracted to repair any areas of concern.
 - (e) A landscape professional will be contracted to perform the following adjustments if areas of topsoil are observed within the solar array limit:
 - i. Adjust the seed mix that is appropriate to the current vegetative cover and the season in which seed is spread.
 - ii. Manually rake topsoil to prepare for seeding.
 - iii. Spread seed atop raked area at an appropriate density.
 - iv. Implement temporary precautions within the seeded area to help the restoration process.
 - v. Monitor the vegetative cover to restoration completion.
 - (f) The state of vegetation outside of the fenced in solar development area will be monitored during normal maintenance visits to confirm that excessive growth which will result in shading of the solar panels has not occurred. If shading is visible, a landscape professional will be contacted to trim/cut the vegetation as necessary.
 - (g) The use of herbicides, pesticides, fertilizers or chemicals for maintenance of vegetation throughout the array and outside the fence is prohibited.

6.0 Access Roadways, Perimeter Fences, and Access Gates

- (a) As part of the bi-annual service visit, the gravel surface of the access road shall be inspected. This inspection will cover the following areas at a minimum: settlement, rutting, erosion/barren spots, vegetation/tree growth, wash boarding, and

- potholes. A roadway maintenance firm, to be hired by the developer, shall immediately repair any deficiencies encountered during the inspection to the extent it cannot be handled by the O&M contractor.
- (b) During the bi-annual service visit, the perimeter fencing and access gates shall be inspected for workable locks and knock boxes, settlement, erosion around post footings, significant corrosion, and signs of vandalism (i.e. holes cut in the wire, removed wooden panels, project ID signs damaged/stolen). A fence maintenance firm, to be hired by the developer, shall immediately repair any deficiencies encountered during the inspection to the extent it cannot be handled by the O&M contractor.
 - (c) Plow the access drive from Mill Hill Road to the electrical cabinet turnaround area sufficiently to provide emergency vehicle access at all times.

7.0 Stormwater and Erosion Control Facilities

- (a) Erosion control barriers (straw wattles, silt sacks, etc.) should be inspected immediately after each run-off producing rainfall event and at least daily during prolonged rainfall. Sediment deposits must be removed when the level of deposition reaches approximately one-half the height of the barrier. Sediment shall be disposed of in a suitable area and protected from erosion by either structural or vegetative means.
- (b) Inspect subsurface infiltration system after every major storm event (2" or greater) for the first few months after construction to ensure proper stabilization and function, thereafter inspect semi-annually to ensure the system is draining properly. Check for accumulation of sediment and ponding of water. If ponding water is visible inside the inspection port for several days after a storm event, notify the engineer for possible remedial measures, clogging and trash, and remove organic matter, trash and debris as necessary. Remove sediment as necessary during construction, while the system is dry, and at least every 5 years after construction.
- (c) Inspect area drains after every major storm event (2" or greater) for the first few months after construction, and semi-annually thereafter. Check for accumulation of sediment. Remove organic matter, trash and debris as necessary to ensure grates are not obscured or blocked.

- (d) Inspect all slopes, panel drip edges, and graded areas throughout the project on a quarterly basis for the first two years after completion of construction. Thereafter, inspect twice per year. Look for formation of eroded channels, particularly at panel drip edges and on newly constructed slopes. Repair and/or re-seed any areas that are eroded or not stabilized.

DECOMMISSIONING PLAN

**Ground-Mounted Solar Photovoltaic System
0 Depot Road
Harwich, Massachusetts**

Applicant & Responsible Party

NextGrid, Inc.
P.O. Box 7775 #73069
San Francisco, CA 94120
(559) 731-4645
daniel@nextgrid.com

I. FACILITY DESCRIPTION

This Decommissioning Plan has been prepared for the proposed solar photovoltaic facility to be constructed at the property located at 0 Depot Road, Harwich, Massachusetts. This plan describes the process for decommissioning the facility in accordance with State requirements and the Town of Harwich Site Plan review process. The facility will consist of a ± 3.15 MW (DC) solar array and accompanying equipment secured within a 7-foot high chain-link fence and accessed via a 20-foot wide locked swing gate off of Mill Hill Rd, Chatham, MA which is the means of site access.

The Facility will include the following site features which will require decommissioning at the end of the life of the project:

- An approximate 12-acre array of photovoltaic (PV) modules and racking system;
- Screw anchor or driven pile foundations supporting the PV modules and racking system;
- Transformers and electrical equipment cabinets and concrete pads
- 7-foot chain-link security fence;
- Underground conduit and wires;
- Underground wires;
- A 20' wide locking chain link security gate at the site entrance.

II. DECOMMISSIONING PLAN

The decommissioning of the facility will be a two-stage process consisting of Dismantling, Demolition and Disposal/Recycling followed by Site Restoration. The following is a description of each process.

Dismantlement, Demolition, and Disposal or Recycling

A significant portion of the components that comprise the facility will include recyclable or re-sealable components including copper, aluminum, galvanized steel, and the modules. Due to their re-sale monetary value, these components will be dismantled, disassembled, and recycled rather than being demolished and disposed of.

All electrical connections to the system will be disconnected and all connections will be tested locally to confirm that no electric current is running through them before proceeding. The facility will be dismantled following coordination with the utility company regarding timing and required procedures for disconnecting the facility from the utility distribution network. All electrical connections to the PV modules will be severed at each module, and the modules will then be removed from their framework by cutting or dismantling the connections to the supports. Modules will be removed and sold to a purchaser or recycler. In the event of a total fracture of any modules, the interior materials are silicon-based and are not hazardous. Disposal of these materials at a landfill is permissible.

The PV mounting system framework will be dismantled and recycled. The foundation system will be removed and recycled if feasible. All other associated structures will be demolished and removed from

the site for recycling or disposal. This will include the site fence and gates, which will likely be reclaimed or recycled.

Concrete equipment slabs will be broken and removed to a depth of one foot below grade and clean concrete will be crushed and disposed of off-site or recycled (reused either on or off-site). The paved driveway will remain in place.

Aboveground utility poles owned by the project operator will be completely removed and disposed of off-site in accordance with utility best practices. Any overhead wires will be removed from the facility and will terminate at the utility-owned connections off Mill Hill Rd (Chatham). The utility company (currently Eversource) will be responsible for dismantling the overhead wires and poles under its ownership. The decommissioning contractor will coordinate with the utility company personnel to facilitate the utility company's removal of any poles and overhead wires located on the site.

Disposal of all solid and hazardous waste shall be in accordance with local, state, and federal waste disposal regulations.

The concrete drywells for site drainage will remain in place.

Site Restoration

Immediately following the complete dismantlement, demolition & disposal or recycling of the PV and accessory equipment, as described above, a final walkthrough inspection will be conducted to ensure that all debris and/or trash generated during the decommissioning process has been removed. Any debris that may have been wind-blown to areas outside the immediate footprint of the facility. Sanitary facilities will be provided on site for the workers performing the decommissioning of the facility. Areas of the parcel that are disturbed during decommissioning will be re-seeded, as necessary, with 4" loam and seed or hydro-seed, using a fast-growing seed mix.

Permitting Requirements

Several approvals will be obtained prior to initiation of the decommissioning process. Permitting requirements will be determined at the time of decommissioning and updated based on then current local, state, and federal regulations. The decommissioning process is anticipated to take approximately six to eight weeks and is intended to occur outside of the winter season. The owner/operator of the facility shall notify the Planning Board by certified mail of the proposed date of discontinued operations and the decommissioning will be completed no more than 150-days after the date of discontinued operation. Absent notice of a proposed date of decommissioning or written notice of extenuating circumstances, the solar photovoltaic installation shall be considered abandoned when it fails to operate for more than one year without the written consent of the Planning Board. Based upon current regulations, a building/demolition permit will be required from the Town of Harwich Building Department for the decommissioning of this site because a building/demolition permit must be obtained for any demolition or change to the use of a structure.

III. DECOMMISSIONING COST ESTIMATE

BSC has prepared the following detailed cost estimate of the decommissioning cost for the Depot Road Solar Project as follows:

Removal Cost Estimate				
Item	Quantity	Rate/ea.	Days	Amount
Laborers	8	\$200	27	\$42,764.00
Heavy Equipment & Operator	3	\$1,200	14	\$41,236.00
Debris Container/Disposal*	35	\$850		\$29,750.00
Site Repair (re-seed as necessary)	1			\$1,500.00
Mobilize/Demobilize	1			\$5,000.00
Sub-Total				\$120,250.00
20-Year Total (assuming 2% Inflation)				\$178,685.00

*Cost of trucking included

In summary, for the proposed 3.15± MW Depot Road Solar Project, we have **estimated a net present value decommissioning cost of \$120,250.00**. Assuming a 2% yearly inflation for the 20-year project life span, **the proposed financial surety amount is \$178,685.00**.

A Stormwater Report was also filed with this application, but not included in this on-line packet due to the size and length of the document.

Please contact the Harwich Planning Office, 508-430-7511 or ebanta@town.harwich.ma.us to request a copy of the PB2020-27 NextGrid Stormwater Report.