DISPERSION MODELING PROTOCOL

LONG ISLAND STERILZATION

May 26, 2021

Prepared by:

Vision Environmental

57 4th Street Unit B

Somerville, NJ 088876

PROJECT OVERVIEW AND BACKGROUND

Purpose:

To evaluate the Long Island Sterilization facility's compliance with the ethylene oxide Short Term Guideline Concentration (SGC) of 18 µg./m^3 as well as the newly-adopted Annual Guideline Concentration (AGC) of 0.0002 µg./m^3.

Background:

Long Island Sterilization, located at 175 Wireless Avenue in Happauge, Suffolk County, NY, is a sterilizer of surgical equipment. The means of sterilization employed is ethylene oxide sterilization. The facility has been operating under a Air State Facility Permit (Permit ID 1-4734-00743/00006), which was last issued by New York State Department of Environmental Conservation (NYSDEC) on April 16, 2008 with no termination date. This situation changed when NYSDEC implemented a maximum lifetime of ten (10) years for State Facility permits.

In accordance with Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) 212-1.1(a), Long Island Sterilization must demonstrate compliance with Part 212 requirements upon issuance of a new or modified permit or registration for process emission sources/points at the facility. Title 6 NYCRR 212-2.2 Table 2 lists the mass emission limit in pounds per year for high toxicity air contaminants (HTAC) and specifies a mass emission limit for ethylene oxide of 25 pounds per year. The annual potential (uncontrolled) emissions of ethylene oxide are estimated to be 35,100 pounds per year, as shown in the memo from Randi Walker at NYSDEC dated November 6, 2020, and as described in the "Emission Inventory" section below. Therefore, air

quality dispersion modeling is required to demonstrate compliance with the SGC and AGC. To that end, air dispersion modeling for Part 212 compliance will be performed using the USEPA AERMOD model Version 21112. This protocol was developed to document the inputs and assumptions that will be used in the AERMOD model and to satisfy NYSDEC's requirement for submittal of a modeling protocol prior to performing refined air dispersion modeling.

Site Description:

The site is located at 175 Wireless Boulevard, Happauge, NY, in Suffolk County. The site location is depicted on a topographical map, which is included as Attachment 1. Additionally, the location is included on a FEMA Flood Map, which is included as Attachment 2.

Property Boundaries:

Long Island Sterilization is located in an industrial area. Its property lines along the length of the building are 20 feet from the building. The closest property line is 89 feet from the stack. Aside from trees or landscaping, there are no physical boundaries such as fencing.

SOURCE DESCRIPTION AND AIR POLLUTANTS

Stack Parameters:

As described above, source operations with the potential to emit ethylene oxide consist of sterilization chamber emissions and aeration room emissions. A scrubber, an oxidizer, and an adsorption bed control both sources of emissions. The exhaust is routed to a single stack that discharges from the roof of the building. The facility Site Plan, Attachment 3, shows the location of the stack on the building. The Elevation Plan, Attachment 4, shows the stack elevation. The 24-foot high stack is situated atop a 26-foot tall building, yielding an effective stack height of 50 feet. Below, please see the stack and discharge specifics:

Emission Point	Description	X (Meters)	Y (Meters)	Release Type	Base Elevation (ft)	Stack Height (ft)	Inside Diameter (ft)	Inside Diameter (in)	Exit Temperature (ºF)	Exit Velocity (fps)	Exit cfm
E00001	Oxidizer Stack	616241.219	4519434.164	Vertical	165	50	1	12	165	63.7	3000

Applicable Regulatory Requirements:

40CFR263 Subpart O – Ethylene Oxide Emission Standards for Sterilization Facilities

As a user of greater than ten tons ethylene oxide per year, control efficiency for the sterilization room must be greater than 99% and the outlet concentration from the aeration room must be below 1 part per million. In addition to the existing scrubber and oxidizer control devices, an adsorption bed was added as a control from the aeration room in order to achieve this requirement for the aeration room.

6NYCRR212 – Process Operations – Mass Emission Limit

Per 6 NYCRR 212-2.2 Table 2, ethylene oxide is considered a high toxicity air contaminant (HTAC) and is listed with a mass emission limit of 25 pounds per year.

Attainment Status:

Happauge, NY is located in Suffolk County, which is designated as a serious non-attainment area for ozone.

Emissions Inventory

The pollutant of concern is ethylene oxide. Please see process description and ethylene oxide usages, 2015 – 2020 below.

Process and Control Description:

A load consisting of twelve (12) pallets of equipment for sterilization are placed in a sterilization room. Ethylene oxide (75 lb. maximum, 72 lb. normal) is fed into the room. The excess ethylene oxide is evacuated through a wet scrubber and then to an oxidizer.

The pallets are then moved to an aeration room, where any residual ethylene oxide is then evacuated through a Safe Cell unit and then to the oxidizer, prior to discharging to the atmosphere.

Long Island Sterilization can process nine loads per week, 52 weeks per year.

From the most recent stack tests, demonstrated removal efficiencies are:

- From the sterilization chambers through the scrubber to the oxidizer = 99.68%.
- From the aeration room through the Safe Cell and then oxidizer = 95.67%.

Ethylene Oxide Usages:

Ethylene oxide usages for the facility for the five-year period 2015 - 2020 were reviewed. They were:

- 2015 – 19,200 pounds
- 2016 – 21,600 pounds
- 2017 – 21,600 pounds
- 2018 – 21,600 pounds
- 2019 – 21,600 pounds
- 2020 – 19,853 pounds

With the addition of an adsorption unit between the aeration room and oxidizer, the following emissions are calculated:

<u>Sterilization Room Emissions:</u>

Annual

75 lbs ethylene oxide/cycle x 9 cycles/week x 52 weeks/year = 35,100 lbs ethylene oxide/yr (emission rate potential, no control)

35,100 lbs ethylene oxide /yr x (1- 0.9968) = 112.32 lbs ethylene oxide/yr (after scrubber control)

112.32 lbs ethylene oxide/yr x (1 – 0.9567) = 4.86 lbs ethylene oxide/yr (after oxidizer control)

Hourly

75 lbs ethylene oxide/cycle = 75 lbs ethylene oxide /hr (no washes included)

75 lbs ethylene oxide/hr x (1-0.9968) = 0.24 lbs ethylene oxide/hr (after scrubber control)

0.24 lbs ethylene oxide/hr x (1 – 0.9567) = 0.010 lbs ethylene oxide/hr (after oxidizer control)

<u>Aeration Room Emissions:</u>

Hourly

0.003 lbs ethylene oxide/hr x (1-0.9567) = 0.000130 lbs ethylene oxide/hr

<u>Facility-Wide Emissions:</u>

Annual

4.86 lbs ethylene oxide/yr

Hourly

0.010 lbs ethylene oxide/hr + 0.000130 lbs ethylene oxide/hr = 0.010 lbs ethylene oxide/hr

An hourly emission rate of 0.010 pounds of ethylene oxide per year will be used in the model.

Additionally, please note other emission units at the facility include one natural gas-fired boiler; however, the boiler does not contribute to the potential ethylene oxide emissions and therefore detailed emissions are not included in this protocol.

Air Dispersion Modeling Methodology

Proposed Model:

Initially, Vision used the conservative U.S. EPA AERSCREEN model to evaluate compliance with the SGC/AGC; however, it was unable to demonstrate compliance with the AGC. As a result, the model will be run using the refined U.S. EPA AERMOD model, Version 21112.

Building Downwash and Good Engineering Practice Stack Height Analysis:

USEPA provides specific guidance for calculating Good Engineering Practice (GEP) stack height and for evaluating whether building downwash will occur (USEPA, 2003). GEP stack height is defined by USEPA as the height of the structure plus 1.5 times the lesser of the structure height or projected width. If the stack height for a source is less than the height identified using GEP guidelines, based on the dimensions of nearby buildings, then the potential for building downwash to occur exists and is to be considered in the modeling analysis.

The effective stack height of the Long Island Sterilization stack in this analysis is 50 feet. The building height is 26 feet and the projected width of the building is approximately 275 feet. Based on these dimensions, 1.5 x 26 = 39 feet and therefore, the stack height is greater than the GEP stack height. As described in the NYSDEC guidance document DAR-10, "there can be some building downwash even for stacks above formula GEP height." Therefore, the model will be run with building downwash and without building downwash to present the results of both.

The USEPA Building Profile Input Program, PRIME version (BPIP-PRIME) will be incorporated into the AERMOD model.

The formula to determine what buildings are located within the "zone of influence" of the Long Island Sterilization stack is 5 x L. As described above, L=26 and therefore 5L = 130 feet. A small portion of the building directly to the west of Long Island Sterilization is within 130 feet of the stack. In order to be conservative, this building will be incorporated into the model.

Land Use Classification:

Long Island Sterilization is located in an industrial area of Hauppauge, NY. As described in Section 7.2.1.1.c of the EPA Modeling Guidelines, determining whether an area is rural or urban by population density should be used cautiously in industrial areas where the population density may be low but the area is likely to be sufficiently built up so that the urban land use criteria would be satisfied. This guideline also specifies a population of 2,000,000 for use of urban. Therefore, per the EPA Modeling Guidelines, the rural dispersion parameters will be used for this model.

Meteorological Data:

The analysis will be conducted using the latest five consecutive years of meteorological data (2016-2020). Surface data and upper air data will be obtained from Islip MacArthur Airport located approximately 11 miles southeast of the facility. These meteorological data provide hour-

by-hour wind speeds and directions, stability states, and temperature inversion elevations over the last 5 years.
NYSDEC will provide the necessary pre-processed, AERMOD-ready data to be used in the analysis.

Receptor Network:

The modeling analysis will utilize a set of nested Cartesian grids of receptors with a spacing of 70 meters for the first 1000 meters, 100 meters for the 1,000 – 2,000 meter distance, and 250 meters for the 2,000 – 5,000 meter distance from the site.

The current version of AERMAP will be used to calculate the receptor elevations and appropriate hill height values. Ten-meter resolution National Elevation Dataset (NED) data will be used in the analysis. Additionally, the following sensitive receptors have been identified within 2,000 meters of the stack and discrete receptors will be placed at these locations:

- Lawrence Public School – 40 Commerce Drive, Hauppauge, NY 11788
- Building Blocks Pre-School – 29 Pinewood Drive, Commack, NY 11725
- Childtime of Hauppauge – 157 Adams Ave, Hauppauge, NY 11788
- North Elementary School – 50 W White Street, Brentwood, NY 11717
- Wood Park Primary School – 15 New Hwy, Commack, NY 11725

Terrain Features Surrounding Land Use:

The topographical map of the area, Appendix 1, shows a relatively flat terrain. The AERMAP Model, will be incorporated to account for local terrain variations. AERMAP will extend approximately three miles from the site in all directions.

Pollutant Averaging Periods:

The pollutant of concern is ethylene oxide. AERMOD will be run to evaluate the predicted one-hour and annual concentrations of ethylene oxide based on the proposed hourly emissions as described in the “Emissions Inventory” section above.

Background Concentrations:

Ethylene oxide is not a criteria pollutant with an applicable national ambient air quality standard (NAAQS), and therefore, background concentration of this pollutant is not available and will not be incorporated into the results of the model. It is anticipated that background concentrations of ethylene oxide should be negligible based on the nature of the pollutant and surrounding area.

Modeling Results and Report:

Modeling will commence upon approval of this protocol. The results of the modeling analysis will be submitted to NYSDEC and will provide a comparison of the maximum predicted concentrations to the NYSDEC SGCs and AGCs. Electronic copies of AERMOD input and

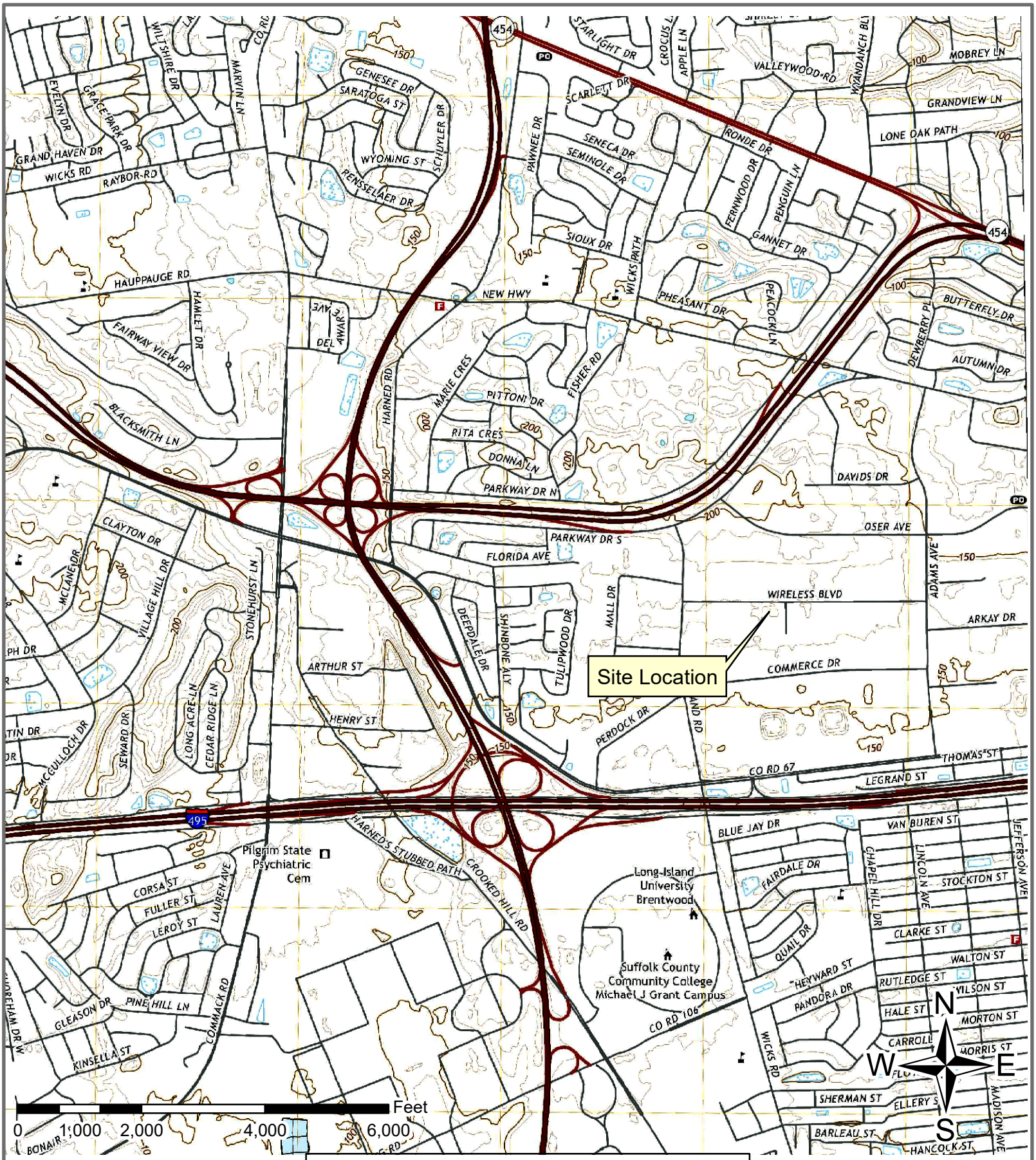
output files, BPIP input and output files, AERMAP input and output files, NED files, and meteorological data files will be submitted in a way specified by NYSDEC.

Other Considerations:

Section 7 of the NYSDEC DAR-10 guidance document includes a modeling protocol checklist with a list of suggested topics/items to be included in the modeling protocol. The following topics/items are not applicable to the facility as the facility is not considered a major source and is not a PSD facility:

- Preliminary Impact Analysis
- NAAQS/PSD Increment Analysis
- Preconstruction monitoring
- Significant impact area, additional impact analysis, and Class I area impact analysis
- Environmental Justice issues

ATTACHMENT 1



800 Lanidex Plaza, Suite 300
Parsippany, New Jersey 07054
Phone (973) 946-5600, Fax (973) 898-5421

FIGURE 1 - USGS Site Location Map

APRIL 2021

175 Wireless Boulevard
Hauppauge, NY 11788

Quadrangle: USGSX24K18412
Greenlawn New York

Scale: 1" = 2,000'

Latitude/Longitude Coordinates:
-73.266084, 40.813550

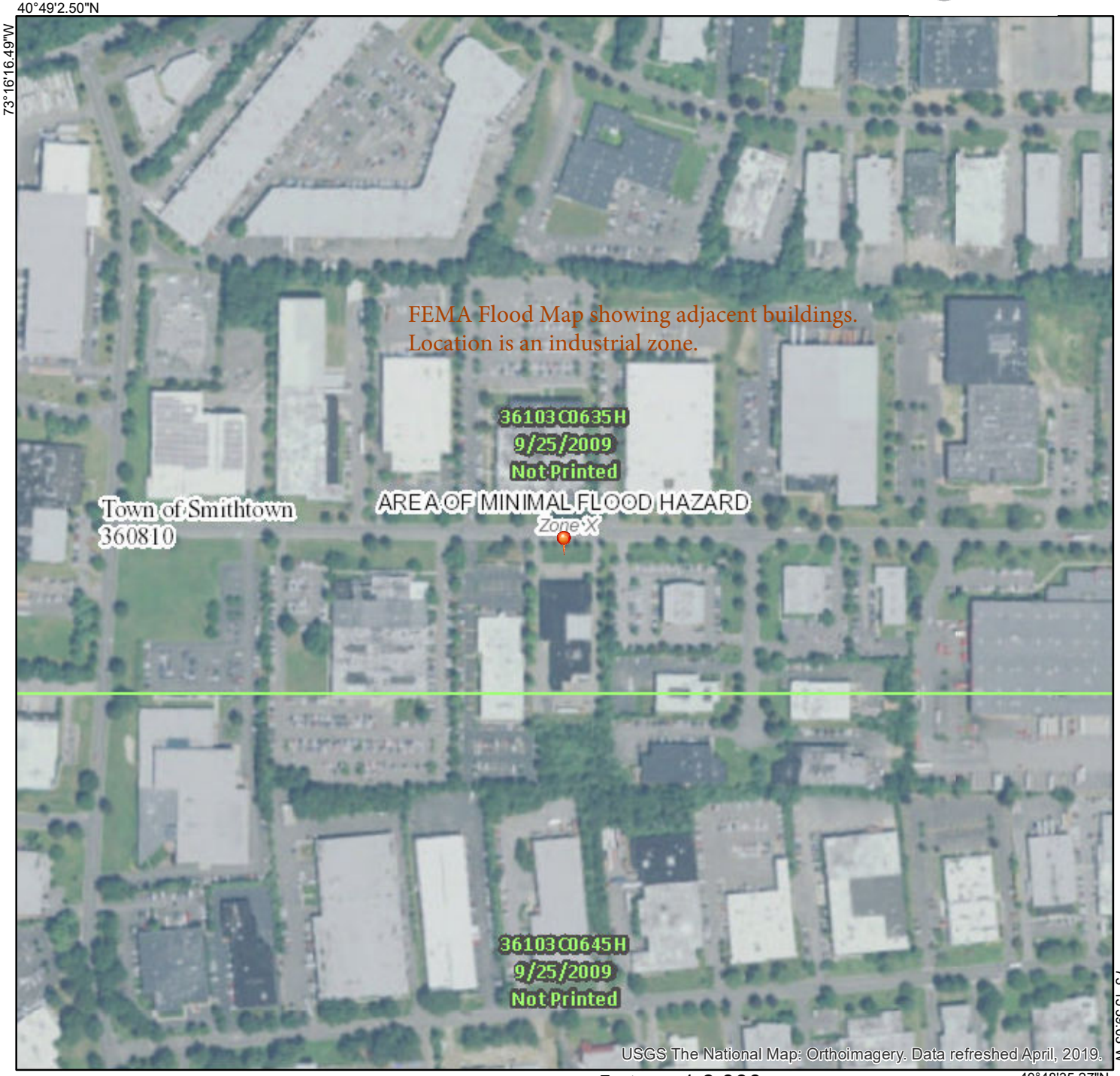
ATTACHMENT 2

National Flood Hazard Layer FIRMette

FEMA

40°49'2.50"N

73°16'16.49"W



73°15'39.03"W

40°48'35.27"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

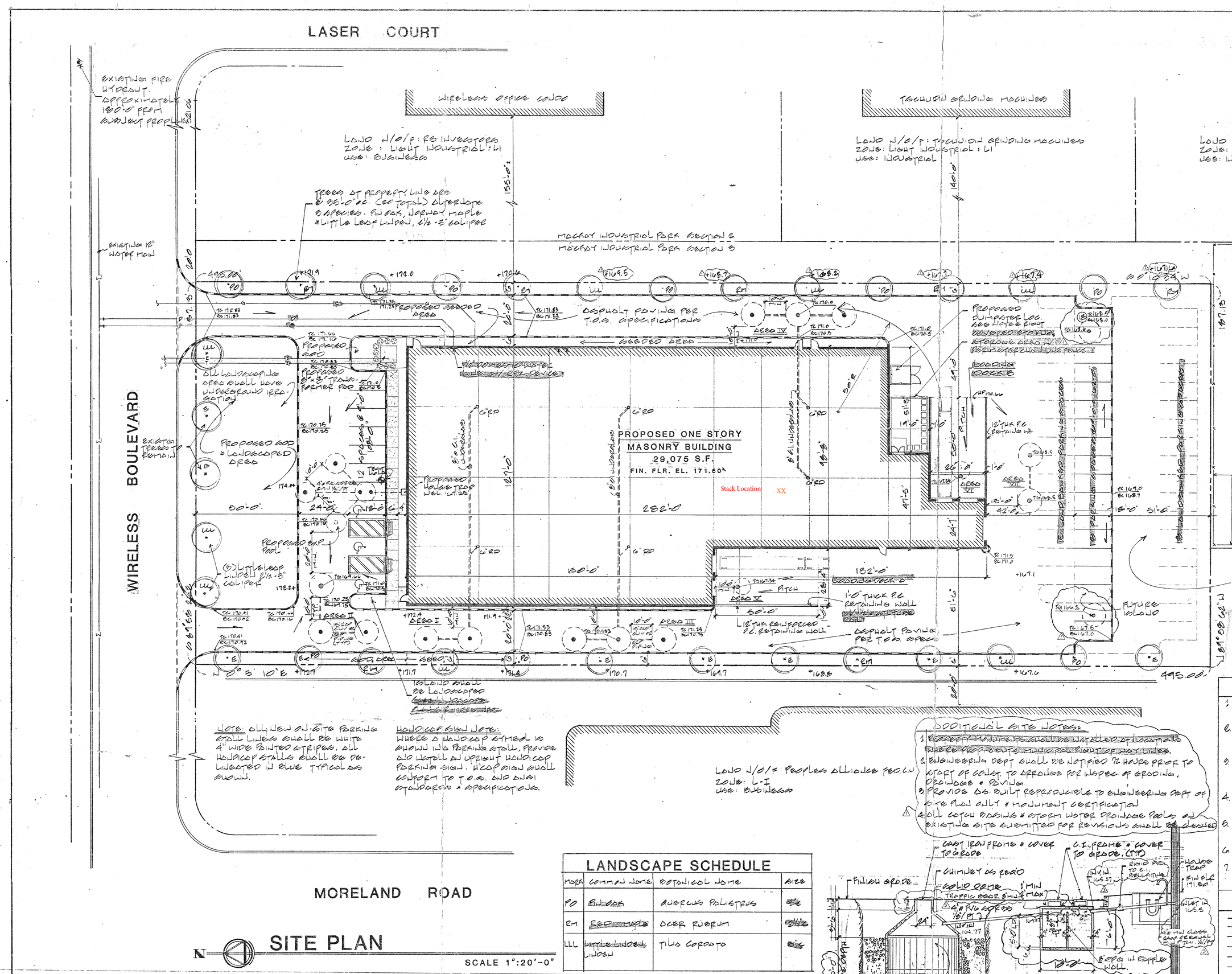
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/18/2020 at 7:30:14 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

ATTACHMENT 3



SITE DATA

SUBJECT PLOT:	[redacted] (92,608 SF)
PROPOSED USE OF BLDG:	[redacted] (448 SF OFFICE)
FAR %	31.3% < 42% ∴ CONFORMS
LANDSCAPED AREA	25.1% W/ LANDBANKING
	18.2% W/O LANDBANKING
DEPOUT AREA	48.6% W/ LANDBANKING
	50.5% W/O LANDBANKING
S.C.T.M.#	0800-181-1-1.81
ZONE:	[redacted]
USE:	INDUSTRIAL
BUILDING CLASSIFICATION:	
CONSTRUCTION TYPE	2B (NON COMBUSTIBLE)
OCCUPANCY	B1, B3.1, B3.2
FIRE HAZARD	B3.1 LOW HAZARD
	B3.2 MODERATE HAZARD
[redacted]	

PARKING CALCULATIONS

AS PER TOWN OF SMITHTOWN PARKING REQUIREMENTS:

OFFICE: 448 SF ÷ 150 SF/SPACE = 2.98 OR 3 SPACES
WAREHOUSE: 28,127 SF ÷ 500 SF/SPACE = 57.25 OR 58 SPACES
TOTAL 61 SPACES
[redacted]

SANITARY SYSTEM DESIGN

GROUNDWATER MANAGEMENT ZONE I
NO WETLANDS OR SURFACE WATERS EXIST WITHIN 500' OF SITE
POPULATION DENSITY EQUIVALENT:
2.12 PER 600 GPD/ACRE = 1,275.6 GPD: ALLOWABLE

29,075 SF x .04 GPD/SF = 1163 GPD
1163 < 1275.6 GPD ∴ CONFORMS
1163 GPD ÷ 2 DAYS FLOW = 582 GALS.
[redacted]
FLOOR COVER AND O.L. COVERS TO GROUND)

LEACHING POOLS

1163 GPD ÷ 1.5 GAL = 31.4 (DRAIN WALL AREA/FT OF HGT) =
24.69 VF REQUIRED
USE (2) 10'-0" x 15'-0" OD POOLS
[redacted]
6'-0 DOME, 6'-0 CHIMNEY

STORM DRAINAGE DESIGN

DRAINAGE DESIGN CRITERIA
PAVEMENT AND ROOF AREA RUNOFF = 100% OF I.O
SIDEWALKS = 100% OF I.O
LANDSCAPING = 50% OF .2
[redacted] = .25
USE OPEN DRAINAGE POOL MATERIAL W/16'-0" OD. OR 100 SF OF I/P (1:2)

AREA I
ROOF 8,036 SF x 1.0 RAIN x .25 = 2159 CF
2159 CF ÷ 100.88 CF/VF = 21.40 VF (24 VF PROVIDED)
USE (2) 12'-0" x 12'-0" POOLS (EFFECTIVE DEPTH 6'-0" & O.L. COVER.

AREA II
DEPOUT 11,967 x 1.0 RAIN x .25 = 2991.75 CF
[redacted] 575 x 1.0 RAIN x .25 = 143.75 CF
LANDSCAPE AREA 2,304 x 0.5 RAIN x .25 = 576.0 CF
3711.5 CF
3711.5 CF ÷ 100.88 CF/VF = 36.78 VF (37 VF PROVIDED)
USE (2) 12'-0" x 12'-0" POOLS, & (1) 12'-0" x 12'-0" OPEN, 6'-0" DOME & (1) INLET GRATE

AREA III
ROOF 10,207 SF x 1.0 RAIN x .25 = 2551.75 CF
DEPOUT 1,664 SF x 1.0 RAIN x .25 = 416.0 CF
LANDSCAPE 480 SF x 0.5 RAIN x .25 = 60.0 CF
3019.75 CF ÷ 100.88 = 29.94 VF (30 VF PROVIDED)
USE (2) 12'-0" x 12'-0" POOLS
6'-0" DOMES & (1) INLET GRATE

AREA IV
ROOF 1,172 SF x 1.0 RAIN x .25 = 293.0 CF
DEPOUT 840 SF x 1.0 RAIN x .25 = 210.0 CF
LANDSCAPE 1,920 SF x 0.5 RAIN x .25 = 119.75 CF
622.75 CF
622.75 CF ÷ 100.88 = 6.17 VF (6 VF PROVIDED)
USE (2) 12'-0" x 12'-0" OD POOLS
6'-0" DOMES & (1) INLET GRATE

AREA V
DEPOUT 1,165 SF x 1.0 RAIN x .25 = 291.25 CF
291.25 ÷ 42.24 VF/CF = 6.89 VF (9 VF PROVIDED)
USE (1) 8'-0" x 8'-0" OD POOL, OPEN GRATE COVER

AREA VI
DEPOUT 1,260 SF x 1.0 RAIN x .25 = 315.0
315.0 ÷ 42.24 = 7.45 VF (8 VF PROVIDED)
USE (1) 8'-0" x 8'-0" OD POOL, OPEN GRATE COVER.

AREA VII
DEPOUT 10,484 SF x 1.0 RAIN x .25 = 2621 CF
LANDSCAPE 4,280 SF x 0.5 RAIN x .25 = 535.75 CF
3156.75 CF
3156.75 CF ÷ 100.88 CF/VF = 31.29 VF (39 VF PROVIDED)
USE (3) 12'-0" x 12'-0" OD POOLS (1) 12'-0" x 12'-0" OPEN POOL
6'-0" DOMES & (1) GRATES

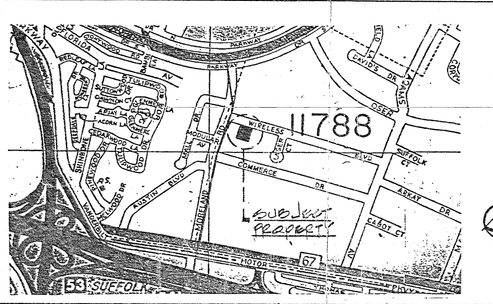
GENERAL SITE NOTES

1. [redacted] COMPREHENSIVE STRENGTH OF ENTRAINED
2. CONTRACTOR SHALL NOTIFY TOWN BUILDING DEPT 24 HOURS IN ADVANCE OF THE COMMENCEMENT OF ANY ON-SITE CURB, DRAINAGE OR PAVING WORK.
3. CONTRACTOR SHALL COMPLY W/ APPROVED WORKING DRAWINGS AND ENGINEERING SPECS. NO DEVIATIONS SHALL BE PERMITTED EXCEPT BY WRITTEN APPROVAL BY TOWN OF SMITHTOWN
4. STORM DRAINAGE POOLS SHALL BE MINIMUM 10'-0" OFFSET + MINIMUM 10'-0" AWAY FROM BUILDING.
5. STORM DRAINAGE POOLS SHALL HAVE A MINIMUM 10'-0" SEPARATION FROM ANY WATER SERVICE PIPE.
6. TOWN OF SMITHTOWN DATUM USED.
7. ALL ROOF DOWNSPOUTS SHALL BE FROM VIEW BY THE CONSTRUCTION OF A SCREEN OF PRIVACY WALL, IF POSSIBLE (EXCEPT VENT STACK)

SITE LEGEND

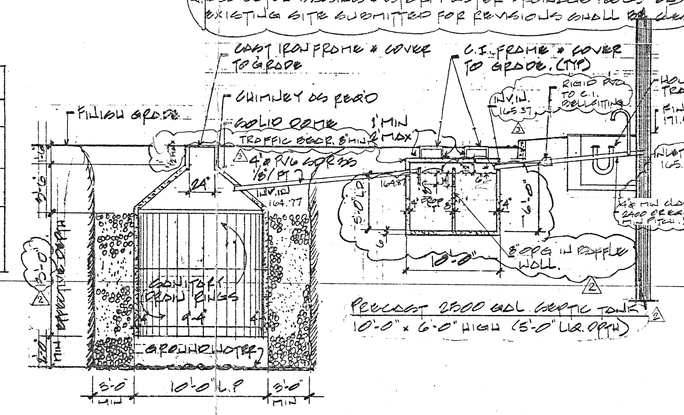
- PROPERTY LINE
- PROPOSED [redacted] LINE
- PROPOSED [redacted] LINE
- PROPOSED [redacted] LINE
- PROPOSED [redacted] (USE)
- PROPOSED [redacted] FOR SPRINKLER & HYD.
- EXISTING PG CURB TO REMAIN
- EXISTING PG CURB TO BE REMOVED
- [redacted]
- TC — PROPOSED TOP OF CURB
- BC — PROPOSED BOTTOM OF CURB
- (EL) — PROPOSED ELEVATION
- EL. — EXISTING ELEVATION
- TG — TOP OF GRATE
- UTILITY POLE
- FLOW ARROW
- SLOTTED CAST IRON INLET GRATE
- SOLID CAST IRON COVER.

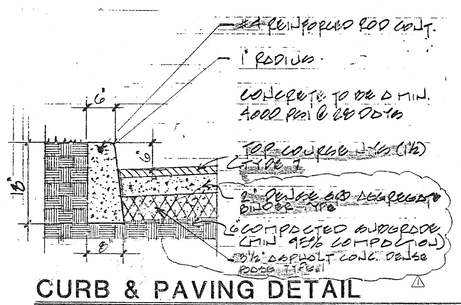
KEY MAP

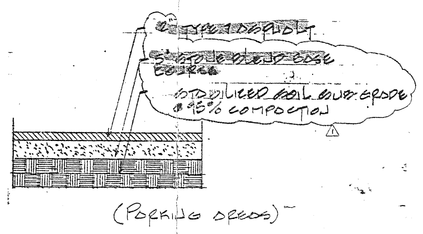


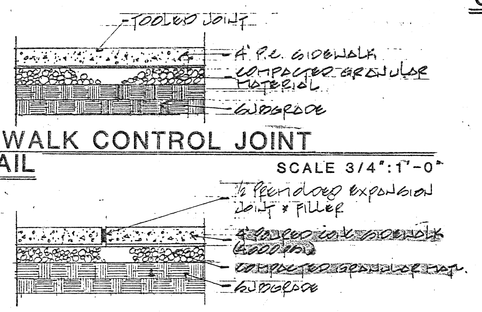
LANDSCAPE SCHEDULE

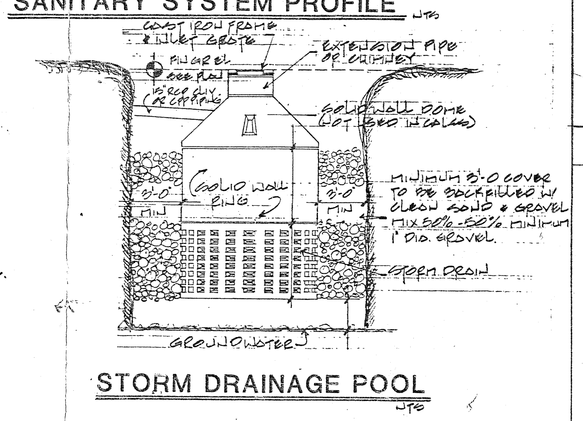
MARK	COMMON NAME	BOTANICAL NAME	SIZE
PO	[redacted]	QUERCUS PALUSTRIS	[redacted]
RM	RED [redacted]	ACER RUBRUM	[redacted]
LLL	[redacted] LINDEN	TILIA CORDATA	[redacted]











NOTES
1. #4 REINFORCING ROD SHALL BE PLACED 3" FROM THE FACE OF THE CURB + 2" FROM THE TOP OF CURB.
2. ALL CONCRETE SHALL BE TAMPED IN PLACE. NO HONEYCOMB WILL BE ACCEPTED. SURFACE SHALL BE SMOOTH + EVEN, RUBBED W/ WOOD FLOAT.
3. ALL EDGES TO BE TOOL RADIUSED
4. STEEL FORMS OR APPROVED EQUAL SHALL BE USED.

PROPOSED NEW FACILITY FOR:
BLOSSOM I.L.C.
TOWN OF SMITHTOWN
WIRELESS BOULEVARD
HAUPPAUGE NEW YORK

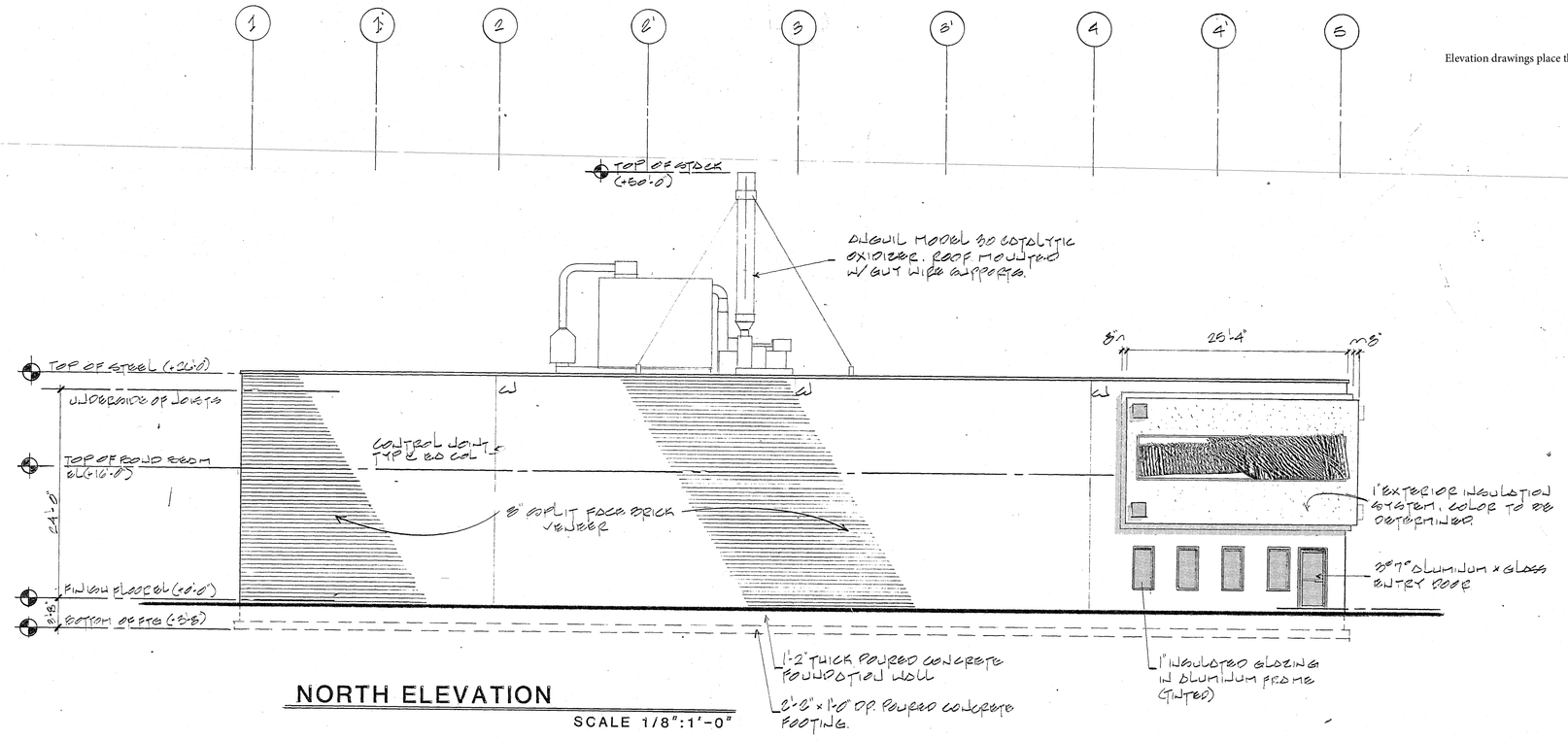
REVISIONS	DATE
ISSUED FOR BID	7-15-97
REVISED + ISSUED TO BLDG DEPT	7-21-97
REVISED + ISSUED TO BLDG	6-30-97
ISSUED TO S.C.D.H.S.	6-18-97
REVISED PER TOWN WIRELESS COMMENT TO DOPE	6-2-97
	5-16-97
ISSUED TO T.O.S. PLANNING DEPT.	5-16-97
ISSUED FOR PRELIMINARY REVIEW	5-6-97
ISSUED FOR REVIEW	4-7-97

JOSEPH T. MATTHEWS & ASSOCIATES, ARCHITECTS
28 GARFIELD AVE.
BAYSHORE, NY 11706
516-586-1911

NO. 8-2098
BY JTM
DATE
PAGE
SP-1

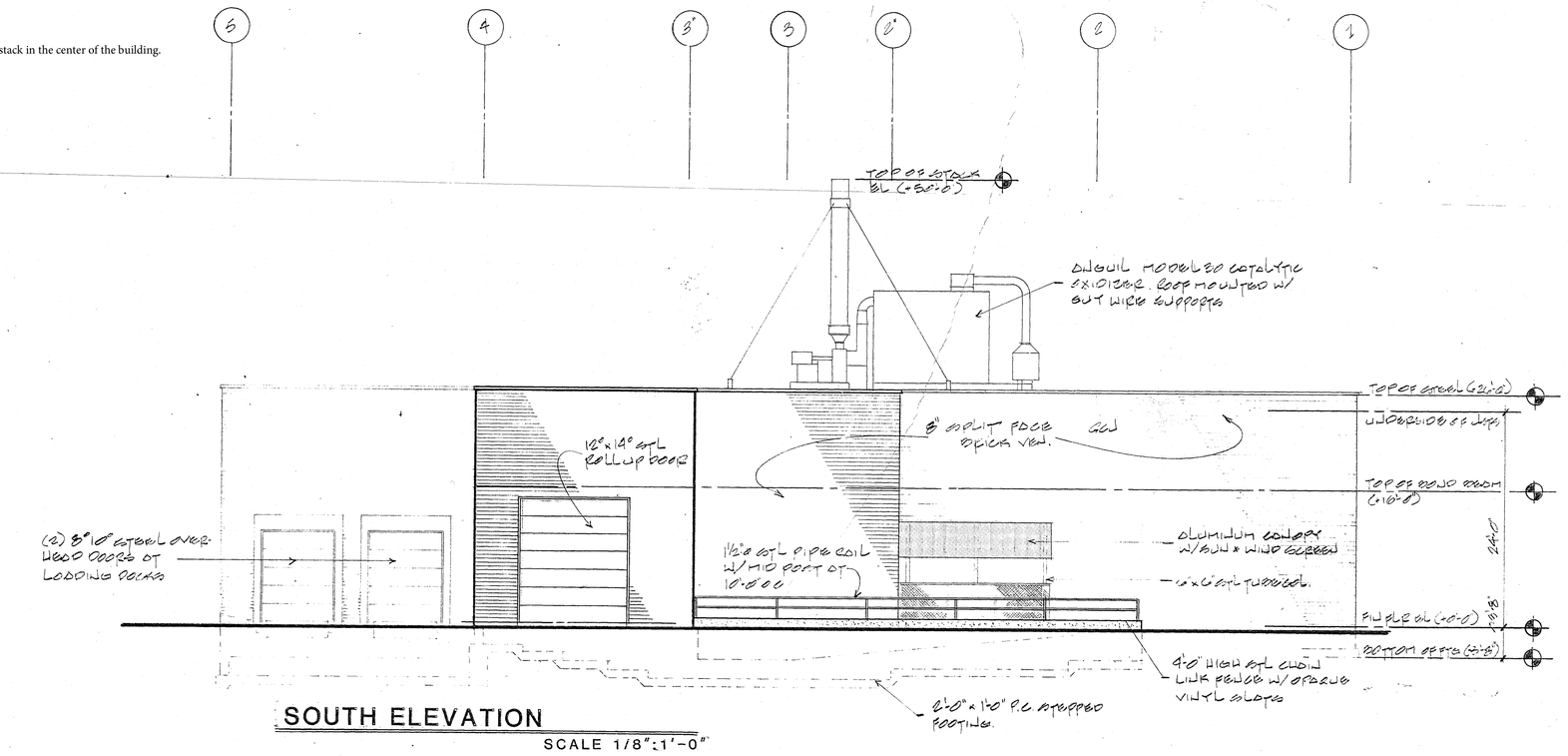
ATTACHMENT 4

Elevation drawings place the stack in the center of the building.



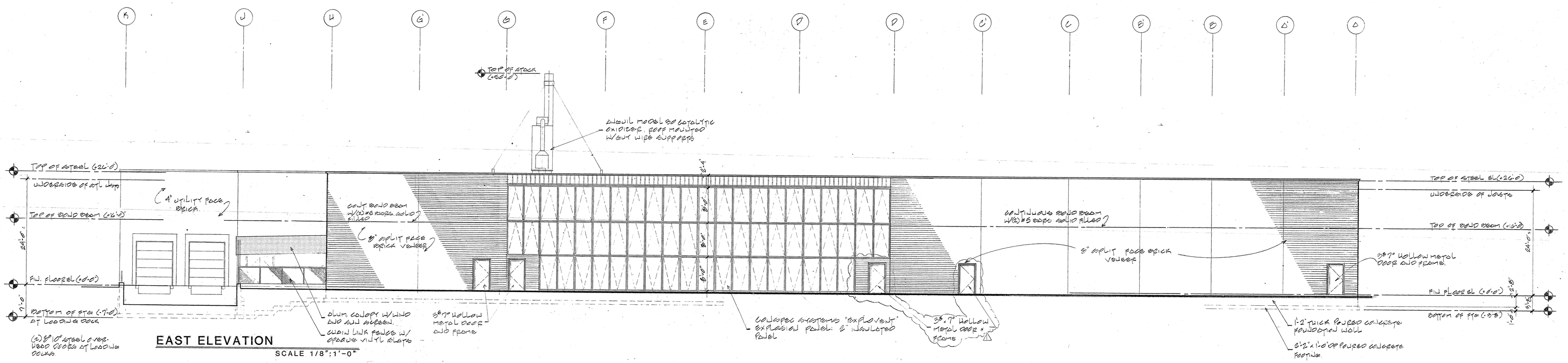
NORTH ELEVATION

SCALE 1/8":1'-0"



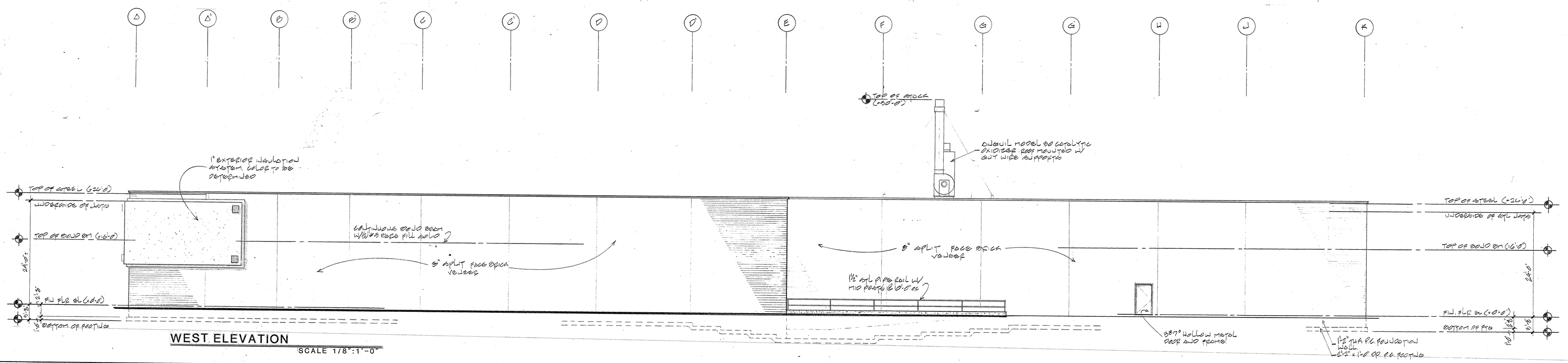
SOUTH ELEVATION

SCALE 1/8":1'-0"



EAST ELEVATION

SCALE 1/8":1'-0"



WEST ELEVATION

SCALE 1/8":1'-0"

PROPOSED NEW FACILITY FOR:

BLOSSOM L.L.C.

TOWN OF SMITHTOWN
WIRELESS BOULEVARD
HAUPPAUGE NEW YORK

REVISIONS	DATE
GENERAL REVISIONS	4-10-98
REVISED & REISSUED TO TOWN BD ⚠	7-24-97
ISSUED FOR BID	7-18-97
TO DATE	5-16-97
ISSUED TO T.E.S. PLANNING DEPT	5-15-97
ISSUED FOR PRELIMINARY REVIEW	5-01-97

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NO. 8 2046
BY JTM
DATE
PAGE

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