



ENGINEERING A BETTER TOMORROW

ENGINEERING | SITE WORK | LAND SURVEYING

STORMWATER REPORT

SITE PLAN

ASSESSORS MAP 123 – LOTS 46 & 106
1250-1260 SHAWMUT AVENUE
NEW BEDFORD, MASSACHUSETTS



PREPARED FOR:

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Parallel Products Solar Energy
100 Duchaine Blvd.
New Bedford, MA 02745

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STORMWATER MANAGEMENT REPORT AND HYDROLOGIC ANALYSIS

SECTION 1: Project Summary

The project area associated with the proposed solar canopy is located on the north side of Shawmut Avenue. The site is identified as Assessors Map 123, Lots 46 and 106, and is located at #1250-1260 Shawmut Avenue. The total area of the proposed site is approximately 323,925 square feet. The site is located entirely within the Industrial A (IA) zoning district.

The site is currently in use as an auto salvage and garage lot. To the northwest, the property borders vegetated wetlands. To the southeast, the property abuts a commercial property. To the northeast, the property abuts vegetated wetlands. The site is not located within an area identified by the Natural Heritage and Endangered Species Program as a Priority Habitat of Rare Species or an Estimated Habitat of Rare Wildlife, there are no wetlands within the locus. The site is not located within a mapped FEMA Special Flood Hazard Area Zone.

The applicant is seeking permission to construct multiple solar canopies above the existing auto salvage storage throughout the locus as shown on Definitive Site Plan dated September 30, 2021. The development has no impacts to the hydrology, therefore no stormwater improvements are proposed.

SECTION 2: Methodology

Drainage computations were performed using the Natural Resources Conservation Services (NRCS) TR-20 method and HydroCAD® Drainage Calculation Software to determine the change in the existing and post-development runoff rates from each drainage area for the 2-, 10-, and 100-year 24 hour storm events. The limits of the work proposed to complete the project fall within an area subject to protection by the Wetlands Protection Act, therefore, compliance with DEP Stormwater Management Standards is required. Sketches of the existing and proposed watershed areas, HydroCAD® Report, and copies of the calculation sheets are included as appendices to this report.

SECTION 3: Existing Conditions

The soils underlying the proposed site are identified in the Natural Resources Conservation Service (NRCS) Soil Survey of Bristol County (*see Exhibit D*). The site soils are classified as 50A (Freetown muck, 0 to 1 percent slopes [Hydrologic Soils Group "B/D"]), 602 (Urban Land, [HSG "Unranked"]).

SECTION 4: Stormwater Management Overview

Existing Conditions:

Two design points have been analyzed for this project: (1) the limit of the bordering vegetated wetlands in the northwest and northeast corner of the site. The design point receives runoff from subcatchment area (S-1). (2) the southern boundary of the site. The design point receives runoff from subcatchment area (S-2). There are no existing stormwater attenuation structures on-site designed to capture and detain on-site runoff. Stormwater runoff from the site flows either overland northwesterly toward the wetlands or overland northeasterly.

Proposed Conditions:

Under proposed conditions, the same design points have been analyzed. A total of 2 subcatchment areas contribute runoff to the design points in proposed conditions. (1) the limit of the bordering vegetated wetlands in the northwest and northeast corner of the site. The design point receives runoff from subcatchment area (S-1). (2) the southern boundary of the site. The design point receives runoff from subcatchment areas (S-2).

The development has no impacts to the hydrology, therefore no stormwater improvements are proposed. The stormwater flows through the solar canopies therefore the proposed and existing conditions will be equal.

SECTION 5: Stormwater Management Standards

Standard 1:

- Under proposed conditions, there will be no new untreated discharges or erosion in wetland areas. Stormwater discharges have been held below erodible velocities. This standard has been met.

Standard 2:

- The results of site drainage calculations are presented in the following Table. The results are based upon evaluation of Pre-development conditions and the design of proposed surface drainage systems for the Post-development condition. These results show the Post-Development offsite runoff rates are reduced to less than the Pre-development conditions, thus meeting the BMP guidelines for this site development. This standard has been met.

Table 1 - Comparison of Pre- versus Post-Development Offsite Runoff				
Storm Frequency	Pre-Development		Post-Development	
	Rate (cfs)	Volume (af)	Rate (cfs)	Volume (af)
2-Year Storm				
To Wetlands	17.50	1,297	17.50	1,297
To Shawmut Ave.	0.63	0.049	0.63	0.049
10-Year Storm				
To Wetlands	28.42	2,161	28.42	2,161
To Shawmut Ave.	0.98	0.078	0.98	0.078

To Shawmut Ave.				
To Wetlands	42.80	3,337	42.80	3,337
To Shawmut Ave.	1.42	0.166	1.42	0.166

Standard 3:

- The site is comprised entirely of soils belonging to Hydrologic Soils Groups "D" per on site soil testing and is therefore eliminating the need for recharge. This standard has been met.

Standard 4:

- The development has no impacts to the hydrology, therefore no stormwater improvements are proposed. The stormwater flows through the solar canopies therefore the proposed and existing conditions will be equal.

Standard 5:

- The use associated with this project is not classified as a Land Use with Higher Potential Pollutant Load (LUHPPL); therefore, this standard does not apply.

Standard 6:

- The site does not discharge within the Zone II or IWPA of a public water supply, nor does it discharge near or to any critical areas. This standard does not apply.

Standard 7:

- The project is a redevelopment project. The applicant is should only meet the Standards to the maximum extent practicable.

Standard 8:

- There will be less than 1 acre of disturbance.

Standard 9:

- A long-term operation and maintenance plan will be prepared prior to start of construction.

Standard 10:

- We are not proposing any illicit discharges as defined in the Stormwater Management Regulations.



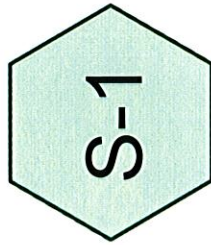
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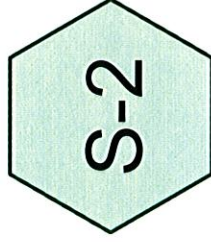
NRCS SOIL MAP



HYDROLOGIC CALCULATIONS



Tributary to Wetlands



Tributary to Shawmut Ave



Routing Diagram for 21208PRE

Prepared by Farland Corporation, Inc., Printed 10/5/2021
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Summary for Subcatchment S-1: Tributary to Wetlands

Runoff = 17.50 cfs @ 12.09 hrs, Volume= 1.297 af, Depth> 2.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
118,450	96	Gravel surface, HSG D
168,800	89	<50% Grass cover, Poor, HSG D
23,450	98	Roofs, HSG D
3,150	98	Paved parking, HSG D
313,850	92	Weighted Average
287,250		91.52% Pervious Area
26,600		8.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min. Tc

Summary for Subcatchment S-2: Tributary to Shawmut Ave

Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.049 af, Depth> 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.00"

Area (sf)	CN	Description
9,700	98	Paved parking, HSG A
400	39	>75% Grass cover, Good, HSG A
10,100	96	Weighted Average
400		3.96% Pervious Area
9,700		96.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Minimum Tc

Summary for Subcatchment S-1: Tributary to Wetlands

Runoff = 42.80 cfs @ 12.09 hrs, Volume= 3.337 af, Depth> 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=6.50"

Area (sf)	CN	Description
118,450	96	Gravel surface, HSG D
168,800	89	<50% Grass cover, Poor, HSG D
23,450	98	Roofs, HSG D
3,150	98	Paved parking, HSG D
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287,250		91.52% Pervious Area
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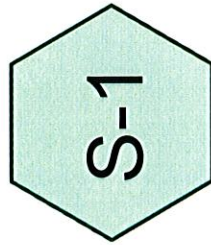
Summary for Subcatchment S-2: Tributary to Shawmut Ave

Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.116 af, Depth> 6.02"

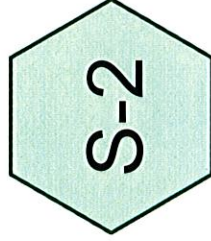
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Tributary to Wetlands



Tributary to Shawmut
Ave



Routing Diagram for 21208POST

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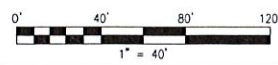
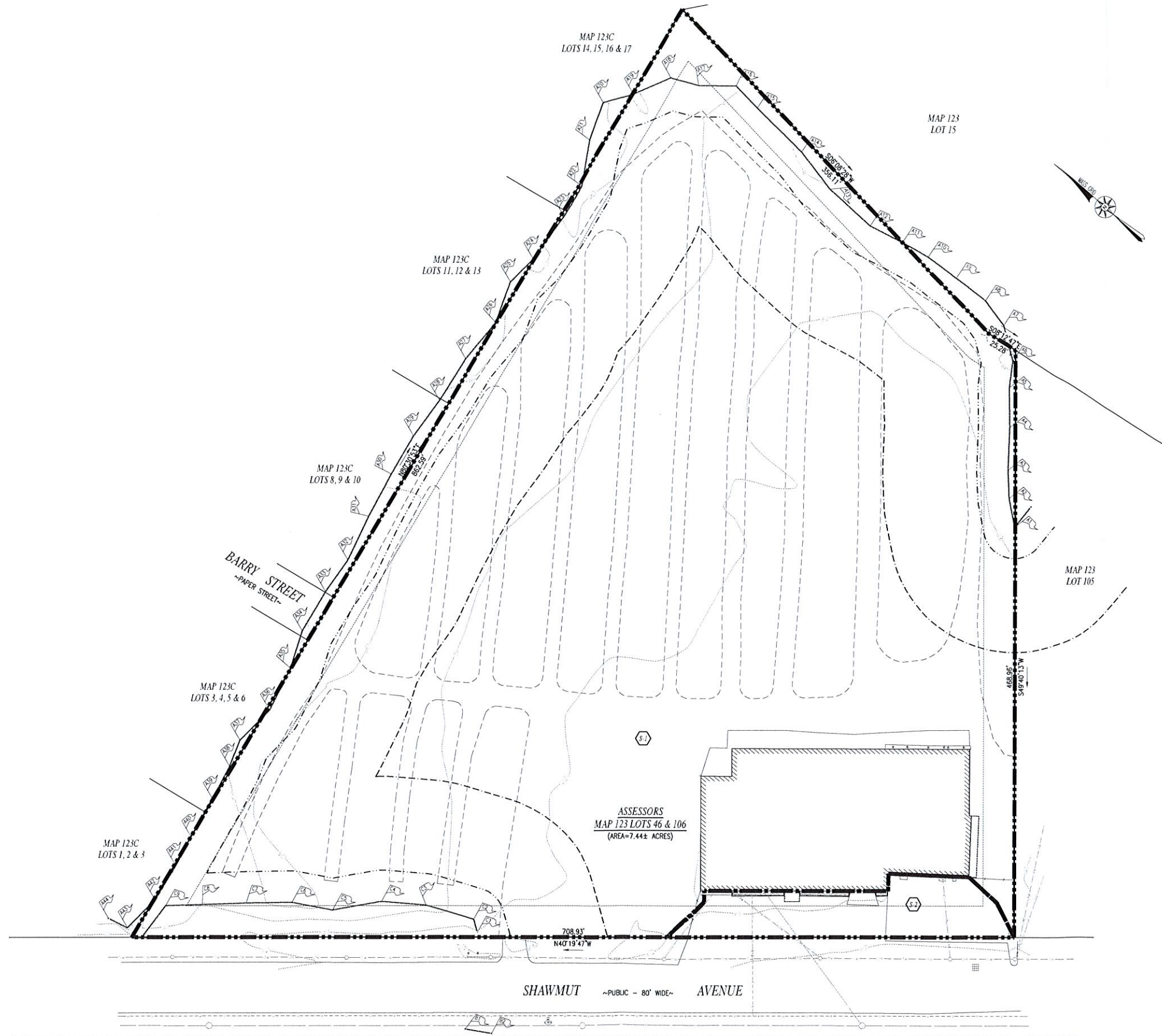
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WATERSHED PLANS

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DESIGNED BY: CAF
CHECKED BY: CAF

PRE WATERSHED PLAN
—1250-1260 SHAWMUT AVENUE—
ASSESSORS MAP 123 LOTS 46 & 106
NEW BEDFORD, MASSACHUSETTS
PREPARED FOR: PARALLEL PRODUCTS SOLAR ENERGY - TIM OUSSON
100 DUCHANE BLVD.
NEW BEDFORD, MA

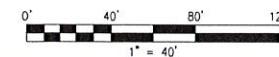
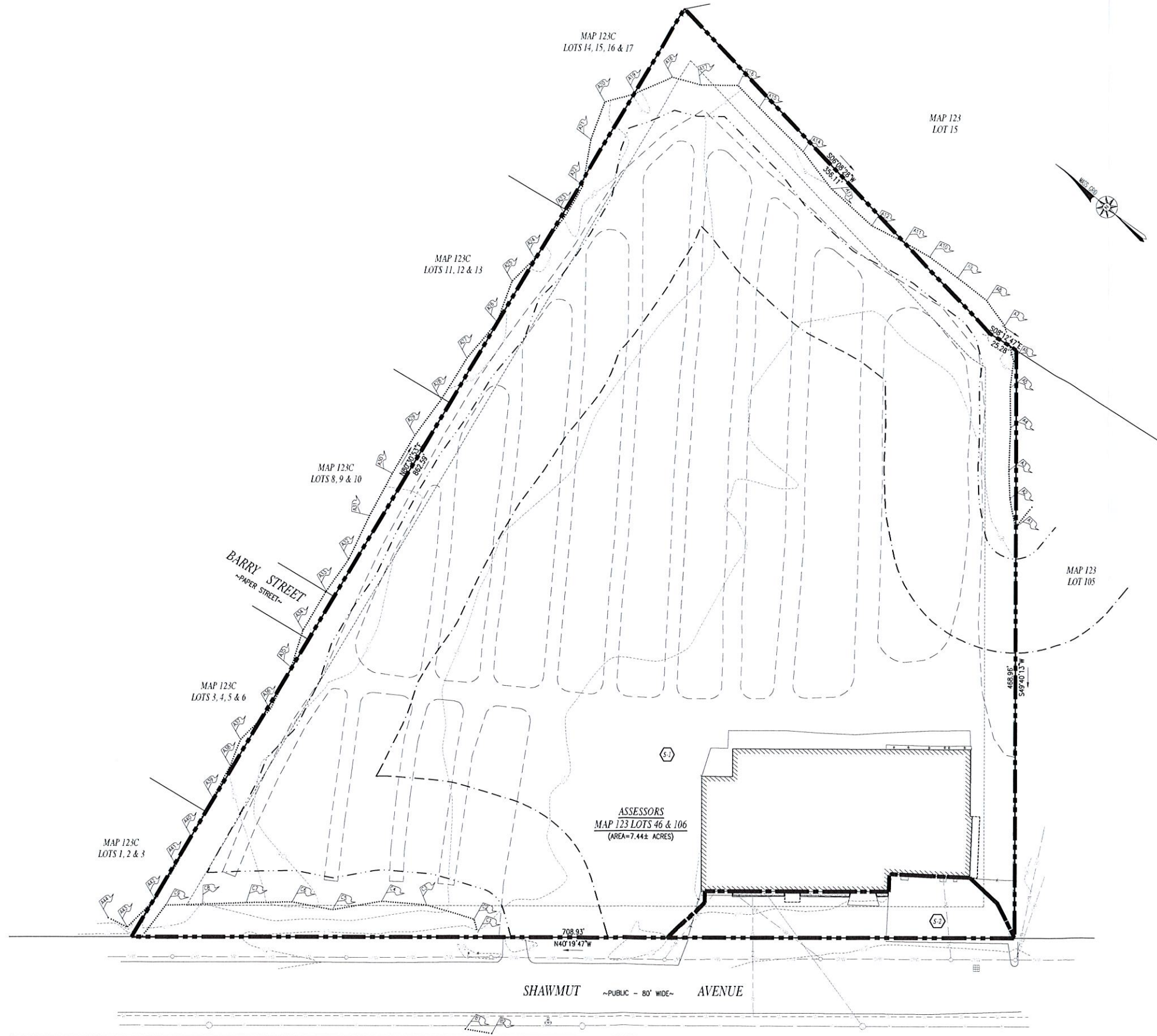
OCTOBER 1, 2021

SCALE: 1"=40'

JOB NO. 21-208

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DRAWN BY: AJT
DESIGNED BY: CAF
CHECKED BY: CAF

POST WATERSHED PLAN
—1250-1260 SHAWMUT AVENUE—
ASSESSORS MAP 123 LOTS 46 & 106
NEW BEDFORD, MASSACHUSETTS
PREPARED FOR: PARALLEL PRODUCTS SOLAR ENERGY - TIM CUSSON
100 DUCHANE BLVD.
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SHEET 2 OF 2