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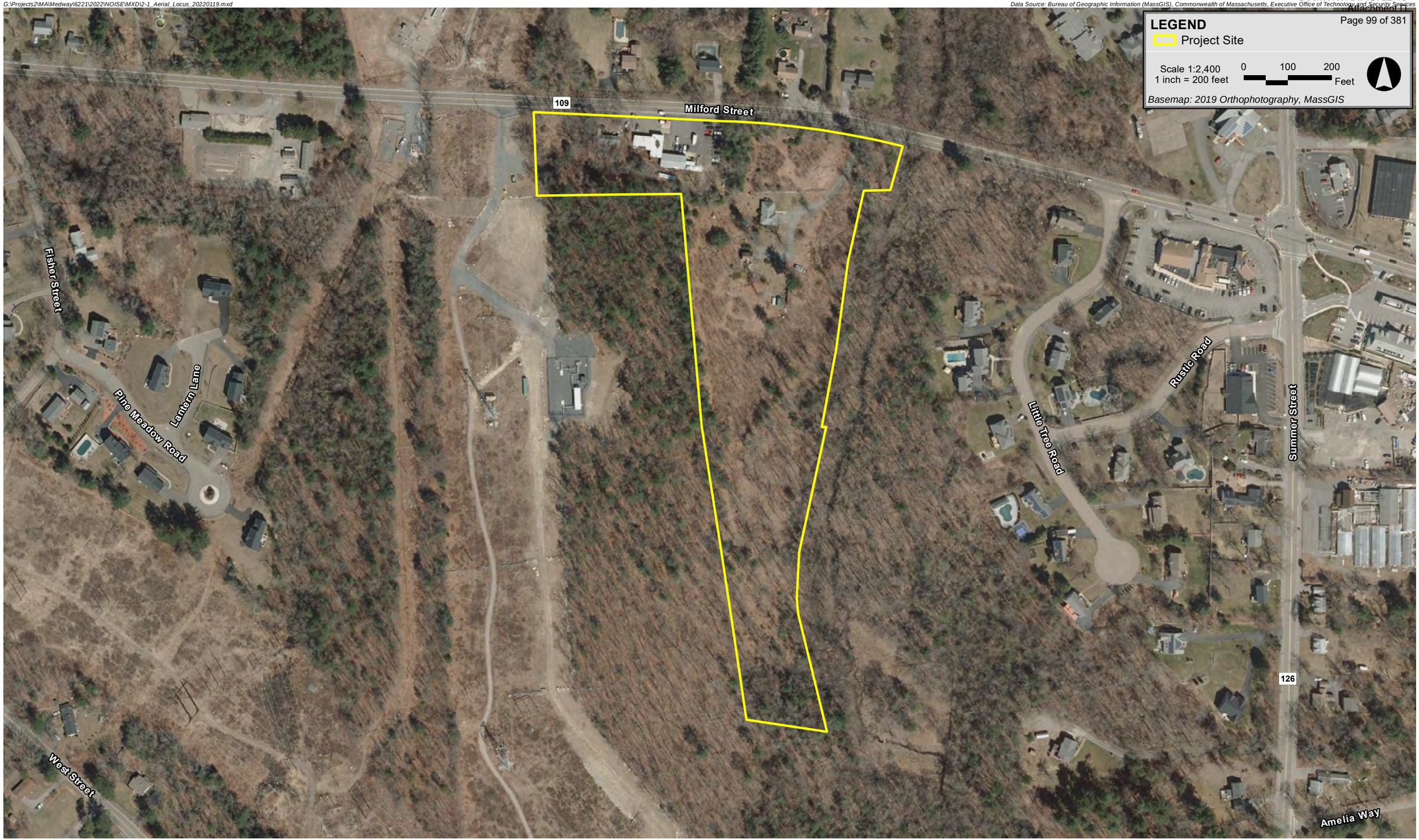
Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



Medway Grid Energy Storage Project **Medway, Massachusetts**

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Figure 2-1
Aerial Locus

3.0 SOUND TERMINOLOGY

There are several ways in which sound levels are measured and quantified. All of them use the logarithmic decibel (dB) scale. The following information defines the sound level terminology used in this analysis.

The decibel scale is logarithmic to accommodate the wide range of sound intensities found in the environment. A property of the decibel scale is that the sound pressure levels of two or more separate sounds are not directly additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total is only a 3-decibel increase (53 dB), which is equal to doubling in sound energy, but not equal to a doubling in decibel quantity (100 dB). Thus, every 3-dB change in sound level represents a doubling or halving of sound energy. The human ear does not perceive changes in the sound pressure level as equal changes in loudness. Scientific research demonstrates that the following general relationships hold between sound level and human perception for two sound levels with the same or very similar frequency characteristics[1]:

- 3 dBA increase or decrease results in a change in sound that is just perceptible to the average person,
- 5 dBA increase or decrease is described as a clearly noticeable change in sound level, and
- 10 dBA increase or decrease is described as twice or half as loud.

Another mathematical property of decibels is that if one source of sound is at least 10 dB louder than another source, then the total sound level is simply the sound level of the higher-level source. For example, a sound source at 60 dB plus another sound source at 47 dB is equal to 60 dB.

A sound level meter (SLM) that is used to measure sound is a standardized instrument.[2] It contains "weighting networks" (e.g., A-, C-, Z-weightings) to adjust the frequency response of the instrument. Frequencies, reported in Hertz (Hz), are detailed characterizations of sounds, often addressed in musical terms as "pitch" or "tone". The most commonly used weighting network is the A-weighting because it most closely approximates how the human ear responds to sound at various frequencies. The A-weighting network is the accepted scale used for community sound level measurements; therefore, sounds are frequently reported as detected with a sound level meter using this weighting. A-weighted sound levels emphasize middle frequency sounds (i.e., middle pitched – around 1,000 Hz), and de-emphasize low and high frequency sounds. These sound levels are reported in decibels designated as "dBA". The C-weighting network has a nearly flat response for frequencies between 63 Hz and 4,000 Hz and is noted as dBC. Z-weighted sound

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1 Bies, David, and Colin Hansen. 2009. *Engineering Noise Control: Theory and Practice*, 4th Edition. New York: Taylor and Francis.

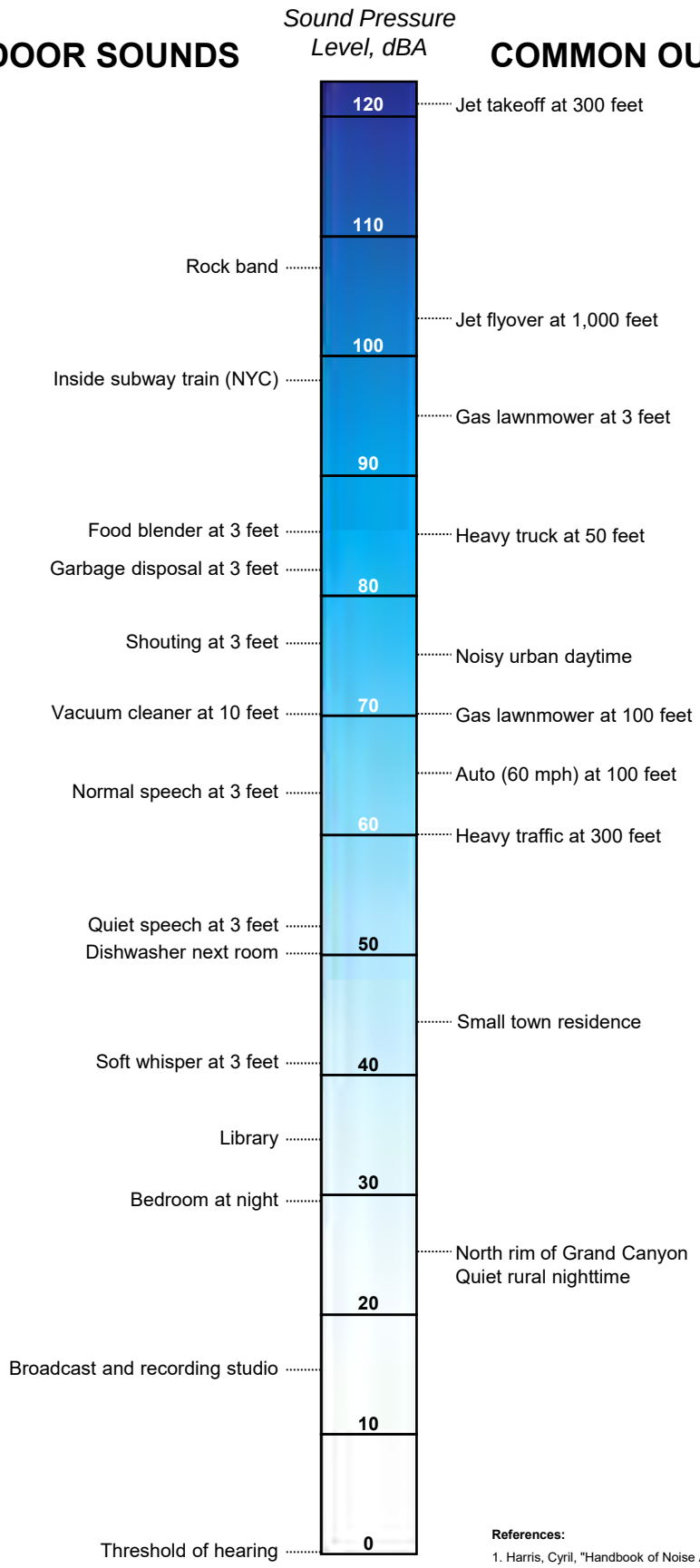
2 *American National Standard Specification for Sound Level Meters,* ANSI S1.4-2014 (R2019), published by the Standards Secretariat of the Acoustical Society of America, Melville, NY.

levels are measured sound levels without any weighting curve and are otherwise referred to as "unweighted". Sound pressure levels for some common indoor and outdoor environments are shown in Figure 3-1.

Because the sounds in our environment vary with time they cannot simply be described with a single number. Two methods are used for describing variable sounds. These are exceedance levels and the equivalent level, both of which are derived from some number of moment-to-moment A-weighted sound level measurements. Exceedance levels are values from the cumulative amplitude distribution of all of the sound levels observed during a measurement period. Exceedance levels are designated L_n, where n can have a value between 0 and 100 in terms of percentage. Several sound level metrics that are reported in community sound monitoring are described below.

- L_{90} is the sound level exceeded 90 percent of the time during the measurement period. The L_{90} is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when there are no obvious nearby intermittent sound sources. The L_{90} level is used to establish the "ambient" or "background" sound level as part of the MassDEP Noise Policy.

- L_{eq}, the equivalent level, is the level of a hypothetical steady sound that would have the same energy (*i.e.,* the same time-averaged mean square sound pressure) as the actual fluctuating sound observed. The equivalent level is designated L_{eq} and is typically A-weighted. The equivalent level represents the time average of the fluctuating sound pressure, but because sound is represented on a logarithmic scale and the averaging is done with linear mean square sound pressure values, the L_{eq} is mostly determined by loud sounds if there are fluctuating sound levels.



References:

1. Harris, Cyril, "Handbook of Noise Acoustical Measurements and Noise Control", p 1-10., 1998
2. "Controlling Noise", USAF, AFMC, AFDTC, Elgin AFB, Fact Sheet, August 1996
3. California Dept. of Trans., "Technical Noise Supplement", Oct, 1998

Figure 3-1

Common Indoor and Outdoor Sound Levels

4.0 NOISE REGULATIONS

4.1 Federal Regulations

There are no federal community noise regulations applicable to this Project.

4.2 Massachusetts State Regulations

The MassDEP regulates noise under its Air Pollution Control regulations. In these regulations, an "air contaminant" is defined to include sound, and a condition of "air pollution" includes the presence of an air contaminant in such concentration and duration as to "cause a nuisance" or "unreasonably interfere with the comfortable enjoyment of life and property." (310 CMR 7.00)

MassDEP's regulations at 310 CMR 7.10 prohibit "unnecessary emissions" of noise. MassDEP Division of Air Quality Control ("DAQC") Policy Statement 90-001 (February 1, 1990) (the "MassDEP Noise Policy") interprets a violation of this noise regulation to have occurred if the source causes either:

1) An increase in the broadband sound pressure level of more than 10 dBA above the ambient, or

2) A "pure tone" condition.

"Ambient" is defined as the background A-weighted sound level that is exceeded 90% of the time, measured during equipment operating hours (L_{90}). A "pure tone" condition occurs when any octave band sound pressure level exceeds both of the two adjacent octave band sound pressure levels by 3 dB or more.

These noise limits are MassDEP policy and are applicable both at the Property line and at the nearest residences. As a policy and not regulation, the MassDEP has waived these limits in certain cases at property line locations where the adjacent land uses are not considered noise sensitive, such as an adjacent industrial parcel.

4.3 Local Regulations – Town of Medway Noise Requirements

The Town of Medway recently revised and amended the Environmental Standards in Section 7.3 of their Zoning Bylaws. The revision to the Bylaws includes new Environmental Standards applicable to sound. Portions of the sound level requirements in these new Standards are more restrictive than the limits presented by the MassDEP Noise Policy. The Project is seeking a waiver from these newly adopted standards as part of the comprehensive zoning exemption petition submitted to the Department of Public Utilities.

5.0 EXISTING SOUND LEVELS

The Project is to be located on the south side of Milford Street, off Route 109 at Parcels 46-055, 46-056, 46-057 and 56-006 in the Town of Medway, Massachusetts. The property is bordered by residential neighborhoods to the north and east, an Eversource parcel to the west, and the Exelon Power West Medway Generating Station to the south.

5.1 Baseline Sound Environment

An existing sound level survey was conducted during the daytime and nighttime hours to characterize the existing "baseline" acoustical environment in the vicinity of the site. Four long-term continuous sound level monitoring stations were deployed for 8-days to:

1. Establish representative A-weighted broadband ambient sound pressure levels, for evaluating requirements of the MassDEP policy limit of a 10 dBA increase due to the proposed Project; and

2. Establish representative octave-band ambient sound pressure levels to identify any existing "pure tones," as defined by MassDEP, and evaluate whether the addition of modeled sound levels from the proposed Project to these background sound levels may introduce or exacerbate existing "pure tones" in the community.

Only measurement periods during, or affected by, precipitation were excluded from the analysis. This approach is consistent with ANSI Standard S12.18-1994 (R2009).

5.2 Sound Level Measurement Locations

The selection of the sound level measurement locations was based upon a review of the Project site plan and the land use in the vicinity of the Project. Four (4) long-term sound level measurement locations were selected as representative of the property lines in all four cardinal directions to obtain a sampling of the baseline sound environment. In addition, two (2) short-term sound level measurements were performed at additional locations near the site. Coordinates of the monitoring locations are presented in Table 5-1. These measurement locations are depicted in Figure 5-1 and described below.

- **Location LT1** is located approximately 125 feet south of Milford Street (Route 109) in the northeastern corner of the Project parcel. This location is representative of the homes north of the Project, along Milford Street.
- **Location LT2** is located near the middle of the western property line of the Project. This location is representative of the business and industrial facilities to the west of the Project.
- **Location LT3** is located near the middle of the eastern property line of the Project. This location is representative of the homes east of the Project, along Little Tree Road.

- **Location LT4** is located in the southern portion of the site. This location is representative of the residential and industrial facilities to the southeast and south of the Project respectively.
- **Location ST1** is located on the edge of the road near 8 Little Tree Road to the east of the Project. This location is representative of the homes to the east of the Project and along Little Tree Road.
- **Location ST2** is located on the edge of Pine Meadow Road near 1 Lantern Lane to the west of the Project. This location is representative of the homes to the west of the Project and along Pine Meadow Road and Lantern Lane.

Table 5-1 GPS Coordinates (WGS 84) – Sound Level Measurement Locations

Location	Coordinates	
	Latitude (N°)	Longitude (W°)
L1	42.1450	-71.4465
L2	42.1443	-71.4476
L3	42.1440	-71.4467
L4	42.1425	-71.4474
ST1	42.1436	-71.4526
ST2	42.1441	-71.4451

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Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

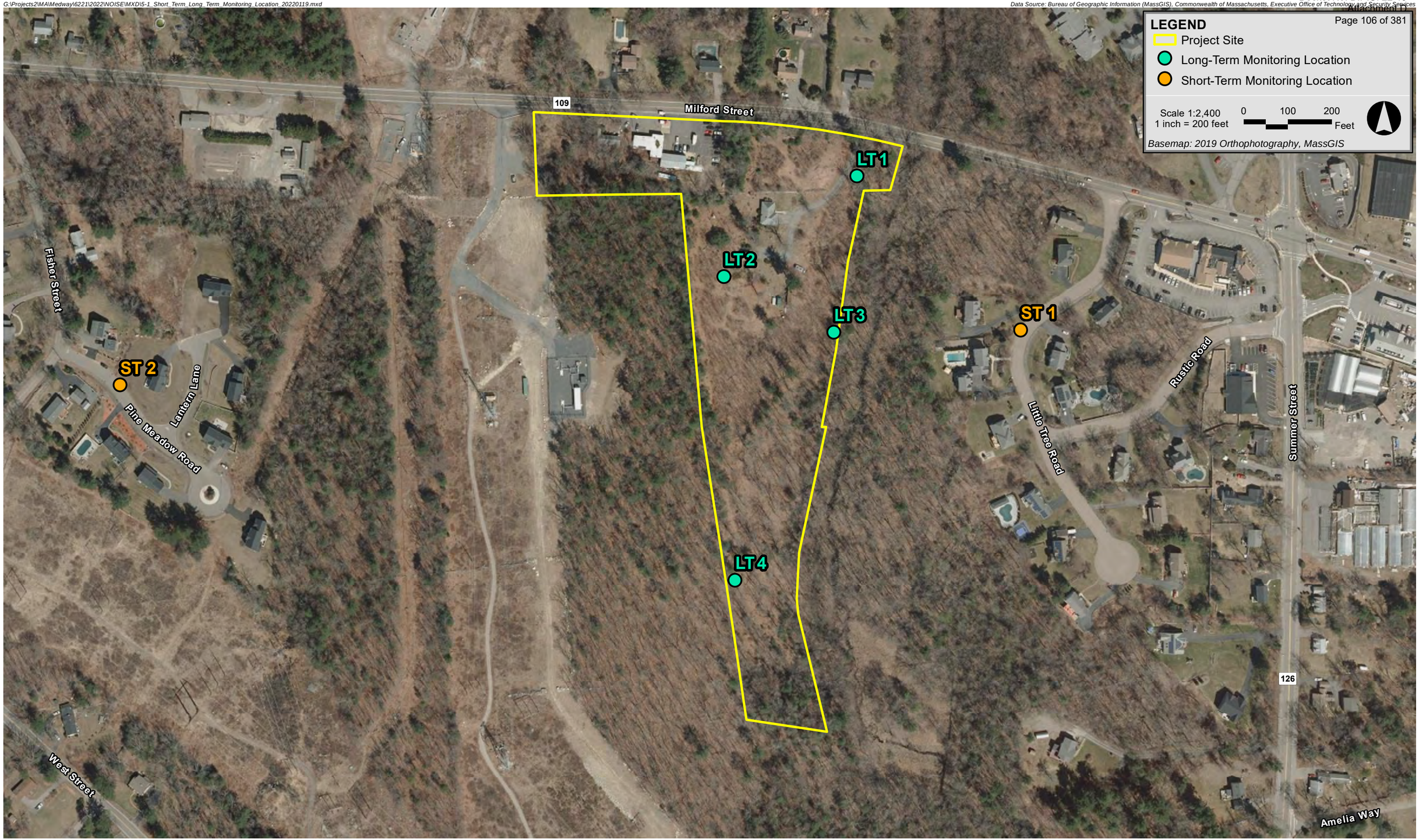

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Figure 5-1
Sound Level Measurement Locations

5.3 Measurement Methodology

A comprehensive sound level measurement program was developed to quantify the existing ambient sound levels around the proposed Project. The program consisted of four long-term monitoring stations as well as two short-term monitoring stations. The long-term monitoring stations collected continuous sound level data for approximately eight days from Thursday, July 29, 2021 to Friday, August 6, 2021. The long-term monitors were generally unattended, with personal observations made by a field technician during deployment, a nighttime site visit, and demobilization. Short-term sound level measurements were made on Thursday, July 29, 2021 during the daytime (12:36 p.m. to 1:24 p.m.) and on Tuesday, August 3, 2021 during nighttime hours (12:05 a.m. to 1:03 a.m.). All short-term measurements were 20 minutes in duration.

5.4 Measurement Equipment

Four Larson Davis (LD) 831 sound level meters, equipped with a LD PRM831 preamplifier and a PCB 377B20 or a PCB 377C20 half-inch microphone, along with an environmental protection kit were used to collect background sound pressure level data at the long-term measurement locations. The environmental protection kit included a manufacturer-provided wind screen to reduce wind-induced noise over the microphone. One LD 831 sound level meter, equipped with a PCB PRM831 preamplifier and a PCB 377C20 half-inch microphone, and a manufacturer-provided wind screen, was used to collect background sound pressure level data at the short-term measurement locations. Continuous hourly wind speed measurements were made on-site using a 2-meter above ground level (AGL) HOBO H21-USB micro-weather station (manufactured by Onset Computer Corporation) with tripod and data logger.

All instrumentation meets the "Type 1 - Precision" requirements set forth in ANSI S1.4 for acoustical measuring devices. The measurement equipment was calibrated in the field before and after the survey with a Larson Davis CAL200 acoustical calibrator which meets the standards of IEC 942 Class 1L and ANSI S1.40. Statistical descriptors (e.g., Leq, L90, etc.) were measured for each sampling period (20-minutes for short-term and 1-hour for long-term) with octave band sound levels corresponding to the same datasets.

5.5 Baseline Ambient Sound Levels

Current sound sources in the area surrounding the proposed project site include: vehicle traffic along local roads, wind, rustling vegetation, birds and other wildlife, insects, industrial activity, and occasional aircraft.

5.5.1 Short-term Sound Levels

Summaries of the existing condition sound levels are shown in Tables 5-2 and 5-3 with measured daytime and nighttime sound levels from the short-term measurements, respectively. Daytime L_{90} sound levels at the short-term locations ranged from 43 to 48 dBA and nighttime L_{90} sound levels ranged from 34 to 35 dBA.

Table 5-2 Daytime Short-Term Ambient Measurement Summary

Measurement Location ID	Start Date & Time	Broad-band L_{90}	L_{90} Sound Pressure Level (dB) by Octave-Band Center Frequency (Hz)									
			31.5	63	125	250	500	1k	2k	4k	8k	16k
		dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB	dB
ST1	7/29/2021 12:36 PM	48	56	53	48	43	42	43	39	35	28	19
ST2	7/29/2021 2:29 PM	43	54	53	47	40	40	38	32	29	25	17

Table 5-3 Nighttime Short-Term Ambient Measurement Summary

Measurement Location ID	Start Date & Time	Broad-band L_{90}	L_{90} Sound Pressure Level (dB) by Octave-Band Center Frequency (Hz)									
			31.5	63	125	250	500	1k	2k	4k	8k	16k
		dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB	dB
ST1	8/3/2021 12:05 AM	35	47	44	44	34	30	27	23	25	13	12
ST2	8/3/2021 12:43 AM	34	46	43	40	31	32	27	18	17	11	12

5.5.2 Long-term Sound Levels

A-weighted broadband (dBA) and un-weighted octave-band (dB) background sound levels from the long-term locations were used to evaluate Facility compliance with the MassDEP Noise Policy and are presented in Tables 5-4 and 5-5 for daytime (7AM - 10PM) and nighttime (10PM – 7AM) hours, respectively. Broadband L_{90} values represent the average of the daily minimum L_{90} sound pressure levels observed during the relevant daytime or nighttime operating periods throughout the measurement program. The octave-band values correspond to a representative time period where the broadband value equals the average of the daily/nightly minimum L_{90} sound levels. There were a total of 32 hours with recorded precipitation during the 8-day program. These hours were excluded from further processing in accordance with ANSI S12.18.

One-hour A-weighted broadband sound pressure level data plots from the continuous ambient monitoring stations at locations LT1 through LT4 are presented in Appendix A for the entire measurement period. The average daily minimum L_{90} (1-hour) sound levels ranged, by location, from 37 to 42 dBA during the day and from 31 to 32 dBA at night.

Table 5-4 Daytime[1] Background Sound Level Measurement Summary

Monitoring Location ID	L_{90}[2]	L_{90}[3] Sound Pressure Level (dB) by Octave-Band (Hz)								
		32 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz
	dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
LT1	42	56	59	50	47	49	53	52	39	31
LT2	41	53	53	52	46	42	43	34	32	32
LT3	40	54	56	50	40	41	44	35	30	30
LT4	37	56	55	46	44	38	36	26	35	36

1. 'Daytime' defined to be between the operational hours of 7AM and 10PM.
2. Broadband L_{90} represents the average of the minimum L_{90} sound pressure levels observed each day of the measurement program during daytime hours.
3. Octave-band values correspond to a representative time period where the broadband value equals the average of the daily minimum L_{90} sound levels.

Table 5-5 Nighttime[1] Background Sound Level Measurement Summary

Monitoring Location ID	L_{90}[2]	L_{90}[3] Sound Pressure Level (dB) by Octave-Band (Hz)								
		32 Hz	63 Hz	125 Hz	250 Hz	500 Hz	1k Hz	2k Hz	4k Hz	8k Hz
	dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB
LT1	32	47	49	39	37	38	41	34	30	25
LT2	32	47	49	40	40	32	29	25	27	24
LT3	31	48	49	40	36	35	34	25	26	16
LT4	31	47	48	37	39	33	25	25	26	14

1. 'Nighttime' defined to be between the operational hours of 10PM and 7AM.
2. Broadband L_{90} represents the average of the minimum L_{90} sound pressure level observed each day of the measurement program during nighttime hours.
3. Octave-band values correspond to a representative time period where the broadband value equals the average of the nightly minimum L_{90} sound levels.

6.0 MODELED SOUND LEVELS

6.1 Modeled Sound Sources

The primary sources of sound associated with the Facility will consist of:

- Tesla Megapacks (includes inverters and cooling equipment)
- Substation power transformer

The Project expects to place 140 Tesla Megapacks on the site. The substation associated with the Project will include one 300 MVA transformer. Table 6-1 summarizes the sound-producing equipment list for the Project.

Table 6-1 Summary of Sound Producing Equipment

Component	Manufacturer/model	Quantity
Tesla 11-Fan Megapack	Tesla	140
Power transformer (300 MVA)	TBD	1

6.2 Modeling Methodology

Noise impacts from mechanical equipment associated with the Facility were predicted using CadnaA noise calculation software (DataKustik Corporation, Version 2021). This software, which uses the ISO 9613-2 international standard for sound propagation (Acoustics - Attenuation of sound during propagation outdoors - Part 2: General method of calculation), offers a refined set of computations accounting for local topography, ground attenuation, drop-off with distance, barrier shielding, diffraction around building edges, reflection off building facades, and atmospheric absorption of sound from multiple noise sources.

Inputs and significant parameters included in the model are described below:

- **Facility Layout:** The location of all proposed equipment was provided by Burns & McDonnell in a Site Plan drawing dated January 14, 2022.
- **Sensitive Receptors:** Sound levels were evaluated at fourteen residences, shown as R1 to R14 in Figure 6-1, representing the closest sensitive residences surrounding the Facility. In addition, sound levels were evaluated at nine property-line locations in various directions around the facility. The locations are shown as PL1 to PL9 in Figure 6-1. All receptors were modeled at a height of 1.5 meters above ground level to mimic the ears of a typical standing observer.

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Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

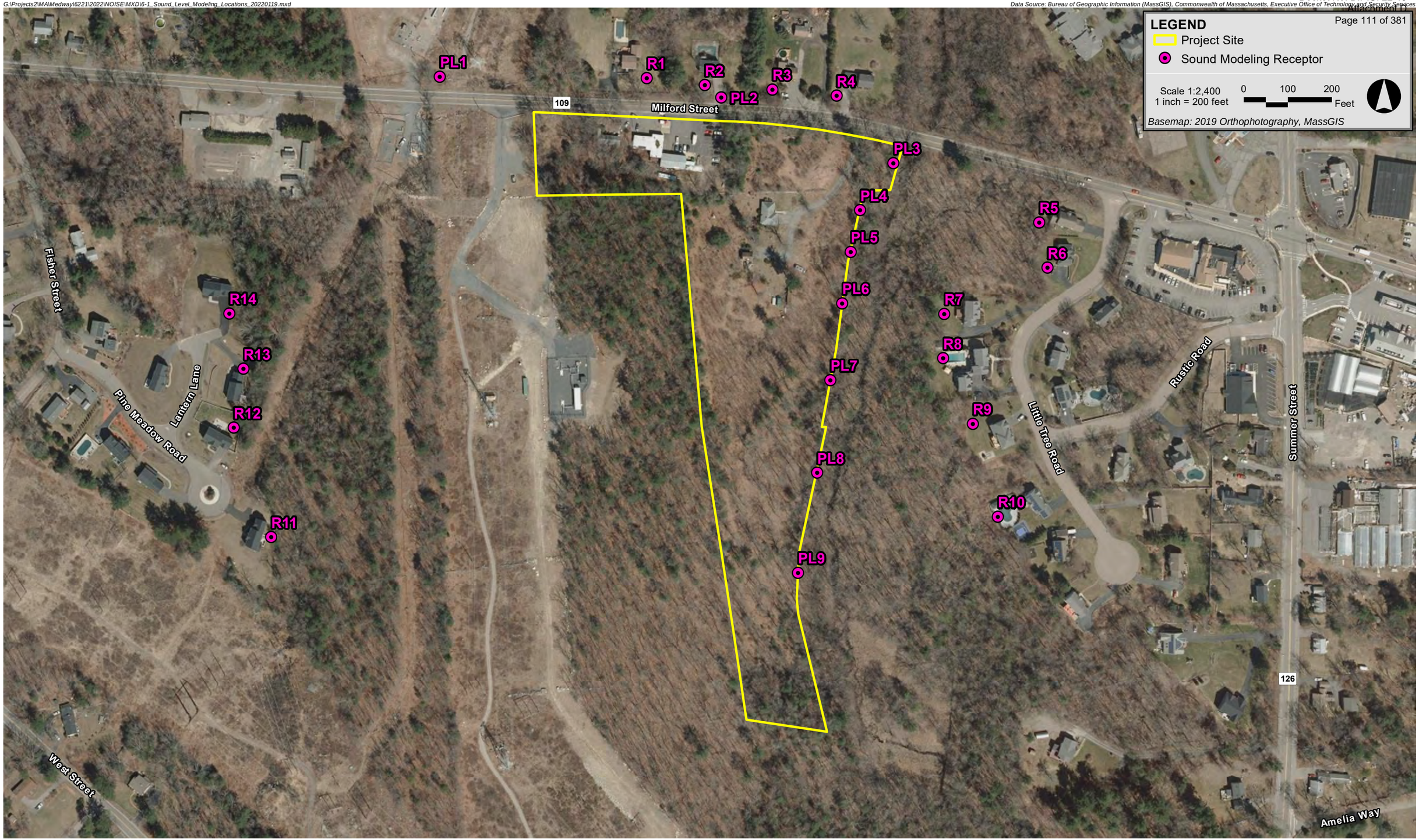

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Figure 6-1
Sound Level Modeling Locations

- **Terrain Elevation:** Elevation contours for the modeling domain derived from datasets supplied by MassGIS, along with future grading plans for the Facility Site, were directly imported into Cadna/A, which allowed for consideration of terrain shielding and differences in elevation between sources and receivers, where appropriate.

- **Source Sound Power Levels:** A tabular summary of the modeled equipment proposed for the Facility and sound power levels for each unit, as provided by the manufacturer or calculated from NEMA ratings, are presented below in Table 6-2. Octave band data were not provided by the manufacturers for their equipment, so octave band sound power levels were estimated based on similar or representative equipment, and the Edison Electric Institute Environmental Noise Guide.

- **Meteorological Conditions:** A temperature of 10ºC (50ºF) and a relative humidity of 70% were assumed in the model to minimize atmospheric attenuation in the 500 Hz and 1 kHz octave-bands where the human ear is most sensitive.

- **Ground Attenuation:** Spectral ground absorption was calculated using a global G-factor of 0.5 to represent a moderately reflective surface, except for the entire Project Site, which utilized a G-factor of 0 representing reflective surfaces (i.e., gravel, pavement).

Table 6-2 Reference Sound Power Level by Source (Proposed Equipment)

		Sound Level per Unit (dB) by Octave Band (Hz)								
Proposed Source	**Broadband Sound Power Level per Unit**	**31.5**	**63**	**125**	**250**	**500**	**1k**	**2k**	**4k**	**8k**
	dBA	**dB**	**dB**	**dB**	**dB**	**dB**	**dB**	**dB**	**dB**	**dB**
Tesla Megapack @ 100%	95[1,2]	94	94	94	94	92	87	87	86	80
Tesla Megapack @ 40%	84[2,3]	83	83	83	83	81	76	76	75	69
Power transformer	88[4]	84	90	92	87	87	81	76	71	64

1. Sound power level per Megapack, with fan speeds at 100%.
2. Octave band data for Megapack calculated from comparable Sungrow 3150 kVA inverter with publicly available data.
3. Sound power level per Megapack, fan speeds throttled and limited to 40%.
4. Broadband and octave band data for power transformer calculated from Electric Power Plant Environmental Noise Guide, Edison Electric Institute, 2nd edition, 1984. Assumes National Electrical Manufacturers Association (NEMA) rating of 67 dBA.

6.3 Sound Modeling Results – Base Case

Modeled future sound levels from the Project are presented in Table 6-3 (daytime) and Table 6-4 (nighttime) respectively. These results do not include any mitigation. Sound level results are compared to the state (MassDEP) limits by presenting the increase over the quietest measured L_{90} background sound levels.

During the daytime hours of 7 AM to 10 PM, when the proposed Facility is operating at full capacity, sound level increases range from 8 to 28 dBA. During the nighttime hours of 10 PM to 7 AM, when the proposed Facility is operating at full capacity, sound level increases range from 13 to 38 dBA.

Table 6-3 Daytime[1] Compliance Evaluation – Base Case

Receptor ID	Land Use	Representative Long Term Sound Level Measurement Location	Measured Background Noise Level	Modeled Facility-Only Noise Level (Proposed)	Combined Facility + Background Noise Level	Increase Above Background[2]	Meets MassDEP Limit?
			dBA	dBA	dBA	dBA	
R1	Residence	LT1	42	68	68	26	No
R2	Residence	LT1	42	69	69	26	No
R3	Residence	LT1	42	68	68	26	No
R4	Residence	LT1	42	65	65	23	No
R5	Residence	LT1	42	58	58	16	No
R6	Residence	LT1	42	58	58	15	No
R7	Residence	LT3	40	60	60	20	No
R8	Residence	LT3	40	59	59	20	No
R9	Residence	LT3	40	57	57	18	No
R10	Residence	LT4	37	55	55	18	No
R11	Residence	LT4	37	44	44	8	Yes
R12	Residence	LT2	41	48	49	8	Yes
R13	Residence	LT2	41	49	50	9	Yes
R14	Residence	LT2	41	49	50	9	Yes
PL1	Property line	LT1	42	60	60	18	No
PL2	Property line	LT1	42	70	70	28	No
PL3	Property line	LT1	42	60	60	18	No
PL4	Property line	LT1	42	62	62	20	No
PL5	Property line	LT3	40	63	63	23	No
PL6	Property line	LT3	40	63	63	23	No
PL7	Property line	LT3	40	58	58	19	No
PL8	Property line	LT4	37	55	55	18	No
PL9	Property line	LT4	37	52	52	16	No

1. 'Daytime' defined as the operational hours between 7 AM and 10 PM
2. 'Increase Above Background' calculated from levels with greater precision than shown in this table, and then rounded to the nearest whole decibel.

Table 6-4 Nighttime[1] Compliance Evaluation – Base Case

Receptor ID	Land Use	Representative Long Term Sound Level Measurement Location	Existing Background Noise Level	Modeled Facility-Only Noise Level (Proposed)	Combined Facility + Background Noise Level	Increase Above Background[2]	Meets MassDEP Limit?
			dBA	dBA	dBA	dBA	
R1	Residence	LT1	32	68	68	36	No
R2	Residence	LT1	32	69	69	37	No
R3	Residence	LT1	32	68	68	36	No
R4	Residence	LT1	32	65	65	34	No
R5	Residence	LT1	32	58	58	26	No
R6	Residence	LT1	32	58	58	26	No
R7	Residence	LT3	31	60	60	29	No
R8	Residence	LT3	31	59	59	29	No
R9	Residence	LT3	31	57	57	27	No
R10	Residence	LT4	31	55	55	24	No
R11	Residence	LT4	31	44	44	13	Yes
R12	Residence	LT2	32	48	48	17	Yes
R13	Residence	LT2	32	49	49	17	Yes
R14	Residence	LT2	32	49	49	18	Yes
PL1	Property line	LT1	32	60	60	28	No
PL2	Property line	LT1	32	70	70	38	No
PL3	Property line	LT1	32	60	60	28	No
PL4	Property line	LT1	32	62	62	30	No
PL5	Property line	LT3	31	63	63	32	No
PL6	Property line	LT3	31	63	63	32	No
PL7	Property line	LT3	31	58	58	28	No
PL8	Property line	LT4	31	55	55	24	No
PL9	Property line	LT4	31	52	52	21	No

1. 'Nighttime' defined as the operational hours between 10 PM and 7 AM
2. 'Increase Above Background' calculated from levels with greater precision than shown in this table, and then rounded to the nearest whole decibel.

6.4 Sound Modeling Results – Mitigated Case

With the noise control features described in Section 7, modeled future sound levels from the project presented in Table 6-5 and Table 6-6, respectively, are predicted to increase the measured background L_{90} sound levels by no more than 9 dBA at all modeled receptor locations. Figure 6-2 presents the sound level contours for the daytime mitigated case with the facility operating at full capacity, and Figure 6-3 presents the nighttime mitigated case with the facility operating at a reduced capacity (details presented in Section 7).

During daytime hours, when the proposed Facility is operating at full capacity, sound level increases are predicted to be 5 dBA or less, well below the 10 dBA MassDEP criteria. During nighttime hours, when the proposed Facility will operate at reduced capacity, sound level increases are predicted to be 9 dBA or less, which is below the 10 dBA MassDEP criteria. The 9 dBA increase occurs at one property line north of the project, which is located within a power line easement area, and is not noise sensitive. At all other locations, increases are predicted to be 7 dBA or less.

Octave-band sound pressure level modeling indicates that the proposed Facility would not be anticipated to create any "pure-tone" conditions, as defined by MassDEP, when combined with existing background sound levels at any modeled receptor locations. A daytime and nighttime pure tone evaluation is presented in Tables 6-7 and 6-8 respectively.

Table 6-5 Daytime[1] Compliance Evaluation – Mitigated Case

Receptor ID	Land Use	Representative Long Term Sound Level Measurement Location	Measured Background Noise Level	Modeled Facility-Only Noise Level (Proposed)	Combined Facility + Background Noise Level	Increase Above Background[2]	Meets MassDEP Limit?
			dBA	dBA	dBA	dBA	
R1	Residence	LT1	42	42	45	3	Yes
R2	Residence	LT1	42	42	45	3	Yes
R3	Residence	LT1	42	42	45	3	Yes
R4	Residence	LT1	42	40	44	2	Yes
R5	Residence	LT1	42	37	43	1	Yes
R6	Residence	LT1	42	37	43	1	Yes
R7	Residence	LT3	40	38	42	2	Yes
R8	Residence	LT3	40	38	42	2	Yes
R9	Residence	LT3	40	37	42	2	Yes
R10	Residence	LT4	37	36	39	3	Yes
R11	Residence	LT4	37	35	39	2	Yes
R12	Residence	LT2	41	39	43	2	Yes
R13	Residence	LT2	41	40	43	2	Yes
R14	Residence	LT2	41	39	43	2	Yes
PL1	Property line	LT1	42	46	48	5	Yes
PL2	Property line	LT1	42	43	46	4	Yes
PL3	Property line	LT1	42	37	43	1	Yes
PL4	Property line	LT1	42	39	44	2	Yes
PL5	Property line	LT3	40	39	42	3	Yes
PL6	Property line	LT3	40	39	42	3	Yes
PL7	Property line	LT3	40	37	42	2	Yes
PL8	Property line	LT4	37	36	39	3	Yes
PL9	Property line	LT4	37	39	41	4	Yes

1. 'Daytime' defined as the operational hours between 7 AM and 10 PM
2. 'Increase Above Background' calculated from levels with greater precision than shown in this table, and then rounded to the nearest whole decibel.

Table 6-6 Nighttime[1] Compliance Evaluation – Mitigated Case

Receptor ID	Land Use	Representative Long Term Sound Level Measurement Location	Measured Background Noise Level	Modeled Facility-Only Noise Level (Proposed)	Combined Facility + Background Noise Level	Increase Above Background[2]	Meets MassDEP Limit?
			dBA	dBA	dBA	dBA	
R1	Residence	LT1	32	36	37	6	Yes
R2	Residence	LT1	32	37	38	6	Yes
R3	Residence	LT1	32	36	37	6	Yes
R4	Residence	LT1	32	33	36	4	Yes
R5	Residence	LT1	32	32	35	3	Yes
R6	Residence	LT1	32	32	35	3	Yes
R7	Residence	LT3	31	33	35	4	Yes
R8	Residence	LT3	31	33	35	4	Yes
R9	Residence	LT3	31	32	34	4	Yes
R10	Residence	LT4	31	30	34	3	Yes
R11	Residence	LT4	31	29	33	2	Yes
R12	Residence	LT2	32	34	36	5	Yes
R13	Residence	LT2	32	35	36	5	Yes
R14	Residence	LT2	32	33	35	4	Yes
PL1	Property line	LT1	32	40	41	9	Yes
PL2	Property line	LT1	32	37	38	7	Yes
PL3	Property line	LT1	32	32	35	3	Yes
PL4	Property line	LT1	32	33	35	4	Yes
PL5	Property line	LT3	31	33	35	4	Yes
PL6	Property line	LT3	31	33	35	5	Yes
PL7	Property line	LT3	31	32	34	4	Yes
PL8	Property line	LT4	31	32	34	3	Yes
PL9	Property line	LT4	31	35	37	6	Yes

1. 'Nighttime' defined as the operational hours between 10 PM and 7 AM
2. 'Increase Above Background' calculated from levels with greater precision than shown in this table, and then rounded to the nearest whole decibel.

Table 6-7 Daytime "Pure Tone" Evaluation of the MassDEP Noise Policy

Receptor ID	Land Use	Sound Level (dB) per Octave-Band Center Frequency (Hz)[1]								
		31.5	63	125	250	500	1k	2k	4k	8k
PL1	Closest property line (west)	56	60[2]	52	49	50	53	52	41	31
PL2	Closest property line (north)	57	60[2]	52	50	50	53	52	40	31
PL6	Closest property line (east)	55	57	51	45	43	44	35	31	30
PL9	Closest property line (south)	56	55	48	46	41	38	31	36	36

1. Calculated from levels with greater precision than shown in this table, and then rounded to the nearest whole decibel.
2. Pure tone in the 63 Hz octave band is not attributable to the Project. This pure tone was present in the existing daytime ambient sound level and is likely due to distant traffic.

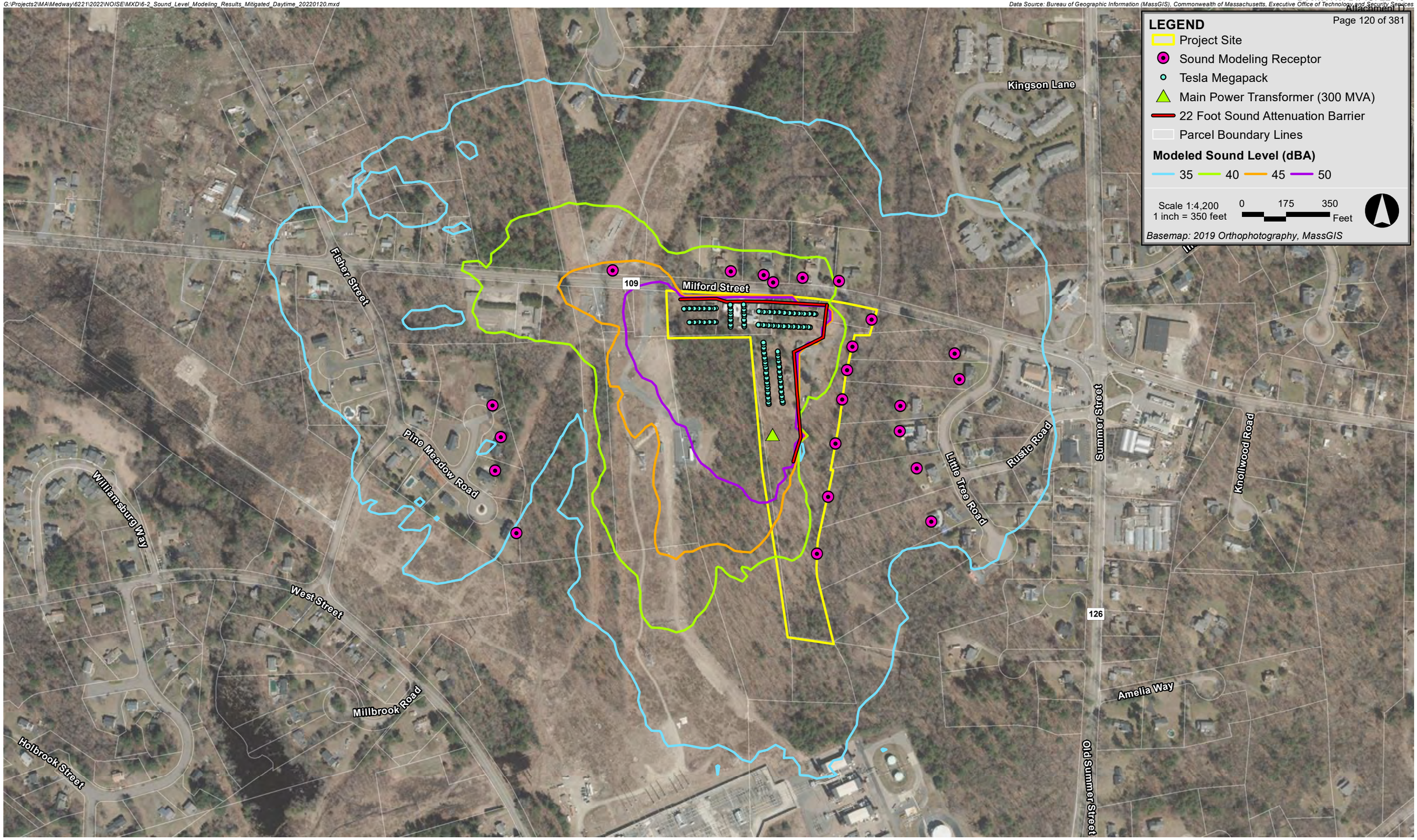
Table 6-8 Nighttime "Pure Tone" Evaluation of the MassDEP Noise Policy

Receptor ID	Land Use	Sound Level (dB) per Octave-Band Center Frequency (Hz)[3]								
		31.5	63	125	250	500	1k	2k	4k	8k
PL1	Closest property line (west)	48	51[4]	43	41	40	42	36	32	25
PL2	Closest property line (north)	49	51	44	42	40	41	35	31	25
PL6	Closest property line (east)	49	50	42	39	37	35	26	26	16
PL9	Closest property line (south)	47	49	41	41	36	31	28	27	14

3. Calculated from levels with greater precision than shown in this table, and then rounded to the nearest whole decibel.
4. Pure tone in the 63 Hz octave band is not attributable to the Project. This pure tone was present in the existing nighttime ambient sound level and is likely due to distant traffic.

G:\Projects2\MA\Medway\6221\2022\NOISE\MXD\6-2_Sound_Level_Modeling_Results_Mitigated_Daytime_20220120.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



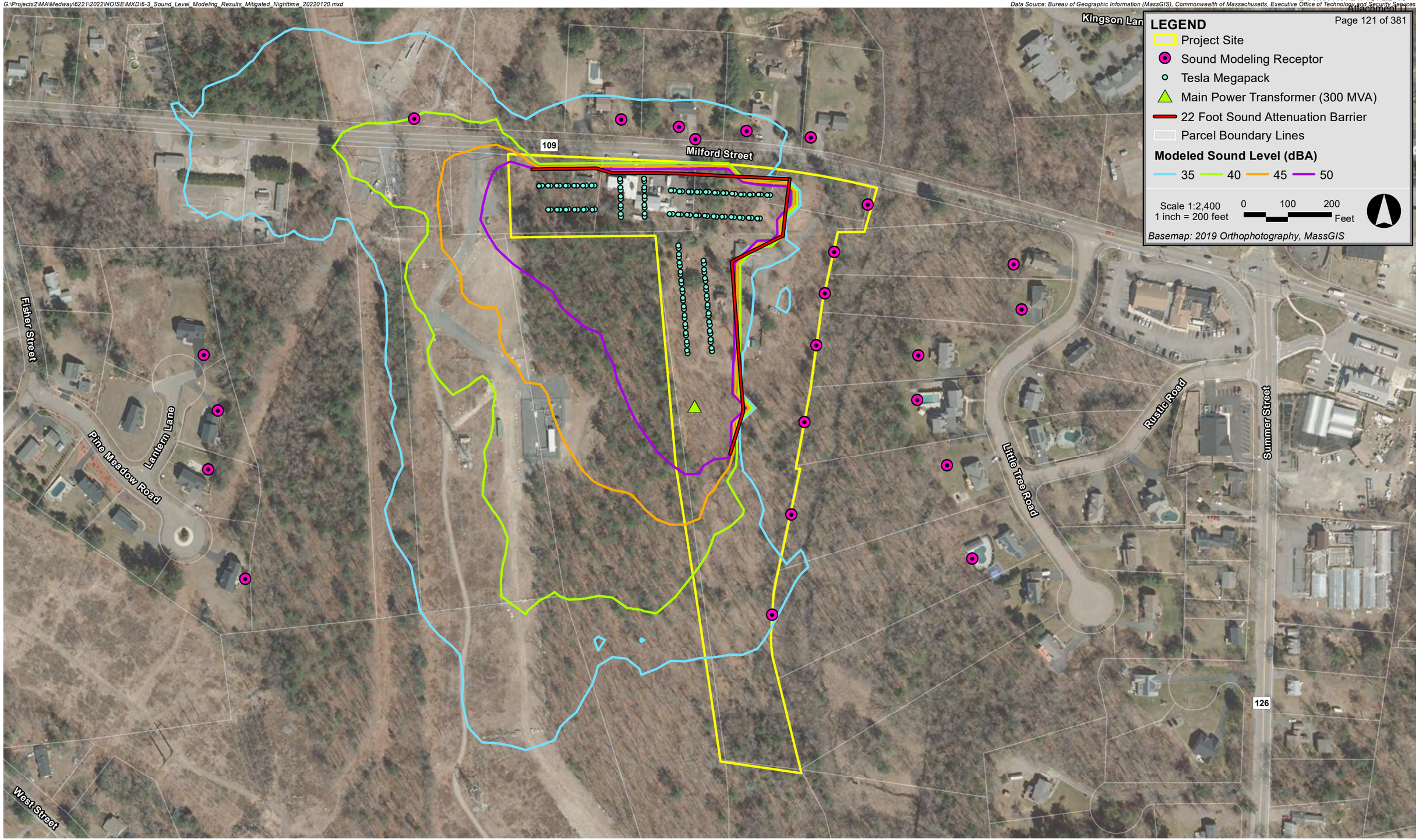
Medway Grid Energy Storage Project **Medway, Massachusetts**

Epsilon Associates Inc.

Figure 6-2
Sound Level Modeling Results – Mitigated, Daytime

G:\Projects2\MA\Medway\6221\2022\NOISE\MXD\6-3_Sound_Level_Modeling_Results_Mitigated_Nighttime_20220120.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services



Medway Grid Energy Storage Project **Medway, Massachusetts**

Epsilon Associates Inc.

Figure 6-3
Sound Level Modeling Results – Mitigated, Nighttime

7.0 MITIGATION MEASURES

7.1 Tesla Megapack Fan Throttling

The Megapack manufacturer (Tesla) was contacted about possible noise control options for their equipment. Information from Tesla confirmed that the Megapacks could be programmed to limit the cooling fan speeds based upon thermal characteristics of the proposed site. For the Medway Grid project site, Tesla has confirmed the cooling fans for each Megapack can be safely throttled to 40% of their nominal speed. Limiting the fan speeds of the Megapacks to 40% reduces the sound level of each unit by approximately 11 dBA.

7.2 Sound Attenuation Barriers

In addition to throttling the Megapack units, the Project will also utilize sound attenuation barriers along the northern and eastern sides of the site. Under current design, these barriers will be 22 feet tall and will need to be constructed of materials with adequate thickness and density to provide appropriate sound level reductions. This is typically achieved by using pre-constructed metal panels, commonly 4 inches thick. The proposed barrier locations, shown in Figures 6-2 and 6-3, are situated as close as possible to the equipment while maintaining adequate ventilation and accessibility. Egress areas in the barriers will be designed to achieve adequate transmission loss approximately equivalent to the barrier itself. The contractor selected would be responsible for the design, detailing, and adequacy of the framework, supports, and attachment methods required for the proper construction of the sound attenuation barriers.

Acoustic modeling was also performed to evaluate the effectiveness of barriers taller than 22 feet. Results of the modeling revealed that no perceptible acoustic benefit would be achieved by using taller barriers.

7.3 Low Noise Substation Transformer

The Project will utilize a low noise power transformer at the substation. The proposed substation will feature one 300 megavolt-ampere (MVA) transformer. As described in Section 6.2, Epsilon estimated the octave band sound power levels of the transformer using methods outlined in the Electric Power Plant Environmental Noise guide (EEI Noise Guide) assuming the transformer will have a National Electrical Manufacturers Association (NEMA) noise rating of 67 dBA.

7.4 Operational Restrictions

The Tesla Megapacks generate maximum sound when the batteries are being charged or discharged and the corresponding cooling equipment (fans) are running that emit the highest sound level. Based on ambient noise levels recorded at the Project site, the Project's maximum sound levels meet the MassDEP noise requirements between 6am and 10pm. Between the hours of 10pm and 6am, the Project's maximum sound levels would exceed the MassDEP noise requirements without an operational restriction. The Project will adopt an operational restriction

that limits the number of Megapacks that simultaneously charge or discharge to 25% of the total Megapacks. With this operational restriction in place between 10pm and 6am the Project meets the MassDEP noise requirements.

It is possible that based upon ongoing technology innovations to the Tesla Megapack and ongoing research and development from inverter, transformer and other equipment manufacturers, final Project design and/or other mitigation measures could eliminate the need for this operational restriction. For now, this mitigation measure is being included to ensure that the Project meets MassDEP requirements. Notwithstanding the operational restrictions noted above, the Project shall be allowed to charge or discharge at maximum power if ISONE implements any of Actions [2-11] under Operating Procedure 4 of the Tariff, or when a Capacity Scarcity Conditions, as defined in the tariff, exists in the Project's Capacity Zone, or any other Capacity Zone in the ISONE region.

8.0 CONCLUSIONS

In conclusion, substantial noise mitigation measures have been incorporated into the design of the proposed facility to minimize noise impacts in the community. These mitigation measures include low noise equipment, sound attenuation barriers, and nighttime operational restrictions. Results of a complete sound level assessment demonstrate that the sound levels from the facility will comply with the requirements set forth in the MassDEP Noise Policy.

This report was prepared to address the 140 Tesla Megapacks that are proposed and would be operational within the site for the foreseeable future. The site plan does however provide augmentation areas for the installation of additional batteries units. Additional units would be installed as the system degrades, in order to maintain capacity if the existing units are no longer sufficient to meet the Project's 500 MWh capacity. If site augmentation is required, a new sound level analysis is recommended prior to the installation and operation of the augmented system.

Appendix A

Long-Term Sound Level Measurement Data

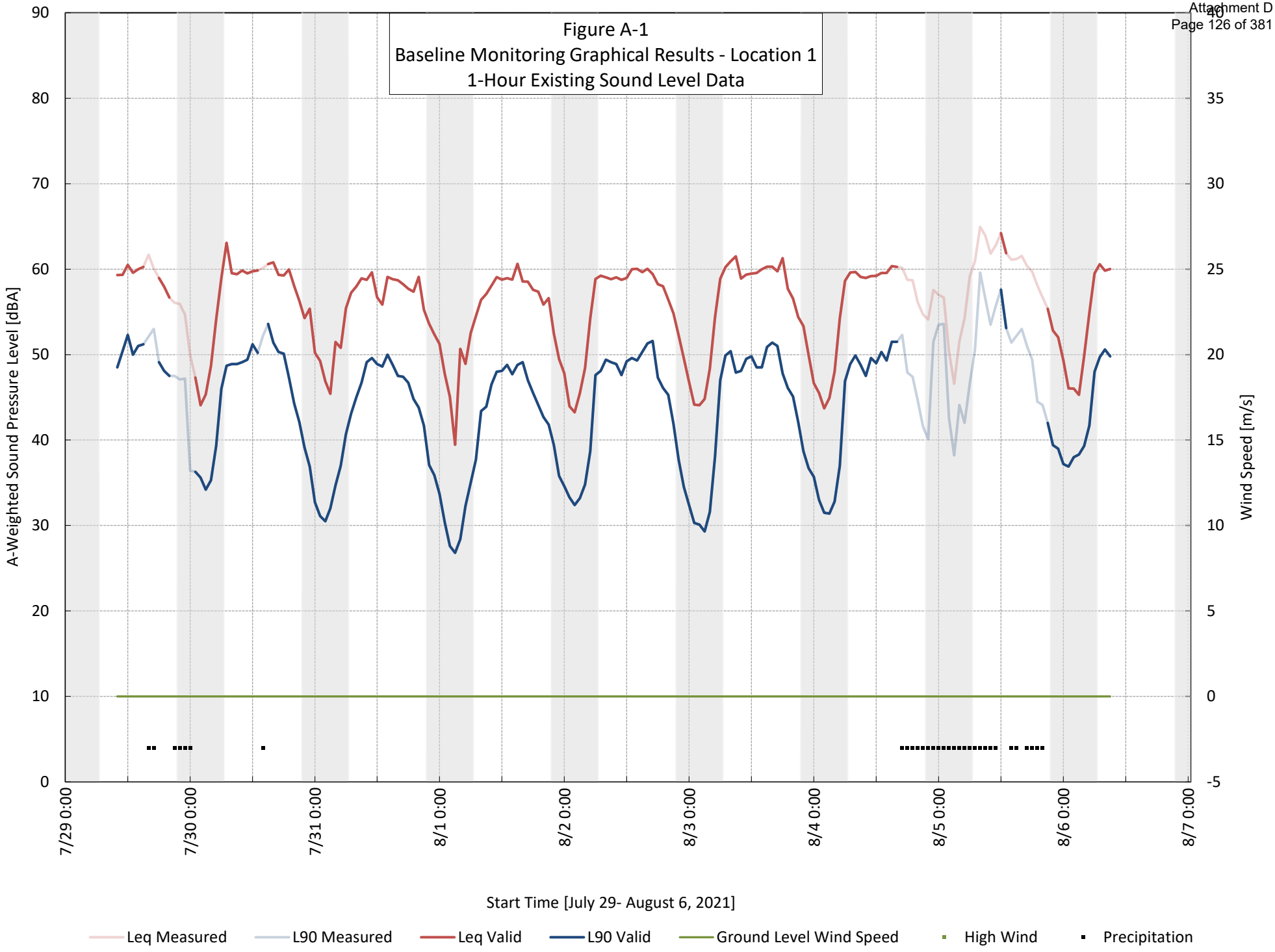


Figure A-1
Baseline Monitoring Graphical Results - Location 1
1-Hour Existing Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
90
80
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
-5
7/29 0:00
7/30 0:00
7/31 0:00
8/1 0:00
8/2 0:00
8/3 0:00
8/4 0:00
8/5 0:00
8/6 0:00
8/7 0:00
Start Time [July 29- August 6, 2021]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation

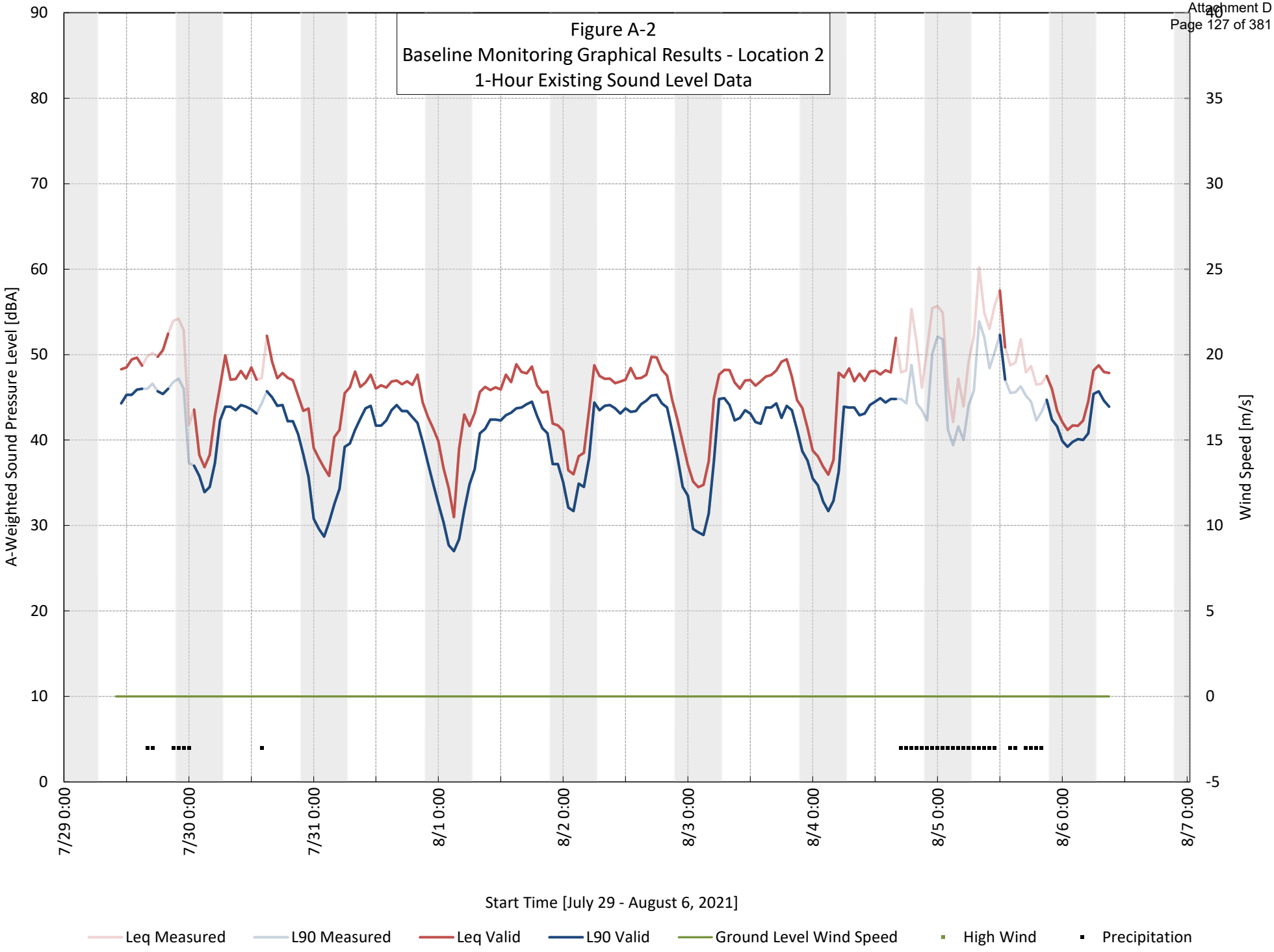


Figure A-2
Baseline Monitoring Graphical Results - Location 2
1-Hour Existing Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
90
80
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
-5
7/29 0:00
7/30 0:00
7/31 0:00
8/1 0:00
8/2 0:00
8/3 0:00
8/4 0:00
8/5 0:00
8/6 0:00
8/7 0:00
Start Time [July 29 - August 6, 2021]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation

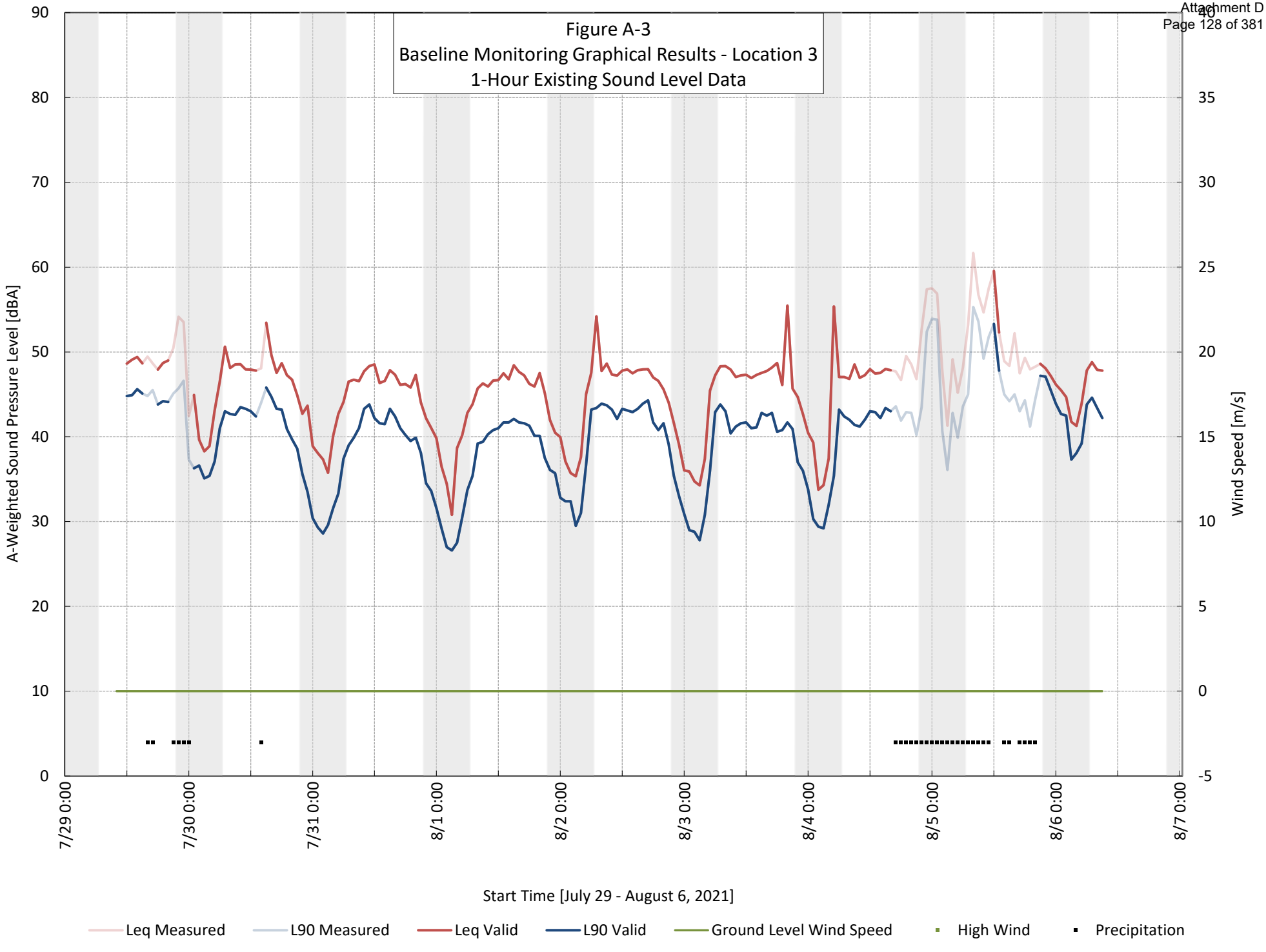


Figure A-3
Baseline Monitoring Graphical Results - Location 3
1-Hour Existing Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
90
80
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
-5
7/29 0:00
7/30 0:00
7/31 0:00
8/1 0:00
8/2 0:00
8/3 0:00
8/4 0:00
8/5 0:00
8/6 0:00
8/7 0:00
Start Time [July 29 - August 6, 2021]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation

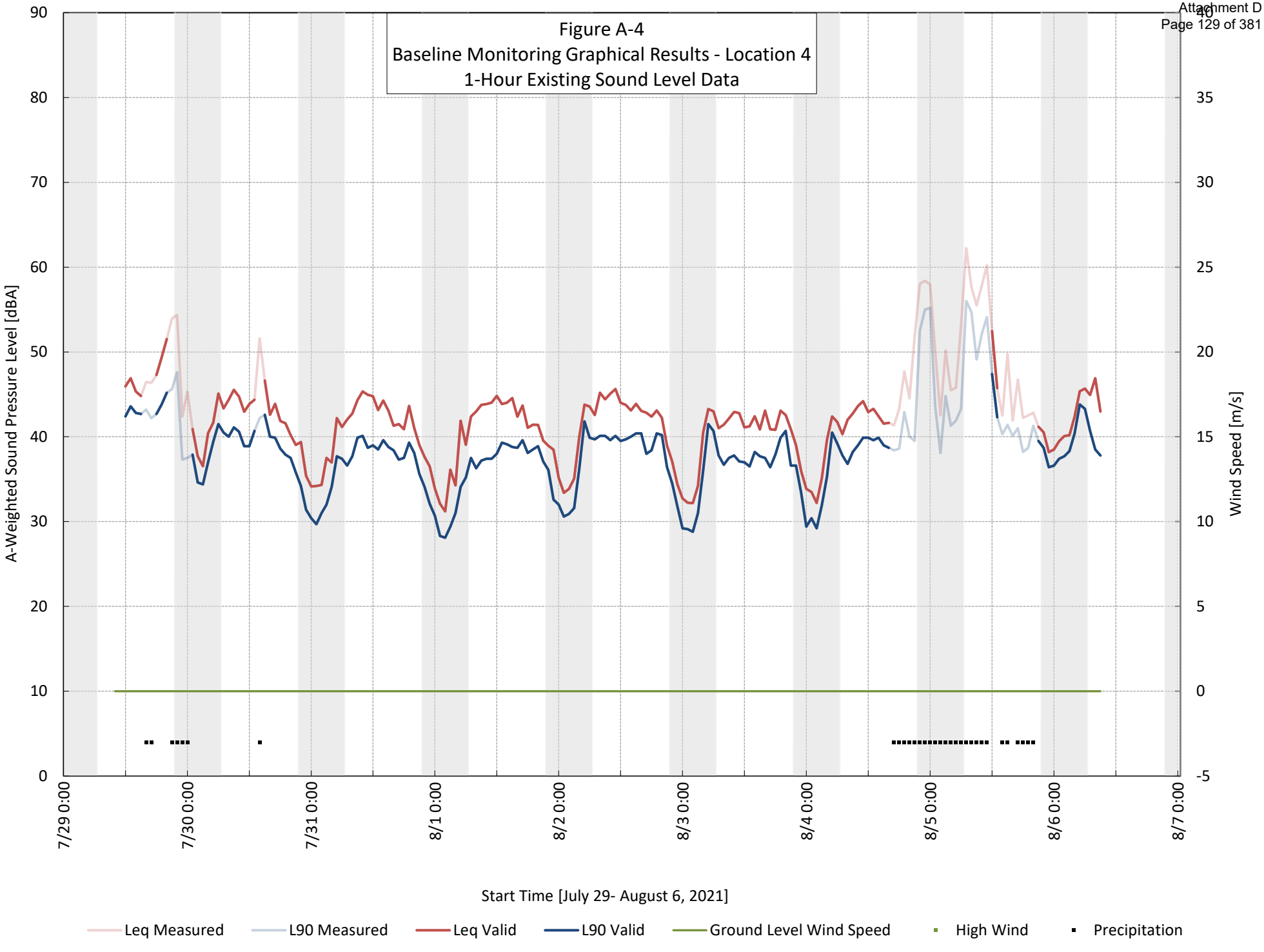


Figure A-4
Baseline Monitoring Graphical Results - Location 4
1-Hour Existing Sound Level Data
A-Weighted Sound Pressure Level [dBA]
Wind Speed [m/s]
90
80
70
60
50
40
30
20
10
0
40
35
30
25
20
15
10
5
0
-5
7/29 0:00
7/30 0:00
7/31 0:00
8/1 0:00
8/2 0:00
8/3 0:00
8/4 0:00
8/5 0:00
8/6 0:00
8/7 0:00
Start Time [July 29- August 6, 2021]
Leq Measured
L90 Measured
Leq Valid
L90 Valid
Ground Level Wind Speed
High Wind
Precipitation

Attachment I

Stormwater Management Plan

BURNS McDONNELL

Stormwater Management Plan

Medway Grid, LLC

Medway Grid Energy Storage Project
Project No. 124220

Revision 0
12/07/2021

Stormwater Management Plan

prepared for

Medway Grid, LLC
Medway Grid Energy Storage Project
Norfolk County, Massachusetts

Project No. 124220

Revision 0
12/07/2021

prepared by

Burns & McDonnell Engineering Co, Inc.

INDEX

Medway Grid, LLC
Stormwater Management Plan
Project No. 124220

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1.0 SITE CONDITIONS

1.1 Project Description

Medway Grid, LLC (Medway Grid) proposes to install a new battery storage system (BESS) called Medway Grid Energy Storage Project (Project) on an existing 10.6-acre parcel located along Milford Street. The parcel is partially wooded and partially developed with homes and an auto shop business. See Figure 1-1 for Project general vicinity map. The area of the property Medway Grid is proposing to disturb during construction is approximately 5.2 acres. The stormwater management design will meet or exceed the Massachusetts Stormwater Policy recommendations, and the Project will comply with MassDEP Stormwater Standards.

1.2 Existing Conditions

The Project site is in the Charles River Watershed. Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel No. 25021C0139E (July 17, 2021), the parcel is not located in the 100-year floodplain. However, the property does have Federal, state, and local wetland considerations. There is a stream on the eastern edge of the property that has a 100' wetland buffer. There is also a 200' Riverfront Area buffer overlapping the wetland buffer that makes up approximately half of the property.

The Project site is mostly an undisturbed wooded area with a few existing buildings and paving and a wetland stream on the eastern edge of the property. Currently 0.85 acres of the property has already been developed with buildings and pavement. The Project has been located to reuse these developed portions of the site to the maximum extent possible, reusing 0.79 acres of the 0.85 acres previously developed.

The site currently has two drainage areas that make up the Project site. The first drainage area is made up of 4.2 acres on the east side of the site, draining to the east into the existing stream bed. The second drainage area is one acre in the northwest corner of the site and drains to the northwest. The elevation ranges from 266 feet in the center of the site to 224 feet near the southeast end of the property.

1.2.1 Soil Types

From the site Web Soil Survey developed by the USDA, there are two soil types on the proposed Project site. There is a Canton fine sandy loam which has a hydrological soil group (HSG) classification of Type B and a Charlton-Hollis-Rock outcrop complex which has a hydrological soil group (HSG) classification of Type A. The soil resource report is included in Appendix B.

1.2.2 Rainfall Data

The Executive Order 569 directs the coordination of efforts across the Commonwealth to strengthen the resilience of communities, prepare for the impacts of climate change, and proactive plan for and mitigate damage from extreme weather events. The Massachusetts Environmental Policy Act (MEPA) Interim Protocol on Climate Change Adaptation and Resiliency complies with this Executive Order. The Interim Protocol includes the efforts of the Resilient Massachusetts Action Team (RMAT). The RMAT is advancing the "Climate Resilience Design Standards and Guidelines" project. The project is developing resilience standards, guidelines, and a project risk screening tool using climate science data and projections for Massachusetts in three critical areas: sea level rise/storm surge, extreme precipitation, and extreme heat.

The design standards for extreme precipitation include Total Precipitation Depth and Peak Intensity Design Criteria. For Tier 2 projects, a percent increase is applied to the National Oceanic and Atmospheric Administration (NOAA) median values based on the design life of the project. The Medway Grid Energy Storage Project has a design life of 20 years, so the Mid-Century (2030/2050) percent increases were used.

Table 1.1 Design Storm Frequency-Depth

Recurrence Interval (years)	NOAA Atlas 14 Present Baseline - 24hr (in)	Mid-Century (2030/2050) (in)
2	3.37	3.64
5	4.41	4.76
10	5.27	5.69
25	6.45	6.97
50	7.32	7.91
100	8.28	9.19

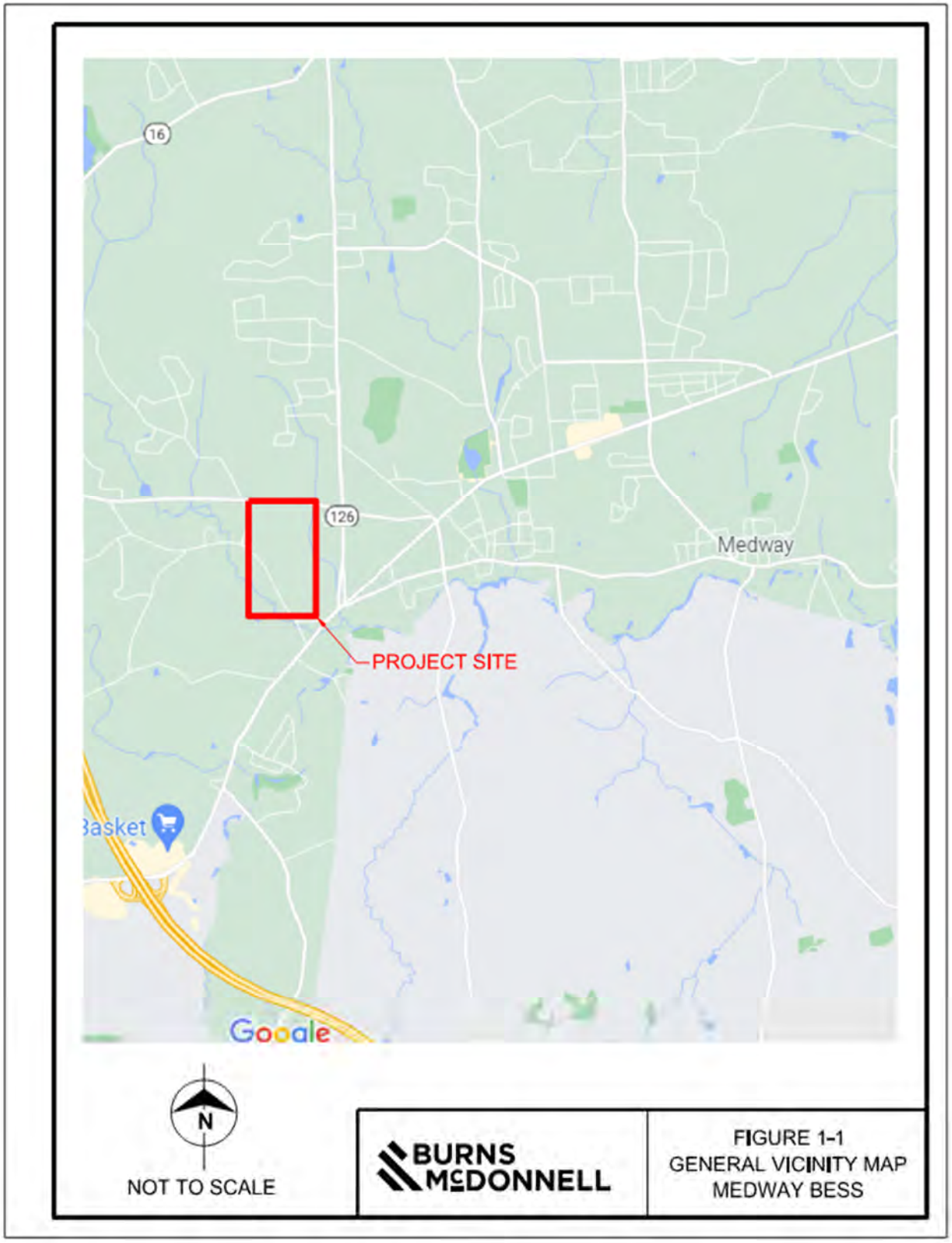
Rainfall depths for Medway, Massachusetts were obtained from the National Oceanic and Atmospheric Administration. The SCS rainfall distribution for this Project is Type III. The NOAA values were then increased by 8% for more frequent design storms, including the 2-yr, 5-yr, 10-yr, 25-yr, and 50-yr design

storms. For the 100-year design storm, the NOAA value was increased by 11%. See Table 1.1 for rainfall data. The Mid-Century design storm depths were used to design the stormwater systems to accommodate the more frequent and severe storm events occurring with climate change.

1.3 Proposed Conditions

Medway Grid is proposing to revise the property by installing a battery energy storage system. The Project site will be 5.2 acres, including 1.8 acres of impervious surfaces, 2.1 acres of crushed rock surfacing and roads, and 1.3 acre of vegetation. Grading of the substation and battery storage areas will have no greater than a 1.5% slope to facilitate operations and maintenance. There will be retaining walls needed on both the east and west sides of the Project site. Stormwater Best Management Practices (BMPs) will be implemented on site to control the quality and quantity of the stormwater discharge from the site. There will be perforated under-drains installed throughout the site that will catch runoff that has percolated through the crushed rock surfacing and direct it towards deep-sump catch basins that will pretreat the water. From these catch basins, the runoff will flow into subsurface infiltration structures which will recharge clean stormwater back into the ground. The treatment train of the deep-sump catch basins and the infiltration basins are expected to provide the required 80% TSS removal for the 0.5" Water Quality Volume. Excess runoff that does not infiltrate will be routed to a dry detention basin that will provide peak flow attenuation. The outfall of the dry detention basin will have rip rap lining to protect the channel from erosion as the stormwater leaves the site.

Prior to construction, the property has 0.85 acres of developed, impervious land. The construction of this Project will repurpose 0.79 acres of the property's impervious land along with adding some additional impervious surfaces, bringing the total impervious area for the Project site to 1.80 acres and the total impervious area for the property to 1.86 acres. The Project will install water treatment devices to treat the water per the Massachusetts Stormwater Handbook.


16
126
Medway
PROJECT SITE
Basket
Google
N
NOT TO SCALE
BURNS McDONNELL
FIGURE 1-1
GENERAL VICINITY MAP
MEDWAY BESS

2.0 HYDROLOGY AND HYDRAULICS

The stormwater management design for the Project has been developed to minimize the downstream effects of development at the Site. The stormwater management design will meet or exceed the Massachusetts Stormwater Policy recommendations, and the Project will comply with MassDEP Stormwater Standards.

2.1 Runoff Data

Bentley PondPack software was utilized to model the stormwater runoff at the site. The SCS TR-55 methodology was used for this model to calculate the pre and post developed runoff rates for storage design. Tables 2.1 & 2.2 provide detailed information regarding curve numbers, land coverages and times of concentration for the Project. See Figures 2-1 and 2-2 in Appendix E for pre-construction and post-construction drainage areas and flow paths.

Table 2.1 Land Coverages

Land Coverage	Pre-Developed Area (ac)	Pre-Developed Curve Number (CN)	Post-Developed Area (ac)	Post-Developed Curve Number (CN)
Impervious	0.8	98	1.8	98
Crushed Rock – HSG A	0	76	0.7	76
Crushed Rock – HSG B	0	85	1.4	85
Woods – HSG A	0.9	57	0	57
Woods – HSG B	3.5	73	0	73
Landscaped – HSG B	0	61	1.3	61
Total Area	5.2		5.2	
Weighted CN		74		82

Table 2.2 Times of Concentrations

Pre-Developed Time of Concentration (hrs)	Post-Developed Time of Concentration (hrs)
0.424	0.099

2.2 Stormwater Management Facilities

A dry detention basin is proposed to be used as a stormwater management facility (SMF) at the site to attenuate the effects of higher runoff rates from the development of the site. The trapezoidal basin will be excavated soil and vegetated with a grass bottom and side slopes for erosion protection.

The basin will have a bottom elevation of 236' and a top elevation of 243'. The basin will have a concrete outfall structure with orifices strategically positioned to manage the outflow for the 2-year, 10-year, and 100-year design storms. A single 24" corrugated high density polyethylene pipe will gravity drain the stormwater from the outfall of the pond to the east of the Project site, where the site naturally drained prior to construction. The outlet will be protected with rip rap for erosion control.

2.3 Massachusetts Department of Environmental Protection Checklist

Standard 1: No New Untreated Discharges

The proposed Project will not discharge untreated stormwater from the site. The stormwater BMPs will provide treatment in compliance with the Massachusetts Stormwater Handbook and the outfalls of all BMPs will be designed to prevent erosion as stormwater leaves the site.

Standard 2: Peak Rate Attenuation

The proposed dry detention basins will provide peak attenuation for the 2-year, 24-hour, 10-year, 24-hour, and 100-year, 24-hour design storms. Table 2.6 below shows the pre- and post-development peak flows. The PondPack report is provided in Appendix D.

Table 2.3 Site Flow Modeling Results

Return Frequency (yr)	Pre-Developed Flow (cfs)	Post-Developed Flow without SMF (cfs)	Post-Developed Flow with SMF (cfs)	Peak Pond Elevation with SMF (feet)
2	5.02	10.37	4.69	238.15
10	11.25	19.63	11.14	239.34
100	22.84	35.64	20.96	240.91

Standard 3: Recharge

Loss of annual recharge to groundwater shall be minimized for this Project through the use of stormwater BMPs. Calculations are included in Appendix C.

Standard 4: Water Quality

The Project site has been designed with treatment BMPs that will meet the 80% TSS removal requirement based on the 0.5" Water Quality Volume. Calculations are provided in Appendix C.

Standard 5: Land Uses With Higher Potential Pollutant Loads

The Project site is not a designated site with high potential pollutant loads and therefore this standard does not apply.

Standard 6: Critical Areas

The Project site is not within an area determined to be critical and therefore this standard does not apply.

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

This Project is not a redevelopment and therefore this standard does not apply.

Standard 8: Construction Period Pollution Prevention and Erosion and Sediment Control

Soil erosion and sediment control measures will be implemented on site and a Stormwater Pollution Prevention Plan (SWPPP) with BMP devices will be prepared for the site and presented at a later date.

Standard 9: Operation and Maintenance Plan

Medway Grid is responsible for the operation and maintenance of the proposed Project. A long-term operation and maintenance plan will be prepared for the site and presented at a later date.

Standard 10: Prohibition of Illicit Discharges

There will be no illicit discharges on the Project site. Medway Grid will be responsible for adhering to the Maintenance and Operations Plan and preventing illicit discharges. Medway Grid will also file an Illicit Discharge Compliance Statement verifying that no unauthorized discharges exist on site and will include measures in the SWPPP to prevent illicit discharges into the stormwater system.

3.0 SOIL EROSION AND SEDIMENT CONTROL MEASURES

A soil erosion and sediment control plan and associated details have been developed to control sediment during construction activities. Silt fence will be installed around the perimeter of the areas to be disturbed prior to beginning construction. The silt fence will also be placed along the stormwater pond and around the soil stockpiles. The Project entrance will be stabilized with a 1.5" to 3" stone vehicle tracking pad to minimize sediment transport away from the site. Erosion control practices will be kept in place until the area has been permanently stabilized.

4.0 CONCLUSIONS

To accommodate the change in stormwater runoff by this Project, low-impact development strategies were selected in accordance with Volume 2, Chapter 2 of the Massachusetts Stormwater Handbook. The LID treatment train includes a network of perforated curtain drains, deep-sump catch basins, subsurface infiltration structures, a dry detention basin, and proprietary vortex units. Combined with the deep sump catch basins for pre-treatment, the subsurface infiltration structures are designed to attain the required 80% TSS removal rates and provide groundwater recharge. The dry detention basin is sized to attenuate peak discharges from the 2-, 10-, and 100-year storm events and will not exceed pre-development flow rates. The basin has an emergency spillway designed to safely pass stormwater from a storm greater than a 100-year, 24-hour storm event.

The rainfall depths used for the stormwater design for the Medway Grid Energy Storage Project were increased in accordance with the "Climate Resilience Design Standards and Guidelines" published by Massachusetts Environmental Policy Act. Rainfall depths for Medway, Massachusetts were obtained from the National Oceanic and Atmospheric Administration. The NOAA values were then increased by specific percentages based on the design life of the Project. The design life of the Project is expected to be 20 years, therefore the Mid-Century (2030/2050) percent increases were used to design the stormwater systems to accommodate the more frequent and severe storm events occurring with climate change.

APPENDIX A – FEMA FIRM PANEL

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Massachusetts State Plane Mainland Zone (FIPS zone 2001). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from digital orthophotography. Base map files were provided in digital format by Massachusetts Geographic Information Systems (MassGIS). Ortho imagery was produced at a scale of 1:5,000. Aerial photography is dated April 2005.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

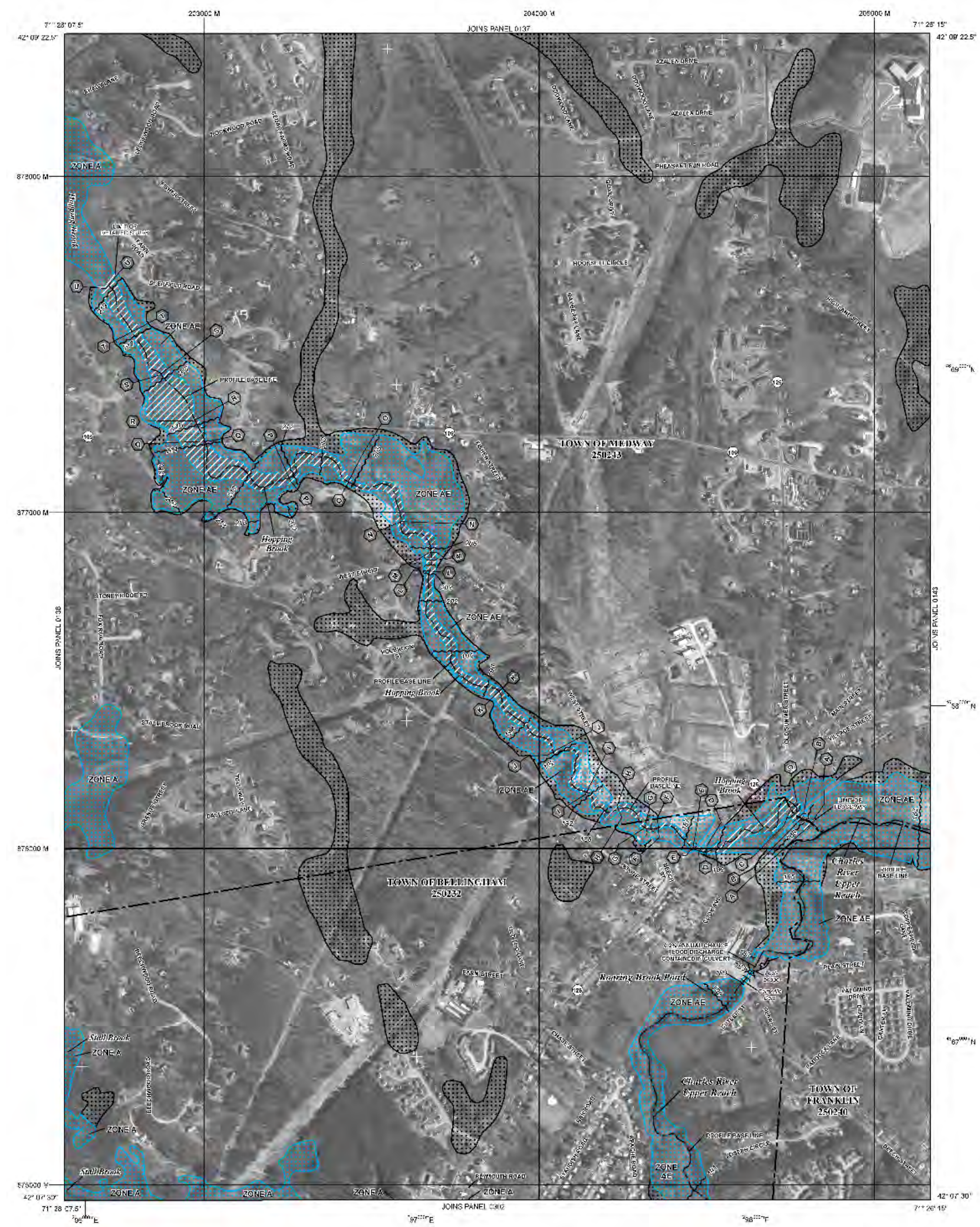
Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center** (MSC) website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange (FMIX) at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% Annual Chance Floodplain Boundary
- 0.2% Annual Chance Floodplain Boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
- ~~~513~~~ Base Flood Elevation line and value; elevation in feet*
- (EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- (A)—(A) Cross section line
- (23)- - -(23) Transect line
- Culvert
- Bridge
- 45° 02' 08", 93° 02' 12" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
- 4989000 M 1000-meter ticks: Massachusetts State Plane Mainland Zone (FIPS Zone 2001), Lambert Conformal Conic projection
- 5000000 N 1000-meter Universal Transverse Mercator grid values, zone 19N
- DX5510 × Bench mark (see explanation in Notes to Users section of this FIRM panel)
- • M1.5 River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
July 17, 2012

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0139E

FIRM
FLOOD INSURANCE RATE MAP
NORFOLK COUNTY, MASSACHUSETTS (ALL JURISDICTIONS)

PANEL 139 OF 430
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BELLINGHAM, TOWN OF	250232	0139	E
FRANKLIN, TOWN OF	250240	0139	E
MEDWAY, TOWN OF	250243	0139	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

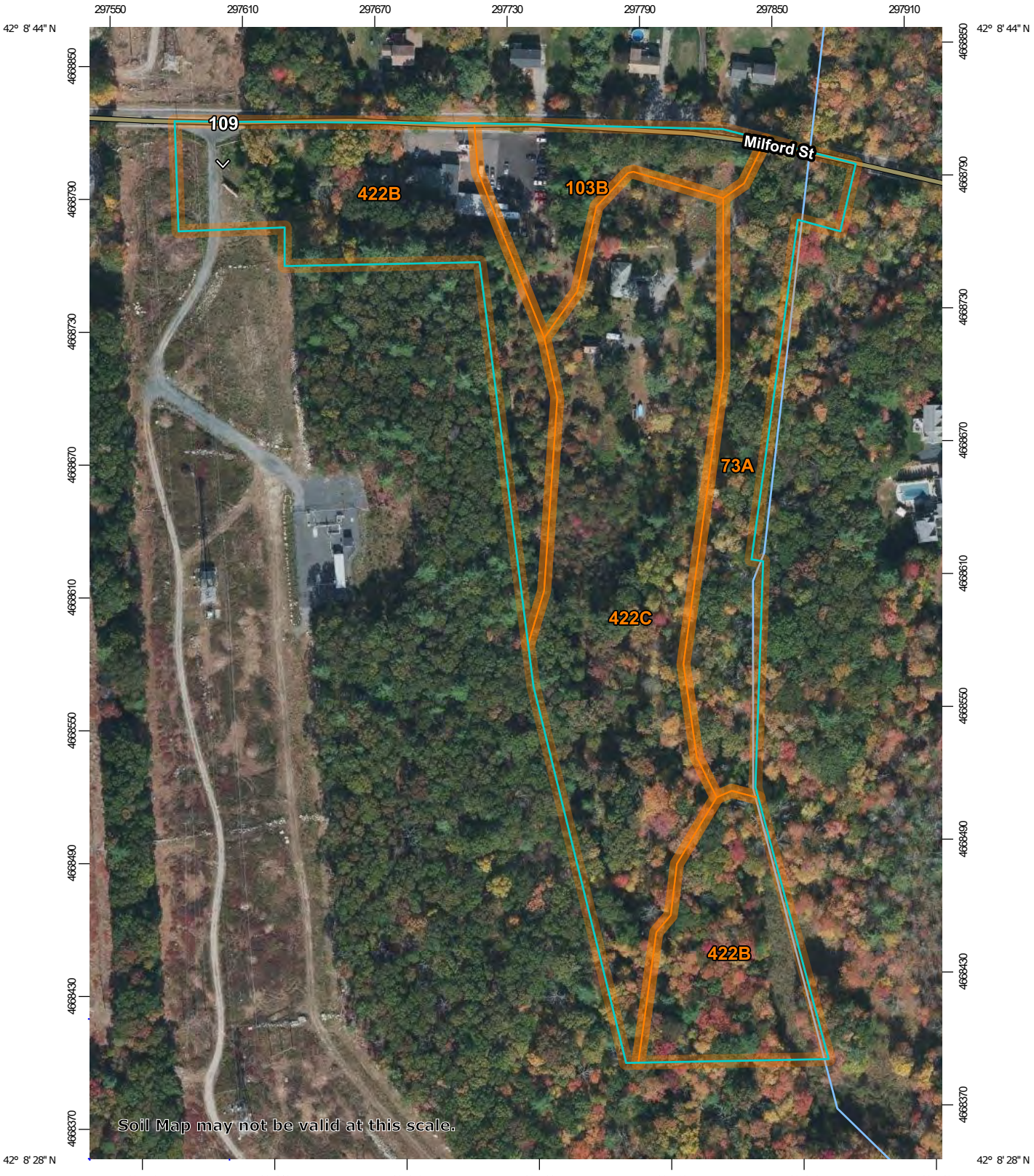
MAP NUMBER
25021C0139E

EFFECTIVE DATE
JULY 17, 2012

Federal Emergency Management Agency

APPENDIX B – SOIL RESOURCE REPORT

Soil Map—Norfolk and Suffolk Counties, Massachusetts
(Medway Grid Energy Storage Project)



Map Scale: 1:2,490 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

Soil Map—Norfolk and Suffolk Counties, Massachusetts
(Medway Grid Energy Storage Project)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 17, Sep 3, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

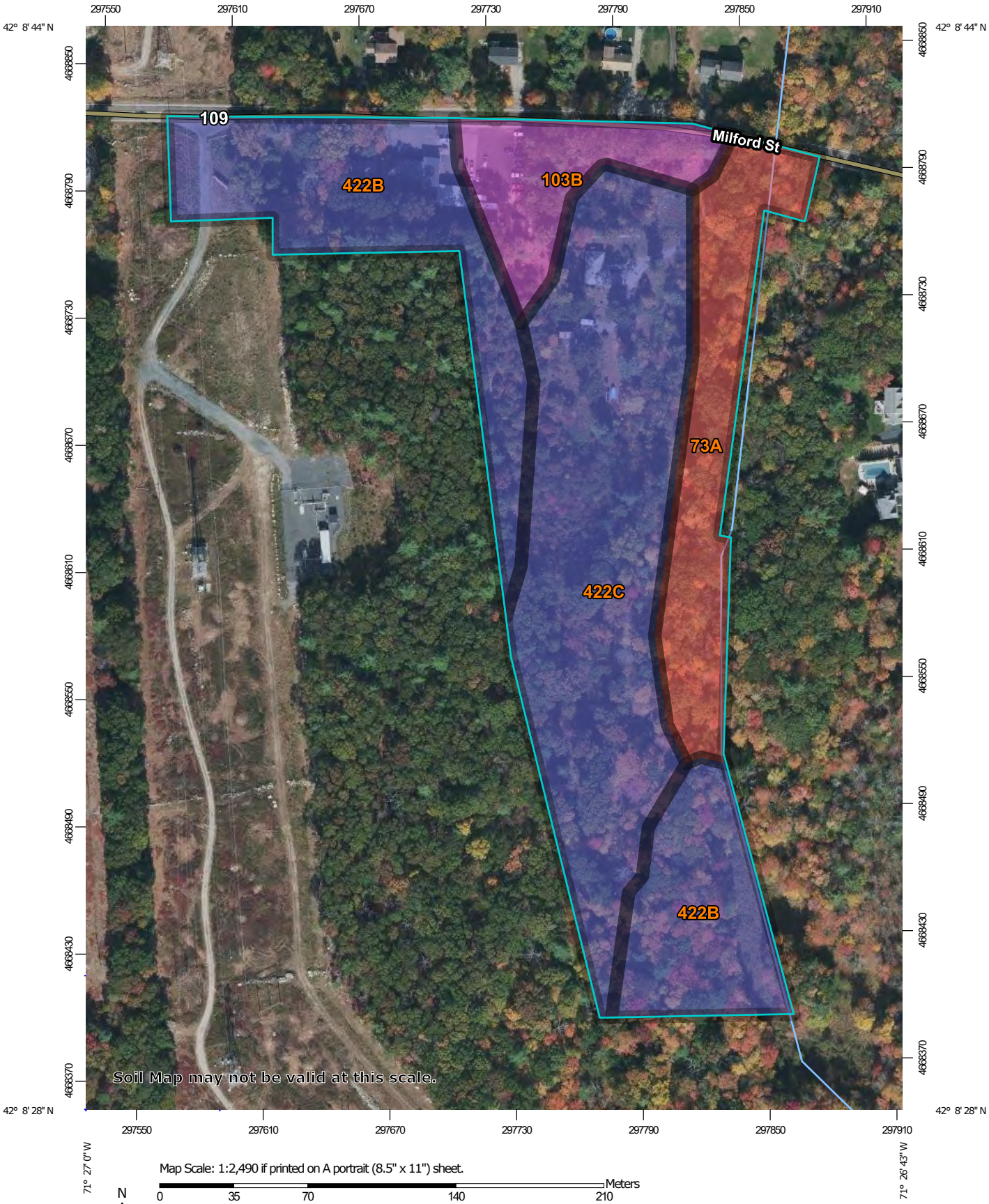
Date(s) aerial images were photographed: Aug 31, 2020—Oct 22, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
73A	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	2.2	15.9%
103B	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes	1.3	9.7%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	4.6	33.0%
422C	Canton fine sandy loam, 8 to 15 percent slopes, extremely stony	5.7	41.4%
Totals for Area of Interest		**13.8**	**100.0%**

Hydrologic Soil Group—Norfolk and Suffolk Counties, Massachusetts
(Medway Grid Energy Storage Project)



Map Scale: 1:2,490 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

Hydrologic Soil Group—Norfolk and Suffolk Counties, Massachusetts
(Medway Grid Energy Storage Project)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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

Soil Survey Area: Norfolk and Suffolk Counties, Massachusetts
Survey Area Data: Version 17, Sep 3, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 31, 2020—Oct 22, 2020

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
73A	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	D	2.2	15.9%
103B	Charlton-Hollis-Rock outcrop complex, 3 to 8 percent slopes	A	1.3	9.7%
422B	Canton fine sandy loam, 0 to 8 percent slopes, extremely stony	B	4.6	33.0%
422C	Canton fine sandy loam, 8 to 15 percent slopes, extremely stony	B	5.7	41.4%
Totals for Area of Interest			**13.8**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX C – STORMWATER QUALITY CALCULATIONS

BURNS McDONNELL

Client *Medway Grid* Page _____ of *1*
Project *Medway BESS* Date 12/06/21 Made By *ERA*
Checked By _____
WATER QUALITY CALCULATIONS Preliminary x Final _____

1. REQUIREMENT

PER STANDARD 4, STORMWATER MANAGEMENT SYSTEMS SHALL BE DESIGNED TO REMOVE 80% OF THE AVERAGE ANNUAL POST-CONSTRUCTION LOAD OF TSS. BMPS MUST BE SIZED TO CAPTURE THE REQUIRED WQV.

2. WQv CALCULATION

REQUIRED WATER QUALITY VOLUME EQUALS 0.5 INCHES OF RUNOFF TIMES THE TOTAL IMPERVIOUS AREA OF THE POST-DEVELOPMENT SITE.

IMPERVIOUS AREA= 1.8 ACRES

WQv = 3,267 CF

3. GROUNDWATER RECHARGE VOLUME

THE NRCS HYDROLOGIC GROUP FOR THE SITE SOIL IS A COMBINATION OF A AND B. THEREFORE, A WEIGHTED INFILTRATION RATE OF 0.41 INCHES WAS USED PER THE MASSACHUSETTS STORMWATER HANDBOOK.

THE REQUIRED RECHARGE VOLUME IS CALCULATED BY MULTIPLYING THE TOTAL IMPERVOUS AREA BY THE INFILTRATION RATE.

RRv= 2,679 CF

APPENDIX D – PONDPACK REPORT

Stormwater Report

Project Summary	
Title	Medway Grid Energy Storage Project
Engineer	E. Asnicar
Company	Burns & McDonnell
Date	12/9/2021

Notes

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Stormwater Report

Subsection: User Notifications

User Notifications

Message Id	15
Scenario	100yr, 24hr
Element Type	Composite Outlet Structure
Element Id	49
Label	BESS Outlet Structure
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	15
Scenario	10yr, 24hr
Element Type	Composite Outlet Structure
Element Id	49
Label	BESS Outlet Structure
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning
Message Id	15
Scenario	2yr, 24hr
Element Type	Composite Outlet Structure
Element Id	49
Label	BESS Outlet Structure
Time	(N/A)
Message	Kr (reverse flow entrance loss coefficient) was not specified. Kr was set to same value as Ke= 0.200 .
Source	Warning

Stormwater Report

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
West-Pre	2yr, 24hr	2	0.133	12.150	1.44
West-Pre	10yr, 24hr	10	0.269	12.150	2.94
West-Pre	100yr, 24hr	100	0.524	12.150	5.61
EastPre	2yr, 24hr	2	0.444	12.350	3.58
EastPre	10yr, 24hr	10	0.988	12.300	8.31
EastPre	100yr, 24hr	100	2.050	12.300	17.23
Substation-Post	2yr, 24hr	2	0.179	12.100	2.23
Substation-Post	10yr, 24hr	10	0.340	12.100	4.12
Substation-Post	100yr, 24hr	100	0.629	12.100	7.37
Main BESS	2yr, 24hr	2	0.507	12.100	6.23
Main BESS	10yr, 24hr	10	1.002	12.100	12.16
Main BESS	100yr, 24hr	100	1.911	12.100	22.51
West-Post	2yr, 24hr	2	0.156	12.100	1.91
West-Post	10yr, 24hr	10	0.282	12.100	3.35
West-Post	100yr, 24hr	100	0.505	12.100	5.76

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
01-WestPre	2yr, 24hr	2	0.133	12.150	1.44
01-WestPre	10yr, 24hr	10	0.269	12.150	2.94
01-WestPre	100yr, 24hr	100	0.524	12.150	5.61
02-EastPre	2yr, 24hr	2	0.444	12.350	3.58
02-EastPre	10yr, 24hr	10	0.988	12.300	8.31
02-EastPre	100yr, 24hr	100	2.050	12.300	17.23
04-BESS-Post	2yr, 24hr	2	0.797	12.300	4.69
04-BESS-Post	10yr, 24hr	10	1.577	12.250	11.14
04-BESS-Post	100yr, 24hr	100	2.996	12.200	20.96

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
MainPond (IN)	2yr, 24hr	2	0.842	12.100	10.37	(N/A)	(N/A)
MainPond (OUT)	2yr, 24hr	2	0.797	12.300	4.69	238.15	0.214
MainPond (IN)	10yr, 24hr	10	1.624	12.100	19.63	(N/A)	(N/A)

Stormwater Report

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
MainPond (OUT)	10yr, 24hr	10	1.577	12.250	11.14	239.34	0.373
MainPond (IN)	100yr, 24hr	100	3.046	12.100	35.64	(N/A)	(N/A)
MainPond (OUT)	100yr, 24hr	100	2.996	12.200	20.96	240.91	0.633

Stormwater Report

Subsection: Time-Depth Curve
Label: 24hr
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time-Depth Curve: 100yr, 24hr	
Label	100yr, 24hr
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.1	0.1	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.2	0.2	0.2
2.000	0.2	0.2	0.2	0.2	0.2
2.500	0.2	0.2	0.3	0.3	0.3
3.000	0.3	0.3	0.3	0.3	0.3
3.500	0.3	0.3	0.4	0.4	0.4
4.000	0.4	0.4	0.4	0.4	0.4
4.500	0.5	0.5	0.5	0.5	0.5
5.000	0.5	0.5	0.5	0.6	0.6
5.500	0.6	0.6	0.6	0.6	0.6
6.000	0.7	0.7	0.7	0.7	0.7
6.500	0.7	0.8	0.8	0.8	0.8
7.000	0.8	0.9	0.9	0.9	0.9
7.500	0.9	1.0	1.0	1.0	1.0
8.000	1.0	1.1	1.1	1.1	1.2
8.500	1.2	1.2	1.2	1.3	1.3
9.000	1.3	1.4	1.4	1.4	1.5
9.500	1.5	1.6	1.6	1.6	1.7
10.000	1.7	1.8	1.8	1.9	1.9
10.500	2.0	2.0	2.1	2.2	2.2
11.000	2.3	2.4	2.4	2.5	2.6
11.500	2.7	2.9	3.1	3.4	3.8
12.000	4.6	5.4	5.8	6.1	6.3
12.500	6.5	6.6	6.7	6.7	6.8
13.000	6.9	7.0	7.0	7.1	7.1
13.500	7.2	7.3	7.3	7.4	7.4
14.000	7.5	7.5	7.5	7.6	7.6
14.500	7.7	7.7	7.7	7.8	7.8
15.000	7.9	7.9	7.9	7.9	8.0
15.500	8.0	8.0	8.1	8.1	8.1
16.000	8.1	8.2	8.2	8.2	8.2
16.500	8.3	8.3	8.3	8.3	8.3

Stormwater Report

Subsection: Time-Depth Curve
Label: 24hr
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.000	8.4	8.4	8.4	8.4	8.4
17.500	8.4	8.5	8.5	8.5	8.5
18.000	8.5	8.5	8.6	8.6	8.6
18.500	8.6	8.6	8.6	8.6	8.7
19.000	8.7	8.7	8.7	8.7	8.7
19.500	8.7	8.7	8.8	8.8	8.8
20.000	8.8	8.8	8.8	8.8	8.8
20.500	8.9	8.9	8.9	8.9	8.9
21.000	8.9	8.9	8.9	8.9	9.0
21.500	9.0	9.0	9.0	9.0	9.0
22.000	9.0	9.0	9.0	9.0	9.1
22.500	9.1	9.1	9.1	9.1	9.1
23.000	9.1	9.1	9.1	9.1	9.1
23.500	9.1	9.2	9.2	9.2	9.2
24.000	9.2	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Time-Depth Curve
Label: 24hr
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time-Depth Curve: 10yr, 24hr	
Label	10yr, 24hr
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.2	0.2	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.3	0.3	0.3	0.3
4.500	0.3	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.4
5.500	0.4	0.4	0.4	0.4	0.4
6.000	0.4	0.4	0.4	0.4	0.4
6.500	0.5	0.5	0.5	0.5	0.5
7.000	0.5	0.5	0.5	0.6	0.6
7.500	0.6	0.6	0.6	0.6	0.6
8.000	0.6	0.7	0.7	0.7	0.7
8.500	0.7	0.7	0.8	0.8	0.8
9.000	0.8	0.9	0.9	0.9	0.9
9.500	0.9	1.0	1.0	1.0	1.0
10.000	1.1	1.1	1.1	1.2	1.2
10.500	1.2	1.3	1.3	1.3	1.4
11.000	1.4	1.5	1.5	1.6	1.6
11.500	1.7	1.8	1.9	2.1	2.4
12.000	2.8	3.3	3.6	3.8	3.9
12.500	4.0	4.1	4.1	4.2	4.2
13.000	4.3	4.3	4.3	4.4	4.4
13.500	4.5	4.5	4.5	4.6	4.6
14.000	4.6	4.6	4.7	4.7	4.7
14.500	4.7	4.8	4.8	4.8	4.8
15.000	4.9	4.9	4.9	4.9	4.9
15.500	5.0	5.0	5.0	5.0	5.0
16.000	5.0	5.1	5.1	5.1	5.1
16.500	5.1	5.1	5.1	5.2	5.2

Stormwater Report

Subsection: Time-Depth Curve
Label: 24hr
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.000	5.2	5.2	5.2	5.2	5.2
17.500	5.2	5.2	5.3	5.3	5.3
18.000	5.3	5.3	5.3	5.3	5.3
18.500	5.3	5.3	5.3	5.4	5.4
19.000	5.4	5.4	5.4	5.4	5.4
19.500	5.4	5.4	5.4	5.4	5.4
20.000	5.4	5.5	5.5	5.5	5.5
20.500	5.5	5.5	5.5	5.5	5.5
21.000	5.5	5.5	5.5	5.5	5.5
21.500	5.5	5.6	5.6	5.6	5.6
22.000	5.6	5.6	5.6	5.6	5.6
22.500	5.6	5.6	5.6	5.6	5.6
23.000	5.6	5.6	5.6	5.7	5.7
23.500	5.7	5.7	5.7	5.7	5.7
24.000	5.7	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Time-Depth Curve
Label: 24hr
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time-Depth Curve: 2yr, 24hr	
Label	2yr, 24hr
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.1
3.500	0.1	0.1	0.1	0.1	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.2	0.2	0.2	0.2	0.2
5.000	0.2	0.2	0.2	0.2	0.2
5.500	0.2	0.2	0.2	0.3	0.3
6.000	0.3	0.3	0.3	0.3	0.3
6.500	0.3	0.3	0.3	0.3	0.3
7.000	0.3	0.3	0.3	0.4	0.4
7.500	0.4	0.4	0.4	0.4	0.4
8.000	0.4	0.4	0.4	0.4	0.5
8.500	0.5	0.5	0.5	0.5	0.5
9.000	0.5	0.5	0.6	0.6	0.6
9.500	0.6	0.6	0.6	0.7	0.7
10.000	0.7	0.7	0.7	0.7	0.8
10.500	0.8	0.8	0.8	0.9	0.9
11.000	0.9	0.9	1.0	1.0	1.0
11.500	1.1	1.1	1.2	1.4	1.5
12.000	1.8	2.1	2.3	2.4	2.5
12.500	2.6	2.6	2.6	2.7	2.7
13.000	2.7	2.8	2.8	2.8	2.8
13.500	2.9	2.9	2.9	2.9	2.9
14.000	3.0	3.0	3.0	3.0	3.0
14.500	3.0	3.1	3.1	3.1	3.1
15.000	3.1	3.1	3.1	3.1	3.2
15.500	3.2	3.2	3.2	3.2	3.2
16.000	3.2	3.2	3.2	3.3	3.3
16.500	3.3	3.3	3.3	3.3	3.3

Stormwater Report

Subsection: Time-Depth Curve
Label: 24hr
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.000	3.3	3.3	3.3	3.3	3.3
17.500	3.3	3.4	3.4	3.4	3.4
18.000	3.4	3.4	3.4	3.4	3.4
18.500	3.4	3.4	3.4	3.4	3.4
19.000	3.4	3.4	3.4	3.4	3.5
19.500	3.5	3.5	3.5	3.5	3.5
20.000	3.5	3.5	3.5	3.5	3.5
20.500	3.5	3.5	3.5	3.5	3.5
21.000	3.5	3.5	3.5	3.5	3.5
21.500	3.5	3.6	3.6	3.6	3.6
22.000	3.6	3.6	3.6	3.6	3.6
22.500	3.6	3.6	3.6	3.6	3.6
23.000	3.6	3.6	3.6	3.6	3.6
23.500	3.6	3.6	3.6	3.6	3.6
24.000	3.6	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Time of Concentration Calculations
Label: EastPre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	49.50 ft
Manning's n	0.200
Slope	0.180 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.29 ft/s
Segment Time of Concentration	0.047 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	188.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.032 hours

Segment #3: TR-55 Sheet Flow	
Hydraulic Length	139.00 ft
Manning's n	0.200
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.11 ft/s
Segment Time of Concentration	0.344 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.424 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: EastPre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Stormwater Report

Subsection: Time of Concentration Calculations
Label: EastPre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	49.50 ft
Manning's n	0.200
Slope	0.180 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.29 ft/s
Segment Time of Concentration	0.047 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	188.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.032 hours

Segment #3: TR-55 Sheet Flow	
Hydraulic Length	139.00 ft
Manning's n	0.200
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.11 ft/s
Segment Time of Concentration	0.344 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.424 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: EastPre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Stormwater Report

Subsection: Time of Concentration Calculations
Label: EastPre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	49.50 ft
Manning's n	0.200
Slope	0.180 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.29 ft/s
Segment Time of Concentration	0.047 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	188.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.032 hours

Segment #3: TR-55 Sheet Flow	
Hydraulic Length	139.00 ft
Manning's n	0.200
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.11 ft/s
Segment Time of Concentration	0.344 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.424 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: EastPre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

==== SCS Channel Flow

Tc =
R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =
Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Main BESS
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	158.00 ft
Manning's n	0.020
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.73 ft/s
Segment Time of Concentration	0.060 hours

Segment #2: TR-55 Channel Flow	
Flow Area	0.9 ft²
Hydraulic Length	372.00 ft
Manning's n	0.020
Slope	0.005 ft/ft
Wetted Perimeter	2.48 ft
Average Velocity	2.68 ft/s
Segment Time of Concentration	0.039 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.099 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Main BESS
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours
	n= Manning's n
	Lf= Flow length, feet
	P= 2yr, 24hr Rain depth, inches
	Sf= Slope, %

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Main BESS
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	158.00 ft
Manning's n	0.020
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.73 ft/s
Segment Time of Concentration	0.060 hours

Segment #2: TR-55 Channel Flow	
Flow Area	0.9 ft²
Hydraulic Length	372.00 ft
Manning's n	0.020
Slope	0.005 ft/ft
Wetted Perimeter	2.48 ft
Average Velocity	2.68 ft/s
Segment Time of Concentration	0.039 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.099 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Main BESS
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours
	n= Manning's n
	Lf= Flow length, feet
	P= 2yr, 24hr Rain depth, inches
	Sf= Slope, %

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Main BESS
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	158.00 ft
Manning's n	0.020
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.73 ft/s
Segment Time of Concentration	0.060 hours

Segment #2: TR-55 Channel Flow	
Flow Area	0.9 ft²
Hydraulic Length	372.00 ft
Manning's n	0.020
Slope	0.005 ft/ft
Wetted Perimeter	2.48 ft
Average Velocity	2.68 ft/s
Segment Time of Concentration	0.039 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.099 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Main BESS
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours
	n= Manning's n
	Lf= Flow length, feet
	P= 2yr, 24hr Rain depth, inches
	Sf= Slope, %

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Substation-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	107.00 ft
Manning's n	0.020
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.67 ft/s
Segment Time of Concentration	0.044 hours

Segment #2: TR-55 Channel Flow	
Flow Area	0.9 ft²
Hydraulic Length	231.00 ft
Manning's n	0.015
Slope	0.005 ft/ft
Wetted Perimeter	2.48 ft
Average Velocity	3.55 ft/s
Segment Time of Concentration	0.018 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Substation-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n (Lf / V) / 3600
Where:	R= Hydraulic radius Aq= Flow area, square feet Wp= Wetted perimeter, feet V= Velocity, ft/sec Sf= Slope, ft/ft n= Manning's n Tc= Time of concentration, hours Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours n= Manning's n Lf= Flow length, feet P= 2yr, 24hr Rain depth, inches Sf= Slope, %

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Substation-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	107.00 ft
Manning's n	0.020
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.67 ft/s
Segment Time of Concentration	0.044 hours

Segment #2: TR-55 Channel Flow	
Flow Area	0.9 ft²
Hydraulic Length	231.00 ft
Manning's n	0.015
Slope	0.005 ft/ft
Wetted Perimeter	2.48 ft
Average Velocity	3.55 ft/s
Segment Time of Concentration	0.018 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Substation-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours
	n= Manning's n
	Lf= Flow length, feet
	P= 2yr, 24hr Rain depth, inches
	Sf= Slope, %

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Substation-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	107.00 ft
Manning's n	0.020
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.67 ft/s
Segment Time of Concentration	0.044 hours

Segment #2: TR-55 Channel Flow	
Flow Area	0.9 ft²
Hydraulic Length	231.00 ft
Manning's n	0.015
Slope	0.005 ft/ft
Wetted Perimeter	2.48 ft
Average Velocity	3.55 ft/s
Segment Time of Concentration	0.018 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: Substation-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours
	n= Manning's n
	Lf= Flow length, feet
	P= 2yr, 24hr Rain depth, inches
	Sf= Slope, %

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	179.00 ft
Manning's n	0.020
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.75 ft/s
Segment Time of Concentration	0.067 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	179.00 ft
Manning's n	0.020
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.75 ft/s
Segment Time of Concentration	0.067 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	179.00 ft
Manning's n	0.020
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.75 ft/s
Segment Time of Concentration	0.067 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Pre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	87.00 ft
Manning's n	0.400
Slope	0.069 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.13 ft/s
Segment Time of Concentration	0.190 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	80.00 ft
Is Paved?	False
Slope	0.063 ft/ft
Average Velocity	4.03 ft/s
Segment Time of Concentration	0.006 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.196 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Pre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface:
	V = 16.1345 * (Sf**0.5)
	Paved Surface:
	V = 20.3282 * (Sf**0.5)
	(Lf / V) / 3600
Where:	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	Tc= Time of concentration, hours
	Lf= Flow length, feet

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Pre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	87.00 ft
Manning's n	0.400
Slope	0.069 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.13 ft/s
Segment Time of Concentration	0.190 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	80.00 ft
Is Paved?	False
Slope	0.063 ft/ft
Average Velocity	4.03 ft/s
Segment Time of Concentration	0.006 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.196 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Pre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Pre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	87.00 ft
Manning's n	0.400
Slope	0.069 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	0.13 ft/s
Segment Time of Concentration	0.190 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	80.00 ft
Is Paved?	False
Slope	0.063 ft/ft
Average Velocity	4.03 ft/s
Segment Time of Concentration	0.006 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.196 hours

Stormwater Report

Subsection: Time of Concentration Calculations
Label: West-Pre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

==== SCS Channel Flow

Tc =	R = Qa / Wp V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n (Lf / V) / 3600
Where:	R= Hydraulic radius Aq= Flow area, square feet Wp= Wetted perimeter, feet V= Velocity, ft/sec Sf= Slope, ft/ft n= Manning's n Tc= Time of concentration, hours Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface: V = 16.1345 * (Sf**0.5) Paved Surface: V = 20.3282 * (Sf**0.5) (Lf / V) / 3600
Where:	V= Velocity, ft/sec Sf= Slope, ft/ft Tc= Time of concentration, hours Lf= Flow length, feet

Stormwater Report

Subsection: Runoff CN-Area
Label: EastPre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
impervious	98.000	0.543	0.0	0.0	98.000
woods - group A	57.000	0.862	0.0	0.0	57.000
woods - group B	73.000	2.798	0.0	0.0	73.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	4.203	(N/A)	(N/A)	72.950

Stormwater Report

Subsection: Runoff CN-Area
Label: EastPre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
impervious	98.000	0.543	0.0	0.0	98.000
woods - group A	57.000	0.862	0.0	0.0	57.000
woods - group B	73.000	2.798	0.0	0.0	73.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	4.203	(N/A)	(N/A)	72.950

Stormwater Report

Subsection: Runoff CN-Area
Label: EastPre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
impervious	98.000	0.543	0.0	0.0	98.000
woods - group A	57.000	0.862	0.0	0.0	57.000
woods - group B	73.000	2.798	0.0	0.0	73.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	4.203	(N/A)	(N/A)	72.950

Stormwater Report

Subsection: Runoff CN-Area
Label: Main BESS
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
landscaping/trees	61.000	0.258	0.0	0.0	61.000
grass	61.000	0.718	0.0	0.0	61.000
impervious	98.000	0.718	0.0	0.0	98.000
crushed rock - group A	76.000	0.742	0.0	0.0	76.000
crushed rock - group B	85.000	0.416	0.0	0.0	85.000
paved roads	98.000	0.490	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	3.341	(N/A)	(N/A)	80.697

Stormwater Report

Subsection: Runoff CN-Area
Label: Main BESS
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
landscaping/trees	61.000	0.258	0.0	0.0	61.000
grass	61.000	0.718	0.0	0.0	61.000
impervious	98.000	0.718	0.0	0.0	98.000
crushed rock - group A	76.000	0.742	0.0	0.0	76.000
crushed rock - group B	85.000	0.416	0.0	0.0	85.000
paved roads	98.000	0.490	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	3.341	(N/A)	(N/A)	80.697

Stormwater Report

Subsection: Runoff CN-Area
Label: Main BESS
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
landscaping/trees	61.000	0.258	0.0	0.0	61.000
grass	61.000	0.718	0.0	0.0	61.000
impervious	98.000	0.718	0.0	0.0	98.000
crushed rock - group A	76.000	0.742	0.0	0.0	76.000
crushed rock - group B	85.000	0.416	0.0	0.0	85.000
paved roads	98.000	0.490	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	3.341	(N/A)	(N/A)	80.697

Stormwater Report

Subsection: Runoff CN-Area
Label: Substation-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
impervious	98.000	0.102	0.0	0.0	98.000
grass	61.000	0.186	0.0	0.0	61.000
crushed rock	85.000	0.624	0.0	0.0	85.000
paved roads	98.000	0.132	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.044	(N/A)	(N/A)	83.642

Stormwater Report

Subsection: Runoff CN-Area
Label: Substation-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
impervious	98.000	0.102	0.0	0.0	98.000
grass	61.000	0.186	0.0	0.0	61.000
crushed rock	85.000	0.624	0.0	0.0	85.000
paved roads	98.000	0.132	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.044	(N/A)	(N/A)	83.642

Stormwater Report

Subsection: Runoff CN-Area
Label: Substation-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
impervious	98.000	0.102	0.0	0.0	98.000
grass	61.000	0.186	0.0	0.0	61.000
crushed rock	85.000	0.624	0.0	0.0	85.000
paved roads	98.000	0.132	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.044	(N/A)	(N/A)	83.642

Stormwater Report

Subsection: Runoff CN-Area
Label: West-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
landscaped	61.000	0.098	0.0	0.0	61.000
impervious	98.000	0.164	0.0	0.0	98.000
crushed rock - grp B	85.000	0.335	0.0	0.0	85.000
asphalt road	98.000	0.187	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.784	(N/A)	(N/A)	87.799

Stormwater Report

Subsection: Runoff CN-Area
Label: West-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
landscaped	61.000	0.098	0.0	0.0	61.000
impervious	98.000	0.164	0.0	0.0	98.000
crushed rock - grp B	85.000	0.335	0.0	0.0	85.000
asphalt road	98.000	0.187	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.784	(N/A)	(N/A)	87.799

Stormwater Report

Subsection: Runoff CN-Area
Label: West-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
landscaped	61.000	0.098	0.0	0.0	61.000
impervious	98.000	0.164	0.0	0.0	98.000
crushed rock - grp B	85.000	0.335	0.0	0.0	85.000
asphalt road	98.000	0.187	0.0	0.0	98.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.784	(N/A)	(N/A)	87.799

Stormwater Report

Subsection: Runoff CN-Area
Label: West-Pre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
impervious	98.000	0.245	0.0	0.0	98.000
woods/grass	73.000	0.707	0.0	0.0	73.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.952	(N/A)	(N/A)	79.437

Stormwater Report

Subsection: Runoff CN-Area
Label: West-Pre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
impervious	98.000	0.245	0.0	0.0	98.000
woods/grass	73.000	0.707	0.0	0.0	73.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.952	(N/A)	(N/A)	79.437

Stormwater Report

Subsection: Runoff CN-Area
Label: West-Pre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
impervious	98.000	0.245	0.0	0.0	98.000
woods/grass	73.000	0.707	0.0	0.0	73.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	0.952	(N/A)	(N/A)	79.437

Stormwater Report

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method (Computational Notes)

Definition of Terms

At	Total area (acres): At = Ai+Ap
Ai	Impervious area (acres)
Ap	Pervious area (acres)
CNi	Runoff curve number for impervious area
CNp	Runoff curve number for pervious area
fLoss	f loss constant infiltration (depth/time)
gKs	Saturated Hydraulic Conductivity (depth/time)
Md	Volumetric Moisture Deficit
Psi	Capillary Suction (length)
hK	Horton Infiltration Decay Rate (time^-1)
fo	Initial Infiltration Rate (depth/time)
fc	Ultimate(capacity)Infiltration Rate (depth/time)
Ia	Initial Abstraction (length)
dt	Computational increment (duration of unit excess rainfall) Default dt is smallest value of 0.1333Tc, rtm, and th (Smallest dt is then adjusted to match up with Tp)
UDdt	User specified override computational main time increment (only used if UDdt is => .1333Tc)
D(t)	Point on distribution curve (fraction of P) for time step t
K	2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks	Hydrograph shape factor = Unit Conversions * K: = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K Default Ks = 645.333 * 0.75 = 484
Lag	Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P	Total precipitation depth, inches
Pa(t)	Accumulated rainfall at time step t
Pi(t)	Incremental rainfall at time step t
qp	Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = (Ks * A * Q) / Tp (where Q = 1in. runoff, A=sq.mi.)
Qu(t)	Unit hydrograph ordinate (cfs) at time step t
Q(t)	Final hydrograph ordinate (cfs) at time step t
Rai(t)	Accumulated runoff (inches) at time step t for impervious area
Rap(t)	Accumulated runoff (inches) at time step t for pervious area
Rii(t)	Incremental runoff (inches) at time step t for impervious area
Rip(t)	Incremental runoff (inches) at time step t for pervious area
R(t)	Incremental weighted total runoff (inches)
Rtm	Time increment for rainfall table
Si	S for impervious area: Si = (1000/CNi) - 10
Sp	S for pervious area: Sp = (1000/CNp) - 10
t	Time step (row) number
Tc	Time of concentration
Tb	Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
Tp	Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr	Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

Stormwater Report

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method
Computational Notes
Precipitation

Column (1)	Time for time step t
Column (2)	D(t) = Point on distribution curve for time step t
Column (3)	Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4)	Pa(t) = D(t) x P: Col.(2) x P

Pervious Area Runoff (using SCS Runoff CN Method)

Column (5)	Rap(t) = Accumulated pervious runoff for time step t
	If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
	If (Pa(t) is > 0.2Sp) then use:
	
	Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6)	Rip(t) = Incremental pervious runoff for time step t Rip(t) = Rap(t) - Rap(t-1) Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

Impervious Area Runoff

Column (7 & 8)...	Did not specify to use impervious areas.

Incremental Weighted Runoff

Column (9)	R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t) R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS Unit Hydrograph Method

Column (10)	Q(t) is computed with the SCS unit hydrograph method using R(t) and Qu(t).

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: EastPre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.424 hours
Area (User Defined)	4.203 acres

Computational Time Increment	0.056 hours
Time to Peak (Computed)	12.316 hours
Flow (Peak, Computed)	3.62 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.350 hours
Flow (Peak Interpolated Output)	3.58 ft³/s

Drainage Area	
SCS CN (Composite)	73.000
Area (User Defined)	4.203 acres
Maximum Retention (Pervious)	3.7 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.3 in
Runoff Volume (Pervious)	0.446 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.444 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.424 hours
Computational Time Increment	0.056 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: EastPre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	11.24 ft³/s
Unit peak time, Tp	0.282 hours
Unit receding limb, Tr	1.130 hours
Total unit time, Tb	1.412 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: EastPre Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.424 hours
Area (User Defined)	4.203 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.450	0.00	0.00	0.00	0.01	0.01
10.700	0.01	0.02	0.02	0.03	0.03
10.950	0.04	0.05	0.05	0.06	0.07
11.200	0.08	0.09	0.10	0.11	0.13
11.450	0.14	0.16	0.18	0.20	0.24
11.700	0.28	0.35	0.44	0.55	0.70
11.950	0.91	1.20	1.58	2.06	2.58
12.200	3.07	3.41	3.57	3.58	3.47
12.450	3.27	3.02	2.76	2.49	2.23
12.700	1.98	1.75	1.56	1.40	1.26
12.950	1.15	1.06	0.98	0.92	0.86
13.200	0.81	0.77	0.74	0.71	0.68
13.450	0.66	0.64	0.63	0.61	0.60
13.700	0.59	0.58	0.57	0.56	0.55
13.950	0.54	0.53	0.52	0.51	0.50
14.200	0.49	0.48	0.47	0.47	0.46
14.450	0.45	0.45	0.44	0.44	0.43
14.700	0.43	0.42	0.42	0.41	0.41
14.950	0.40	0.40	0.39	0.39	0.38
15.200	0.38	0.37	0.37	0.36	0.36
15.450	0.35	0.35	0.34	0.34	0.33
15.700	0.33	0.32	0.32	0.31	0.30
15.950	0.30	0.29	0.29	0.28	0.28
16.200	0.27	0.27	0.27	0.26	0.26
16.450	0.25	0.25	0.25	0.25	0.24
16.700	0.24	0.24	0.24	0.23	0.23
16.950	0.23	0.23	0.22	0.22	0.22
17.200	0.22	0.22	0.21	0.21	0.21
17.450	0.21	0.20	0.20	0.20	0.20
17.700	0.19	0.19	0.19	0.19	0.18
17.950	0.18	0.18	0.18	0.17	0.17
18.200	0.17	0.17	0.17	0.16	0.16
18.450	0.16	0.16	0.16	0.16	0.16

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: EastPre Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.700	0.16	0.16	0.16	0.16	0.15
18.950	0.15	0.15	0.15	0.15	0.15
19.200	0.15	0.15	0.15	0.15	0.15
19.450	0.15	0.15	0.15	0.15	0.14
19.700	0.14	0.14	0.14	0.14	0.14
19.950	0.14	0.14	0.14	0.14	0.14
20.200	0.14	0.14	0.14	0.13	0.13
20.450	0.13	0.13	0.13	0.13	0.13
20.700	0.13	0.13	0.13	0.13	0.13
20.950	0.13	0.13	0.13	0.13	0.13
21.200	0.13	0.12	0.12	0.12	0.12
21.450	0.12	0.12	0.12	0.12	0.12
21.700	0.12	0.12	0.12	0.12	0.12
21.950	0.12	0.12	0.12	0.12	0.11
22.200	0.11	0.11	0.11	0.11	0.11
22.450	0.11	0.11	0.11	0.11	0.11
22.700	0.11	0.11	0.11	0.11	0.11
22.950	0.11	0.11	0.10	0.10	0.10
23.200	0.10	0.10	0.10	0.10	0.10
23.450	0.10	0.10	0.10	0.10	0.10
23.700	0.10	0.10	0.10	0.10	0.09
23.950	0.09	0.09	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: EastPre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.424 hours
Area (User Defined)	4.203 acres

Computational Time Increment	0.056 hours
Time to Peak (Computed)	12.316 hours
Flow (Peak, Computed)	8.35 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.300 hours
Flow (Peak Interpolated Output)	8.31 ft³/s

Drainage Area	
SCS CN (Composite)	73.000
Area (User Defined)	4.203 acres
Maximum Retention (Pervious)	3.7 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.8 in
Runoff Volume (Pervious)	0.992 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.988 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.424 hours
Computational Time Increment	0.056 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: EastPre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	11.24 ft³/s
Unit peak time, Tp	0.282 hours
Unit receding limb, Tr	1.130 hours
Total unit time, Tb	1.412 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: EastPre Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.424 hours
Area (User Defined)	4.203 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.700	0.00	0.00	0.00	0.00	0.01
8.950	0.01	0.01	0.02	0.02	0.03
9.200	0.03	0.03	0.04	0.05	0.05
9.450	0.06	0.06	0.07	0.08	0.08
9.700	0.09	0.10	0.10	0.11	0.12
9.950	0.12	0.13	0.14	0.15	0.16
10.200	0.17	0.18	0.19	0.20	0.21
10.450	0.22	0.23	0.25	0.26	0.27
10.700	0.29	0.30	0.32	0.33	0.35
10.950	0.37	0.38	0.40	0.42	0.44
11.200	0.46	0.49	0.52	0.56	0.60
11.450	0.64	0.69	0.74	0.81	0.91
11.700	1.04	1.22	1.46	1.78	2.17
11.950	2.68	3.36	4.24	5.31	6.44
12.200	7.44	8.07	8.31	8.19	7.81
12.450	7.26	6.64	5.99	5.36	4.75
12.700	4.19	3.69	3.26	2.91	2.61
12.950	2.38	2.18	2.01	1.87	1.75
13.200	1.65	1.56	1.48	1.42	1.36
13.450	1.32	1.28	1.25	1.22	1.19
13.700	1.17	1.15	1.12	1.10	1.08
13.950	1.06	1.04	1.02	1.00	0.98
14.200	0.96	0.94	0.93	0.91	0.90
14.450	0.89	0.87	0.86	0.85	0.84
14.700	0.83	0.82	0.81	0.80	0.79
14.950	0.78	0.77	0.76	0.75	0.74
15.200	0.73	0.72	0.71	0.70	0.69
15.450	0.68	0.67	0.66	0.65	0.64
15.700	0.63	0.62	0.61	0.60	0.59
15.950	0.57	0.56	0.55	0.54	0.53
16.200	0.52	0.52	0.51	0.50	0.49
16.450	0.49	0.48	0.48	0.47	0.47
16.700	0.46	0.46	0.45	0.45	0.44

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: EastPre Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.950	0.44	0.43	0.43	0.42	0.42
17.200	0.41	0.41	0.40	0.40	0.40
17.450	0.39	0.39	0.38	0.38	0.37
17.700	0.37	0.36	0.36	0.35	0.35
17.950	0.34	0.34	0.34	0.33	0.33
18.200	0.32	0.32	0.31	0.31	0.31
18.450	0.31	0.31	0.30	0.30	0.30
18.700	0.30	0.30	0.30	0.29	0.29
18.950	0.29	0.29	0.29	0.29	0.29
19.200	0.28	0.28	0.28	0.28	0.28
19.450	0.28	0.28	0.27	0.27	0.27
19.700	0.27	0.27	0.27	0.27	0.26
19.950	0.26	0.26	0.26	0.26	0.26
20.200	0.26	0.26	0.25	0.25	0.25
20.450	0.25	0.25	0.25	0.25	0.25
20.700	0.25	0.24	0.24	0.24	0.24
20.950	0.24	0.24	0.24	0.24	0.24
21.200	0.23	0.23	0.23	0.23	0.23
21.450	0.23	0.23	0.23	0.23	0.23
21.700	0.22	0.22	0.22	0.22	0.22
21.950	0.22	0.22	0.22	0.22	0.21
22.200	0.21	0.21	0.21	0.21	0.21
22.450	0.21	0.21	0.21	0.20	0.20
22.700	0.20	0.20	0.20	0.20	0.20
22.950	0.20	0.20	0.20	0.19	0.19
23.200	0.19	0.19	0.19	0.19	0.19
23.450	0.19	0.19	0.18	0.18	0.18
23.700	0.18	0.18	0.18	0.18	0.18
23.950	0.18	0.17	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: EastPre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.424 hours
Area (User Defined)	4.203 acres

Computational Time Increment	0.056 hours
Time to Peak (Computed)	12.316 hours
Flow (Peak, Computed)	17.27 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.300 hours
Flow (Peak Interpolated Output)	17.23 ft³/s

Drainage Area	
SCS CN (Composite)	73.000
Area (User Defined)	4.203 acres
Maximum Retention (Pervious)	3.7 in
Maximum Retention (Pervious, 20 percent)	0.7 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.9 in
Runoff Volume (Pervious)	2.058 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.050 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.424 hours
Computational Time Increment	0.056 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: EastPre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	11.24 ft³/s
Unit peak time, Tp	0.282 hours
Unit receding limb, Tr	1.130 hours
Total unit time, Tb	1.412 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: EastPre Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.424 hours
Area (User Defined)	4.203 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.650	0.00	0.00	0.00	0.00	0.01
6.900	0.01	0.01	0.01	0.02	0.02
7.150	0.02	0.03	0.03	0.04	0.04
7.400	0.05	0.05	0.06	0.06	0.06
7.650	0.07	0.08	0.08	0.09	0.09
7.900	0.10	0.10	0.11	0.11	0.12
8.150	0.13	0.13	0.14	0.15	0.16
8.400	0.16	0.17	0.18	0.19	0.20
8.650	0.21	0.22	0.23	0.24	0.25
8.900	0.27	0.28	0.29	0.30	0.32
9.150	0.33	0.34	0.36	0.37	0.39
9.400	0.40	0.41	0.43	0.45	0.46
9.650	0.48	0.49	0.51	0.53	0.55
9.900	0.56	0.58	0.60	0.62	0.64
10.150	0.66	0.68	0.70	0.72	0.75
10.400	0.77	0.80	0.83	0.86	0.89
10.650	0.93	0.96	0.99	1.03	1.06
10.900	1.10	1.14	1.17	1.21	1.25
11.150	1.30	1.35	1.41	1.48	1.57
11.400	1.66	1.76	1.87	1.99	2.15
11.650	2.37	2.67	3.08	3.64	4.34
11.900	5.21	6.31	7.74	9.56	11.72
12.150	13.94	15.83	16.94	17.23	16.81
12.400	15.89	14.65	13.28	11.92	10.59
12.650	9.35	8.21	7.20	6.34	5.63
12.900	5.04	4.56	4.17	3.84	3.56
13.150	3.32	3.12	2.94	2.79	2.67
13.400	2.56	2.48	2.40	2.34	2.29
13.650	2.23	2.19	2.14	2.10	2.06
13.900	2.01	1.97	1.93	1.90	1.86
14.150	1.82	1.78	1.75	1.72	1.69
14.400	1.66	1.64	1.62	1.60	1.58
14.650	1.55	1.53	1.51	1.50	1.48

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: EastPre Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.900	1.46	1.44	1.42	1.40	1.38
15.150	1.36	1.34	1.32	1.30	1.28
15.400	1.26	1.25	1.23	1.21	1.19
15.650	1.17	1.15	1.13	1.11	1.09
15.900	1.07	1.05	1.03	1.01	0.99
16.150	0.98	0.96	0.94	0.93	0.91
16.400	0.90	0.89	0.88	0.87	0.86
16.650	0.85	0.84	0.83	0.82	0.81
16.900	0.81	0.80	0.79	0.78	0.77
17.150	0.76	0.75	0.75	0.74	0.73
17.400	0.72	0.71	0.70	0.69	0.69
17.650	0.68	0.67	0.66	0.65	0.64
17.900	0.63	0.63	0.62	0.61	0.60
18.150	0.59	0.58	0.58	0.57	0.57
18.400	0.56	0.56	0.55	0.55	0.55
18.650	0.54	0.54	0.54	0.54	0.53
18.900	0.53	0.53	0.52	0.52	0.52
19.150	0.52	0.51	0.51	0.51	0.51
19.400	0.50	0.50	0.50	0.50	0.49
19.650	0.49	0.49	0.49	0.48	0.48
19.900	0.48	0.48	0.47	0.47	0.47
20.150	0.47	0.46	0.46	0.46	0.46
20.400	0.45	0.45	0.45	0.45	0.45
20.650	0.44	0.44	0.44	0.44	0.44
20.900	0.43	0.43	0.43	0.43	0.43
21.150	0.42	0.42	0.42	0.42	0.42
21.400	0.42	0.41	0.41	0.41	0.41
21.650	0.41	0.40	0.40	0.40	0.40
21.900	0.40	0.39	0.39	0.39	0.39
22.150	0.39	0.38	0.38	0.38	0.38
22.400	0.38	0.37	0.37	0.37	0.37
22.650	0.37	0.36	0.36	0.36	0.36
22.900	0.36	0.35	0.35	0.35	0.35
23.150	0.35	0.34	0.34	0.34	0.34
23.400	0.34	0.34	0.33	0.33	0.33
23.650	0.33	0.33	0.32	0.32	0.32
23.900	0.32	0.32	0.31	(N/A)	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Main BESS
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.099 hours
Area (User Defined)	3.341 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.112 hours
Flow (Peak, Computed)	6.28 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	6.23 ft³/s

Drainage Area	
SCS CN (Composite)	81.000
Area (User Defined)	3.341 acres
Maximum Retention (Pervious)	2.3 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	0.507 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.507 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.099 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Main BESS
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	38.25 ft³/s
Unit peak time, Tp	0.066 hours
Unit receding limb, Tr	0.264 hours
Total unit time, Tb	0.330 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: Main BESS Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.099 hours
Area (User Defined)	3.341 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.600	0.00	0.00	0.00	0.01	0.01
8.850	0.01	0.01	0.02	0.02	0.02
9.100	0.02	0.03	0.03	0.03	0.04
9.350	0.04	0.04	0.05	0.05	0.05
9.600	0.06	0.06	0.07	0.07	0.07
9.850	0.08	0.08	0.09	0.09	0.10
10.100	0.10	0.11	0.11	0.12	0.13
10.350	0.13	0.14	0.15	0.16	0.16
10.600	0.17	0.18	0.19	0.20	0.21
10.850	0.22	0.23	0.23	0.25	0.26
11.100	0.28	0.29	0.32	0.34	0.37
11.350	0.40	0.43	0.46	0.49	0.57
11.600	0.70	0.88	1.14	1.40	1.72
11.850	2.03	2.41	3.37	4.95	5.76
12.100	6.23	5.66	4.24	3.55	3.09
12.350	2.75	2.36	2.03	1.63	1.37
12.600	1.13	1.03	0.96	0.92	0.88
12.850	0.85	0.80	0.77	0.72	0.70
13.100	0.67	0.65	0.64	0.63	0.62
13.350	0.61	0.60	0.59	0.58	0.57
13.600	0.56	0.55	0.54	0.53	0.52
13.850	0.51	0.50	0.49	0.48	0.47
14.100	0.46	0.45	0.45	0.44	0.44
14.350	0.43	0.43	0.42	0.42	0.41
14.600	0.41	0.40	0.40	0.39	0.39
14.850	0.38	0.38	0.37	0.37	0.36
15.100	0.36	0.35	0.35	0.34	0.33
15.350	0.33	0.32	0.32	0.31	0.31
15.600	0.30	0.30	0.29	0.29	0.28
15.850	0.28	0.27	0.27	0.26	0.26
16.100	0.25	0.25	0.25	0.24	0.24
16.350	0.24	0.24	0.23	0.23	0.23
16.600	0.23	0.22	0.22	0.22	0.22

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: Main BESS Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.850	0.22	0.21	0.21	0.21	0.21
17.100	0.20	0.20	0.20	0.20	0.19
17.350	0.19	0.19	0.19	0.18	0.18
17.600	0.18	0.18	0.18	0.17	0.17
17.850	0.17	0.17	0.16	0.16	0.16
18.100	0.16	0.16	0.16	0.15	0.15
18.350	0.15	0.15	0.15	0.15	0.15
18.600	0.15	0.15	0.15	0.15	0.15
18.850	0.15	0.15	0.14	0.14	0.14
19.100	0.14	0.14	0.14	0.14	0.14
19.350	0.14	0.14	0.14	0.14	0.14
19.600	0.14	0.14	0.13	0.13	0.13
19.850	0.13	0.13	0.13	0.13	0.13
20.100	0.13	0.13	0.13	0.13	0.13
20.350	0.13	0.13	0.12	0.12	0.12
20.600	0.12	0.12	0.12	0.12	0.12
20.850	0.12	0.12	0.12	0.12	0.12
21.100	0.12	0.12	0.12	0.12	0.12
21.350	0.12	0.11	0.11	0.11	0.11
21.600	0.11	0.11	0.11	0.11	0.11
21.850	0.11	0.11	0.11	0.11	0.11
22.100	0.11	0.11	0.11	0.11	0.10
22.350	0.10	0.10	0.10	0.10	0.10
22.600	0.10	0.10	0.10	0.10	0.10
22.850	0.10	0.10	0.10	0.10	0.10
23.100	0.10	0.10	0.10	0.09	0.09
23.350	0.09	0.09	0.09	0.09	0.09
23.600	0.09	0.09	0.09	0.09	0.09
23.850	0.09	0.09	0.09	0.09	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Main BESS
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.099 hours
Area (User Defined)	3.341 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.112 hours
Flow (Peak, Computed)	12.20 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	12.16 ft³/s

Drainage Area	
SCS CN (Composite)	81.000
Area (User Defined)	3.341 acres
Maximum Retention (Pervious)	2.3 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.6 in
Runoff Volume (Pervious)	1.003 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.002 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.099 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Main BESS
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	38.25 ft³/s
Unit peak time, Tp	0.066 hours
Unit receding limb, Tr	0.264 hours
Total unit time, Tb	0.330 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: Main BESS Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.099 hours
Area (User Defined)	3.341 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.650	0.00	0.00	0.00	0.00	0.01
6.900	0.01	0.01	0.01	0.01	0.02
7.150	0.02	0.02	0.02	0.03	0.03
7.400	0.03	0.03	0.04	0.04	0.04
7.650	0.04	0.05	0.05	0.05	0.05
7.900	0.06	0.06	0.06	0.07	0.07
8.150	0.07	0.08	0.08	0.09	0.09
8.400	0.10	0.10	0.11	0.11	0.12
8.650	0.12	0.13	0.14	0.14	0.15
8.900	0.15	0.16	0.17	0.17	0.18
9.150	0.19	0.20	0.20	0.21	0.22
9.400	0.23	0.23	0.24	0.25	0.26
9.650	0.27	0.28	0.29	0.29	0.30
9.900	0.31	0.32	0.33	0.34	0.35
10.150	0.37	0.38	0.40	0.41	0.43
10.400	0.44	0.46	0.48	0.49	0.51
10.650	0.53	0.55	0.56	0.58	0.60
10.900	0.62	0.64	0.66	0.69	0.73
11.150	0.77	0.83	0.88	0.94	1.00
11.400	1.06	1.12	1.20	1.38	1.66
11.650	2.06	2.63	3.16	3.82	4.43
11.900	5.16	7.04	10.09	11.49	12.16
12.150	10.87	8.04	6.68	5.76	5.09
12.400	4.35	3.73	2.98	2.51	2.06
12.650	1.87	1.75	1.68	1.60	1.53
12.900	1.45	1.39	1.31	1.26	1.20
13.150	1.17	1.15	1.13	1.11	1.10
13.400	1.08	1.06	1.04	1.02	1.00
13.650	0.98	0.96	0.94	0.92	0.91
13.900	0.88	0.87	0.85	0.83	0.81
14.150	0.80	0.79	0.79	0.78	0.77
14.400	0.76	0.75	0.74	0.73	0.72
14.650	0.71	0.70	0.69	0.68	0.67

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: Main BESS Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.900	0.66	0.66	0.65	0.64	0.63
15.150	0.62	0.61	0.60	0.59	0.58
15.400	0.57	0.56	0.55	0.54	0.53
15.650	0.52	0.51	0.50	0.49	0.49
15.900	0.47	0.47	0.46	0.45	0.44
16.150	0.44	0.43	0.43	0.42	0.42
16.400	0.41	0.41	0.41	0.40	0.40
16.650	0.39	0.39	0.39	0.38	0.38
16.900	0.37	0.37	0.36	0.36	0.36
17.150	0.35	0.35	0.34	0.34	0.34
17.400	0.33	0.33	0.32	0.32	0.31
17.650	0.31	0.31	0.30	0.30	0.29
17.900	0.29	0.29	0.28	0.28	0.27
18.150	0.27	0.27	0.27	0.27	0.27
18.400	0.27	0.26	0.26	0.26	0.26
18.650	0.26	0.26	0.26	0.26	0.25
18.900	0.25	0.25	0.25	0.25	0.25
19.150	0.25	0.25	0.24	0.24	0.24
19.400	0.24	0.24	0.24	0.24	0.24
19.650	0.23	0.23	0.23	0.23	0.23
19.900	0.23	0.23	0.23	0.22	0.22
20.150	0.22	0.22	0.22	0.22	0.22
20.400	0.22	0.22	0.22	0.21	0.21
20.650	0.21	0.21	0.21	0.21	0.21
20.900	0.21	0.21	0.21	0.21	0.20
21.150	0.20	0.20	0.20	0.20	0.20
21.400	0.20	0.20	0.20	0.20	0.20
21.650	0.19	0.19	0.19	0.19	0.19
21.900	0.19	0.19	0.19	0.19	0.19
22.150	0.18	0.18	0.18	0.18	0.18
22.400	0.18	0.18	0.18	0.18	0.18
22.650	0.18	0.17	0.17	0.17	0.17
22.900	0.17	0.17	0.17	0.17	0.17
23.150	0.16	0.16	0.16	0.16	0.16
23.400	0.16	0.16	0.16	0.16	0.16
23.650	0.16	0.15	0.15	0.15	0.15
23.900	0.15	0.15	0.15	(N/A)	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Main BESS
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.099 hours
Area (User Defined)	3.341 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.112 hours
Flow (Peak, Computed)	22.51 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	22.51 ft³/s

Drainage Area	
SCS CN (Composite)	81.000
Area (User Defined)	3.341 acres
Maximum Retention (Pervious)	2.3 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.9 in
Runoff Volume (Pervious)	1.913 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.911 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.099 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Main BESS
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	38.25 ft³/s
Unit peak time, Tp	0.066 hours
Unit receding limb, Tr	0.264 hours
Total unit time, Tb	0.330 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: Main BESS Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.099 hours
Area (User Defined)	3.341 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.650	0.00	0.00	0.00	0.01	0.01
4.900	0.01	0.01	0.02	0.02	0.02
5.150	0.02	0.03	0.03	0.03	0.03
5.400	0.04	0.04	0.04	0.04	0.05
5.650	0.05	0.05	0.05	0.06	0.06
5.900	0.06	0.07	0.07	0.07	0.07
6.150	0.08	0.08	0.09	0.09	0.09
6.400	0.10	0.10	0.11	0.11	0.11
6.650	0.12	0.12	0.13	0.13	0.14
6.900	0.14	0.15	0.15	0.16	0.17
7.150	0.17	0.18	0.18	0.19	0.19
7.400	0.20	0.20	0.21	0.22	0.22
7.650	0.23	0.24	0.24	0.25	0.26
7.900	0.26	0.27	0.28	0.28	0.29
8.150	0.30	0.31	0.32	0.34	0.35
8.400	0.36	0.37	0.38	0.40	0.41
8.650	0.42	0.44	0.45	0.46	0.48
8.900	0.49	0.51	0.52	0.53	0.55
9.150	0.56	0.58	0.60	0.61	0.63
9.400	0.64	0.66	0.68	0.69	0.71
9.650	0.73	0.74	0.76	0.78	0.80
9.900	0.81	0.83	0.85	0.87	0.89
10.150	0.92	0.95	0.98	1.01	1.04
10.400	1.08	1.11	1.14	1.17	1.21
10.650	1.24	1.28	1.31	1.35	1.38
10.900	1.42	1.45	1.49	1.54	1.62
11.150	1.71	1.82	1.93	2.05	2.16
11.400	2.29	2.41	2.54	2.90	3.49
11.650	4.28	5.41	6.44	7.69	8.81
11.900	10.15	13.64	19.25	21.58	22.51
12.150	19.91	14.62	12.05	10.34	9.11
12.400	7.76	6.63	5.29	4.45	3.65
12.650	3.30	3.10	2.96	2.82	2.70

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table)
Label: Main BESS
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.900	2.56	2.44	2.30	2.20	2.11
13.150	2.06	2.02	1.99	1.95	1.92
13.400	1.88	1.85	1.81	1.78	1.75
13.650	1.71	1.68	1.65	1.61	1.58
13.900	1.54	1.51	1.47	1.45	1.42
14.150	1.40	1.38	1.37	1.35	1.33
14.400	1.32	1.30	1.28	1.27	1.25
14.650	1.24	1.22	1.20	1.18	1.17
14.900	1.15	1.14	1.12	1.10	1.09
15.150	1.07	1.05	1.04	1.02	1.00
15.400	0.99	0.97	0.95	0.94	0.92
15.650	0.90	0.89	0.87	0.85	0.84
15.900	0.82	0.80	0.79	0.77	0.76
16.150	0.75	0.74	0.74	0.73	0.72
16.400	0.71	0.71	0.70	0.69	0.68
16.650	0.68	0.67	0.66	0.66	0.65
16.900	0.64	0.64	0.63	0.62	0.61
17.150	0.61	0.60	0.59	0.58	0.58
17.400	0.57	0.56	0.56	0.55	0.54
17.650	0.53	0.53	0.52	0.51	0.50
17.900	0.50	0.49	0.48	0.47	0.47
18.150	0.47	0.47	0.46	0.46	0.46
18.400	0.46	0.45	0.45	0.45	0.45
18.650	0.45	0.44	0.44	0.44	0.44
18.900	0.43	0.43	0.43	0.43	0.43
19.150	0.42	0.42	0.42	0.42	0.41
19.400	0.41	0.41	0.41	0.41	0.40
19.650	0.40	0.40	0.40	0.40	0.39
19.900	0.39	0.39	0.39	0.38	0.38
20.150	0.38	0.38	0.38	0.38	0.37
20.400	0.37	0.37	0.37	0.37	0.37
20.650	0.36	0.36	0.36	0.36	0.36
20.900	0.36	0.35	0.35	0.35	0.35
21.150	0.35	0.35	0.34	0.34	0.34
21.400	0.34	0.34	0.33	0.33	0.33
21.650	0.33	0.33	0.33	0.33	0.33
21.900	0.32	0.32	0.32	0.32	0.32
22.150	0.32	0.31	0.31	0.31	0.31
22.400	0.31	0.31	0.30	0.30	0.30
22.650	0.30	0.30	0.29	0.29	0.29
22.900	0.29	0.29	0.29	0.29	0.28
23.150	0.28	0.28	0.28	0.28	0.28

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: Main BESS Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
23.400	0.27	0.27	0.27	0.27	0.27
23.650	0.27	0.26	0.26	0.26	0.26
23.900	0.26	0.25	0.25	(N/A)	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Substation-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1.042 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	2.23 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	2.23 ft³/s

Drainage Area	
SCS CN (Composite)	84.000
Area (User Defined)	1.042 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	0.179 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.179 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Substation-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	14.19 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: Substation-Post Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1.042 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
7.800	0.00	0.00	0.00	0.00	0.00
8.050	0.00	0.00	0.00	0.01	0.01
8.300	0.01	0.01	0.01	0.01	0.01
8.550	0.01	0.01	0.01	0.01	0.01
8.800	0.01	0.02	0.02	0.02	0.02
9.050	0.02	0.02	0.02	0.02	0.02
9.300	0.03	0.03	0.03	0.03	0.03
9.550	0.03	0.03	0.04	0.04	0.04
9.800	0.04	0.04	0.04	0.04	0.05
10.050	0.05	0.05	0.05	0.05	0.06
10.300	0.06	0.06	0.07	0.07	0.07
10.550	0.07	0.08	0.08	0.08	0.09
10.800	0.09	0.09	0.10	0.10	0.10
11.050	0.11	0.12	0.12	0.13	0.14
11.300	0.15	0.16	0.17	0.19	0.20
11.550	0.24	0.28	0.36	0.46	0.56
11.800	0.67	0.79	0.92	1.35	1.89
12.050	2.11	2.23	1.88	1.37	1.16
12.300	1.03	0.90	0.78	0.65	0.53
12.550	0.44	0.37	0.34	0.32	0.31
12.800	0.30	0.28	0.27	0.26	0.24
13.050	0.23	0.22	0.22	0.21	0.21
13.300	0.21	0.20	0.20	0.20	0.19
13.550	0.19	0.19	0.18	0.18	0.18
13.800	0.17	0.17	0.17	0.16	0.16
14.050	0.16	0.15	0.15	0.15	0.15
14.300	0.15	0.14	0.14	0.14	0.14
14.550	0.14	0.14	0.13	0.13	0.13
14.800	0.13	0.13	0.13	0.12	0.12
15.050	0.12	0.12	0.12	0.11	0.11
15.300	0.11	0.11	0.11	0.11	0.10
15.550	0.10	0.10	0.10	0.10	0.09
15.800	0.09	0.09	0.09	0.09	0.09

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: Substation-Post Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.050	0.08	0.08	0.08	0.08	0.08
16.300	0.08	0.08	0.08	0.08	0.08
16.550	0.08	0.08	0.07	0.07	0.07
16.800	0.07	0.07	0.07	0.07	0.07
17.050	0.07	0.07	0.07	0.07	0.07
17.300	0.06	0.06	0.06	0.06	0.06
17.550	0.06	0.06	0.06	0.06	0.06
17.800	0.06	0.06	0.05	0.05	0.05
18.050	0.05	0.05	0.05	0.05	0.05
18.300	0.05	0.05	0.05	0.05	0.05
18.550	0.05	0.05	0.05	0.05	0.05
18.800	0.05	0.05	0.05	0.05	0.05
19.050	0.05	0.05	0.05	0.05	0.05
19.300	0.05	0.05	0.05	0.05	0.05
19.550	0.05	0.04	0.04	0.04	0.04
19.800	0.04	0.04	0.04	0.04	0.04
20.050	0.04	0.04	0.04	0.04	0.04
20.300	0.04	0.04	0.04	0.04	0.04
20.550	0.04	0.04	0.04	0.04	0.04
20.800	0.04	0.04	0.04	0.04	0.04
21.050	0.04	0.04	0.04	0.04	0.04
21.300	0.04	0.04	0.04	0.04	0.04
21.550	0.04	0.04	0.04	0.04	0.04
21.800	0.04	0.04	0.04	0.04	0.04
22.050	0.04	0.04	0.04	0.03	0.03
22.300	0.03	0.03	0.03	0.03	0.03
22.550	0.03	0.03	0.03	0.03	0.03
22.800	0.03	0.03	0.03	0.03	0.03
23.050	0.03	0.03	0.03	0.03	0.03
23.300	0.03	0.03	0.03	0.03	0.03
23.550	0.03	0.03	0.03	0.03	0.03
23.800	0.03	0.03	0.03	0.03	0.03

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Substation-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1.042 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	4.12 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	4.12 ft³/s

Drainage Area	
SCS CN (Composite)	84.000
Area (User Defined)	1.042 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	0.340 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.340 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Substation-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	14.19 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: Substation-Post Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1.042 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
5.850	0.00	0.00	0.00	0.00	0.00
6.100	0.00	0.00	0.00	0.00	0.01
6.350	0.01	0.01	0.01	0.01	0.01
6.600	0.01	0.01	0.01	0.01	0.01
6.850	0.01	0.01	0.01	0.01	0.02
7.100	0.02	0.02	0.02	0.02	0.02
7.350	0.02	0.02	0.02	0.02	0.02
7.600	0.03	0.03	0.03	0.03	0.03
7.850	0.03	0.03	0.03	0.03	0.04
8.100	0.04	0.04	0.04	0.04	0.04
8.350	0.05	0.05	0.05	0.05	0.05
8.600	0.06	0.06	0.06	0.06	0.06
8.850	0.07	0.07	0.07	0.07	0.08
9.100	0.08	0.08	0.08	0.09	0.09
9.350	0.09	0.10	0.10	0.10	0.10
9.600	0.11	0.11	0.11	0.12	0.12
9.850	0.12	0.13	0.13	0.13	0.14
10.100	0.14	0.14	0.15	0.15	0.16
10.350	0.17	0.17	0.18	0.18	0.19
10.600	0.19	0.20	0.21	0.21	0.22
10.850	0.23	0.23	0.24	0.25	0.26
11.100	0.27	0.29	0.31	0.33	0.35
11.350	0.37	0.39	0.41	0.43	0.51
11.600	0.61	0.78	0.97	1.17	1.38
11.850	1.60	1.83	2.64	3.64	3.97
12.100	4.12	3.43	2.48	2.09	1.83
12.350	1.61	1.38	1.16	0.93	0.78
12.600	0.65	0.60	0.57	0.54	0.52
12.850	0.49	0.47	0.45	0.42	0.40
13.100	0.39	0.38	0.37	0.37	0.36
13.350	0.36	0.35	0.34	0.34	0.33
13.600	0.32	0.32	0.31	0.31	0.30
13.850	0.29	0.29	0.28	0.27	0.27

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: Substation-Post Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.100	0.26	0.26	0.26	0.25	0.25
14.350	0.25	0.25	0.24	0.24	0.24
14.600	0.23	0.23	0.23	0.22	0.22
14.850	0.22	0.21	0.21	0.21	0.21
15.100	0.20	0.20	0.20	0.19	0.19
15.350	0.19	0.18	0.18	0.18	0.17
15.600	0.17	0.17	0.17	0.16	0.16
15.850	0.16	0.15	0.15	0.15	0.14
16.100	0.14	0.14	0.14	0.14	0.14
16.350	0.13	0.13	0.13	0.13	0.13
16.600	0.13	0.13	0.13	0.12	0.12
16.850	0.12	0.12	0.12	0.12	0.12
17.100	0.11	0.11	0.11	0.11	0.11
17.350	0.11	0.11	0.11	0.10	0.10
17.600	0.10	0.10	0.10	0.10	0.10
17.850	0.09	0.09	0.09	0.09	0.09
18.100	0.09	0.09	0.09	0.09	0.09
18.350	0.09	0.09	0.09	0.08	0.08
18.600	0.08	0.08	0.08	0.08	0.08
18.850	0.08	0.08	0.08	0.08	0.08
19.100	0.08	0.08	0.08	0.08	0.08
19.350	0.08	0.08	0.08	0.08	0.08
19.600	0.08	0.08	0.07	0.07	0.07
19.850	0.07	0.07	0.07	0.07	0.07
20.100	0.07	0.07	0.07	0.07	0.07
20.350	0.07	0.07	0.07	0.07	0.07
20.600	0.07	0.07	0.07	0.07	0.07
20.850	0.07	0.07	0.07	0.07	0.07
21.100	0.07	0.07	0.07	0.06	0.06
21.350	0.06	0.06	0.06	0.06	0.06
21.600	0.06	0.06	0.06	0.06	0.06
21.850	0.06	0.06	0.06	0.06	0.06
22.100	0.06	0.06	0.06	0.06	0.06
22.350	0.06	0.06	0.06	0.06	0.06
22.600	0.06	0.06	0.06	0.06	0.06
22.850	0.05	0.05	0.05	0.05	0.05
23.100	0.05	0.05	0.05	0.05	0.05
23.350	0.05	0.05	0.05	0.05	0.05
23.600	0.05	0.05	0.05	0.05	0.05
23.850	0.05	0.05	0.05	0.05	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Substation-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1.042 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	7.37 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	7.37 ft³/s

Drainage Area	
SCS CN (Composite)	84.000
Area (User Defined)	1.042 acres
Maximum Retention (Pervious)	1.9 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.2 in
Runoff Volume (Pervious)	0.630 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.629 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: Substation-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	14.19 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: Substation-Post Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1.042 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.000	0.00	0.00	0.00	0.00	0.00
4.250	0.00	0.01	0.01	0.01	0.01
4.500	0.01	0.01	0.01	0.01	0.01
4.750	0.01	0.01	0.01	0.02	0.02
5.000	0.02	0.02	0.02	0.02	0.02
5.250	0.02	0.02	0.02	0.02	0.03
5.500	0.03	0.03	0.03	0.03	0.03
5.750	0.03	0.03	0.03	0.03	0.03
6.000	0.04	0.04	0.04	0.04	0.04
6.250	0.04	0.04	0.05	0.05	0.05
6.500	0.05	0.05	0.05	0.06	0.06
6.750	0.06	0.06	0.06	0.06	0.07
7.000	0.07	0.07	0.07	0.07	0.08
7.250	0.08	0.08	0.08	0.08	0.09
7.500	0.09	0.09	0.09	0.09	0.10
7.750	0.10	0.10	0.10	0.11	0.11
8.000	0.11	0.11	0.12	0.12	0.12
8.250	0.13	0.13	0.14	0.14	0.14
8.500	0.15	0.15	0.16	0.16	0.17
8.750	0.17	0.18	0.18	0.19	0.19
9.000	0.20	0.20	0.21	0.21	0.22
9.250	0.22	0.23	0.23	0.24	0.24
9.500	0.25	0.25	0.26	0.26	0.27
9.750	0.28	0.28	0.29	0.29	0.30
10.000	0.30	0.31	0.32	0.33	0.34
10.250	0.35	0.36	0.37	0.38	0.39
10.500	0.40	0.41	0.42	0.44	0.45
10.750	0.46	0.47	0.48	0.49	0.50
11.000	0.52	0.54	0.56	0.59	0.63
11.250	0.67	0.71	0.75	0.79	0.83
11.500	0.87	1.02	1.21	1.53	1.88
11.750	2.26	2.64	3.03	3.44	4.89
12.000	6.66	7.18	7.37	6.08	4.38

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: Substation-Post Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.250	3.67	3.20	2.80	2.40	2.01
12.500	1.61	1.35	1.12	1.03	0.98
12.750	0.93	0.89	0.85	0.81	0.77
13.000	0.72	0.69	0.67	0.65	0.64
13.250	0.63	0.62	0.61	0.60	0.59
13.500	0.58	0.57	0.55	0.54	0.53
13.750	0.52	0.51	0.50	0.49	0.48
14.000	0.47	0.46	0.45	0.44	0.44
14.250	0.43	0.43	0.42	0.42	0.41
14.500	0.41	0.40	0.40	0.39	0.39
14.750	0.38	0.38	0.37	0.36	0.36
15.000	0.35	0.35	0.34	0.34	0.33
15.250	0.33	0.32	0.32	0.31	0.31
15.500	0.30	0.30	0.29	0.29	0.28
15.750	0.28	0.27	0.26	0.26	0.25
16.000	0.25	0.24	0.24	0.24	0.24
16.250	0.23	0.23	0.23	0.23	0.22
16.500	0.22	0.22	0.22	0.21	0.21
16.750	0.21	0.21	0.21	0.20	0.20
17.000	0.20	0.20	0.19	0.19	0.19
17.250	0.19	0.19	0.18	0.18	0.18
17.500	0.18	0.17	0.17	0.17	0.17
17.750	0.16	0.16	0.16	0.16	0.15
18.000	0.15	0.15	0.15	0.15	0.15
18.250	0.15	0.15	0.15	0.14	0.14
18.500	0.14	0.14	0.14	0.14	0.14
18.750	0.14	0.14	0.14	0.14	0.14
19.000	0.14	0.14	0.13	0.13	0.13
19.250	0.13	0.13	0.13	0.13	0.13
19.500	0.13	0.13	0.13	0.13	0.13
19.750	0.13	0.13	0.12	0.12	0.12
20.000	0.12	0.12	0.12	0.12	0.12
20.250	0.12	0.12	0.12	0.12	0.12
20.500	0.12	0.12	0.12	0.12	0.11
20.750	0.11	0.11	0.11	0.11	0.11
21.000	0.11	0.11	0.11	0.11	0.11
21.250	0.11	0.11	0.11	0.11	0.11
21.500	0.11	0.11	0.11	0.10	0.10
21.750	0.10	0.10	0.10	0.10	0.10
22.000	0.10	0.10	0.10	0.10	0.10
22.250	0.10	0.10	0.10	0.10	0.10
22.500	0.10	0.10	0.10	0.09	0.09

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: Substation-Post Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.750	0.09	0.09	0.09	0.09	0.09
23.000	0.09	0.09	0.09	0.09	0.09
23.250	0.09	0.09	0.09	0.09	0.09
23.500	0.09	0.08	0.08	0.08	0.08
23.750	0.08	0.08	0.08	0.08	0.08
24.000	0.08	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.784 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	1.91 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	1.91 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	0.784 acres
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.4 in
Runoff Volume (Pervious)	0.157 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.156 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	10.66 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: West-Post Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.784 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.450	0.00	0.00	0.00	0.00	0.00
6.700	0.00	0.00	0.00	0.00	0.00
6.950	0.00	0.00	0.00	0.00	0.01
7.200	0.01	0.01	0.01	0.01	0.01
7.450	0.01	0.01	0.01	0.01	0.01
7.700	0.01	0.01	0.01	0.01	0.01
7.950	0.01	0.01	0.01	0.01	0.01
8.200	0.02	0.02	0.02	0.02	0.02
8.450	0.02	0.02	0.02	0.02	0.02
8.700	0.02	0.02	0.03	0.03	0.03
8.950	0.03	0.03	0.03	0.03	0.03
9.200	0.03	0.04	0.04	0.04	0.04
9.450	0.04	0.04	0.04	0.04	0.05
9.700	0.05	0.05	0.05	0.05	0.05
9.950	0.05	0.06	0.06	0.06	0.06
10.200	0.06	0.07	0.07	0.07	0.07
10.450	0.08	0.08	0.08	0.08	0.09
10.700	0.09	0.09	0.10	0.10	0.10
10.950	0.11	0.11	0.11	0.12	0.13
11.200	0.14	0.14	0.15	0.16	0.17
11.450	0.18	0.19	0.23	0.28	0.35
11.700	0.44	0.53	0.63	0.73	0.84
11.950	1.21	1.68	1.84	1.91	1.60
12.200	1.16	0.98	0.86	0.75	0.65
12.450	0.54	0.44	0.37	0.30	0.28
12.700	0.27	0.25	0.24	0.23	0.22
12.950	0.21	0.20	0.19	0.18	0.18
13.200	0.18	0.17	0.17	0.17	0.16
13.450	0.16	0.16	0.16	0.15	0.15
13.700	0.15	0.14	0.14	0.14	0.13
13.950	0.13	0.13	0.13	0.12	0.12
14.200	0.12	0.12	0.12	0.12	0.12
14.450	0.11	0.11	0.11	0.11	0.11

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: West-Post Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.700	0.11	0.11	0.10	0.10	0.10
14.950	0.10	0.10	0.10	0.10	0.09
15.200	0.09	0.09	0.09	0.09	0.09
15.450	0.09	0.08	0.08	0.08	0.08
15.700	0.08	0.08	0.08	0.07	0.07
15.950	0.07	0.07	0.07	0.07	0.07
16.200	0.07	0.06	0.06	0.06	0.06
16.450	0.06	0.06	0.06	0.06	0.06
16.700	0.06	0.06	0.06	0.06	0.06
16.950	0.06	0.06	0.05	0.05	0.05
17.200	0.05	0.05	0.05	0.05	0.05
17.450	0.05	0.05	0.05	0.05	0.05
17.700	0.05	0.05	0.05	0.04	0.04
17.950	0.04	0.04	0.04	0.04	0.04
18.200	0.04	0.04	0.04	0.04	0.04
18.450	0.04	0.04	0.04	0.04	0.04
18.700	0.04	0.04	0.04	0.04	0.04
18.950	0.04	0.04	0.04	0.04	0.04
19.200	0.04	0.04	0.04	0.04	0.04
19.450	0.04	0.04	0.04	0.04	0.04
19.700	0.04	0.04	0.04	0.03	0.03
19.950	0.03	0.03	0.03	0.03	0.03
20.200	0.03	0.03	0.03	0.03	0.03
20.450	0.03	0.03	0.03	0.03	0.03
20.700	0.03	0.03	0.03	0.03	0.03
20.950	0.03	0.03	0.03	0.03	0.03
21.200	0.03	0.03	0.03	0.03	0.03
21.450	0.03	0.03	0.03	0.03	0.03
21.700	0.03	0.03	0.03	0.03	0.03
21.950	0.03	0.03	0.03	0.03	0.03
22.200	0.03	0.03	0.03	0.03	0.03
22.450	0.03	0.03	0.03	0.03	0.03
22.700	0.03	0.03	0.03	0.03	0.03
22.950	0.03	0.03	0.03	0.03	0.03
23.200	0.03	0.02	0.02	0.02	0.02
23.450	0.02	0.02	0.02	0.02	0.02
23.700	0.02	0.02	0.02	0.02	0.02
23.950	0.02	0.02	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.784 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	3.35 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	3.35 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	0.784 acres
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.3 in
Runoff Volume (Pervious)	0.283 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.282 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	10.66 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: West-Post Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.784 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.550	0.00	0.00	0.00	0.00	0.00
4.800	0.00	0.00	0.00	0.00	0.00
5.050	0.00	0.00	0.01	0.01	0.01
5.300	0.01	0.01	0.01	0.01	0.01
5.550	0.01	0.01	0.01	0.01	0.01
5.800	0.01	0.01	0.01	0.01	0.01
6.050	0.01	0.01	0.01	0.01	0.01
6.300	0.02	0.02	0.02	0.02	0.02
6.550	0.02	0.02	0.02	0.02	0.02
6.800	0.02	0.02	0.02	0.02	0.03
7.050	0.03	0.03	0.03	0.03	0.03
7.300	0.03	0.03	0.03	0.03	0.03
7.550	0.03	0.04	0.04	0.04	0.04
7.800	0.04	0.04	0.04	0.04	0.04
8.050	0.04	0.05	0.05	0.05	0.05
8.300	0.05	0.05	0.06	0.06	0.06
8.550	0.06	0.06	0.07	0.07	0.07
8.800	0.07	0.07	0.08	0.08	0.08
9.050	0.08	0.09	0.09	0.09	0.09
9.300	0.09	0.10	0.10	0.10	0.10
9.550	0.11	0.11	0.11	0.11	0.12
9.800	0.12	0.12	0.12	0.13	0.13
10.050	0.13	0.14	0.14	0.15	0.15
10.300	0.15	0.16	0.16	0.17	0.17
10.550	0.18	0.18	0.19	0.19	0.20
10.800	0.20	0.21	0.21	0.22	0.22
11.050	0.23	0.24	0.26	0.28	0.29
11.300	0.31	0.33	0.35	0.36	0.38
11.550	0.45	0.54	0.68	0.84	1.00
11.800	1.18	1.36	1.54	2.20	3.00
12.050	3.25	3.35	2.77	1.99	1.67
12.300	1.46	1.28	1.10	0.92	0.74
12.550	0.62	0.51	0.47	0.45	0.43

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table)
Label: West-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.800	0.41	0.39	0.37	0.35	0.33
13.050	0.32	0.31	0.30	0.29	0.29
13.300	0.28	0.28	0.27	0.27	0.26
13.550	0.26	0.25	0.25	0.24	0.24
13.800	0.23	0.23	0.22	0.22	0.21
14.050	0.21	0.21	0.20	0.20	0.20
14.300	0.20	0.19	0.19	0.19	0.19
14.550	0.18	0.18	0.18	0.18	0.18
14.800	0.17	0.17	0.17	0.17	0.16
15.050	0.16	0.16	0.16	0.15	0.15
15.300	0.15	0.15	0.14	0.14	0.14
15.550	0.14	0.13	0.13	0.13	0.13
15.800	0.12	0.12	0.12	0.12	0.11
16.050	0.11	0.11	0.11	0.11	0.11
16.300	0.11	0.11	0.10	0.10	0.10
16.550	0.10	0.10	0.10	0.10	0.10
16.800	0.10	0.09	0.09	0.09	0.09
17.050	0.09	0.09	0.09	0.09	0.09
17.300	0.09	0.08	0.08	0.08	0.08
17.550	0.08	0.08	0.08	0.08	0.08
17.800	0.07	0.07	0.07	0.07	0.07
18.050	0.07	0.07	0.07	0.07	0.07
18.300	0.07	0.07	0.07	0.07	0.07
18.550	0.07	0.07	0.06	0.06	0.06
18.800	0.06	0.06	0.06	0.06	0.06
19.050	0.06	0.06	0.06	0.06	0.06
19.300	0.06	0.06	0.06	0.06	0.06
19.550	0.06	0.06	0.06	0.06	0.06
19.800	0.06	0.06	0.06	0.06	0.06
20.050	0.06	0.06	0.06	0.06	0.06
20.300	0.05	0.05	0.05	0.05	0.05
20.550	0.05	0.05	0.05	0.05	0.05
20.800	0.05	0.05	0.05	0.05	0.05
21.050	0.05	0.05	0.05	0.05	0.05
21.300	0.05	0.05	0.05	0.05	0.05
21.550	0.05	0.05	0.05	0.05	0.05
21.800	0.05	0.05	0.05	0.05	0.05
22.050	0.05	0.05	0.05	0.05	0.05
22.300	0.04	0.04	0.04	0.04	0.04
22.550	0.04	0.04	0.04	0.04	0.04
22.800	0.04	0.04	0.04	0.04	0.04
23.050	0.04	0.04	0.04	0.04	0.04

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: West-Post Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
23.300	0.04	0.04	0.04	0.04	0.04
23.550	0.04	0.04	0.04	0.04	0.04
23.800	0.04	0.04	0.04	0.04	0.04

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.784 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	5.76 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	5.76 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	0.784 acres
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.7 in
Runoff Volume (Pervious)	0.505 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.505 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	10.66 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: West-Post Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.784 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
3.050	0.00	0.00	0.00	0.00	0.00
3.300	0.00	0.00	0.01	0.01	0.01
3.550	0.01	0.01	0.01	0.01	0.01
3.800	0.01	0.01	0.01	0.01	0.01
4.050	0.01	0.02	0.02	0.02	0.02
4.300	0.02	0.02	0.02	0.02	0.02
4.550	0.02	0.02	0.02	0.02	0.03
4.800	0.03	0.03	0.03	0.03	0.03
5.050	0.03	0.03	0.03	0.03	0.03
5.300	0.03	0.03	0.04	0.04	0.04
5.550	0.04	0.04	0.04	0.04	0.04
5.800	0.04	0.04	0.04	0.04	0.04
6.050	0.05	0.05	0.05	0.05	0.05
6.300	0.05	0.05	0.05	0.06	0.06
6.550	0.06	0.06	0.06	0.06	0.07
6.800	0.07	0.07	0.07	0.07	0.07
7.050	0.08	0.08	0.08	0.08	0.08
7.300	0.08	0.09	0.09	0.09	0.09
7.550	0.09	0.09	0.10	0.10	0.10
7.800	0.10	0.10	0.11	0.11	0.11
8.050	0.11	0.11	0.12	0.12	0.12
8.300	0.13	0.13	0.14	0.14	0.14
8.550	0.15	0.15	0.15	0.16	0.16
8.800	0.17	0.17	0.17	0.18	0.18
9.050	0.19	0.19	0.19	0.20	0.20
9.300	0.21	0.21	0.21	0.22	0.22
9.550	0.23	0.23	0.24	0.24	0.24
9.800	0.25	0.25	0.26	0.26	0.27
10.050	0.27	0.28	0.29	0.29	0.30
10.300	0.31	0.32	0.33	0.34	0.34
10.550	0.35	0.36	0.37	0.38	0.39
10.800	0.40	0.41	0.41	0.42	0.43
11.050	0.45	0.47	0.50	0.53	0.56

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: West-Post Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.300	0.59	0.62	0.65	0.68	0.71
11.550	0.84	0.99	1.24	1.53	1.82
11.800	2.13	2.43	2.74	3.88	5.26
12.050	5.64	5.76	4.74	3.40	2.84
12.300	2.48	2.16	1.86	1.55	1.24
12.550	1.04	0.86	0.79	0.75	0.72
12.800	0.69	0.65	0.62	0.59	0.56
13.050	0.53	0.51	0.50	0.49	0.48
13.300	0.48	0.47	0.46	0.45	0.44
13.550	0.43	0.43	0.42	0.41	0.40
13.800	0.39	0.38	0.37	0.37	0.36
14.050	0.35	0.34	0.34	0.34	0.33
14.300	0.33	0.32	0.32	0.32	0.31
14.550	0.31	0.30	0.30	0.30	0.29
14.800	0.29	0.28	0.28	0.28	0.27
15.050	0.27	0.26	0.26	0.26	0.25
15.300	0.25	0.24	0.24	0.23	0.23
15.550	0.23	0.22	0.22	0.21	0.21
15.800	0.21	0.20	0.20	0.19	0.19
16.050	0.19	0.18	0.18	0.18	0.18
16.300	0.18	0.17	0.17	0.17	0.17
16.550	0.17	0.17	0.16	0.16	0.16
16.800	0.16	0.16	0.16	0.15	0.15
17.050	0.15	0.15	0.15	0.14	0.14
17.300	0.14	0.14	0.14	0.14	0.13
17.550	0.13	0.13	0.13	0.13	0.13
17.800	0.12	0.12	0.12	0.12	0.12
18.050	0.11	0.11	0.11	0.11	0.11
18.300	0.11	0.11	0.11	0.11	0.11
18.550	0.11	0.11	0.11	0.11	0.11
18.800	0.11	0.11	0.10	0.10	0.10
19.050	0.10	0.10	0.10	0.10	0.10
19.300	0.10	0.10	0.10	0.10	0.10
19.550	0.10	0.10	0.10	0.10	0.10
19.800	0.10	0.09	0.09	0.09	0.09
20.050	0.09	0.09	0.09	0.09	0.09
20.300	0.09	0.09	0.09	0.09	0.09
20.550	0.09	0.09	0.09	0.09	0.09
20.800	0.09	0.09	0.09	0.09	0.09
21.050	0.09	0.08	0.08	0.08	0.08
21.300	0.08	0.08	0.08	0.08	0.08
21.550	0.08	0.08	0.08	0.08	0.08

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: West-Post Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.800	0.08	0.08	0.08	0.08	0.08
22.050	0.08	0.08	0.08	0.08	0.08
22.300	0.07	0.07	0.07	0.07	0.07
22.550	0.07	0.07	0.07	0.07	0.07
22.800	0.07	0.07	0.07	0.07	0.07
23.050	0.07	0.07	0.07	0.07	0.07
23.300	0.07	0.07	0.07	0.07	0.07
23.550	0.06	0.06	0.06	0.06	0.06
23.800	0.06	0.06	0.06	0.06	0.06

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Pre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.196 hours
Area (User Defined)	0.952 acres

Computational Time Increment	0.026 hours
Time to Peak (Computed)	12.161 hours
Flow (Peak, Computed)	1.45 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	1.44 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	0.952 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.7 in
Runoff Volume (Pervious)	0.133 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.133 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.196 hours
Computational Time Increment	0.026 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Pre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	5.51 ft³/s
Unit peak time, Tp	0.130 hours
Unit receding limb, Tr	0.522 hours
Total unit time, Tb	0.652 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: West-Pre Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

Storm Event	2yr, 24hr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.196 hours
Area (User Defined)	0.952 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.200	0.00	0.00	0.00	0.00	0.00
9.450	0.00	0.01	0.01	0.01	0.01
9.700	0.01	0.01	0.01	0.01	0.01
9.950	0.01	0.01	0.02	0.02	0.02
10.200	0.02	0.02	0.02	0.02	0.03
10.450	0.03	0.03	0.03	0.03	0.04
10.700	0.04	0.04	0.04	0.04	0.05
10.950	0.05	0.05	0.05	0.06	0.06
11.200	0.07	0.07	0.08	0.08	0.09
11.450	0.10	0.11	0.12	0.13	0.16
11.700	0.20	0.26	0.32	0.39	0.47
11.950	0.60	0.82	1.10	1.33	1.44
12.200	1.38	1.21	1.04	0.91	0.80
12.450	0.70	0.60	0.50	0.42	0.36
12.700	0.31	0.28	0.26	0.25	0.23
12.950	0.22	0.21	0.20	0.19	0.19
13.200	0.18	0.18	0.17	0.17	0.17
13.450	0.16	0.16	0.16	0.16	0.15
13.700	0.15	0.15	0.14	0.14	0.14
13.950	0.14	0.13	0.13	0.13	0.13
14.200	0.12	0.12	0.12	0.12	0.12
14.450	0.12	0.12	0.11	0.11	0.11
14.700	0.11	0.11	0.11	0.11	0.10
14.950	0.10	0.10	0.10	0.10	0.10
15.200	0.10	0.09	0.09	0.09	0.09
15.450	0.09	0.09	0.09	0.08	0.08
15.700	0.08	0.08	0.08	0.08	0.08
15.950	0.07	0.07	0.07	0.07	0.07
16.200	0.07	0.07	0.07	0.07	0.07
16.450	0.06	0.06	0.06	0.06	0.06
16.700	0.06	0.06	0.06	0.06	0.06
16.950	0.06	0.06	0.06	0.06	0.06
17.200	0.06	0.05	0.05	0.05	0.05

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: West-Pre Storm Event: 2yr, 24hr
Scenario: 2yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.450	0.05	0.05	0.05	0.05	0.05
17.700	0.05	0.05	0.05	0.05	0.05
17.950	0.05	0.04	0.04	0.04	0.04
18.200	0.04	0.04	0.04	0.04	0.04
18.450	0.04	0.04	0.04	0.04	0.04
18.700	0.04	0.04	0.04	0.04	0.04
18.950	0.04	0.04	0.04	0.04	0.04
19.200	0.04	0.04	0.04	0.04	0.04
19.450	0.04	0.04	0.04	0.04	0.04
19.700	0.04	0.04	0.04	0.04	0.04
19.950	0.04	0.04	0.04	0.04	0.04
20.200	0.04	0.04	0.03	0.03	0.03
20.450	0.03	0.03	0.03	0.03	0.03
20.700	0.03	0.03	0.03	0.03	0.03
20.950	0.03	0.03	0.03	0.03	0.03
21.200	0.03	0.03	0.03	0.03	0.03
21.450	0.03	0.03	0.03	0.03	0.03
21.700	0.03	0.03	0.03	0.03	0.03
21.950	0.03	0.03	0.03	0.03	0.03
22.200	0.03	0.03	0.03	0.03	0.03
22.450	0.03	0.03	0.03	0.03	0.03
22.700	0.03	0.03	0.03	0.03	0.03
22.950	0.03	0.03	0.03	0.03	0.03
23.200	0.03	0.03	0.03	0.03	0.03
23.450	0.03	0.03	0.03	0.03	0.02
23.700	0.02	0.02	0.02	0.02	0.02
23.950	0.02	0.02	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Pre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.196 hours
Area (User Defined)	0.952 acres

Computational Time Increment	0.026 hours
Time to Peak (Computed)	12.161 hours
Flow (Peak, Computed)	2.95 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	2.94 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	0.952 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.4 in
Runoff Volume (Pervious)	0.270 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.269 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.196 hours
Computational Time Increment	0.026 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Pre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	5.51 ft³/s
Unit peak time, Tp	0.130 hours
Unit receding limb, Tr	0.522 hours
Total unit time, Tb	0.652 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: West-Pre Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

Storm Event	10yr, 24hr
Return Event	10 years
Duration	24.000 hours
Depth	5.7 in
Time of Concentration (Composite)	0.196 hours
Area (User Defined)	0.952 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
7.350	0.00	0.00	0.00	0.00	0.00
7.600	0.00	0.00	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.02	0.02	0.02	0.02	0.02
8.600	0.02	0.02	0.02	0.03	0.03
8.850	0.03	0.03	0.03	0.03	0.04
9.100	0.04	0.04	0.04	0.04	0.04
9.350	0.05	0.05	0.05	0.05	0.05
9.600	0.06	0.06	0.06	0.06	0.07
9.850	0.07	0.07	0.07	0.08	0.08
10.100	0.08	0.08	0.09	0.09	0.09
10.350	0.10	0.10	0.11	0.11	0.12
10.600	0.12	0.12	0.13	0.13	0.14
10.850	0.14	0.15	0.15	0.16	0.16
11.100	0.17	0.18	0.19	0.20	0.22
11.350	0.23	0.25	0.26	0.28	0.31
11.600	0.35	0.41	0.51	0.63	0.77
11.850	0.92	1.09	1.34	1.80	2.34
12.100	2.77	2.94	2.77	2.40	2.04
12.350	1.77	1.54	1.33	1.13	0.95
12.600	0.79	0.67	0.58	0.53	0.49
12.850	0.46	0.44	0.41	0.39	0.37
13.100	0.36	0.34	0.33	0.32	0.32
13.350	0.31	0.31	0.30	0.29	0.29
13.600	0.28	0.28	0.27	0.27	0.26
13.850	0.26	0.25	0.25	0.24	0.24
14.100	0.23	0.23	0.22	0.22	0.22
14.350	0.22	0.21	0.21	0.21	0.21
14.600	0.20	0.20	0.20	0.20	0.19
14.850	0.19	0.19	0.19	0.18	0.18
15.100	0.18	0.18	0.17	0.17	0.17
15.350	0.16	0.16	0.16	0.16	0.15

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: West-Pre Storm Event: 10yr, 24hr
Scenario: 10yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.600	0.15	0.15	0.15	0.14	0.14
15.850	0.14	0.14	0.13	0.13	0.13
16.100	0.13	0.12	0.12	0.12	0.12
16.350	0.12	0.12	0.12	0.11	0.11
16.600	0.11	0.11	0.11	0.11	0.11
16.850	0.11	0.11	0.10	0.10	0.10
17.100	0.10	0.10	0.10	0.10	0.10
17.350	0.09	0.09	0.09	0.09	0.09
17.600	0.09	0.09	0.09	0.09	0.08
17.850	0.08	0.08	0.08	0.08	0.08
18.100	0.08	0.08	0.08	0.08	0.08
18.350	0.07	0.07	0.07	0.07	0.07
18.600	0.07	0.07	0.07	0.07	0.07
18.850	0.07	0.07	0.07	0.07	0.07
19.100	0.07	0.07	0.07	0.07	0.07
19.350	0.07	0.07	0.07	0.07	0.07
19.600	0.07	0.07	0.07	0.07	0.06
19.850	0.06	0.06	0.06	0.06	0.06
20.100	0.06	0.06	0.06	0.06	0.06
20.350	0.06	0.06	0.06	0.06	0.06
20.600	0.06	0.06	0.06	0.06	0.06
20.850	0.06	0.06	0.06	0.06	0.06
21.100	0.06	0.06	0.06	0.06	0.06
21.350	0.06	0.06	0.06	0.06	0.05
21.600	0.05	0.05	0.05	0.05	0.05
21.850	0.05	0.05	0.05	0.05	0.05
22.100	0.05	0.05	0.05	0.05	0.05
22.350	0.05	0.05	0.05	0.05	0.05
22.600	0.05	0.05	0.05	0.05	0.05
22.850	0.05	0.05	0.05	0.05	0.05
23.100	0.05	0.05	0.05	0.05	0.05
23.350	0.05	0.05	0.04	0.04	0.04
23.600	0.04	0.04	0.04	0.04	0.04
23.850	0.04	0.04	0.04	0.04	(N/A)

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Pre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.196 hours
Area (User Defined)	0.952 acres

Computational Time Increment	0.026 hours
Time to Peak (Computed)	12.135 hours
Flow (Peak, Computed)	5.62 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	5.61 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	0.952 acres
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.6 in
Runoff Volume (Pervious)	0.525 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.524 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.196 hours
Computational Time Increment	0.026 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670

Stormwater Report

Subsection: Unit Hydrograph Summary
Label: West-Pre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

SCS Unit Hydrograph Parameters	
Unit peak, qp	5.51 ft³/s
Unit peak time, Tp	0.130 hours
Unit receding limb, Tr	0.522 hours
Total unit time, Tb	0.652 hours

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: West-Pre Storm Event: 100yr, 24hr
Scenario: 100yr, 24hr

Storm Event	100yr, 24hr
Return Event	100 years
Duration	24.000 hours
Depth	9.2 in
Time of Concentration (Composite)	0.196 hours
Area (User Defined)	0.952 acres

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
5.250	0.00	0.00	0.00	0.00	0.00
5.500	0.00	0.00	0.00	0.01	0.01
5.750	0.01	0.01	0.01	0.01	0.01
6.000	0.01	0.01	0.01	0.01	0.01
6.250	0.01	0.02	0.02	0.02	0.02
6.500	0.02	0.02	0.02	0.02	0.02
6.750	0.03	0.03	0.03	0.03	0.03
7.000	0.03	0.03	0.03	0.04	0.04
7.250	0.04	0.04	0.04	0.04	0.04
7.500	0.05	0.05	0.05	0.05	0.05
7.750	0.05	0.06	0.06	0.06	0.06
8.000	0.06	0.06	0.07	0.07	0.07
8.250	0.07	0.08	0.08	0.08	0.09
8.500	0.09	0.09	0.10	0.10	0.10
8.750	0.11	0.11	0.11	0.12	0.12
9.000	0.12	0.13	0.13	0.14	0.14
9.250	0.14	0.15	0.15	0.16	0.16
9.500	0.17	0.17	0.17	0.18	0.18
9.750	0.19	0.19	0.20	0.20	0.21
10.000	0.21	0.22	0.22	0.23	0.24
10.250	0.24	0.25	0.26	0.27	0.28
10.500	0.29	0.29	0.30	0.31	0.32
10.750	0.33	0.34	0.35	0.36	0.37
11.000	0.38	0.39	0.41	0.42	0.45
11.250	0.47	0.50	0.53	0.56	0.60
11.500	0.63	0.68	0.77	0.91	1.10
11.750	1.35	1.63	1.93	2.25	2.72
12.000	3.59	4.59	5.35	5.61	5.23
12.250	4.50	3.79	3.26	2.82	2.43
12.500	2.06	1.72	1.43	1.20	1.05
12.750	0.95	0.88	0.83	0.78	0.74
13.000	0.70	0.67	0.64	0.61	0.59
13.250	0.58	0.56	0.55	0.54	0.53

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table)
Label: West-Pre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
13.500	0.52	0.51	0.50	0.50	0.49
13.750	0.48	0.47	0.46	0.45	0.44
14.000	0.43	0.42	0.41	0.40	0.40
14.250	0.39	0.39	0.38	0.38	0.37
14.500	0.37	0.36	0.36	0.35	0.35
14.750	0.34	0.34	0.34	0.33	0.33
15.000	0.32	0.32	0.31	0.31	0.30
15.250	0.30	0.29	0.29	0.28	0.28
15.500	0.28	0.27	0.27	0.26	0.26
15.750	0.25	0.25	0.24	0.24	0.23
16.000	0.23	0.22	0.22	0.22	0.21
16.250	0.21	0.21	0.21	0.20	0.20
16.500	0.20	0.20	0.20	0.19	0.19
16.750	0.19	0.19	0.19	0.18	0.18
17.000	0.18	0.18	0.18	0.17	0.17
17.250	0.17	0.17	0.17	0.16	0.16
17.500	0.16	0.16	0.16	0.15	0.15
17.750	0.15	0.15	0.14	0.14	0.14
18.000	0.14	0.14	0.13	0.13	0.13
18.250	0.13	0.13	0.13	0.13	0.13
18.500	0.13	0.13	0.13	0.13	0.13
18.750	0.13	0.12	0.12	0.12	0.12
19.000	0.12	0.12	0.12	0.12	0.12
19.250	0.12	0.12	0.12	0.12	0.12
19.500	0.12	0.12	0.11	0.11	0.11
19.750	0.11	0.11	0.11	0.11	0.11
20.000	0.11	0.11	0.11	0.11	0.11
20.250	0.11	0.11	0.11	0.11	0.11
20.500	0.10	0.10	0.10	0.10	0.10
20.750	0.10	0.10	0.10	0.10	0.10
21.000	0.10	0.10	0.10	0.10	0.10
21.250	0.10	0.10	0.10	0.10	0.10
21.500	0.10	0.09	0.09	0.09	0.09
21.750	0.09	0.09	0.09	0.09	0.09
22.000	0.09	0.09	0.09	0.09	0.09
22.250	0.09	0.09	0.09	0.09	0.09
22.500	0.09	0.09	0.09	0.08	0.08
22.750	0.08	0.08	0.08	0.08	0.08
23.000	0.08	0.08	0.08	0.08	0.08
23.250	0.08	0.08	0.08	0.08	0.08
23.500	0.08	0.08	0.08	0.08	0.08
23.750	0.07	0.07	0.07	0.07	0.07

Stormwater Report

Subsection: Unit Hydrograph (Hydrograph Table)
Label: West-Pre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
24.000	0.07	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Addition Summary
Label: 01-WestPre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Summary for Hydrograph Addition at '01-WestPre'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	West-Pre

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	West-Pre	0.133	12.150	1.44
Flow (In)	01-WestPre	0.133	12.150	1.44

Stormwater Report

Subsection: Addition Summary
Label: 01-WestPre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Summary for Hydrograph Addition at '01-WestPre'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	West-Pre

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	West-Pre	0.269	12.150	2.94
Flow (In)	01-WestPre	0.269	12.150	2.94

Stormwater Report

Subsection: Addition Summary
Label: 01-WestPre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Summary for Hydrograph Addition at '01-WestPre'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	West-Pre

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	West-Pre	0.524	12.150	5.61
Flow (In)	01-WestPre	0.524	12.150	5.61

Stormwater Report

Subsection: Addition Summary
Label: 02-EastPre
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Summary for Hydrograph Addition at '02-EastPre'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	EastPre

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	EastPre	0.444	12.350	3.58
Flow (In)	02-EastPre	0.444	12.350	3.58

Stormwater Report

Subsection: Addition Summary
Label: 02-EastPre
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Summary for Hydrograph Addition at '02-EastPre'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	EastPre

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	EastPre	0.988	12.300	8.31
Flow (In)	02-EastPre	0.988	12.300	8.31

Stormwater Report

Subsection: Addition Summary
Label: 02-EastPre
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Summary for Hydrograph Addition at '02-EastPre'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	EastPre

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	EastPre	2.050	12.300	17.23
Flow (In)	02-EastPre	2.050	12.300	17.23

Stormwater Report

Subsection: Addition Summary
Label: 04-BESS-Post
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Summary for Hydrograph Addition at '04-BESS-Post'

Upstream Link	Upstream Node
Outlet-3	MainPond

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Outlet-3	0.797	12.300	4.69
Flow (In)	04-BESS-Post	0.797	12.300	4.69

Stormwater Report

Subsection: Addition Summary
Label: 04-BESS-Post
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Summary for Hydrograph Addition at '04-BESS-Post'

Upstream Link	Upstream Node
Outlet-3	MainPond

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Outlet-3	1.577	12.250	11.14
Flow (In)	04-BESS-Post	1.577	12.250	11.14

Stormwater Report

Subsection: Addition Summary
Label: 04-BESS-Post
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Summary for Hydrograph Addition at '04-BESS-Post'

Upstream Link	Upstream Node
Outlet-3	MainPond

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Outlet-3	2.996	12.200	20.96
Flow (In)	04-BESS-Post	2.996	12.200	20.96

Stormwater Report

Subsection: Time vs. Elevation
Label: MainPond (OUT)
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	236.00	236.00	236.00	236.00	236.00
0.250	236.00	236.00	236.00	236.00	236.00
0.500	236.00	236.00	236.00	236.00	236.00
0.750	236.00	236.00	236.00	236.00	236.00
1.000	236.00	236.00	236.00	236.00	236.00
1.250	236.00	236.00	236.00	236.00	236.00
1.500	236.00	236.00	236.00	236.00	236.00
1.750	236.00	236.00	236.00	236.00	236.00
2.000	236.00	236.00	236.00	236.00	236.00
2.250	236.00	236.00	236.00	236.00	236.00
2.500	236.00	236.00	236.00	236.00	236.00
2.750	236.00	236.00	236.00	236.00	236.00
3.000	236.00	236.00	236.00	236.00	236.00
3.250	236.00	236.00	236.00	236.00	236.00
3.500	236.00	236.00	236.00	236.00	236.00
3.750	236.00	236.00	236.00	236.00	236.00
4.000	236.00	236.00	236.00	236.00	236.00
4.250	236.00	236.00	236.00	236.00	236.00
4.500	236.00	236.00	236.00	236.00	236.00
4.750	236.00	236.00	236.00	236.00	236.00
5.000	236.00	236.00	236.00	236.00	236.00
5.250	236.00	236.00	236.00	236.00	236.00
5.500	236.00	236.00	236.00	236.00	236.00
5.750	236.00	236.00	236.00	236.00	236.00
6.000	236.00	236.00	236.00	236.00	236.00
6.250	236.00	236.00	236.00	236.00	236.00
6.500	236.00	236.00	236.00	236.00	236.00
6.750	236.00	236.00	236.00	236.00	236.00
7.000	236.00	236.00	236.00	236.00	236.00
7.250	236.00	236.00	236.00	236.00	236.00
7.500	236.00	236.00	236.01	236.01	236.01
7.750	236.01	236.01	236.01	236.01	236.01
8.000	236.01	236.01	236.01	236.01	236.01
8.250	236.01	236.02	236.02	236.02	236.02
8.500	236.02	236.02	236.02	236.03	236.03
8.750	236.03	236.03	236.03	236.04	236.04
9.000	236.04	236.05	236.05	236.05	236.06
9.250	236.06	236.07	236.07	236.08	236.08
9.500	236.09	236.10	236.10	236.11	236.12
9.750	236.13	236.13	236.14	236.15	236.16

Stormwater Report

Subsection: Time vs. Elevation
Label: MainPond (OUT)
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	236.17	236.18	236.19	236.20	236.21
10.250	236.22	236.23	236.25	236.26	236.28
10.500	236.29	236.31	236.32	236.34	236.36
10.750	236.37	236.39	236.41	236.43	236.46
11.000	236.48	236.50	236.52	236.54	236.55
11.250	236.57	236.58	236.60	236.61	236.62
11.500	236.63	236.65	236.67	236.69	236.73
11.750	236.78	236.84	236.91	236.99	237.10
12.000	237.28	237.51	237.75	237.95	238.07
12.250	238.13	238.15	238.15	238.13	238.09
12.500	238.04	237.97	237.88	237.79	237.71
12.750	237.63	237.55	237.47	237.39	237.31
13.000	237.24	237.18	237.11	237.06	237.00
13.250	236.95	236.91	236.87	236.84	236.82
13.500	236.80	236.78	236.76	236.75	236.74
13.750	236.73	236.72	236.71	236.71	236.70
14.000	236.69	236.69	236.68	236.68	236.68
14.250	236.67	236.67	236.67	236.66	236.66
14.500	236.66	236.66	236.65	236.65	236.65
14.750	236.65	236.64	236.64	236.64	236.64
15.000	236.64	236.64	236.63	236.63	236.63
15.250	236.63	236.63	236.62	236.62	236.62
15.500	236.62	236.62	236.61	236.61	236.61
15.750	236.61	236.61	236.61	236.60	236.60
16.000	236.60	236.60	236.60	236.59	236.59
16.250	236.59	236.59	236.59	236.59	236.59
16.500	236.59	236.58	236.58	236.58	236.58
16.750	236.58	236.58	236.58	236.58	236.58
17.000	236.58	236.58	236.58	236.57	236.57
17.250	236.57	236.57	236.57	236.57	236.57
17.500	236.57	236.57	236.57	236.57	236.57
17.750	236.56	236.56	236.56	236.56	236.56
18.000	236.56	236.56	236.56	236.56	236.56
18.250	236.56	236.56	236.56	236.56	236.55
18.500	236.55	236.55	236.55	236.55	236.55
18.750	236.55	236.55	236.55	236.55	236.55
19.000	236.55	236.55	236.55	236.55	236.55
19.250	236.55	236.55	236.55	236.55	236.55
19.500	236.55	236.55	236.55	236.55	236.55
19.750	236.55	236.55	236.55	236.55	236.55
20.000	236.55	236.55	236.55	236.55	236.55

Stormwater Report

Subsection: Time vs. Elevation
Label: MainPond (OUT)
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	236.55	236.55	236.54	236.54	236.54
20.500	236.54	236.54	236.54	236.54	236.54
20.750	236.54	236.54	236.54	236.54	236.54
21.000	236.54	236.54	236.54	236.54	236.54
21.250	236.54	236.54	236.54	236.54	236.54
21.500	236.54	236.54	236.54	236.54	236.54
21.750	236.54	236.54	236.54	236.54	236.54
22.000	236.54	236.54	236.54	236.54	236.54
22.250	236.54	236.54	236.54	236.54	236.54
22.500	236.54	236.54	236.54	236.54	236.54
22.750	236.54	236.54	236.54	236.54	236.53
23.000	236.53	236.53	236.53	236.53	236.53
23.250	236.53	236.53	236.53	236.53	236.53
23.500	236.53	236.53	236.53	236.53	236.53
23.750	236.53	236.53	236.53	236.53	236.53
24.000	236.53	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Time vs. Elevation
Label: MainPond (OUT)
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	236.00	236.00	236.00	236.00	236.00
0.250	236.00	236.00	236.00	236.00	236.00
0.500	236.00	236.00	236.00	236.00	236.00
0.750	236.00	236.00	236.00	236.00	236.00
1.000	236.00	236.00	236.00	236.00	236.00
1.250	236.00	236.00	236.00	236.00	236.00
1.500	236.00	236.00	236.00	236.00	236.00
1.750	236.00	236.00	236.00	236.00	236.00
2.000	236.00	236.00	236.00	236.00	236.00
2.250	236.00	236.00	236.00	236.00	236.00
2.500	236.00	236.00	236.00	236.00	236.00
2.750	236.00	236.00	236.00	236.00	236.00
3.000	236.00	236.00	236.00	236.00	236.00
3.250	236.00	236.00	236.00	236.00	236.00
3.500	236.00	236.00	236.00	236.00	236.00
3.750	236.00	236.00	236.00	236.00	236.00
4.000	236.00	236.00	236.00	236.00	236.00
4.250	236.00	236.00	236.00	236.00	236.00
4.500	236.00	236.00	236.00	236.00	236.00
4.750	236.00	236.00	236.00	236.00	236.00
5.000	236.00	236.00	236.00	236.00	236.00
5.250	236.00	236.00	236.00	236.00	236.00
5.500	236.00	236.00	236.00	236.01	236.01
5.750	236.01	236.01	236.01	236.01	236.01
6.000	236.01	236.01	236.01	236.01	236.01
6.250	236.01	236.01	236.02	236.02	236.02
6.500	236.02	236.02	236.02	236.02	236.02
6.750	236.03	236.03	236.03	236.03	236.03
7.000	236.04	236.04	236.04	236.05	236.05
7.250	236.05	236.06	236.06	236.06	236.07
7.500	236.07	236.08	236.08	236.09	236.09
7.750	236.10	236.10	236.11	236.12	236.12
8.000	236.13	236.14	236.14	236.15	236.16
8.250	236.17	236.18	236.19	236.20	236.21
8.500	236.22	236.23	236.24	236.25	236.27
8.750	236.28	236.29	236.31	236.32	236.34
9.000	236.35	236.37	236.38	236.40	236.42
9.250	236.44	236.46	236.48	236.50	236.52
9.500	236.53	236.54	236.55	236.56	236.57
9.750	236.58	236.59	236.59	236.60	236.60

Stormwater Report

Subsection: Time vs. Elevation
Label: MainPond (OUT)
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	236.61	236.61	236.62	236.62	236.62
10.250	236.63	236.63	236.64	236.64	236.65
10.500	236.65	236.66	236.67	236.67	236.68
10.750	236.68	236.69	236.70	236.70	236.71
11.000	236.71	236.72	236.73	236.74	236.75
11.250	236.76	236.78	236.79	236.81	236.83
11.500	236.84	236.87	236.90	236.96	237.03
11.750	237.13	237.25	237.41	237.58	237.82
12.000	238.16	238.58	238.95	239.21	239.33
12.250	239.34	239.31	239.24	239.17	239.07
12.500	238.97	238.85	238.74	238.63	238.54
12.750	238.45	238.37	238.28	238.20	238.12
13.000	238.04	237.95	237.87	237.78	237.71
13.250	237.63	237.57	237.50	237.43	237.37
13.500	237.31	237.26	237.21	237.16	237.12
13.750	237.08	237.04	237.00	236.97	236.94
14.000	236.91	236.89	236.87	236.85	236.84
14.250	236.82	236.81	236.81	236.80	236.79
14.500	236.78	236.78	236.77	236.77	236.76
14.750	236.76	236.75	236.75	236.75	236.74
15.000	236.74	236.74	236.73	236.73	236.73
15.250	236.72	236.72	236.72	236.71	236.71
15.500	236.71	236.70	236.70	236.70	236.69
15.750	236.69	236.69	236.68	236.68	236.68
16.000	236.67	236.67	236.67	236.66	236.66
16.250	236.66	236.66	236.65	236.65	236.65
16.500	236.65	236.65	236.64	236.64	236.64
16.750	236.64	236.64	236.64	236.64	236.63
17.000	236.63	236.63	236.63	236.63	236.63
17.250	236.62	236.62	236.62	236.62	236.62
17.500	236.62	236.62	236.61	236.61	236.61
17.750	236.61	236.61	236.61	236.61	236.60
18.000	236.60	236.60	236.60	236.60	236.60
18.250	236.60	236.60	236.60	236.59	236.59
18.500	236.59	236.59	236.59	236.59	236.59
18.750	236.59	236.59	236.59	236.59	236.59
19.000	236.59	236.59	236.59	236.59	236.59
19.250	236.59	236.59	236.59	236.58	236.58
19.500	236.58	236.58	236.58	236.58	236.58
19.750	236.58	236.58	236.58	236.58	236.58
20.000	236.58	236.58	236.58	236.58	236.58

Stormwater Report

Subsection: Time vs. Elevation
Label: MainPond (OUT)
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	236.58	236.58	236.58	236.58	236.58
20.500	236.58	236.58	236.57	236.57	236.57
20.750	236.57	236.57	236.57	236.57	236.57
21.000	236.57	236.57	236.57	236.57	236.57
21.250	236.57	236.57	236.57	236.57	236.57
21.500	236.57	236.57	236.57	236.57	236.57
21.750	236.57	236.57	236.57	236.57	236.57
22.000	236.57	236.57	236.57	236.56	236.56
22.250	236.56	236.56	236.56	236.56	236.56
22.500	236.56	236.56	236.56	236.56	236.56
22.750	236.56	236.56	236.56	236.56	236.56
23.000	236.56	236.56	236.56	236.56	236.56
23.250	236.56	236.56	236.56	236.56	236.56
23.500	236.56	236.56	236.56	236.55	236.55
23.750	236.55	236.55	236.55	236.55	236.55
24.000	236.55	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Time vs. Elevation
Label: MainPond (OUT)
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	236.00	236.00	236.00	236.00	236.00
0.250	236.00	236.00	236.00	236.00	236.00
0.500	236.00	236.00	236.00	236.00	236.00
0.750	236.00	236.00	236.00	236.00	236.00
1.000	236.00	236.00	236.00	236.00	236.00
1.250	236.00	236.00	236.00	236.00	236.00
1.500	236.00	236.00	236.00	236.00	236.00
1.750	236.00	236.00	236.00	236.00	236.00
2.000	236.00	236.00	236.00	236.00	236.00
2.250	236.00	236.00	236.00	236.00	236.00
2.500	236.00	236.00	236.00	236.00	236.00
2.750	236.00	236.00	236.00	236.00	236.00
3.000	236.00	236.00	236.00	236.00	236.00
3.250	236.00	236.00	236.00	236.00	236.00
3.500	236.00	236.00	236.00	236.00	236.00
3.750	236.00	236.00	236.01	236.01	236.01
4.000	236.01	236.01	236.01	236.01	236.01
4.250	236.01	236.01	236.01	236.02	236.02
4.500	236.02	236.02	236.02	236.02	236.02
4.750	236.03	236.03	236.03	236.03	236.04
5.000	236.04	236.04	236.05	236.05	236.05
5.250	236.06	236.06	236.07	236.07	236.08
5.500	236.08	236.09	236.09	236.10	236.10
5.750	236.11	236.12	236.12	236.13	236.14
6.000	236.14	236.15	236.16	236.17	236.17
6.250	236.18	236.19	236.20	236.21	236.22
6.500	236.23	236.24	236.25	236.27	236.28
6.750	236.29	236.30	236.32	236.33	236.34
7.000	236.36	236.37	236.39	236.40	236.42
7.250	236.44	236.45	236.47	236.49	236.51
7.500	236.52	236.53	236.54	236.55	236.56
7.750	236.57	236.57	236.58	236.58	236.59
8.000	236.59	236.59	236.60	236.60	236.60
8.250	236.61	236.61	236.62	236.62	236.62
8.500	236.63	236.63	236.64	236.64	236.64
8.750	236.65	236.65	236.66	236.66	236.67
9.000	236.67	236.68	236.68	236.69	236.69
9.250	236.70	236.70	236.71	236.71	236.72
9.500	236.72	236.73	236.73	236.74	236.75
9.750	236.75	236.76	236.76	236.77	236.77

Stormwater Report

Subsection: Time vs. Elevation
Label: MainPond (OUT)
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	236.78	236.79	236.79	236.80	236.81
10.250	236.82	236.82	236.83	236.84	236.85
10.500	236.86	236.87	236.88	236.89	236.90
10.750	236.92	236.93	236.94	236.95	236.96
11.000	236.97	236.99	237.00	237.02	237.04
11.250	237.06	237.10	237.13	237.17	237.21
11.500	237.26	237.32	237.40	237.52	237.68
11.750	237.89	238.13	238.42	238.71	239.06
12.000	239.52	240.01	240.45	240.77	240.91
12.250	240.90	240.82	240.70	240.55	240.37
12.500	240.18	239.97	239.75	239.54	239.35
12.750	239.18	239.04	238.91	238.80	238.71
13.000	238.62	238.55	238.48	238.42	238.36
13.250	238.29	238.23	238.17	238.12	238.06
13.500	238.01	237.95	237.89	237.84	237.79
13.750	237.74	237.69	237.64	237.59	237.55
14.000	237.51	237.46	237.42	237.38	237.34
14.250	237.30	237.27	237.24	237.21	237.18
14.500	237.15	237.13	237.10	237.08	237.06
14.750	237.04	237.02	237.00	236.98	236.96
15.000	236.95	236.93	236.92	236.91	236.90
15.250	236.89	236.89	236.88	236.87	236.86
15.500	236.86	236.85	236.84	236.84	236.83
15.750	236.83	236.82	236.81	236.81	236.80
16.000	236.80	236.79	236.78	236.78	236.77
16.250	236.77	236.77	236.76	236.76	236.76
16.500	236.75	236.75	236.75	236.74	236.74
16.750	236.74	236.74	236.73	236.73	236.73
17.000	236.73	236.72	236.72	236.72	236.72
17.250	236.71	236.71	236.71	236.71	236.70
17.500	236.70	236.70	236.70	236.69	236.69
17.750	236.69	236.69	236.68	236.68	236.68
18.000	236.68	236.67	236.67	236.67	236.67
18.250	236.67	236.66	236.66	236.66	236.66
18.500	236.66	236.66	236.66	236.66	236.65
18.750	236.65	236.65	236.65	236.65	236.65
19.000	236.65	236.65	236.65	236.65	236.65
19.250	236.65	236.65	236.64	236.64	236.64
19.500	236.64	236.64	236.64	236.64	236.64
19.750	236.64	236.64	236.64	236.64	236.64
20.000	236.63	236.63	236.63	236.63	236.63

Stormwater Report

Subsection: Time vs. Elevation
Label: MainPond (OUT)
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	236.63	236.63	236.63	236.63	236.63
20.500	236.63	236.63	236.63	236.63	236.63
20.750	236.63	236.62	236.62	236.62	236.62
21.000	236.62	236.62	236.62	236.62	236.62
21.250	236.62	236.62	236.62	236.62	236.62
21.500	236.62	236.62	236.62	236.62	236.61
21.750	236.61	236.61	236.61	236.61	236.61
22.000	236.61	236.61	236.61	236.61	236.61
22.250	236.61	236.61	236.61	236.61	236.61
22.500	236.61	236.61	236.60	236.60	236.60
22.750	236.60	236.60	236.60	236.60	236.60
23.000	236.60	236.60	236.60	236.60	236.60
23.250	236.60	236.60	236.60	236.60	236.60
23.500	236.59	236.59	236.59	236.59	236.59
23.750	236.59	236.59	236.59	236.59	236.59
24.000	236.59	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Time vs. Volume
Label: MainPond
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	0.000	0.000	0.000	0.000
1.500	0.000	0.000	0.000	0.000	0.000
1.750	0.000	0.000	0.000	0.000	0.000
2.000	0.000	0.000	0.000	0.000	0.000
2.250	0.000	0.000	0.000	0.000	0.000
2.500	0.000	0.000	0.000	0.000	0.000
2.750	0.000	0.000	0.000	0.000	0.000
3.000	0.000	0.000	0.000	0.000	0.000
3.250	0.000	0.000	0.000	0.000	0.000
3.500	0.000	0.000	0.000	0.000	0.000
3.750	0.000	0.000	0.000	0.000	0.000
4.000	0.000	0.000	0.000	0.000	0.000
4.250	0.000	0.000	0.000	0.000	0.000
4.500	0.000	0.000	0.000	0.000	0.000
4.750	0.000	0.000	0.000	0.000	0.000
5.000	0.000	0.000	0.000	0.000	0.000
5.250	0.000	0.000	0.000	0.000	0.000
5.500	0.000	0.000	0.000	0.000	0.000
5.750	0.000	0.000	0.000	0.000	0.000
6.000	0.000	0.000	0.000	0.000	0.000
6.250	0.000	0.000	0.000	0.000	0.000
6.500	0.000	0.000	0.000	0.000	0.000
6.750	0.000	0.000	0.000	0.000	0.000
7.000	0.000	0.000	0.000	0.000	0.000
7.250	0.000	0.000	0.000	0.000	0.000
7.500	0.000	0.000	0.000	0.000	0.001
7.750	0.001	0.001	0.001	0.001	0.001
8.000	0.001	0.001	0.001	0.001	0.001
8.250	0.001	0.001	0.001	0.001	0.002
8.500	0.002	0.002	0.002	0.002	0.002
8.750	0.002	0.003	0.003	0.003	0.003
9.000	0.003	0.004	0.004	0.004	0.005
9.250	0.005	0.005	0.006	0.006	0.007
9.500	0.007	0.008	0.008	0.009	0.009
9.750	0.010	0.011	0.011	0.012	0.013

Stormwater Report

Subsection: Time vs. Volume
Label: MainPond
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
10.000	0.014	0.014	0.015	0.016	0.017
10.250	0.018	0.019	0.020	0.021	0.022
10.500	0.024	0.025	0.026	0.028	0.029
10.750	0.031	0.033	0.034	0.036	0.038
11.000	0.040	0.042	0.044	0.045	0.047
11.250	0.048	0.049	0.050	0.051	0.053
11.500	0.054	0.055	0.057	0.059	0.063
11.750	0.067	0.073	0.079	0.087	0.098
12.000	0.116	0.141	0.167	0.190	0.205
12.250	0.211	0.214	0.214	0.211	0.207
12.500	0.200	0.192	0.182	0.172	0.162
12.750	0.153	0.144	0.136	0.128	0.120
13.000	0.113	0.106	0.100	0.094	0.089
13.250	0.084	0.079	0.076	0.073	0.071
13.500	0.069	0.067	0.066	0.065	0.063
13.750	0.063	0.062	0.061	0.060	0.060
14.000	0.059	0.059	0.058	0.058	0.058
14.250	0.057	0.057	0.057	0.056	0.056
14.500	0.056	0.056	0.055	0.055	0.055
14.750	0.055	0.055	0.055	0.054	0.054
15.000	0.054	0.054	0.054	0.054	0.053
15.250	0.053	0.053	0.053	0.053	0.053
15.500	0.052	0.052	0.052	0.052	0.052
15.750	0.052	0.051	0.051	0.051	0.051
16.000	0.051	0.051	0.050	0.050	0.050
16.250	0.050	0.050	0.050	0.050	0.050
16.500	0.049	0.049	0.049	0.049	0.049
16.750	0.049	0.049	0.049	0.049	0.049
17.000	0.049	0.049	0.048	0.048	0.048
17.250	0.048	0.048	0.048	0.048	0.048
17.500	0.048	0.048	0.048	0.048	0.048
17.750	0.047	0.047	0.047	0.047	0.047
18.000	0.047	0.047	0.047	0.047	0.047
18.250	0.047	0.047	0.047	0.047	0.047
18.500	0.047	0.047	0.047	0.047	0.046
18.750	0.046	0.046	0.046	0.046	0.046
19.000	0.046	0.046	0.046	0.046	0.046
19.250	0.046	0.046	0.046	0.046	0.046
19.500	0.046	0.046	0.046	0.046	0.046
19.750	0.046	0.046	0.046	0.046	0.046
20.000	0.046	0.046	0.046	0.046	0.046

Stormwater Report

Subsection: Time vs. Volume
Label: MainPond
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
20.250	0.046	0.046	0.046	0.046	0.046
20.500	0.046	0.046	0.046	0.046	0.046
20.750	0.046	0.046	0.046	0.046	0.046
21.000	0.046	0.046	0.046	0.045	0.045
21.250	0.045	0.045	0.045	0.045	0.045
21.500	0.045	0.045	0.045	0.045	0.045
21.750	0.045	0.045	0.045	0.045	0.045
22.000	0.045	0.045	0.045	0.045	0.045
22.250	0.045	0.045	0.045	0.045	0.045
22.500	0.045	0.045	0.045	0.045	0.045
22.750	0.045	0.045	0.045	0.045	0.045
23.000	0.045	0.045	0.045	0.045	0.045
23.250	0.045	0.045	0.045	0.045	0.045
23.500	0.045	0.045	0.045	0.045	0.045
23.750	0.045	0.045	0.045	0.045	0.045
24.000	0.045	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Time vs. Volume
Label: MainPond
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	0.000	0.000	0.000	0.000
1.500	0.000	0.000	0.000	0.000	0.000
1.750	0.000	0.000	0.000	0.000	0.000
2.000	0.000	0.000	0.000	0.000	0.000
2.250	0.000	0.000	0.000	0.000	0.000
2.500	0.000	0.000	0.000	0.000	0.000
2.750	0.000	0.000	0.000	0.000	0.000
3.000	0.000	0.000	0.000	0.000	0.000
3.250	0.000	0.000	0.000	0.000	0.000
3.500	0.000	0.000	0.000	0.000	0.000
3.750	0.000	0.000	0.000	0.000	0.000
4.000	0.000	0.000	0.000	0.000	0.000
4.250	0.000	0.000	0.000	0.000	0.000
4.500	0.000	0.000	0.000	0.000	0.000
4.750	0.000	0.000	0.000	0.000	0.000
5.000	0.000	0.000	0.000	0.000	0.000
5.250	0.000	0.000	0.000	0.000	0.000
5.500	0.000	0.000	0.000	0.000	0.000
5.750	0.001	0.001	0.001	0.001	0.001
6.000	0.001	0.001	0.001	0.001	0.001
6.250	0.001	0.001	0.001	0.001	0.001
6.500	0.001	0.002	0.002	0.002	0.002
6.750	0.002	0.002	0.002	0.003	0.003
7.000	0.003	0.003	0.003	0.004	0.004
7.250	0.004	0.004	0.005	0.005	0.005
7.500	0.006	0.006	0.007	0.007	0.007
7.750	0.008	0.008	0.009	0.009	0.010
8.000	0.010	0.011	0.012	0.012	0.013
8.250	0.014	0.014	0.015	0.016	0.017
8.500	0.018	0.019	0.020	0.021	0.022
8.750	0.023	0.024	0.025	0.026	0.028
9.000	0.029	0.030	0.032	0.033	0.035
9.250	0.036	0.038	0.040	0.042	0.043
9.500	0.044	0.046	0.047	0.047	0.048
9.750	0.049	0.049	0.050	0.050	0.051

Stormwater Report

Subsection: Time vs. Volume
Label: MainPond
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
10.000	0.051	0.052	0.052	0.053	0.053
10.250	0.053	0.054	0.054	0.055	0.055
10.500	0.056	0.056	0.057	0.057	0.058
10.750	0.058	0.059	0.059	0.060	0.061
11.000	0.061	0.062	0.063	0.063	0.064
11.250	0.066	0.067	0.068	0.070	0.071
11.500	0.073	0.076	0.079	0.084	0.091
11.750	0.101	0.114	0.130	0.148	0.174
12.000	0.215	0.267	0.317	0.354	0.372
12.250	0.373	0.368	0.359	0.348	0.335
12.500	0.320	0.304	0.289	0.274	0.262
12.750	0.251	0.241	0.230	0.220	0.210
13.000	0.200	0.190	0.180	0.171	0.162
13.250	0.154	0.147	0.140	0.132	0.126
13.500	0.120	0.114	0.109	0.104	0.100
13.750	0.096	0.092	0.088	0.085	0.082
14.000	0.079	0.077	0.076	0.074	0.073
14.250	0.071	0.070	0.070	0.069	0.068
14.500	0.068	0.067	0.067	0.066	0.066
14.750	0.065	0.065	0.064	0.064	0.064
15.000	0.063	0.063	0.063	0.062	0.062
15.250	0.062	0.062	0.061	0.061	0.061
15.500	0.060	0.060	0.060	0.059	0.059
15.750	0.059	0.058	0.058	0.058	0.058
16.000	0.057	0.057	0.057	0.056	0.056
16.250	0.056	0.056	0.056	0.055	0.055
16.500	0.055	0.055	0.055	0.055	0.054
16.750	0.054	0.054	0.054	0.054	0.054
17.000	0.054	0.053	0.053	0.053	0.053
17.250	0.053	0.053	0.053	0.053	0.052
17.500	0.052	0.052	0.052	0.052	0.052
17.750	0.052	0.052	0.051	0.051	0.051
18.000	0.051	0.051	0.051	0.051	0.051
18.250	0.050	0.050	0.050	0.050	0.050
18.500	0.050	0.050	0.050	0.050	0.050
18.750	0.050	0.050	0.050	0.050	0.050
19.000	0.050	0.050	0.050	0.050	0.049
19.250	0.049	0.049	0.049	0.049	0.049
19.500	0.049	0.049	0.049	0.049	0.049
19.750	0.049	0.049	0.049	0.049	0.049
20.000	0.049	0.049	0.049	0.049	0.049

Stormwater Report

Subsection: Time vs. Volume
Label: MainPond
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
20.250	0.049	0.049	0.049	0.049	0.049
20.500	0.049	0.048	0.048	0.048	0.048
20.750	0.048	0.048	0.048	0.048	0.048
21.000	0.048	0.048	0.048	0.048	0.048
21.250	0.048	0.048	0.048	0.048	0.048
21.500	0.048	0.048	0.048	0.048	0.048
21.750	0.048	0.048	0.048	0.048	0.048
22.000	0.048	0.048	0.048	0.048	0.047
22.250	0.047	0.047	0.047	0.047	0.047
22.500	0.047	0.047	0.047	0.047	0.047
22.750	0.047	0.047	0.047	0.047	0.047
23.000	0.047	0.047	0.047	0.047	0.047
23.250	0.047	0.047	0.047	0.047	0.047
23.500	0.047	0.047	0.047	0.047	0.047
23.750	0.047	0.047	0.047	0.047	0.046
24.000	0.046	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Time vs. Volume
Label: MainPond
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	0.000	0.000	0.000	0.000
1.500	0.000	0.000	0.000	0.000	0.000
1.750	0.000	0.000	0.000	0.000	0.000
2.000	0.000	0.000	0.000	0.000	0.000
2.250	0.000	0.000	0.000	0.000	0.000
2.500	0.000	0.000	0.000	0.000	0.000
2.750	0.000	0.000	0.000	0.000	0.000
3.000	0.000	0.000	0.000	0.000	0.000
3.250	0.000	0.000	0.000	0.000	0.000
3.500	0.000	0.000	0.000	0.000	0.000
3.750	0.000	0.000	0.000	0.000	0.001
4.000	0.001	0.001	0.001	0.001	0.001
4.250	0.001	0.001	0.001	0.001	0.001
4.500	0.001	0.002	0.002	0.002	0.002
4.750	0.002	0.002	0.002	0.003	0.003
5.000	0.003	0.003	0.004	0.004	0.004
5.250	0.005	0.005	0.005	0.006	0.006
5.500	0.006	0.007	0.007	0.008	0.008
5.750	0.009	0.009	0.010	0.010	0.011
6.000	0.011	0.012	0.013	0.013	0.014
6.250	0.015	0.016	0.016	0.017	0.018
6.500	0.019	0.020	0.021	0.022	0.023
6.750	0.024	0.025	0.026	0.027	0.028
7.000	0.029	0.031	0.032	0.033	0.035
7.250	0.036	0.038	0.039	0.041	0.042
7.500	0.044	0.045	0.046	0.046	0.047
7.750	0.048	0.048	0.049	0.049	0.049
8.000	0.050	0.050	0.050	0.051	0.051
8.250	0.051	0.052	0.052	0.052	0.053
8.500	0.053	0.054	0.054	0.054	0.055
8.750	0.055	0.056	0.056	0.056	0.057
9.000	0.057	0.058	0.058	0.059	0.059
9.250	0.060	0.060	0.060	0.061	0.061
9.500	0.062	0.062	0.063	0.063	0.064
9.750	0.065	0.065	0.066	0.066	0.067

Stormwater Report

Subsection: Time vs. Volume
Label: MainPond
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
10.000	0.067	0.068	0.068	0.069	0.070
10.250	0.071	0.071	0.072	0.073	0.074
10.500	0.075	0.076	0.077	0.078	0.079
10.750	0.080	0.081	0.082	0.083	0.084
11.000	0.086	0.087	0.088	0.090	0.092
11.250	0.095	0.098	0.101	0.105	0.110
11.500	0.114	0.121	0.129	0.142	0.159
11.750	0.183	0.212	0.247	0.285	0.333
12.000	0.399	0.477	0.551	0.608	0.633
12.250	0.631	0.617	0.595	0.569	0.538
12.500	0.504	0.470	0.435	0.403	0.374
12.750	0.350	0.330	0.312	0.297	0.284
13.000	0.273	0.264	0.255	0.247	0.239
13.250	0.231	0.224	0.217	0.210	0.203
13.500	0.196	0.190	0.183	0.177	0.171
13.750	0.165	0.160	0.155	0.150	0.145
14.000	0.140	0.135	0.131	0.126	0.122
14.250	0.119	0.115	0.112	0.109	0.106
14.500	0.103	0.101	0.098	0.096	0.094
14.750	0.092	0.090	0.088	0.086	0.085
15.000	0.083	0.082	0.081	0.080	0.079
15.250	0.078	0.077	0.076	0.076	0.075
15.500	0.074	0.074	0.073	0.073	0.072
15.750	0.071	0.071	0.070	0.070	0.069
16.000	0.069	0.068	0.068	0.067	0.067
16.250	0.066	0.066	0.066	0.065	0.065
16.500	0.065	0.064	0.064	0.064	0.064
16.750	0.063	0.063	0.063	0.063	0.062
17.000	0.062	0.062	0.062	0.061	0.061
17.250	0.061	0.061	0.061	0.060	0.060
17.500	0.060	0.060	0.059	0.059	0.059
17.750	0.059	0.058	0.058	0.058	0.058
18.000	0.058	0.057	0.057	0.057	0.057
18.250	0.057	0.056	0.056	0.056	0.056
18.500	0.056	0.056	0.056	0.056	0.056
18.750	0.056	0.056	0.055	0.055	0.055
19.000	0.055	0.055	0.055	0.055	0.055
19.250	0.055	0.055	0.055	0.055	0.055
19.500	0.055	0.054	0.054	0.054	0.054
19.750	0.054	0.054	0.054	0.054	0.054
20.000	0.054	0.054	0.054	0.054	0.054

Stormwater Report

Subsection: Time vs. Volume
Label: MainPond
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
20.250	0.054	0.053	0.053	0.053	0.053
20.500	0.053	0.053	0.053	0.053	0.053
20.750	0.053	0.053	0.053	0.053	0.053
21.000	0.053	0.053	0.053	0.053	0.053
21.250	0.052	0.052	0.052	0.052	0.052
21.500	0.052	0.052	0.052	0.052	0.052
21.750	0.052	0.052	0.052	0.052	0.052
22.000	0.052	0.052	0.052	0.052	0.052
22.250	0.051	0.051	0.051	0.051	0.051
22.500	0.051	0.051	0.051	0.051	0.051
22.750	0.051	0.051	0.051	0.051	0.051
23.000	0.051	0.051	0.051	0.051	0.051
23.250	0.050	0.050	0.050	0.050	0.050
23.500	0.050	0.050	0.050	0.050	0.050
23.750	0.050	0.050	0.050	0.050	0.050
24.000	0.050	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Elevation-Area Volume Curve
Label: MainPond
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Elevation (ft)	Planimeter (ft^2)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
236.00	0.0	0.079	0.000	0.000	0.000
237.00	0.0	0.098	0.265	0.088	0.088
238.00	0.0	0.118	0.323	0.108	0.196
239.00	0.0	0.140	0.385	0.128	0.324
240.00	0.0	0.163	0.453	0.151	0.475
241.00	0.0	0.188	0.525	0.175	0.650
242.00	0.0	0.214	0.602	0.201	0.851

Stormwater Report

Subsection: Volume Equations
Label: MainPond
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Pond Volume Equations
* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Stormwater Report

Subsection: Elevation-Area Volume Curve
Label: MainPond
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Elevation (ft)	Planimeter (ft^2)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
236.00	0.0	0.079	0.000	0.000	0.000
237.00	0.0	0.098	0.265	0.088	0.088
238.00	0.0	0.118	0.323	0.108	0.196
239.00	0.0	0.140	0.385	0.128	0.324
240.00	0.0	0.163	0.453	0.151	0.475
241.00	0.0	0.188	0.525	0.175	0.650
242.00	0.0	0.214	0.602	0.201	0.851

Stormwater Report

Subsection: Volume Equations
Label: MainPond
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Pond Volume Equations
* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Stormwater Report

Subsection: Elevation-Area Volume Curve
Label: MainPond
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Elevation (ft)	Planimeter (ft^2)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
236.00	0.0	0.079	0.000	0.000	0.000
237.00	0.0	0.098	0.265	0.088	0.088
238.00	0.0	0.118	0.323	0.108	0.196
239.00	0.0	0.140	0.385	0.128	0.324
240.00	0.0	0.163	0.453	0.151	0.475
241.00	0.0	0.188	0.525	0.175	0.650
242.00	0.0	0.214	0.602	0.201	0.851

Stormwater Report

Subsection: Volume Equations
Label: MainPond
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Pond Volume Equations
* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Stormwater Report

Subsection: Outlet Input Data
Label: BESS Outlet Structure
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Requested Pond Water Surface Elevations	
Minimum (Headwater)	236.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	242.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	236.50	242.00
Orifice-Circular	Orifice - 2	Forward	Culvert - 1	238.50	242.00
Culvert-Circular	Culvert - 1	Forward	TW	236.00	242.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Stormwater Report

Subsection: Outlet Input Data
Label: BESS Outlet Structure
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	24.0 in
Length	65.00 ft
Length (Computed Barrel)	65.01 ft
Slope (Computed)	0.015 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.012
Kr	0.000
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.088
T2 ratio (HW/D)	1.190
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	238.18 ft	T1 Flow	15.55 ft³/s
T2 Elevation	238.38 ft	T2 Flow	17.77 ft³/s

Stormwater Report

Subsection: Outlet Input Data
Label: BESS Outlet Structure
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	7
Elevation	236.50 ft
Orifice Diameter	5.0 in
Orifice Coefficient	0.600

Structure ID: Orifice - 2 Structure Type: Orifice-Circular	
Number of Openings	6
Elevation	238.50 ft
Orifice Diameter	7.0 in
Orifice Coefficient	0.600

Structure ID: Orifice - 3 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	239.50 ft
Orifice Diameter	10.0 in
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Culvert - 1 (Culvert-Circular)

Mannings open channel maximum capacity: 30.18 ft³/s
Upstream ID = Orifice - 1, Orifice - 2
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)
236.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00
236.50	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00
237.00	2.29	236.75	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00
237.50	3.46	236.93	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00
238.00	4.43	237.07	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00
238.50	5.28	237.18	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00
239.00	8.66	237.55	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00
239.50	12.30	237.91	Free Outfall	Free Outfall	0.00	0.01	(N/A)	0.00
240.00	14.75	238.14	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00
240.50	16.84	238.33	Free Outfall	Free Outfall	0.00	0.01	(N/A)	0.00
241.00	18.72	238.51	Free Outfall	Free Outfall	0.00	0.01	(N/A)	0.00
241.50	20.46	238.71	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00
242.00	21.76	238.88	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00

Message
WS below an invert; no flow.
WS below an invert; no flow.
CRIT.DEPTH CONTROL Vh= .188ft Dcr= .527ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .237ft Dcr= .651ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .274ft Dcr= .740ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .304ft Dcr= .811ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .418ft Dcr= 1.049ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .540ft Dcr= 1.261ft CRIT.DEPTH Hev= .00ft

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Culvert - 1 (Culvert-Circular)

Mannings open channel maximum capacity: 30.18 ft³/s
Upstream ID = Orifice - 1, Orifice - 2
Downstream ID = Tailwater (Pond Outfall)

Message
CRIT.DEPTH CONTROL Vh= .628ft Dcr= 1.384ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .710ft Dcr= 1.480ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .790ft Dcr= 1.557ft CRIT.DEPTH Hev= .00ft
INLET CONTROL... Submerged: HW =2.71
INLET CONTROL... Submerged: HW =2.88

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 1 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - 1 (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
236.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
236.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
237.00	2.29	237.00	236.75	236.75	0.00	0.00	(N/A)	0.00	H =.25
237.50	3.46	237.50	236.93	236.93	0.00	0.00	(N/A)	0.00	H =.57
238.00	4.44	238.00	237.07	237.07	0.00	0.00	(N/A)	0.00	H =.93
238.50	5.29	238.50	237.18	237.18	0.00	0.00	(N/A)	0.00	H =1.32
239.00	5.53	239.00	237.55	237.55	0.00	0.00	(N/A)	0.00	H =1.45
239.50	5.79	239.50	237.91	237.91	0.00	0.00	(N/A)	0.00	H =1.59
240.00	6.27	240.00	238.14	238.14	0.00	0.00	(N/A)	0.00	H =1.86
240.50	6.77	240.50	238.33	238.33	0.00	0.00	(N/A)	0.00	H =2.17
241.00	7.26	241.00	238.51	238.51	0.00	0.00	(N/A)	0.00	H =2.49
241.50	7.68	241.50	238.71	238.71	0.00	0.00	(N/A)	0.00	H =2.79
242.00	8.11	242.00	238.88	238.88	0.00	0.00	(N/A)	0.00	H =3.12

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 2 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - 1 (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
236.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
236.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
237.00	0.00	0.00	0.00	236.75	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
237.50	0.00	0.00	0.00	236.93	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
238.00	0.00	0.00	0.00	237.07	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
238.50	0.00	0.00	0.00	237.18	0.00	0.00	(N/A)	0.00	CRIT.DEPTH CONTROL Vh= .148ft Dcr= .352ft CRIT.DEPTH Hev= .00ft
239.00	3.13	239.00	Free Outfall	237.55	0.00	0.00	(N/A)	0.00	H =.71
239.50	6.50	239.50	Free Outfall	237.91	0.00	0.00	(N/A)	0.00	H =1.21
240.00	8.48	240.00	Free Outfall	238.14	0.00	0.00	(N/A)	0.00	H =1.71
240.50	10.09	240.50	Free Outfall	238.33	0.00	0.00	(N/A)	0.00	H =2.21
241.00	11.47	241.00	238.51	238.51	0.00	0.00	(N/A)	0.00	H =2.71
241.50	12.70	241.50	238.71	238.71	0.00	0.00	(N/A)	0.00	H =3.12
242.00	13.62	242.00	238.88	238.88	0.00	0.00	(N/A)	0.00	

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = ()

Upstream ID =
Downstream ID =

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
Contributing Structures			

Stormwater Report

Subsection: Composite Rating Curve
Label: BESS Outlet Structure
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
236.00	0.00	(N/A)	0.00
236.50	0.00	(N/A)	0.00
237.00	2.29	(N/A)	0.00
237.50	3.46	(N/A)	0.00
238.00	4.43	(N/A)	0.00
238.50	5.28	(N/A)	0.00
239.00	8.66	(N/A)	0.00
239.50	12.30	(N/A)	0.00
240.00	14.75	(N/A)	0.00
240.50	16.84	(N/A)	0.00
241.00	18.72	(N/A)	0.00
241.50	20.38	(N/A)	0.00
242.00	21.73	(N/A)	0.00

Contributing Structures
(no Q: Orifice - 1,Orifice - 2,Culvert - 1)
(no Q: Orifice - 1,Orifice - 2,Culvert - 1)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2)
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1

Stormwater Report

Subsection: Outlet Input Data
Label: BESS Outlet Structure
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Requested Pond Water Surface Elevations	
Minimum (Headwater)	236.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	242.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	236.50	242.00
Orifice-Circular	Orifice - 2	Forward	Culvert - 1	238.50	242.00
Culvert-Circular	Culvert - 1	Forward	TW	236.00	242.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Stormwater Report

Subsection: Outlet Input Data
Label: BESS Outlet Structure
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	24.0 in
Length	65.00 ft
Length (Computed Barrel)	65.01 ft
Slope (Computed)	0.015 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.012
Kr	0.000
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.088
T2 ratio (HW/D)	1.190
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	238.18 ft	T1 Flow	15.55 ft³/s
T2 Elevation	238.38 ft	T2 Flow	17.77 ft³/s

Stormwater Report

Subsection: Outlet Input Data
Label: BESS Outlet Structure
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	7
Elevation	236.50 ft
Orifice Diameter	5.0 in
Orifice Coefficient	0.600

Structure ID: Orifice - 2 Structure Type: Orifice-Circular	
Number of Openings	6
Elevation	238.50 ft
Orifice Diameter	7.0 in
Orifice Coefficient	0.600

Structure ID: Orifice - 3 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	239.50 ft
Orifice Diameter	10.0 in
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = ()

Upstream ID =
Downstream ID =

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)

Contributing Structures

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = ()

Upstream ID =
Downstream ID =

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)

Contributing Structures

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = ()

Upstream ID =
Downstream ID =

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
Contributing Structures			

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = ()

Upstream ID =
Downstream ID =

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)

Contributing Structures

Stormwater Report

Subsection: Composite Rating Curve
Label: BESS Outlet Structure
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
236.00	0.00	(N/A)	0.00
236.50	0.00	(N/A)	0.00
237.00	2.29	(N/A)	0.00
237.50	3.46	(N/A)	0.00
238.00	4.43	(N/A)	0.00
238.50	5.28	(N/A)	0.00
239.00	8.66	(N/A)	0.00
239.50	12.30	(N/A)	0.00
240.00	14.75	(N/A)	0.00
240.50	16.84	(N/A)	0.00
241.00	18.72	(N/A)	0.00
241.50	20.38	(N/A)	0.00
242.00	21.73	(N/A)	0.00

Contributing Structures
(no Q: Orifice - 1,Orifice - 2,Culvert - 1)
(no Q: Orifice - 1,Orifice - 2,Culvert - 1)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2)
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1
Orifice - 1,Orifice - 2,Culvert - 1

Stormwater Report

Subsection: Outlet Input Data
Label: BESS Outlet Structure
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Requested Pond Water Surface Elevations	
Minimum (Headwater)	236.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	242.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	236.50	242.00
Orifice-Circular	Orifice - 2	Forward	Culvert - 1	238.50	242.00
Culvert-Circular	Culvert - 1	Forward	TW	236.00	242.00
Orifice-Circular	Orifice - 3	Forward	TW	239.50	242.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Stormwater Report

Subsection: Outlet Input Data
Label: BESS Outlet Structure
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	24.0 in
Length	65.00 ft
Length (Computed Barrel)	65.01 ft
Slope (Computed)	0.015 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.012
Kr	0.000
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.088
T2 ratio (HW/D)	1.190
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	238.18 ft	T1 Flow	15.55 ft³/s
T2 Elevation	238.38 ft	T2 Flow	17.77 ft³/s

Stormwater Report

Subsection: Outlet Input Data
Label: BESS Outlet Structure
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	7
Elevation	236.50 ft
Orifice Diameter	5.0 in
Orifice Coefficient	0.600

Structure ID: Orifice - 2 Structure Type: Orifice-Circular	
Number of Openings	6
Elevation	238.50 ft
Orifice Diameter	7.0 in
Orifice Coefficient	0.600

Structure ID: Orifice - 3 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	239.50 ft
Orifice Diameter	10.0 in
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft^3/s
Flow Tolerance (Maximum)	10.000 ft^3/s

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = ()

Upstream ID =
Downstream ID =

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)

Contributing Structures

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = ()

Upstream ID =
Downstream ID =

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)

Contributing Structures

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = ()

Upstream ID =
Downstream ID =

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
Contributing Structures			

Stormwater Report

Subsection: Individual Outlet Curves
Label: BESS Outlet Structure
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = ()

Upstream ID =
Downstream ID =

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)

Contributing Structures

Stormwater Report

Subsection: Composite Rating Curve
Label: BESS Outlet Structure
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
236.00	0.00	(N/A)	0.00
236.50	0.00	(N/A)	0.00
237.00	2.29	(N/A)	0.00
237.50	3.46	(N/A)	0.00
238.00	4.43	(N/A)	0.00
238.50	5.28	(N/A)	0.00
239.00	8.66	(N/A)	0.00
239.50	12.30	(N/A)	0.00
240.00	15.42	(N/A)	0.00
240.50	18.85	(N/A)	0.00
241.00	21.45	(N/A)	0.00
241.50	23.76	(N/A)	0.00
242.00	25.54	(N/A)	0.00

Contributing Structures
(no Q: Orifice - 1,Orifice - 2,Culvert - 1,Orifice - 3)
(no Q: Orifice - 1,Orifice - 2,Culvert - 1,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Orifice - 2,Culvert - 1 (no Q: Orifice - 3)
Orifice - 1,Orifice - 2,Culvert - 1 (no Q: Orifice - 3)
Orifice - 1,Orifice - 2,Culvert - 1,Orifice - 3
Orifice - 1,Orifice - 2,Culvert - 1,Orifice - 3
Orifice - 1,Orifice - 2,Culvert - 1,Orifice - 3
Orifice - 1,Orifice - 2,Culvert - 1,Orifice - 3

Stormwater Report

Subsection: Composite Rating Curve
Label: BESS Outlet Structure
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Composite Outflow Summary

Contributing Structures
Orifice - 1,Orifice - 2,Culvert - 1,Orifice - 3

Stormwater Report

Subsection: Elevation-Volume-Flow Table (Pond)
Label: MainPond
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	236.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (acres)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
236.00	0.00	0.000	0.079	0.00	0.00	0.00
236.50	0.00	0.042	0.088	0.00	0.00	20.23
237.00	2.29	0.088	0.098	0.00	2.29	45.00
237.50	3.46	0.140	0.108	0.00	3.46	70.99
238.00	4.43	0.196	0.118	0.00	4.43	99.21
238.50	5.28	0.257	0.128	0.00	5.28	129.85
239.00	8.66	0.324	0.139	0.00	8.66	165.63
239.50	12.30	0.397	0.151	0.00	12.30	204.41
240.00	14.75	0.475	0.163	0.00	14.75	244.81
240.50	16.84	0.560	0.175	0.00	16.84	287.76
241.00	18.72	0.650	0.188	0.00	18.72	333.50
241.50	20.38	0.747	0.201	0.00	20.38	382.12
242.00	21.73	0.851	0.214	0.00	21.73	433.63

Stormwater Report

Subsection: Elevation-Volume-Flow Table (Pond)
Label: MainPond
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	236.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (acres)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
236.00	0.00	0.000	0.079	0.00	0.00	0.00
236.50	0.00	0.042	0.088	0.00	0.00	20.23
237.00	2.29	0.088	0.098	0.00	2.29	45.00
237.50	3.46	0.140	0.108	0.00	3.46	70.99
238.00	4.43	0.196	0.118	0.00	4.43	99.21
238.50	5.28	0.257	0.128	0.00	5.28	129.85
239.00	8.66	0.324	0.139	0.00	8.66	165.63
239.50	12.30	0.397	0.151	0.00	12.30	204.41
240.00	14.75	0.475	0.163	0.00	14.75	244.81
240.50	16.84	0.560	0.175	0.00	16.84	287.76
241.00	18.72	0.650	0.188	0.00	18.72	333.50
241.50	20.38	0.747	0.201	0.00	20.38	382.12
242.00	21.73	0.851	0.214	0.00	21.73	433.63

Stormwater Report

Subsection: Elevation-Volume-Flow Table (Pond)
Label: MainPond
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	236.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (acres)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
236.00	0.00	0.000	0.079	0.00	0.00	0.00
236.50	0.00	0.042	0.088	0.00	0.00	20.23
237.00	2.29	0.088	0.098	0.00	2.29	45.00
237.50	3.46	0.140	0.108	0.00	3.46	70.99
238.00	4.43	0.196	0.118	0.00	4.43	99.21
238.50	5.28	0.257	0.128	0.00	5.28	129.85
239.00	8.66	0.324	0.139	0.00	8.66	165.63
239.50	12.30	0.397	0.151	0.00	12.30	204.41
240.00	15.42	0.475	0.163	0.00	15.42	245.48
240.50	18.85	0.560	0.175	0.00	18.85	289.77
241.00	21.45	0.650	0.188	0.00	21.45	336.23
241.50	23.76	0.747	0.201	0.00	23.76	385.51
242.00	25.54	0.851	0.214	0.00	25.54	437.45

Stormwater Report

Subsection: Level Pool Pond Routing Summary
Label: MainPond (IN)
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	236.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	10.37 ft³/s	Time to Peak (Flow, In)	12.100 hours
Flow (Peak Outlet)	4.69 ft³/s	Time to Peak (Flow, Outlet)	12.300 hours

Elevation (Water Surface, Peak)	238.15 ft
Volume (Peak)	0.214 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.842 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.797 ac-ft
Volume (Retained)	0.044 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.1 %

Stormwater Report

Subsection: Level Pool Pond Routing Summary
Label: MainPond (IN)
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	236.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	19.63 ft³/s	Time to Peak (Flow, In)	12.100 hours
Flow (Peak Outlet)	11.14 ft³/s	Time to Peak (Flow, Outlet)	12.250 hours

Elevation (Water Surface, Peak)	239.34 ft
Volume (Peak)	0.373 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.624 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.577 ac-ft
Volume (Retained)	0.046 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.1 %

Stormwater Report

Subsection: Level Pool Pond Routing Summary
Label: MainPond (IN)
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	236.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	35.64 ft³/s	Time to Peak (Flow, In)	12.100 hours
Flow (Peak Outlet)	20.96 ft³/s	Time to Peak (Flow, Outlet)	12.200 hours

Elevation (Water Surface, Peak)	240.91 ft
Volume (Peak)	0.633 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	3.046 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	2.996 ac-ft
Volume (Retained)	0.048 ac-ft
Volume (Unrouted)	-0.002 ac-ft
Error (Mass Balance)	0.1 %

Stormwater Report

Subsection: Pond Routed Hydrograph (total out)
Label: MainPond (OUT)
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Peak Discharge	4.69 ft³/s
Time to Peak	12.300 hours
Hydrograph Volume	0.797 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.000	0.00	0.00	0.09	0.17	0.25
11.250	0.31	0.38	0.44	0.50	0.55
11.500	0.61	0.67	0.76	0.89	1.06
11.750	1.28	1.55	1.87	2.24	2.52
12.000	2.94	3.49	3.94	4.34	4.56
12.250	4.65	4.69	4.69	4.65	4.59
12.500	4.50	4.37	4.20	4.03	3.86
12.750	3.70	3.55	3.38	3.20	3.02
13.000	2.86	2.71	2.56	2.43	2.30
13.250	2.08	1.88	1.71	1.58	1.46
13.500	1.36	1.28	1.21	1.15	1.10
13.750	1.06	1.02	0.98	0.95	0.92
14.000	0.89	0.87	0.84	0.82	0.80
14.250	0.79	0.77	0.76	0.75	0.73
14.500	0.72	0.71	0.70	0.69	0.68
14.750	0.67	0.66	0.65	0.65	0.64
15.000	0.63	0.62	0.61	0.60	0.59
15.250	0.59	0.58	0.57	0.56	0.55
15.500	0.54	0.53	0.53	0.52	0.51
15.750	0.50	0.49	0.48	0.47	0.47
16.000	0.46	0.45	0.44	0.43	0.43
16.250	0.42	0.41	0.41	0.40	0.40
16.500	0.39	0.39	0.38	0.38	0.38
16.750	0.37	0.37	0.36	0.36	0.36
17.000	0.35	0.35	0.34	0.34	0.34
17.250	0.33	0.33	0.33	0.32	0.32
17.500	0.31	0.31	0.31	0.30	0.30
17.750	0.29	0.29	0.29	0.28	0.28
18.000	0.28	0.27	0.27	0.26	0.26
18.250	0.26	0.26	0.25	0.25	0.25
18.500	0.25	0.25	0.25	0.24	0.24
18.750	0.24	0.24	0.24	0.24	0.24
19.000	0.24	0.23	0.23	0.23	0.23
19.250	0.23	0.23	0.23	0.23	0.23
19.500	0.22	0.22	0.22	0.22	0.22
19.750	0.22	0.22	0.22	0.22	0.21
20.000	0.21	0.21	0.21	0.21	0.21

Stormwater Report

Subsection: Pond Routed Hydrograph (total out)
Label: MainPond (OUT)
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.250	0.21	0.21	0.21	0.20	0.20
20.500	0.20	0.20	0.20	0.20	0.20
20.750	0.20	0.20	0.20	0.20	0.19
21.000	0.19	0.19	0.19	0.19	0.19
21.250	0.19	0.19	0.19	0.19	0.19
21.500	0.19	0.18	0.18	0.18	0.18
21.750	0.18	0.18	0.18	0.18	0.18
22.000	0.18	0.18	0.17	0.17	0.17
22.250	0.17	0.17	0.17	0.17	0.17
22.500	0.17	0.17	0.17	0.17	0.16
22.750	0.16	0.16	0.16	0.16	0.16
23.000	0.16	0.16	0.16	0.16	0.16
23.250	0.15	0.15	0.15	0.15	0.15
23.500	0.15	0.15	0.15	0.15	0.15
23.750	0.15	0.15	0.14	0.14	0.14
24.000	0.14	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Pond Routed Hydrograph (total out)
Label: MainPond (OUT)
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Peak Discharge	11.14 ft³/s
Time to Peak	12.250 hours
Hydrograph Volume	1.577 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.400	0.00	0.07	0.14	0.20	0.25
9.650	0.29	0.33	0.36	0.39	0.42
9.900	0.44	0.47	0.49	0.51	0.53
10.150	0.55	0.57	0.59	0.62	0.64
10.400	0.66	0.69	0.71	0.74	0.76
10.650	0.79	0.81	0.84	0.87	0.90
10.900	0.93	0.96	0.99	1.02	1.05
11.150	1.09	1.14	1.20	1.27	1.34
11.400	1.41	1.49	1.58	1.69	1.85
11.650	2.10	2.37	2.59	2.88	3.24
11.900	3.62	4.07	4.71	5.79	8.32
12.150	10.20	11.07	11.14	10.88	10.44
12.400	9.87	9.20	8.46	7.67	6.89
12.650	6.17	5.55	5.20	5.06	4.91
12.900	4.77	4.63	4.49	4.34	4.17
13.150	4.01	3.86	3.72	3.59	3.46
13.400	3.30	3.16	3.02	2.90	2.78
13.650	2.67	2.57	2.47	2.38	2.30
13.900	2.14	2.00	1.88	1.78	1.69
14.150	1.61	1.55	1.49	1.44	1.40
14.400	1.36	1.33	1.30	1.28	1.25
14.650	1.23	1.21	1.19	1.17	1.15
14.900	1.13	1.12	1.10	1.08	1.07
15.150	1.05	1.03	1.02	1.00	0.99
15.400	0.97	0.96	0.94	0.93	0.91
15.650	0.90	0.88	0.87	0.85	0.84
15.900	0.82	0.81	0.79	0.78	0.76
16.150	0.75	0.74	0.73	0.71	0.70
16.400	0.70	0.69	0.68	0.67	0.66
16.650	0.66	0.65	0.64	0.63	0.63
16.900	0.62	0.61	0.61	0.60	0.59
17.150	0.59	0.58	0.57	0.57	0.56
17.400	0.55	0.55	0.54	0.53	0.53
17.650	0.52	0.51	0.51	0.50	0.49
17.900	0.49	0.48	0.47	0.47	0.46
18.150	0.45	0.45	0.44	0.44	0.44
18.400	0.43	0.43	0.43	0.42	0.42

Stormwater Report

Subsection: Pond Routed Hydrograph (total out)
Label: MainPond (OUT)
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.650	0.42	0.42	0.42	0.41	0.41
18.900	0.41	0.41	0.40	0.40	0.40
19.150	0.40	0.40	0.39	0.39	0.39
19.400	0.39	0.39	0.38	0.38	0.38
19.650	0.38	0.38	0.37	0.37	0.37
19.900	0.37	0.37	0.36	0.36	0.36
20.150	0.36	0.36	0.36	0.35	0.35
20.400	0.35	0.35	0.35	0.35	0.34
20.650	0.34	0.34	0.34	0.34	0.34
20.900	0.33	0.33	0.33	0.33	0.33
21.150	0.33	0.33	0.32	0.32	0.32
21.400	0.32	0.32	0.32	0.31	0.31
21.650	0.31	0.31	0.31	0.31	0.31
21.900	0.30	0.30	0.30	0.30	0.30
22.150	0.30	0.30	0.29	0.29	0.29
22.400	0.29	0.29	0.29	0.28	0.28
22.650	0.28	0.28	0.28	0.28	0.28
22.900	0.27	0.27	0.27	0.27	0.27
23.150	0.27	0.26	0.26	0.26	0.26
23.400	0.26	0.26	0.26	0.25	0.25
23.650	0.25	0.25	0.25	0.25	0.25
23.900	0.24	0.24	0.24	(N/A)	(N/A)

Stormwater Report

Subsection: Pond Routed Hydrograph (total out)
Label: MainPond (OUT)
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Peak Discharge	20.96 ft³/s
Time to Peak	12.200 hours
Hydrograph Volume	2.996 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
7.400	0.00	0.03	0.09	0.15	0.20
7.650	0.24	0.27	0.30	0.33	0.35
7.900	0.37	0.39	0.41	0.43	0.44
8.150	0.46	0.48	0.49	0.51	0.53
8.400	0.55	0.56	0.58	0.60	0.62
8.650	0.64	0.66	0.68	0.70	0.72
8.900	0.75	0.77	0.79	0.81	0.83
9.150	0.86	0.88	0.90	0.93	0.95
9.400	0.98	1.00	1.02	1.05	1.08
9.650	1.10	1.13	1.15	1.18	1.21
9.900	1.23	1.26	1.29	1.31	1.34
10.150	1.38	1.41	1.45	1.49	1.53
10.400	1.57	1.61	1.66	1.71	1.76
10.650	1.80	1.85	1.91	1.96	2.01
10.900	2.06	2.12	2.17	2.23	2.29
11.150	2.33	2.38	2.44	2.52	2.60
11.400	2.69	2.79	2.90	3.04	3.24
11.650	3.50	3.81	4.21	4.66	5.14
11.900	6.73	9.11	12.40	15.51	18.52
12.150	20.25	20.96	20.91	20.50	19.89
12.400	19.12	17.99	16.63	15.22	13.85
12.650	12.56	11.20	9.98	8.95	8.08
12.900	7.33	6.68	6.11	5.62	5.26
13.150	5.15	5.04	4.93	4.83	4.73
13.400	4.63	4.53	4.44	4.33	4.22
13.650	4.12	4.01	3.92	3.82	3.73
13.900	3.64	3.55	3.47	3.37	3.26
14.150	3.17	3.08	3.00	2.92	2.84
14.400	2.77	2.71	2.65	2.59	2.53
14.650	2.48	2.43	2.38	2.33	2.28
14.900	2.19	2.12	2.05	1.99	1.94
15.150	1.89	1.85	1.81	1.77	1.73
15.400	1.70	1.67	1.64	1.61	1.58
15.650	1.55	1.52	1.49	1.46	1.44
15.900	1.41	1.38	1.36	1.33	1.31
16.150	1.28	1.26	1.24	1.22	1.21
16.400	1.19	1.17	1.16	1.15	1.13

Stormwater Report

Subsection: Pond Routed Hydrograph (total out)
Label: MainPond (OUT)
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.650	1.12	1.11	1.09	1.08	1.07
16.900	1.06	1.05	1.03	1.02	1.01
17.150	1.00	0.99	0.98	0.97	0.95
17.400	0.94	0.93	0.92	0.91	0.90
17.650	0.89	0.87	0.86	0.85	0.84
17.900	0.83	0.82	0.81	0.79	0.78
18.150	0.77	0.76	0.76	0.75	0.74
18.400	0.74	0.73	0.73	0.72	0.72
18.650	0.71	0.71	0.71	0.70	0.70
18.900	0.70	0.69	0.69	0.68	0.68
19.150	0.68	0.67	0.67	0.67	0.66
19.400	0.66	0.66	0.65	0.65	0.65
19.650	0.64	0.64	0.64	0.63	0.63
19.900	0.63	0.62	0.62	0.62	0.61
20.150	0.61	0.61	0.60	0.60	0.60
20.400	0.59	0.59	0.59	0.59	0.58
20.650	0.58	0.58	0.57	0.57	0.57
20.900	0.57	0.56	0.56	0.56	0.56
21.150	0.55	0.55	0.55	0.55	0.54
21.400	0.54	0.54	0.54	0.53	0.53
21.650	0.53	0.53	0.52	0.52	0.52
21.900	0.52	0.51	0.51	0.51	0.51
22.150	0.50	0.50	0.50	0.50	0.49
22.400	0.49	0.49	0.49	0.48	0.48
22.650	0.48	0.48	0.47	0.47	0.47
22.900	0.46	0.46	0.46	0.46	0.45
23.150	0.45	0.45	0.45	0.44	0.44
23.400	0.44	0.44	0.43	0.43	0.43
23.650	0.43	0.42	0.42	0.42	0.42
23.900	0.41	0.41	0.41	(N/A)	(N/A)

Stormwater Report

Subsection: Pond Inflow Summary
Label: MainPond (IN)
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Summary for Hydrograph Addition at 'MainPond'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	Main BESS
<Catchment to Outflow Node>	Substation-Post
<Catchment to Outflow Node>	West-Post

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	Main BESS	0.507	12.100	6.23
Flow (From)	Substation-Post	0.179	12.100	2.23
Flow (From)	West-Post	0.156	12.100	1.91
Flow (In)	MainPond	0.842	12.100	10.37

Stormwater Report

Subsection: Pond Inflow Summary
Label: MainPond (IN)
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Summary for Hydrograph Addition at 'MainPond'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	Main BESS
<Catchment to Outflow Node>	Substation-Post
<Catchment to Outflow Node>	West-Post

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	Main BESS	1.002	12.100	12.16
Flow (From)	Substation-Post	0.340	12.100	4.12
Flow (From)	West-Post	0.282	12.100	3.35
Flow (In)	MainPond	1.624	12.100	19.63

Stormwater Report

Subsection: Pond Inflow Summary
Label: MainPond (IN)
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Summary for Hydrograph Addition at 'MainPond'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	Main BESS
<Catchment to Outflow Node>	Substation-Post
<Catchment to Outflow Node>	West-Post

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	Main BESS	1.911	12.100	22.51
Flow (From)	Substation-Post	0.629	12.100	7.37
Flow (From)	West-Post	0.505	12.100	5.76
Flow (In)	MainPond	3.046	12.100	35.64

Stormwater Report

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

Peak Discharge	4.69 ft³/s
Time to Peak	12.300 hours
Hydrograph Volume	0.797 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.000	0.00	0.00	0.09	0.17	0.25
11.250	0.31	0.38	0.44	0.50	0.55
11.500	0.61	0.67	0.76	0.89	1.06
11.750	1.28	1.55	1.87	2.24	2.52
12.000	2.94	3.49	3.94	4.34	4.56
12.250	4.65	4.69	4.69	4.65	4.59
12.500	4.50	4.37	4.20	4.03	3.86
12.750	3.70	3.55	3.38	3.20	3.02
13.000	2.86	2.71	2.56	2.43	2.30
13.250	2.08	1.88	1.71	1.58	1.46
13.500	1.36	1.28	1.21	1.15	1.10
13.750	1.06	1.02	0.98	0.95	0.92
14.000	0.89	0.87	0.84	0.82	0.80
14.250	0.79	0.77	0.76	0.75	0.73
14.500	0.72	0.71	0.70	0.69	0.68
14.750	0.67	0.66	0.65	0.65	0.64
15.000	0.63	0.62	0.61	0.60	0.59
15.250	0.59	0.58	0.57	0.56	0.55
15.500	0.54	0.53	0.53	0.52	0.51
15.750	0.50	0.49	0.48	0.47	0.47
16.000	0.46	0.45	0.44	0.43	0.43
16.250	0.42	0.41	0.41	0.40	0.40
16.500	0.39	0.39	0.38	0.38	0.38
16.750	0.37	0.37	0.36	0.36	0.36
17.000	0.35	0.35	0.34	0.34	0.34
17.250	0.33	0.33	0.33	0.32	0.32
17.500	0.31	0.31	0.31	0.30	0.30
17.750	0.29	0.29	0.29	0.28	0.28
18.000	0.28	0.27	0.27	0.26	0.26
18.250	0.26	0.26	0.25	0.25	0.25
18.500	0.25	0.25	0.25	0.24	0.24
18.750	0.24	0.24	0.24	0.24	0.24
19.000	0.24	0.23	0.23	0.23	0.23
19.250	0.23	0.23	0.23	0.23	0.23
19.500	0.22	0.22	0.22	0.22	0.22
19.750	0.22	0.22	0.22	0.22	0.21
20.000	0.21	0.21	0.21	0.21	0.21

Stormwater Report

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: 2yr, 24hr

Return Event: 2 years
Storm Event: 2yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.250	0.21	0.21	0.21	0.20	0.20
20.500	0.20	0.20	0.20	0.20	0.20
20.750	0.20	0.20	0.20	0.20	0.19
21.000	0.19	0.19	0.19	0.19	0.19
21.250	0.19	0.19	0.19	0.19	0.19
21.500	0.19	0.18	0.18	0.18	0.18
21.750	0.18	0.18	0.18	0.18	0.18
22.000	0.18	0.18	0.17	0.17	0.17
22.250	0.17	0.17	0.17	0.17	0.17
22.500	0.17	0.17	0.17	0.17	0.16
22.750	0.16	0.16	0.16	0.16	0.16
23.000	0.16	0.16	0.16	0.16	0.16
23.250	0.15	0.15	0.15	0.15	0.15
23.500	0.15	0.15	0.15	0.15	0.15
23.750	0.15	0.15	0.14	0.14	0.14
24.000	0.14	(N/A)	(N/A)	(N/A)	(N/A)

Stormwater Report

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

Peak Discharge	11.14 ft³/s
Time to Peak	12.250 hours
Hydrograph Volume	1.577 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.400	0.00	0.07	0.14	0.20	0.25
9.650	0.29	0.33	0.36	0.39	0.42
9.900	0.44	0.47	0.49	0.51	0.53
10.150	0.55	0.57	0.59	0.62	0.64
10.400	0.66	0.69	0.71	0.74	0.76
10.650	0.79	0.81	0.84	0.87	0.90
10.900	0.93	0.96	0.99	1.02	1.05
11.150	1.09	1.14	1.20	1.27	1.34
11.400	1.41	1.49	1.58	1.69	1.85
11.650	2.10	2.37	2.59	2.88	3.24
11.900	3.62	4.07	4.71	5.79	8.32
12.150	10.20	11.07	11.14	10.88	10.44
12.400	9.87	9.20	8.46	7.67	6.89
12.650	6.17	5.55	5.20	5.06	4.91
12.900	4.77	4.63	4.49	4.34	4.17
13.150	4.01	3.86	3.72	3.59	3.46
13.400	3.30	3.16	3.02	2.90	2.78
13.650	2.67	2.57	2.47	2.38	2.30
13.900	2.14	2.00	1.88	1.78	1.69
14.150	1.61	1.55	1.49	1.44	1.40
14.400	1.36	1.33	1.30	1.28	1.25
14.650	1.23	1.21	1.19	1.17	1.15
14.900	1.13	1.12	1.10	1.08	1.07
15.150	1.05	1.03	1.02	1.00	0.99
15.400	0.97	0.96	0.94	0.93	0.91
15.650	0.90	0.88	0.87	0.85	0.84
15.900	0.82	0.81	0.79	0.78	0.76
16.150	0.75	0.74	0.73	0.71	0.70
16.400	0.70	0.69	0.68	0.67	0.66
16.650	0.66	0.65	0.64	0.63	0.63
16.900	0.62	0.61	0.61	0.60	0.59
17.150	0.59	0.58	0.57	0.57	0.56
17.400	0.55	0.55	0.54	0.53	0.53
17.650	0.52	0.51	0.51	0.50	0.49
17.900	0.49	0.48	0.47	0.47	0.46
18.150	0.45	0.45	0.44	0.44	0.44
18.400	0.43	0.43	0.43	0.42	0.42

Stormwater Report

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: 10yr, 24hr

Return Event: 10 years
Storm Event: 10yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.650	0.42	0.42	0.42	0.41	0.41
18.900	0.41	0.41	0.40	0.40	0.40
19.150	0.40	0.40	0.39	0.39	0.39
19.400	0.39	0.39	0.38	0.38	0.38
19.650	0.38	0.38	0.37	0.37	0.37
19.900	0.37	0.37	0.36	0.36	0.36
20.150	0.36	0.36	0.36	0.35	0.35
20.400	0.35	0.35	0.35	0.35	0.34
20.650	0.34	0.34	0.34	0.34	0.34
20.900	0.33	0.33	0.33	0.33	0.33
21.150	0.33	0.33	0.32	0.32	0.32
21.400	0.32	0.32	0.32	0.31	0.31
21.650	0.31	0.31	0.31	0.31	0.31
21.900	0.30	0.30	0.30	0.30	0.30
22.150	0.30	0.30	0.29	0.29	0.29
22.400	0.29	0.29	0.29	0.28	0.28
22.650	0.28	0.28	0.28	0.28	0.28
22.900	0.27	0.27	0.27	0.27	0.27
23.150	0.27	0.26	0.26	0.26	0.26
23.400	0.26	0.26	0.26	0.25	0.25
23.650	0.25	0.25	0.25	0.25	0.25
23.900	0.24	0.24	0.24	(N/A)	(N/A)

Stormwater Report

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

Peak Discharge	20.96 ft³/s
Time to Peak	12.200 hours
Hydrograph Volume	2.996 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
7.400	0.00	0.03	0.09	0.15	0.20
7.650	0.24	0.27	0.30	0.33	0.35
7.900	0.37	0.39	0.41	0.43	0.44
8.150	0.46	0.48	0.49	0.51	0.53
8.400	0.55	0.56	0.58	0.60	0.62
8.650	0.64	0.66	0.68	0.70	0.72
8.900	0.75	0.77	0.79	0.81	0.83
9.150	0.86	0.88	0.90	0.93	0.95
9.400	0.98	1.00	1.02	1.05	1.08
9.650	1.10	1.13	1.15	1.18	1.21
9.900	1.23	1.26	1.29	1.31	1.34
10.150	1.38	1.41	1.45	1.49	1.53
10.400	1.57	1.61	1.66	1.71	1.76
10.650	1.80	1.85	1.91	1.96	2.01
10.900	2.06	2.12	2.17	2.23	2.29
11.150	2.33	2.38	2.44	2.52	2.60
11.400	2.69	2.79	2.90	3.04	3.24
11.650	3.50	3.81	4.21	4.66	5.14
11.900	6.73	9.11	12.40	15.51	18.52
12.150	20.25	20.96	20.91	20.50	19.89
12.400	19.12	17.99	16.63	15.22	13.85
12.650	12.56	11.20	9.98	8.95	8.08
12.900	7.33	6.68	6.11	5.62	5.26
13.150	5.15	5.04	4.93	4.83	4.73
13.400	4.63	4.53	4.44	4.33	4.22
13.650	4.12	4.01	3.92	3.82	3.73
13.900	3.64	3.55	3.47	3.37	3.26
14.150	3.17	3.08	3.00	2.92	2.84
14.400	2.77	2.71	2.65	2.59	2.53
14.650	2.48	2.43	2.38	2.33	2.28
14.900	2.19	2.12	2.05	1.99	1.94
15.150	1.89	1.85	1.81	1.77	1.73
15.400	1.70	1.67	1.64	1.61	1.58
15.650	1.55	1.52	1.49	1.46	1.44
15.900	1.41	1.38	1.36	1.33	1.31
16.150	1.28	1.26	1.24	1.22	1.21
16.400	1.19	1.17	1.16	1.15	1.13

Stormwater Report

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: 100yr, 24hr

Return Event: 100 years
Storm Event: 100yr, 24hr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.650	1.12	1.11	1.09	1.08	1.07
16.900	1.06	1.05	1.03	1.02	1.01
17.150	1.00	0.99	0.98	0.97	0.95
17.400	0.94	0.93	0.92	0.91	0.90
17.650	0.89	0.87	0.86	0.85	0.84
17.900	0.83	0.82	0.81	0.79	0.78
18.150	0.77	0.76	0.76	0.75	0.74
18.400	0.74	0.73	0.73	0.72	0.72
18.650	0.71	0.71	0.71	0.70	0.70
18.900	0.70	0.69	0.69	0.68	0.68
19.150	0.68	0.67	0.67	0.67	0.66
19.400	0.66	0.66	0.65	0.65	0.65
19.650	0.64	0.64	0.64	0.63	0.63
19.900	0.63	0.62	0.62	0.62	0.61
20.150	0.61	0.61	0.60	0.60	0.60
20.400	0.59	0.59	0.59	0.59	0.58
20.650	0.58	0.58	0.57	0.57	0.57
20.900	0.57	0.56	0.56	0.56	0.56
21.150	0.55	0.55	0.55	0.55	0.54
21.400	0.54	0.54	0.54	0.53	0.53
21.650	0.53	0.53	0.52	0.52	0.52
21.900	0.52	0.51	0.51	0.51	0.51
22.150	0.50	0.50	0.50	0.50	0.49
22.400	0.49	0.49	0.49	0.48	0.48
22.650	0.48	0.48	0.47	0.47	0.47
22.900	0.46	0.46	0.46	0.46	0.45
23.150	0.45	0.45	0.45	0.44	0.44
23.400	0.44	0.44	0.43	0.43	0.43
23.650	0.43	0.42	0.42	0.42	0.42
23.900	0.41	0.41	0.41	(N/A)	(N/A)

Stormwater Report

Index

Stormwater Report

Stormwater Report

Stormwater Report

APPENDIX E – PRE- AND POST-CONSTRUCTION FIGURES

TIME OF CONCENTRATION FLOW PATH

WEST WATERSHED
1.0 ACRES
Tc = 0.196 HOURS

TIME OF CONCENTRATION FLOW PATH

EAST WATERSHED
4.2 ACRES
Tc = 0.424 HOURS

PROPERTY LINE

TOTAL AREA
8.398± AC.

BENCHMARK:
SPIKE SET IN GROUND
ELEV. = 260.20 NAVD88

BENCHMARK:
SPIKE SET IN GROUND
ELEV. = 248.90 N.

LEGEND

- CLF — CHAIN LINK FENCE
- CB/DH — CONCRETE BOUND W/ DRILL HOLE
- FND — FOUND
- IR/IP — IRON ROD/PIPE
- LIGHT POLE
- UP — UTILITY POLE
- CMP — CORRUGATED METAL PIPE
- CBH — CATCH BASIN
- RCP — REINFORCED CONCRETE PIPE
- EOP — EDGE OF PAVEMENT
- GP — GATE POST
- SIGN
- UE — UNDERGROUND ELECTRIC
- OHW — OVERHEAD WIRES
- WETLAND FLAGS
- LIMIT OF WETLANDS
- 100' WETLAND BUFFER
- LIMIT 200' RIVERFONT AREA

Millimeters
Inches
Scale For Microfilming

no.	date	by	ckd	description
A	12/06/21	ERA	BRS	ISSUED FOR PERMITTING

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400

designed E. ASNICAR | detailed E. ASNICAR

MEDWAY BATTERY ENERGY STORAGE SYSTEM PROJECT

MEDWAY GRID ENERGY STORAGE PROJECT
PRE-CONSTRUCTION WATERSHEDS

project | contract

drawing **FIGURE 2-1** — rev. **A**

sheet | of | sheets

file

NOTES:

1. THE STORMWATER POND HAS A SURFACE AREA OF 0.4 ACRES. THE MAXIMUM DEPTH IS 7 FEET.

   SIZES AND LOCATIONS OF SUBSURFACE TREATMENT STRUCTURES
2. ARE APPROXIMATE.

Scale For Microfilming
Millimeters
Inches

no.	date	by	ckd	description
A	12/06/21	ERA	BRS	ISSUED FOR PERMITTING

NORTH

0 20' 40' 80'
SCALE IN FEET

BURNS McDONNELL
9400 WARD PARKWAY
KANSAS CITY, MO 64114
816-333-9400

designed E. ASNICAR | detailed E. ASNICAR

MEDWAY BATTERY ENERGY STORAGE SYSTEM PROJECT

MEDWAY GRID ENERGY STORAGE PROJECT
POST-CONSTRUCTION WATERSHEDS

project | contract

drawing **FIGURE 2-2** rev. **A**

sheet | of | sheets

file

BURNS McDONNELL

CREATE AMAZING.

Burns & McDonnell World Headquarters
9400 Ward Parkway
Kansas City, MO 64114
O 816-333-9400
F 816-333-3690
www.burnsmcd.com

Attachment J

Agency Correspondence

COMMONWEALTH
HERITAGE GROUP

MASSACHUSETTS OFFICE
410 Great Road, B-14
Littleton, MA 01460
(978) 793-2579

December 3, 2021

VIA PRIORITY MAIL

Ms. Brona Simon
State Historic Preservation Officer and State Archaeologist
Massachusetts Historical Commission
220 Morrissey Blvd.
Boston, MA 02125

RE: PROJECT NOTIFICATION FORM: MEDWAY GRID ENERGY STORAGE PROJECT, 55-53 AND 47-49 MILFORD STREET, MEDWAY, MA.

Dear Brona,

Enclosed please find a copy of the Project Notification Form and Cultural Resources Sensitivity Assessment for the Medway Grid Energy Storage Project, for your review.

Thank you for your consideration. If you have any comments or questions, please do not hesitate to contact me.

Sincerely,

Martin G. Dudek
Principal Archaeologist

Encl.

APPENDIX A
MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

PROJECT NOTIFICATION FORM

Project Name: Medway Grid Energy Storage Project

Location / Address: Utility Project; 55-53 Milford Street and 47-49 Milford Street (see attached USGS figure)

City / Town: Medway

Project Proponent

Name: Medway Grid, LLC

Address: 4845 Pearl East Circle, Suite 118, PMB 83662

City/Town/Zip/Telephone: Boulder, Colorado, 80301-6112

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies.)

Agency Name	**Type of License or funding (specify)**
US Environmental Protection Agency	- NPDES -General Permit for Discharges from Construction Activities
MA Energy Facilities Siting Board	- M.G.L. Chapter 164 Section 69J ¼ Approval to Construct Generation Facility
MA Energy Facilities Siting Board	– M.G.L. Chapter 164 Section 72 Approval to Construct Electric Transmission
MA Department of Public Utilities	– M.G.L. Chapter 40A, Section 3 Exemption from Local Zoning Bylaws
MA EOEEA MEPA Office	- Expanded ENF and Environmental Impact Report

Project Description (narrative):

The proposed Project consists of a 250 megawatt ("MW")/500 megawatt-hour ("MWh") standalone battery energy storage system ("BESS"), including a new electric substation, on approximately 10.6 acres of land off Milford Street (Route 109) in Medway, Massachusetts. The Project also includes the construction of an approximately 1,325 foot long new underground 345 kV transmission line from the proposed new substation on the Project Site to Eversource Energy's existing West Medway Substation ("the Eversource Substation") to the south. Minor upgrades, all within the existing fenced limits, will be necessary at the Eversource Substation, to accommodate the tie-in of the Project to the existing regional electric transmission system.

The Project will be located off the south side of Milford Street (Route 109) in Medway, Massachusetts, east of an existing Eversource Energy overhead transmission line corridor, north of the Exelon *West Medway Generating Station II* and Eversource Energy's existing West Medway Substation, and west of a perennial stream (Center Brook) and residential developments off Little Tree Road and Summer Street. The Project Site is approximately 10.6 acres in size and contains approximately 3.1 acres of previously developed areas associated with three existing single-family residences and an existing automotive repair facility. The remaining portion of the Project Site is best characterized as undeveloped upland forest and/or forested wetlands.

APPENDIX A (continued)

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

Demolition of all existing buildings is proposed. This includes two commercial garage buildings, three houses, a barn and a shed. Based on assessor information or historic aerials, the buildings appear to date between the 1940s and the 1970s, with the exception of the shed, which may be more recent. Houses are present at 47, 49, 53 and 55 Milford Street. The garages are present at 53 Milford Street. The shed is present at 47-49 Milford Street.

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No rehabilitation is proposed.

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

Yes. Of the 10.6 acre Project Site, approximately 3.89 acres will be developed for the BESS and new substation with an additional 0.76 acres of disturbance (portions on the Project Site and across an adjacent parcel owned by Eversource) associated with the proposed underground electric transmission interconnection to the Eversource Substation to the south. The Project is currently in the design process with a focus on utilizing previously developed areas to the maximum extent practicable. Two paved access driveways are planned to enter the Project from Milford Street. Project components to be installed include lithium-ion battery modules built into approximately 140 individual enclosures that will be supported by concrete slabs and pier foundations and surrounded by crushed stone. Other project components include stormwater management features, sound mitigation walls, and retaining walls associated with proposed site grading. In addition, the new Project Substation area will comprise approximately 25,000 square feet, will be entirely surrounded by security fencing, and will include equipment such as a main power transformer, circuit breakers, disconnect switches, low and high buses, and will be up to 70 feet high at its tallest point (static mast). The proposed underground transmission line will require clearing of up to 25-feet along its entire length from the new Project Substation to the existing Eversource Substation with the transmission line to be installed within an approximately 4-foot wide by 5-foot deep trench in a modern duct bank conduit system.

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

No. An archaeological sensitivity assessment was conducted that summarizes the data on the field assessment and known cultural resources in the project vicinity. No reported historic or archaeological resources are known within the project area.

What is the total acreage of the project area?

Woodland	7.0	Acres	Productive Resources:		Acres
Wetland	0.5	Acres	Agriculture		Acres
Floodplain		Acres	Forestry		Acres
Open space		Acres	Mining		Acres
Powerline		acres	Total Project Acreage	10.6	Acres

3.1 acres of previously disturbed areas associated with existing houses and automotive repair facility

APPENDIX A (continued)

What is the acreage of the proposed new construction?

Of the 10.6 acre Project Site, approximately 3.89 acres will be developed for the BESS and new substation with an additional 0.76 acres of disturbance (portions on the Project Site and across an adjacent parcel owned by Eversource) associated with the proposed underground electric transmission interconnection to the Eversource Substation to the south.

What is the present land use of the project area?

Residential and commercial, with three houses and outbuildings, an automotive repair facility with two garage buildings, wooded land, and wetlands.

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

See attached USGS figure showing the project location.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form: Martin G. Dudek Date: December 3, 2021

Name: Martin G. Dudek

Address: Commonwealth Heritage Group, Inc. 410 Great Road, Suite B14

City/State/Zip: Littleton, MA 01460

Telephone/Email: (978) 793-2579/mdudek@chg-inc.com

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.

G:\Projects2\MA\Medway\6221\MXD\1_USGS_Locus_20211123.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

LEGEND

Project Site

Proposed Transmission Interconnection Corridor

Scale 1:12,000
1 inch = 1,000 feet

0 500 1,000 Feet

Basemap: USGS Quadrangles, MassGIS

Project Site

Proposed Transmission Interconnection Corridor

Eversource West Medway Substation

Medway Grid Energy Storage Project Medway, Massachusetts

Epsilon Associates Inc.

Figure 1
USGS Locus Map

G:\Projects2\MA\Medway\6221\MXD\2_Aerial_Locus_20211123.mxd

Data Source: Bureau of Geographic Information (MassGIS), Commonwealth of Massachusetts, Executive Office of Technology and Security Services

Medway Grid Energy Storage Project **Medway, Massachusetts**

Epsilon Associates Inc.

Figure 2
Aerial Locus Map

December 16, 2021

The Commonwealth of Massachusetts

William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

Martin G. Dudek
Commonwealth Heritage Group
410 Great Road, B-14
Littleton, MA 01460

RE: Medway Grid Energy Storage Project, 47-49 and 53-55 Milford Street, Medway, MA.
MHC #RC.70763.

Dear Mr. Dudek:

Thank you for preparing the Project Notification Form (PNF) and the "Cultural Resources Sensitivity Assessment: Medway Grid Energy Storage Project, Medway, Massachusetts," dated December 3, 2021, for the project referenced above, received by the Massachusetts Historical Commission (MHC) on December 6, 2021.

The assessment identified an area of archaeological sensitivity within the project boundaries.

Additional information is required by the MHC to review and comment on the project.

- Please provide a contact name and a telephone number for the project proponent.
- The PNF indicates that the project is in the design process. Project plans showing existing and proposed conditions should be provided to the MHC. Oversize materials such as plans should be sized no larger than 11″ x 17″.
- The PNF indicates that an Environmental Notification Form (ENF) will be filed for the project with the Massachusetts Executive Office of Energy & Environmental Affairs, MEPA Office. The MHC looks forward to receiving a copy of the ENF. As always, filings prepared for public review should not include information about archaeological site locations to protect the sites. Because the "Cultural Resources Sensitivity Assessment" includes archaeological site locational information, the assessment should not be included with the ENF or other public filings.

Thank you once again. These comments are provided to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800), Massachusetts General Laws, Chapter 9, Section 26-27C (950 CMR 71), and MEPA (301 CMR 11). If you have any questions or require additional information, please contact me.

Sincerely,

Edward L. Bell
Deputy State Historic Preservation Officer
Senior Archaeologist
Massachusetts Historical Commission

xc: Medway Grid, LLC

COMMONWEALTH
HERITAGE GROUP

MASSACHUSETTS OFFICE
410 Great Road, B-14
Littleton, MA 01460
(978) 793-2579

January 6, 2022

VIA PRIORITY MAIL

Edward L. Bell
Deputy State Historic Preservation Officer and Senior Archaeologist
Massachusetts Historical Commission
220 Morrissey Blvd.
Boston, MA 02125

RE: Medway Grid Energy Storage Project, 47-49 and 55-53 Milford Street, Medway, MA. MHC #RC.70763.

Dear Mr. Bell,

As requested in your review letter dated December 16, 2021 on the Project Notification Form and Cultural Resources Sensitivity Assessment for the Medway Grid Energy Storage Project, additional project plans and contact information are enclosed for your review:

1. Medway Grid, LLC contact(s):
   Christina Wolf, (415) 515-7753, cwolf@ablegridenergy.com
   Justin Adams, (860) 839-8373, jadams@ablegridenergy.com
2. Existing Conditions Plans (4 sheets attached: P3506-ALTA3-SHT1 and SHT2 & P3506-EX5-SHT1 and SHT2)
3. Proposed BESS Layout Plan (one sheet - Medway Layout (Tesla MPXL)_2022.01.03)
4. Proposed Transmission Interconnection Plan Set (one sheet – 171930-Medway-IFR revA)

As also requested, the Environmental Notification Form to be filed will not include the "Cultural Resources Sensitivity Assessment" to protect sensitive archaeological site information. Thank you for your consideration. If you have any comments or questions, please do not hesitate to contact me.

Sincerely,

Martin G. Dudek
Principal Archaeologist

Encl.