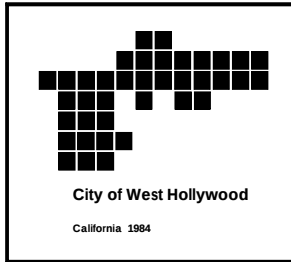

Attachment D

Supplemental Geotechnical Review

Attachment D1

August 12, 2021 Geotechnical, Geology, and Seismic
Review Sheet



CITY OF WEST HOLLYWOOD

PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
CURRENT AND HISTORIC PRESERVATION DIVISION

8300 Santa Monica Boulevard
West Hollywood, CA
90069-4313
Tel: (323) 848-6475
Fax: (323) 848-6569

GEOTECHNICAL, GEOLOGY, AND SEISMIC REVIEW SHEET

August 12, 2021

Tetra Tech BAS Project No.: cWH 18-56E
Site Address: 8850 Sunset Blvd., West Hollywood
Lot/Block/Tract: APNS 4339-017-001 through 008
Owner: 8850 Sunset Blvd, LLC
c/o Plus Development Group, West Hollywood, California

Project Type: New 14-story hotel and 15-story residential building over 5 levels of zero-lot-line subterranean parking

Geotechnical Engineer: Geocon West, Inc. (Jelisa T. Adams, GE 3092)
Engineering Geologist: Geocon West, Inc. (Susan F. Kirkgard, CEG 1754)

Reviewed Report: **July 28, 2021**, Response to Geotechnical, Geology, and Seismic Review Sheet, Proposed Hotel and Condominium Development, Project No.A9899-06-01

Previous Reviewed Report: **May 25, 2021**, Response to Geotechnical, Geology, and Seismic Review Sheet, Proposed Hotel and Condominium Development, Project No.A9899-06-01

February 17, 2021, Proposed Hotel and Condominium Development, Project No.A9899-06-01

ACTION:

☒ **APPROVAL recommended**

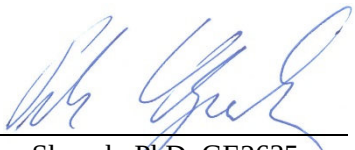
☐ **RESPONSE TO COMMENTS required prior to approval**

It is noted that the Response to Geotechnical, Geology, and Seismic Review Sheet dated July 28, 2021 recommends additional borings to confirm the depth to bedrock, requires, as a condition of approval, future analyses once the dewatering system is finalized to show that the dewatering will not result in significant amount of settlement under adjacent properties, and requires additional settlement analyses once the bearing pressure contour plot is available.

CLOSURE:

This document and all associated written comments and responses are an integral part of the geotechnical design documentation for this project. It is the responsibility of the Geotechnical Engineer of Record and the Owner to provide all herein referenced documents and the associated review comments to the appropriate parties for implementation into the design plans and specifications and for construction.

Reviewed by:



Peter Skopek, PhD, GE2635
Geotechnical Engineering Reviewer

Date: August 12, 2021

Filename: 2021-08-12 -- 8850 Sunset Blvd. -- 3rd REV APPROVED.docx

Attachment D2

Construction Dewatering Drawdown Analysis



Project No. A9899-06-01
September 19, 2023

Jelisa Thomas Adams, PE, GE
Vice President/Senior Engineer
Geocon West, Inc.
3303 North San Fernando Boulevard, Suite 100
Burbank, California 91504

Subject: CONSTRUCTION DEWATERING DRAWDOWN ANALYSIS
PROPOSED HOTEL AND CONDOMINIUM DEVELOPMENT
8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CALIFORNIA
APNS 4339-017-001 THROUGH -008

Ms. Adams:

At your request, Geocon Consultants, Inc. has performed this evaluation of the anticipated drawdown of the groundwater surface that would occur during temporary construction dewatering for the proposed development at 8850 Sunset Boulevard in West Hollywood, California. The project location is shown on the Vicinity Map, Figure 1. This analysis has been developed primarily to support evaluations of the potential ground surface settlement that may occur adjacent to the dewatered excavation and to support the California Environmental Quality Act (CEQA) review of the proposed hotel and condominium development. Detailed excavation, shoring, and dewatering plans have not yet been prepared for this project. Therefore, this evaluation is based on our experience with other excavation dewatering work in the area and our experience with similar soil and groundwater conditions. Presented below are a summary of hydrogeologic conditions in the project vicinity, a description of the dewatering simulation methodology, and our findings related to the magnitude and extent of drawdown of the groundwater surface that may occur outside of the excavation perimeter.

Our analysis is based on assumptions about the site conditions and the proposed development. These assumptions include:

- The maximum existing ground surface elevation is 358 feet above mean sea level (ft msl)¹, at the northwest corner of the site.
- The minimum existing ground surface elevation is 336 ft msl, at the southeast corner of the site.
- The excavation will have approximate dimensions of 240 feet parallel to Sunset Boulevard and 140 feet perpendicular to Sunset Boulevard.

Figure 2 is a topographic map of the site. Dewatering analyses have been conducted for three potential building foundation configurations.

¹ Elevations stated in this document are in reference to the North American Vertical Datum of 1988 (NAVD88).

Figures 3A and 3B are north-south and east-west geologic cross sections, respectively, that show existing surface conditions, the primary geologic units present beneath the site, and the proposed depth and extent of the subterranean excavation that includes a tiered foundation. As shown on Figure 3B, the northern tier of the excavation would extend to an elevation of 284 ft msl. The southern tier of the excavation would extend to an elevation of 292 ft msl, at the southeast corner of the site. This potential foundation configuration is part of the initial proposed project.

The second potential foundation configuration that we evaluated is part of a project alternative that consists of a flat-bottomed foundation with an excavation that would extend to 292 ft msl. The third potential foundation configuration that we evaluated is for an additional project alternative that has a flat-bottomed foundation that would extend to 287.5 ft msl. The alternative foundation configurations would have the same horizontal dimensions as the tiered foundation (i.e., approximately 240 feet parallel to Sunset Boulevard and 140 feet perpendicular to Sunset Boulevard).

Any substantial deviations to the assumptions listed above could alter the dewatering drawdown analysis and could change the final conclusions related to the magnitude and extent of drawdown of the groundwater surface adjacent to the excavation.

Hydrogeologic Conditions

Our dewatering drawdown analysis is dependent on several site-specific parameters, including:

- The elevation of the groundwater surface across the site at the time of excavation.
- The stratigraphy, or soil layering, beneath the site.
- The aquifer properties of the soil layers that will be dewatered.

Our evaluation of relevant data available at the time we conducted this analysis is summarized below.

Groundwater Elevations

Information related to the depth to groundwater and the elevation of the groundwater surface is available from onsite geotechnical investigations (Geocon West, Inc., 2019), site investigations for groundwater petroleum hydrocarbon contamination that occurred on adjacent properties (Wayne Perry, Inc., 2019), and a Fault Rupture Hazard Investigation conducted for the project (Helms, 2018). The most complete groundwater level dataset is provided from five monitoring wells that were installed on the project site as part of a contaminant investigation of a gas station located across Sunset Boulevard from the northwest part of the project site (Wayne Perry, Inc., 2019). The locations of the monitoring wells, designated as MW-14 through MW-18, are shown on Figure 4.

Groundwater levels were measured from 1997 to 2018 in the five onsite monitoring wells. Table 1 provides a summary of the groundwater level measurements in each of the five wells. The maximum groundwater elevations were recorded in May and June 2005 while the minimum groundwater elevations occurred during the period from November 2013 to April 2016. Median groundwater elevations over the monitoring period were also estimated from available data, as shown in Table 1. The median values are approximately six to eight feet below the maximum recorded groundwater elevations, but only two to four feet above the minimum recorded groundwater elevations. The relationship between the median value and the maximum and minimum values at each well location indicates that the peak groundwater elevations were short-term spikes and did not persist for a long period.

Groundwater elevations reported from other investigations at and near the project site (Geocon West, Inc., 2019; Helms, 2018) fall within the ranges reported during the 20-plus years of monitoring of the five onsite monitoring wells shown in Table 1. The historic high groundwater elevation for the site area reported in other studies (California Division of Mines and Geology, 1998) also falls within the ranges shown in Table 1. Therefore, the data from the long-term monitoring of the five onsite monitoring wells provides the most complete data set for our analysis.

TABLE 1
Summary of Groundwater Elevation Data
Former Shell Service Station Wells
Located on Project Parcels

Well ID	Top of Casing	Date Range		Maximum		Minimum		Median ¹
	ft msl			ft msl	Date	ft msl	Date	
MW-14	346.74	12/30/1997	6/20/2018	326.97	6/3/2005	318.28	4/27/2016	320.5
MW-15	343.14	10/21/1997	6/20/2018	326.10	5/23/2005	316.91	5/14/2014	318.5
MW-16	345.27	10/21/1997	6/20/2018	329.27	6/3/2005	319.55	4/27/2016	322.0
MW-17	344.19	10/21/1997	6/20/2018	329.21	6/3/2005	317.58	11/1/2013	321.5
MW-18	343.56	10/21/1997	6/20/2018	327.57	6/3/2005	318.52	4/27/2016	320.5

¹ Median value rounded to nearest half-foot

The groundwater elevation data measured for the adjacent gas station groundwater contaminant investigation indicates that, at the project site south of Sunset Boulevard, the hydraulic gradient is oriented toward the south. Based on the monitoring well data and additional information from Helms (2018), the groundwater elevation drops approximately seven feet from north to south within the 145-foot distance across the site. Thus, the hydraulic gradient is approximately 0.048 ft/ft, which is a relatively steep gradient for the region, based on our experience at other sites in the Los Angeles basin with typical hydraulic gradients between 0.01 ft/ft and 0.005 ft/ft.

Stratigraphy

As indicated on Figures 3A and 3B, the site is underlain by several feet of artificial fill. Beneath the fill, the native geologic deposits consist of approximately 100 feet of alluvial fan deposits that sit on top of weathered granitic bedrock. The planned excavation will remove the existing fill and will expose alluvial fan deposits at the excavation bottom.

The alluvial fan deposits consist of layers of clay, silt, and sand of varying thickness, as indicated on boring logs drilled at the site (Geocon West, Inc., 2019 and 2022). The approximate boring locations are shown on Figure 2. In general, the alluvial fan deposits consist of layers of clay, silt, and sand deposits within the upper 60 feet. However, at depths below 60 feet, the alluvial fan deposits consist primarily of sand which contains varying amounts of silt and clay.

The mapped surface trace of the Hollywood Fault Zone is located just south of the project site. However, a 2018 fault hazard study (Helms, 2018) concluded that the stratigraphic layers within the alluvial fan deposit are not displaced within at least 50 feet south of the project site and there are no abrupt steps or deflections in the groundwater elevations. The existing data indicate the absence of active faulting beneath and adjacent to the project site (Helms, 2018).

Aquifer Properties

The most critical parameter used to estimate drawdown during dewatering is the transmissivity of the aquifer units from which the groundwater is pumped. The transmissivity is the product of the aquifer thickness multiplied by the hydraulic conductivity. The hydraulic conductivity is equivalent to the permeability of the aquifer materials to water. Another parameter used in the drawdown estimates is the specific yield, which is the ratio of the volume of water that drains by gravity to the total volume of the aquifer material.

We estimated hydraulic conductivity values for the alluvial fan deposits based on laboratory grain size distribution (sieve analysis) data (Geocon West, Inc., 2022) and published empirical relationships between grain size and permeability. Empirical methods to estimate hydraulic conductivities based on grain size distribution typically use the sieve size at which 10 percent of the material passes (referred to as the D_{10}). The sieve analysis data obtained from the borings by Geocon West, Inc. (2022) indicates that the D_{10} values are very low, in the range of 0.004 millimeter (mm) to 0.007 mm for sands, 0.001 mm to 0.0015 mm for silts, and less than 0.001 mm for clays. Based on the sieve analysis results and the material type descriptions from the boring logs, an estimated hydraulic conductivity range of 5×10^{-3} centimeters per second (cm/sec) to 1×10^{-4} cm/sec was identified for the sand units within the alluvial fan deposits (Freeze and Cherry, 1979; Domenico and Schwartz, 1990). These values are equivalent to 14 feet per day (ft/day) to 0.28 ft/day. For the silts and clays within the alluvial fan deposits, hydraulic conductivity values of 1×10^{-4} cm/sec and 1×10^{-5} cm/sec (0.028 ft/day to 0.0028 ft/day) were identified (Freeze and Cherry, 1979; Domenico and Schwartz, 1990).

As discussed above, the high groundwater elevation is about 20 ft bgs while the base of the alluvial fan deposits and the top of the granitic bedrock is generally 100 ft bgs. Thus, the saturated interval within the alluvial fan deposits is about 80 feet thick. Based on this saturated thickness and the hydraulic conductivity values described in the paragraph above, the transmissivities within the alluvial fan deposits range from 1,120 feet squared per day (ft^2/day) to $22.4 \text{ ft}^2/\text{day}$ in the sands, $2.24 \text{ ft}^2/\text{day}$ in the silts, and to $0.22 \text{ ft}^2/\text{day}$ in the clays. The boring logs for the site indicate that the saturated interval consists of approximately 65 percent sandy units and about 35 percent silts and clays. Based on this ratio, the average aggregate transmissivity value of the saturated interval within the alluvial fan deposits at the site may range from $730 \text{ ft}^2/\text{day}$ to $15 \text{ ft}^2/\text{day}$.

Based on similar dewatering studies at numerous sites in the region, a specific yield of 0.1 is typical for alluvial soil consisting of a mix of sands, silts, and clays.

Drawdown Simulations for Proposed Project Configuration: Tiered Foundation and Excavation

We prepared an analytical model to simulate the drawdown that would occur due to dewatering during excavation and construction of the tiered foundation that would be constructed as part of the proposed project. We used the same analytical model to simulate the drawdowns that would occur during excavation and construction of the flat-bottomed foundation alternatives, as discussed further below. The drawdown simulations were conducted to provide an estimate of the magnitude and extent of the drawdown cones that could occur under the public right-of-way and other properties adjacent to the project site. We simulated the potential drawdown due to dewatering using the range of transmissivity values identified above. The different dewatering conditions that we simulated are described below.

Perimeter Well Dewatering

Operation of perimeter dewatering wells creates a series of overlapping drawdown cones caused by dropping the groundwater surface to a depth that is lower than the bottom of the excavation in each individual dewatering well. Each individual perimeter dewatering well typically extends 10 feet to 15 feet below the base of the excavation to provide an adequate water column in the well to allow the pump to operate effectively at the maximum dewatered depth so that the water level in each well can be lowered to at least the design dewatering depth. For an excavation of the size proposed for this project, there would typically be more than 15 to 20 dewatering wells around the excavation perimeter. As a result, the total decrease in the water table is relatively large, with the drawdown immediately adjacent to the excavation being at the design dewatering depth.

The analytical model we used to simulate the perimeter well dewatering system is based on the Theis Equation (Domenico and Schwartz, 1990). Using estimates of the aquifer properties (transmissivity and specific yield), the Theis Equation can provide the pumping rate that will achieve the necessary dewatering, along with the total drawdown at any distance from the pumping source at any time during the simulation period. This allows the actual drawdown cone to be identified.

As described above, the proposed excavation has dimensions of approximately 240 feet by 140 feet, so the target dewatering radius for the analytical model is 120 feet (i.e., half of the maximum excavation dimension). The deepest excavation elevation for the tiered foundation design will be 284 ft msl, as described above. To provide a sound working surface at the bottom of the excavation, the design dewatering depth was selected to be two feet below the deepest excavation depth, or 282 ft msl. As indicated in Figures 3A and 3B, the groundwater surface slopes appreciably toward the south, while the maximum excavation depth is located at the north edge of the site. Based on these relationships, we selected drawdowns of 48 feet and 41 feet for the target dewatering radius under maximum and median groundwater elevation conditions, respectively, because they represent the maximum potential water column that may need to be dewatered.

Our modeling approach may conservatively over-predict the total volume of aquifer that is dewatered beneath the excavation and the dewatering rate; however, this evaluation was developed to identify the magnitude of the drawdown in the groundwater surface for use in estimating potential ground settlement due to dewatering. Field testing and analysis that will be conducted in the future by the dewatering contractor will be used to determine the actual volume of water and dewatering rate.

As dewatering progresses, the drawdown cone extends outward, and the total amount of drawdown increases over time. Thus, the area and depth of dewatering under the public right of way and on adjacent properties depends on the duration of the excavation and dewatering activities. The current project construction schedule estimates foundation work to be completed in eight months. However, dewatering must continue after the foundation is installed until there is sufficient weight in the building structure to offset the buoyancy of the groundwater once dewatering ceases. Due to the depth and size of the excavation, we conservatively selected a period of two years for the analytical simulation.

The combination of the two transmissivity values and the high and median groundwater elevations results in four separate scenarios that were modeled. However, the discussion below focuses on the two end-point scenarios, which consist of the combination of the low transmissivity value and the median groundwater elevation, referred to herein as the median drawdown scenario, and the combination of the high transmissivity value and the historic high groundwater elevations, referred to herein as the maximum drawdown scenario.

For the maximum drawdown scenario, the estimated stabilized dewatering rate predicted by the model is approximately 250 gallons per minute (gpm). This value represents the rate that would be achieved once the entire excavation area has been dewatered and the volume being removed by the perimeter wells is that which is flowing toward the excavation from the surrounding area due to the increased slope, or hydraulic gradient, of the adjacent groundwater surface. To fully dewater the excavation area, the dewatering rate prior to reaching steady conditions may be substantially higher than the stabilized rate.

For the median drawdown scenario, the estimated stabilized dewatering rate predicted by the model could be as low as approximately 10 gpm. As above, substantially higher rates may be necessary to dewater the excavation area before reaching stabilized conditions. The large difference between the predicted stabilized dewatering rates in the two end-point scenarios is due to the lower groundwater elevation under median conditions and the 50-fold higher hydraulic conductivity value for the maximum drawdown scenario.

Due to the relatively steep hydraulic gradient across the site, there is an appreciable difference between the magnitude and extent of the drawdown cone to the north and the magnitude and extent of the drawdown cone to the south. Table 2 presents the drawdowns that would occur after two years for the two end-point scenarios at different distances north and south of the excavation. It should be noted that the values in Table 2 are the amount that the groundwater surface would be lowered due to dewatering. The values in Table 2 do not represent the depths to groundwater below ground surface.

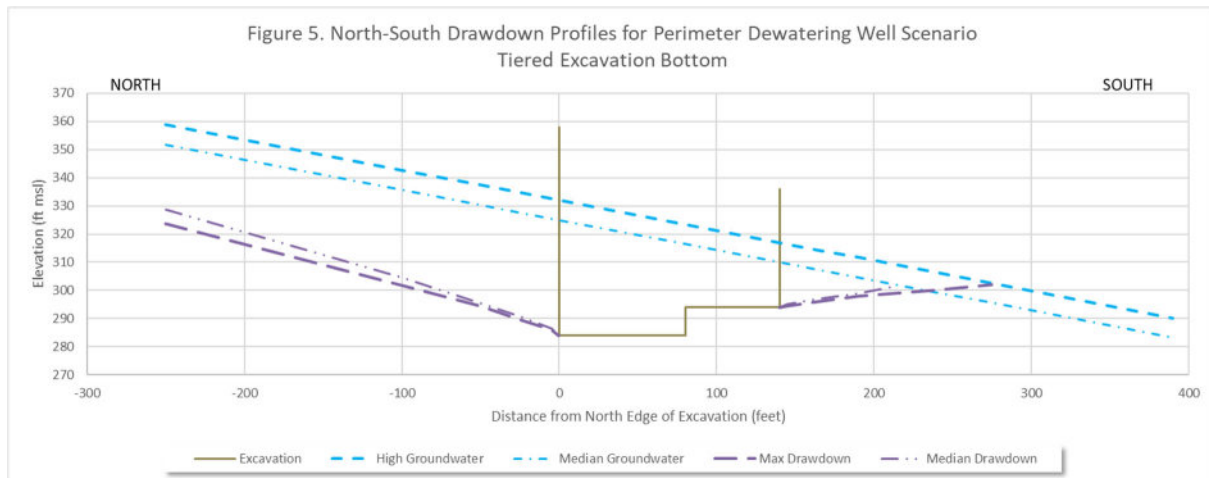
TABLE 2					
Predicted Drawdowns in the Groundwater Surface at Various Distances					
From the North and South Edges of the Excavation					
8850 Sunset Boulevard, West Hollywood, California					
Distance from Edge of Excavation		DRAWDOWN			
		Perimeter Wells		Trench with Soldier Piles & Lagging	
		Max Drawdown Case	Median Drawdown Case	Max Drawdown Case	Median Drawdown Case
Distance from North Edge of Excavation	250	35	23	17	8
	100	41	31	20	11
	50	43	35	21	12
	25	45	37	22	13
	5	47	39	23	14
	0	48	41	23	14
Distance from South Edge of Excavation	0	23	16	0	0
	5	22	14	0	0
	25	18	10	0	0
	50	14	6	0	0
	100	6	0	0	0
	250	0	0	0	0
All Values Rounded to the Nearest Foot					
Median Drawdown Case = Low transmissivity estimate and median groundwater elevations					
Max Drawdown Case = High transmissivity estimate and historic high groundwater elevations					

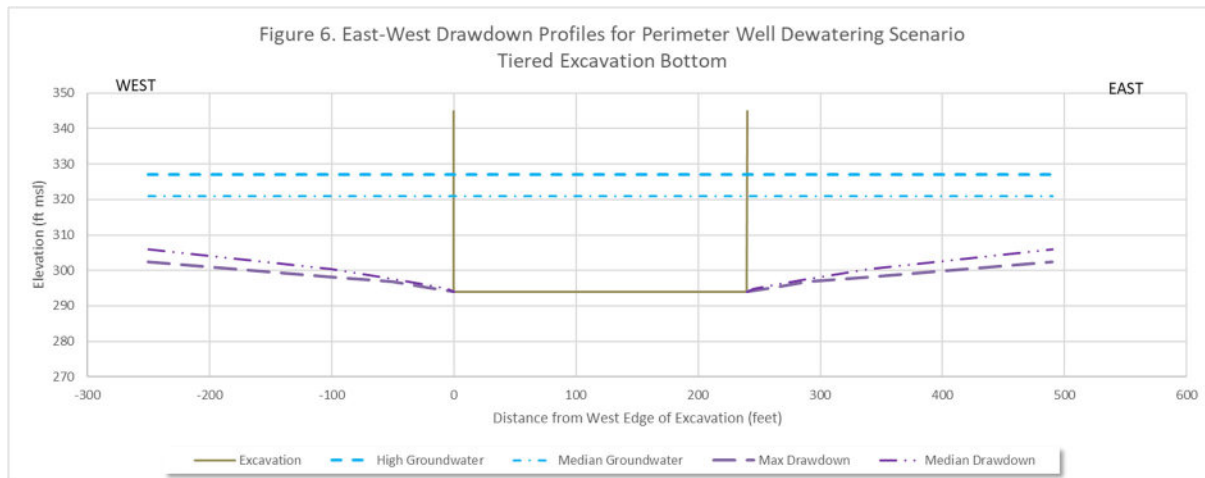
Figure 5 shows the predicted drawdowns for the two end-point scenarios along the same alignment as the north-south cross section shown on Figures 2 and 3A. As can be seen on Figure 5, the slope of the drawdown cone north of the building is only slightly steeper than the slope of the groundwater surface. Thus, the drawdown cone does not reach the static groundwater surface for at least several hundred feet north of the site. As indicated in Table 2, at a point 250 feet north of the excavation, the drawdown cone is 35 feet below the static groundwater level for the maximum drawdown scenario and 23 feet below the static groundwater level for the median drawdown scenario.

In contrast, on the south side of the excavation, the drawdown cone slopes in the opposite direction of the slope of the groundwater surface, as illustrated on Figure 5. Therefore, under the maximum drawdown scenario, the drawdown cone intercepts the groundwater surface approximately 135 feet south of the excavation, while under the median drawdown scenario, the drawdown cone intercepts the groundwater surface approximately 75 feet south of the excavation. An important implication of the differences between the magnitudes and extents of the drawdown cones on the north and south sides of the site is that a significant proportion of the volume of water that flows toward the excavation once stabilized conditions have been reached comes from the north. Only a small fraction of the water that would need to be pumped from the perimeter dewatering wells under stabilized conditions would come from the south.

In the east-west direction, the groundwater surface is essentially flat across the site at any given section line across the site. Thus, the drawdowns will be the same toward the west and toward the east away from the excavation. The model-predicted drawdowns for the east-west section shown on Figures 2 and 3B are provided in Table 3. Figure 6 shows the static groundwater surface and the drawdown cone for both the maximum and median drawdown scenarios to the east and west of the site. It is important to note that, due to the north to south sloping groundwater surface, the drawdown would be greater to the north and less to the south than the line of section of Figure 2 than those estimates shown in Table 3 and on Figure 6.

TABLE 3					
Predicted Drawdowns in the Groundwater Surface at Various Distances					
From the East and West Edges of the Excavation					
8850 Sunset Boulevard, West Hollywood, California					
Distance from Edge of Excavation		DRAWDOWN			
		Perimeter Wells		Trench with Soldier Piles & Lagging	
		Max Drawdown Case	Median Drawdown Case	Max Drawdown Case	Median Drawdown Case
Distance from East and West Edge of Excavation	250	25	15	12	4
	100	29	21	14	6
	50	30	23	15	7
	25	32	25	15	8
	5	33	26	16	9
	0	33	27	16	9
All Values Rounded to the Nearest Foot					
Median Drawdown Case = Low transmissivity estimate and median groundwater elevations					
Max Drawdown Case = High transmissivity estimate and historic high groundwater elevations					





Interior Trench Dewatering

As discussed above, additional field testing needs to be conducted by a dewatering contractor to determine the actual aquifer properties beneath the site. If that testing determines that the transmissivity values are comparable to the higher end of the range used in our analysis (i.e., 730 ft²/day), then it is likely that perimeter dewatering wells or the use of an impermeable shoring system will be necessary for sufficient dewatering. However, if that testing determines that the aquifer properties are comparable to the lower end of the range used in our analysis (i.e., 15 ft²/day), then it may be possible to use interior trenches in lieu of perimeter dewatering wells. The trenches would be located within the shored excavation to capture the relatively small amount of water (approximately 10 gpm) that would seep through the sidewalls and floor under stabilized conditions.

To maintain the rate of inflow, a relatively large seepage face² would have to form along the sides of the excavation. The depth or elevation of the edge of the drawdown cone against the excavation is equivalent to the top of the seepage face.

² Lateral inflow into the excavation occurs based on Darcy's Law, which has the form $Q = K * i * A$, where Q is the inflow rate, " K " is the hydraulic conductivity, " i " is the hydraulic gradient or slope of the groundwater surface toward the excavation, and " A " is the cross-sectional area through which the groundwater flows into the excavation. The cross-sectional area consists of both a length and a height. The length is equal to the perimeter of the excavation, while the height is equal to the distance between the base of the excavation and the point at which the groundwater surface of the drawdown cone intersects the edge of the excavation.

When perimeter dewatering wells are used, the drawdown cone is lowered below the base of the excavation by pumping of the wells. Since there is no cross-sectional area (i.e., the height is zero), only nominal seepage occurs through the excavation walls and most of the water is removed by the perimeter wells.

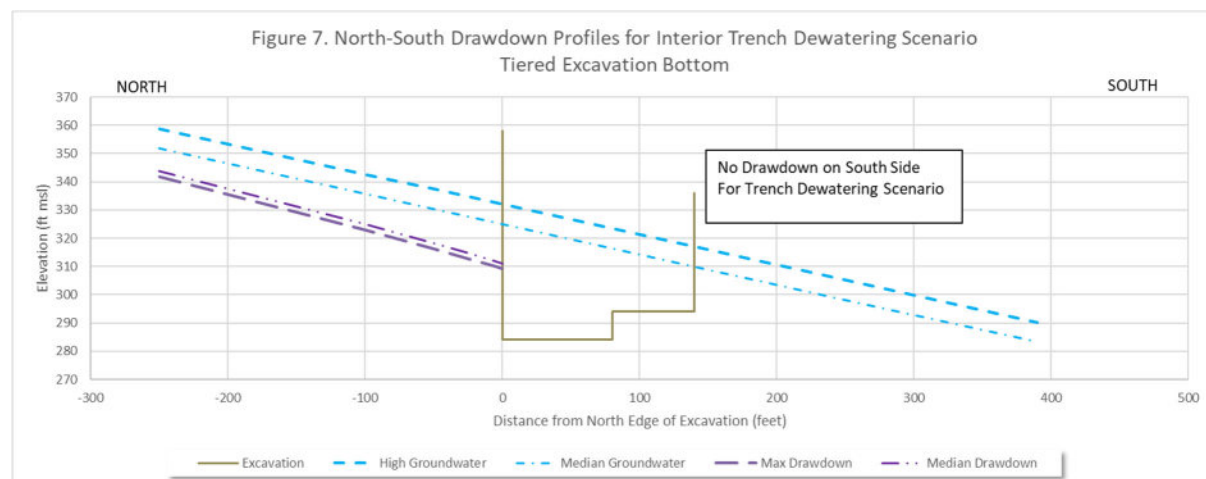
When interior trenches are used to dewater an excavation, there is less drawdown in the surrounding aquifer materials because there is no external pumping outside of the excavation perimeter. For water to enter the excavation (i.e., create a need for dewatering), there must be a seepage face with a height above the base of the excavation that is sufficient to create a cross-sectional area that will allow water to flow into the excavation.

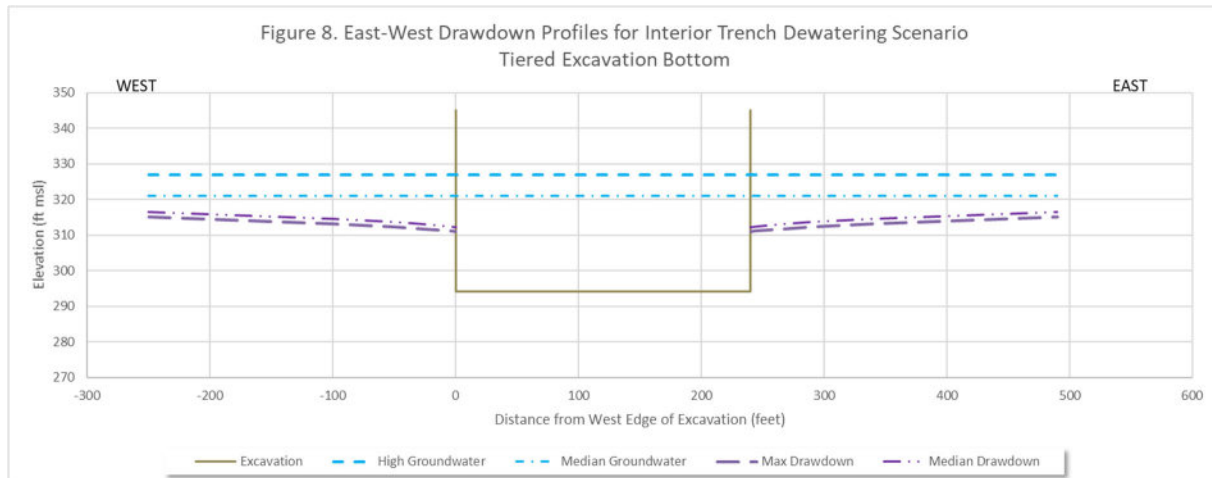
Tables 2 and 3 provide the predicted drawdowns that would occur using interior trenches to dewater the excavation, in the north-south direction and in the east-west direction, respectively. Our simulation of the trench dewatering assumes that the shoring system consists of soldier piles and lagging, which would generally allow seepage to pass freely into the excavation.

Figure 7 shows the predicted drawdowns for the two end-point scenarios along the same alignment as the north-south cross section shown on Figures 2 and 3A if dewatering trenches are used. Similar to the perimeter dewatering well scenarios, the slope of the drawdown cone north of the building is only slightly steeper than the slope of the groundwater surface. However, due to the formation of the seepage face, the amount of drawdown is less. As indicated in Table 2, at a distance of 250 feet north of the excavation, the drawdown cone is 17 feet below the static groundwater level for the maximum drawdown scenario and eight feet below the static groundwater level for the median drawdown scenario. These drawdowns are less than half of those predicted if perimeter dewatering wells were to be used.

On the south side of the excavation, there would be no drawdown because the height of the seepage face would actually be greater than the height of the static groundwater surface above the base of the excavation, for both the maximum and the median groundwater surface conditions.

Figure 8 shows the static groundwater surface and the predicted drawdown cone for both the maximum and median drawdown scenarios to the east and west of the site. As above, it is important to note that, due to the sloping groundwater surface from the north to the south, to the north of the line of section represented on Figure 2, the drawdowns would be greater than those shown in Table 3 and on Figure 6, while to the south they would be less.





Drawdown Simulations for Foundation Option 2: Flat-Bottomed Foundation with Excavation to 292 ft msl

We conducted the analysis of this foundation option with a flat-bottomed foundation with excavation extending to 292 ft msl using the same analytical modeling approach described above for the tiered foundation. Our simulations considered the use of both perimeter dewatering wells and interior trenches. The simulations of the flat-bottomed excavation use the same range of transmissivity values, the same lateral excavation dimensions, the same target dewatering radius, and the same median and maximum drawdown scenarios identified above.

Perimeter Well Dewatering

For the flat-bottomed excavation at 292 ft msl, the minimum drawdowns at the target dewatering radius are 40 feet and 33 feet, respectively, for the maximum and median drawdown scenarios. Because these values are less than the drawdowns of 48 feet and 41 feet under maximum and median groundwater elevation conditions, respectively, for the tiered foundation, the stabilized dewatering rates will be less for the flat-bottomed foundation alternative. For the maximum drawdown scenario, the estimated stabilized dewatering rate predicted by the model is approximately 210 gpm. For the median drawdown scenario, the estimated stabilized dewatering rate predicted by the model could be as low as approximately six gpm. As described above, substantially higher rates may be necessary to dewater the excavation area before reaching stabilized conditions.

Table 4 presents the drawdowns that would occur after two years for the two end-point scenarios at different distances north and south of the excavation. As with Tables 2 and 3, the values in Table 4 are the amount that the groundwater surface would be lowered due to dewatering. The values in Table 4 do not represent the depths to groundwater below ground surface.

TABLE 4					
Predicted Drawdowns in the Groundwater Surface at Various Distances					
From the North and South Edges of the Excavation					
Flat Excavation Bottom at 292 ft msl					
8850 Sunset Boulevard, West Hollywood, California					
Distance from Edge of Excavation		DRAWDOWN			
		Perimeter Wells		Trench with Soldier	
		Max Drawdown Case	Median Drawdown Case	Max Drawdown Case	Median Drawdown Case
Distance from North Edge of Excavation	250	30	19	15	7
	100	35	25	17	9
	50	37	29	18	10
	25	38	31	19	11
	5	40	33	19	11
	0	40	33	19	12
Distance from South Edge of Excavation	0	25	18	0	0
	5	24	17	0	0
	25	21	13	0	0
	50	13	4	0	0
	100	3	0	0	0
	250	0	0	0	0
All Values Rounded to the Nearest Foot					
Median Drawdown Case = Low transmissivity estimate and median					
groundwater elevations					
Max Drawdown Case = High transmissivity estimate and historic					
high groundwater elevations					

Figure 9 shows the predicted drawdowns for the two end-point scenarios along the same alignment as the north-south cross section shown on Figures 2 and 3A. As can be seen on Figure 9, the slope of the drawdown cone north of the building is only slightly steeper than the slope of the groundwater surface. Thus, the drawdown cone does not reach the static groundwater surface for at least several hundred feet north of the site. As indicated in Table 4, at a distance of 250 feet north of the excavation, the drawdown cone is 30 feet below the static groundwater level for the maximum drawdown scenario and 19 feet below the static groundwater level for the median drawdown scenario.

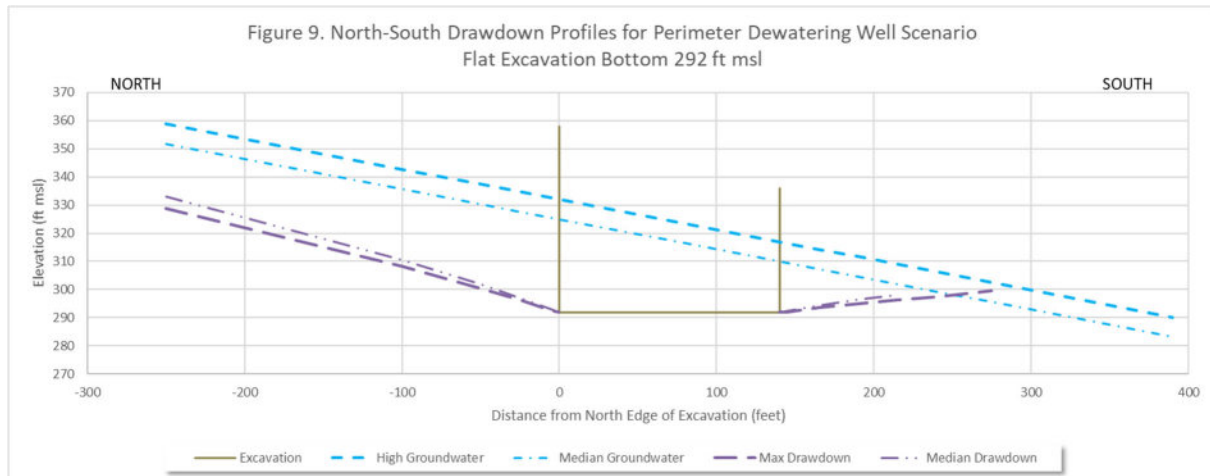
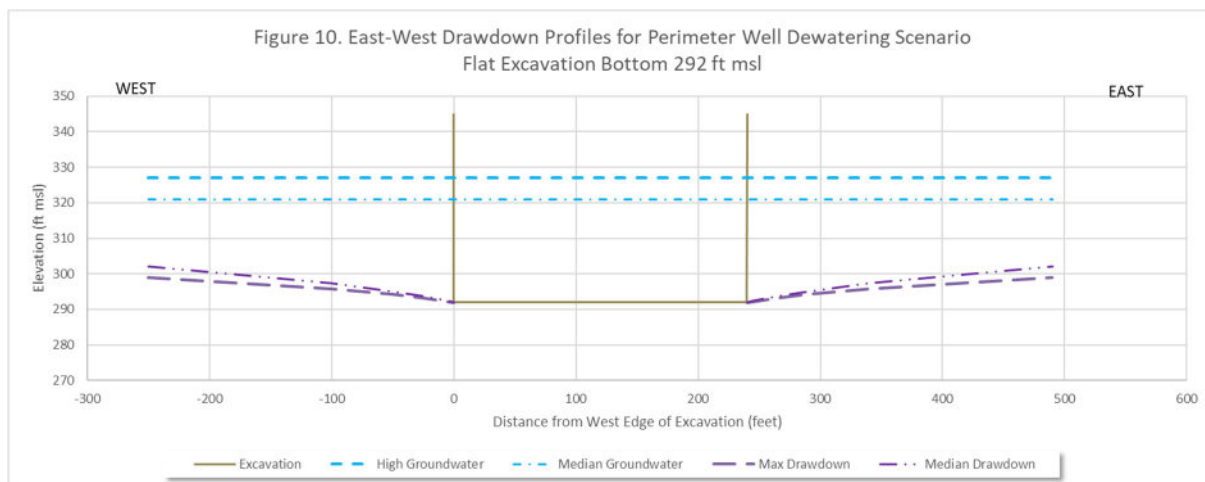


TABLE 5					
Predicted Drawdowns in the Groundwater Surface at Various Distances					
From the East and West Edges of the Excavation					
Flat Excavation Bottom at 292 ft msl					
8850 Sunset Boulevard, West Hollywood, California					
Distance from Edge of Excavation		DRAWDOWN			
		Perimeter Wells		Trench with Soldier	
		Max Drawdown Case	Median Drawdown Case	Max Drawdown Case	Median Drawdown Case
Distance from East and West Edge of Excavation	250	25	15	12	4
	100	29	21	14	6
	50	30	23	15	7
	25	32	25	15	8
	5	33	26	16	9
	0	33	27	16	9
All Values Rounded to the Nearest Foot					
Median Drawdown Case = Low transmissivity estimate and median groundwater elevations					
Max Drawdown Case = High transmissivity estimate and historic high groundwater elevations					

In contrast, on the south side of the excavation, the drawdown cone slopes in the opposite direction of the slope of the groundwater surface, as illustrated on Figure 9. Therefore, under the maximum drawdown scenario, the drawdown cone intercepts the groundwater surface at approximately 140 feet south of the excavation, while under the median drawdown scenario, the drawdown cone intercepts the groundwater surface at approximately 85 feet south of the excavation. As with the tiered foundation, a significant proportion of the volume of water that flows toward the excavation once stabilized conditions have been reached during dewatering of the flat-bottomed excavation comes from the north.

In the east-west direction, the groundwater surface is essentially flat across the site at any given section line across the site. Thus, the drawdowns will be the same toward the west and toward the east away from the excavation. The model-predicted drawdowns for the east-west section shown on Figures 2 and 3B are provided in Table 5. Figure 10 shows the static groundwater surface and the drawdown cone for both the maximum and median drawdown scenarios to the east and west of the site for the alternative foundation design. It should be noted that the predicted drawdowns shown in Table 5 and on Figure 10 are identical to those in Table 3 and on Figure 6 because the foundation elevation for Section B-B' is at an elevation of 292 ft msl for both foundation scenarios. However, as above, due to the sloping groundwater surface to the north of the line of section represented on Figure 2, the drawdowns would be greater than those shown in Table 5 and on Figure 10, while to the south they would be less.



Interior Trench Dewatering

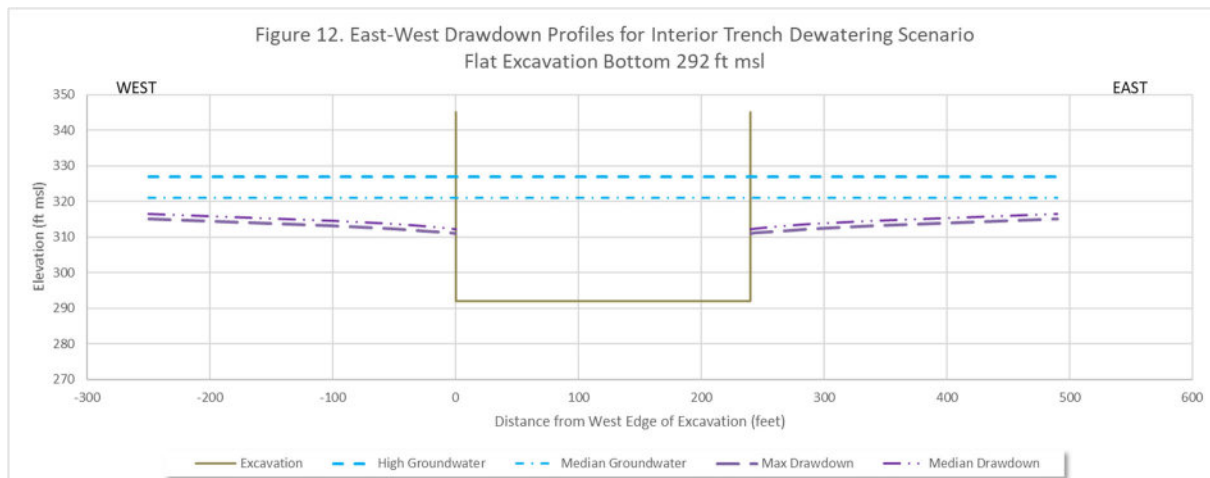
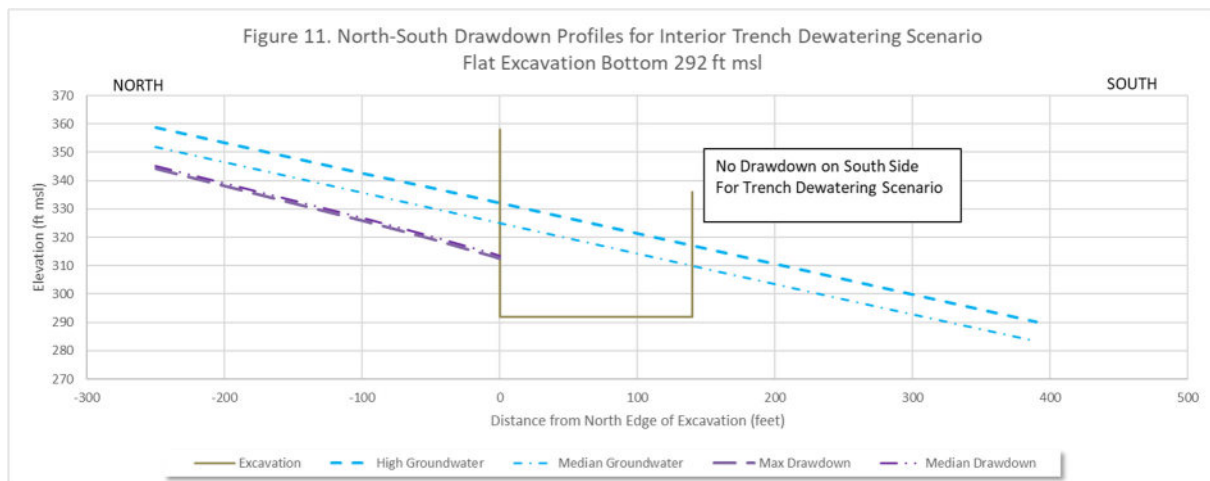
As described above, additional field testing needs to be conducted by a dewatering contractor to determine the actual aquifer properties beneath the site. If that testing determines that the transmissivity values are comparable to the lower end of the range used in our analysis (i.e., 15 ft²/day), then it may be possible to use interior trenches in lieu of perimeter dewatering wells. The trenches would be located within the shored excavation to capture the relatively small amount of water (approximately 10 gpm) that would seep through the sidewalls and floor under stabilized conditions.

Tables 4 and 5 provide the predicted drawdowns that would occur using interior trenches to dewater the flat-bottomed excavation in the north-south direction and in the east-west direction, respectively. Our simulation of the trench dewatering assumes that the shoring system consists of soldier piles and lagging, which would generally allow seepage to pass freely into the excavation.

Figure 11 shows the predicted drawdowns for the two end-point scenarios along the same alignment as the north-south cross section shown on Figures 2 and 3A if dewatering trenches were able to be used. Similar to the perimeter dewatering well scenarios, the slope of the drawdown cone north of the building is only slightly steeper than the slope of the groundwater surface. However, due to the formation of the seepage face, the amount of drawdown is less. As indicated in Table 4, at a distance of 250 feet north of the excavation, the drawdown cone is 15 feet below the static groundwater level for the maximum drawdown scenario and seven feet below the static groundwater level for the median drawdown scenario. These drawdowns are less than half of those predicted if perimeter dewatering wells were to be used.

On the south side of the excavation, there would be no drawdown because the height of the seepage face would actually be greater than the height of the static groundwater surface above the base of the excavation, for both the maximum and the median groundwater surface conditions.

Figure 12 shows the static groundwater surface and the predicted drawdown cone for both the maximum and median drawdown scenarios to the east and west of the site. As above, it is important to note that, due to the sloping groundwater surface, to the north of the line of section represented on Figure 2, the drawdowns would be greater than those shown in Table 5 and on Figure 12, while to the south they would be less.



**Drawdown Simulations for Foundation Option 3: Flat-Bottomed Foundation with
Excavation to 287.5 ft msl**

For this foundation option, with a flat excavation bottom at 287.5 ft msl, the drawdowns have been scaled from those identified for the proposed project's tiered foundation and the 292-ft msl flat bottom alternative. Under this alternative, the bottom of the excavation would be 3.5 feet shallower than the north half of tiered foundation and 4.5 feet deeper than the south half of the tiered foundation and the 292-ft msl flat bottom alternative. As a result, the drawdown at the north edge of the excavation for this 287.5-ft msl alternative would be 3.5 feet less than the drawdown calculated for the tiered foundation but 4.5 feet more than the drawdown calculated for the 292-ft msl flat bottom alternative. Similarly, at the south edge of the excavation, the drawdown for this alternative would be 4.5 feet deeper than that for both the tiered foundation and the 292-ft msl flat bottom alternative.

The drawdowns at various distances away from the north and south sides of the 287.5-ft msl flat bottom foundation excavation are shown in Table 6, while the drawdowns at various distances from the east and west sides of the 298.5-ft msl flat bottom foundation excavation are shown in Table 7.

TABLE 6					
Predicted Drawdowns in the Groundwater Surface at Various Distances					
From the North and South Edges of the Excavation					
Flat Excavation Bottom at 287.5 ft msl					
8850 Sunset Boulevard, West Hollywood, California					
Distance from Edge of Excavation		DRAWDOWN			
		Perimeter Wells		Trench with Soldier	
		Max Drawdown Case	Median Drawdown Case	Max Drawdown Case	Median Drawdown Case
Distance from North Edge of Excavation	250	33	21	16	8
	100	38	28	19	10
	50	40	32	20	11
	25	42	34	21	12
	5	44	36	21	13
	0	45	38	21	13
Distance from South Edge of Excavation	0	30	23	0	0
	5	28	21	0	0
	25	25	16	0	0
	50	15	5	0	0
	100	4	0	0	0
	250	0	0	0	0
All Values Rounded to the Nearest Foot					
Median Drawdown Case = Low transmissivity estimate and median					
groundwater elevations					
Max Drawdown Case = High transmissivity estimate and historic					
high groundwater elevations					

TABLE 7					
Predicted Drawdowns in the Groundwater Surface at Various Distances					
From the East and West Edges of the Excavation					
Flat Excavation Bottom at 287.5 ft msl					
8850 Sunset Boulevard, West Hollywood, California					
Distance from Edge of Excavation		DRAWDOWN			
		Perimeter Wells		Trench with Soldier	
		Max Drawdown Case	Median Drawdown Case	Max Drawdown Case	Median Drawdown Case
Distance from East and West Edge of Excavation	250	28	18	15	7
	100	33	24	18	10
	50	34	27	19	11
	25	36	29	20	12
	5	37	31	20	13
	0	38	32	21	13
All Values Rounded to the Nearest Foot					
Median Drawdown Case = Low transmissivity estimate and median					
groundwater elevations					
Max Drawdown Case = High transmissivity estimate and historic					
high groundwater elevations					

Impermeable Shoring

As discussed above, if testing determines that the transmissivity values are comparable to the higher end of the range used in our analysis (i.e., 730 ft²/day) and could therefore result in higher drawdown requirements and higher potential for settlement, the use of impermeable shoring is an additional option for excavation below the groundwater surface for the project. Impermeable shoring may include the use of secant piles, sheet pile, or slurry walls. The impermeable shoring reduces lateral inflow of groundwater into the excavation. For impermeable shoring to be effective, it would typically need to be keyed into an underlying low permeability soil layer. The boring logs from the site indicate that the alluvial fan deposit consists primarily of sandy units below the base of the excavation down to the granitic bedrock. Therefore, if impermeable shoring were to be used, it would likely need to extend to and be embedded within bedrock.

Since impermeable shoring is intended to prevent or reduce groundwater inflow into the excavation, there would be little or no drawdown in the surrounding aquifer soils outside of the excavation and adjacent properties. As a result, the potential for significant ground surface settlement outside of the excavation is very low.

As discussed above, due to the north/south slope of the groundwater surface, most of the water that would need to be addressed by a dewatering system would come from the north side of the site. Therefore, it may be feasible to install a partial impermeable shoring system that extends along the north side of the excavation and along the northern reach of the east and west sides of the excavation. This shoring system would prevent or reduce drawdown to the north of the excavation. Under such a design, dewatering trenches may be needed in the southern part of the excavation to remove seepage that enters from the excavation faces that are not covered by the impermeable shoring system.

We have not modeled any hypothetical impermeable shoring scenarios. Appropriate field testing and analysis by a dewatering contractor would be necessary before sufficient information is available to model the potential inflow and resultant drawdown that may occur from a full or partial-perimeter impermeable shoring system. However, even without such field testing, based on our experience the potential drawdown outside of a full impermeable shoring system would be negligible. Similarly, outside of a partial-perimeter impermeable shoring the potential drawdown would be no greater than that which would occur under the interior trench scenario described above, and could be less.

Findings and Conclusions

We have performed this evaluation to estimate the magnitude and extent of drawdown of the groundwater surface that may occur outside of the excavation during construction of the proposed hotel and condominium development at 8850 Sunset Boulevard in West Hollywood, California for three different potential foundation configurations. This analysis has been developed primarily to support evaluations of the potential settlement that may occur adjacent to the dewatered excavation and to support the CEQA review of the proposed development and potential alternative to the proposed project. Detailed excavation, shoring, and dewatering plans have not yet been prepared for this project. Therefore, this evaluation is based on existing data and our experience with other foundation dewatering work in the area.

Aquifer pumping tests and analysis by a dewatering contractor have not yet been conducted. Therefore, this evaluation is a preliminary analysis based on available data from the geotechnical boring logs and our experience with similar soil and groundwater conditions. A range of hydraulic conductivity and transmissivity values based on empirical correlations with material type and best professional judgment from experience at other sites in the area with similar alluvial fan sediments were used in the dewatering simulations. Due to the relatively wide range of potential hydraulic conductivity and transmissivity values, we conducted dewatering simulations based on both a perimeter dewatering well system and a trench dewatering system. We also considered dewatering requirements and related effects if the groundwater surface was at or near the historic maximum levels and at or near the historic median levels during excavation.

The natural, or static, groundwater surface at the site slopes relatively steeply toward the south. This slope has an appreciable influence on the magnitude and extent of drawdown toward the north compared to that to the south.

For the tiered foundation configuration (proposed project), using perimeter dewatering wells is predicted to result in drawdowns that would extend to the base of the excavation, or approximately 48 feet below the historic maximum level and 41 feet below the median water level at the north edge of the excavation, and would be approximately 35 feet to 23 feet, respectively, at 250 feet north of the excavation. However, due to the slope of the groundwater surface, on the south side of the excavation the drawdowns would only extend approximately 23 feet below the historic maximum level and 16 feet below the median water level at the south edge of the excavation and would diminish to zero at distances of approximately 135 feet and 75 feet, respectively, for the maximum and median groundwater conditions. Depending on the actual transmissivity of the saturated soils, the stabilized yield from the dewatering wells could range from approximately 10 gpm to 250 gpm.

For the 292-ft msl flat-bottomed foundation alternative for the proposed project, using perimeter dewatering wells is predicted to result in drawdowns that would extend to the base of the excavation, or approximately 40 feet below the historic maximum level and 33 feet below the median water level at the north edge of the excavation, and would be approximately 30 feet to 19 feet, respectively, at 250 feet north of the excavation. However, due to the slope of the groundwater surface, on the south side of the excavation the drawdowns would only extend approximately 25 feet below the historic maximum level and 18 feet below the median water level at the south edge of the excavation and would diminish to zero at distances of approximately 140 feet and 85 feet, respectively, for the maximum and median groundwater conditions. Depending on the actual transmissivity of the saturated soils, the stabilized yield from the dewatering wells could range from approximately six gpm to 210 gpm.

For the 287.5-ft msl flat-bottomed foundation alternative, using perimeter dewatering wells is predicted to result in drawdowns that would extend to the base of the excavation, or approximately 45 feet below the historic maximum level and 38 feet below the median water level at the north edge of the excavation, and would be approximately 33 feet to 21 feet, respectively, at 250 feet north of the excavation (all values rounded to the nearest foot). However, due to the slope of the groundwater surface, on the south side of the excavation the drawdowns would only extend approximately 30 feet below the historic maximum level and 23 feet below the median water level at the south edge of the excavation and would diminish to zero at distances of less than 250 feet and 100 feet, respectively, for the maximum and median groundwater conditions.

If future testing determines that the actual transmissivity is near the low end of the range that we considered, dewatering may be possible using interior trenches within the shored excavation to capture the relatively small amount of water (approximately 10 gpm) that would seep through the sidewalls and floor under stabilized conditions. Due to the seepage face that would form along the excavation face, the drawdown would be less than if perimeter dewatering wells were used. If interior trenches could be used, then for the tiered foundation the drawdown at the north edge of the excavation would be approximately 23 feet below the historic maximum level and 14 feet below the median water level, and would be approximately 17 feet to 8 feet, respectively, at 250 feet north of the excavation. For the 292-ft msl flat-bottomed foundation alternative, the drawdown at the north edge of the excavation would be approximately 19 feet below the historic maximum level and 12 feet below the median water level, and would be approximately 15 feet to seven feet, respectively, at 250 feet north of the excavation. For the 287.5-ft msl flat-bottomed foundation project alternative, the drawdown at the north edge of the excavation would be approximately 21 feet below the historic maximum level and 13 feet below the median water level, and would be approximately 16 feet to eight feet, respectively, at 250 feet north of the excavation. Due to the slope of the groundwater surface and the height of the seepage face, on the south side of the excavation the drawdowns would be zero for all three foundation configurations.

If future testing determines that the actual transmissivity is near the high end of the range that we have considered, impermeable shoring could also be used, which would substantially reduce lateral inflow of groundwater into the excavation. However, to be effective, it would typically need to be keyed into the underlying granitic bedrock at approximately 100 ft bgs. Since most of the water that would need to be addressed by a dewatering system would come from the north side of the site, due to the north/south slope of the groundwater surface, it may be feasible to install a partial impermeable shoring system that extends along the north side of the excavation and along the northern reach of the east and west sides of the excavation. Such a partial impermeable shoring system would reduce drawdown to the north of the excavation. Under such a design, dewatering trenches may be needed in the southern part of the excavation to remove seepage that enters from the excavation faces that are not covered by the impermeable shoring system. Additional field testing and analysis by a dewatering contractor would be necessary before an impermeable shoring system could be evaluated further. However, the potential drawdowns outside of a properly-installed full impermeable shoring system would be negligible while those outside of a partial impermeable shoring system would be no greater than that which would occur from the trench scenarios addressed above.

Closure

The evaluations, analyses, and conclusions presented in this letter have been prepared primarily to address comments received through the CEQA process related to drawdown and resultant settlement that may be caused by dewatering. This report addresses the potential drawdown. Evaluation of settlement is provided in a separate report.

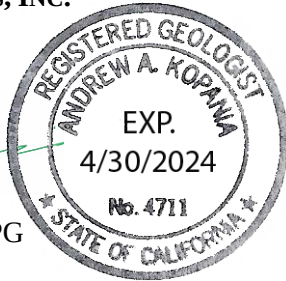
Our findings are based on our review of information presented primarily on the boring logs and from common and usual reference sources, as cited below. Our study did not include field testing related to the aquifer properties upon which these evaluations are based. Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering and hydrogeological principles and practices used in this area at this time. The analyses and findings of this study should be re-evaluated if additional field investigation, site-specific laboratory data, and/or dewatering and building designs prepared by others become available for this site. We make no warranty, express or implied. If you have any questions regarding this letter, or if we may be of further service, please contact the undersigned at your convenience.

Sincerely,

GEOCON CONSULTANTS, INC.



Andrew Kopania, PhD, PG
Senior Hydrogeologist



Jeremy J. Zorne, PE, GE
Senior Engineer



Attachments: References Cited
 Figure 1, Vicinity Map
 Figure 2, Topographic Plan
 Figure 3A, Geologic Section A-A'
 Figure 3B, Geologic Section B-B'
 Figure 4, Monitoring Well Locations

References

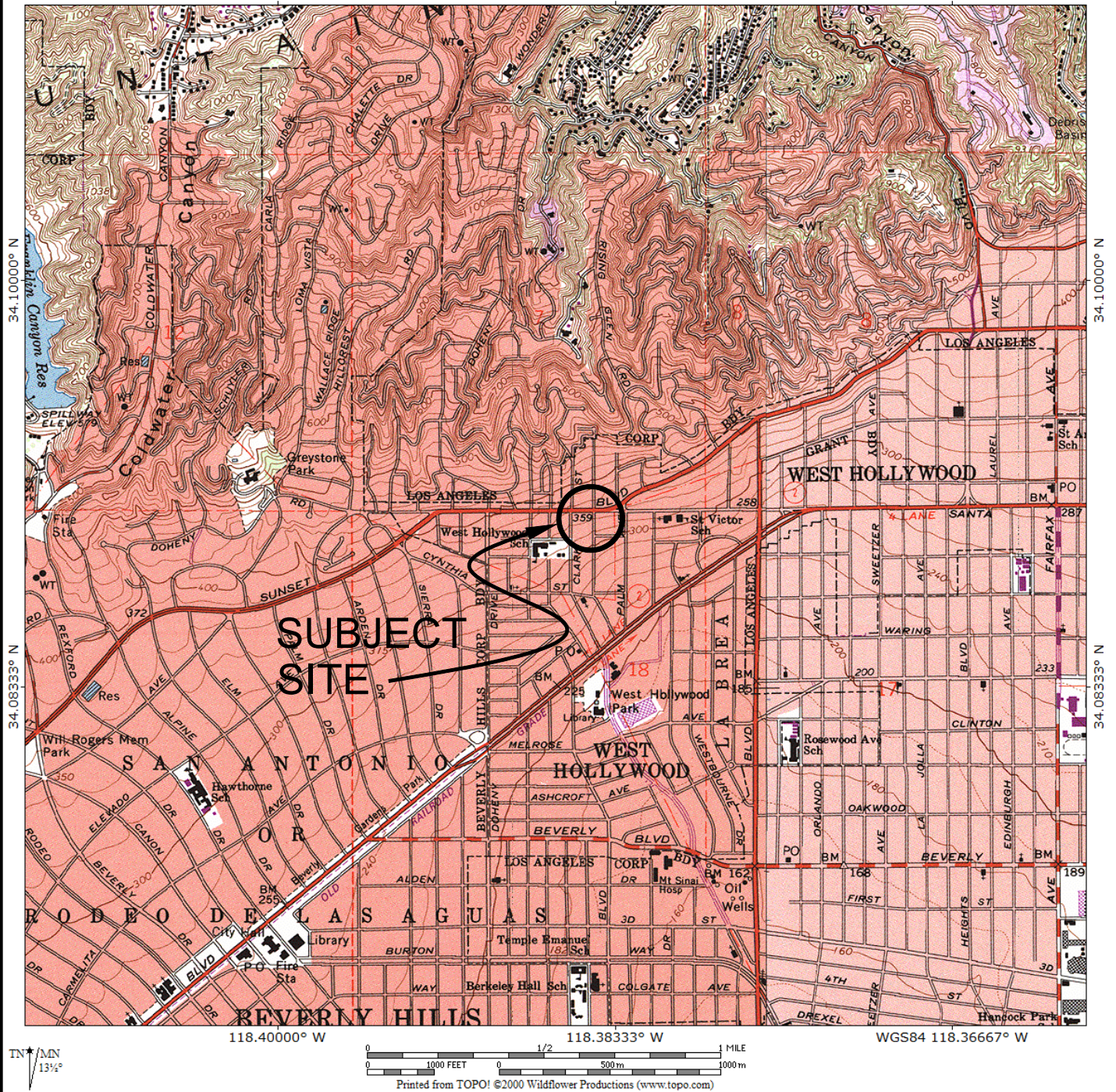
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- Geocon West, Inc., 2022, Addendum to Geotechnical Investigation, Proposed Hotel and Condominium Development, 8850 Sunset Boulevard, West Hollywood, California, APNS 4339-017-001 through -008.
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- Wayne Perry, Inc., 2019, Groundwater Monitoring and Status Report, Fourth Quarter 2018, Former Shell Service Station, 8873 Sunset Boulevard (at Clark Street), West Hollywood, California.

TOPO! map printed on 06/10/15 from "LA.tpo" and "Untitled.tpg"

118.40000° W

118.38333° W

WGS84 118.36667° W



REFERENCE: U.S.G.S. TOPOGRAPHIC MAPS, 7.5 MINUTE SERIES, BEVERLY HILLS AND HOLLYWOOD, CA QUADRANGLES



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CHECKED BY: SFK

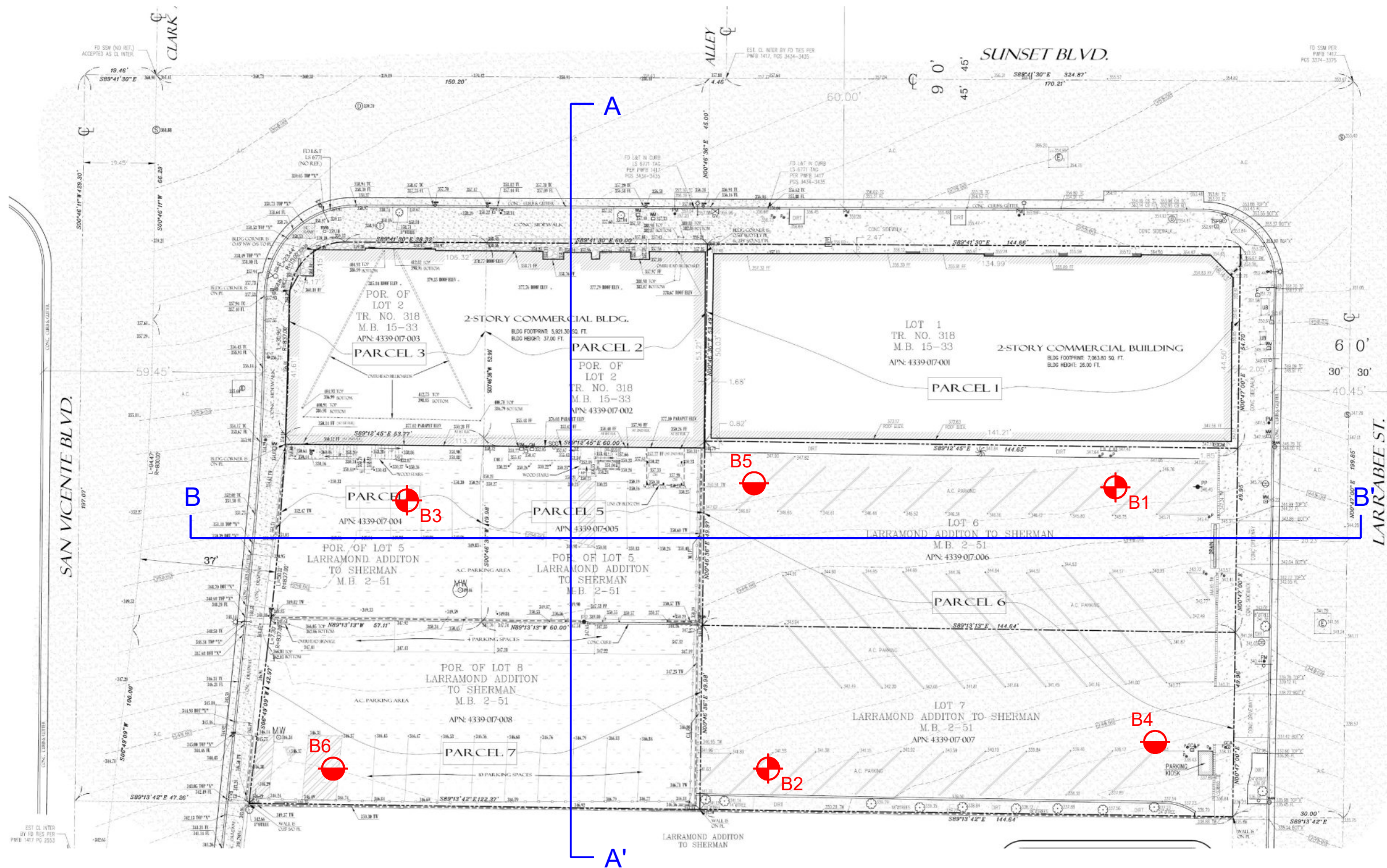
VICINITY MAP

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CALIFORNIA

SEPT 2023

PROJECT NO. A9899-06-01

FIG. 1



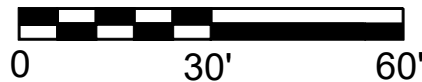
LEGEND



Boring Location and Number (2018)



Boring Location and Number (2022)



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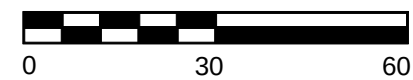
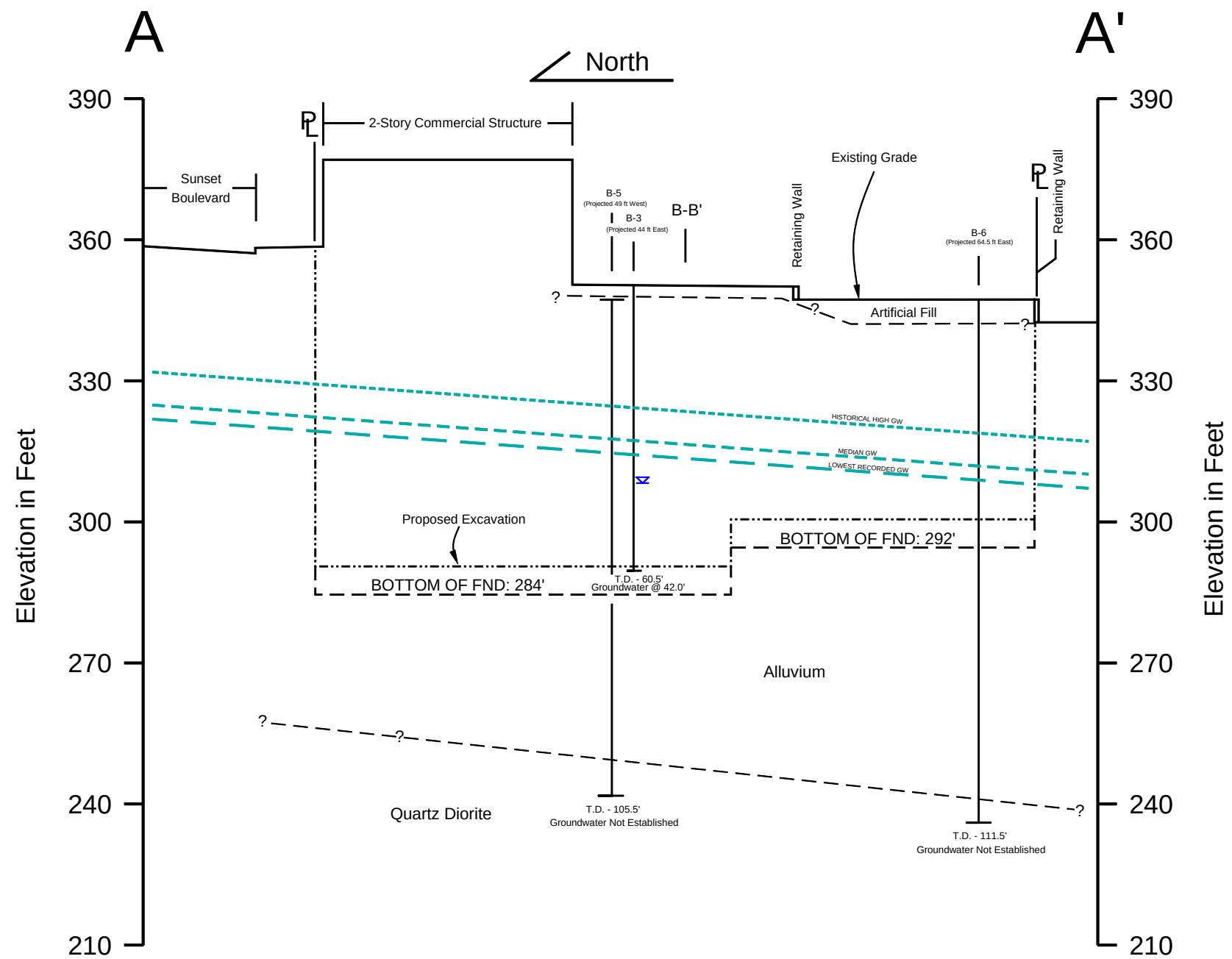
TOPOGRAPHIC PLAN

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CALIFORNIA

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PROJECT NO. A9899-06-01

FIG. 2

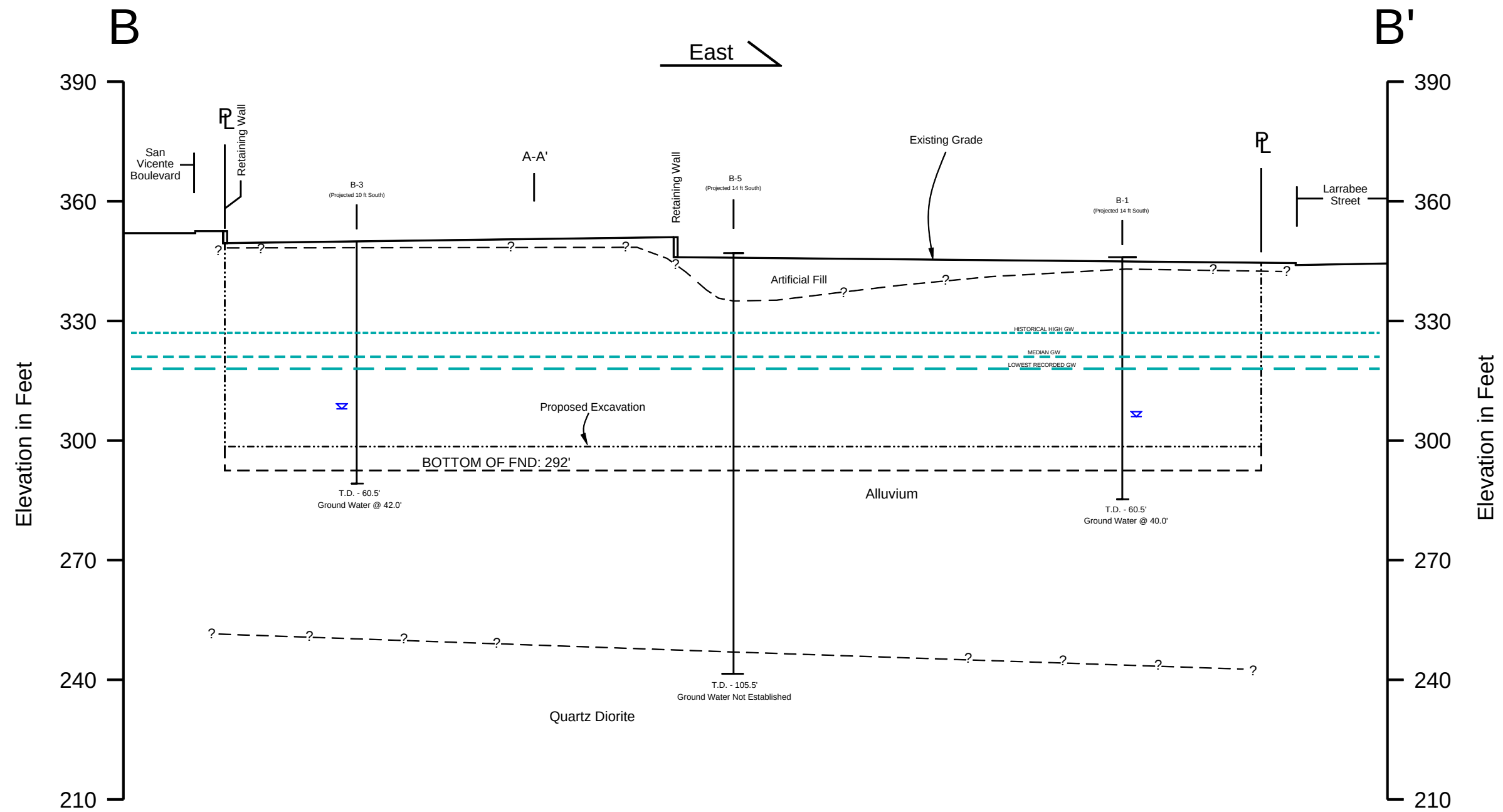


1" = 30'
Horizontal and Vertical Scale

NOTES
1. THE SECTIONS ARE BASED ON GEOLOGIC CONDITIONS AT EXPLORATION LOCATIONS AND GEOLOGIC DATA FROM AVAILABLE PUBLISHED GEOLOGIC MAPS. SECTIONS ARE FOR ILLUSTRATION PURPOSES ONLY, NOT FOR CONSTRUCTION.
2. SEE FIGURE 1 FOR LOCATION OF SECTION

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GEOLOGIC SECTION A-A'		
8850 SUNSET BOULEVARD WEST HOLLYWOOD, CALIFORNIA		
SEPT 2023	PROJECT NO. A9899-06-01	FIG. 3A



NOTES

1. THE SECTIONS ARE BASED ON GEOLOGIC CONDITIONS AT EXPLORATION LOCATIONS AND GEOLOGIC DATA FROM AVAILABLE PUBLISHED GEOLOGIC MAPS. SECTIONS ARE FOR ILLUSTRATION PURPOSES ONLY, NOT FOR CONSTRUCTION.

2. SEE FIGURE 1 FOR LOCATION OF SECTION



GEOCON

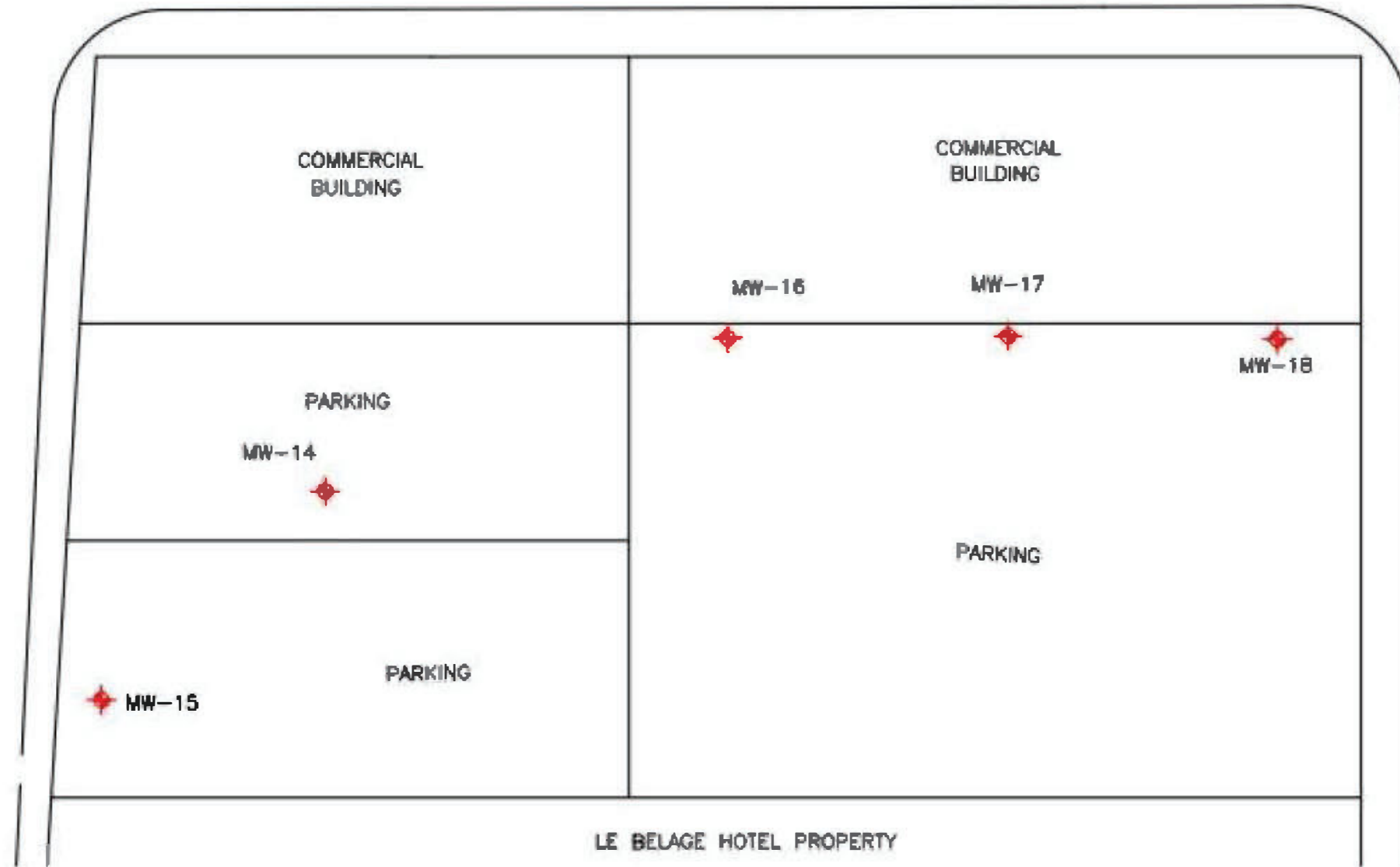
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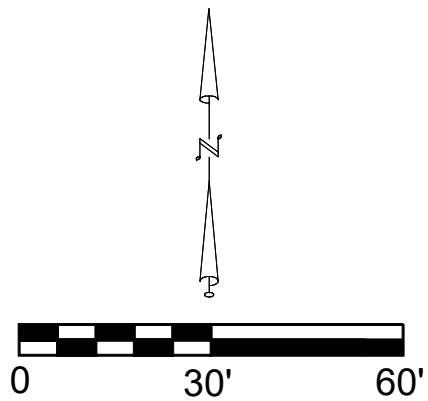
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GEOLOGIC SECTION B-B'		
8850 SUNSET BOULEVARD		
WEST HOLLYWOOD, CALIFORNIA		
SEPT 2023	PROJECT NO. A9899-06-01	FIG. 3B

SAN VICENTE BLVD.



LARRABEE ST.



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MONITORING WELL LOCATIONS		
8850 SUNSET BOULEVARD WEST HOLLYWOOD, CALIFORNIA		
SEPT 2023	PROJECT NO. A9899-06-01	FIG. 4

Attachment D3

Addendum to Geotechnical Investigation



Project No. A9899-06-01
September 18, 2023

8850 Sunset Blvd. LLC
c/o Mike Unwin
Plus Development Group
8920 West Sunset Boulevard, #200A
West Hollywood, California 90069

Subject: ADDENDUM TO GEOTECHNICAL INVESTIGATION
 PROPOSED HOTEL AND CONDOMINIUM DEVELOPMENT
 8850 SUNSET BOULEVARD, WEST HOLLYWOOD, CALIFORNIA
 APNS 4339-017- 001 THROUGH -008

Dear Mr. Unwin:

This report has been prepared to present our updated analysis of the potential ground surface settlement resulting from the proposed temporary dewatering required for development of the subject project. Where differing, the recommendations presented herein supersede those provided in the referenced Reports and Addenda. References reviewed to prepare this report are provided in the *List of References* section.

Prior to the preparation of this report, we performed additional site exploration, laboratory testing, and engineering analysis, and we have reviewed and incorporated the findings of the project-specific drawdown analyses presented in the referenced Construction Dewatering Drawdown Analysis report dated September 18, 2023. It is the opinion of the undersigned geotechnical engineer that temporary dewatering can be performed on the project site in a manner that is consistent with typical construction techniques used within the project vicinity, and will not adversely impact the surrounding public right-of-way, properties and/or associated improvements.

Geocon notes that deviations to the project scope analyzed herein may require revision to our analysis and conclusions.

Supplemental Site Exploration and Laboratory Testing

Additional site exploration was performed on March 9, 28, and 29, 2022, by excavating three 5⅞-inch diameter borings using a truck-mounted rotary-wash drilling machine to depths between 100½ and 111½ feet below the ground surface. The approximate locations of the exploratory borings are depicted on the Site Plan (see Figure 1). Boring B6 was performed for the purpose of obtaining the depth to bedrock below the site; therefore, the upper 90 feet of boring B6 was not sampled or logged. A detailed discussion of the field investigation, including boring logs, is presented in Appendix A.

The soil conditions encountered in borings B4 through B6 are generally consistent with those encountered in the prior borings B1 through B3. The depth to groundwater could not be measured in borings B4 through B6 due to the use of the rotary-wash drilling method for these borings, which uses drilling mud in the borehole. Rotary-wash drilling was utilized for these borings because it results in more accurate blow counts and less sample disturbance, particularly below the water table.

Laboratory tests were performed on selected soil samples obtained during the additional site exploration described above to determine pertinent physical soil properties. Appendix B presents a summary of the laboratory test results.

Review of Prior Analyses

In the *Response to Geotechnical, Geology, and Seismic Review Sheet, Proposed Hotel and Condominium Development, 8850 Sunset Boulevard, West Hollywood, California, APNs 4339-017-001 through -008*, dated July 28, 2021 (“July 2021 Response Letter”), we presented an analysis to estimate the anticipated settlement resulting from the proposed foundation loading from the project. The analysis was performed using the computer program Settle3. For that analysis, we made a simplifying assumption that groundwater would be temporarily lowered to an elevation of 284 feet MSL below the project site as well as outside the excavation footprint. The purpose of that analysis was to evaluate only the long-term settlement occurring as a result of the foundation loading following the completion of construction. Therefore, assuming that the groundwater level outside of the excavation would be lowered to a uniform elevation was a reasonable approach and did not impact calculation of the anticipated settlement due to foundation loading.

The analyses presented herein address the potential ground surface settlement that could result from the proposed temporary dewatering during the project’s construction period. We have used the drawdown depths presented in the site-specific drawdown analysis presented in the Construction Dewatering Drawdown Analysis report dated September 18, 2023. The drawdown depth is the vertical distance the groundwater will be temporarily lowered as a result of dewatering activities during project construction.

Analysis Revisions

The analysis presented herein is based on the supplemental site exploration and laboratory testing, as well as the site-specific drawdown analysis presented in the Construction Dewatering Drawdown Analysis report dated September 18, 2023.

In our prior settlement analysis, we modeled upper alluvium and lower alluvium soil layers. The transition between these two layers was set at a depth of 66 feet below the ground surface (275 ft MSL). The two layers were delineated based on a previously perceived increase in soil density based on blow counts from borings B1 through B3. A blow count is the number of blows from a 140-pound hammer falling 30 inches required to advance a split-spoon sampler 12 inches into undisturbed soils. The most recent borings (B4 through B6) were drilled with a rotary-wash drilling machine, which results in more accurate blow counts and less sample disturbance, particularly below the water table. Borings B4 through B6 do not have a notable increase in blow counts at or near a depth of 66 feet that would be expected if two distinct soil layers were present. We attribute this result to the use of the rotary-wash drilling techniques and we consider the blow counts obtained in borings B4 and B6 to be more accurate. Therefore, we revised the soil layer modeling to a single alluvial soil layer based on the blow counts obtained from borings B4 and B6.

The prior model in Settle3 defined the subsurface layers at each of the four corners of the proposed excavation on the project site; this was done using the “borehole” feature of the computer program. The model also used a non-horizontal ground surface and non-horizontal soil layers based on the stratigraphic cross-sections. For the current analysis, we added additional boreholes in the Settle3 model at offsets of 100 feet north and south of the excavation corners to further define the subsurface stratigraphic profile and capture the maximum anticipated ground surface settlement due to temporary construction dewatering. The ground surface was projected to the north at the same gradient that is observed across the site. The ground surface was projected to the south as a level ground surface¹.

The depth to groundwater in the July 2021 Response Letter was modeled based on the historic high groundwater level of 20 feet below the ground surface. The site-specific drawdown analysis presented in the Construction Dewatering Drawdown Analysis report dated September 18, 2023, includes a review of available groundwater information for the site vicinity. That report indicates that a groundwater depth of 30 feet is considered representative of the anticipated median groundwater conditions. This conclusion is supported by data measured from 1997 to 2018 in five monitoring wells that were constructed on the subject site. During the monitoring period of 1997 to 2018, groundwater did not rise to the historic high groundwater levels, and it is therefore unlikely that groundwater levels would rise to historic levels during the project’s temporary construction dewatering period. The wells were abandoned in July 2019.

Nevertheless, both the historic high groundwater depth of 20 feet and the anticipated median groundwater condition of 30 feet were considered in the analyses discussed herein. This is described in further detail in the *Summary of Model Definitions* and *Analysis Criteria* sections of this letter.

¹ This decision was made after modeling both a sloping and level ground surface and observing that it did not significantly affect the results of the analysis. Modeling a sloping ground surface to the south worsened the computer program interpolation of the groundwater table as defined by groundwater grid data points. Therefore, modeling the ground surface to the south as a level surface produced a more accurate model of the groundwater conditions.

Summary of Model Definitions

The following is a summary of the inputs and assumptions used within the Settle3 analysis for design Option 1, which uses a tiered foundation design:

- Existing grade across the project site ranges from ~358 to ~336 feet MSL;
 - We have prepared representative stratigraphic cross-sections drawn in both the north-south and east-west direction: see Figures 1, 2A and 2B;
- The finished floor of the project's subterranean levels will extend approximately 65 feet below Sunset Blvd. and 42 feet below the south property line;
 - P4 level Finished Floor Elevation: approx. 298 feet MSL;
 - P5 level Finished Floor Elevation: approx. 290 feet MSL;
- A 6-foot-thick mat foundation based on analysis by the project Structural Engineer;
 - Bottom of foundation at P4 level: approx. 292 feet MSL;
 - Bottom of foundation at P5 level: approx. 284 feet MSL;
- Groundwater at the start of construction using the maximum (historic high) condition of 20 feet below ground surface;
 - Historic high groundwater at North Property Line: approx. 335 feet MSL;
 - Historic high groundwater at South Property Line: approx. 320 feet MSL;
- Groundwater at the start of construction using the median condition of 30 feet below ground surface;
 - Median groundwater at North Property Line: approx. 325 feet MSL;
 - Median groundwater at South Property Line: approx. 310 feet MSL;
- Groundwater depths are specified as x,y,z coordinates within the model;
- Maximum recommended allowable foundation bearing pressure of 6,500 psf.

Our analyses also considered design Options 2 and 3 which include a flat excavation bottom across the entire footprint of the structure.

For design Option 2, the inputs and assumptions were updated as follows:

- The finished floor of the project's subterranean levels will extend approximately 57 feet below Sunset Blvd. and 42 feet below the south property line;
 - Finished Floor Elevation: approx. 298 feet MSL;
- A 6-foot-thick mat foundation based on analysis by the project Structural Engineer;
 - Bottom of foundation: approx. 292 feet MSL.

For design Option 3, the inputs and assumptions were updated as follows:

- The finished floor of the project's subterranean levels will extend 62.5 feet below Sunset Blvd. and 47.5 feet below the south property line;
 - o Finished Floor Elevation: approx. 292.5 feet MSL;
- A 5-foot-thick mat foundation based on analysis by the project Structural Engineer;
 - o Bottom of foundation: approx. 287.5 feet MSL.

A uniform load of 6,500 pounds per square foot was applied across the excavation footprint. This is based on the maximum allowable bearing pressure recommended in the Updated Geotechnical Investigation dated February 17, 2017, and confirmed within the Schematic Design Narrative prepared by John. A Martin & Associates, Inc. Applying the maximum bearing pressure uniformly across the entire foundation footprint is a conservative approach because under realistic conditions, the bearing pressure will not reach maximum levels across the entire footprint. Provided the maximum bearing pressure demand does not exceed the maximum allowable bearing pressure of 6,500 psf, the settlements predicted by the analyses presented herein will not be exceeded.

The Project applicant has confirmed that the entire project will be constructed simultaneously; therefore, staging of the foundation loads is not considered necessary because the project will be constructed in a singular phase.

Soil Properties

The soil properties used within this settlement analysis are based on the most recent site exploration and laboratory testing. The prior borings (B1 through B3) were drilled with a hollow-stem auger drilling machine. The most recent borings (B4 through B6) were drilled with a rotary-wash drilling machine. Rotary-wash drilling results in less sample disturbance, particularly below the water table. Given that the rotary-wash method results in less sample disturbance, the laboratory testing performed on the samples collected from borings B4 through B6 were relied upon for the analysis presented herein.

Below the alluvial soils, borings B5 and B6 encountered Quartz Diorite bedrock at depths of 97 feet and 105 feet respectively. The Quartz Diorite is considered very dense and relatively incompressible at the bedrock contact (i.e., at the top of the bedrock unit). The bedrock contact is depicted on the stratigraphic cross-sections on Figures 2A and 2B.

The soil properties used within our analysis are indicated in the following table:

Layer No.	Layer Name	Layer Depth in feet (Elevation, MSL)		Cce ¹	Ccr ²	Cv ³ (ft ² /year)	Total Unit Weight (pcf)
		North	South				
1	Upper Alluvium	0 – 100 (355 – 255)	0 – 100 (340 – 240)	0.0272	0.0068	214	135
2	Quartz Diorite	100+ (255+)	100+ (240+)	0.001	0.001	0.1	140

1. Compression Index, in strain: used to predict settlement when loaded beyond the preconsolidation pressure.
2. Recompression Index, in strain: used to predict settlement when loaded below the preconsolidation pressure.
3. Consolidation Index: used to predict the time-rate of settlement.

Threshold Criteria

For the purpose of the analysis presented herein, the project team proposes the following criteria to evaluate if the anticipated settlement at the ground surface resulting from the proposed temporary dewatering will be acceptable:

- 1½ inch settlement threshold within to public right-of way
- ½ inch settlement threshold adjacent to existing structures
- ½ inch of differential settlement over a distance of 50 feet

Settlements resulting from temporary dewatering occur gradually over distances of 100 feet or more; differential settlement resulting from temporary dewatering are typically very small compared to the values used for the design and construction of new foundations. Settlements at the ground surface equal to or below the above thresholds are not anticipated to adversely impact the surrounding properties and public right-of-way. These thresholds were discussed and approved over the phone with City representatives.

Analysis and Results

Settlement induced by dewatering will not occur instantaneously as the water table is lowered. Instead, it occurs over time as excess pore water pressure within the soil dissipates. Once the dewatering period is complete and the pumps are turned off, no additional settlement resulting from temporary dewatering will occur.

We have incorporated the time-dependency of settlement into our analysis by applying a time interval to each analysis stage. The analysis result for each stage is for the end of the specified time interval and is measured with respect to time zero. The time intervals are typical of this type of construction and were confirmed with the project team.

The settlement analyses were modeled using the following stages:

- Stage 1: Existing conditions, 0 month
- Stage 2: Start of Dewatering, 1 month
- Stage 3: Excavation Bottom Reached, 2 months
- Stage 4: Foundation Loading, 4 months
- Stage 5: End of Dewatering, 2 years

The Construction Dewatering Drawdown Analysis report dated September 18, 2023, provides groundwater drawdown depths for design Option 1 (tiered foundation design) and Option 2 (flat excavation design). The drawdown depth is the vertical distance the groundwater will be temporarily lowered as a result of dewatering. Each design option considers four scenarios based on maximum and median groundwater depths and perimeter wells and interior trench temporary dewatering systems. Our analysis applies the drawdown depths at the corresponding analysis stages to evaluate settlements resulting from temporarily lowering groundwater.

Our analysis extended to a horizontal distance of 100 feet north and south of the proposed excavation. As discussed in the *Analysis Revisions* section of this letter, we reviewed the analysis output to confirm that the maximum anticipated ground surface settlement due to temporary dewatering occurs near the excavation and away from the northern and southern model boundaries.

Design Option 1 – Tiered Foundation Design

The table on the following page outlines the groundwater drawdown depths for each of the four scenarios for the tiered foundation design:

Design Option 1 – Tiered Foundation Design

Scenario ID	Analysis File Name	GW Elevation at the start of construction at edge of Excavation (ft, MSL)		GW drawdown depth ¹ (ft) (Distance ² = 0 ft)		GW drawdown depth ¹ (ft) (Distance ² = 100 ft)	
		North PL ³	South PL	North PL	South PL	North PL	South PL
1 – Maximum Drawdown with Perimeter Wells	N/A	335	320	48	23	41	6
2 – Median Drawdown with Perimeter Wells	A9899-06-01 V5_1_2.s3z	325	310	41	16	31	0
3 – Maximum Drawdown with Interior Trenches	A9899-06-01 V4_4_2_1.s3z	335	320	23	0	20	0
4 – Median Drawdown with Interior Trenches	A9899-06-01 V3_1_1.s3z	325	310	14	0	11	0

1. Drawdown depth is the vertical distance the groundwater will be temporarily lowered as a result of dewatering activities during project construction.
2. Distance is measured from edge of excavation.
3. PL means Property Line.

The scenarios which use perimeter wells to model the temporary dewatering (Scenarios 1 and 2) result in the greatest drawdown depth. Scenario 1 is based on the high transmissivity range and Scenario 2 is based on the low transmissivity range discussed in the Construction Dewatering Drawdown Analysis report dated September 18, 2023. Our initial analysis was for Scenario 2 (median drawdown using perimeter wells) which results in the 2nd largest drawdown depth out of the four scenarios.

At the Stage 5 time period for Scenario 2, the resulting maximum settlement at the ground surface (elevation 355 ft MSL) north of the north excavation boundary (which coincides with the property line) is approximately 2.1 inches. This location was confirmed as the location of maximum settlement resulting from temporary dewatering during the construction period based on the analysis output plots. Because the predicted settlement for Scenario 2 is higher than the dewatering settlement threshold values established above, perimeter wells should not be used as the proposed project's dewatering system.

Scenario 1 (maximum drawdown using perimeter wells) also models perimeter wells as the temporary dewatering system. Scenario 1 results in larger groundwater drawdown depths than Scenario 2. Because the drawdown depth is greater, Scenario 1 would result in settlement due to temporary dewatering that is greater than the settlements predicted by Scenario 2 and which would exceed the threshold values outlined herein. Therefore, further analysis of Scenario 1 also was not performed.

Following the determinations made for Scenario 1 and Scenario 2, we performed analyses of Scenario 3 (maximum drawdown using interior trenches) and Scenario 4 (median drawdown using interior trenches). Both scenarios are based on the low aquifer transmissivity range discussed in the Construction Dewatering Drawdown Analysis report dated September 18, 2023.²

The table below presents the maximum anticipated settlements at the ground surface (elevation 355 ft MSL) north of the north excavation boundary (which coincides with the property line) for each of the 5 analysis stages for Scenarios 3 and 4. The location of maximum settlement resulting from temporary dewatering during the construction period is based on review of the analysis output plots (see Appendix C).

² If pump testing indicates that the aquifer properties are higher than those assumed for Scenarios 3 and 4, the project may need to use an impermeable shoring system. This will eliminate the need to dewater the excavation and will effectively eliminate drawdown outside of the shoring. With an impermeable shoring system, minimal settlement would occur outside the excavation because temporary dewatering would not be necessary.

Stage	Time Interval	Maximum Anticipated Settlement @ Ground Surface North of Excavation Boundary (Inches)	
		Scenario 3	Scenario 4
Stage 1: Existing Conditions	0 month	0	0
Stage 2: Start of Dewatering	1 month	0.6	0.17
Stage 3: Excavation Bottom Reached	2 months	0.82	0.32
Stage 4: Foundation Loading	4 months	0.97	0.42
Stage 5: End of Dewatering	2 years	1.49	0.75

The table below presents the anticipated settlements at the ground surface (elevation 340 ft MSL) south of the south excavation boundary (which coincides with the property line) for each of the 5 analysis stages for Scenarios 3 and 4. This location accounts for any offsite structures located to the south of the project site.

Stage	Time Interval	Maximum Anticipated Settlement @ Ground Surface South of Excavation Boundary (inches)	
		Scenario 3	Scenario 4
Stage 1: Existing Conditions	0 month	0	0
Stage 2: Start of Dewatering	1 month	0	0
Stage 3: Excavation Bottom Reached	2 months	0	0
Stage 4: Foundation Loading	4 months	0.04	0.03
Stage 5: End of Dewatering	2 years	0.03	0.02

The values in the above tables are below the proposed threshold values of 1½ inches within to the public right-of-way and ½ inch adjacent to existing structures. Therefore, Scenario 3 (maximum drawdown using interior trenches) and Scenario 4 (median drawdown using interior trenches) are anticipated to result in settlements that are considered acceptable.

The output plots of total settlement for Scenarios 3 and 4 are provided in Appendix C for each stage of analyses at the ground surface elevation of 355 ft MSL, corresponding to the project site's north property line, and 340 ft MSL, corresponding to the project site's south property line. Note, for Stages 3 through 5, settlements are not shown within the excavation footprint since this soil is "excavated" and, therefore, there are no settlements to display at the ground surface elevation. An output report is also provided. Our analysis also uses query points to display the calculated settlement at specific locations.

Design Option 2 – Flat Excavation Design Elevation 292

The table on the following page outlines the groundwater drawdown depths for each of the four scenarios for Design Option 2 with a flat excavation design extending to elevation 292 feet MSL:

Design Option 2 – Flat Foundation Design Elevation 292

Scenario ID	Analysis File Name	GW Elevation at the start of construction at edge of Excavation (ft, MSL)		GW drawdown depth ¹ (ft) (Distance ² = 0 ft)		GW drawdown depth ¹ (ft) (Distance ² = 100 ft)	
		North PL	South PL	North PL	South PL	North PL	South PL
1 – Maximum Drawdown with Perimeter Wells	N/A	335	320	40	25	35	3
2 – Median Drawdown with Perimeter Wells	A9899-06-01 V6.s3z	325	310	33	18	25	0
3 – Maximum Drawdown with Interior Trenches	A9899-06-01 V7.s3z	335	320	19	0	17	0
4 – Median Drawdown with Interior Trenches	A9899-06-01 V8.s3z	325	310	12	0	9	0

1. Drawdown depth is the vertical distance the groundwater will be temporarily lowered as a result of dewatering activities during project construction.

2. Distance is measured from edge of excavation.

The scenarios which use perimeter wells to model the temporary dewatering (Scenarios 1 and 2) result in the greatest drawdown depth. Our initial analysis was for Scenario 2 (median drawdown using perimeter wells) which results in the 2nd largest drawdown depth out of the four scenarios.

At the Stage 5 time period for Scenario 2, the resulting maximum settlement at the ground surface (elevation 355 ft MSL) north of the north excavation boundary (which coincides with the property line) is approximately 1.8 inches. This location was confirmed as the location of maximum settlement resulting from temporary dewatering during the construction period based on the analysis output plots. Because the predicted settlement for Scenario 2 is higher than the dewatering settlement threshold values established above, perimeter wells should not be used as the proposed project's dewatering system.

Scenario 1 (maximum drawdown using perimeter wells) also models perimeter wells as the temporary dewatering system. Scenario 1 also results in larger groundwater drawdown depths than Scenario 2. Because the drawdown depth is greater, Scenario 1 would result in settlement due to temporary dewatering that is greater than the settlements predicted by Scenario 2 and which would exceed the threshold values outlined herein. Based on the determination that Scenario 2 could result in dewatering settlement that exceeds threshold values, further analysis of Scenario 1 was not performed.

Following the determinations made for Scenario 1 and Scenario 2, we performed analyses of Scenario 3 (maximum drawdown using interior trenches) and Scenario 4 (median drawdown using interior trenches). Both scenarios are based on the low aquifer transmissivity range discussed in the Construction Dewatering Drawdown Analysis report dated September 18, 2023.

The table below presents the maximum anticipated settlements at the ground surface (elevation 355 ft MSL) north of the north excavation boundary (which coincides with the property line) for each of the 5 analysis stages for Scenarios 3 and 4. The location of maximum settlement resulting from temporary dewatering during the construction period is based on review of the analysis output plots (see Appendix D).

Stage	Time Interval	Maximum Anticipated Settlement @ Ground Surface North of Excavation Boundary (Inches)	
		Scenario 3	Scenario 4
Stage 1: Existing Conditions	0 month	0	0
Stage 2: Start of Dewatering	1 month	0.44	0.13
Stage 3: Excavation Bottom Reached	2 months	0.63	0.26
Stage 4: Foundation Loading	4 months	0.78	0.35
Stage 5: End of Dewatering	2 years	1.23	0.63

The table below presents the anticipated settlements at the ground surface (elevation 340 ft MSL) south of the south excavation boundary (which coincides with the property line) for each of the 5 analysis stages for Scenarios 3 and 4. This location accounts for any offsite structures located to the south of the project site.

Stage	Time Interval	Maximum Anticipated Settlement @ Ground Surface South of Excavation Boundary (inches)	
		Scenario 3	Scenario 4
Stage 1: Existing Conditions	0 month	0	0
Stage 2: Start of Dewatering	1 month	0	0
Stage 3: Excavation Bottom Reached	2 months	0	0
Stage 4: Foundation Loading	4 months	0.04	0.04
Stage 5: End of Dewatering	2 years	0.03	0.03

The values in the above tables are below the proposed threshold values of 1½ inches within to the public right-of-way and ½ inch adjacent to existing structures. Therefore, Scenario 3 (maximum drawdown using interior trenches) and Scenario 4 (median drawdown using interior trenches) are anticipated to result in settlements that are considered acceptable.

The output plots of total settlement for Scenarios 3 and 4 are provided in Appendix D for each stage of analyses at the ground surface elevation of 355 ft MSL, corresponding to the project site's north property line, and 340 ft MSL, corresponding to the project site's south property line. Note, for Stages 3 through 5, settlements are not shown within the excavation footprint since this soil is "excavated" and, therefore, there are no settlements to display at the ground surface elevation. An output report is also provided. Our analysis also uses query points to display the calculated settlement at specific locations.

Design Option 3 – Flat Excavation Design Elevation 287.5

The table on the following page outlines the groundwater drawdown depths for each of the four scenarios for Design Option 3 with a flat excavation design extending to elevation 287.5 feet MSL:

Design Option 3 – Flat Foundation Design Elevation 287.5

Scenario ID	Analysis File Name	GW Elevation at the start of construction at edge of Excavation (ft, MSL)		GW drawdown depth ¹ (ft) (Distance ² = 0 ft)		GW drawdown depth ¹ (ft) (Distance ² = 100 ft)	
		North PL	South PL	North PL	South PL	North PL	South PL
1 – Maximum Drawdown with Perimeter Wells	N/A	335	320	45	30	38	4
2 – Median Drawdown with Perimeter Wells	A9899-06-01 V9A.s3z	325	310	38	23	28	0
3 – Maximum Drawdown with Interior Trenches	A9899-06-01 V10.s3z	335	320	21	0	19	0
4 – Median Drawdown with Interior Trenches	A9899-06-01 V11A.s3z	325	310	13	0	10	0

1. Drawdown depth is the vertical distance the groundwater will be temporarily lowered as a result of dewatering activities during project construction.

2. Distance is measured from edge of excavation.

The scenarios which use perimeter wells to model the temporary dewatering (Scenarios 1 and 2) result in the greatest drawdown depth. Our initial analysis was for Scenario 2 (median drawdown using perimeter wells) which results in the 2nd largest drawdown depth out of the four scenarios.

At the Stage 5 time period for Scenario 2, the resulting maximum settlement at the ground surface (elevation 355 ft MSL) north of the north excavation boundary (which coincides with the property line) is approximately 1.9 inches. This location was confirmed as the location of maximum settlement resulting from temporary dewatering during the construction period based on the analysis output plots. Because the predicted settlement for Scenario 2 is higher than the dewatering settlement threshold values established above, perimeter wells should not be used as the proposed project's dewatering system.

Scenario 1 (maximum drawdown using perimeter wells) also models perimeter wells as the temporary dewatering system. Scenario 1 also results in larger groundwater drawdown depths than Scenario 2. Because the drawdown depth is greater, Scenario 1 would result in settlement due to temporary dewatering that is greater than the settlements predicted by Scenario 2 and which would exceed the threshold values outlined herein. Based on the determination that Scenario 2 could result in dewatering settlement that exceeds threshold values, further analysis of Scenario 1 was not performed.

Following the determinations made for Scenario 1 and Scenario 2, we performed analyses of Scenario 3 (maximum drawdown using interior trenches) and Scenario 4 (median drawdown using interior trenches). Both scenarios are based on the low aquifer transmissivity range discussed in the Construction Dewatering Drawdown Analysis report dated September 18, 2023.

The table below presents the maximum anticipated settlements at the ground surface (elevation 355 ft MSL) north of the north excavation boundary (which coincides with the property line) for each of the 5 analysis stages for Scenarios 3 and 4. The location of maximum settlement resulting from temporary dewatering during the construction period is based on review of the analysis output plots (see Appendix E).

Stage	Time Interval	Maximum Anticipated Settlement @ Ground Surface North of Excavation Boundary (Inches)	
		Scenario 3	Scenario 4
Stage 1: Existing Conditions	0 month	0	0
Stage 2: Start of Dewatering	1 month	0.12	0.15
Stage 3: Excavation Bottom Reached	2 months	0.25	0.29
Stage 4: Foundation Loading	4 months	0.35	0.39
Stage 5: End of Dewatering	2 years	0.73	0.73

The table below presents the anticipated settlements at the ground surface (elevation 340 ft MSL) south of the south excavation boundary (which coincides with the property line) for each of the 5 analysis stages for Scenarios 3 and 4. This location accounts for any offsite structures located to the south of the project site.

Stage	Time Interval	Maximum Anticipated Settlement @ Ground Surface South of Excavation Boundary (inches)	
		Scenario 3	Scenario 4
Stage 1: Existing Conditions	0 month	0	0
Stage 2: Start of Dewatering	1 month	0	0
Stage 3: Excavation Bottom Reached	2 months	0	0
Stage 4: Foundation Loading	4 months	0	0.04
Stage 5: End of Dewatering	2 years	0	0.03

The values in the above tables are below the proposed threshold values of 1½ inches within to the public right-of-way and ½ inch adjacent to existing structures. Therefore, Scenario 3 (maximum drawdown using interior trenches) and Scenario 4 (median drawdown using interior trenches) are anticipated to result in settlements that are considered acceptable.

The output plots of total settlement for Scenarios 3 and 4 are provided in Appendix E for each stage of analyses at the ground surface elevation of 355 ft MSL, corresponding to the project site's north property line, and 340 ft MSL, corresponding to the project site's south property line. Note, for Stages 3 through 5, settlements are not shown within the excavation footprint since this soil is "excavated" and, therefore, there are no settlements to display at the ground surface elevation. An output report is also provided. Our analysis also uses query points to display the calculated settlement at specific locations.

Conclusions and Recommendations

Based on the analyses presented herein, it is anticipated that by using interior trenches for dewatering, temporary dewatering during project construction for design Option 1 (tiered foundation design), design Option 2 (flat excavation design elevation 292) and Option 3 (flat excavation design elevation 287.5) will result in settlements at the ground surface that are below the identified threshold values and, therefore, resulting soil settlement is not anticipated to adversely impact the surrounding properties and public right-of-way.

It is recommended that in addition to the typical soldier pile monitoring program, additional monitoring be performed by installing and then surveying surface monitoring points during the dewatering period. This can be accomplished by installing an array of surface monitoring points offset from the edge of excavation. The monitoring can consist of a scribed X or other permanent marking placed approximately every 25 feet along the tops of curbs and ribbon gutter to be monitored with the same control, methods, and frequency as the pile monitoring for the shoring system. The analysis output plots provided in this report show that settlement along the south property line is relatively uniform in the east-west direction; therefore, settlement monitoring can be performed from the public right-of-way and will be considered representative of the south property line. The monitoring reports will be provided by the survey to the project team on a weekly basis.

Scenarios 3 and 4 are based on the low aquifer transmissivity range, which as discussed in the Construction Dewatering Drawdown Analysis report dated September 18, 2023, must be confirmed with pump testing performed by a qualified dewatering contractor. Pump testing is typically performed several months prior to construction in order to finalize the dewatering plan. Once pump testing is performed, the results should be provided to Geocon for review so that Geocon can determine whether any update to this analysis is needed.

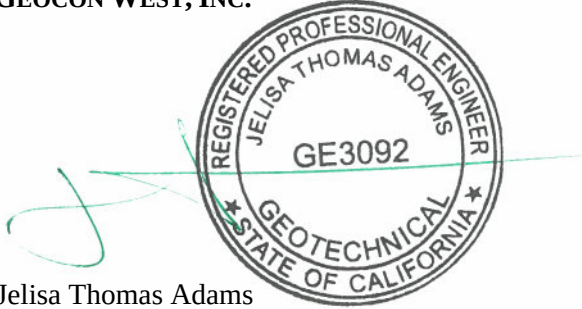
As noted above, if pump testing indicates that the aquifer properties are higher than those assumed for Scenarios 3 and 4, the project may need to use an impermeable shoring system instead of or in addition to the interior trench system analyzed in this report. This will eliminate the need to dewater the excavation and will effectively eliminate drawdown outside of the shoring. With an impermeable shoring system, minimal settlement would occur outside the excavation because temporary dewatering would not be necessary.

Additional analysis may be required once a structural engineer has developed a bearing pressure contour plot. Any changes in the design, location or elevation of any structure, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

If you have any questions regarding this letter, or if we may be of further service, please contact the undersigned.

Very truly yours,

GEOCON WEST, INC.

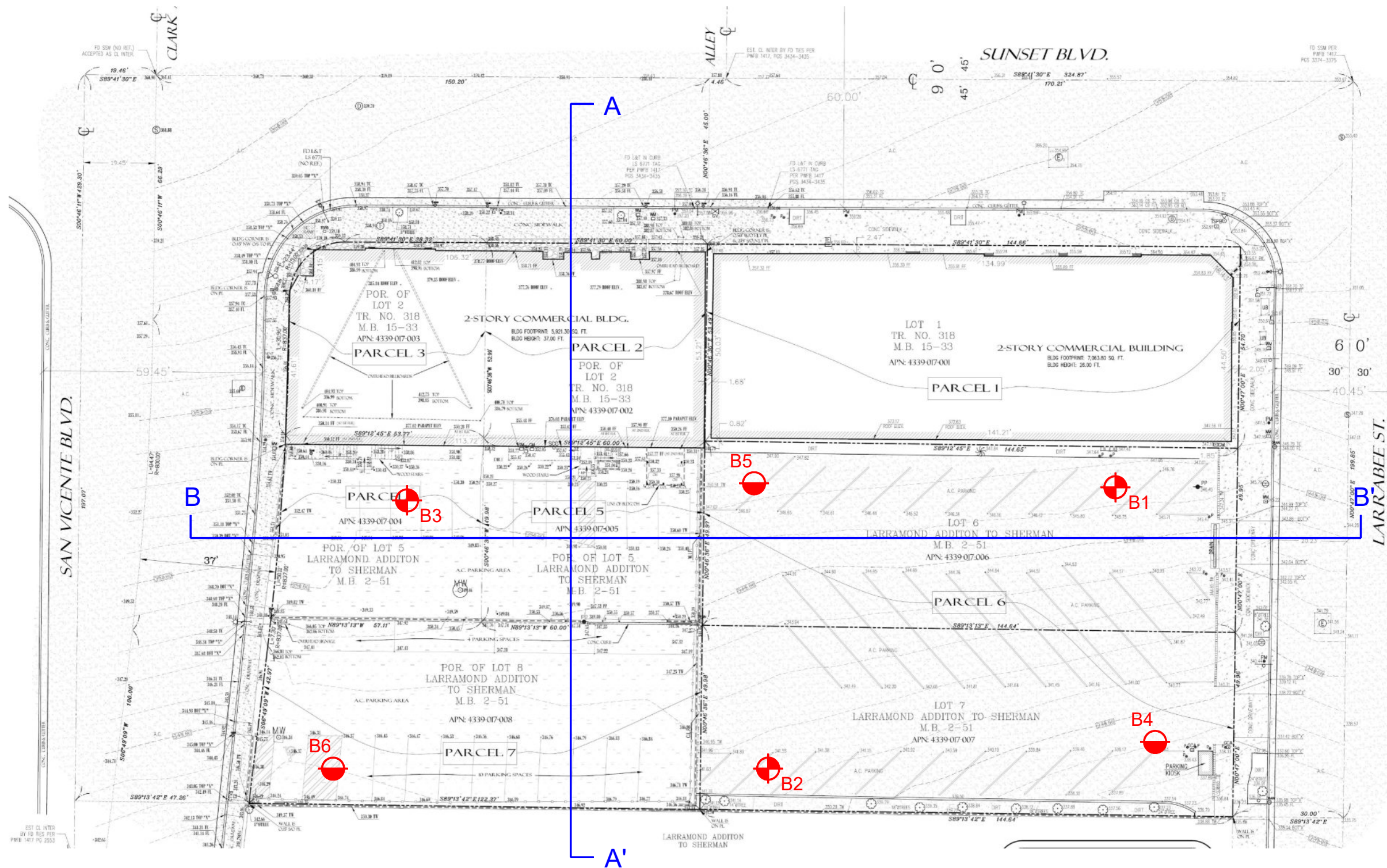


Jelisa Thomas Adams
GE 3092

Enclosures: Figure 1, Site Plan
 Figures 2A and 2B, Stratigraphic Profiles
 Appendix A – Figures A1 through A6, Boring Logs
 Appendix B – Figures B1 through B37
 Appendix C – Design Opt. 1 - Tiered Foundation Design Output from Settle 3
 Appendix D – Design Opt. 2 - Flat Excavation Design Elev. 292 Output from Settle
 Appendix E – Design Opt. 3 - Flat Excavation Design Elev 298.7 Output from Settle 3

REFERENCES

- California Geological Survey, 2018, *Earthquake Fault Zones, A Guide for Government Agencies, Property Owners/Developers, and Geoscience Practitioners for Assessing Fault Rupture Hazards in California*, Special Publication 42, Revised 2018. City of West Hollywood Geology, and Seismic Review Sheet [Approval], dated October 12, 2018.
- Helms, John, 2018, *Fault Rupture Hazard Investigation, 8850 to 8878 Sunset Boulevard, West Hollywood, California*, Prepared for Silver Creek Commercial Development, LLC, dated September 19, 2018.
- John A. Martin & Associates Structural Engineers, 8850 Sunset Boulevard, *Schematic Design Narrative*, JAMA Project No. 19131, dated August 22, 2019.
- Geocon West, Inc., *Updated Geotechnical Investigation, Proposed Hotel and Condominium Development, 8850 Sunset Boulevard, West Hollywood, California, APNs 4339-017-001 through -008*, dated February 17, 2021.
- City of West Hollywood Geotechnical, Geology, and Seismic Review Sheet, Review No. 1, dated May 4, 2021.
- Geocon West, Inc., *Response Letter, Proposed Hotel and Condominium Development, 8850 Sunset Boulevard, West Hollywood, California, APNs 4339-017-001 through -008*, dated May 25, 2021.
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- Geocon West, Inc., *Response to Geotechnical, Geology, and Seismic Review Sheet, Proposed Hotel and Condominium Development, 8850 Sunset Boulevard, West Hollywood, California, APNs 4339-017-001 through -008*, dated July 28, 2021.
- City of West Hollywood Geotechnical, Geology, and Seismic Review Sheet [Approval], dated August 12, 2021.
- Helms, John, 2021, *Response to Review Comments on Draft Environmental Impact Report Regarding the Fault Rupture Hazard Investigation At 8850 to 8878 Sunset Boulevard, West Hollywood, California*, dated December 28, 2021.
- Geocon Consultants, Inc., *Construction Dewatering Drawdown Analysis, Proposed Hotel and Condominium Development, 8850 Sunset Boulevard, West Hollywood, California, APNs 4339-017-001 through -008*, dated July 29, 2022.



LEGEND



Boring Location and Number (2018)



Boring Location and Number (2022)



GEOCON
WEST, INC.



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3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
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Drafted by: JTA

Checked by: NDB

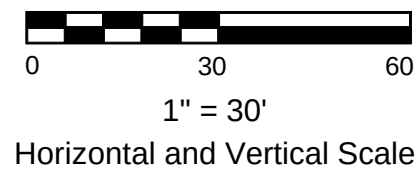
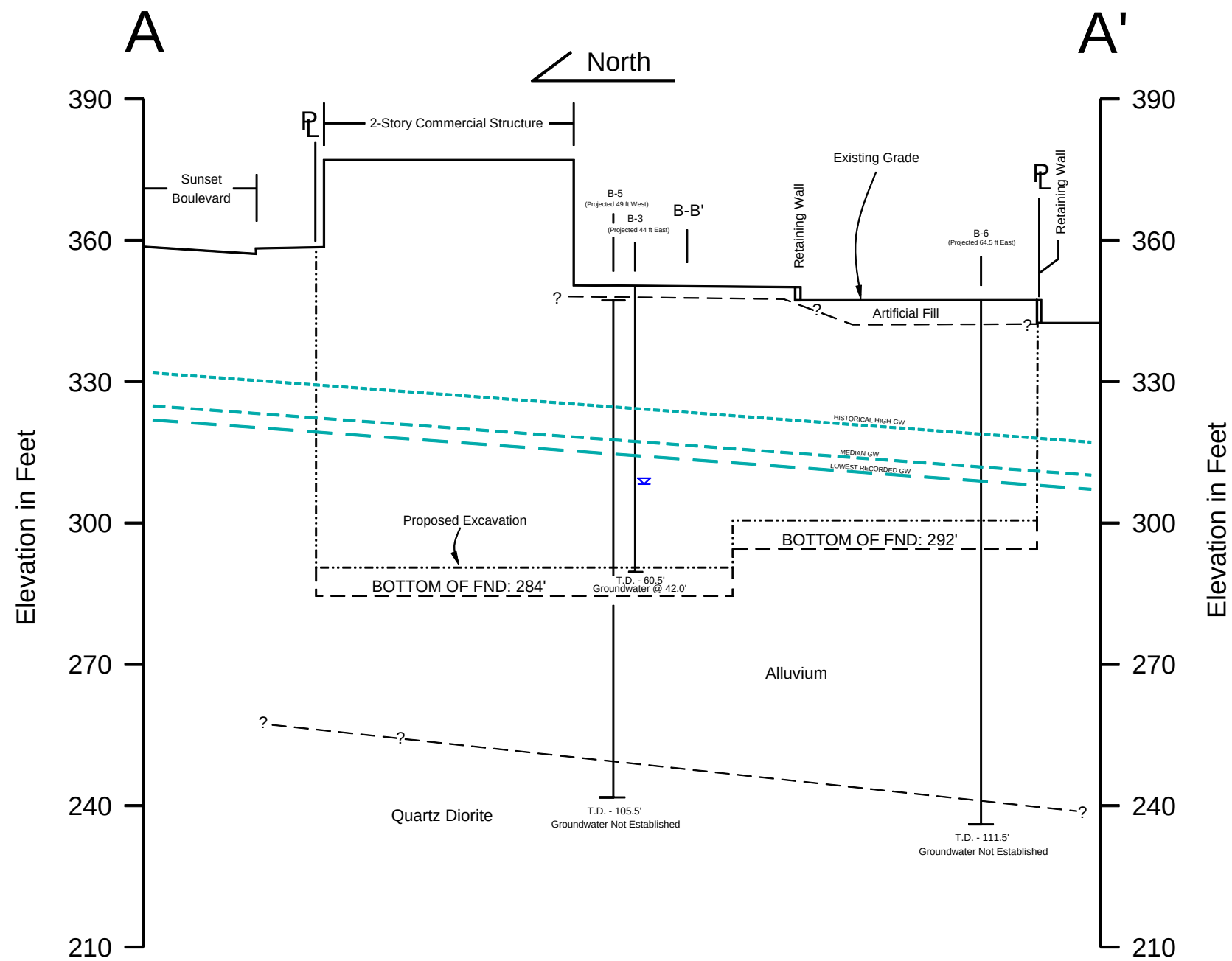
TOPOGRAPHIC PLAN

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CALIFORNIA

SEPT 2023

PROJECT NO. A9899-06-01

FIG. 1



NOTES

1. THE SECTIONS ARE BASED ON GEOLOGIC CONDITIONS AT EXPLORATION LOCATIONS AND GEOLOGIC DATA FROM AVAILABLE PUBLISHED GEOLOGIC MAPS. SECTIONS ARE FOR ILLUSTRATION PURPOSES ONLY, NOT FOR CONSTRUCTION.

2. SEE FIGURE 1 FOR LOCATION OF SECTION

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ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
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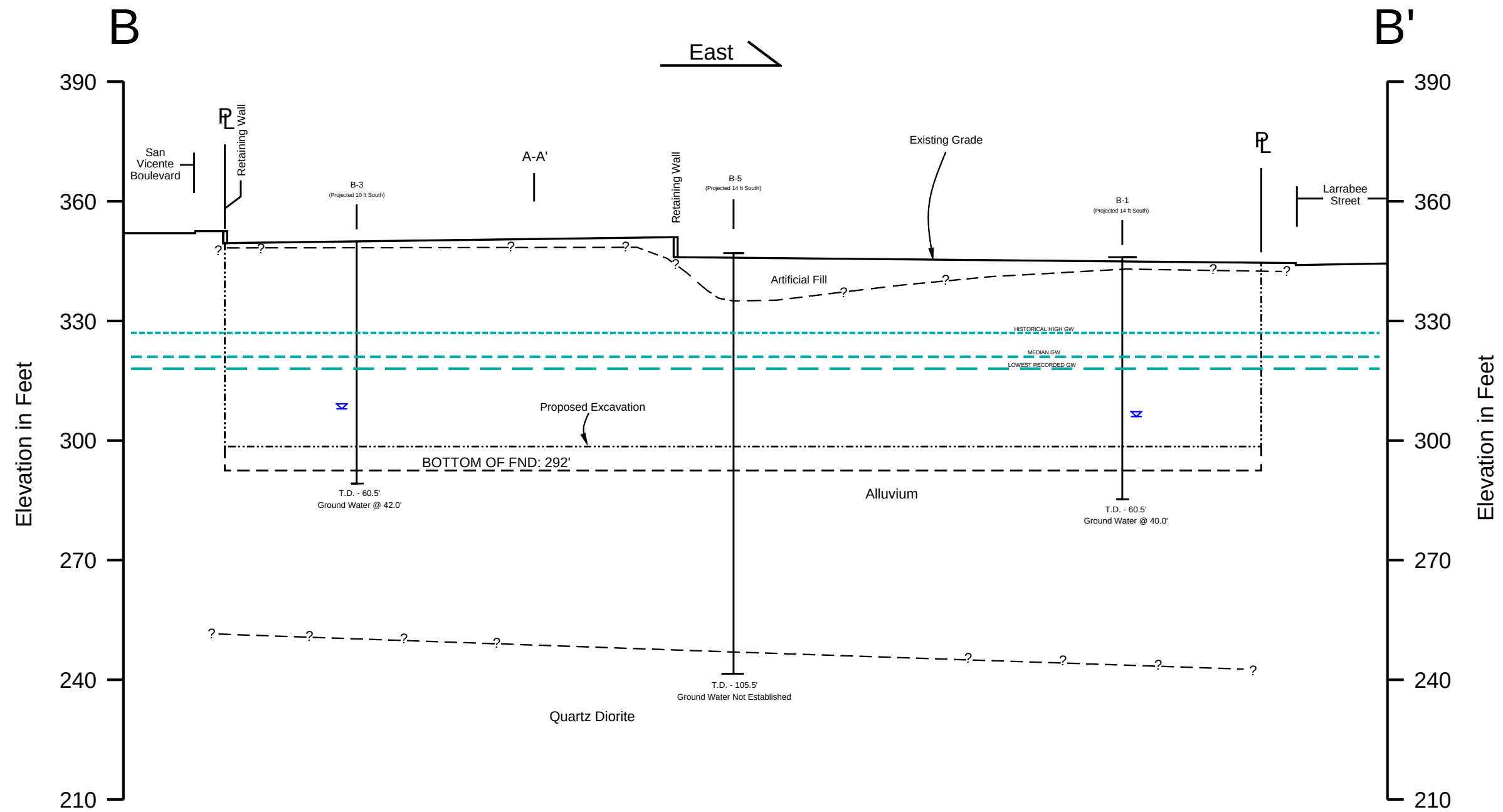
STRATIGRAPHIC PROFILE A-A'

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CALIFORNIA

SEPT 2023

PROJECT NO. A9899-06-01

FIG. 2A



NOTES
1. THE SECTIONS ARE BASED ON GEOLOGIC CONDITIONS AT EXPLORATION LOCATIONS AND GEOLOGIC DATA FROM AVAILABLE PUBLISHED GEOLOGIC MAPS. SECTIONS ARE FOR ILLUSTRATION PURPOSES ONLY, NOT FOR CONSTRUCTION.
2. SEE FIGURE 1 FOR LOCATION OF SECTION

0 30 60
1" = 30'
Horizontal and Vertical Scale

GEOCON
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PHONE (818) 841-8388 - FAX (818) 841-1704

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CHECKED BY: SFK

STRATIGRAPHIC PROFILE B-B'

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CALIFORNIA

SEPT 2023

PROJECT NO. A9899-06-01

FIG. 2B

APPENDIX

A

APPENDIX A

FIELD INVESTIGATION

Additional site exploration was performed on March 9, 28, and 29, 2022, by excavating three 5 $\frac{7}{8}$ -inch diameter borings using a truck-mounted rotary-wash drilling machine. The borings were excavated to depths between 100 $\frac{1}{2}$ and 111 $\frac{1}{2}$ feet below the ground surface. Representative and relatively undisturbed samples were obtained by driving a 3-inch, O. D., California Modified Sampler into the “undisturbed” soil mass with blows from a 140-pound auto-hammer falling 30 inches. The California Modified Sampler was equipped with 1-inch high by 2 $\frac{3}{8}$ -inch diameter brass sampler rings to facilitate soil removal and testing.

The soil conditions encountered in the borings were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). The logs of the borings are presented on Figures A1 through A3. The logs depict the soil and geologic conditions encountered and the depth at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the logs were revised based on subsequent laboratory testing. The locations of the borings are shown on Figure 1.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 1 ELEV. (MSL.) <u>345</u> DATE COMPLETED <u>11/20/18</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>CB</u>	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				MATERIAL DESCRIPTION			
2					AC: 5" BASE: 3.5" ARTIFICIAL FILL Sand, well-graded, loose, slightly moist, yellowish brown, fine- to coarse-grained, some fine gravel.			
	B1@2.5'					12	107.4	6.1
4					ALLUVIUM Silty Sand, loose, slightly moist, brown, fine- to medium-grained, trace calcium carbonate nodules, trace fine gravel.			
6	B1@5'				- reddish brown	9	96.0	9.2
8								
10	B1@10'			SM	- increase in silt	17	111.3	8.6
12								
14								
16	B1@15'				- medium dense	22	107.7	11.0
18								
20	B1@20'				Silty Sand with Clay, medium dense, slightly moist, reddish brown, fine- to medium-grained, trace calcium carbonate nodules, trace fine gravel.	44	125.5	13.6
22								
24				SM				
26	B1@25'				- brown, increase in clay content	51	113.8	16.0
28								
				SP	Sand with Clay, poorly graded, dense, slightly moist, reddish brown, trace fine gravel, trace silt.			

Figure A1,
Log of Boring 1, Page 1 of 3

A9899-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 1 ELEV. (MSL.) <u>345</u> DATE COMPLETED <u>11/20/18</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>CB</u>	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
30	B1@30'					77	125.8	13.4
32								
34								
36	B1@35'			SP	- loose	12	111.8	19.0
38	BULK 38-43'							
40	B1@40'			SC	Clayey Sand, poorly-graded, loose, wet, reddish brown, very fine- to fine-grained, some silt, trace gravel.	17	112.9	18.6
42	B1@42'				Silty Sand, loose, saturated, reddish brown, fine- to coarse-grained.	16	115.1	18.8
44								
46	B1@45'			SM		16	117.6	18.6
48								
50	B1@50'				- medium dense, increase in fine-grained	22	120.4	16.0
52								
54					Sand with Clay, poorly graded, loose wet, reddish brown, fine- to medium-grained, some silt, trace fine gravel.			
56	B1@55'			SP		30	117.7	17.5
58								

Figure A1,
Log of Boring 1, Page 2 of 3

A9899-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
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DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 1 ELEV. (MSL.) 345 DATE COMPLETED 11/20/18 EQUIPMENT HOLLOW STEM AUGER BY: CB	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
60	B1@60'			ML	MATERIAL DESCRIPTION Sandy Silt with Clay, stiff, wet, reddish brown, fine-to medium-grained, trace gravel. Total depth of boring: 60.5 feet Fill to 3 feet. Groundwater encountered at 40 feet. Backfilled with soil cuttings and tamped. Concrete patched. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.	26	115.5	16.9

Figure A1,
Log of Boring 1, Page 3 of 3

A9899-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
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DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 2 ELEV. (MSL.) <u>341</u> DATE COMPLETED <u>11/20/18</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>CB</u>	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					MATERIAL DESCRIPTION			
2	B2@2'				AC: 5" BASE: 3.5" ARTIFICIAL FILL Gravelly Sand, well-graded, loose, dry, brown, fine- to coarse-grained.	14	114.8	7.5
4	B2@4.5'			SM	ALLUVIUM Silty Sand, very loose, dry, brown, fine- to coarse-grained, trace calcium carbonate nodules, trace fine gravel.	2		
6								
8	B2@7.5'			SM	Silty Sand with Clay, loose, slightly moist, reddish brown, fine- to coarse-grained, trace calcium carbonate nodules, trace fine gravel.	12	112.8	10.4
10	B2@9.5'					4		
12	B2@12.5'			SP-SM	Sand with Silt, poorly graded, loose, slightly moist, reddish brown, fine- to medium-grained, trace calcium carbonate nodules, trace fine gravel.	17	120.5	10.3
14	B2@14.5'			SM	Silty Sand with Clay, loose, dry, brown, fine- to medium-grained, some calcium carbonate nodules.	9		
16								
18	B2@17.5'			ML	Sandy Silt with Clay, hard, slightly moist, reddish brown, fine- to coarse-grained, trace calcium carbonate nodules.	49	121.5	14.3
20	B2@19.5'					31		
22	B2@22.5'			SM	- no recovery, sandy	46		
24	B2@24.5'					35		
26				CL	Silty Clay with Sand, hard, slightly moist, dark brown, fine- to medium-grained, trace calcium carbonate and gravel.			
28	B2@27.5'				- reddish brown	48	120.1	14.3
				SM	Silty Sand with Clay, medium dense, slightly moist, reddish brown, fine- to			

Figure A2,
Log of Boring 2, Page 1 of 3

A9899-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 2 ELEV. (MSL.) <u>341</u> DATE COMPLETED <u>11/20/18</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>CB</u>	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
30	B2@29.5'			SM	medium-grained, trace gravel.	25	127.4	14.2
32	B2@32.5'					43		
34	B2@34.5'					18		
36				CL	Sandy Clay with Silt, stiff, moist, reddish brown, fine- to coarse-grained, trace gravel.		120.3	17.1
38	B2@37.5'					42		
40	B2@39.5'				- increase in silt content	15		
42				SC	Clayey Sand with Silt, medium dense, wet, reddish brown, fine- to medium-grained, trace gravel.	31	122.5	16.1
44	B2@44.5'					25		
46								
48	B2@47.5'			ML	Sandy Silt with Clay, stiff, wet, reddish brown, fine- to medium-grained, trace gravel.	36	117.0	17.9
50	B2@49.5'					20		
52				SM	Silty Sand, medium dense, wet, reddish brown, fine- to coarse-grained, trace gravel.		118.9	16.3
	B2@52.5'				Sandy Silt with Clay, hard, wet, reddish brown, fine- to coarse-grained.	47		
54				ML			26	
	B2@54.5'							
56				SM	Silty Sand, medium dense, wet, reddish brown, fine- to coarse-grained, some clay, trace gravel.		119.8	16.3
	B2@57.5'					40		
58				SC	Clayey Sand with Silt, medium dense, wet, reddish brown, fine- to			

Figure A2,
Log of Boring 2, Page 2 of 3

A9899-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 2 ELEV. (MSL.) <u>341</u> DATE COMPLETED <u>11/20/18</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>CB</u>	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
60	B2@59.5'			SC	medium-grained, trace gravel.	19		
62	B2@62.5'			SM	Silty Sand, medium dense, wet, reddish brown with greenish gray mottles, fine- to medium-grained, some fine gravel.	49	120.7	15.9
64	B2@64.5'					24		
66					Clayey Sand, medium dense, saturated, reddish brown, fine- to medium-grained, some fine gravel.			
68	B2@67.5'			SC		45	117.3	17.0
70	B2@69.5'				- dense	47		
72	B2@72.5'			SM	Silty Sand, dense, wet, reddish brown, fine-grained, some fine gravel.	66	126.7	14.5
74	B2@74.5'				- medium dense	26		
76								
78	B2@77.5'				- very dense	50 (5")	125.6	15.5
80	B2@79.5'				- dense	33		
Total depth of boring: 80.5 feet Fill to 3 feet. Groundwater encountered at 40.5 feet. Backfilled with soil cuttings and tamped. Concrete patched. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.								

Figure A2,
Log of Boring 2, Page 3 of 3

A9899-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

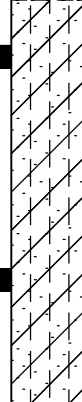
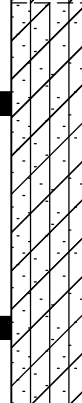
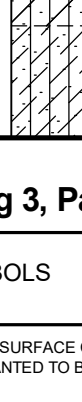
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0					MATERIAL DESCRIPTION			
2	B3@2.5'				AC: 6" BASE: NONE ARTIFICIAL FILL Sand with Silt, loose, slightly moist brown with gray mottles, fine- to medium-grained, some clay and gravel, trace carbonate nodules.			
4	B3@5'			SW-SM	ALLUVIUM Sand with Silt, well-graded, loose, dry, fine- to coarse-grained, brown, trace carbonate nodules. - some clay	10	114.9	6.4
6						9	107.1	9.1
8								
10	B3@10'			SM	Silty Sand with Clay, loose, slightly moist, fine- to coarse-grained, reddish brown.	11	114.3	11.1
12								
14	B3@15'				- increase in clay	12	117.2	12.9
16								
18								
20	B3@20'				Sandy Silt with Clay, hard, slightly moist, fine- to medium-grained, reddish brown, trace carbonate nodules.	50	124.0	13.1
22				ML				
24	B3@25'				- trace gravel, increase in clay	44	118.2	16.1
26								
28				ML	Silt with Sand, dense, slightly moist, reddish brown with grayish brown mottles, fine- to medium-grained, some clay, trace gravel.			

Figure A3,
Log of Boring 3, Page 1 of 3

A9899-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
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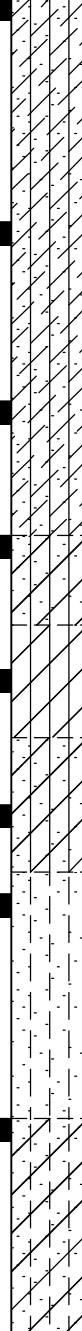
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 3 ELEV. (MSL.) <u>350</u> DATE COMPLETED <u>11/21/18</u> EQUIPMENT <u>HOLLOW STEM AUGER</u> BY: <u>CB</u>	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
30	B3@30'							
32								
34								
36	B3@35'			ML	- no gravel	56	116.8	16.4
38								
40	B3@39'				- medium dense, moist	40	119.6	15.7
42	B3@42'			ML	Sandy Silt with Clay, stiff, wet, reddish brown, fine- to medium-grained.	30	112.0	18.8
44								
46	B3@45'			ML	Silt with Clay, firm, wet, reddish brown, fine- to medium-grained, trace sand.	18	100.0	21.1
48	B3@48'			ML	Sandy Silt with Clay, stiff, wet, reddish brown, fine- to medium-grained.	41	111.7	17.8
50	B3@50'							
52				SM	Silty Sand, medium dense, wet, reddish brown, fine- to medium-grained, trace clay.	46	106.4	18.1
54								
56	B3@55'							
58				SM	Silty Sand with Clay, medium dense, wet, reddish brown, fine- to medium-grained.	42	116.4	17.3

Figure A3,
Log of Boring 3, Page 2 of 3

A9899-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 3 ELEV. (MSL.) 350 DATE COMPLETED 11/21/18 EQUIPMENT HOLLOW STEM AUGER BY: CB	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
60	B3@60'	CLAY		SM	- no recovery Total depth of boring: 60.5 feet Fill to 2 feet. Groundwater encountered at 42 feet. Backfilled with soil cuttings and tamped. Concrete patched. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.	33		

Figure A3,
Log of Boring 3, Page 3 of 3

A9899-06-01 BORING LOGS.GPJ

SAMPLE SYMBOLS	... SAMPLING UNSUCCESSFUL	... STANDARD PENETRATION TEST	... DRIVE SAMPLE (UNDISTURBED)
	... DISTURBED OR BAG SAMPLE	... CHUNK SAMPLE	... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS

 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

GEOCON

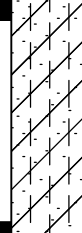
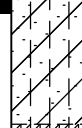
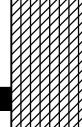
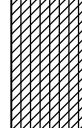
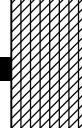
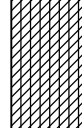
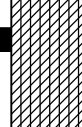
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 4		PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.)	DATE COMPLETED			
					339	03/09/2022			
					EQUIPMENT ROTARY WASH BY: CB				
					MATERIAL DESCRIPTION				
30	B4@30'			SC-SM			50 (4")		
32									
34									
36	B4@35'			SC-SM	- medium dense		48		
38									
40									
42	B4@40'			CL-ML	Sandy, Silty Clay, stiff, slightly moist, reddish brown, fine- to coarse-grained.		40		
44									
46									
48	B4@45'			CL-ML	- hard, increase in sand		42		
50									
52									
54	B4@50'			CL-ML	- increase in sand and silt		66		
56									
58									
	B4@55'			SC-SM	Silty, Clayey Sand, very dense, slightly moist, reddish brown, fine- to medium-grained.		97		
				CL-ML	Sandy, Silty Clay, hard, slightly moist, reddish brown, fine- to				

Figure A4,
Log of Boring 4, Page 2 of 4

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS		... SAMPLING UNSUCCESSFUL		... STANDARD PENETRATION TEST		... DRIVE SAMPLE (UNDISTURBED)
		... DISTURBED OR BAG SAMPLE		... CHUNK SAMPLE		... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS

 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

GEOCON

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS

 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

GEOCON

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 5		PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.)	DATE COMPLETED			
					<u>347.5</u>	<u>03/28/2022</u>			
					EQUIPMENT <u>ROTARY WASH</u> BY: <u>CB</u>				
					MATERIAL DESCRIPTION				
0					AC: 4" BASE: 4"				
					ARTIFICIAL FILL				
2					Sand, loose, dry, reddish brown, fine- to coarse-grained, some silt, trace fine gravel.				
4					- asphalt fragments				
6									
8									
10	B5@10'				- glass fragment		10		
12					ALLUVIUM				
					Sandy Silt with Clay, hard, dry, reddish brown, fine- to coarse-grained.				
14									
16	B5@15'						48		
18									
20				ML					
22									
24									
26									
28									

Figure A5,
Log of Boring 5, Page 1 of 4

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS		... SAMPLING UNSUCCESSFUL		... STANDARD PENETRATION TEST		... DRIVE SAMPLE (UNDISTURBED)
		... DISTURBED OR BAG SAMPLE		... CHUNK SAMPLE		... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

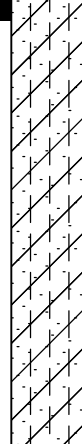
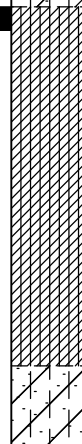
DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 5		PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.)	DATE COMPLETED			
					<u>347.5</u>	<u>03/28/2022</u>			
					EQUIPMENT <u>ROTARY WASH</u> BY: <u>CB</u>				
					MATERIAL DESCRIPTION				
30	B5@30'			SC-SM	Silty, Clayey Sand, well-graded, dense, slightly moist, reddish brown, trace porosity.		58		
32									
34									
36									
38									
40	B5@40'				- medium dense, decrease in sand content		47		
42									
44									
46									
48									
50	B5@50'			CL-ML	Sandy, Silty Clay, hard, slightly moist, reddish brown, fine- to coarse-grained.		89		
52									
54									
56									
58									
				SC-SM	Silty, Clayey Sand, well-graded, dense, slightly moist, reddish brown.				

Figure A5,
Log of Boring 5, Page 2 of 4

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS

 ... SAMPLING UNSUCCESSFUL

 ... DISTURBED OR BAG SAMPLE

 ... STANDARD PENETRATION TEST

 ... CHUNK SAMPLE

 ... DRIVE SAMPLE (UNDISTURBED)

 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL		... STANDARD PENETRATION TEST
	... DISTURBED OR BAG SAMPLE		... CHUNK SAMPLE
			... DRIVE SAMPLE (UNDISTURBED)
			... WATER TABLE OR SEEPAGE

GEOCON

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 5 ELEV. (MSL.) <u>347.5</u> DATE COMPLETED <u>03/28/2022</u> EQUIPMENT <u>ROTARY WASH</u> BY: <u>CB</u>	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
90	B5@90'			SW-SM		76		
92								
94								
96								
98					BEDROCK Quartz Diorite, medium hard, reddish brown, coarse-grained, massive, highly weathered, oxidized.	50 (4")		
100	B5@99'							
102								
104								
	B5@105'				Total depth of boring: 105.5 feet Fill to 12 feet. Groundwater level not established. Backfilled with grout and patched. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.	50 (3")		

Figure A5,
Log of Boring 5, Page 4 of 4

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS	 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
	 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED.
IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS

 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

GEOCON

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	BORING 6 ELEV. (MSL.) 346 DATE COMPLETED 03/29/2022 EQUIPMENT ROTARY WASH BY: CB	PENETRATION RESISTANCE (BLOWS/FT*)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30					MATERIAL DESCRIPTION			
32								
34								
36								
38								
40								
42								
44								
46								
48								
50								
52								
54								
56								
58								

Figure A6,
Log of Boring 6, Page 2 of 4

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS

☐ ... SAMPLING UNSUCCESSFUL

☐ ... STANDARD PENETRATION TEST

☒ ... DRIVE SAMPLE (UNDISTURBED)

☒ ... DISTURBED OR BAG SAMPLE

☒ ... CHUNK SAMPLE

☒ ... WATER TABLE OR SEEPAGE

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS

 ... SAMPLING UNSUCCESSFUL	 ... STANDARD PENETRATION TEST	 ... DRIVE SAMPLE (UNDISTURBED)
 ... DISTURBED OR BAG SAMPLE	 ... CHUNK SAMPLE	 ... WATER TABLE OR SEEPAGE

GEOCON

A9899-06-01 BORING LOGS B4 TO B6.GPJ

SAMPLE SYMBOLS			
	... SAMPLING UNSUCCESSFUL		... STANDARD PENETRATION TEST
	... DISTURBED OR BAG SAMPLE		... CHUNK SAMPLE
			... DRIVE SAMPLE (UNDISTURBED)
			... WATER TABLE OR SEEPAGE

GEOCON

APPENDIX

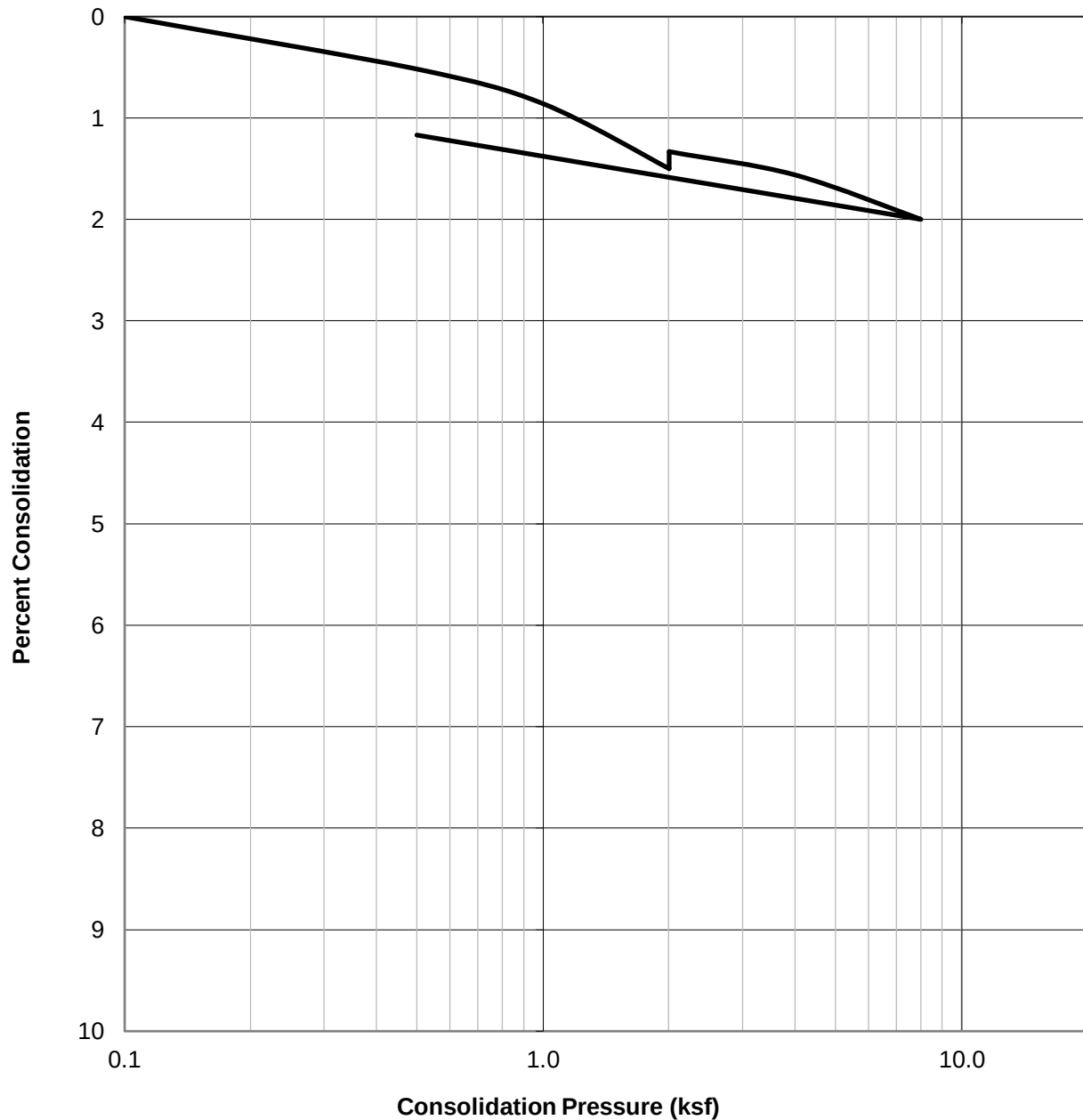
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APPENDIX B

LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the “American Society for Testing and Materials (ASTM)”, or other suggested procedures. Selected samples were tested for grain size distribution and consolidation characteristics, including time rate of consolidation. The results of the laboratory tests are summarized in Figures B1 through B37.

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@30'	Silty, Clayey Sand	121.8	14.0	14.6



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

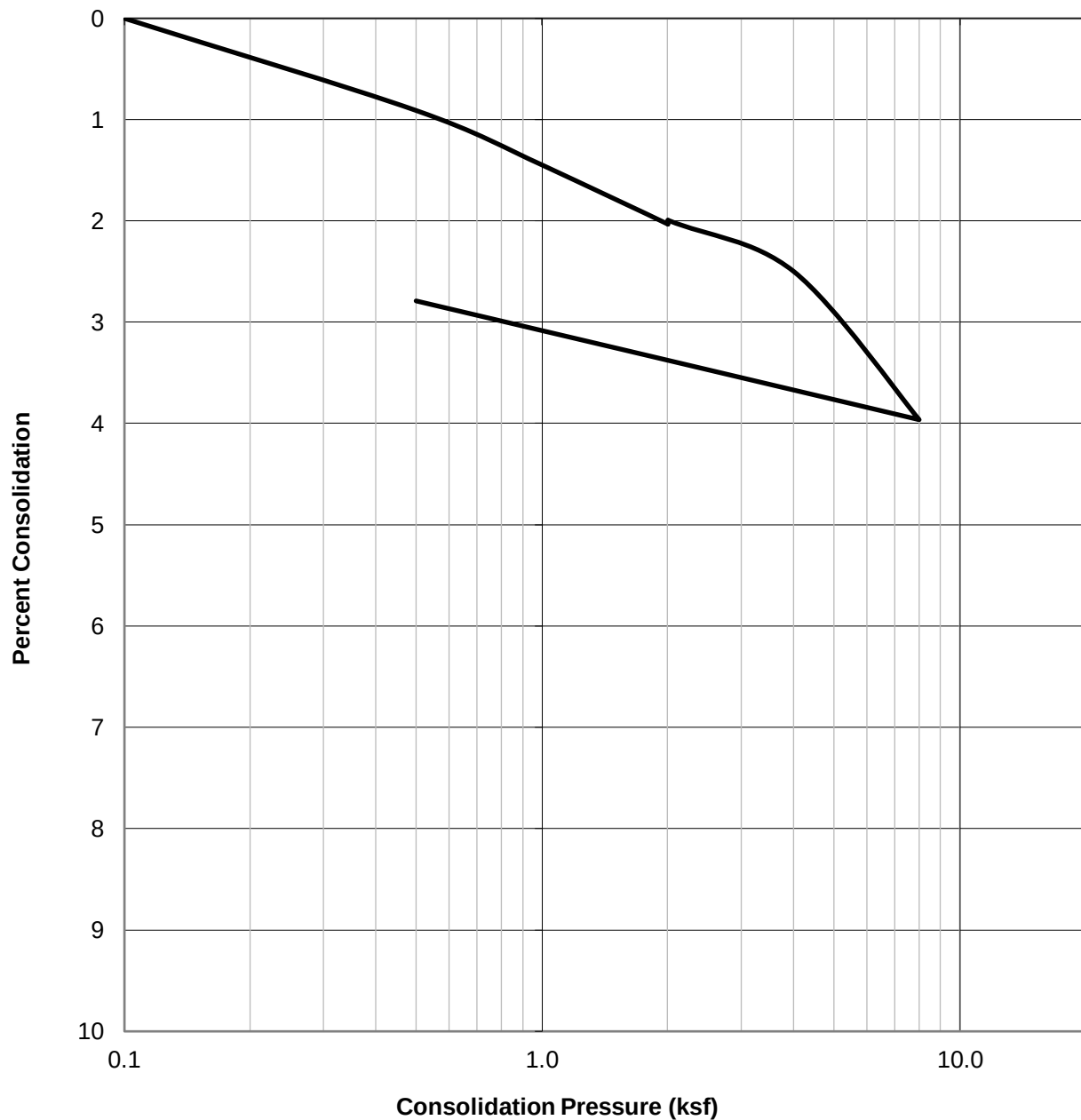
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B1

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@40'	Sandy, Silty Clay	107.0	21.9	20.8



CONSOLIDATION TEST RESULTS
ASTM D-2435

Checked by: JTA

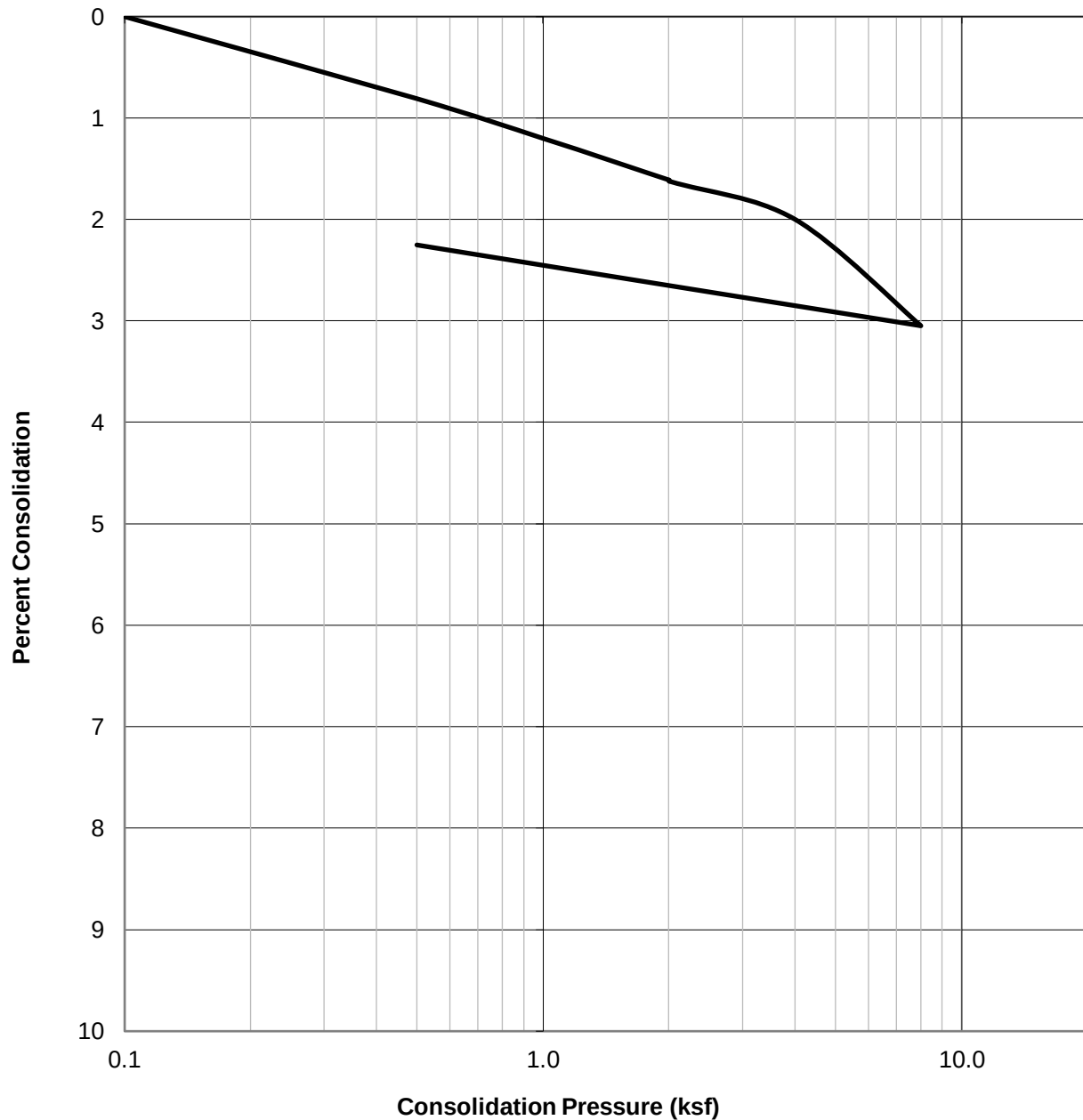
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B2

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@50'	Sandy, Silty Clay	116.5	17.1	16.5



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

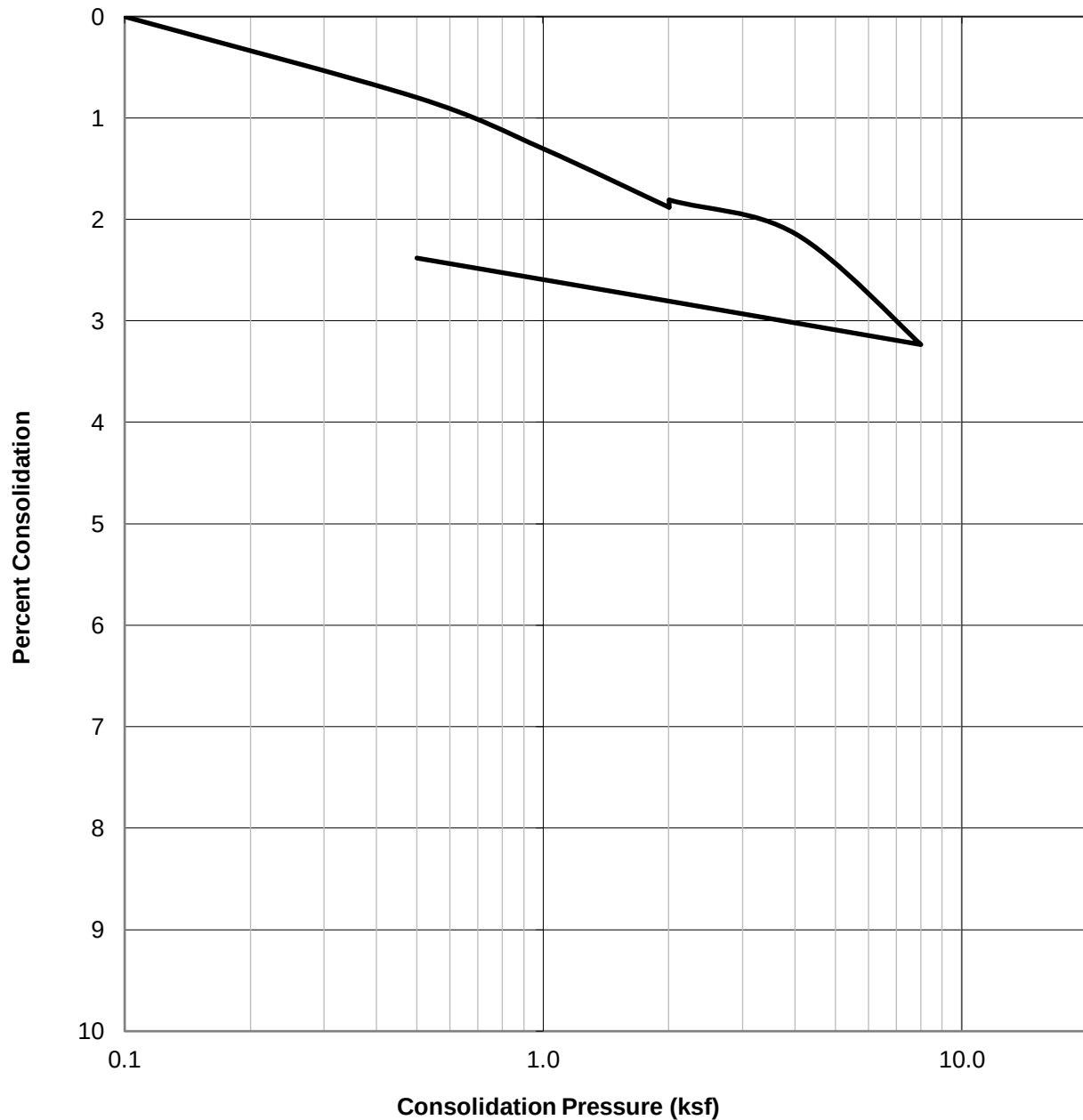
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B3

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@55'	Silty, Clayey Sand	114.4	17.9	17.6



CONSOLIDATION TEST RESULTS
ASTM D-2435

Checked by: JTA

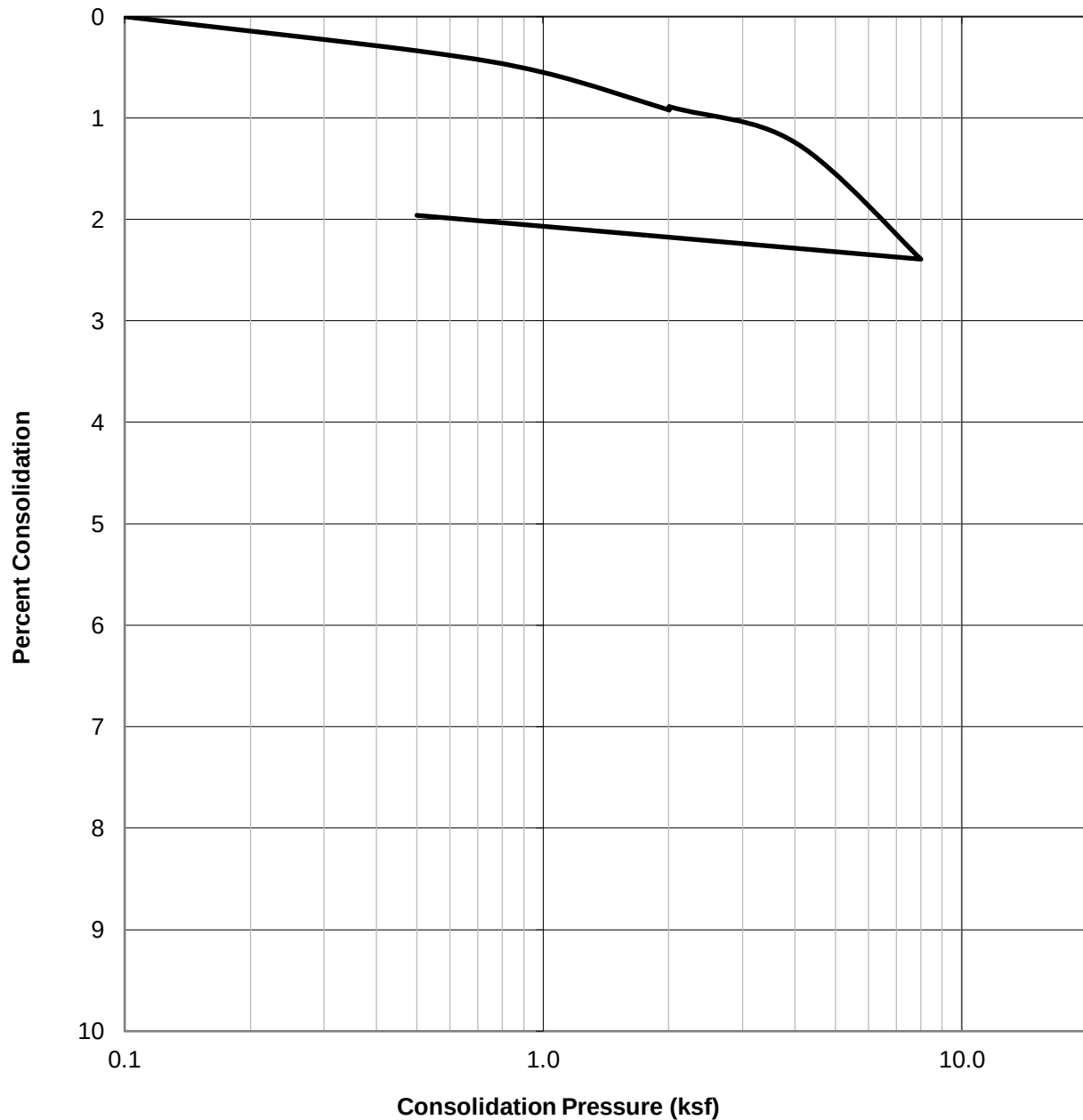
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B4

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@60'	Sandy, Silty Clay	117.5	16.6	16.9



CONSOLIDATION TEST RESULTS
ASTM D-2435

Checked by: JTA

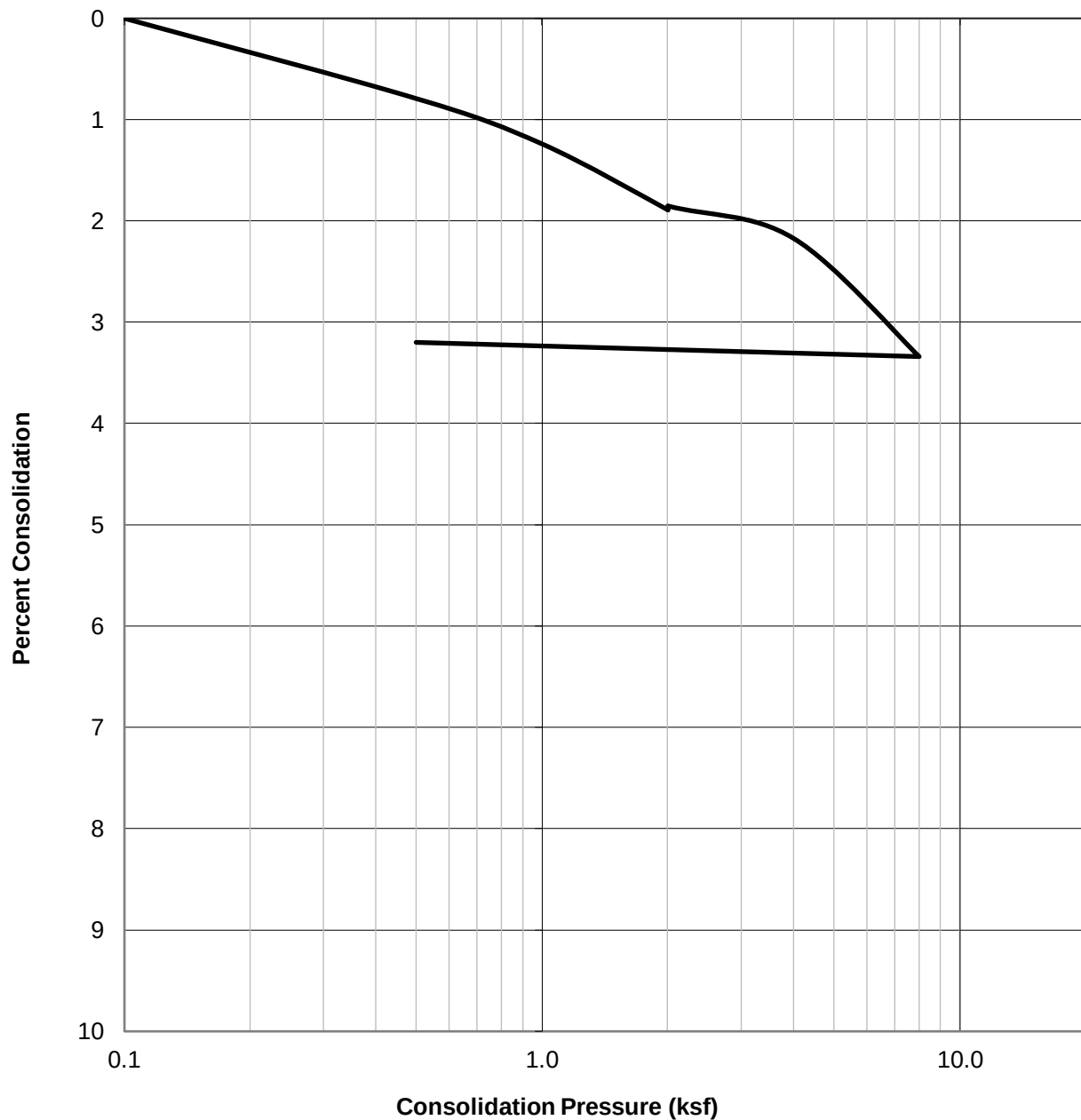
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B5

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@75'	Silty, Clayey Sand	114.5	17.3	16.4



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

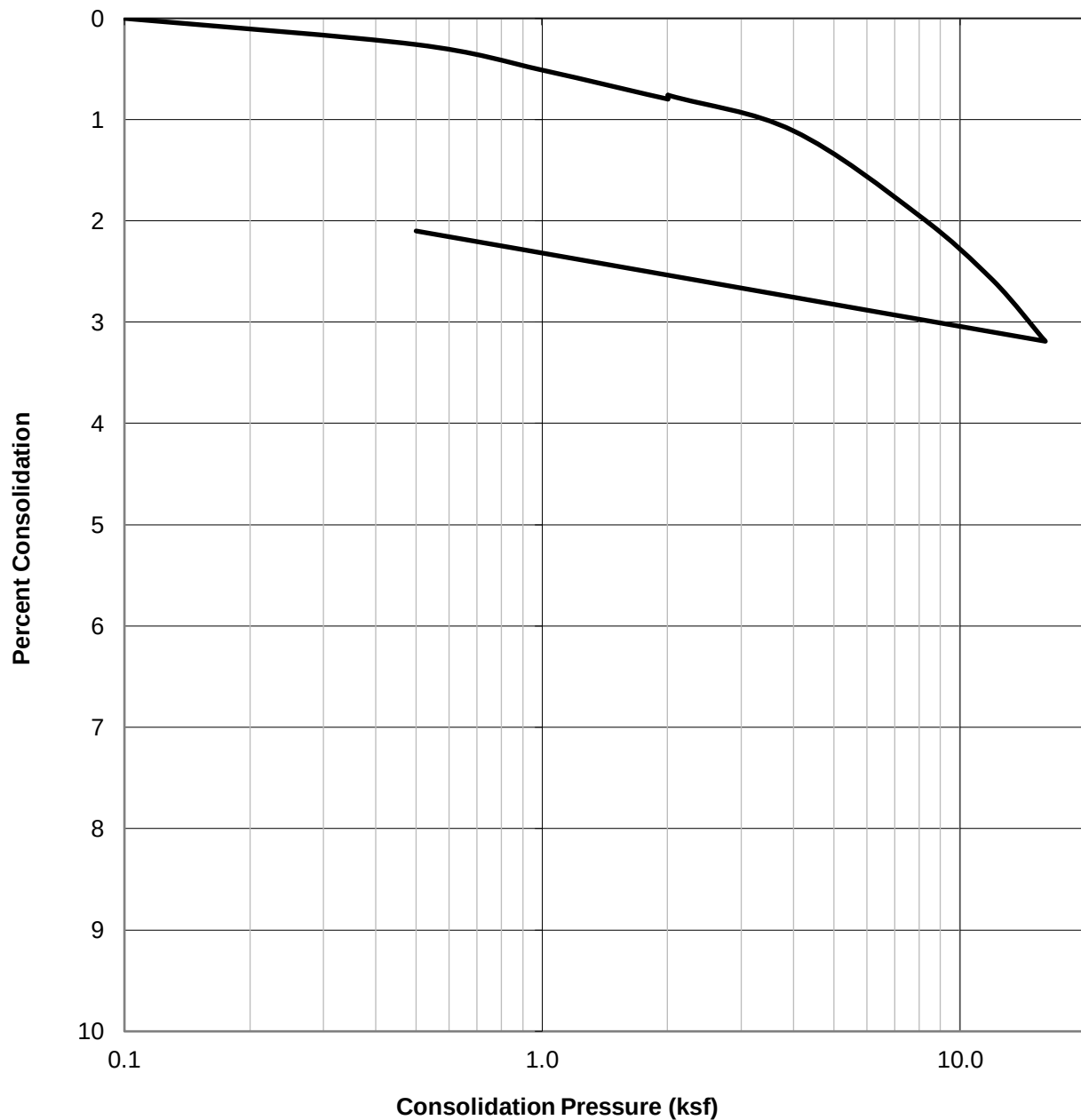
Project No.: A9899-06-01

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SEPT 23

Figure B6

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@90'	Sand with Silt	122.2	14.7	15.5



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

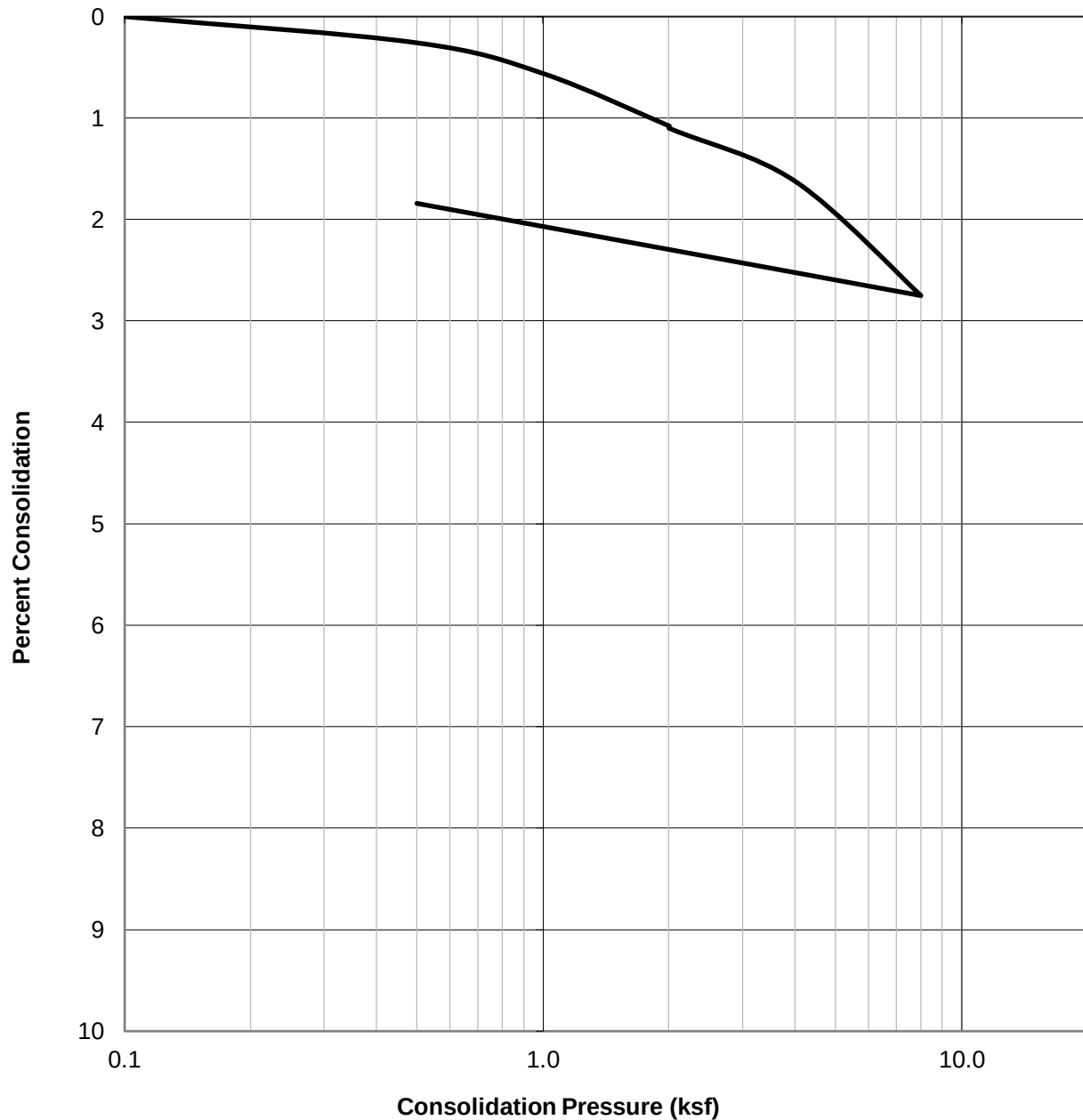
Project No.: A9899-06-01

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WEST HOLLYWOOD, CA

SEPT 23

Figure B7

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B5@30'	Silty, Clayey Sand	117.8	16.5	16.3



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

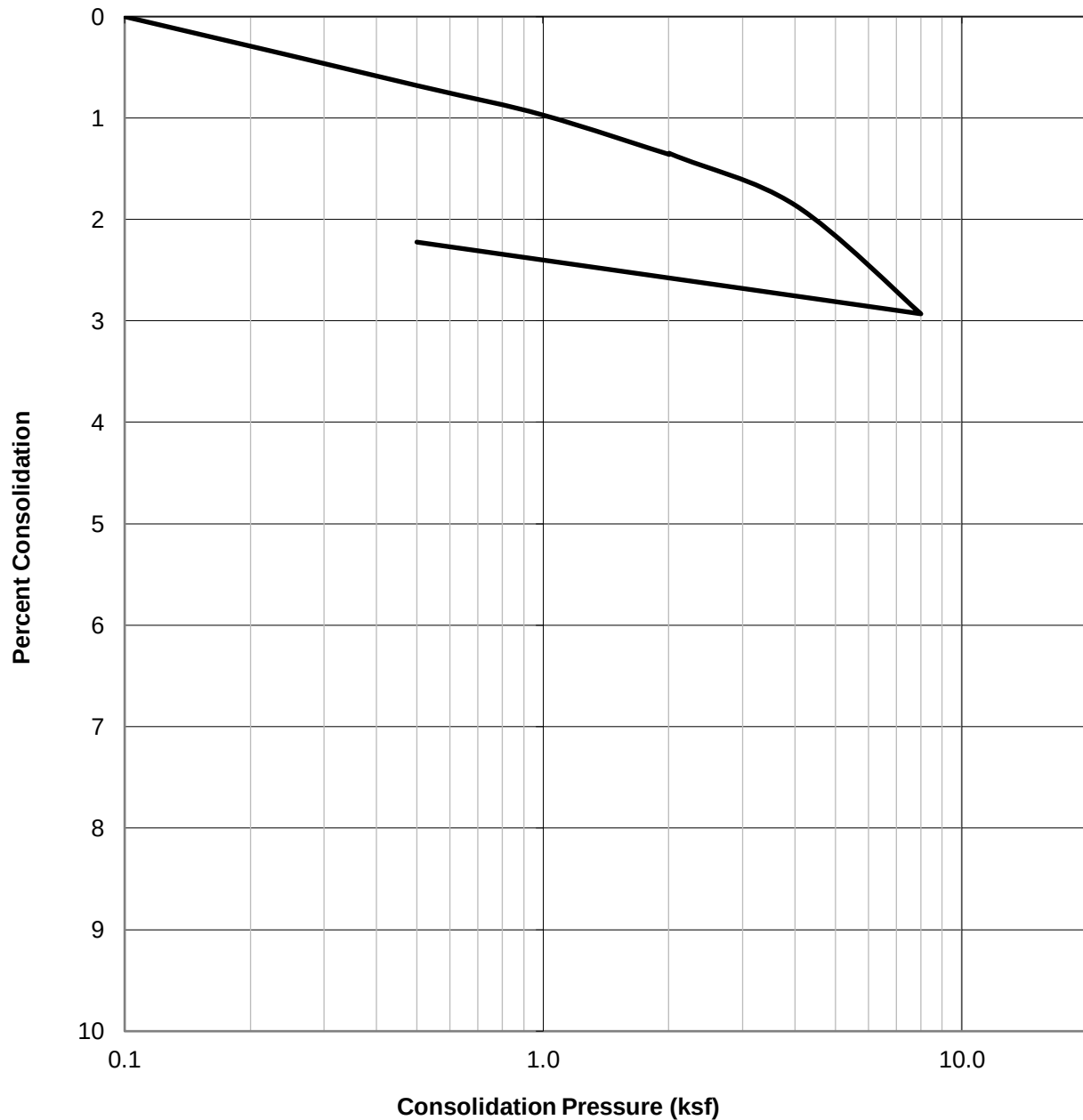
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B8

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B5@60'	Silty, Clayey Sand	117.2	16.4	16.1



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

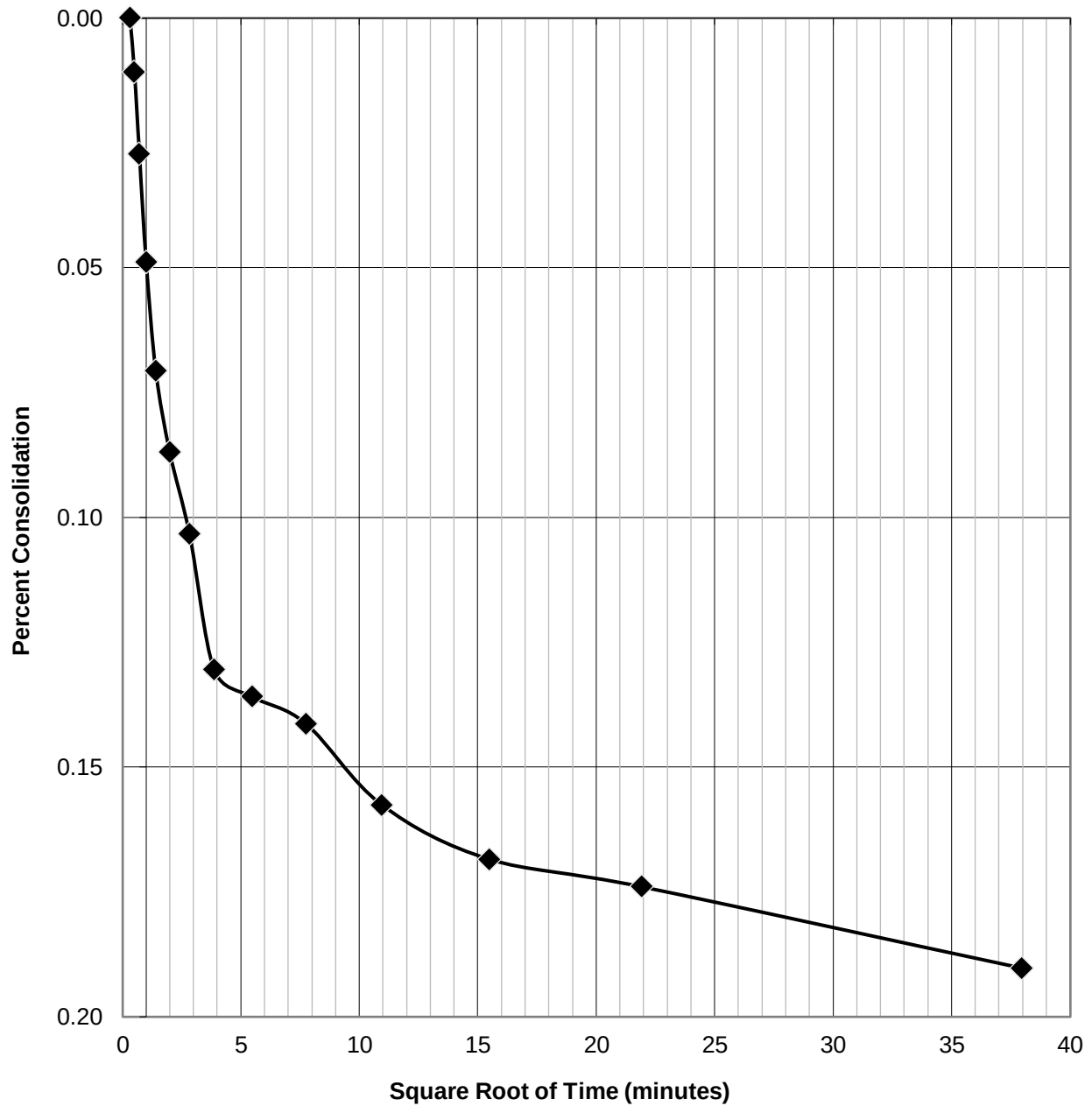
Project No.: A9899-06-01

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WEST HOLLYWOOD, CA

SEPT 23

Figure B9

at 4.0 KSF



SAMPLE ID.	SOIL TYPE
B4@40'	Sandy, Silty Clay



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

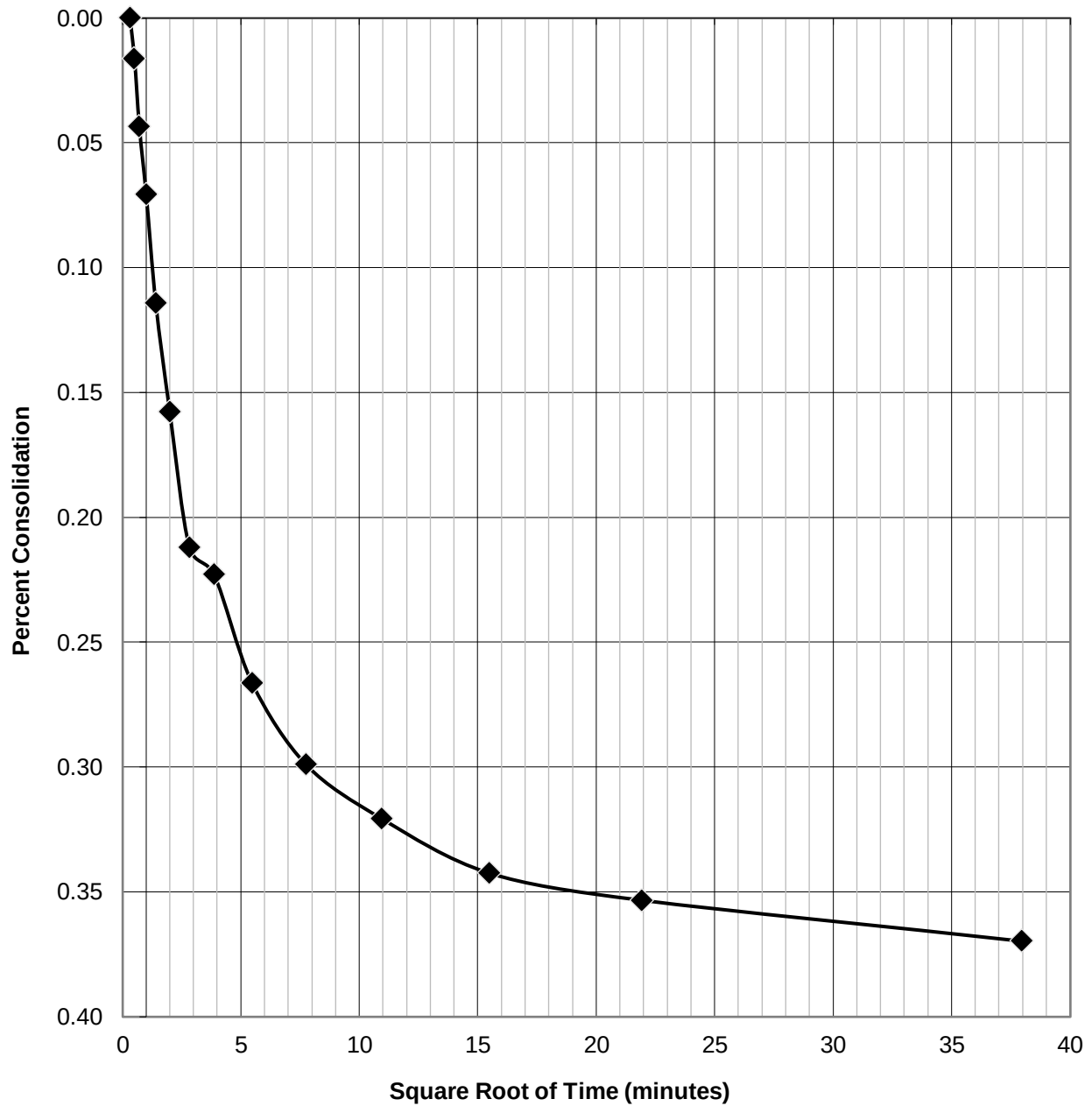
Project No.: A9899-06-01

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WEST HOLLYWOOD, CA

SEPT 23

Figure B10

at 8.0 KSF



SAMPLE ID.	SOIL TYPE
B4@50'	Sandy, Silty Clay



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

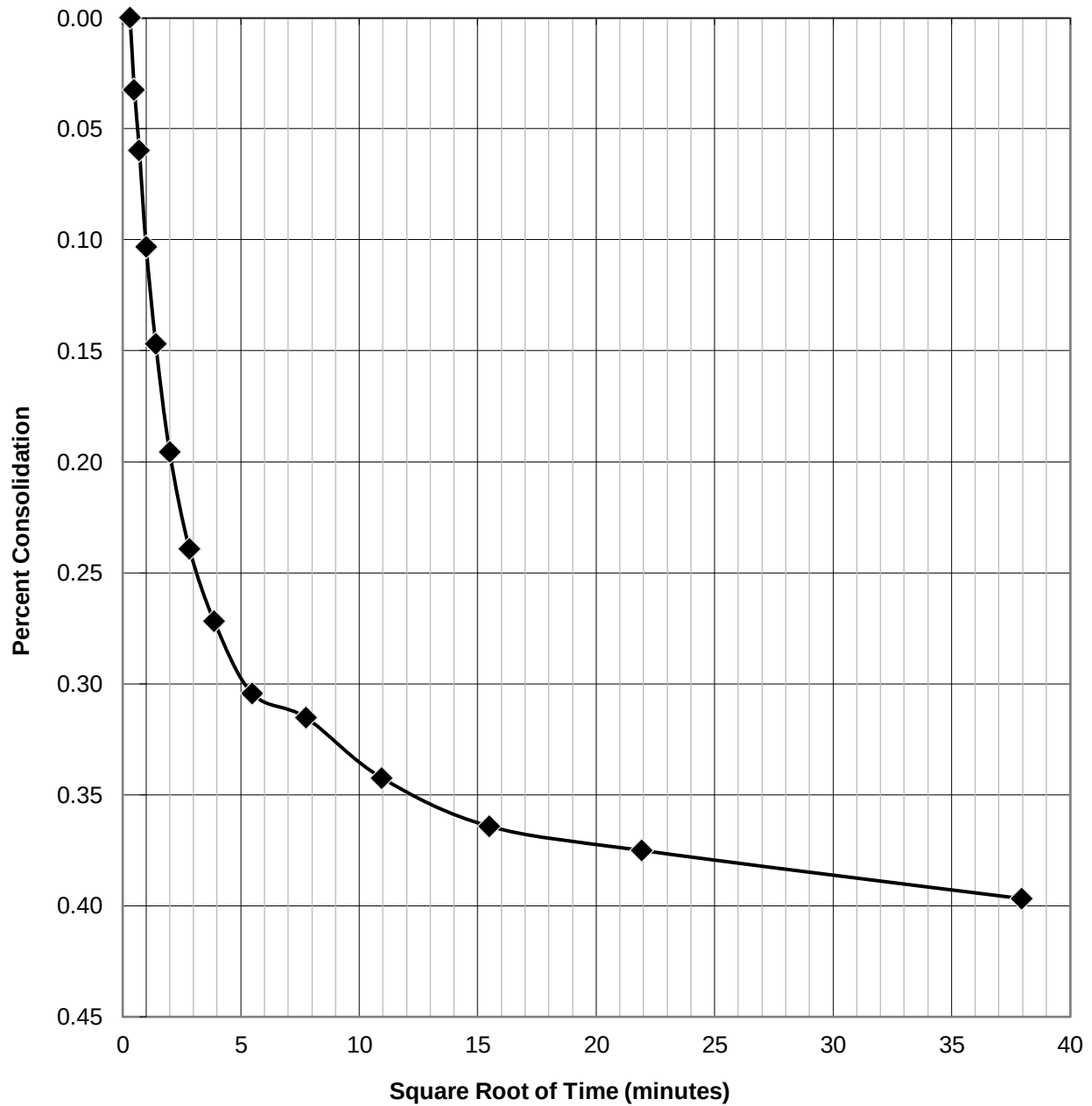
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B11

at 8.0 KSF



SAMPLE ID.	SOIL TYPE
B4@55'	Silty, Clayey Sand



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

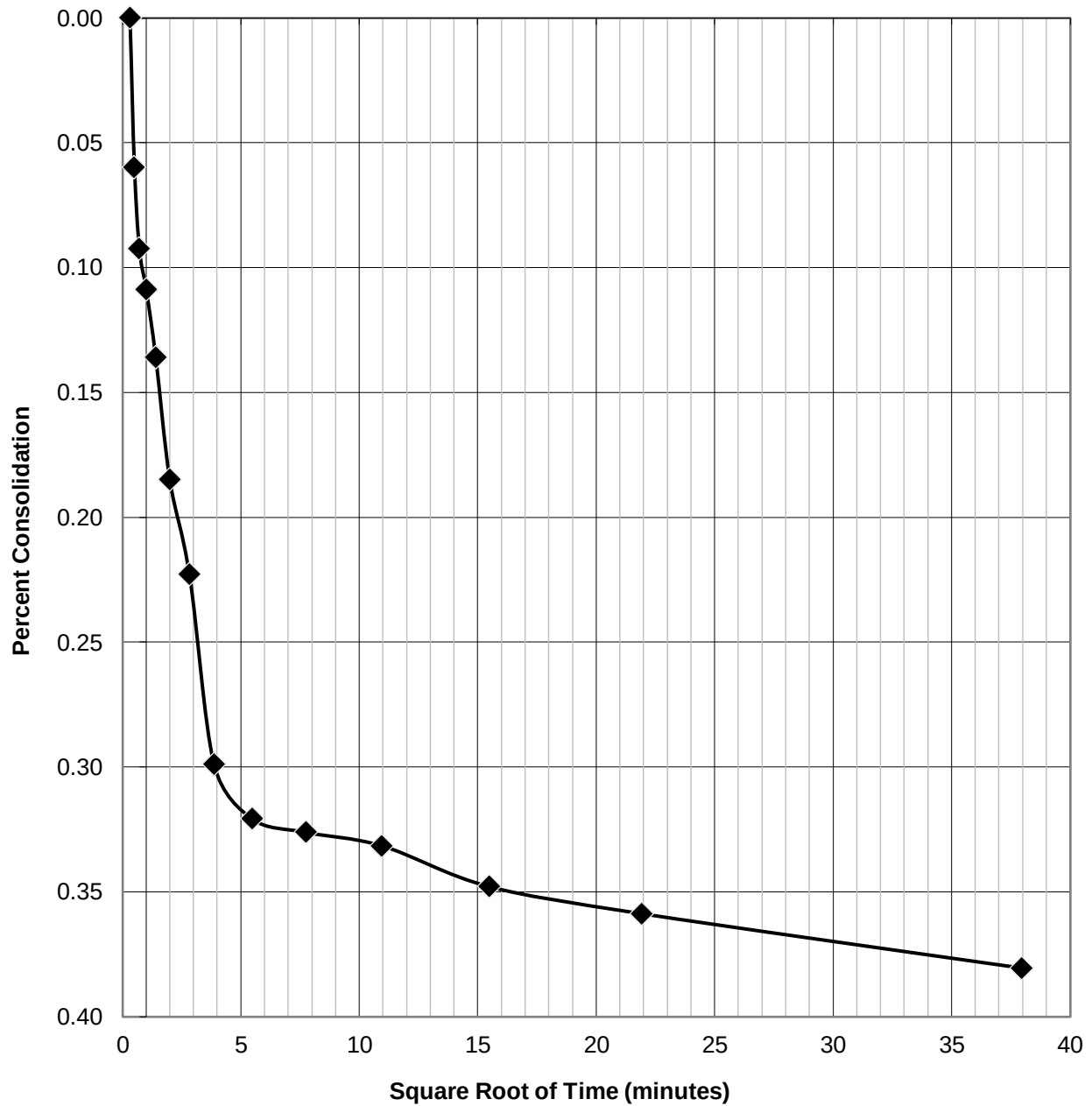
Project No.: A9899-06-01

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SEPT 23

Figure B12

at 8.0 KSF



SAMPLE ID.	SOIL TYPE
B4@60'	Sandy, Silty Clay



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

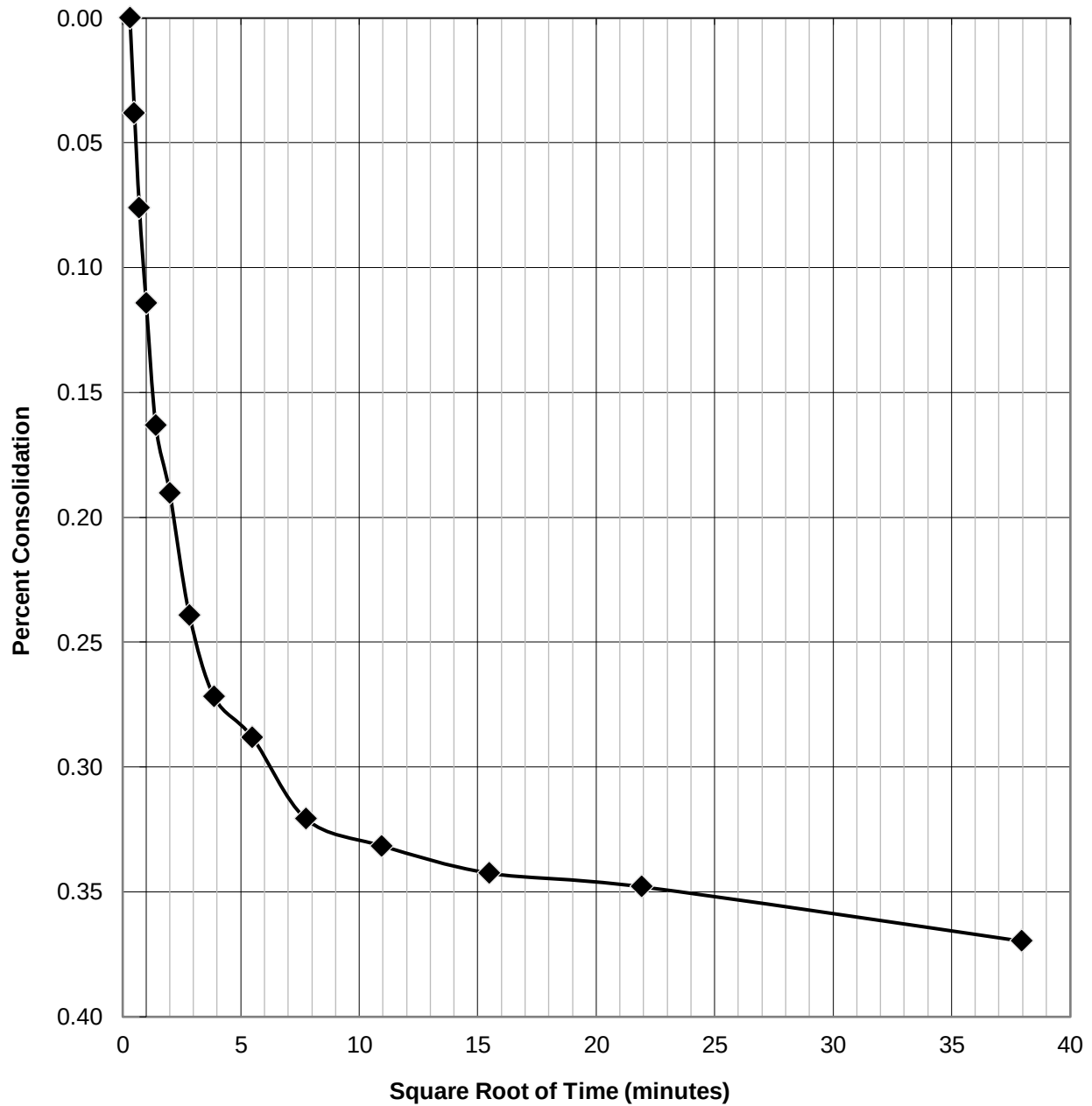
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
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SEPT 23

Figure B13

at 8.0 KSF



SAMPLE ID.	SOIL TYPE
B4@75'	Silty, Clayey Sand



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

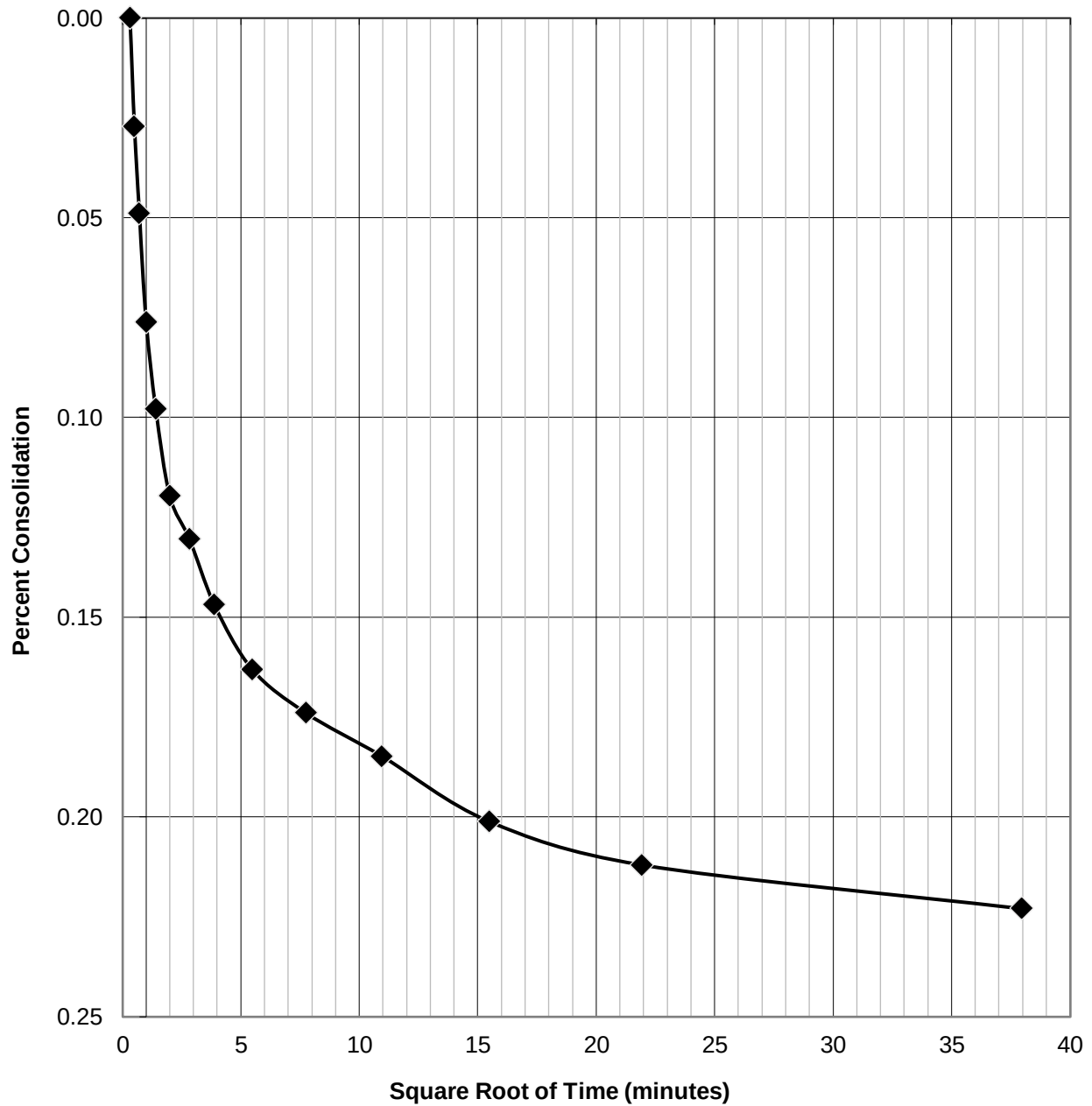
Project No.: A9899-06-01

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SEPT 23

Figure B14

at 8.0 KSF



SAMPLE ID.	SOIL TYPE
B4@90'	Sand with Silt



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

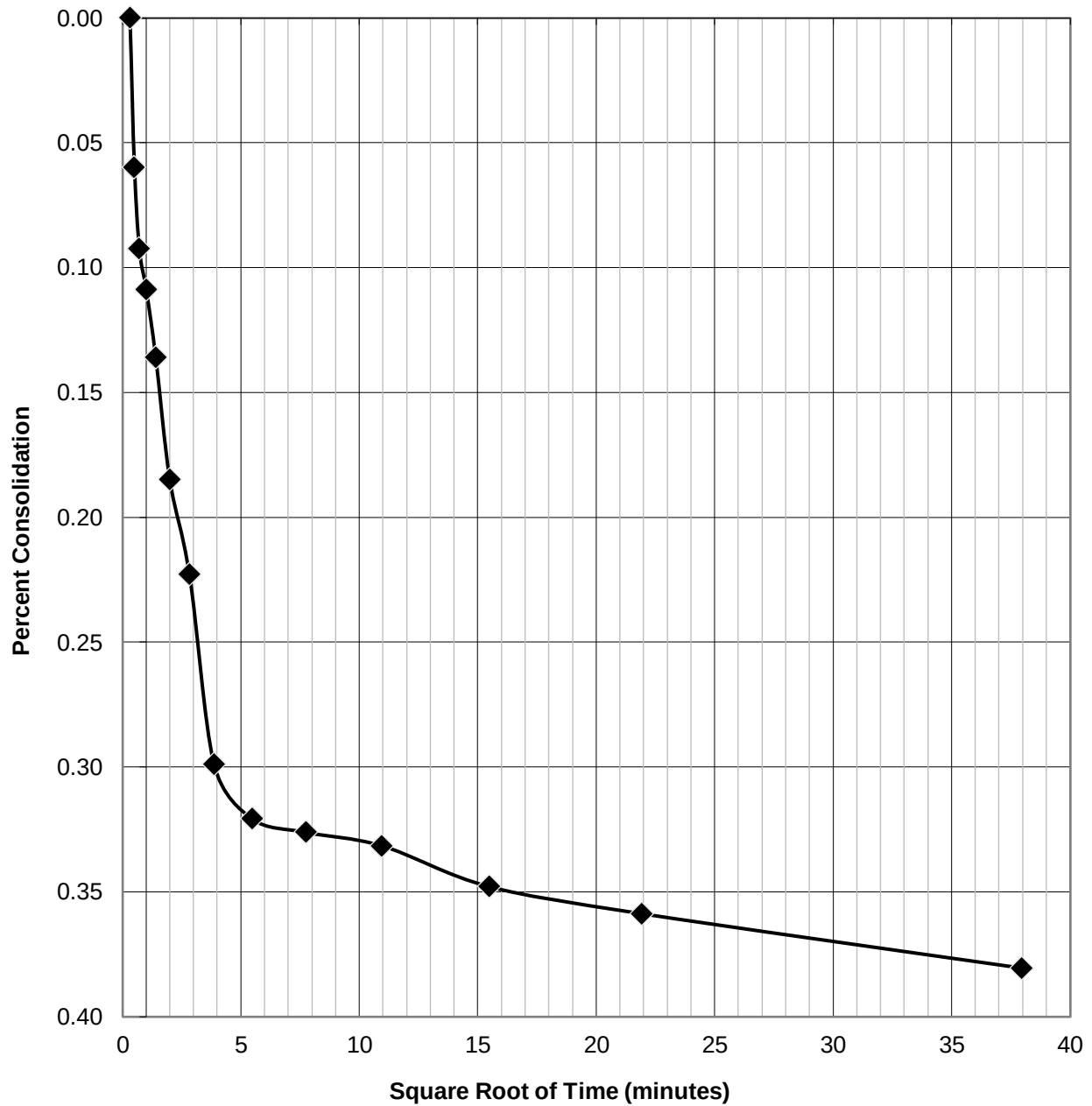
Project No.: A9899-06-01

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Figure B15

at 8.0 KSF



SAMPLE ID.	SOIL TYPE
B5@60'	Silty, Clayey Sand



CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JTA

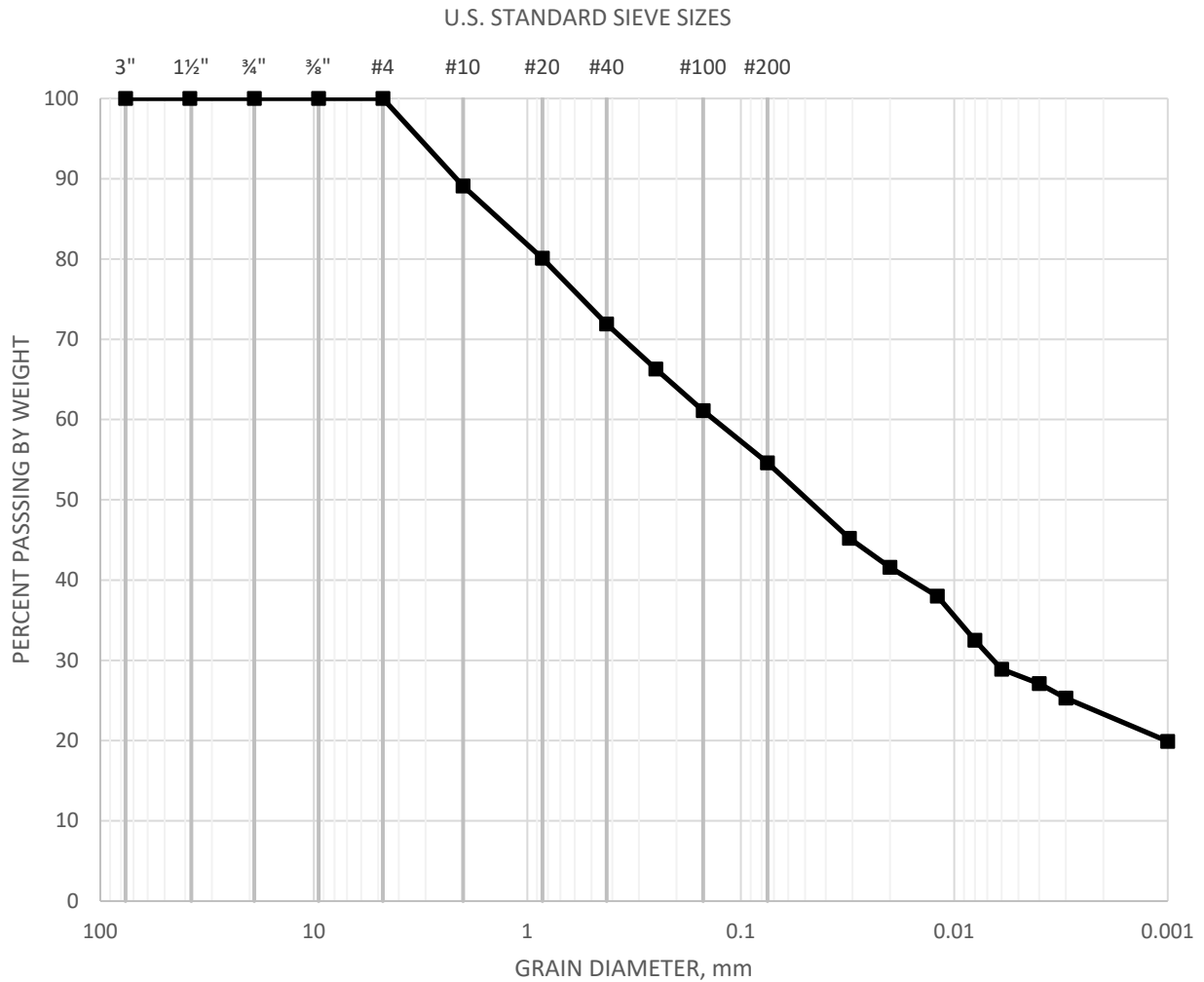
Project No.: A9899-06-01

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Figure B16

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@20'	Sandy, Silty Clay	45.4	27.5	27.1



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

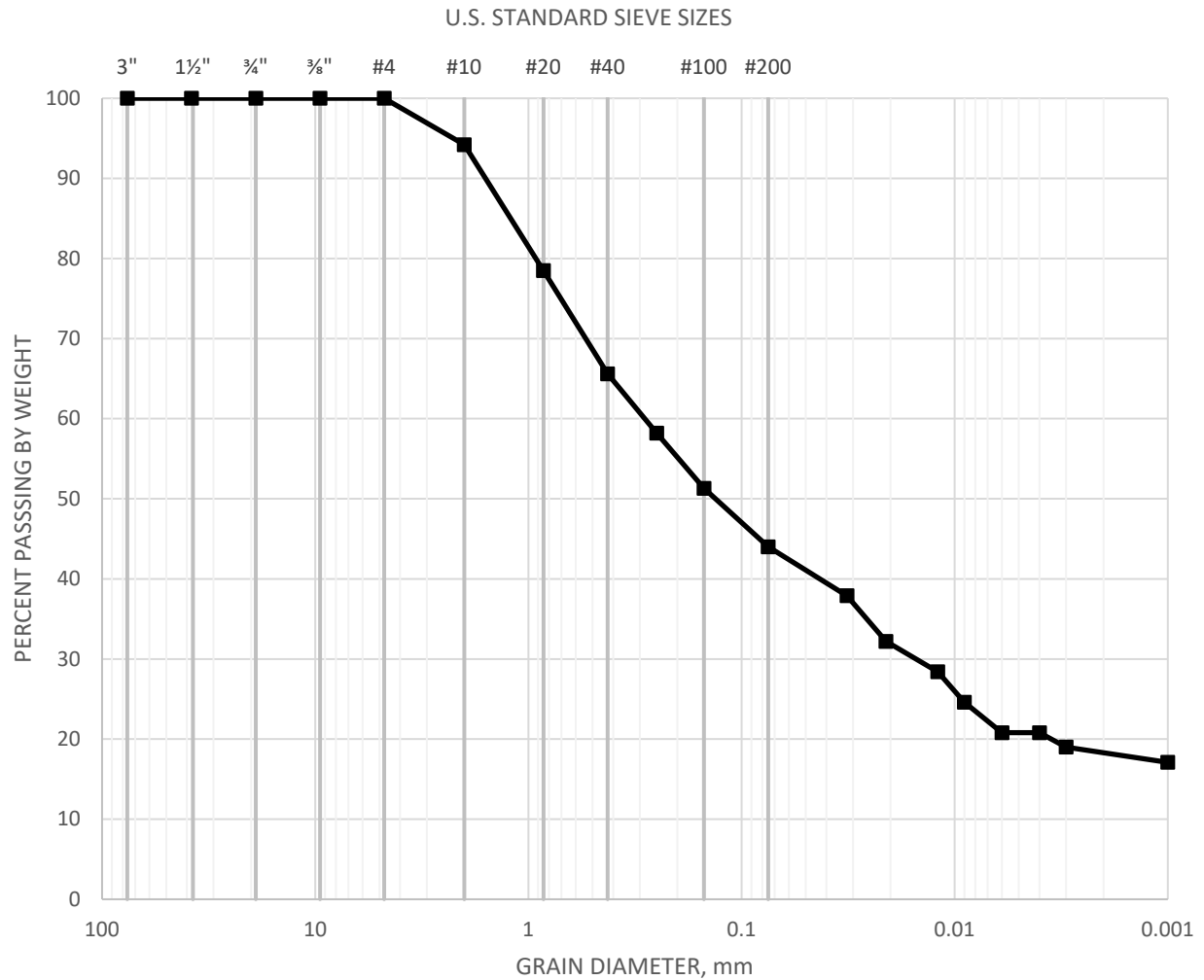
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 17

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@25'	Sandy, Silty Clay	56	23.2	20.8



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

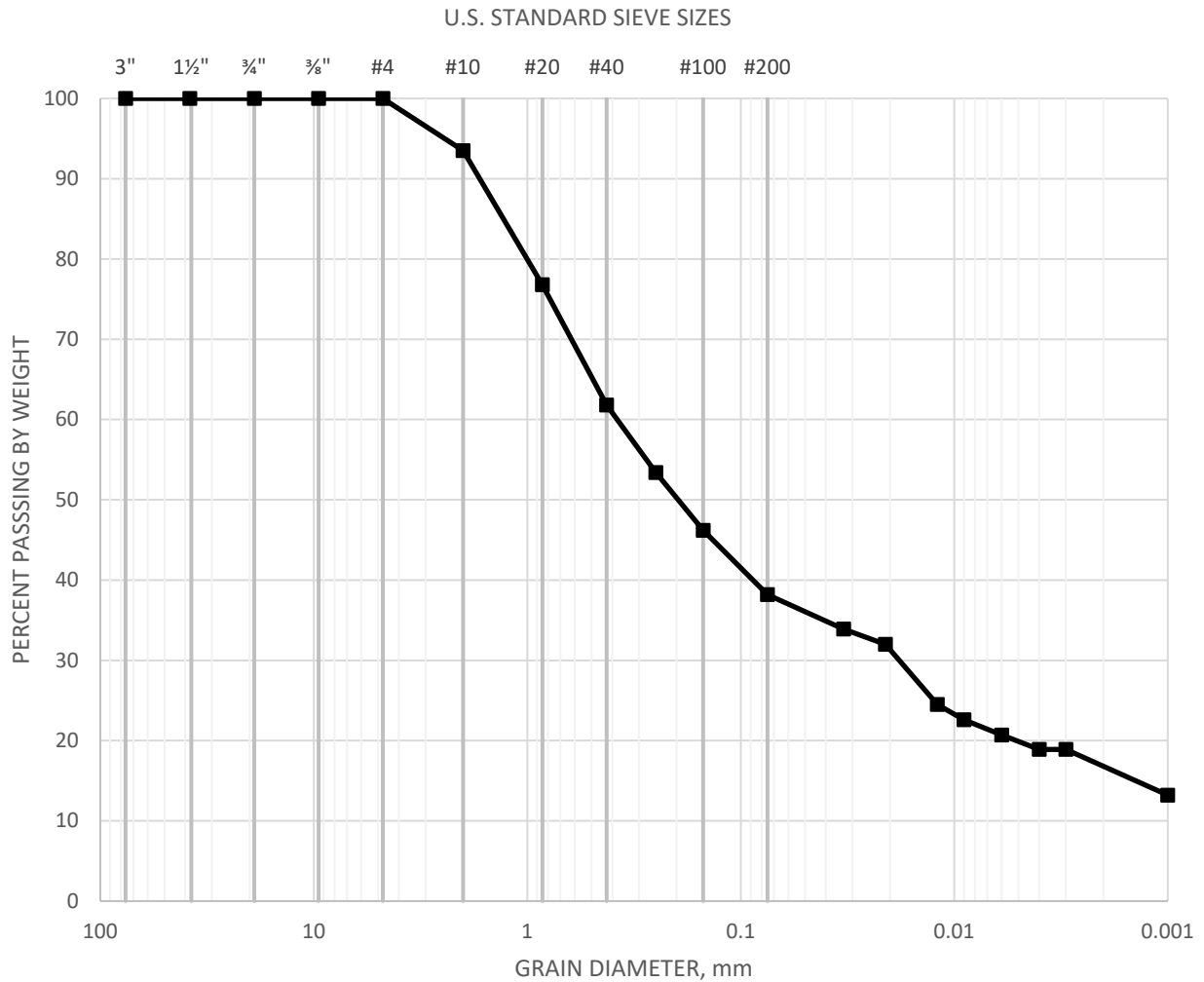
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

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Figure B 18

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@30'	Silty, Clayey Sand	61.8	19.3	18.9



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

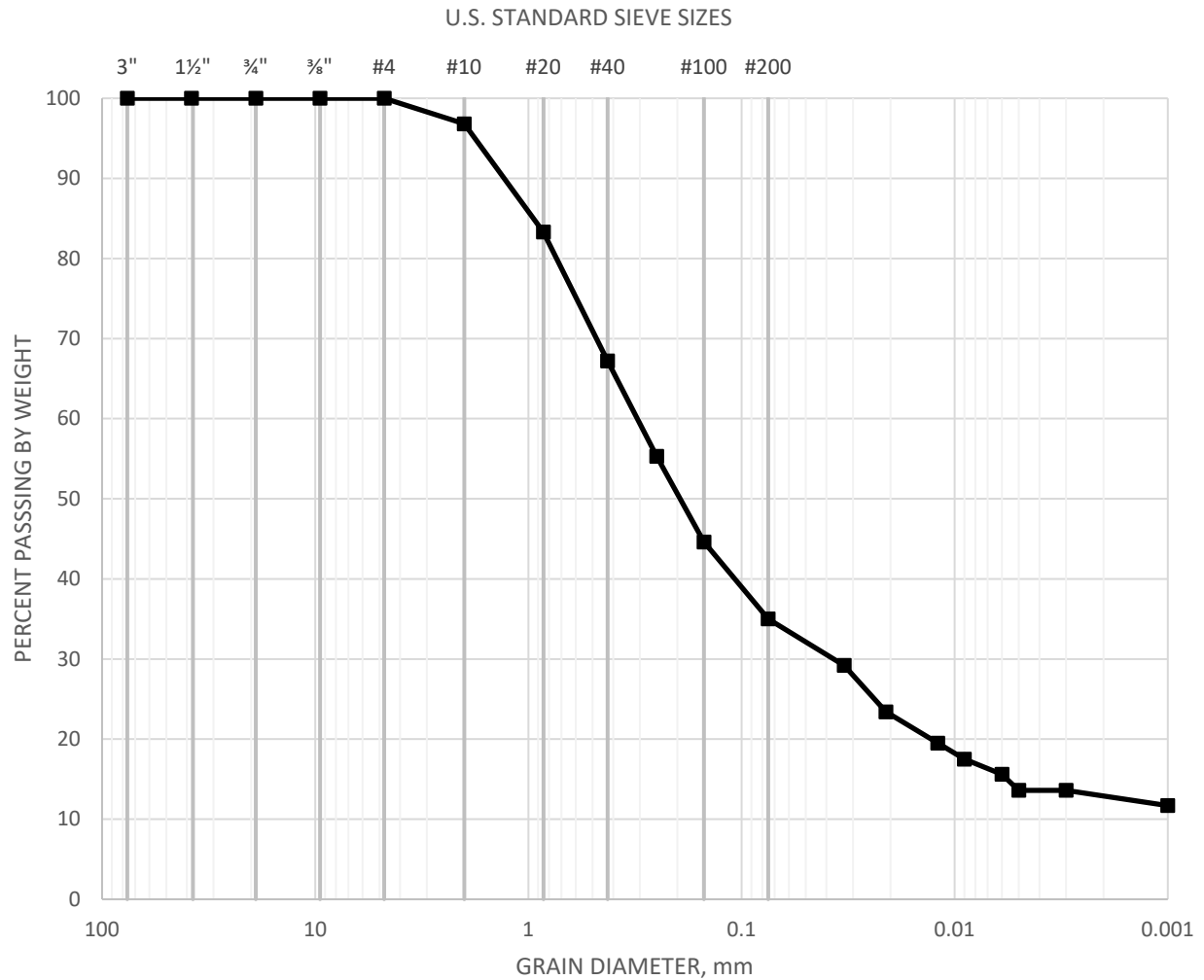
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 19

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@35'	Silty, Clayey Sand	65	21.4	13.6



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

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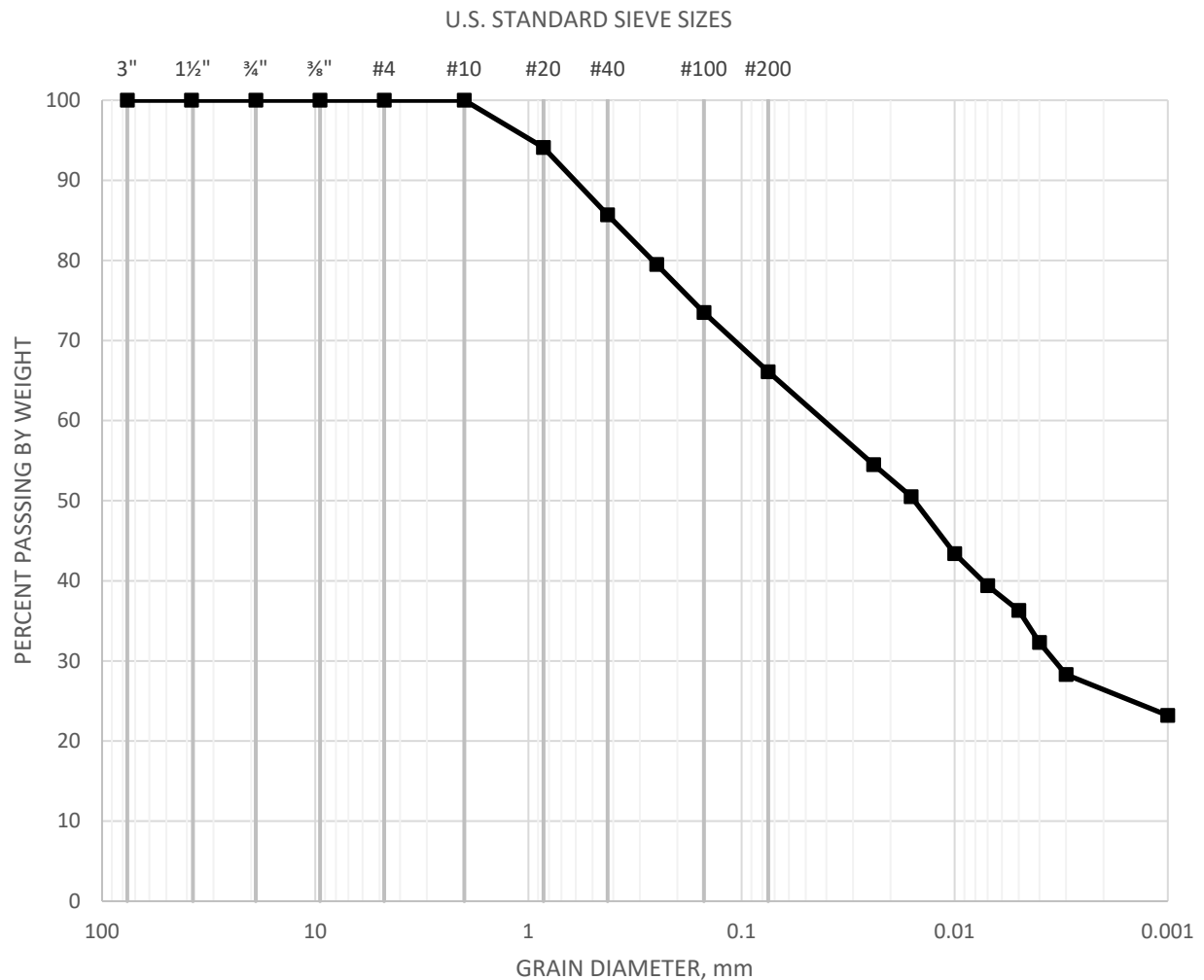
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 20

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@40'	Sandy, Silty Clay	33.9	33.8	32.3



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

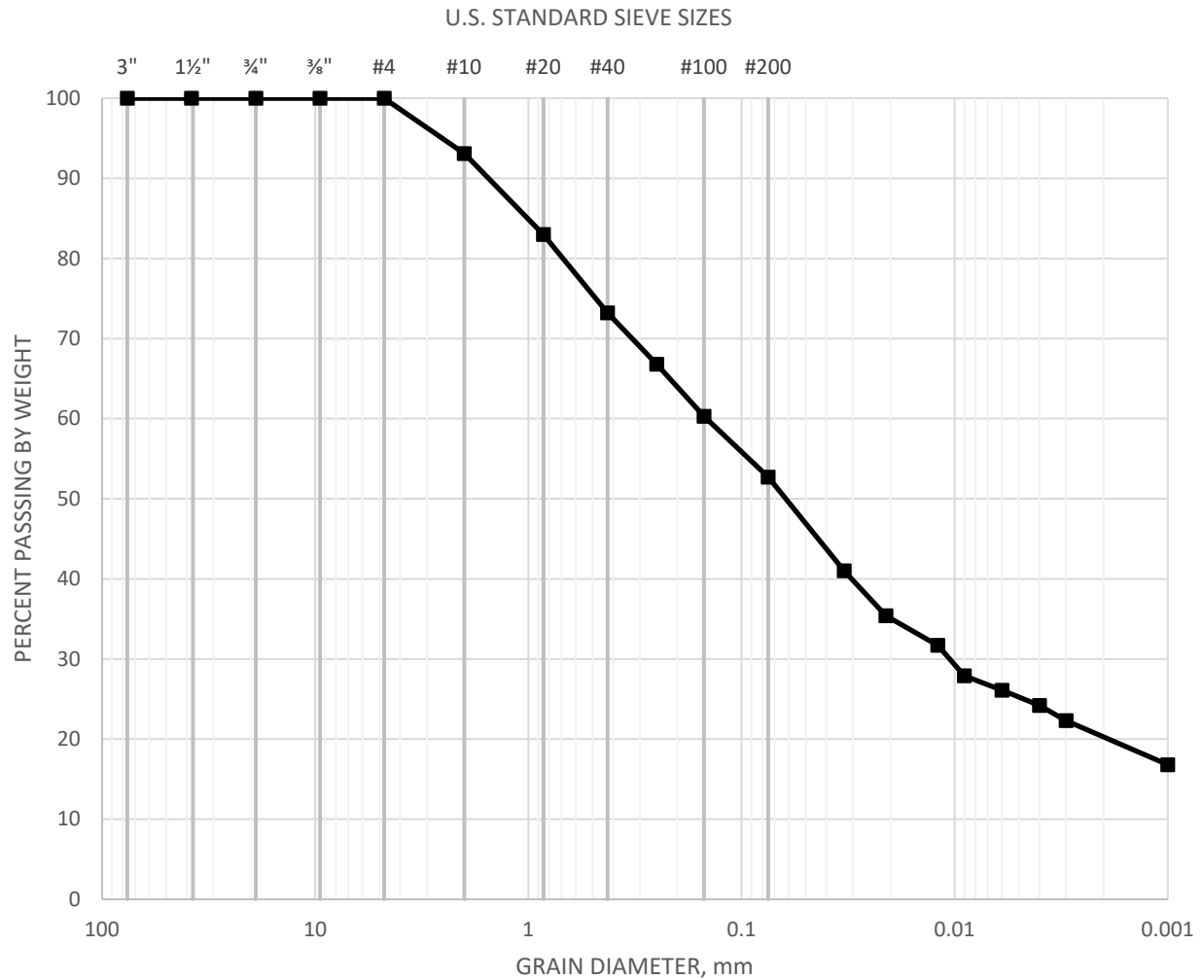
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 21

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@45'	Sandy, Silty Clay	47.3	28.5	24.2



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

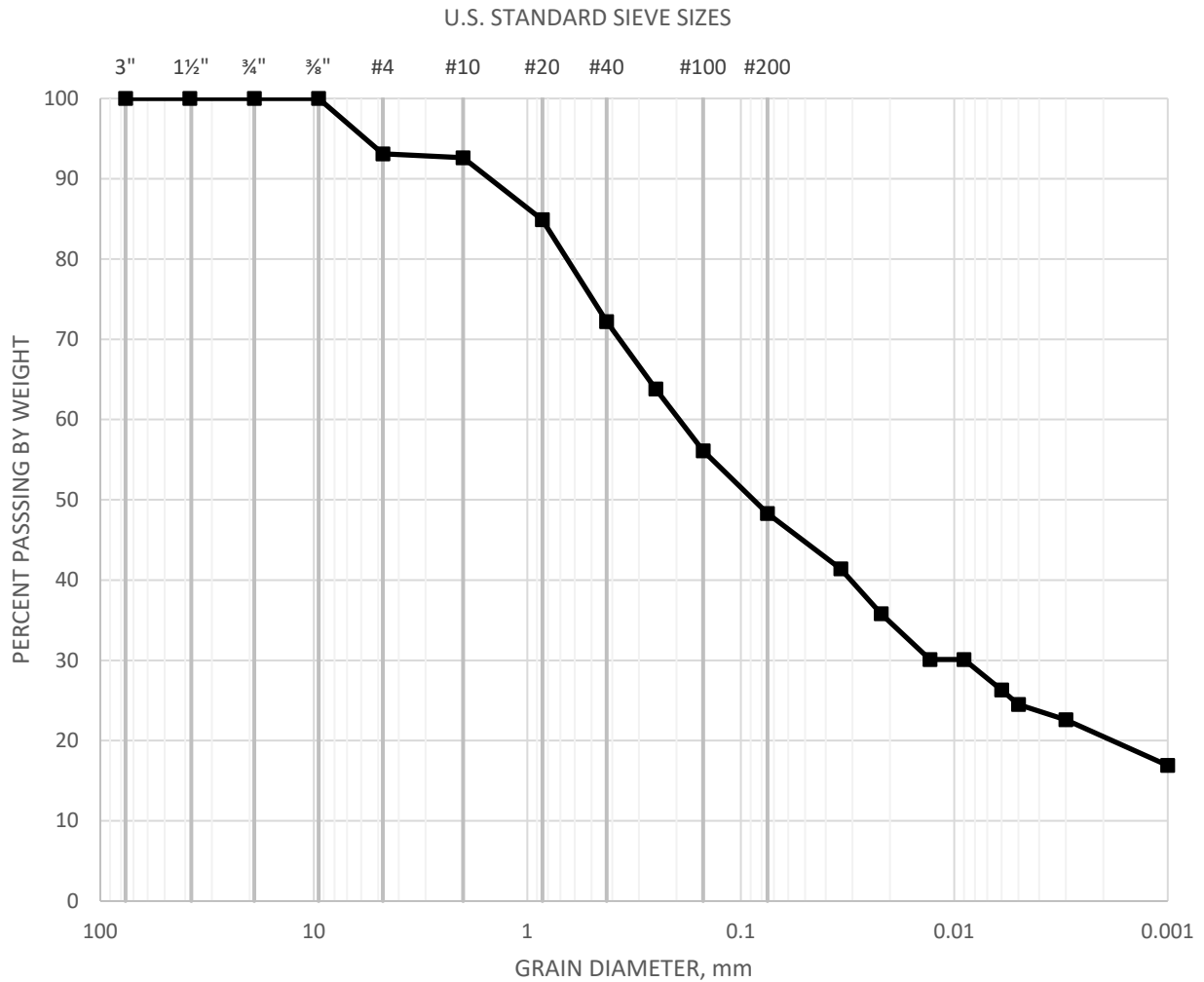
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 22

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@50'	Sandy, Silty Clay	44.8	23.8	24.5



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

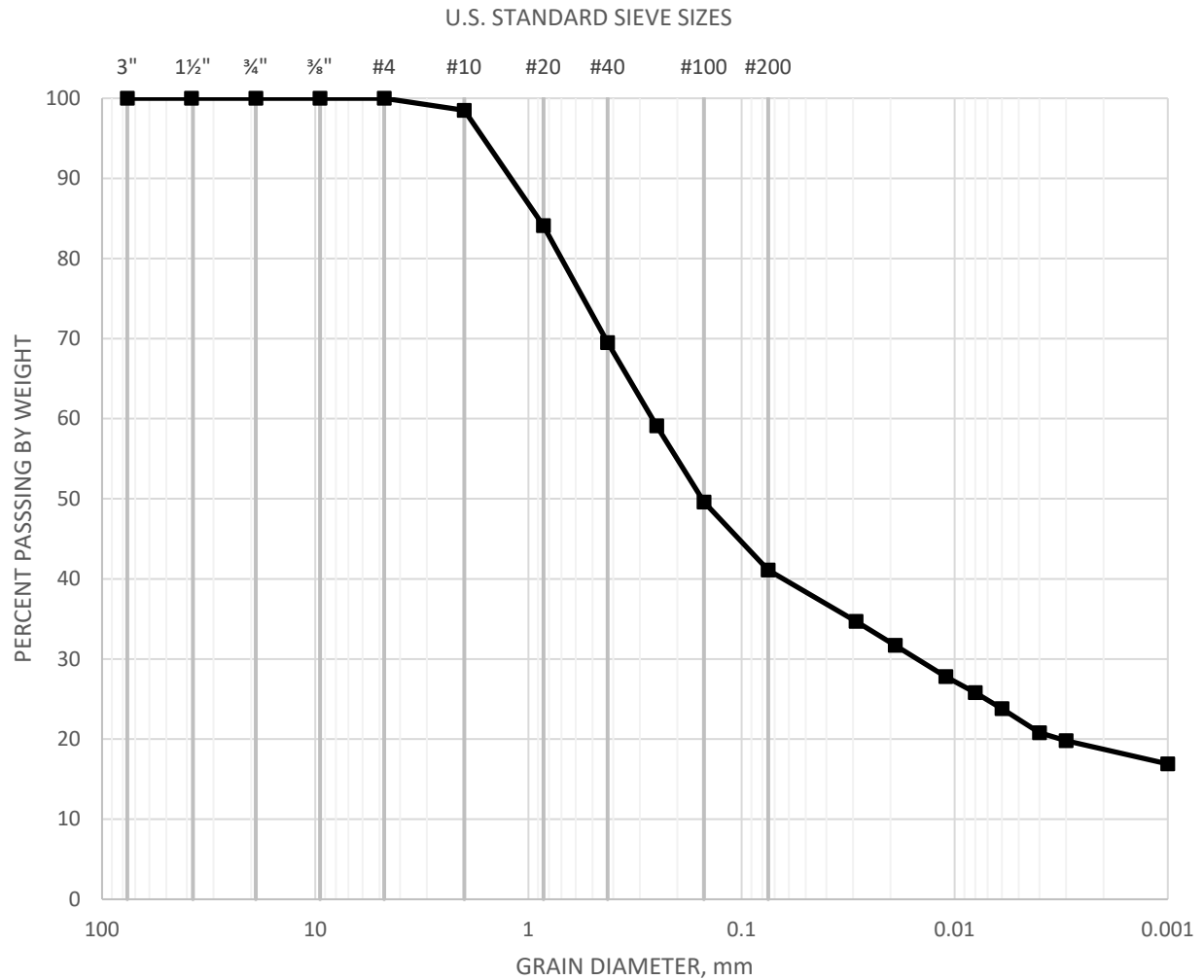
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure 2B

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@55'	Silty, Clayey Sand	58.9	20.3	20.8



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

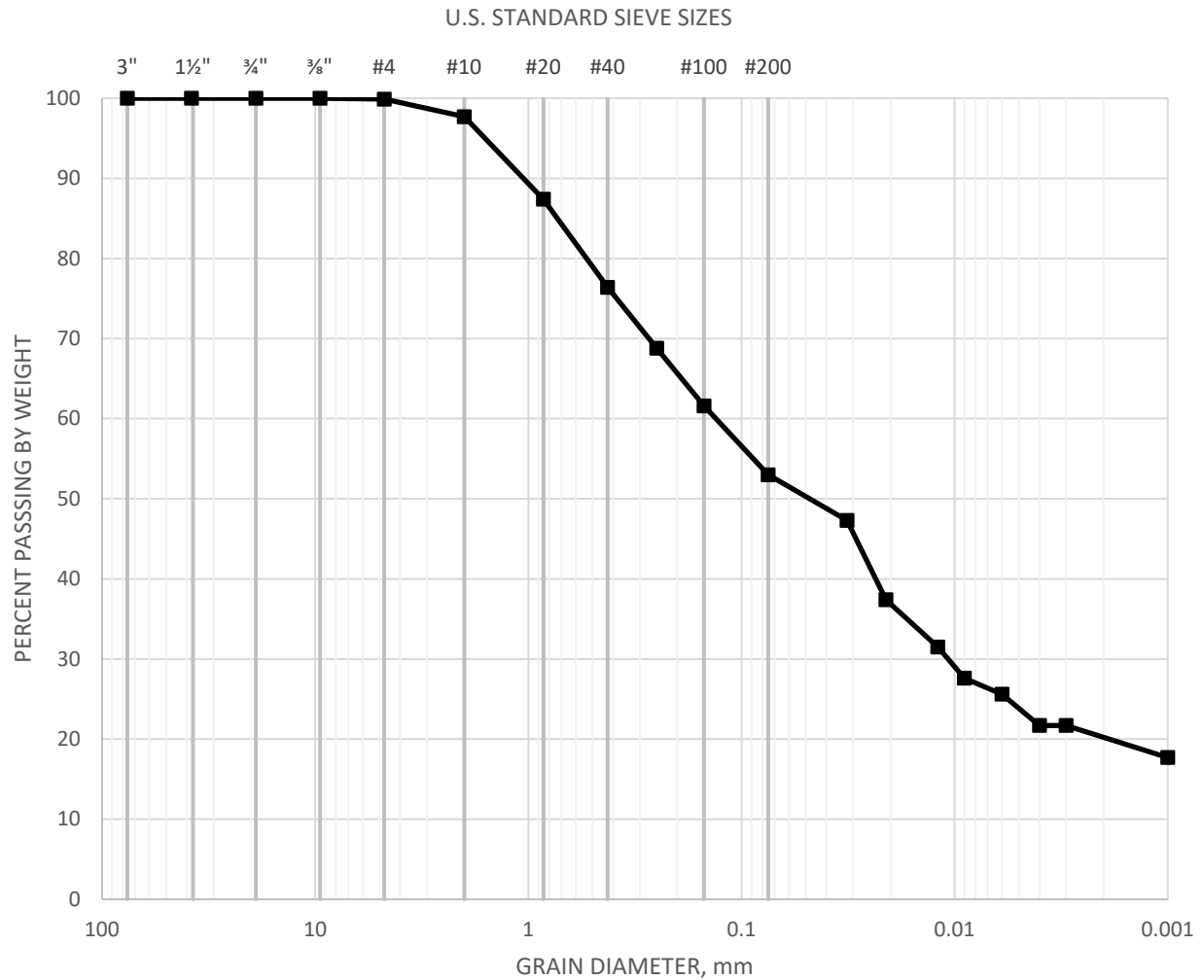
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 24

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@60'	Sandy, Silty Clay	46.9	31.3	21.7



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

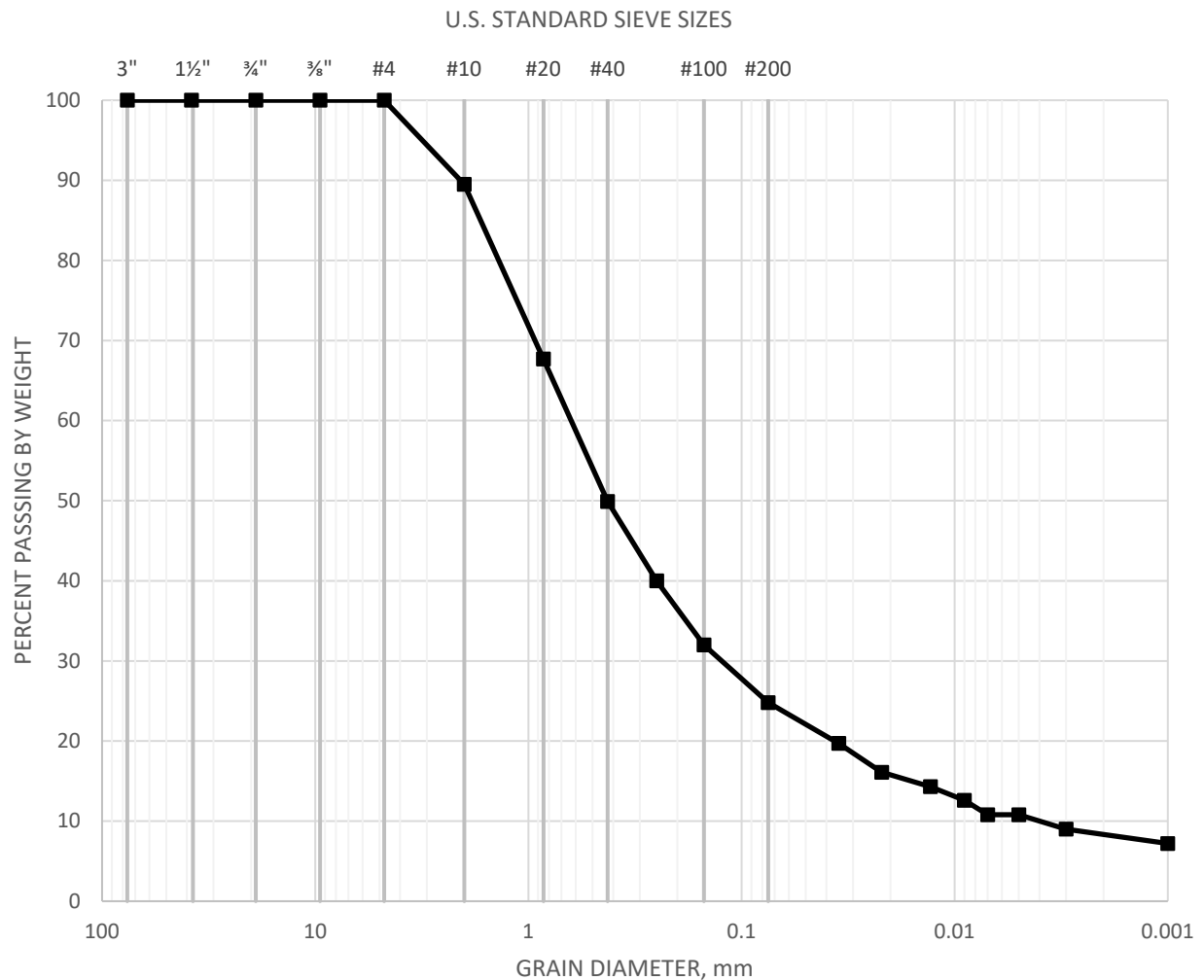
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 25

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@65'	Sand with Silt	75.2	14	10.8



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

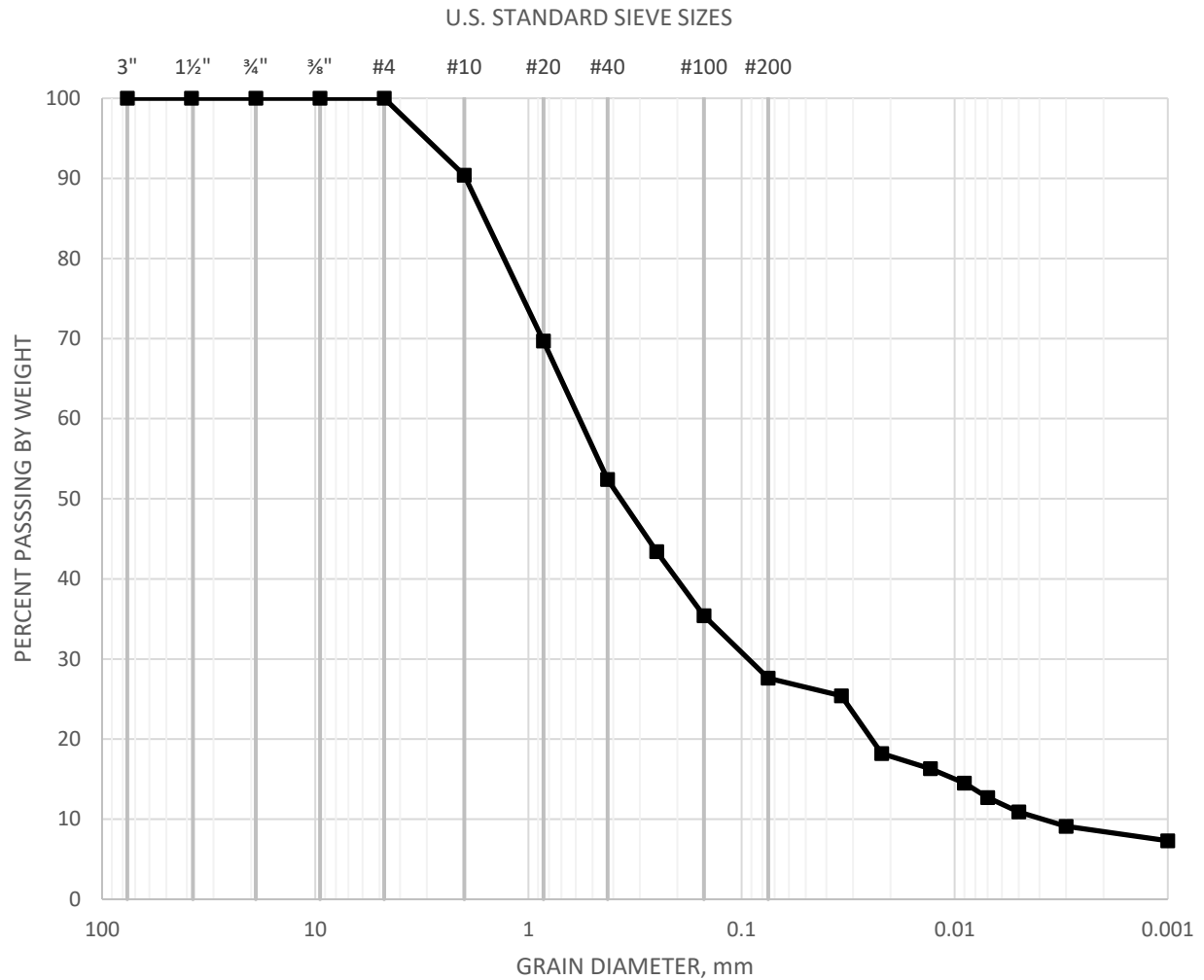
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 26

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@69.5'	Sand with Silt	72.4	16.7	10.9



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

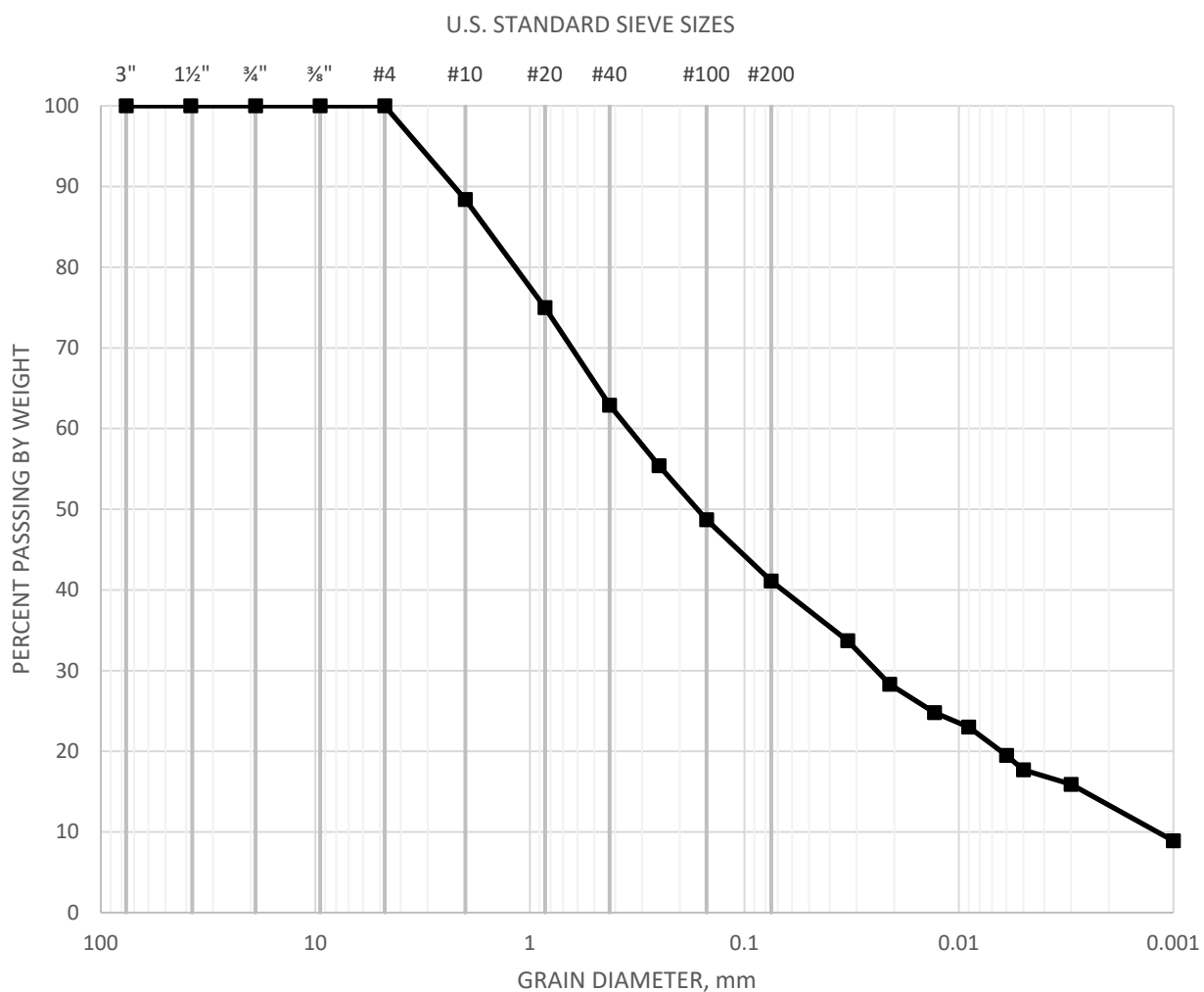
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B27

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@75'	Silty, Clayey Sand	58.9	23.4	17.7



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

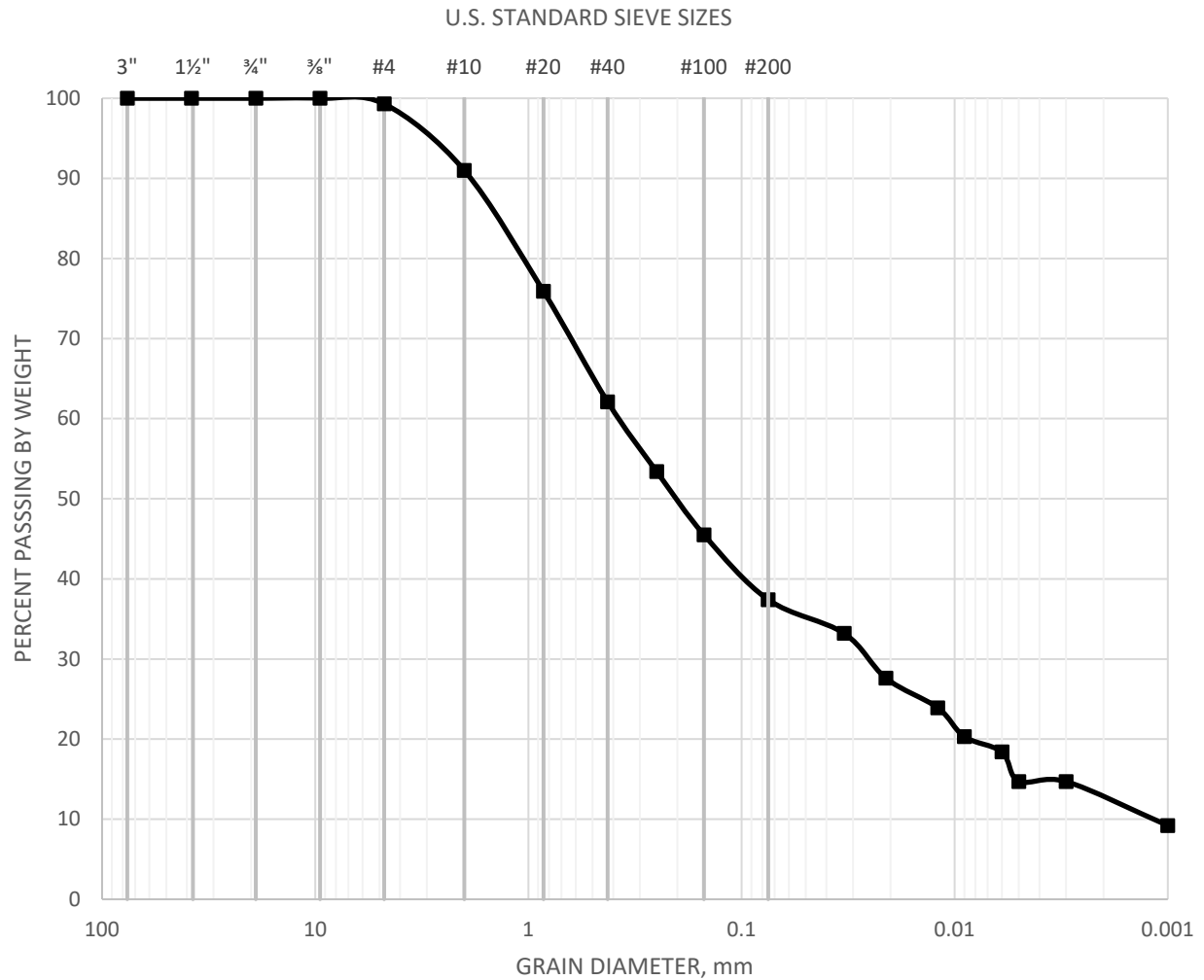
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 28

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@80'	Sand with Silt	61.9	22.7	14.7



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

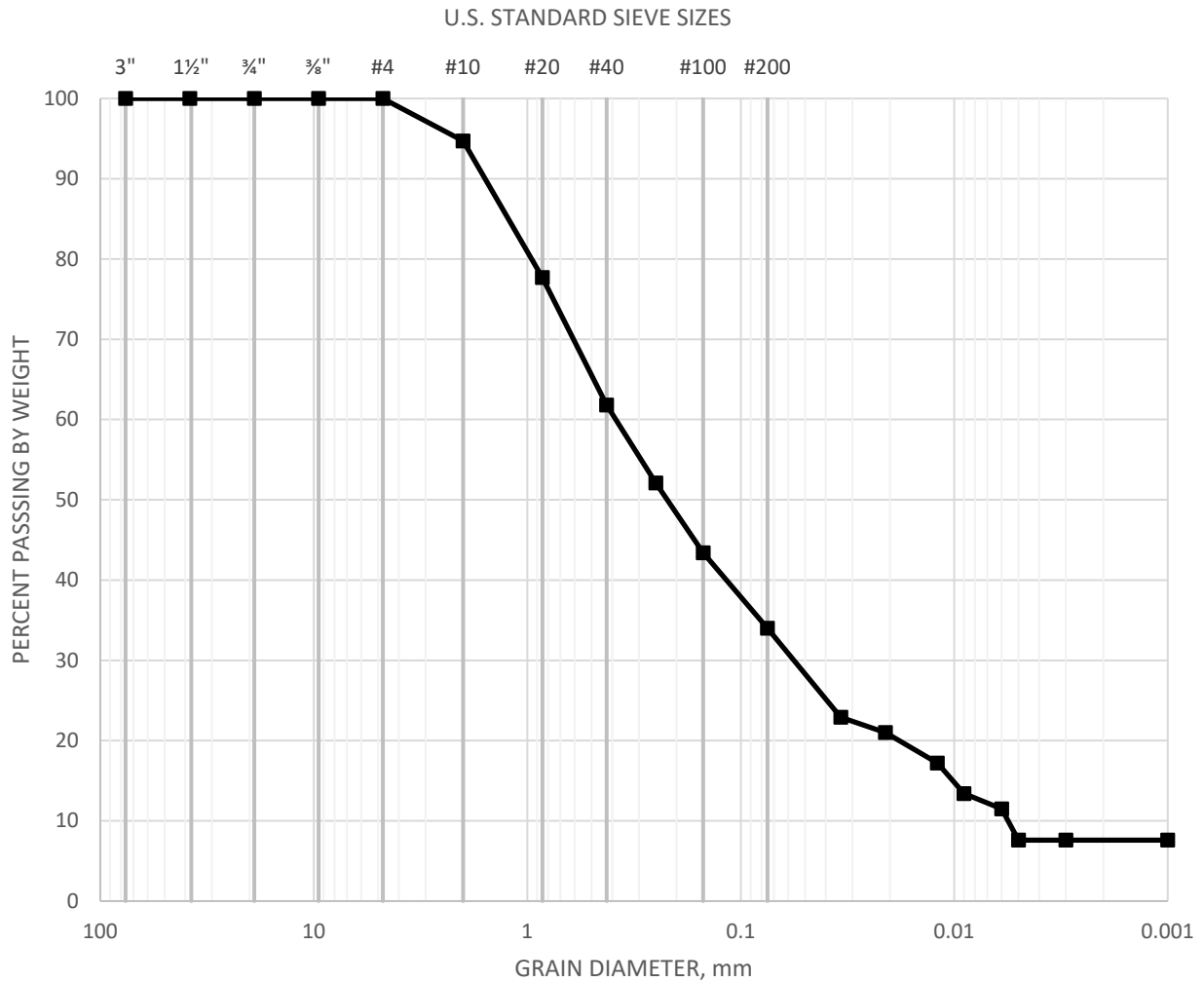
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 29

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B4@85'	Sand with Silt	66	26.4	7.6



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

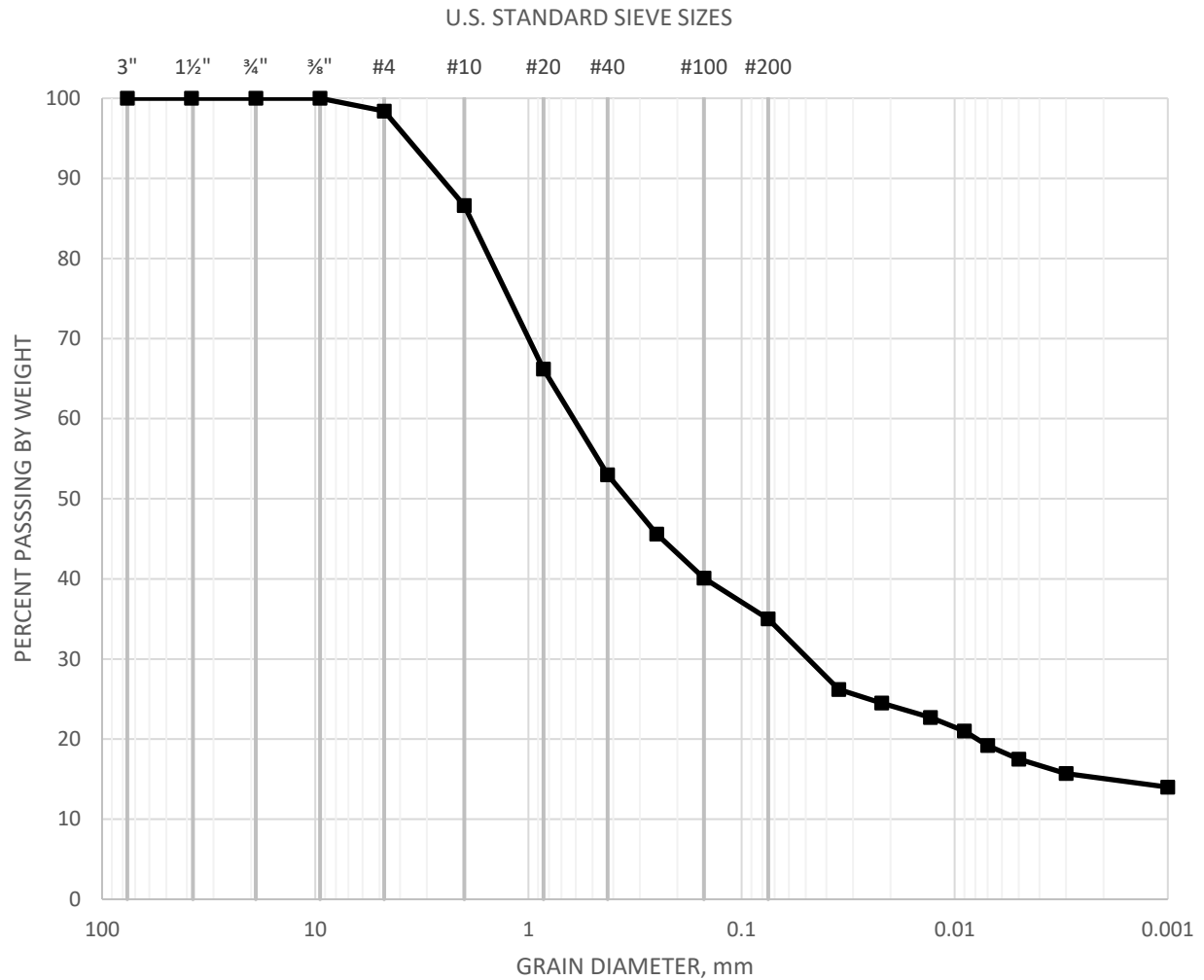
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 30

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B5@30'	Silty, Clayey Sand	63.4	17.5	17.5



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

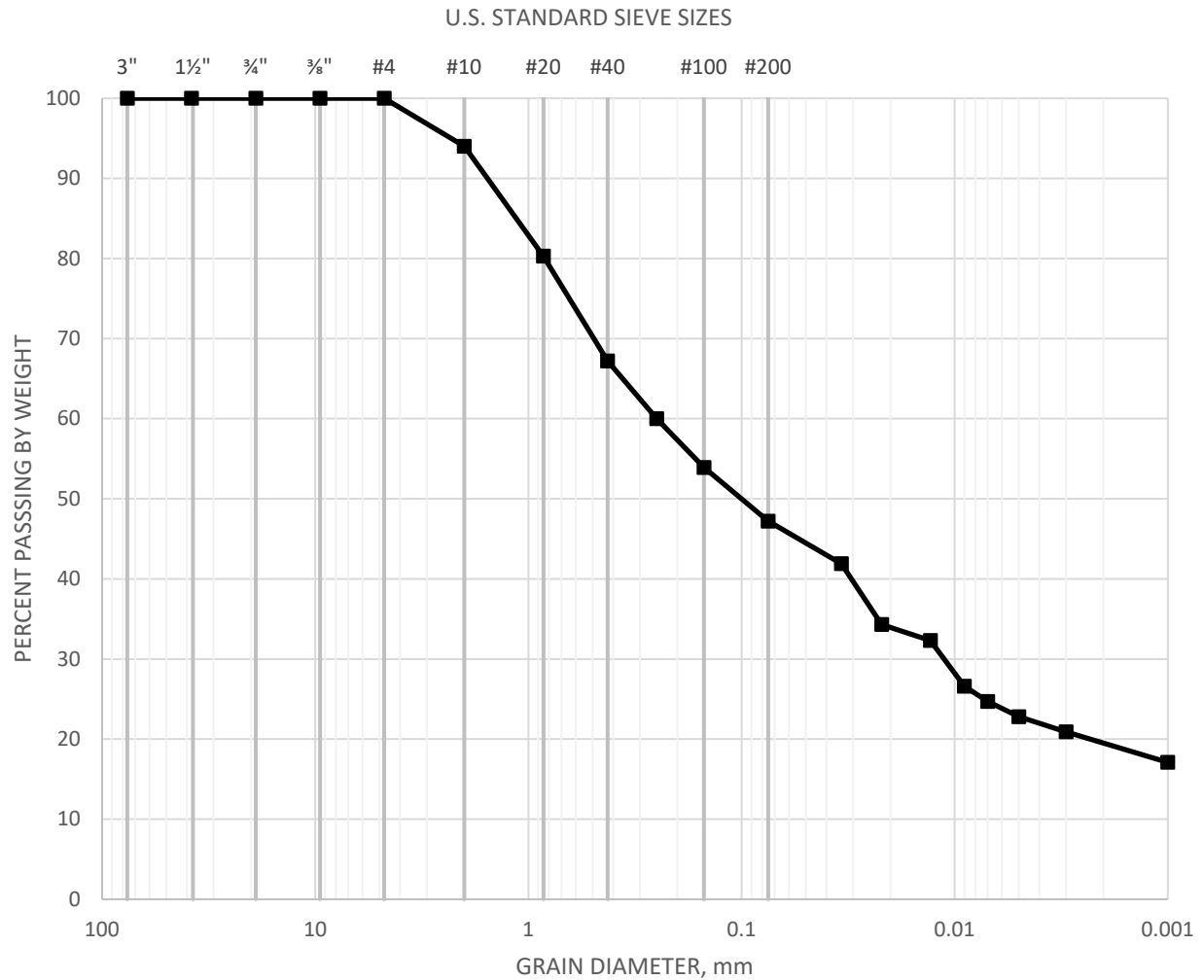
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B31

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B5@40'	Silty, Clayey Sand	52.8	24.4	22.8



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

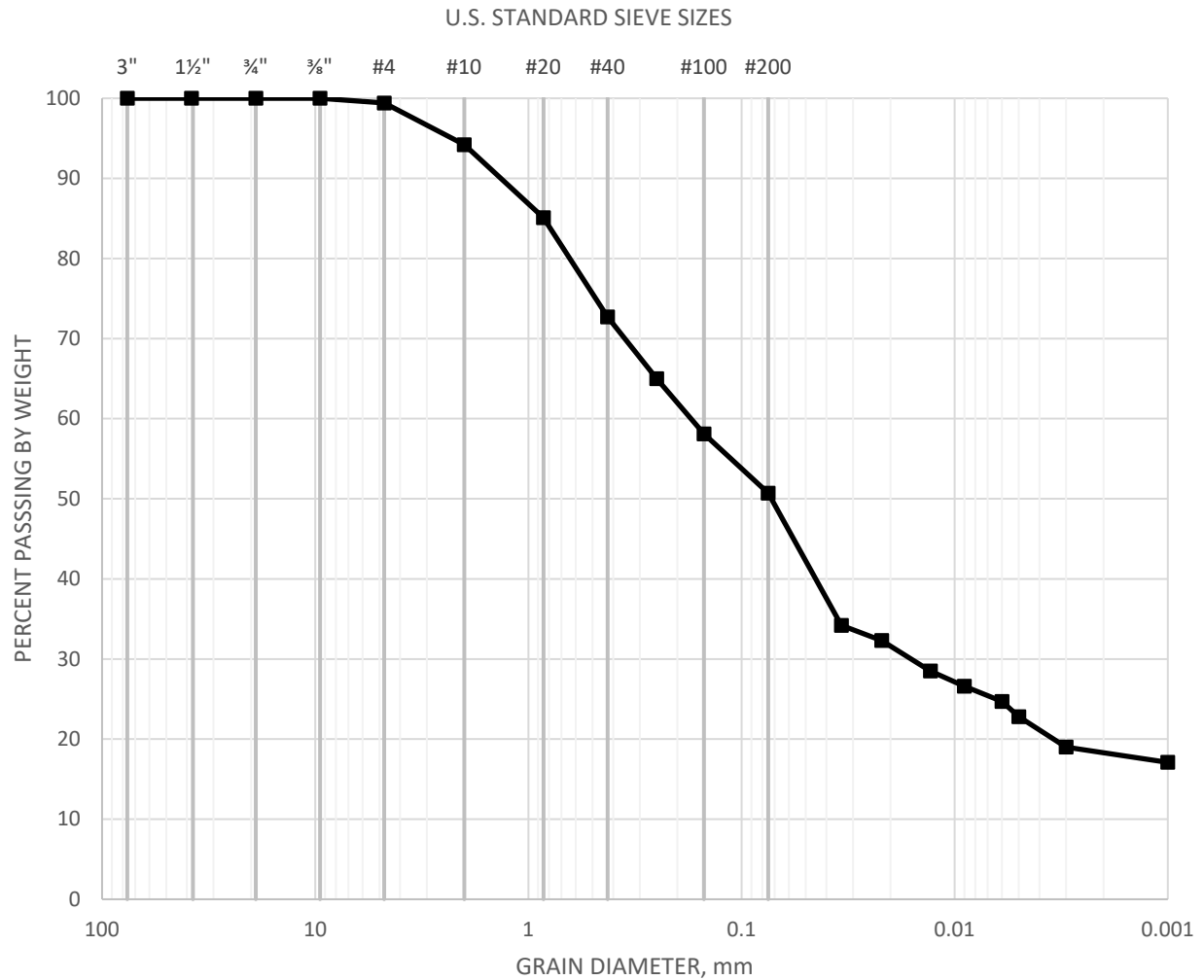
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 32

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B5@50'	Sandy, Silty Clay	48.7	27.9	22.8



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

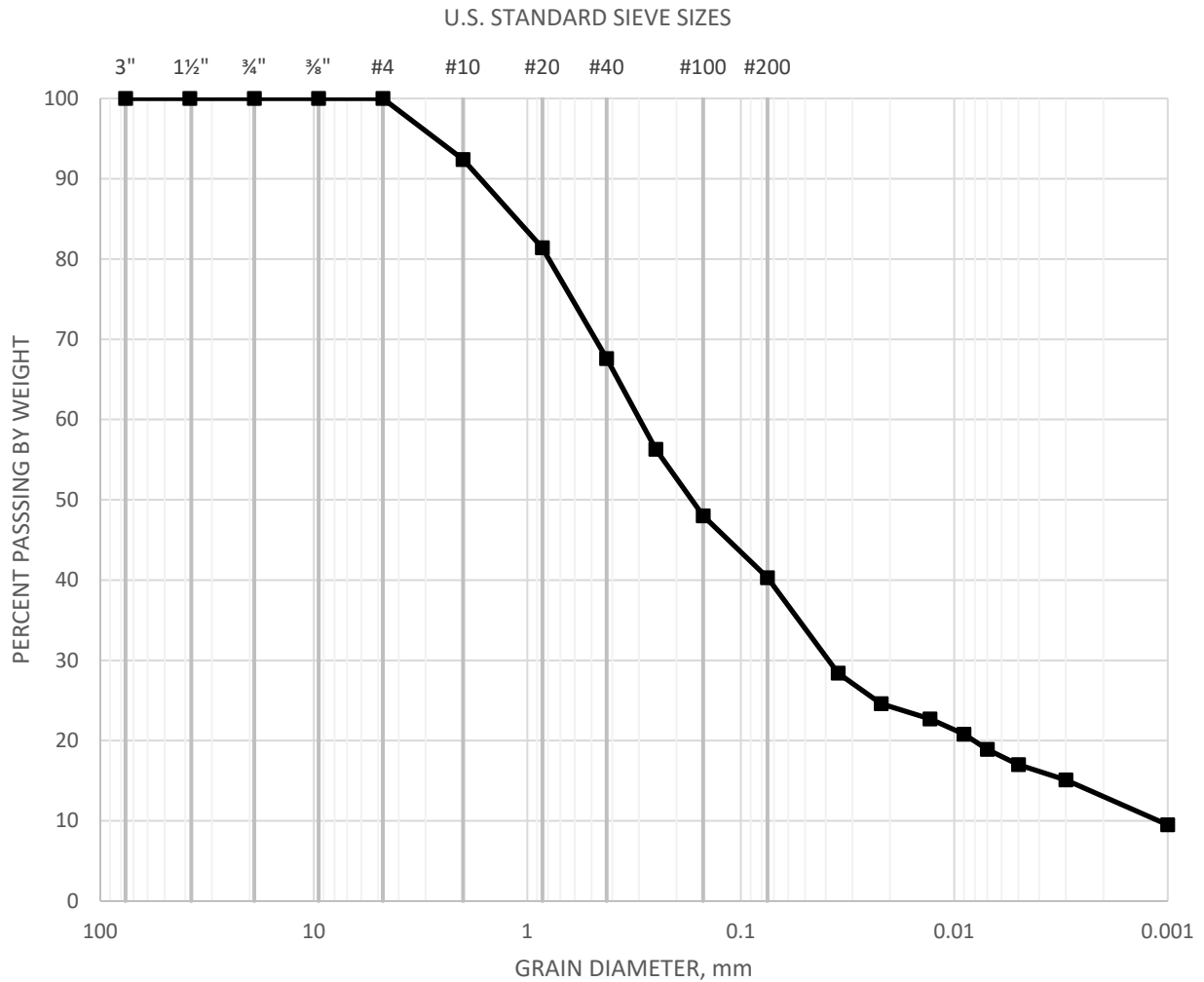
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 33

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B5@60'	Silty, Clayey Sand	59.7	23.3	17



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

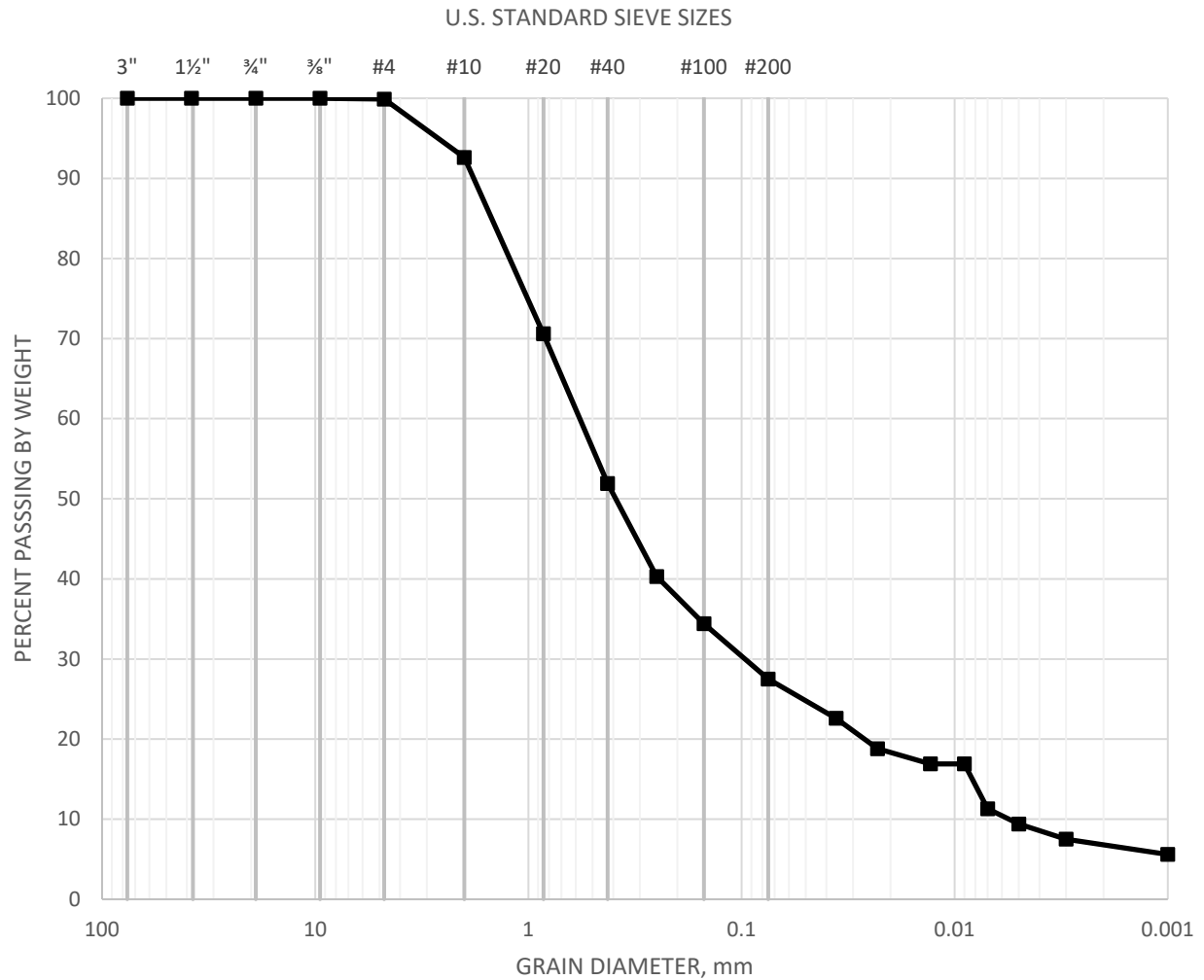
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 34

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B5@70'	Sand with Silt	72.4	18.1	9.4



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

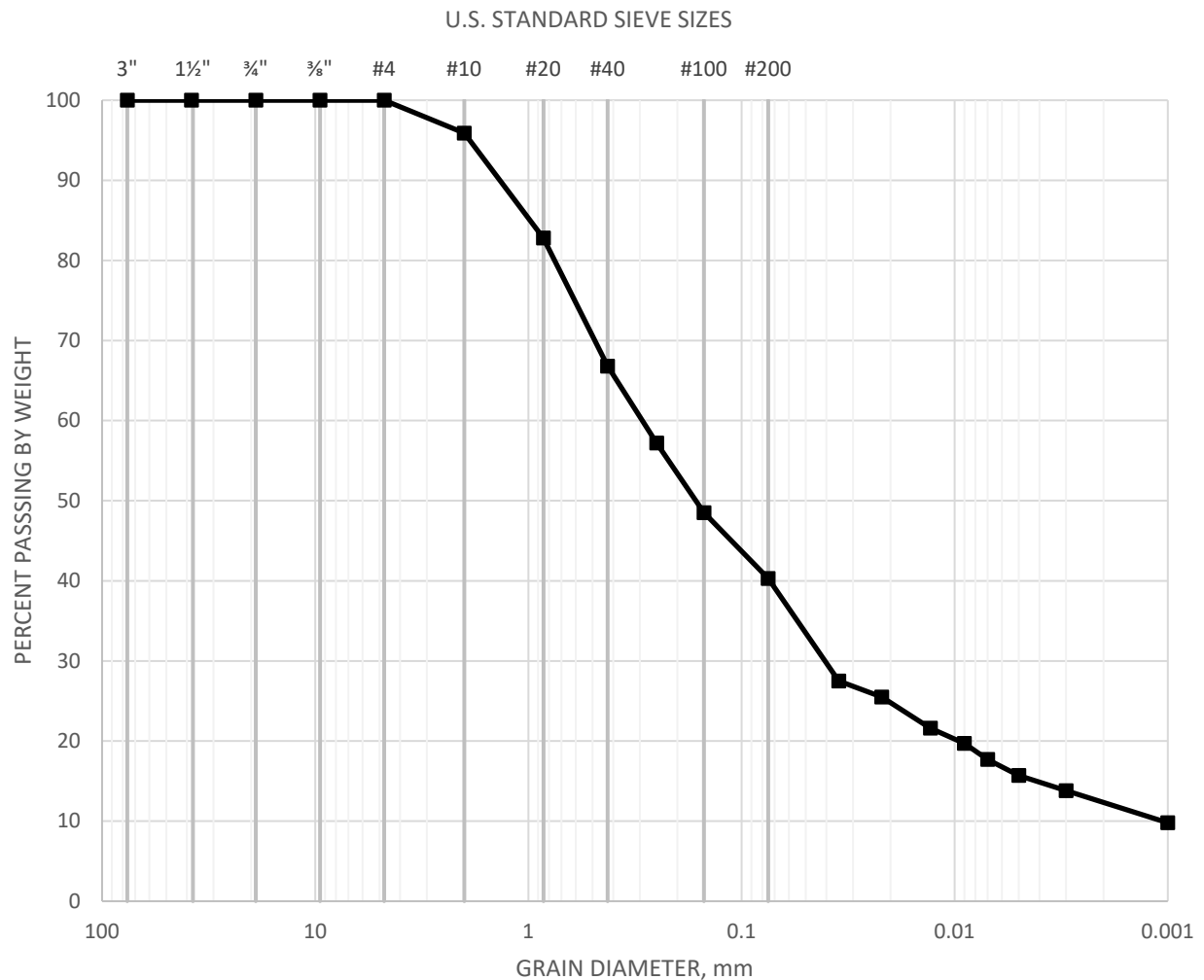
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 35

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B5@80'	Silty, Clayey Sand	59.7	24.6	15.7



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

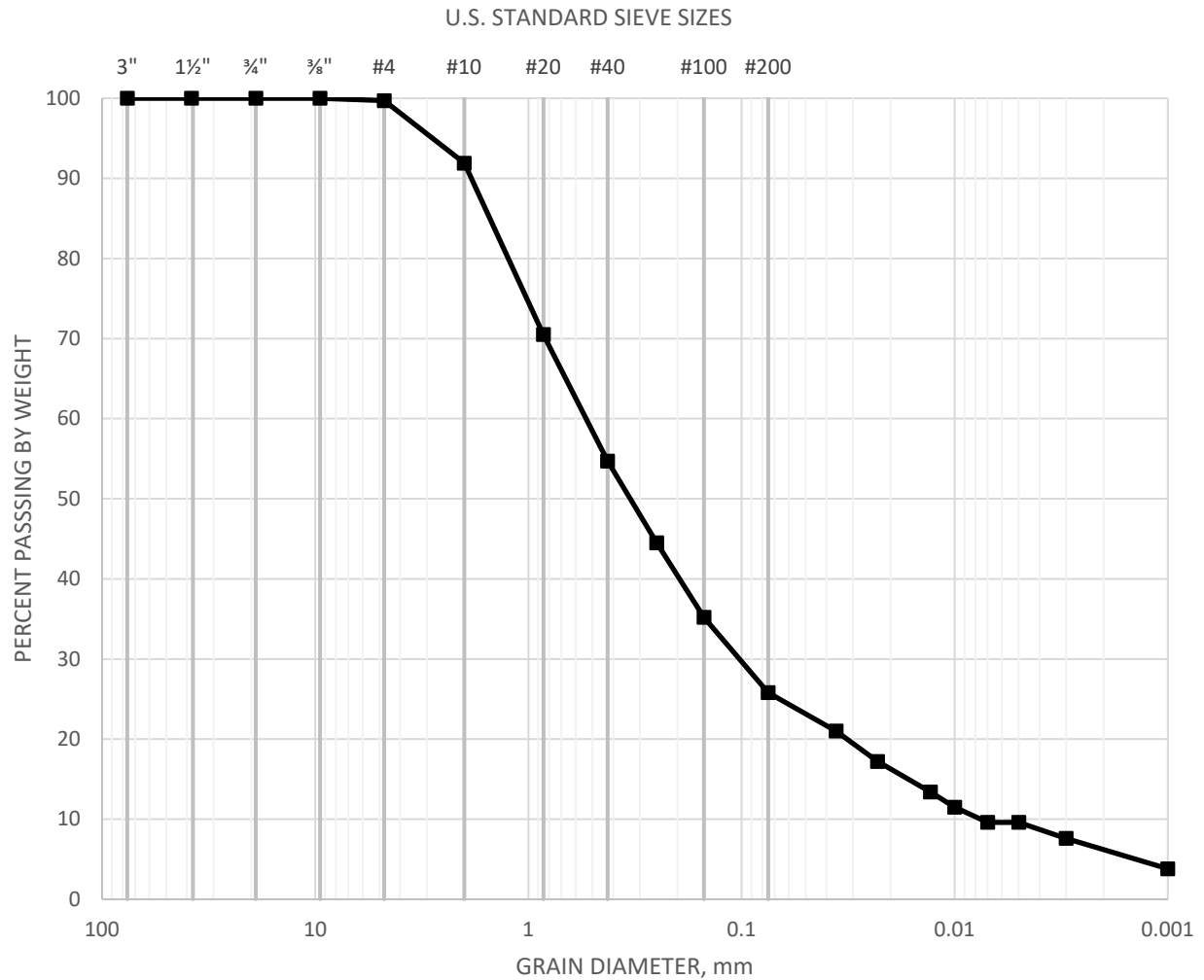
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

Figure B 36

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



SAMPLE	CLASSIFICATION	Sand	Silt	Clay
		%		
B5@90'	Sand with Silt	73.9	16.2	9.6



GRAIN SIZE DISTRIBUTION WITH HYDROMETER

ASTM D-422

Checked by: JTA

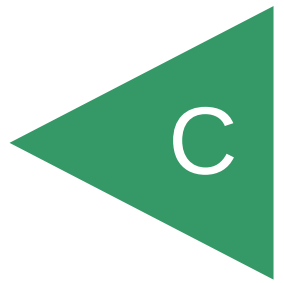
Project No.: A9899-06-01

8850 SUNSET BOULEVARD
WEST HOLLYWOOD, CA

SEPT 23

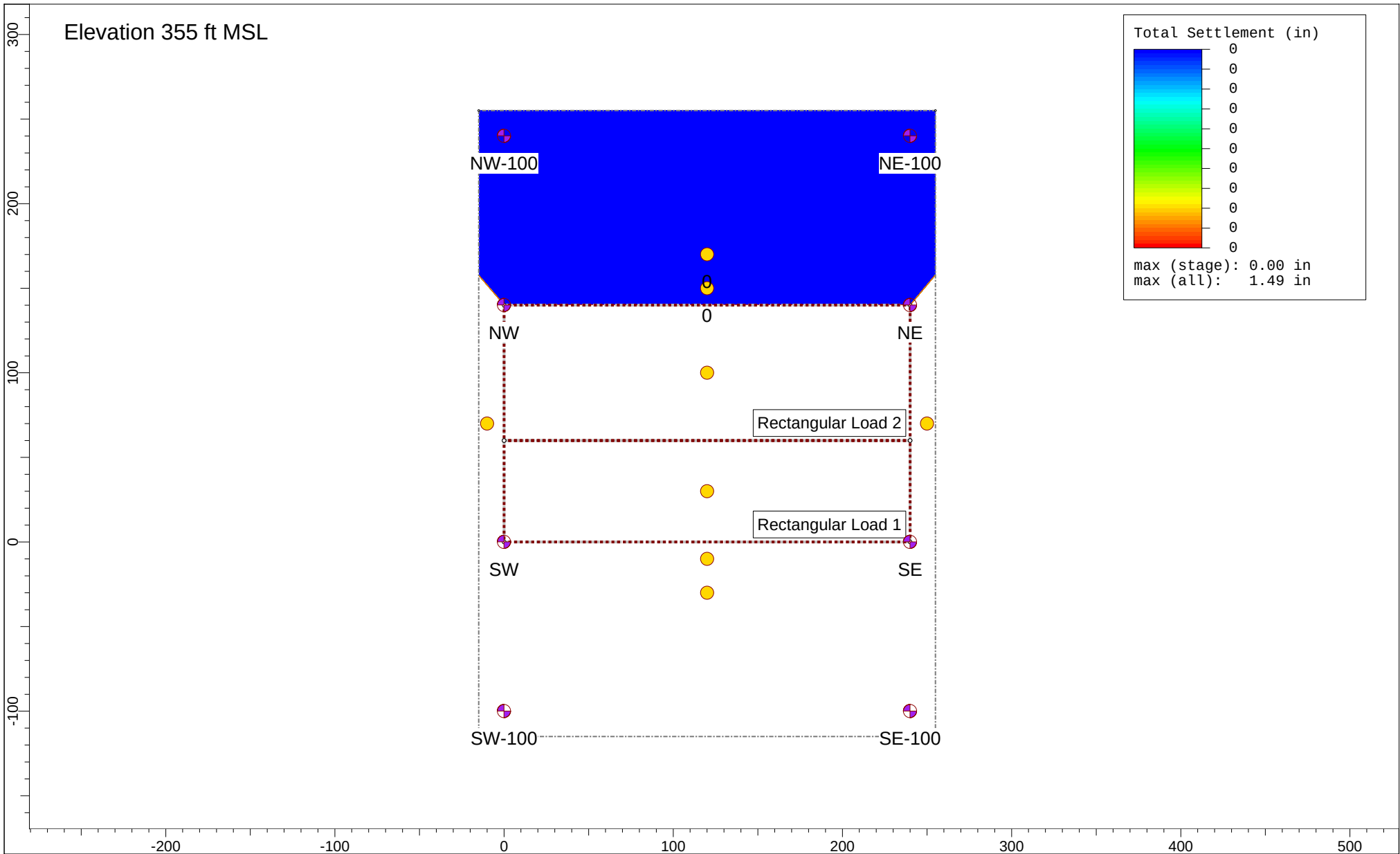
Figure B 37

APPENDIX



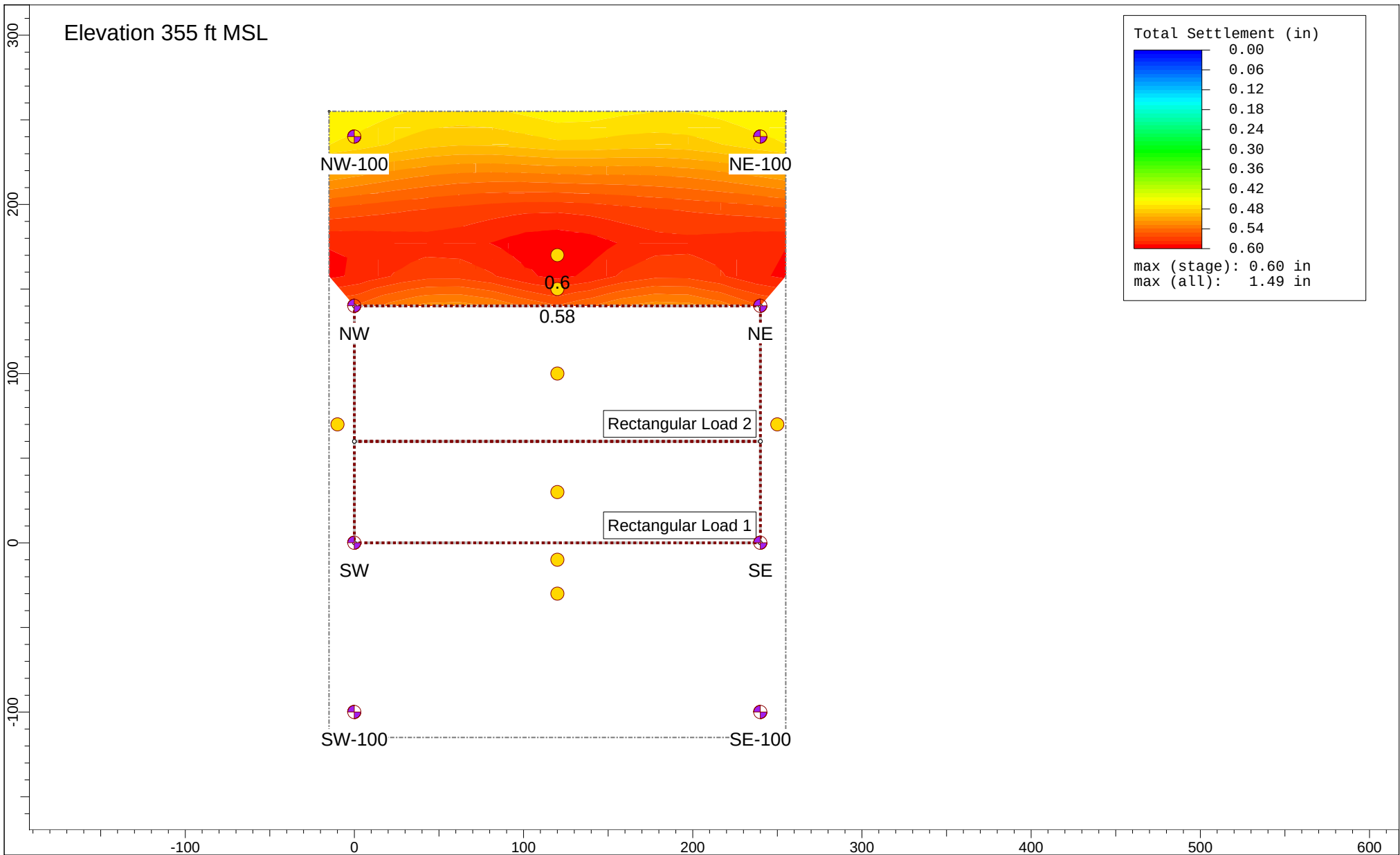
APPENDIX C

DESIGN OPTION 1 (TIERED FOUNDATION DESIGN) OUTPUT FROM SETTLE 3



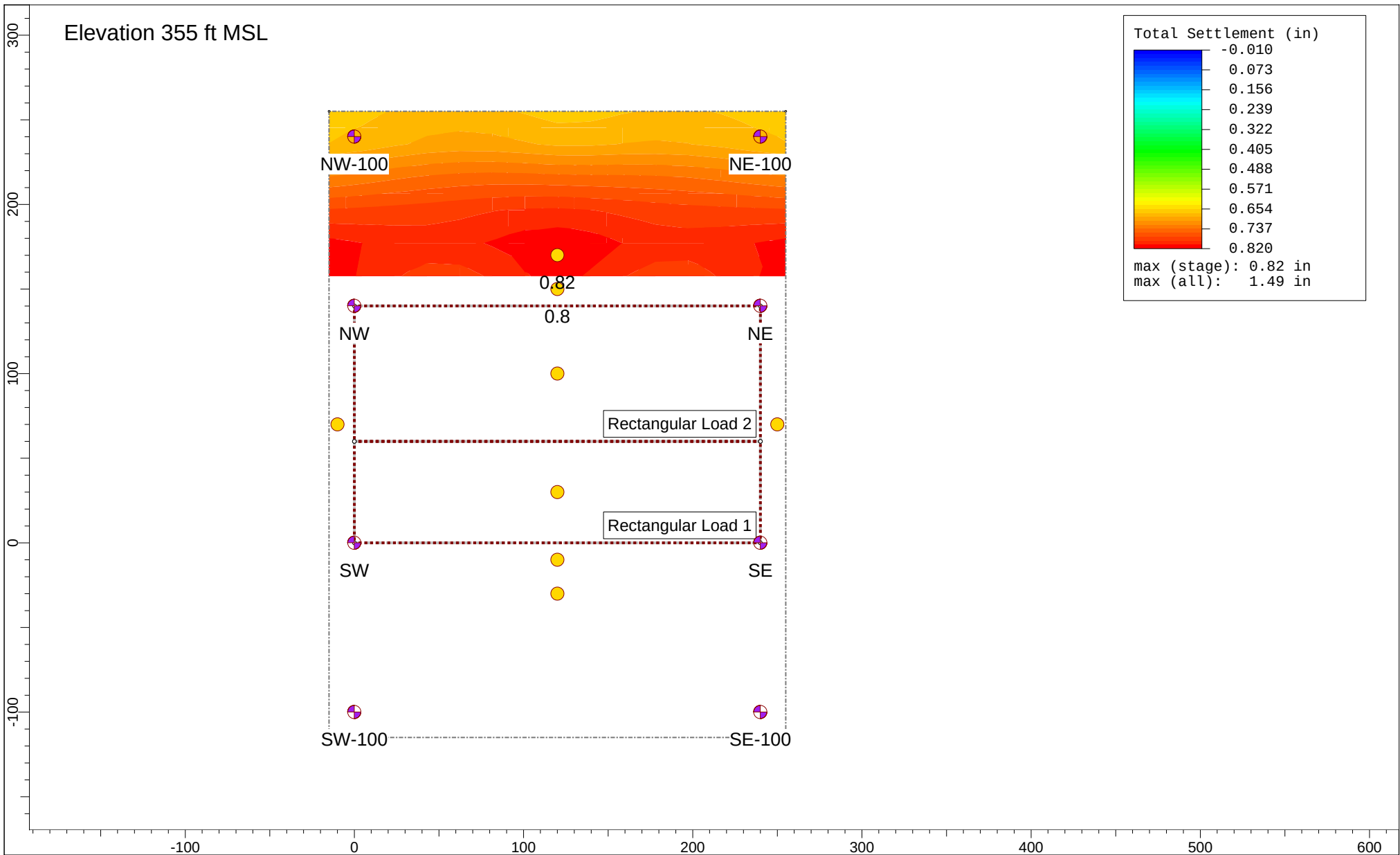
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	Analysis Description		Design Option 1 (Tiered Foundation Design), Scenario 3	
	Drawn By		JTA	Stage Stage 1 - Initial = 0 y
	Date		7/30/2022, 9:43:51 PM	File Name A9899-06-01 V4_4_2_1.s3z

Figure C1



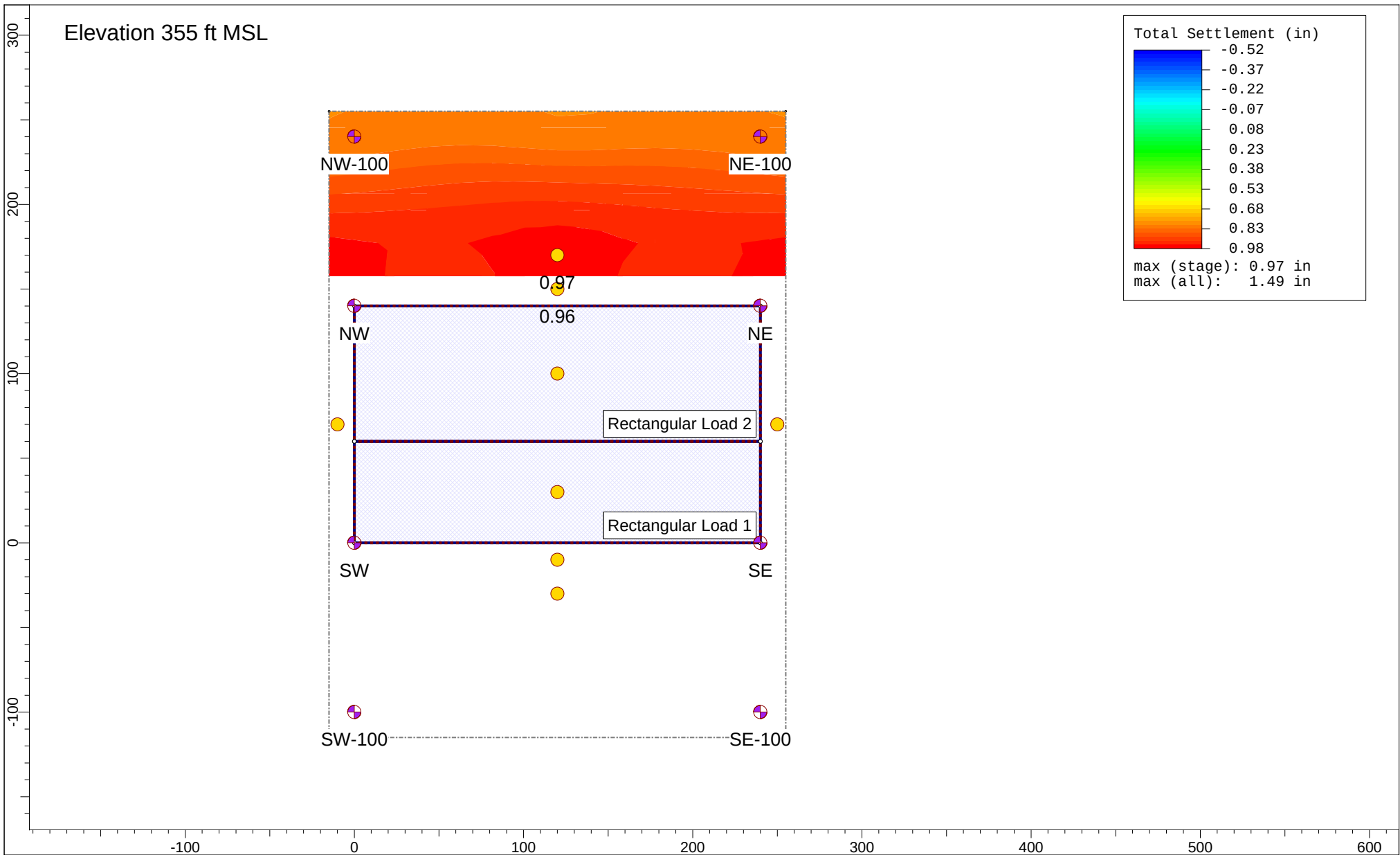
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	Analysis Description		Design Option 1 (Tiered Foundation Design), Scenario 3	
	Drawn By		JTA	Stage Stage 2 - Dewater = 0.083 y
	Date		7/30/2022, 9:44:01 PM	File Name A9899-06-01 V4_4_2_1.s3z

Figure C2



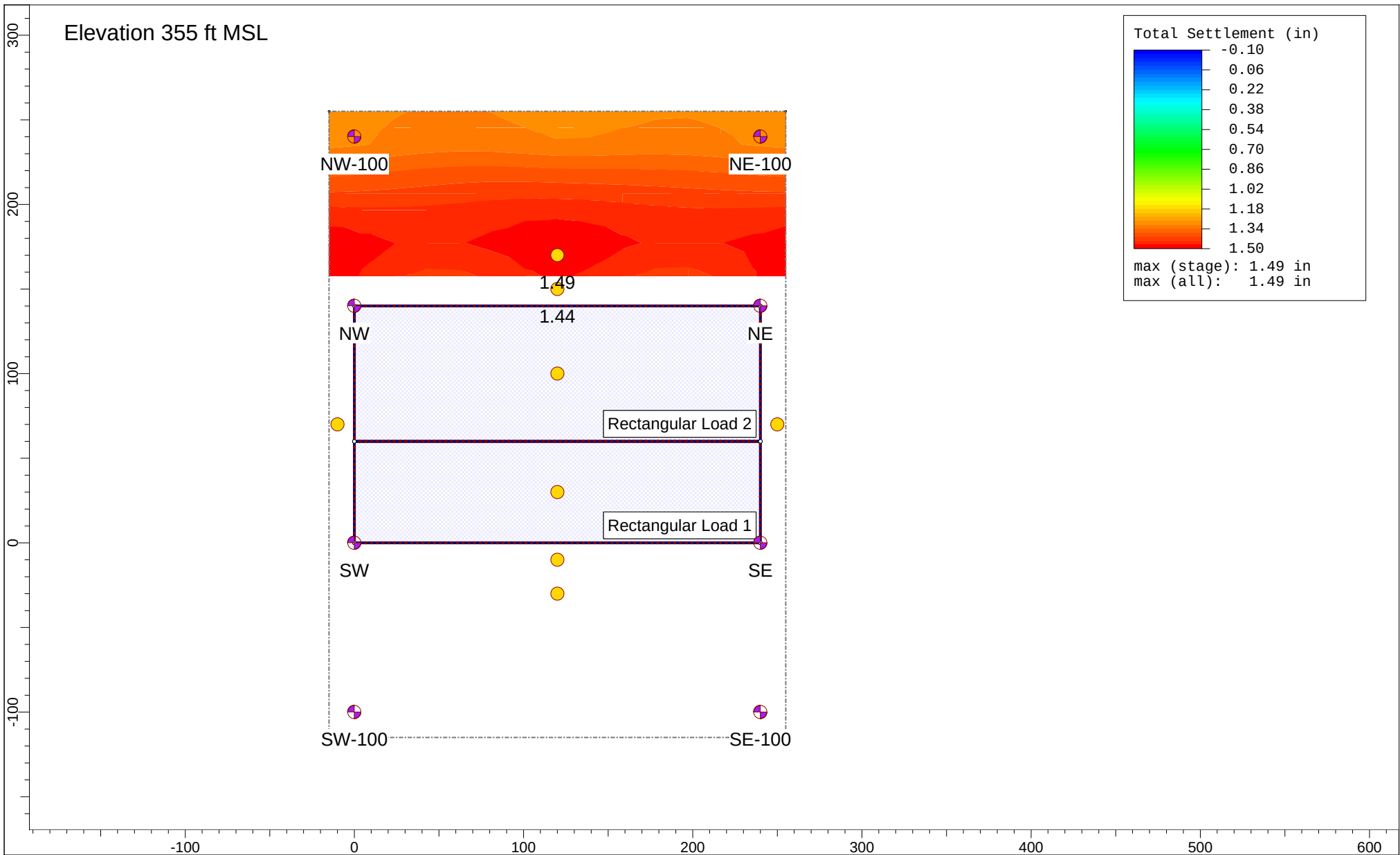
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	Analysis Description		Design Option 1 (Tiered Foundation Design), Scenario 3	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:44:07 PM	Stage 3 - Excavation = 0.167 y
SETTLE3 5.016			File Name	A9899-06-01 V4_4_2_1.s3z

Figure C3



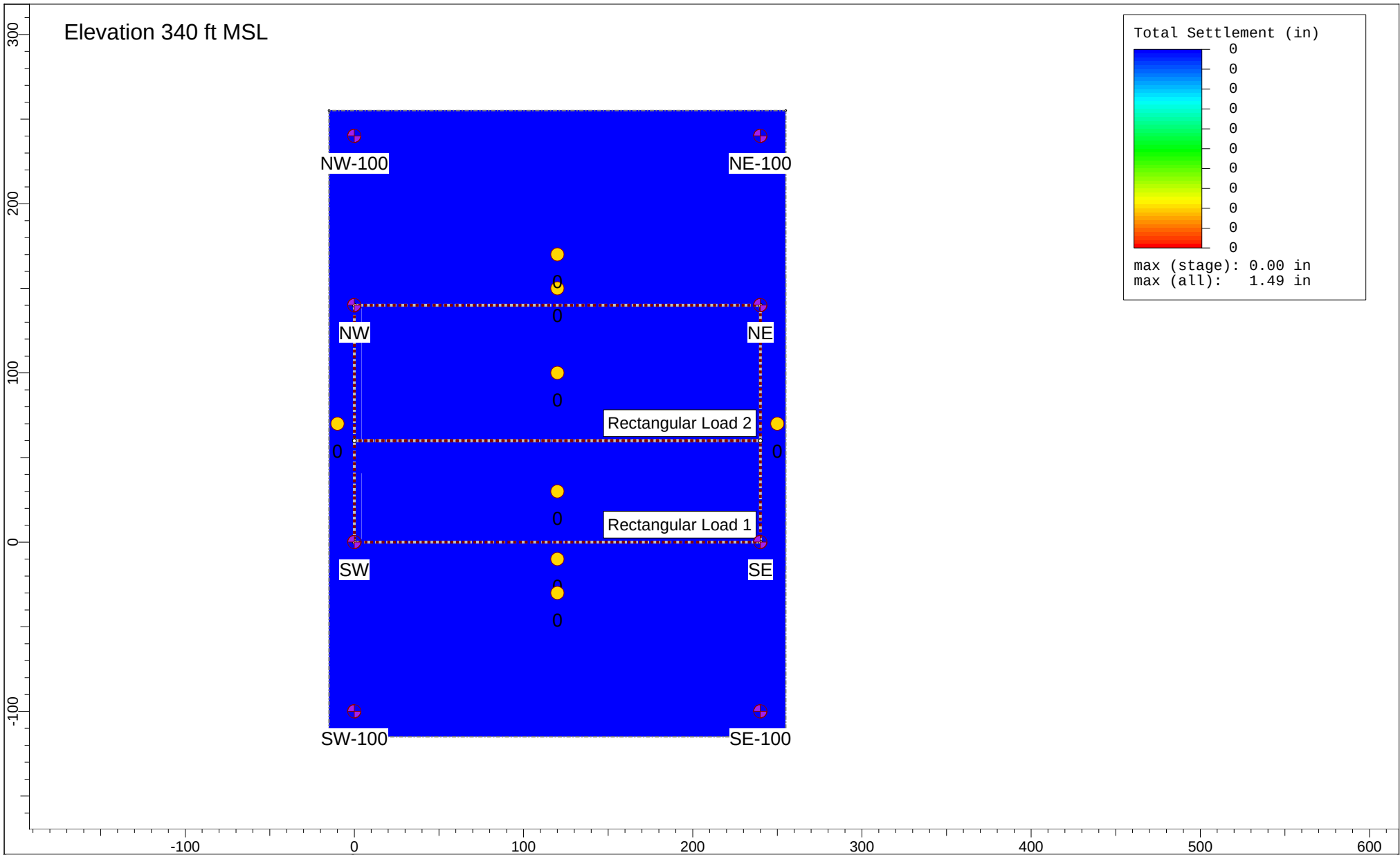
 SETTLE3.5.016	Project		8850 Sunset	
	Analysis Description			
	Design Option 1 (Tiered Foundation Design), Scenario 3			
	Drawn By		Stage	
	JTA		Stage 4 - Foundation Loading = 0.333 y	
Date	7/30/2022, 9:44:15 PM		File Name	A9899-06-01 V4_4_2_1.s3z

Figure C4



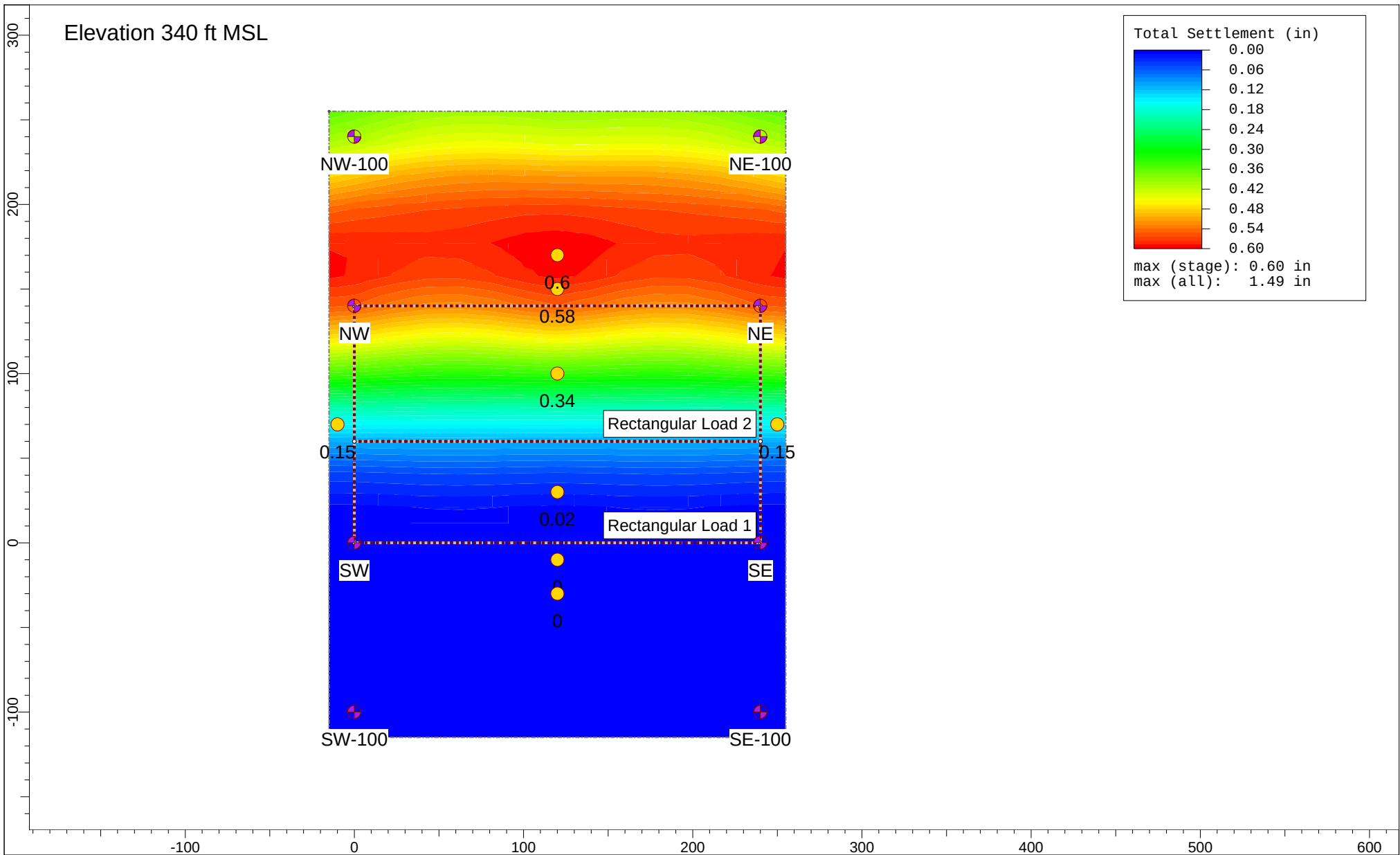
 SETTLE3 5.016	Project		8850 Sunset	
	Analysis Description			
	Design Option 1 (Tiered Foundation Design), Scenario 3			
	Drawn By		Stage	
	JTA		Stage 5 - End of Dewatering = 2 y	
Date		File Name		
7/30/2022, 9:44:22 PM		A9899-06-01 V4_4_2_1.s3z		

Figure C5



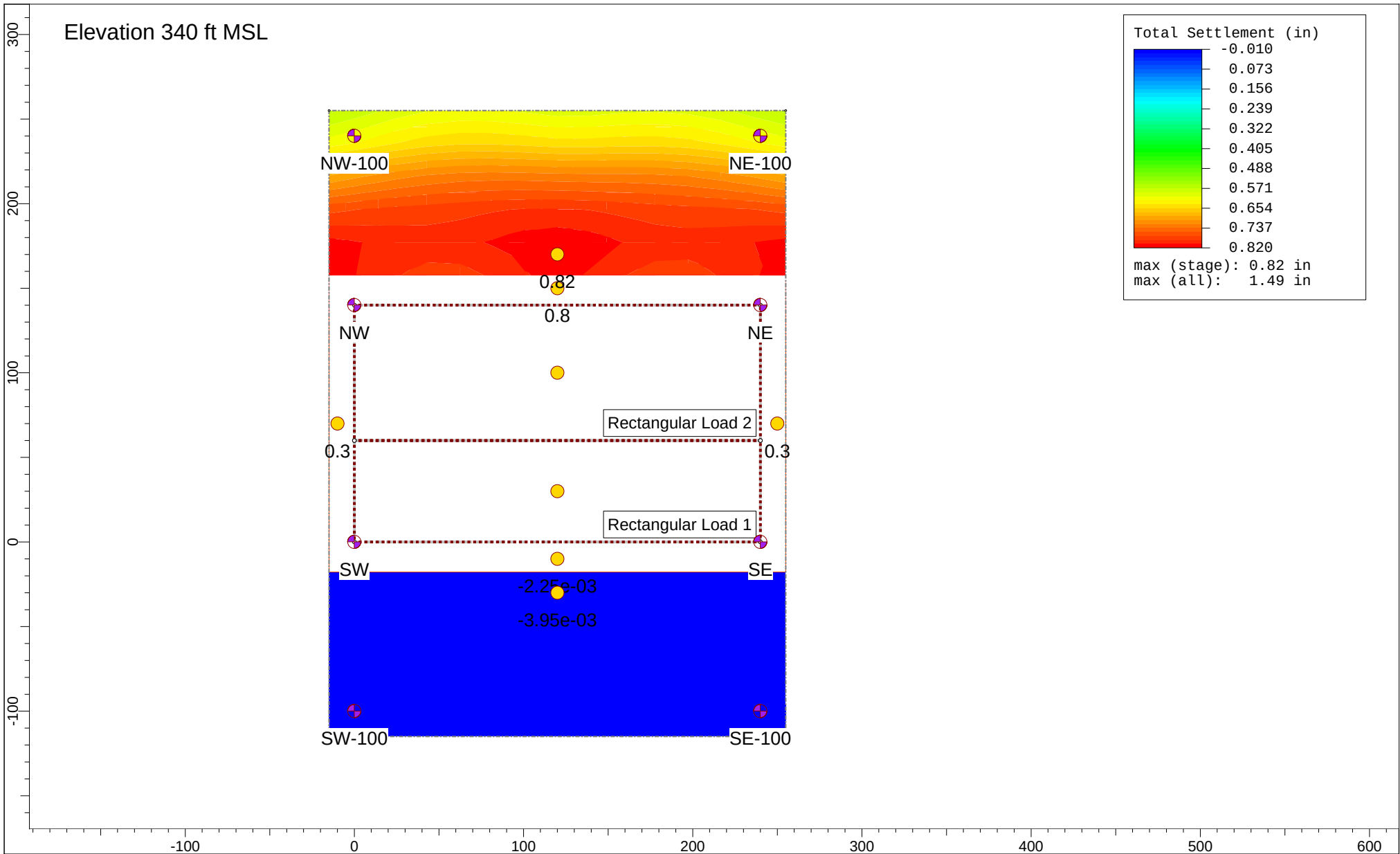
 SETTLE3 5.016	Project		8850 Sunset	
	Analysis Description			
	Design Option 1 (Tiered Foundation Design), Scenario 3			
	Drawn By		Stage	
	JTA		Stage 1 - Initial = 0 y	
Date	7/30/2022, 9:44:33 PM		File Name	A9899-06-01 V4_4_2_1.s3z

Figure C6



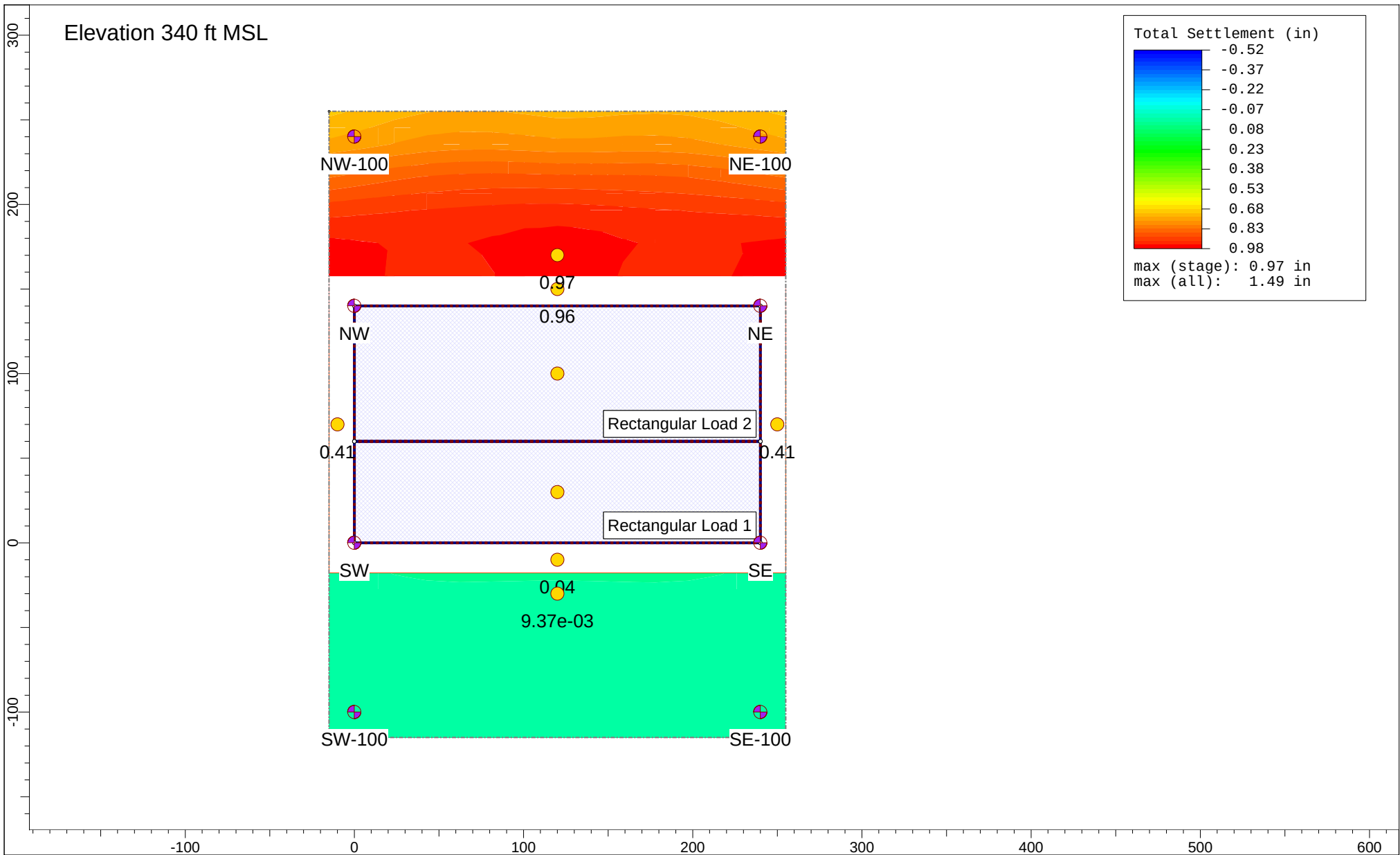
	Project		8850 Sunset	
	Analysis Description		Design Option 1 (Tiered Foundation Design), Scenario 3	
	Drawn By		JTA	Stage Stage 2 - Dewater = 0.083 y
	Date		7/30/2022, 9:44:39 PM	File Name A9899-06-01 V4_4_2_1.s3z

Figure C7



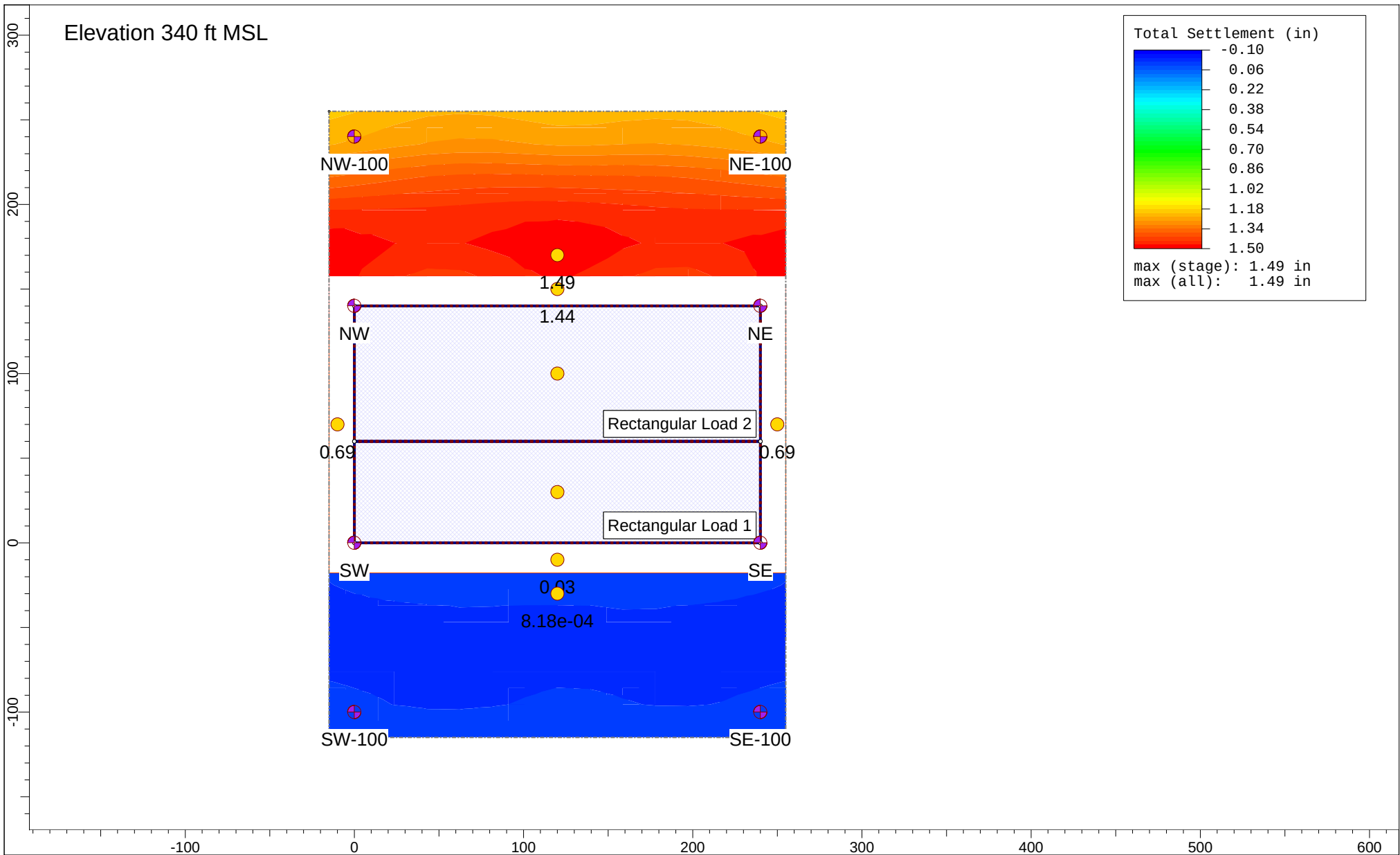
	Project			8850 Sunset	
	Analysis Description			Design Option 1 (Tiered Foundation Design), Scenario 3	
	Drawn By			JTA	Stage 3 - Excavation = 0.167 y
	Date			7/30/2022, 9:44:47 PM	File Name
					A9899-06-01 V4_4_2_1.s3z

Figure C8



	Project		8850 Sunset	
	Analysis Description		Design Option 1 (Tiered Foundation Design), Scenario 3	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:44:53 PM	Stage 4 - Foundation Loading = 0.333 y
File Name		A9899-06-01 V4_4_2_1.s3z		

Figure C9



	Project		8850 Sunset	
	Analysis Description		Design Option 1 (Tiered Foundation Design), Scenario 3	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:45:02 PM	Stage 5 - End of Dewatering = 2 y
File Name		A9899-06-01 V4_4_2_1.s3z		

Figure C10

Settle3 Analysis Information

8850 Sunset

Project Settings

Document Name	A9899-06-01 V4_4_2_1.s3z
Project Title	8850 Sunset
Analysis	Design Option 1 (Tiered Foundation Design), Scenario 3
Author	JTA
Date Created	5/18/2022, 8:38:53 AM
Last saved with Settle3 version	5.015
Stress Computation Method	Boussinesq
Stress Units	Imperial, stress as ksf
Settlement Units	inches
Time-dependent Consolidation Analysis	
Time Units	years
Permeability Units	feet/year

Advanced Settings

Start of secondary consolidation (% of primary)	95
Min. stress for secondary consolidation (% of initial)	1
Reset time when load changes for secondary consolidation	No
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Update Cv in each time step (improves consolidation accuracy)	
Ignore negative effective stresses in settlement calculations	
Add field points to load edges	

Soil Profile

Layer Option	Non-Horizontal Layers
Interpolation Method	Linear By Elevation
Use Non-Horizontal Ground Surface	Yes
Number of Surface Points	200
Vertical Axis	Elevation
Ground Elevation (ft)	355

Stage Settings

Stage #	Name	Time [years]
1	Initial	0
2	Dewater	0.083
3	Excavation	0.167
4	Foundation Loading	0.333
5	End of Dewatering	2

Results

Time taken to compute: 0 seconds

Stage: Initial = 0 y

Data Type		Minimum	Maximum
Total Settlement [in]	0		0
Total Consolidation Settlement [in]	0		0
Virgin Consolidation Settlement [in]	0		0
Recompression Consolidation Settlement [in]	0		0
Immediate Settlement [in]	0		0
Secondary Settlement [in]	0		0
Loading Stress ZZ [ksf]	0		0
Loading Stress XX [ksf]	0		0
Loading Stress YY [ksf]	0		0
Effective Stress ZZ [ksf]	0		12.7383
Effective Stress XX [ksf]	0		12.7383
Effective Stress YY [ksf]	0		12.7383
Total Stress ZZ [ksf]	0		21.2
Total Stress XX [ksf]	0		21.2
Total Stress YY [ksf]	0		21.2
Modulus of Subgrade Reaction (Total) [ksf/ft]	0		0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0		0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0		0
Total Strain	0		0
Pore Water Pressure [ksf]	0		8.59379
Excess Pore Water Pressure [ksf]	0		0
Degree of Consolidation [%]	0		0
Pre-consolidation Stress [ksf]	0.0233266		12.734
Over-consolidation Ratio	1		1
Void Ratio	1.1		1.1
Permeability [ft/y]	2.13054e-07		6.76999
Coefficient of Consolidation [ft ² /y]	0.1		214
Hydroconsolidation Settlement [in]	0		0
Average Degree of Consolidation [%]	0		0
Undrained Shear Strength	0		0

Stage: Dewater = 0.083 y

Data Type	Minimum	Maximum
Total Settlement [in]	0	0.599308
Total Consolidation Settlement [in]	0	0.599308
Virgin Consolidation Settlement [in]	0	0.599308
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	12.7383
Effective Stress XX [ksf]	0	14.0705
Effective Stress YY [ksf]	0	14.0705
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	22.4726
Total Stress YY [ksf]	0	22.4726
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0.00340099
Pore Water Pressure [ksf]	0	8.59379
Excess Pore Water Pressure [ksf]	-0.101833	1.50376
Degree of Consolidation [%]	0	25.4667
Pre-consolidation Stress [ksf]	0.0233266	12.734
Over-consolidation Ratio	1	1
Void Ratio	1.09286	1.1
Permeability [ft/y]	2.13054e-07	6.76999
Coefficient of Consolidation [ft ² /y]	0.1	214
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.070537	0.00348541

Stage: Excavation = 0.167 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.004082	0.818218
Total Consolidation Settlement [in]	-0.004082	0.818218
Virgin Consolidation Settlement [in]	0	0.818218
Recompression Consolidation Settlement [in]	-0.004082	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-12.1044	0
Loading Stress XX [ksf]	-6.75927	1.32653
Loading Stress YY [ksf]	-11.3728	0.678448
Effective Stress ZZ [ksf]	0	12.7383
Effective Stress XX [ksf]	0	14.2231
Effective Stress YY [ksf]	-2.94105	13.8638
Total Stress ZZ [ksf]	-4.28973	21.078
Total Stress XX [ksf]	-8.0604	21.85
Total Stress YY [ksf]	-13.1122	21.6201
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	-8.00422e-05	0.00348223
Pore Water Pressure [ksf]	-10.1712	8.47178
Excess Pore Water Pressure [ksf]	-10.1712	1.50306
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.0233266	12.734
Over-consolidation Ratio	1	1.22564
Void Ratio	1.09269	1.10115
Permeability [ft/y]	2.13054e-07	6.76999
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.164073	0.0040502

Stage: Foundation Loading = 0.333 y

Figure C11

Data Type	Minimum	Maximum
Total Settlement [in]	-0.517184	0.972758
Total Consolidation Settlement [in]	-0.517184	0.972758
Virgin Consolidation Settlement [in]	0	0.991119
Recompression Consolidation Settlement [in]	-0.554295	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-3.05882	0.01
Loading Stress XX [ksf]	-1.9806	0.396318
Loading Stress YY [ksf]	-3.07753	1.15373
Effective Stress ZZ [ksf]	0	12.7371
Effective Stress XX [ksf]	-3.49488	14.6782
Effective Stress YY [ksf]	-4.64789	14.3526
Total Stress ZZ [ksf]	0	21.1687
Total Stress XX [ksf]	0	22.2206
Total Stress YY [ksf]	0	21.917
Modulus of Subgrade Reaction (Total) [ksf/ft]	-121143	1747.68
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-121143	1747.68
Total Strain	-0.028321	0.00348694
Pore Water Pressure [ksf]	0	9.54261
Excess Pore Water Pressure [ksf]	-0.307839	9.54261
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.0233266	12.734
Over-consolidation Ratio	1	897.895
Void Ratio	1.09268	1.15064
Permeability [ft/y]	2.13054e-07	6.76999
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.6717	0.0105199

Stage: End of Dewatering = 2 y

Figure C11

Data Type	Minimum	Maximum
Total Settlement [in]	-0.0203754	1.49485
Total Consolidation Settlement [in]	-0.0203754	1.49485
Virgin Consolidation Settlement [in]	0	1.49486
Recompression Consolidation Settlement [in]	-0.0507308	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-3.05882	0.01
Loading Stress XX [ksf]	-1.9806	0.396318
Loading Stress YY [ksf]	-3.07753	1.15373
Effective Stress ZZ [ksf]	0	12.737
Effective Stress XX [ksf]	0	14.6789
Effective Stress YY [ksf]	0	14.3532
Total Stress ZZ [ksf]	0	21.1687
Total Stress XX [ksf]	0	21.9049
Total Stress YY [ksf]	0	21.5801
Modulus of Subgrade Reaction (Total) [ksf/ft]	-2453.78	340.69
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-2453.78	340.69
Total Strain	-0.0271581	0.00372384
Pore Water Pressure [ksf]	-4.44089e-16	8.56299
Excess Pore Water Pressure [ksf]	-1.50376	2.6093
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.0233266	12.734
Over-consolidation Ratio	1	1.14063
Void Ratio	1.09218	1.12784
Permeability [ft/y]	2.13054e-07	6.76999
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.156424	0.0533232

Loads

1. Rectangular Load: "Rectangular Load 1"

Length	240 ft
Width	60 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	14400 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	0
240	0
240	60
0	60

2. Rectangular Load: "Rectangular Load 2"

Length	240 ft
Width	80 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	19200 ft ²
Load	6.5 ksf
Elevation	284 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Excavations

1. Excavation: "Excavation 1"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
240	0
240	60
0	60
0	0

2. Excavation: "Excavation 2"

Elevation 284 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Soil Layers

Ground Surface Drained: Yes

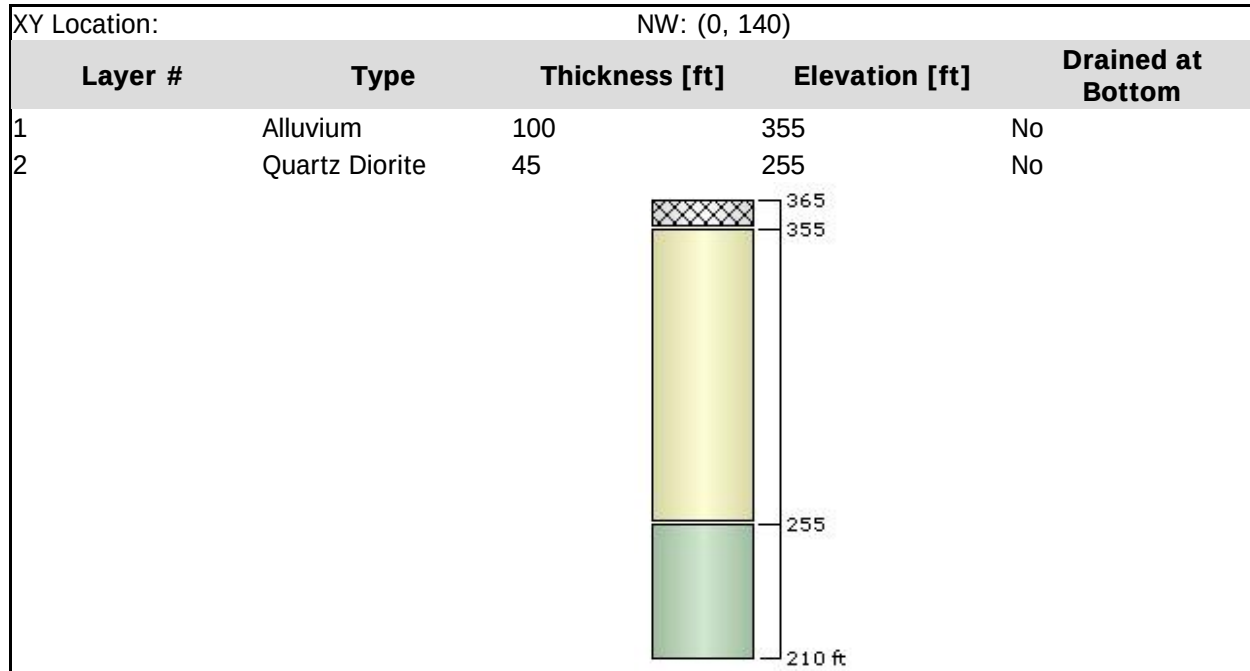
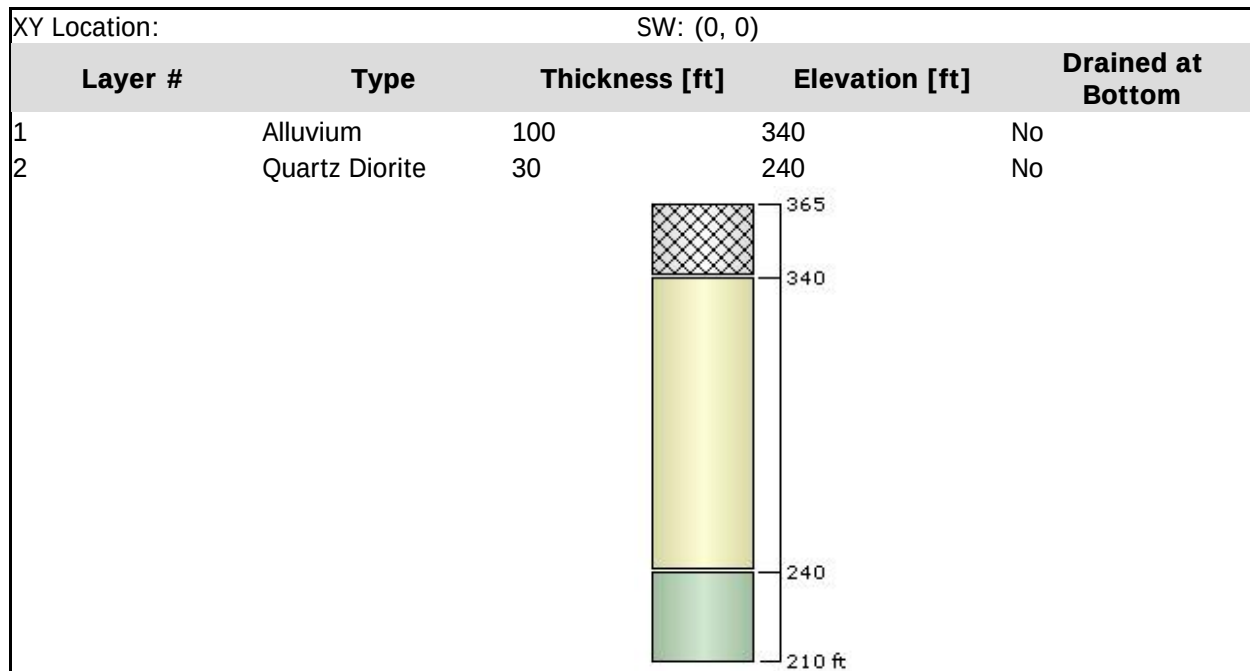
NW

SW

SE

Figure C11

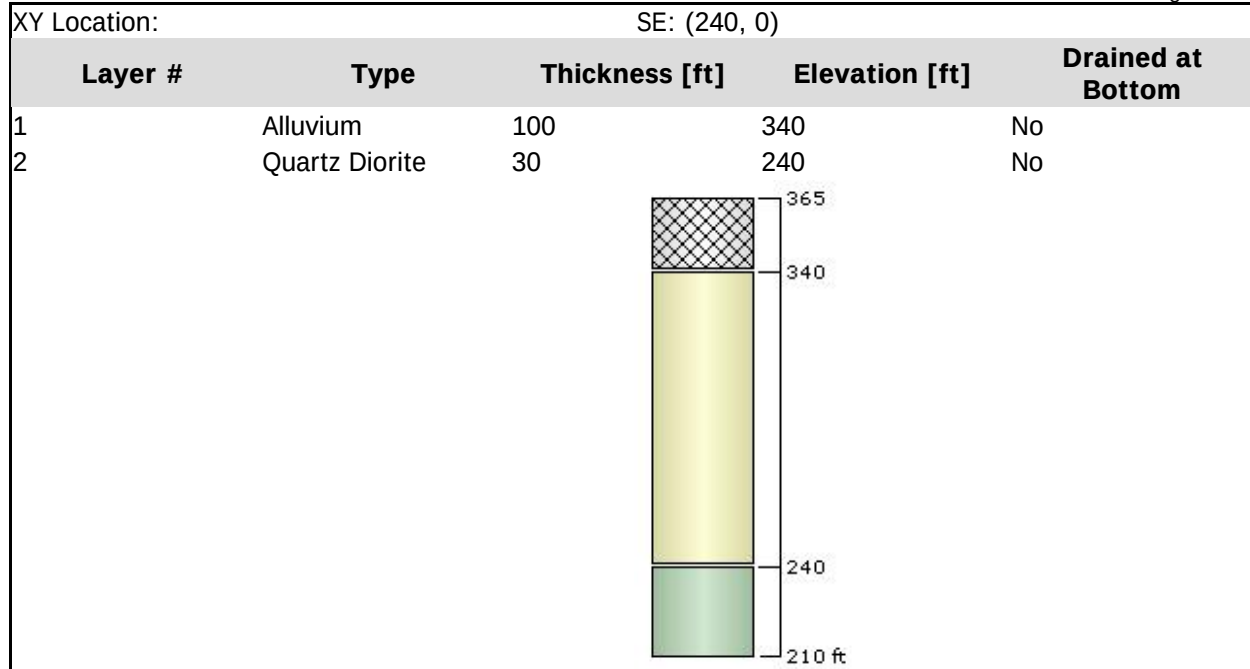
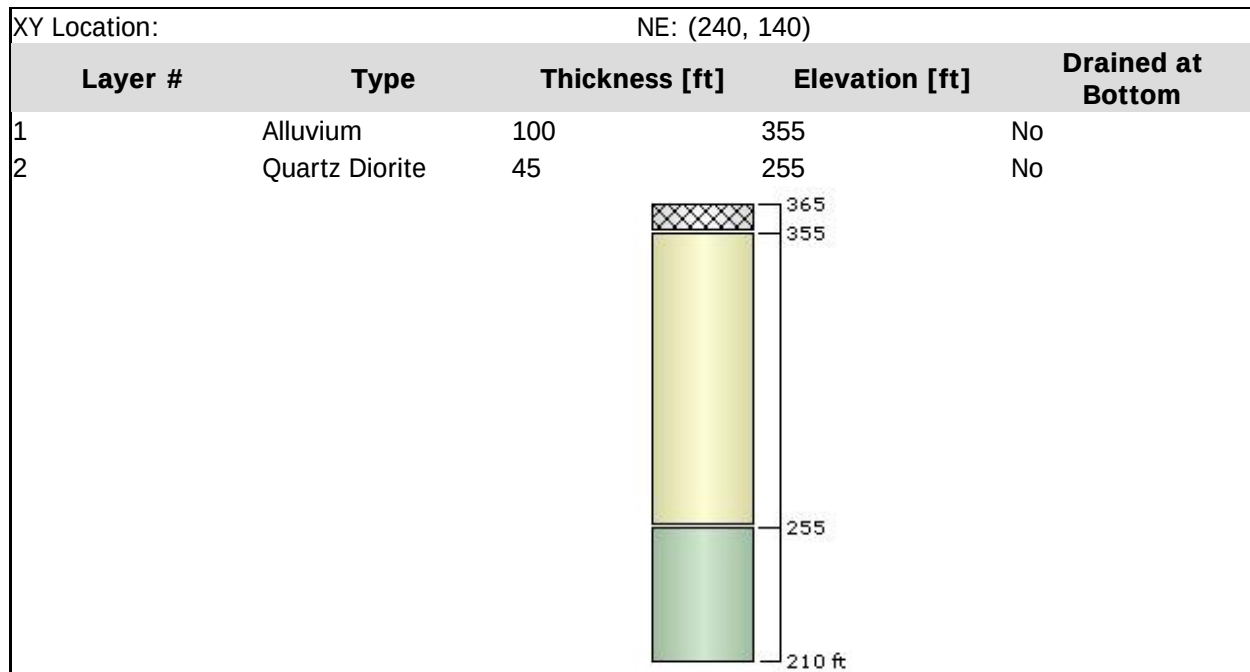
**NE****NW-100**

Figure C11

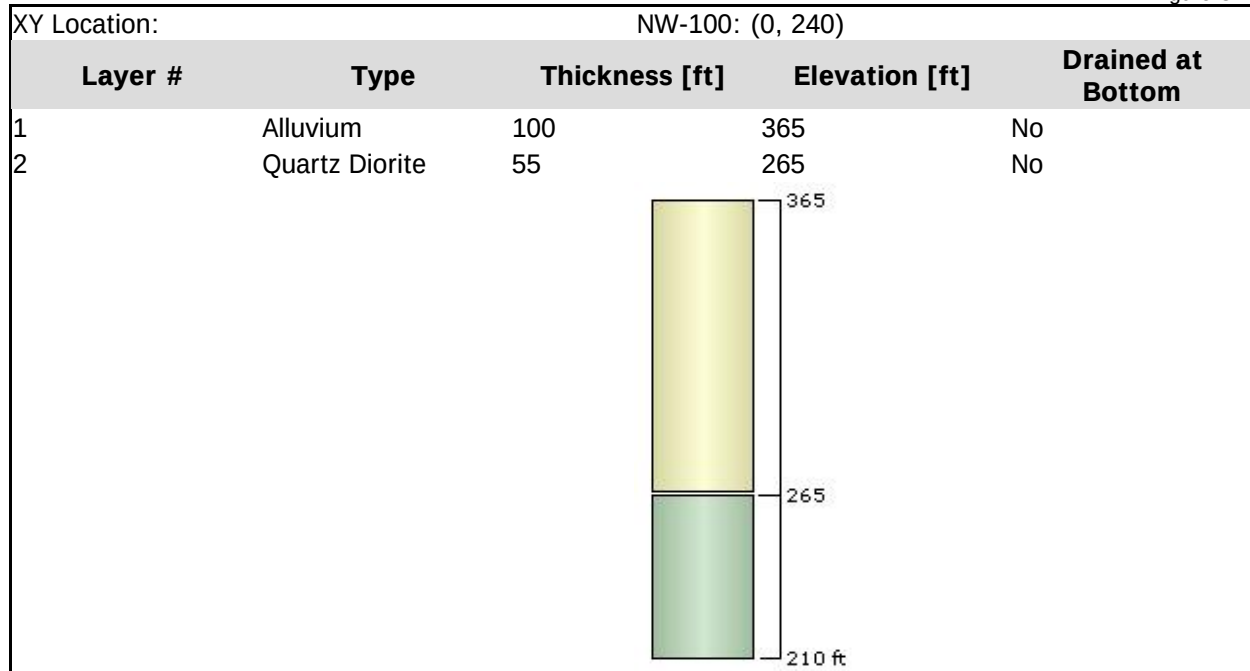
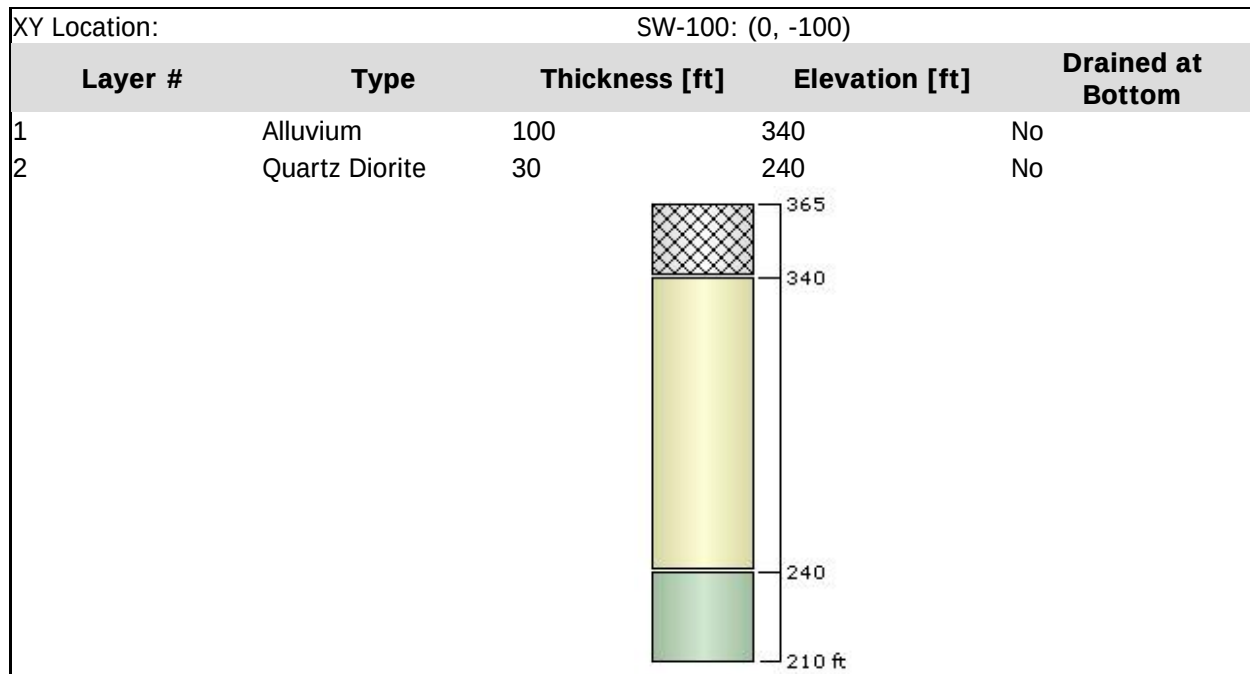
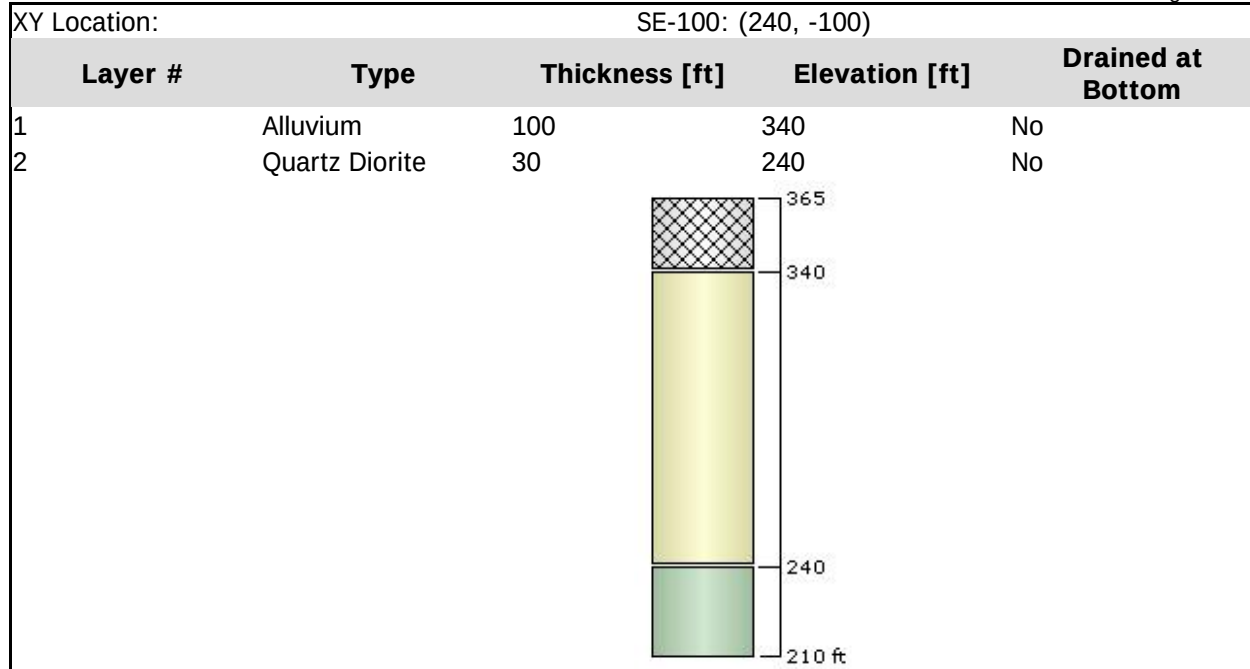
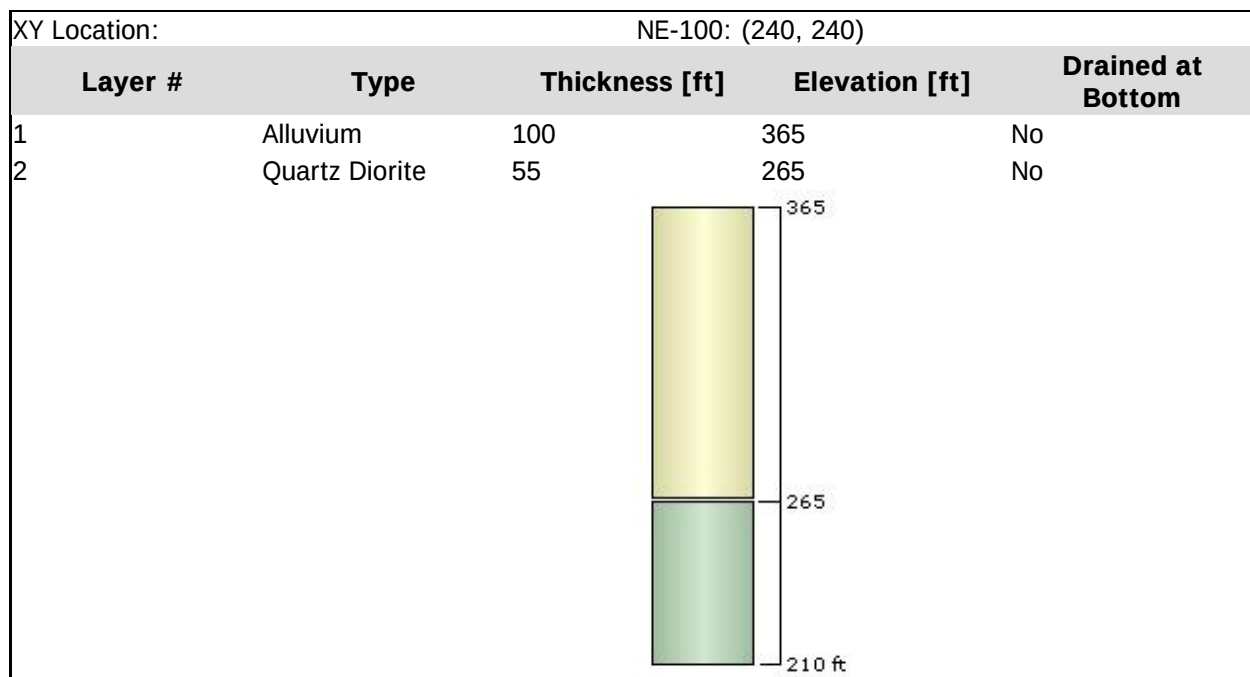
**SW-100****SE-100**

Figure C11

**NE-100**

Soil Properties

Property	Alluvium	Quartz Diorite
Color		
Unit Weight [kips/ft3]	0.135	0.14
Saturated Unit Weight [kips/ft3]	0.135	0.14
K0	1	1
Primary Consolidation	Enabled	Enabled
Material Type	Non-Linear	Non-Linear
Cce	0.0272	0.001
Cre	0.0068	0.001
e0	1.1	1.1
OCR	1	1
Cv [ft2/y]	214	0.1
Cvr [ft2/y]	300	0.1
B-bar	1	1
Undrained Su A [kips/ft2]	0	0
Undrained Su S	0.2	0.2
Undrained Su m	0.8	0.8
Grid Name	Staged	Staged

Groundwater

Groundwater method

Grids

Water Unit Weight

0.0624 kips/ft³

Groundwater Grid: Initial

X	Y	Elevation (ft)
0	140	335
0	0	320
240	0	320
240	140	335
120	140	335
120	0	320
0	240	346
0	-100	320
240	-100	320
240	240	346
-100	140	346
-100	0	320
340	0	320
340	140	346
125	250	346
125	-100	320
-70.7107	210.711	346
-70.7107	-70.7107	320
310.711	-70.7107	320
310.711	210.711	346

Groundwater Grid: Dewatered

Figure C11

X	Y	Elevation (ft)
0	140	312
0	0	320
240	0	320
240	140	312
120	140	312
120	0	320
0	240	325.714
0	-100	320
240	-100	320
240	240	325.714
-100	140	325.714
-100	0	320
340	0	320
340	140	325.714
125	250	325.714
125	-100	320
-70.7107	210.711	325.714
-70.7107	-70.7107	320
310.711	-70.7107	320
310.711	210.711	325.714

Query

Query Points

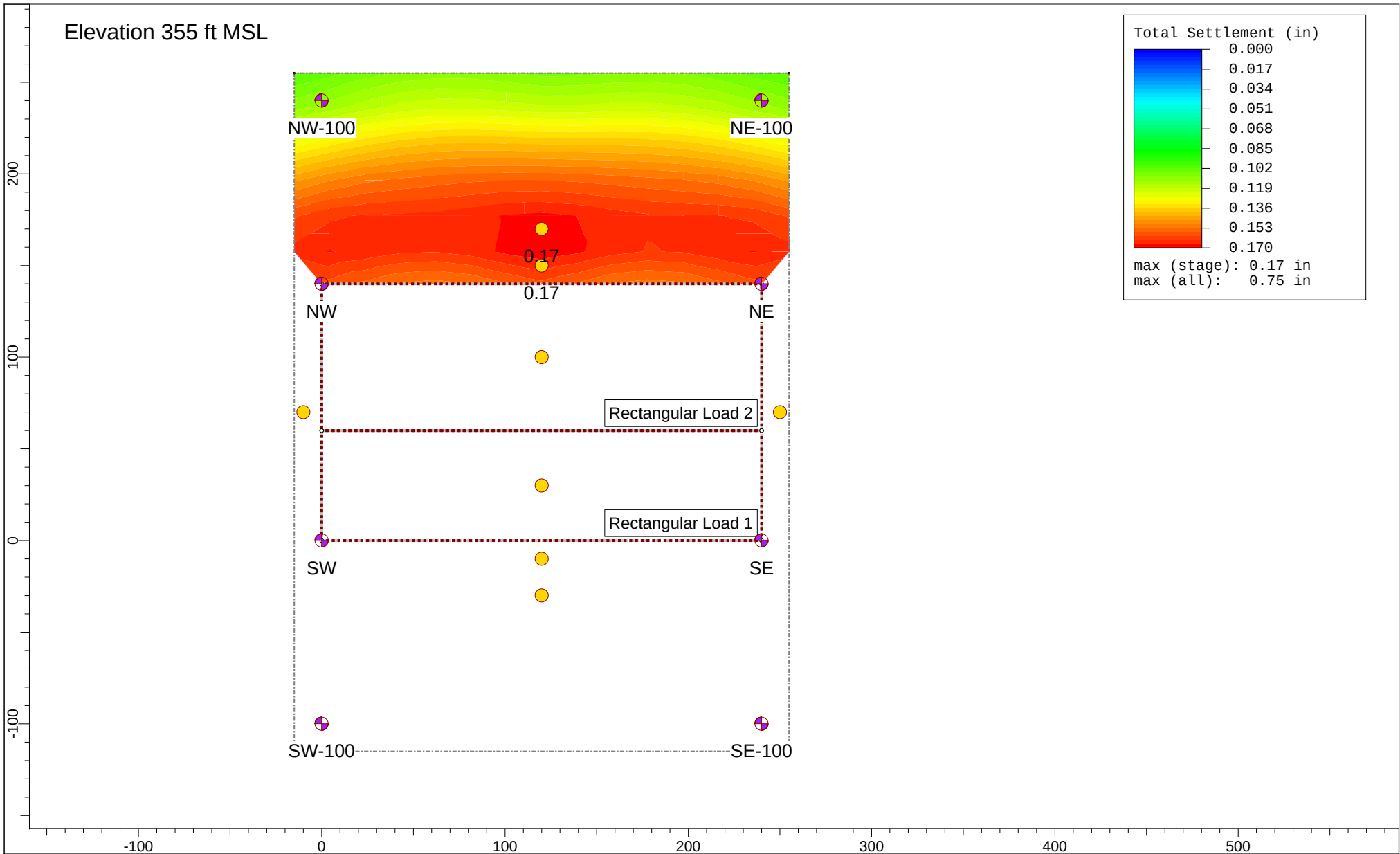
Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	120, 100	Auto: 75
2	Query Point 2	120, 30	Auto: 63
3	Query Point 3	120, 150	Auto: 57
4	Query Point 4	120, -10	Auto: 65
5	Query Point 5	-10, 70	Auto: 53
6	Query Point 6	250, 70	Auto: 53
7	Query Point 7	120, 170	Auto: 57
8	Query Point 8	120, -30	Auto: 65

Field Point Grid

Number of points	361
Expansion Factor	1

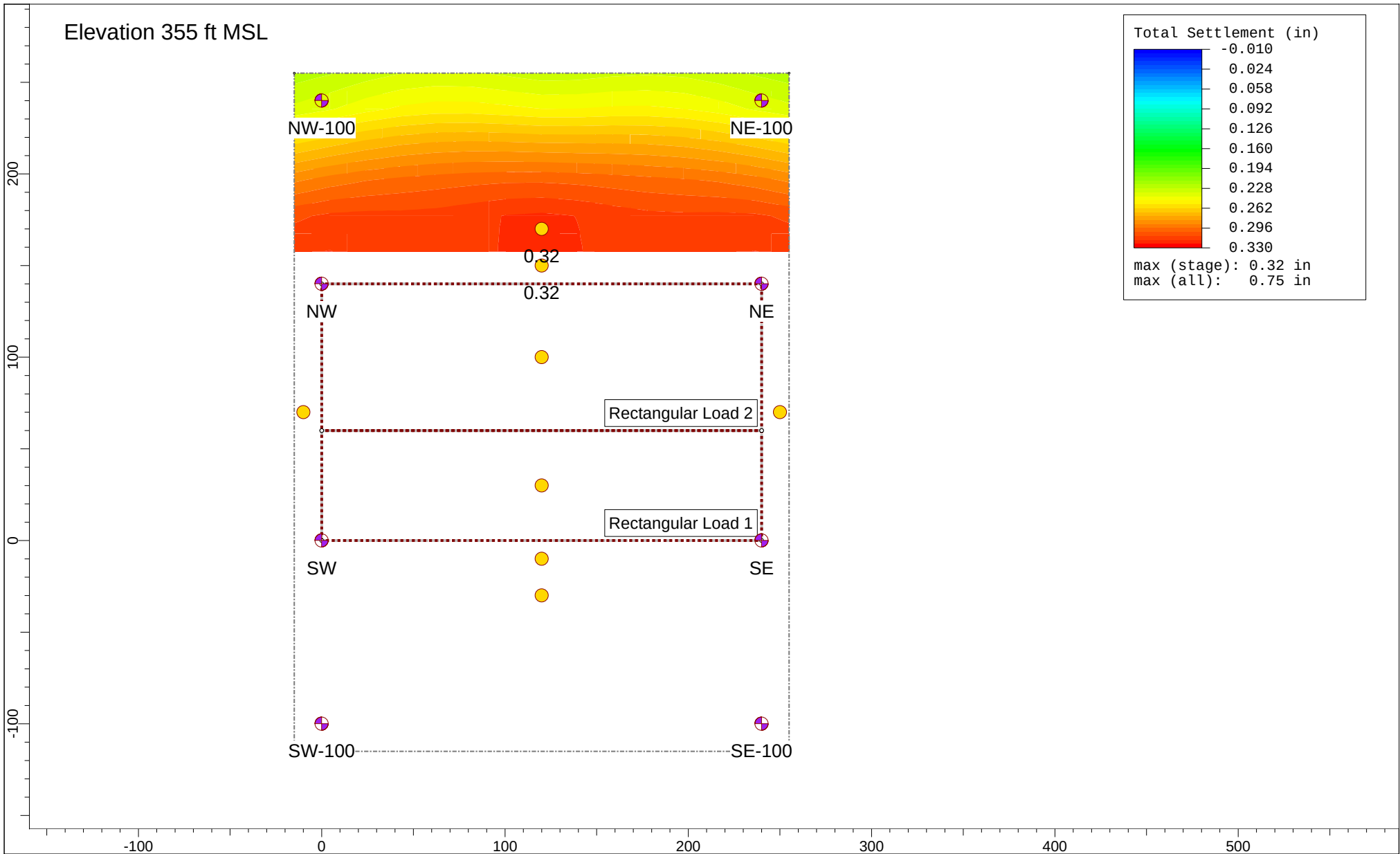
Grid Coordinates

X [ft]	Y [ft]
360	360
360	-220
-120	-220
-120	360



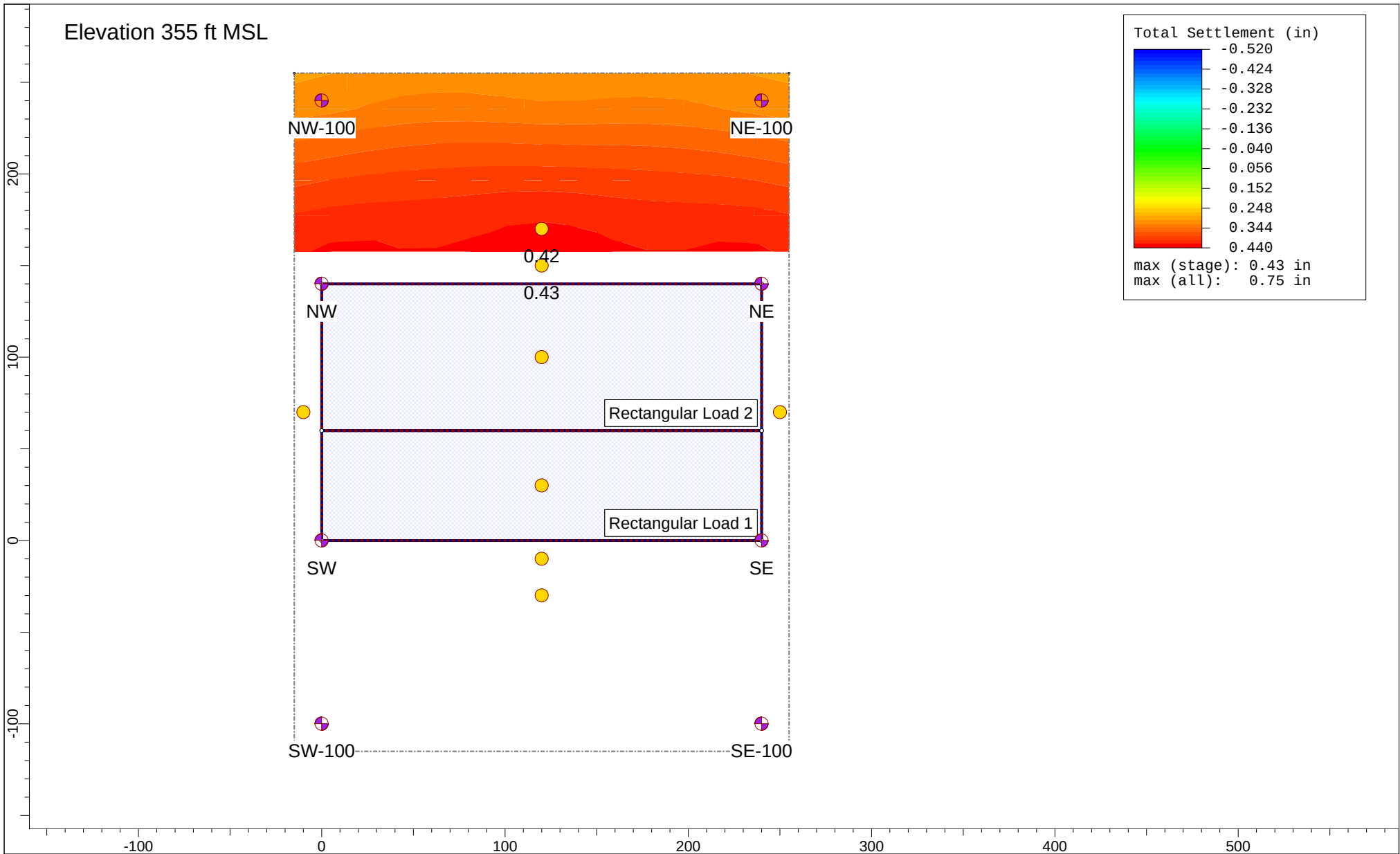
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	Analysis Description						
	Design Option 1 (Tiered Foundation Desing) Scenario 4						
	Drawn By		JTA	Stage		Stage 2 - Dewater = 0.083 y	
	Date		7/30/2022, 9:40:35 PM		File Name		A9899-06-01 V3_1_1.s3z

Figure C13



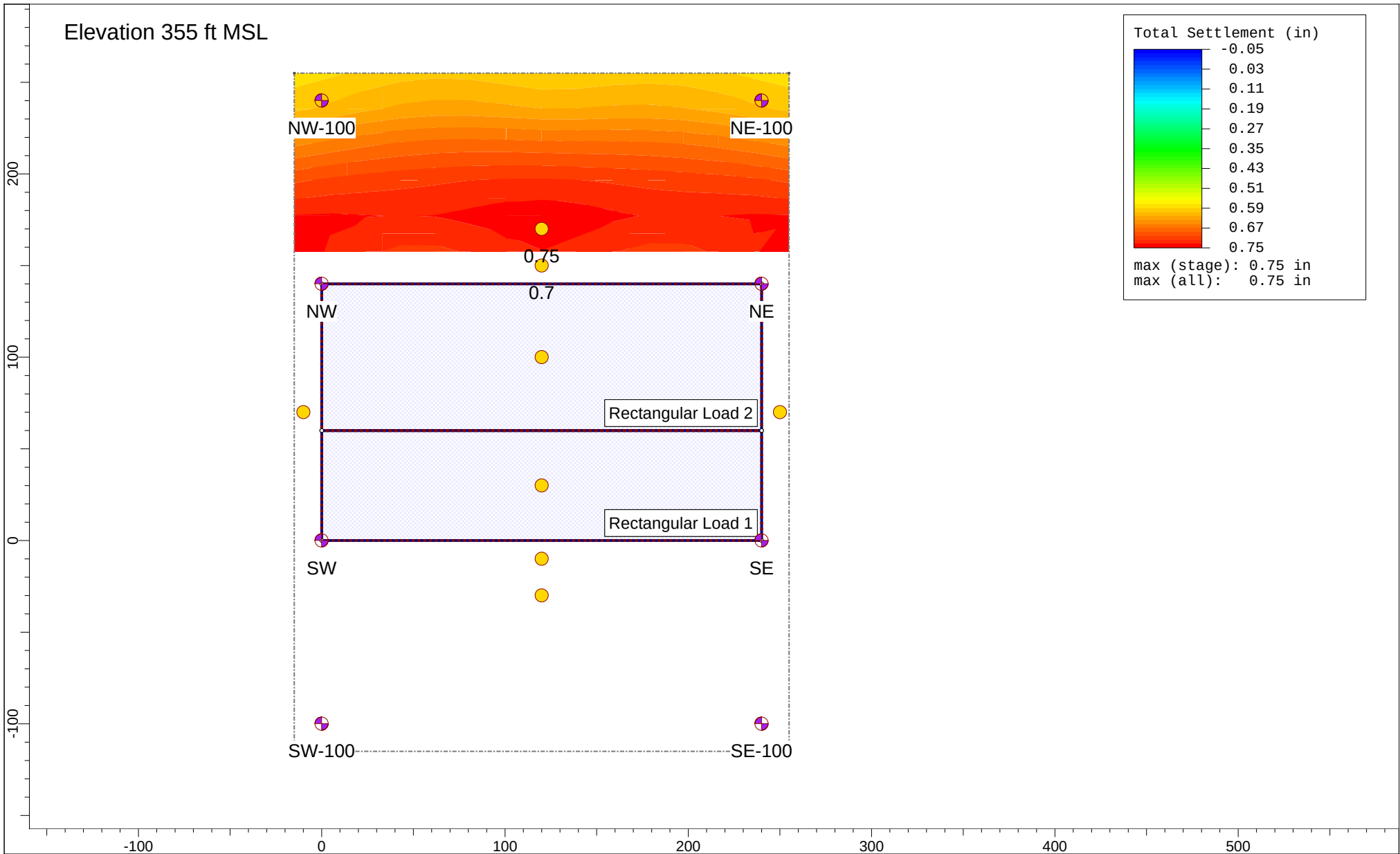
 SETTLE3.5.016	Project			8850 Sunset			
	Analysis Description						
	Design Option 1 (Tiered Foundation Desing) Scenario 4						
	Drawn By			JTA	Stage		Stage 3 - Excavation = 0.167 y
	Date			7/30/2022, 9:40:44 PM	File Name		A9899-06-01 V3_1_1.s3z

Figure C14



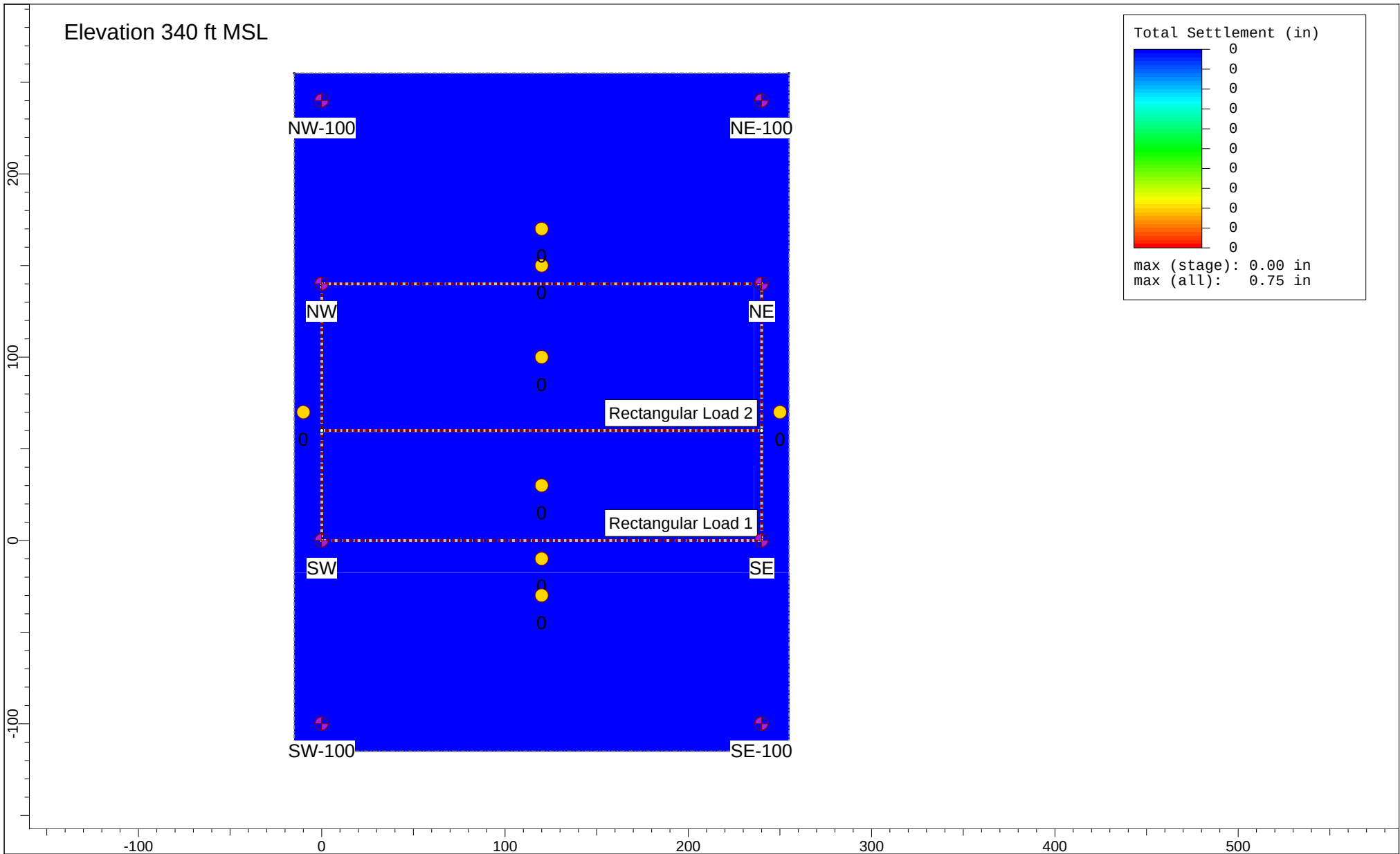
 SETTLE3 5.016	Project		8850 Sunset				
	Analysis Description						
	Design Option 1 (Tiered Foundation Desing) Scenario 4						
	Drawn By		JTA	Stage		Stage 4 - Foundation Loading = 0.333 y	
	Date		7/30/2022, 9:41:00 PM		File Name		A9899-06-01 V3_1_1.s3z

Figure C15



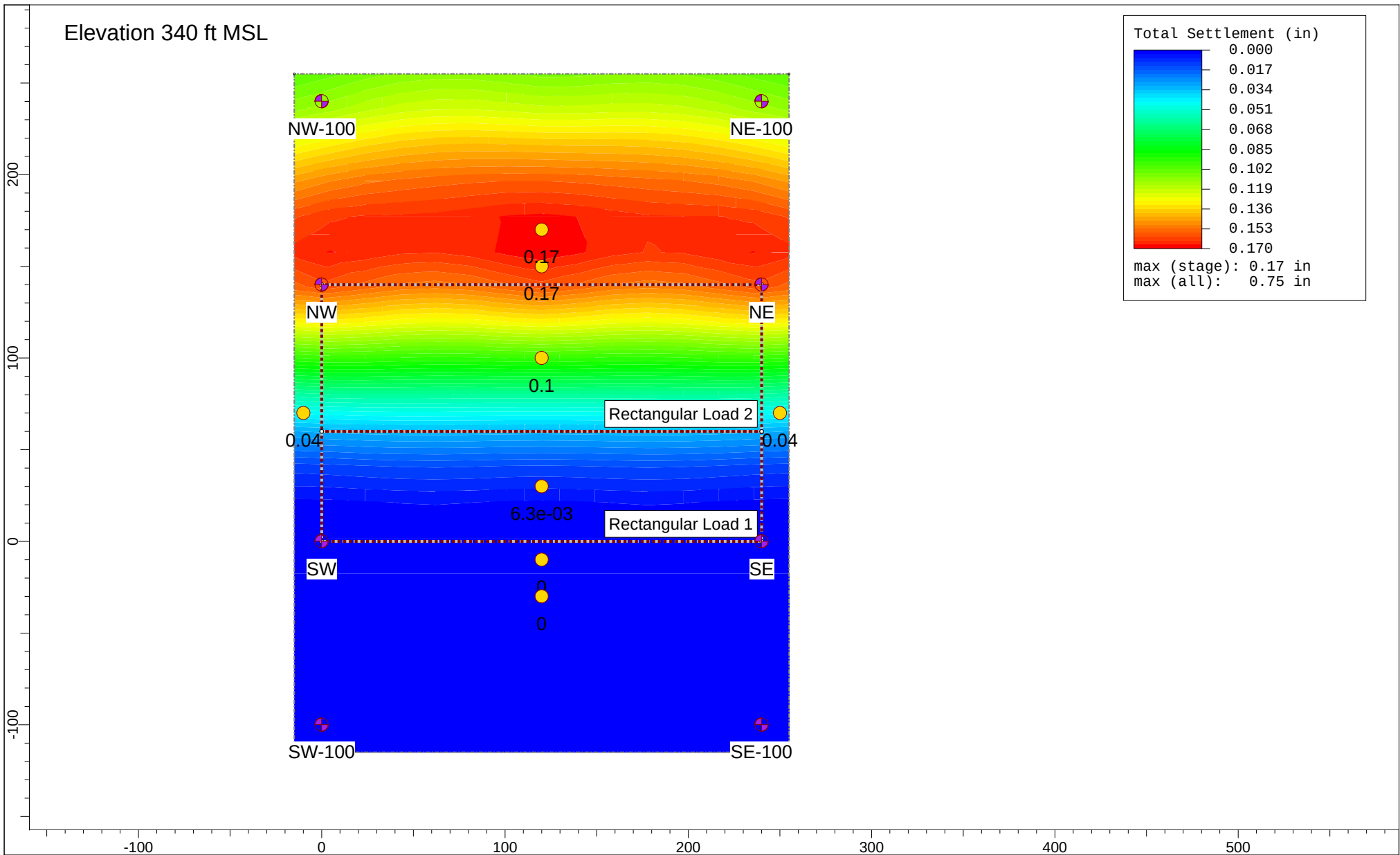
 SETTLE3 5.016	Project		8850 Sunset					
	Analysis Description							
	Design Option 1 (Tiered Foundation Desing) Scenario 4							
	Drawn By		JTA	Stage				
				Stage 5 - End of Dewatering = 2 y				
	Date		7/30/2022, 9:41:20 PM		File Name		A9899-06-01 V3_1_1.s3z	

Figure C16



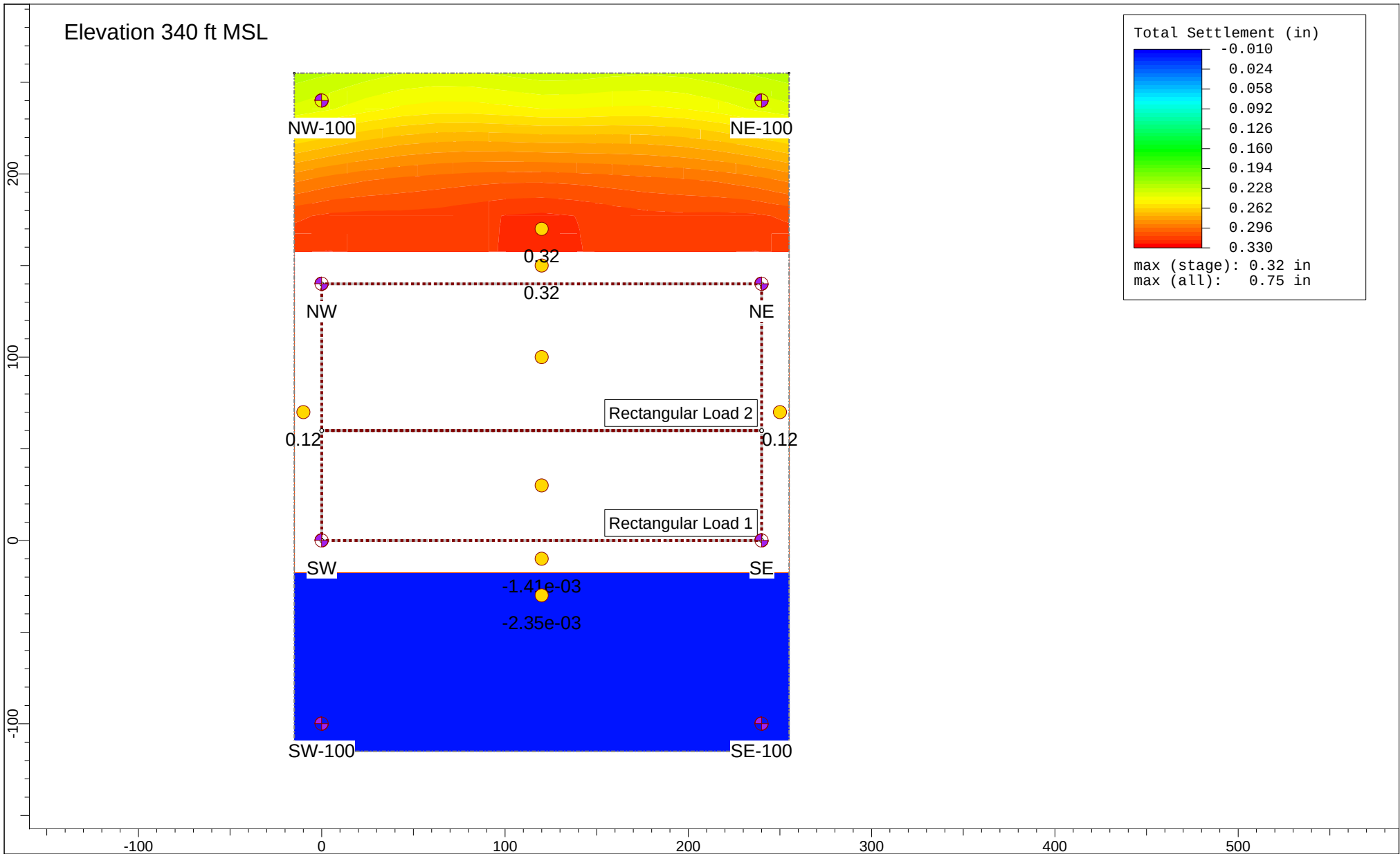
 SETTLE3 5.016	Project		8850 Sunset			
	Analysis Description					
	Design Option 1 (Tiered Foundation Desing) Scenario 4					
	Drawn By		JTA	Stage		Stage 1 - Initial = 0 y
	Date		7/30/2022, 9:41:34 PM		File Name	

Figure C17



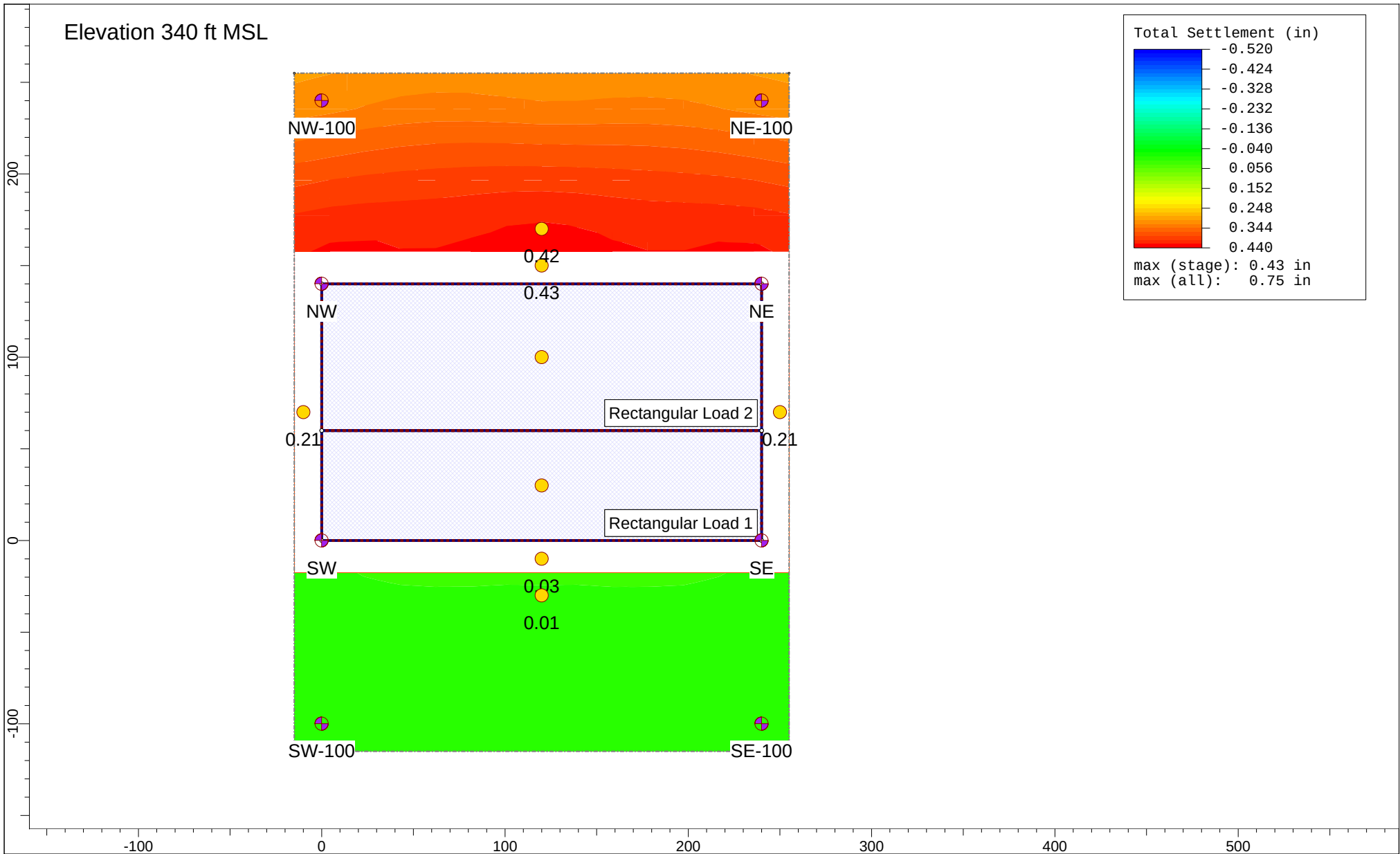
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	Analysis Description		Design Option 1 (Tiered Foundation Desing) Scenario 4	
	Drawn By		JTA	Stage Stage 2 - Dewater = 0.083 y
	Date		7/30/2022, 9:41:42 PM	File Name A9899-06-01 V3_1_1.s3z

Figure C18



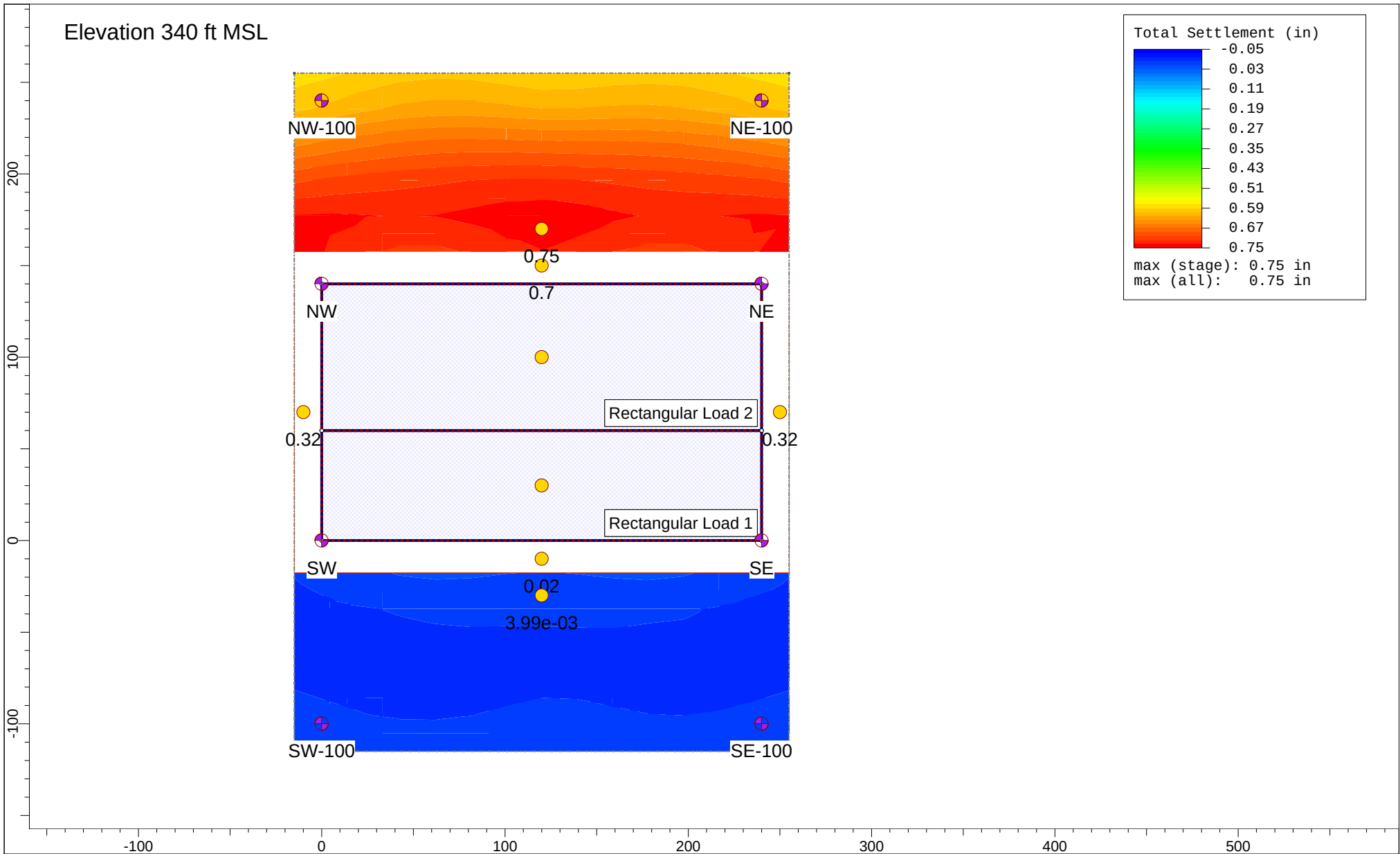
 SETTLE3 5.016	Project		8850 Sunset					
	Analysis Description							
	Design Option 1 (Tiered Foundation Desing) Scenario 4							
	Drawn By		JTA	Stage				
				Stage 3 - Excavation = 0.167 y				
	Date		7/30/2022, 9:41:52 PM		File Name		A9899-06-01 V3_1_1.s3z	

Figure C19



 SETTLE3 5.016	Project		8850 Sunset		
	Analysis Description				
	Design Option 1 (Tiered Foundation Desing) Scenario 4				
	Drawn By		JTA	Stage	Stage 4 - Foundation Loading = 0.333 y
	Date		7/30/2022, 9:41:58 PM	File Name	A9899-06-01 V3_1_1.s3z

Figure C20



	Project		8850 Sunset	
	Analysis Description		Design Option 1 (Tiered Foundation Desing) Scenario 4	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:42:06 PM	File Name
SETTLE3 5.016		Stage 5 - End of Dewatering = 2 y		A9899-06-01 V3_1_1.s3z

Figure C21

Settle3 Analysis Information

8850 Sunset

Project Settings

Document Name	A9899-06-01 V3_1_1.s3z
Project Title	8850 Sunset
Analysis	Design Option 1 (Tiered Foundation Desing) Scenario 4
Author	JTA
Date Created	5/18/2022, 8:38:53 AM
Last saved with Settle3 version	5.015
Stress Computation Method	Boussinesq
Stress Units	Imperial, stress as ksf
Settlement Units	inches
Time-dependent Consolidation Analysis	
Time Units	years
Permeability Units	feet/year

Advanced Settings

Start of secondary consolidation (% of primary)	95
Min. stress for secondary consolidation (% of initial)	1
Reset time when load changes for secondary consolidation	No
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Update Cv in each time step (improves consolidation accuracy)	
Ignore negative effective stresses in settlement calculations	
Add field points to load edges	

Soil Profile

Layer Option	Non-Horizontal Layers
Interpolation Method	Linear By Elevation
Use Non-Horizontal Ground Surface	Yes
Number of Surface Points	200
Vertical Axis	Elevation
Ground Elevation (ft)	355

Stage Settings

Stage #	Name	Time [years]
1	Initial	0
2	Dewater	0.083
3	Excavation	0.167
4	Foundation Loading	0.333
5	End of Dewatering	2

Results

Time taken to compute: 0 seconds

Stage: Initial = 0 y

Data Type		Minimum	Maximum
Total Settlement [in]	0		0
Total Consolidation Settlement [in]	0		0
Virgin Consolidation Settlement [in]	0		0
Recompression Consolidation Settlement [in]	0		0
Immediate Settlement [in]	0		0
Secondary Settlement [in]	0		0
Loading Stress ZZ [ksf]	0		0
Loading Stress XX [ksf]	0		0
Loading Stress YY [ksf]	0		0
Effective Stress ZZ [ksf]	0		13.3623
Effective Stress XX [ksf]	0		13.3623
Effective Stress YY [ksf]	0		13.3623
Total Stress ZZ [ksf]	0		21.2
Total Stress XX [ksf]	0		21.2
Total Stress YY [ksf]	0		21.2
Modulus of Subgrade Reaction (Total) [ksf/ft]	0		0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0		0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0		0
Total Strain	0		0
Pore Water Pressure [ksf]	0		7.96979
Excess Pore Water Pressure [ksf]	0		0
Degree of Consolidation [%]	0		0
Pre-consolidation Stress [ksf]	0.00393093		13.358
Over-consolidation Ratio	1		1
Void Ratio	1.1		1.1
Permeability [ft/y]	2.03102e-07		56.3186
Coefficient of Consolidation [ft ² /y]	0.1		300
Hydroconsolidation Settlement [in]	0		0
Average Degree of Consolidation [%]	0		0
Undrained Shear Strength	0		0

Stage: Dewater = 0.083 y

Data Type	Minimum	Maximum
Total Settlement [in]	0	0.169429
Total Consolidation Settlement [in]	0	0.169429
Virgin Consolidation Settlement [in]	0	0.169429
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	14.1165
Effective Stress YY [ksf]	0	14.1165
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	21.8991
Total Stress YY [ksf]	0	21.8991
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0.00155525
Pore Water Pressure [ksf]	0	7.96979
Excess Pore Water Pressure [ksf]	-0.0639266	0.902477
Degree of Consolidation [%]	0	14.4233
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1
Void Ratio	1.09673	1.1
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.0389811	0

Stage: Excavation = 0.167 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.0023845	0.320477
Total Consolidation Settlement [in]	-0.0023845	0.320477
Virgin Consolidation Settlement [in]	0	0.320477
Recompression Consolidation Settlement [in]	-0.0023845	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-12.1044	0
Loading Stress XX [ksf]	-7.36214	1.033
Loading Stress YY [ksf]	-11.3728	1.12007
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	14.2231
Effective Stress YY [ksf]	-2.94026	13.8638
Total Stress ZZ [ksf]	-4.05568	21.078
Total Stress XX [ksf]	-8.44968	21.2988
Total Stress YY [ksf]	-13.5022	21.0689
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	-3.87084e-05	0.00191165
Pore Water Pressure [ksf]	-10.5619	7.84778
Excess Pore Water Pressure [ksf]	-10.5619	0.901108
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1.19538
Void Ratio	1.09599	1.10102
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.121463	0.00229493

Stage: Foundation Loading = 0.333 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.517628	0.434932
Total Consolidation Settlement [in]	-0.517628	0.434932
Virgin Consolidation Settlement [in]	0	0.466333
Recompression Consolidation Settlement [in]	-0.546878	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-3.05882	0.01
Loading Stress XX [ksf]	-5.65133	0.384229
Loading Stress YY [ksf]	-3.07753	4.24427
Effective Stress ZZ [ksf]	0	13.3611
Effective Stress XX [ksf]	-3.88449	14.6782
Effective Stress YY [ksf]	-5.03784	14.3526
Total Stress ZZ [ksf]	0	21.1687
Total Stress XX [ksf]	0	21.6565
Total Stress YY [ksf]	0	21.3658
Modulus of Subgrade Reaction (Total) [ksf/ft]	-61177.3	5755.46
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-61177.3	5755.46
Total Strain	-0.0341158	0.0019226
Pore Water Pressure [ksf]	0	9.54261
Excess Pore Water Pressure [ksf]	-0.400257	9.54261
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	773.698
Void Ratio	1.09596	1.15607
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.911245	0.00971422

Stage: End of Dewatering = 2 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.0420895	0.746563
Total Consolidation Settlement [in]	-0.0420895	0.746563
Virgin Consolidation Settlement [in]	0	0.746578
Recompression Consolidation Settlement [in]	-0.0687084	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-3.05882	0.01
Loading Stress XX [ksf]	-5.65133	0.384229
Loading Stress YY [ksf]	-3.07753	4.24427
Effective Stress ZZ [ksf]	0	13.361
Effective Stress XX [ksf]	0	14.6789
Effective Stress YY [ksf]	0	14.3532
Total Stress ZZ [ksf]	0	21.1687
Total Stress XX [ksf]	0	21.2809
Total Stress YY [ksf]	0	20.9561
Modulus of Subgrade Reaction (Total) [ksf/ft]	-105580	406.229
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-105580	406.229
Total Strain	-0.0337753	0.00259427
Pore Water Pressure [ksf]	-4.44089e-16	7.93899
Excess Pore Water Pressure [ksf]	-0.95793	1.9853
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1.1469
Void Ratio	1.09455	1.13555
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.911245	0.0337747

Loads

1. Rectangular Load: "Rectangular Load 1"

Length	240 ft
Width	60 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	14400 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	0
240	0
240	60
0	60

2. Rectangular Load: "Rectangular Load 2"

Length	240 ft
Width	80 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	19200 ft ²
Load	6.5 ksf
Elevation	284 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Excavations

1. Excavation: "Excavation 1"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
240	0
240	60
0	60
0	0

2. Excavation: "Excavation 2"

Elevation 284 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Soil Layers

Ground Surface Drained: Yes

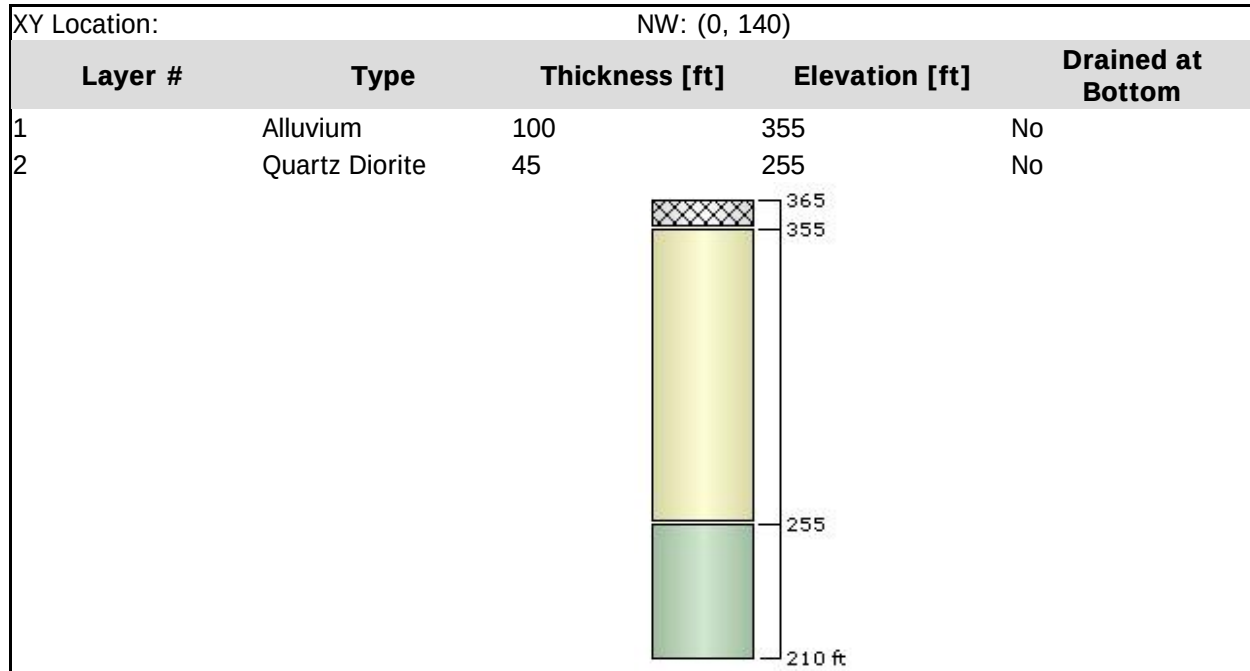
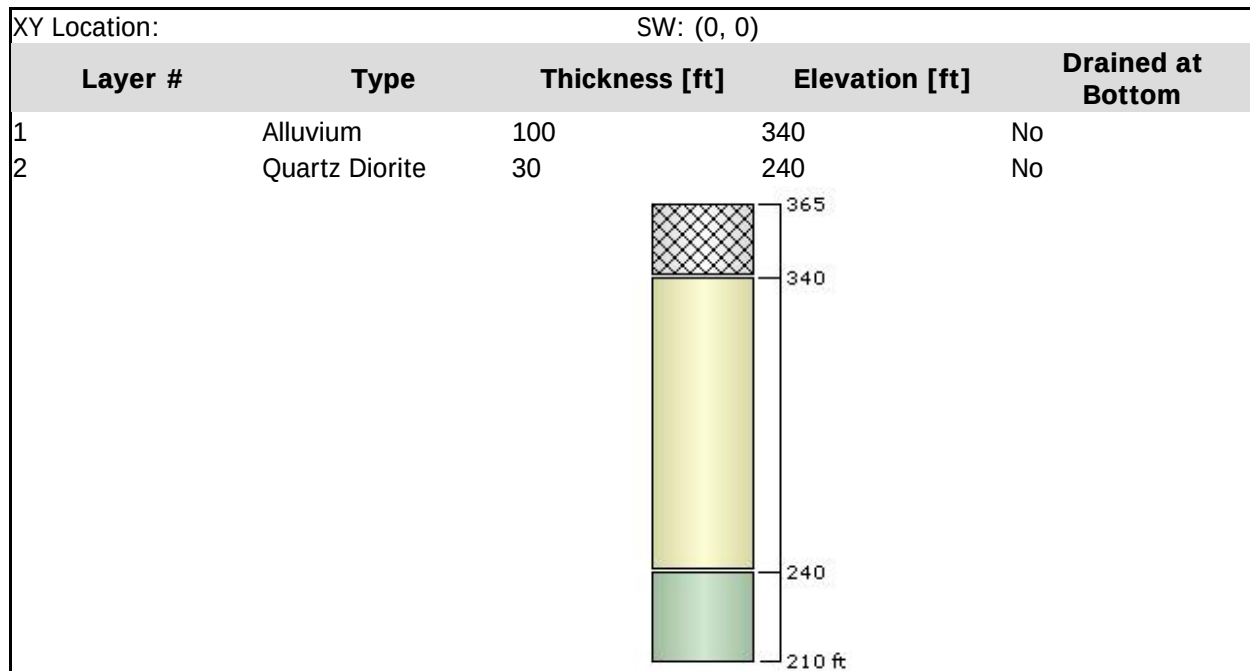
NW

SW

SE

Figure C22

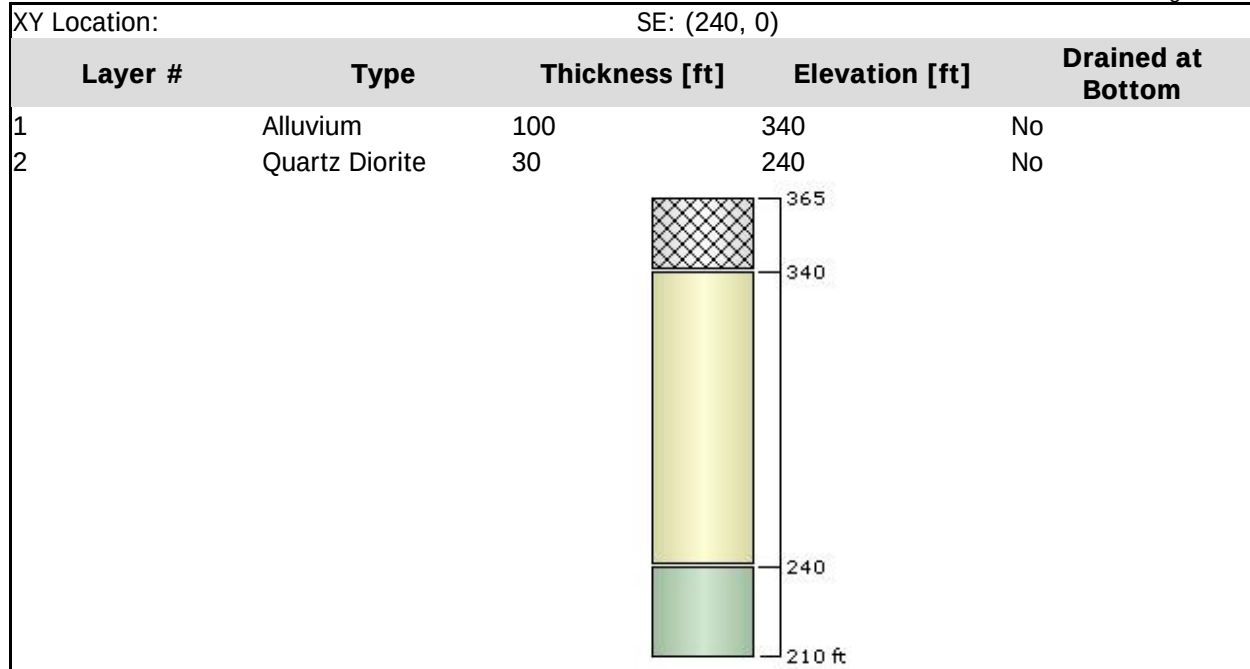
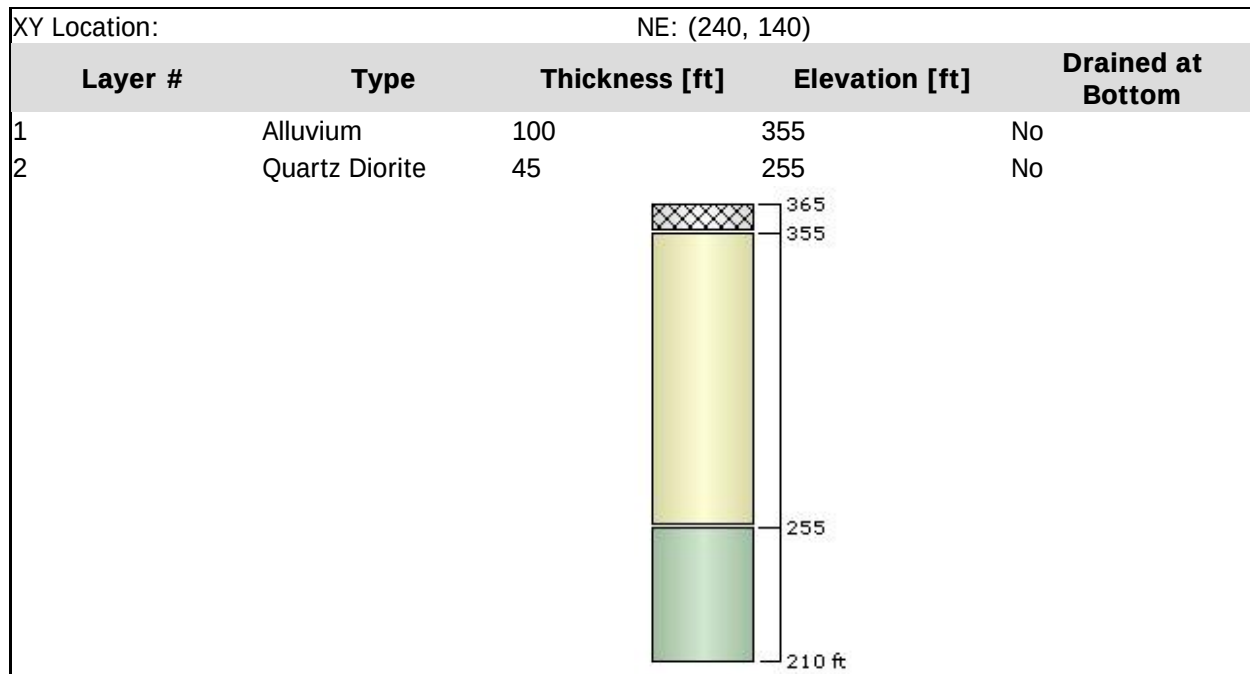
**NE****NW-100**

Figure C22

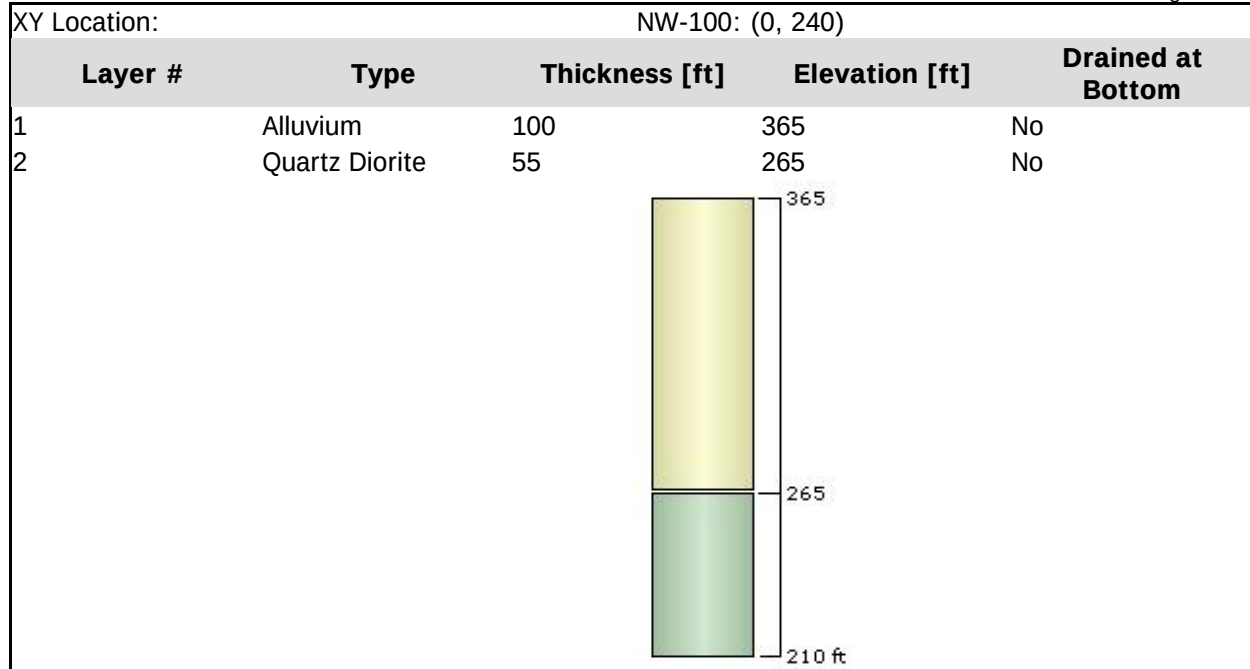
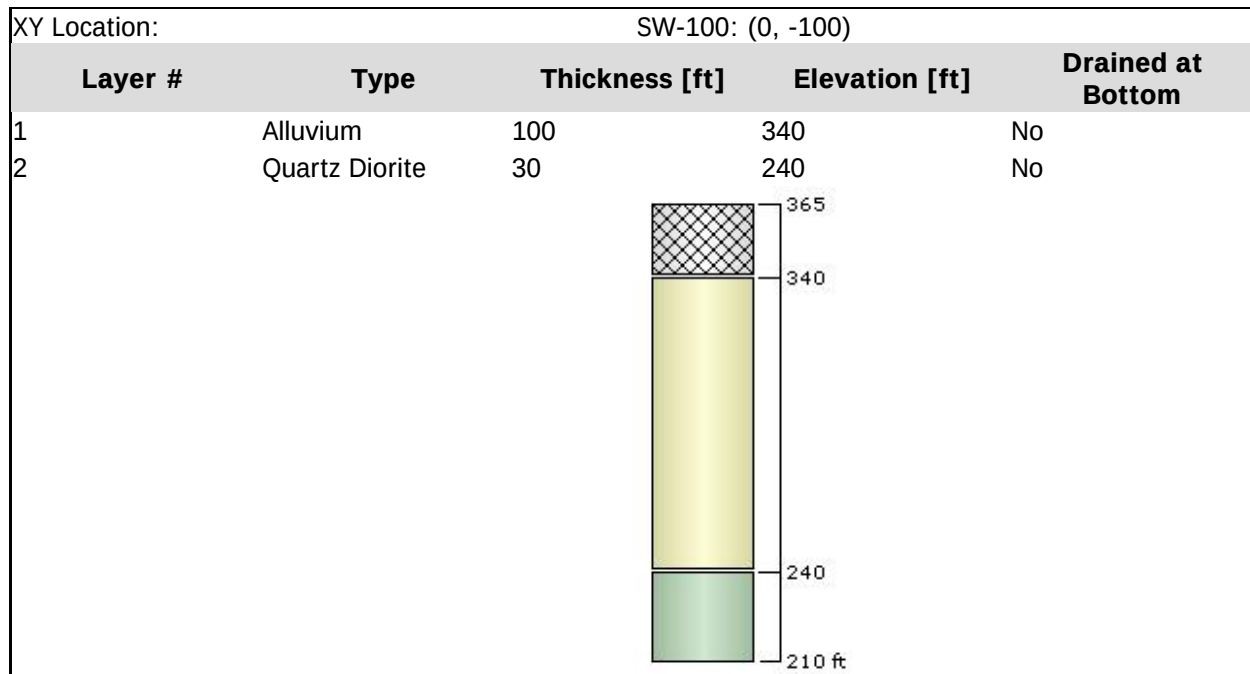
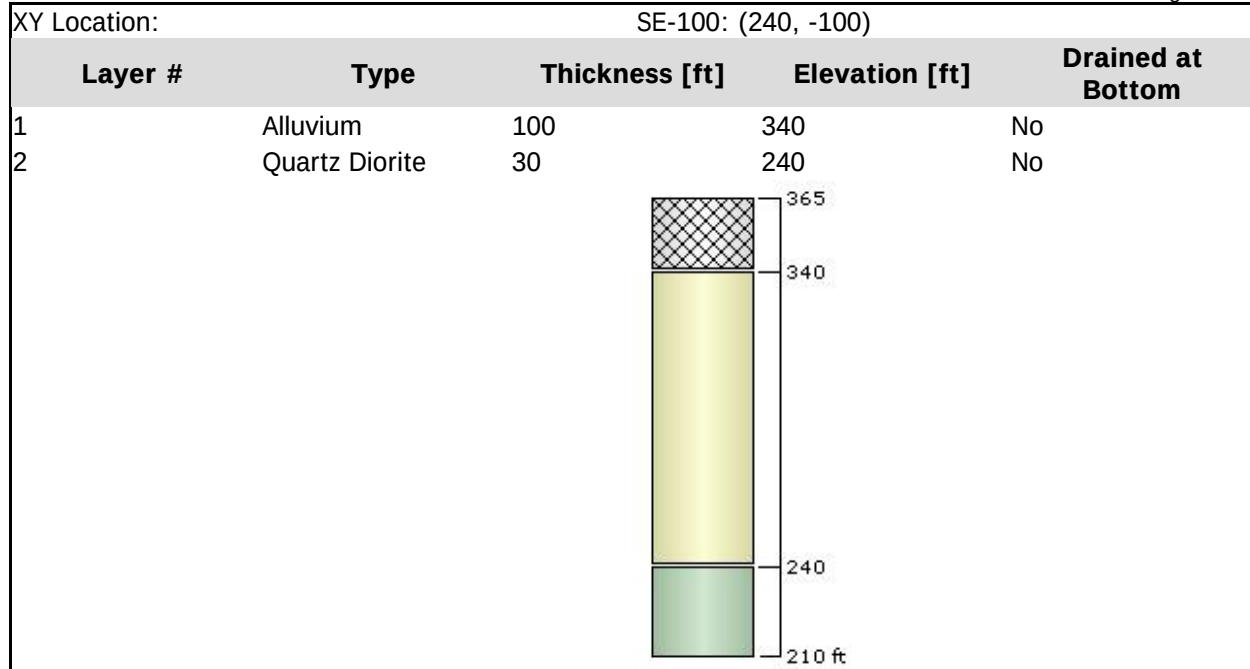
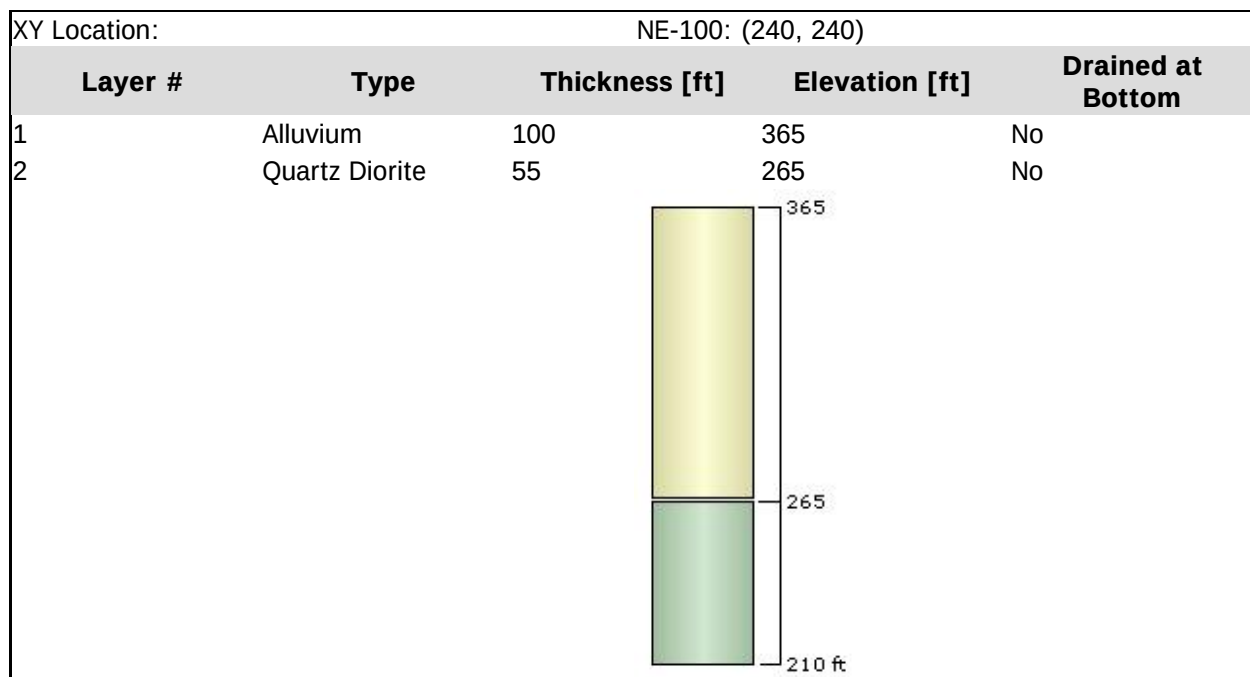
**SW-100****SE-100**

Figure C22

**NE-100**

Soil Properties

Property	Alluvium	Quartz Diorite
Color		
Unit Weight [kips/ft3]	0.135	0.14
Saturated Unit Weight [kips/ft3]	0.135	0.14
K0	1	1
Primary Consolidation	Enabled	Enabled
Material Type	Non-Linear	Non-Linear
Cce	0.0272	0.001
Cre	0.0068	0.001
e0	1.1	1.1
OCR	1	1
Cv [ft2/y]	300	0.1
Cvr [ft2/y]	300	0.1
B-bar	1	1
Undrained Su A [kips/ft2]	0	0
Undrained Su S	0.2	0.2
Undrained Su m	0.8	0.8
Grid Name	Staged	Staged

Groundwater

Groundwater method

Grids

Water Unit Weight

0.0624 kips/ft³

Groundwater Grid: Initial

X	Y	Elevation (ft)
0	140	325
0	0	310
240	0	310
240	140	325
120	140	325
120	0	310
0	240	336
0	-100	310
240	-100	310
240	240	336
-100	140	336
-100	0	310
340	0	310
340	140	336
125	250	336
125	-100	310
-70.7107	210.711	336
-70.7107	-70.7107	310
310.711	-70.7107	310
310.711	210.711	336

Groundwater Grid: Dewatered

Figure C22

X	Y	Elevation (ft)
0	140	311
0	0	310
240	0	310
240	140	311
120	140	311
120	0	310
0	240	324.714
0	-100	310
240	-100	310
240	240	324.714
-100	140	324.714
-100	0	310
340	0	310
340	140	324.714
125	250	324.714
125	-100	310
-70.7107	210.711	324.714
-70.7107	-70.7107	310
310.711	-70.7107	310
310.711	210.711	324.714

Query

Query Points

Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	120, 100	Auto: 71
2	Query Point 2	120, 30	Auto: 71
3	Query Point 3	120, 150	Auto: 61
4	Query Point 4	120, -10	Auto: 61
5	Query Point 5	-10, 70	Auto: 61
6	Query Point 6	250, 70	Auto: 61
7	Query Point 7	120, 170	Auto: 61
8	Query Point 8	120, -30	Auto: 61

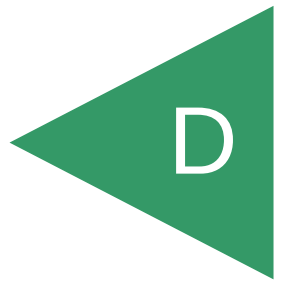
Field Point Grid

Number of points	361
Expansion Factor	1

Grid Coordinates

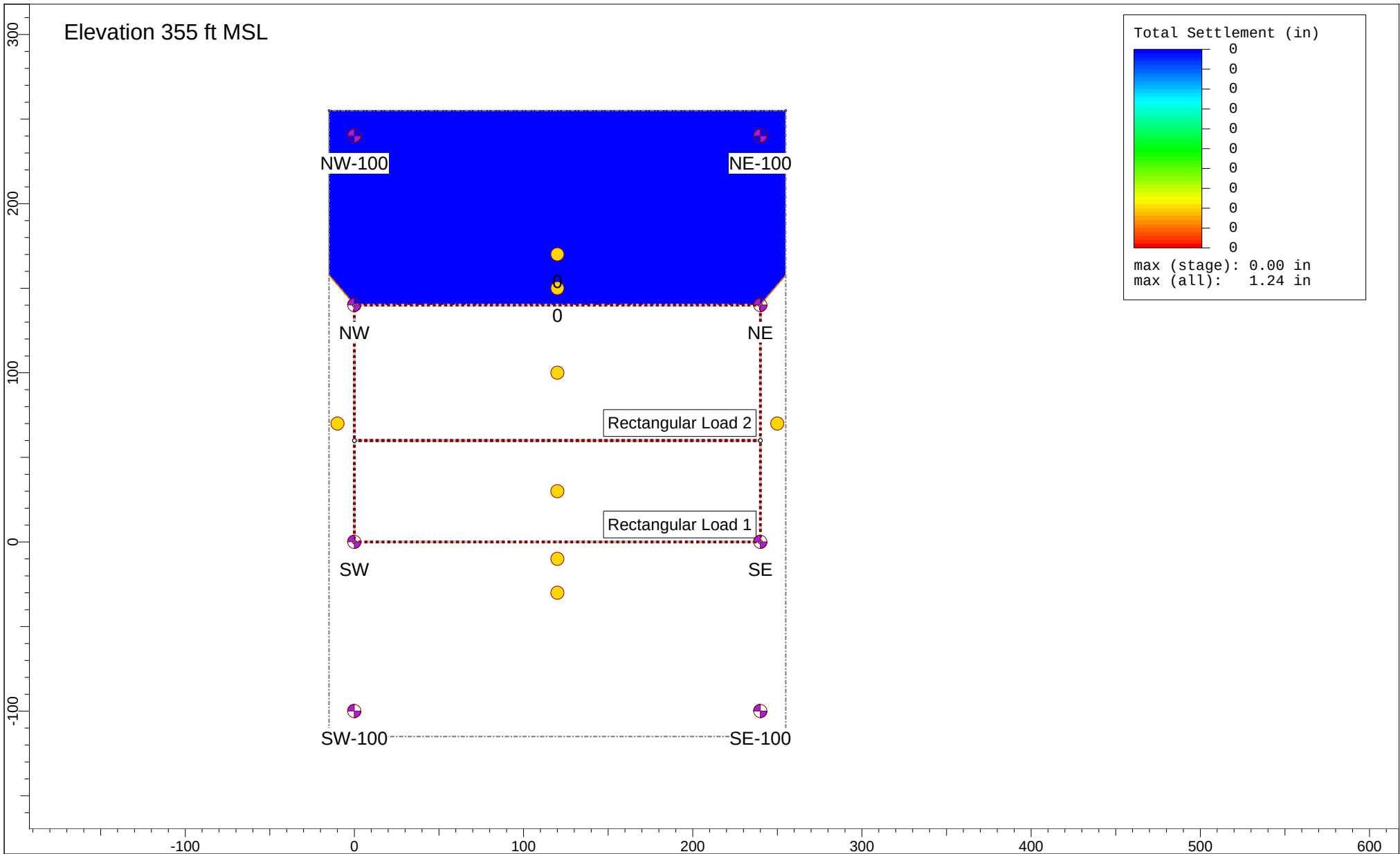
X [ft]	Y [ft]
360	360
360	-220
-120	-220
-120	360

APPENDIX



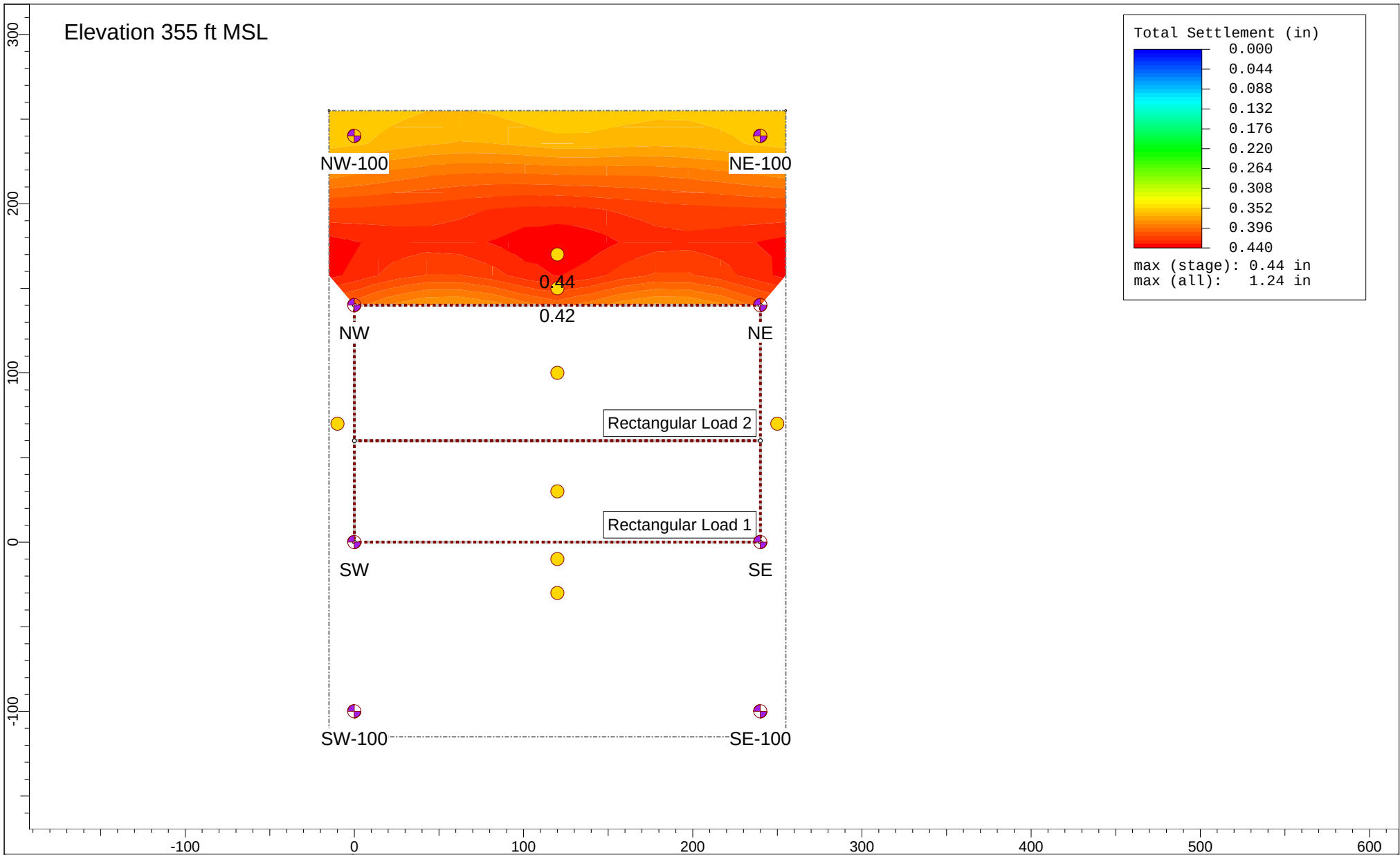
APPENDIX D

DESIGN OPTION 2 (FLAT EXCAVATION DESIGN ELEV 292) OUTPUT FROM SETTLE 3



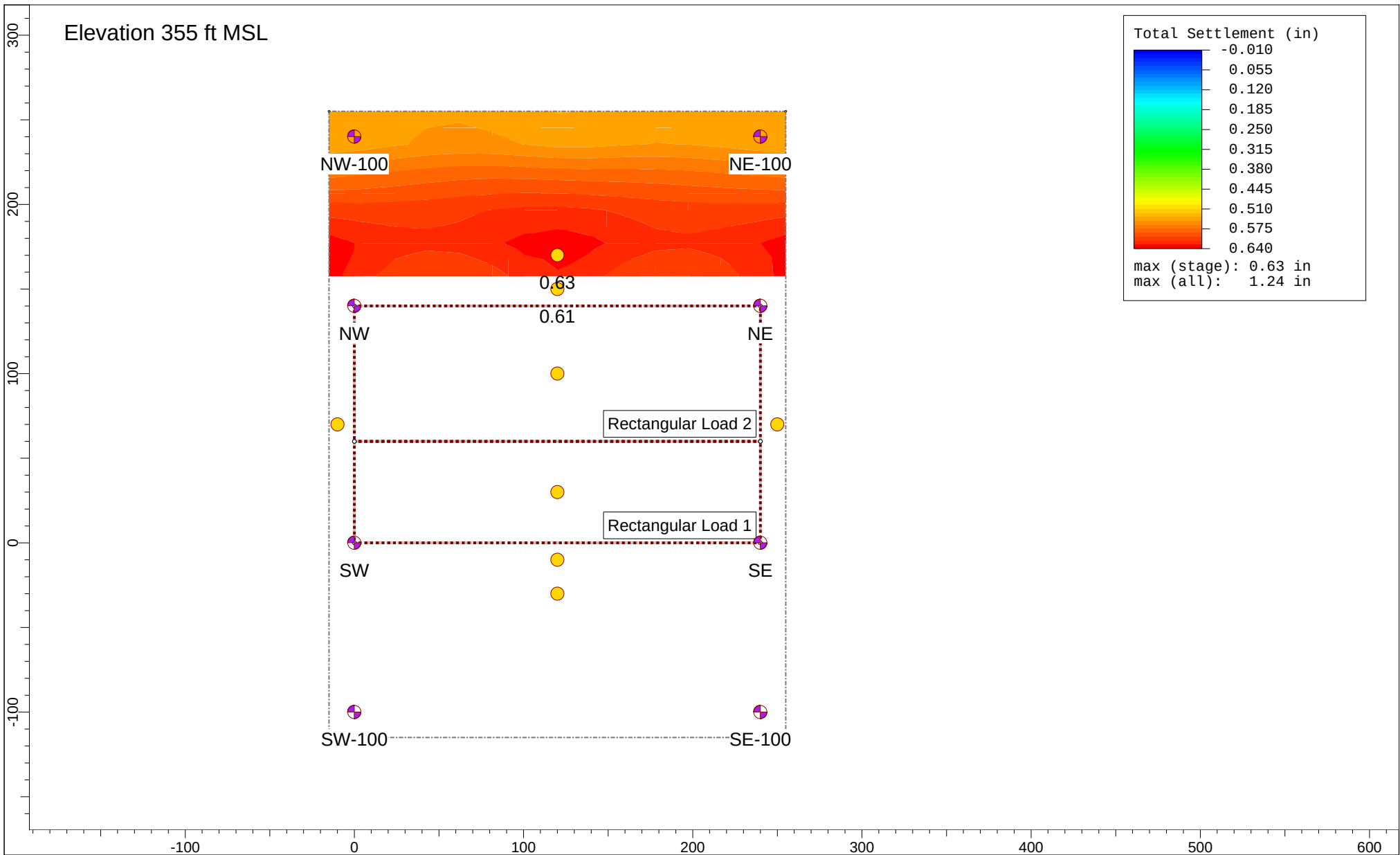
	Project		8850 Sunset	
	Analysis Description		Design Option 2 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:29:27 PM	Stage 1 - Initial = 0 y
File Name		A9899-06-01 V7.s3z		

Figure D1



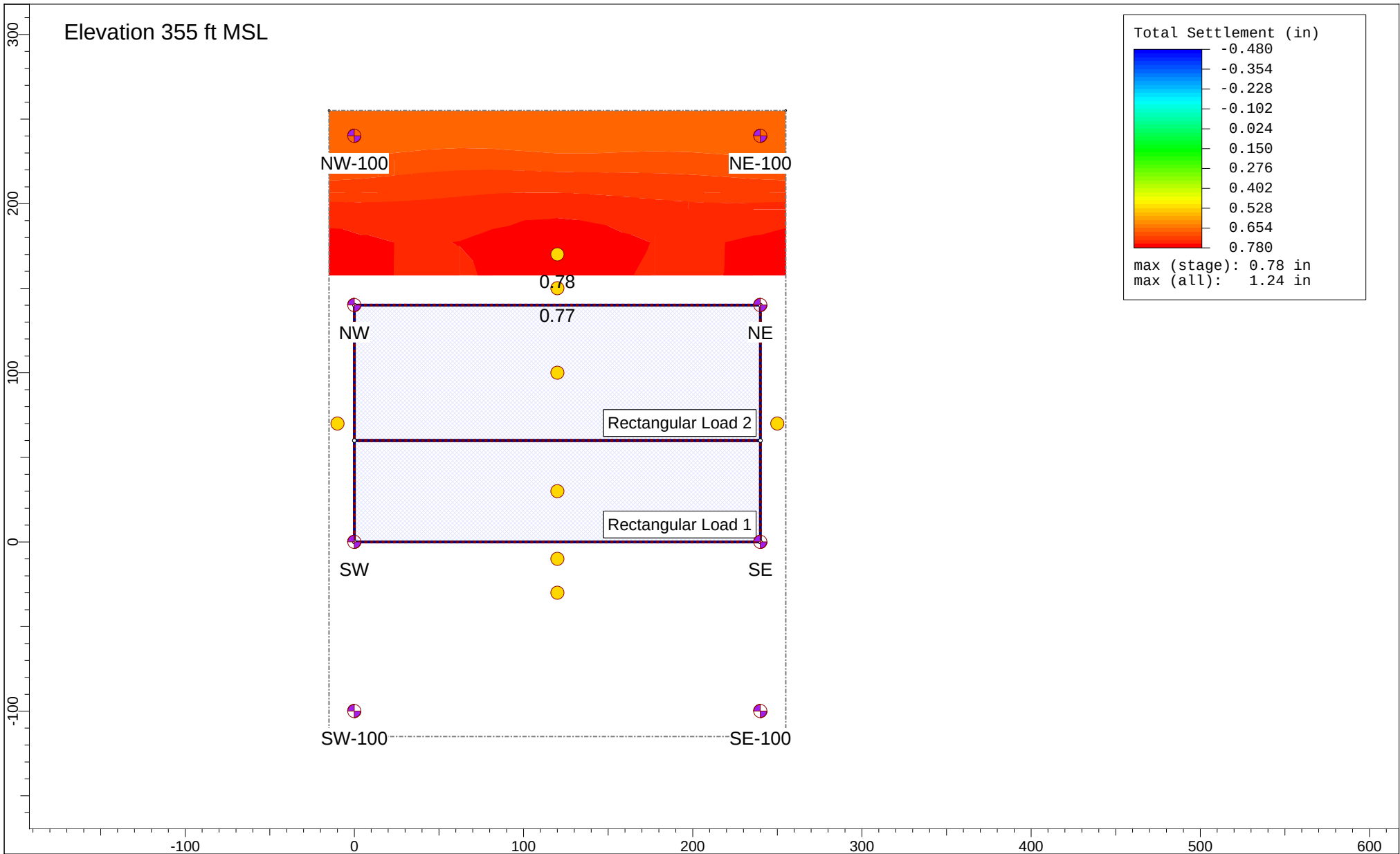
	Project		8850 Sunset	
	Analysis Description		Design Option 2 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage Stage 2 - Dewater = 0.083 y
	Date		7/30/2022, 9:29:56 PM	File Name A9899-06-01 V7.s3z

Figure D2



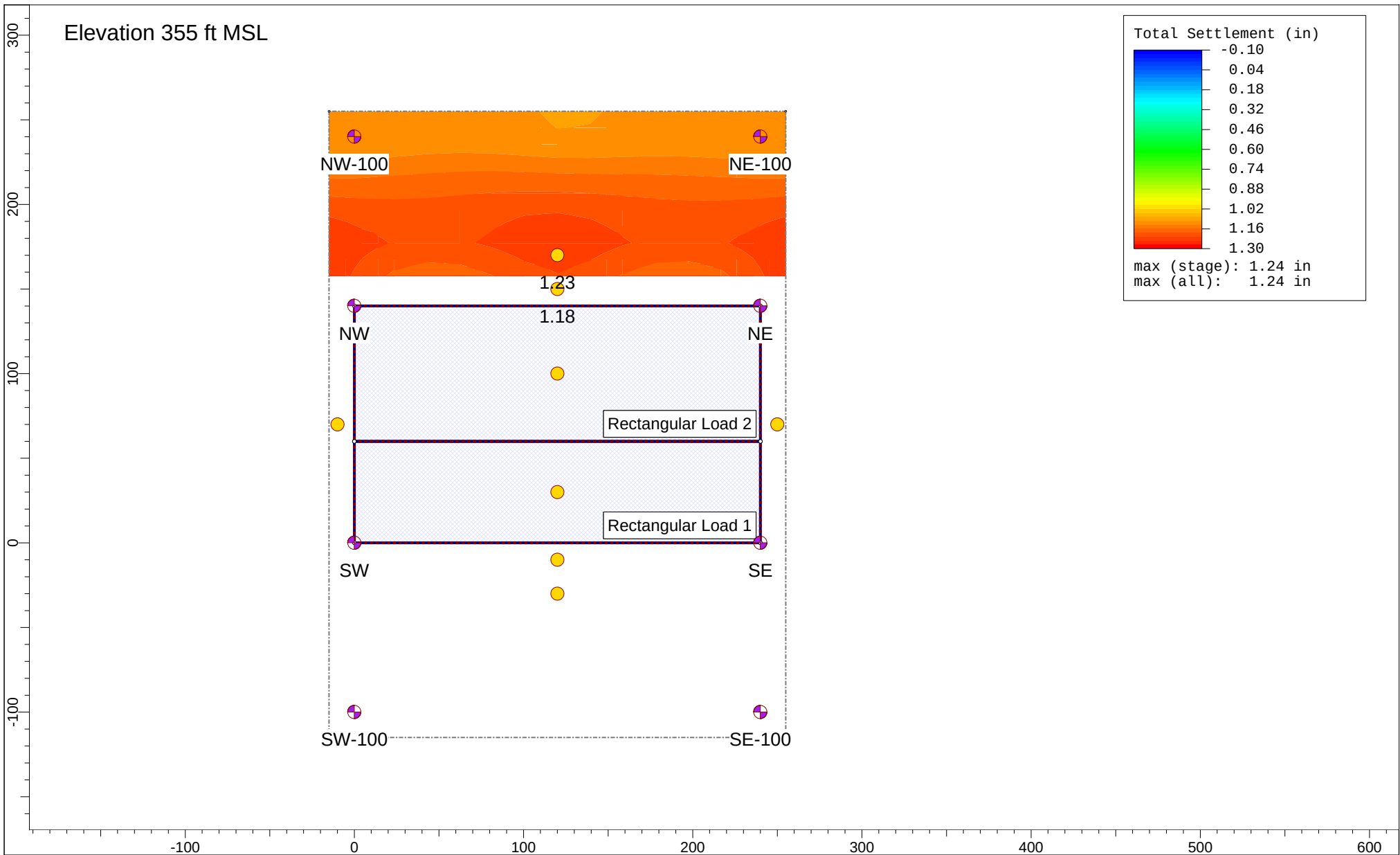
	Project		8850 Sunset	
	Analysis Description		Design Option 2 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:30:06 PM	File Name
				Stage 3 - Excavation = 0.167 y
				A9899-06-01 V7.s3z

Figure D3



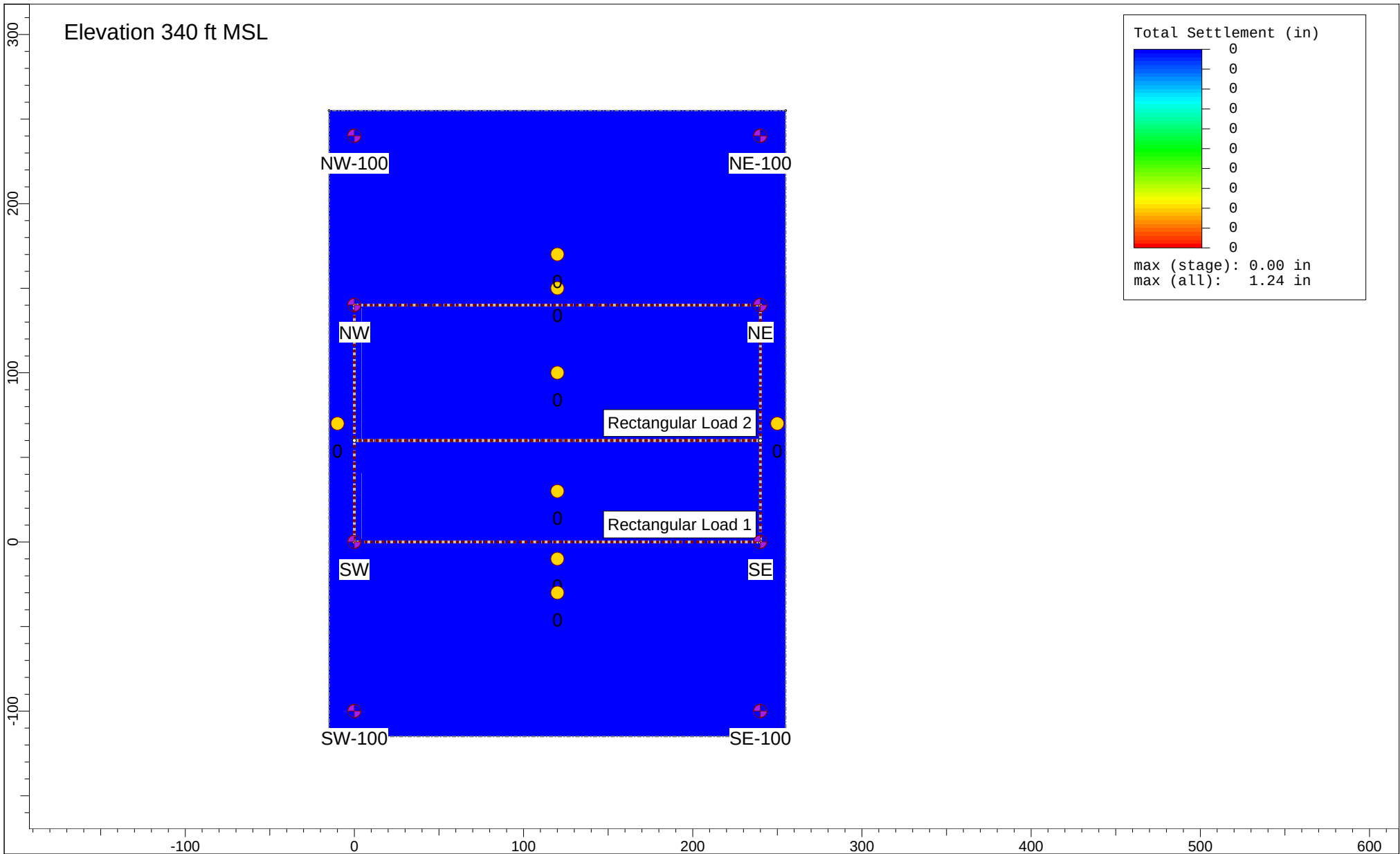
	Project		8850 Sunset	
	Analysis Description		Design Option 2 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage Stage 4 - Foundation Loading = 0.333 y
	Date		7/30/2022, 9:30:16 PM	File Name A9899-06-01 V7.s3z

Figure D4



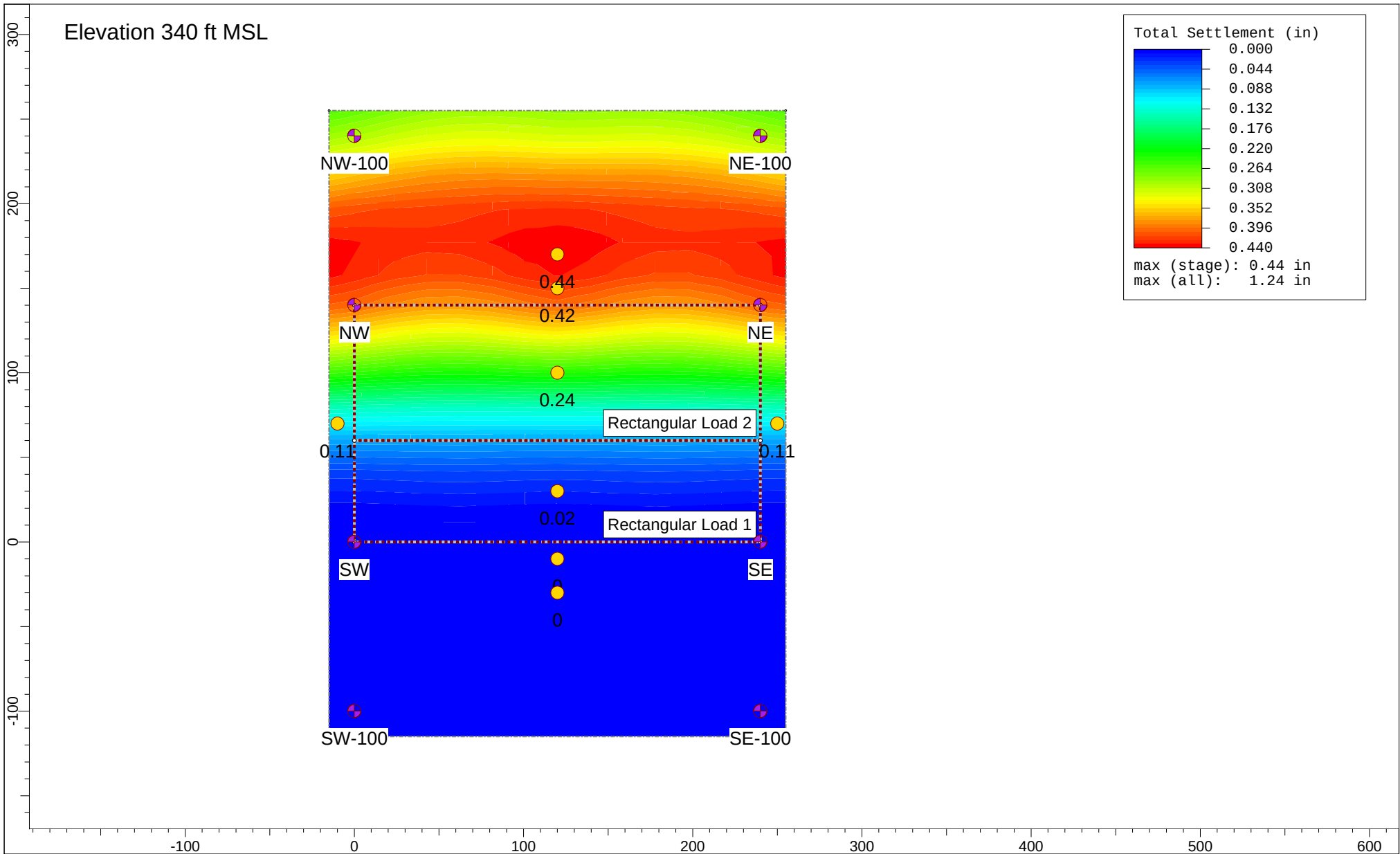
 SETTLE3 5.016	Project		8850 Sunset				
	Analysis Description						
	Design Option 2 (Flat Excavation Bottom), Scenario 3						
	Drawn By		JTA	Stage		Stage 5 - End of Dewatering = 2 y	
	Date		7/30/2022, 9:30:26 PM		File Name		A9899-06-01 V7.s3z

Figure D5



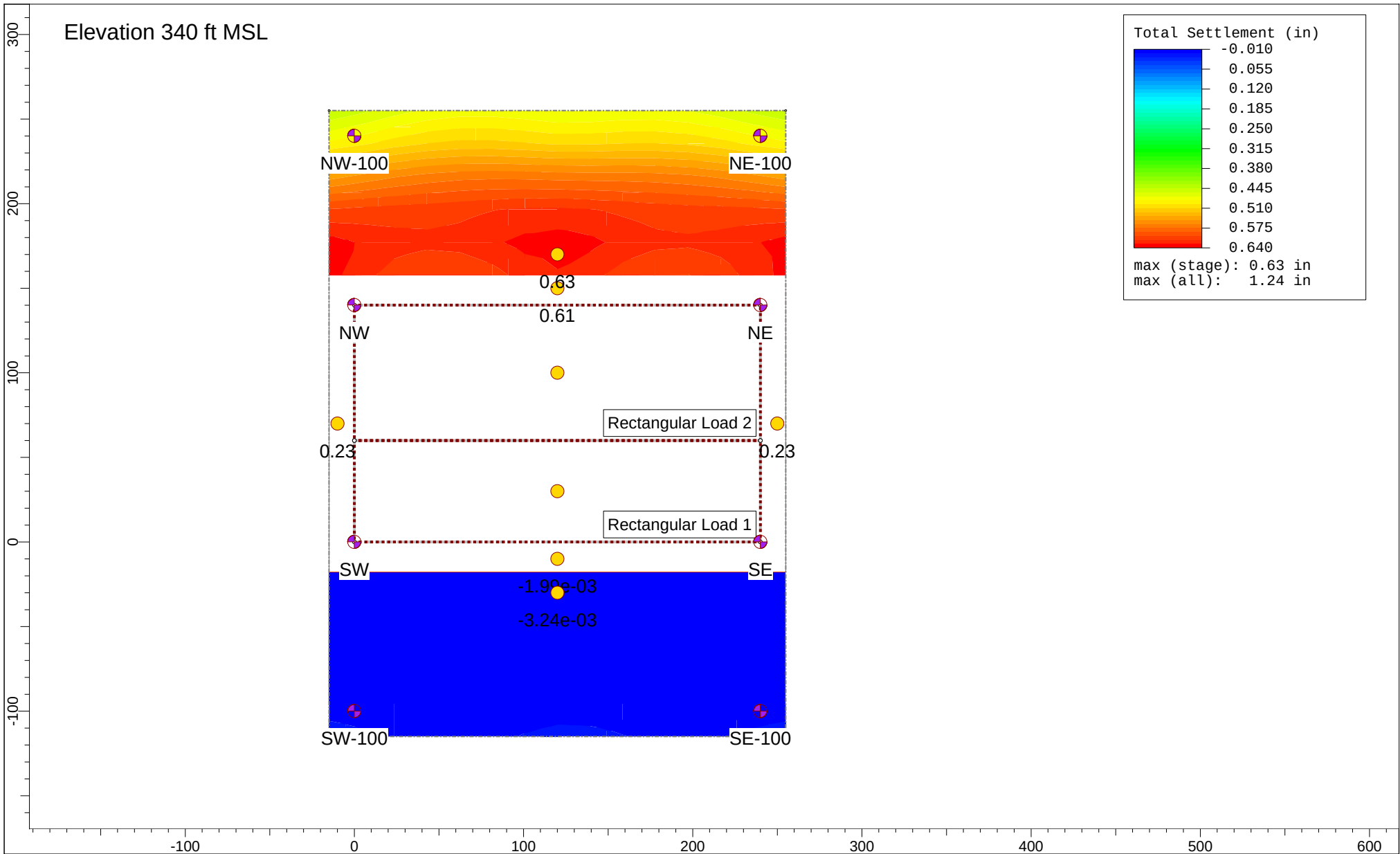
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	Analysis Description		Design Option 2 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:30:43 PM	Stage 1 - Initial = 0 y
File Name		A9899-06-01 V7.s3z		

Figure D6



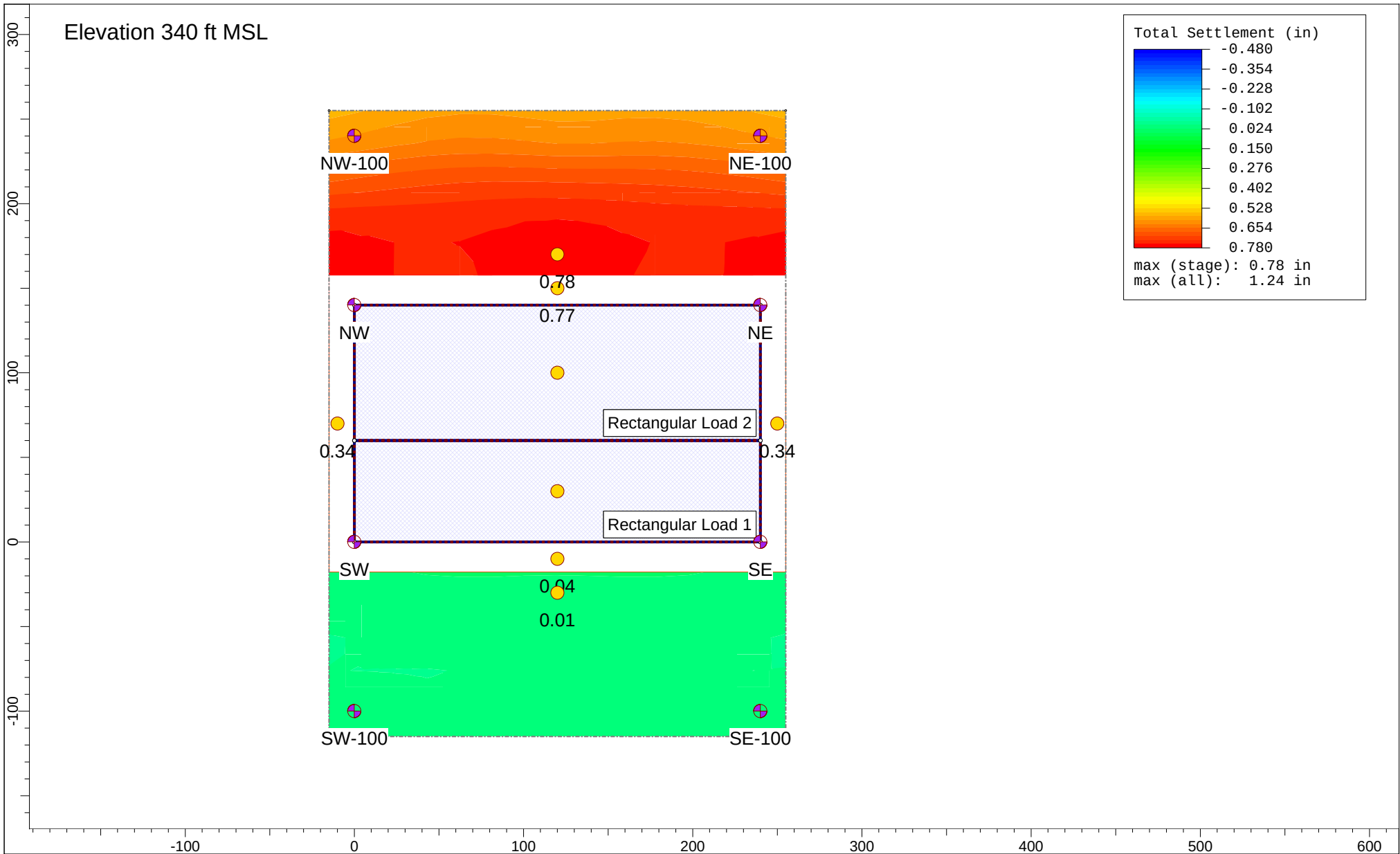
	Project		8850 Sunset	
	Analysis Description		Design Option 2 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage Stage 2 - Dewater = 0.083 y
	Date		7/30/2022, 9:30:52 PM	File Name A9899-06-01 V7.s3z

Figure D7



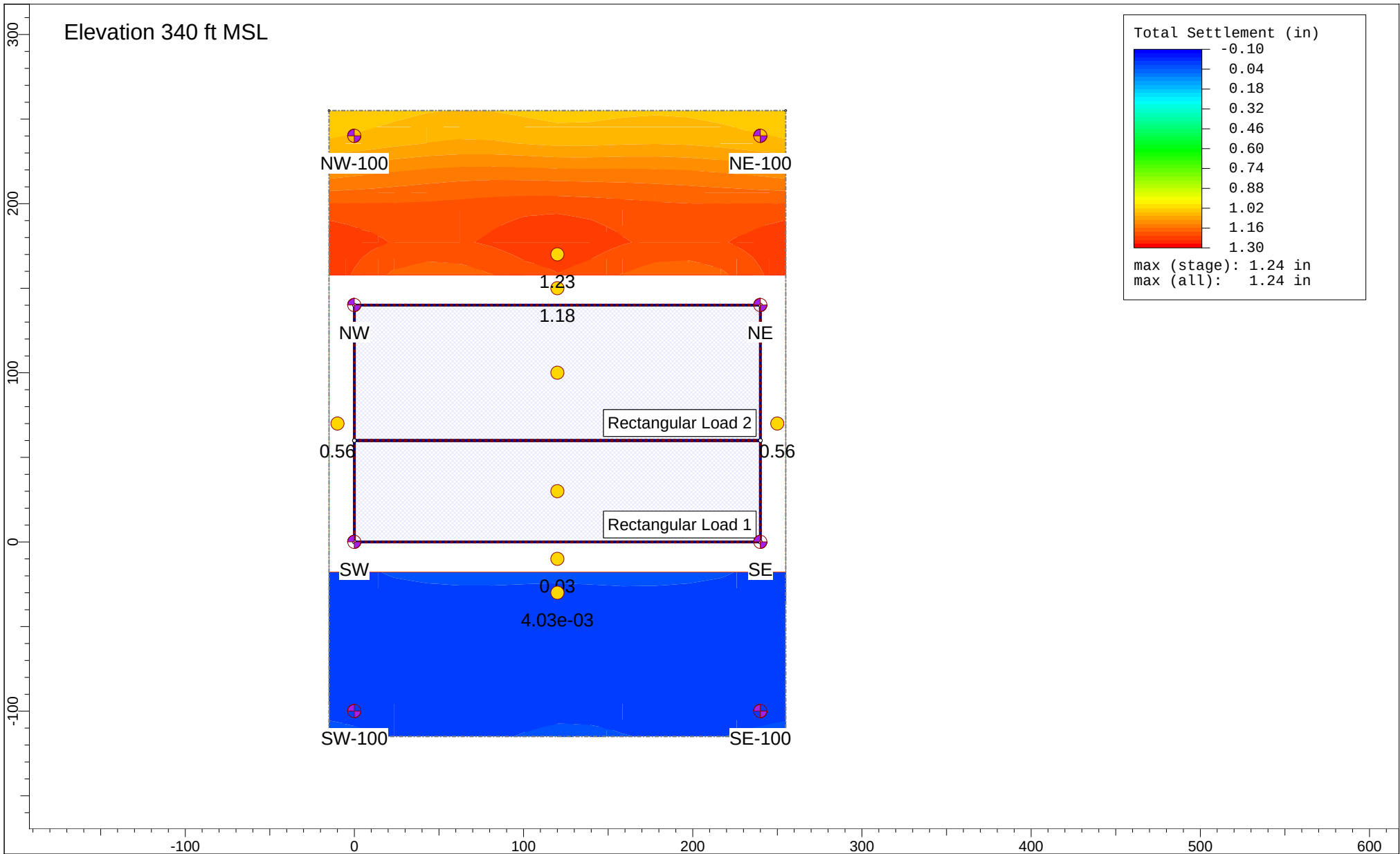
	Project		8850 Sunset	
	Analysis Description		Design Option 2 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:31:03 PM	Stage 3 - Excavation = 0.167 y
			File Name	A9899-06-01 V7.s3z

Figure D8



	Project		8850 Sunset	
	Analysis Description		Design Option 2 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage Stage 4 - Foundation Loading = 0.333 y
	Date		7/30/2022, 9:31:11 PM	File Name A9899-06-01 V7.s3z

Figure D9



	Project		8850 Sunset	
	Analysis Description		Design Option 2 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:31:19 PM	Stage 5 - End of Dewatering = 2 y
			File Name	A9899-06-01 V7.s3z

Figure D10

Settle3 Analysis Information

8850 Sunset

Project Settings

Document Name	A9899-06-01 V7.s3z
Project Title	8850 Sunset
Analysis	Design Option 2 (Flat Excavation Bottom), Scenario 3
Author	JTA
Date Created	5/18/2022, 8:38:53 AM
Last saved with Settle3 version	5.016
Stress Computation Method	Boussinesq
Stress Units	Imperial, stress as ksf
Settlement Units	inches
Time-dependent Consolidation Analysis	
Time Units	years
Permeability Units	feet/year

Advanced Settings

Start of secondary consolidation (% of primary)	95
Min. stress for secondary consolidation (% of initial)	1
Reset time when load changes for secondary consolidation	No
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Update Cv in each time step (improves consolidation accuracy)	
Ignore negative effective stresses in settlement calculations	
Add field points to load edges	

Soil Profile

Layer Option	Non-Horizontal Layers
Interpolation Method	Linear By Elevation
Use Non-Horizontal Ground Surface	Yes
Number of Surface Points	200
Vertical Axis	Elevation
Ground Elevation (ft)	355

Stage Settings

Stage #	Name	Time [years]
1	Initial	0
2	Dewater	0.083
3	Excavation	0.167
4	Foundation Loading	0.333
5	End of Dewatering	2

Results

Time taken to compute: 0.125612 seconds

Stage: Initial = 0 y

Data Type	Minimum	Maximum
Total Settlement [in]	0	0
Total Consolidation Settlement [in]	0	0
Virgin Consolidation Settlement [in]	0	0
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	12.7383
Effective Stress XX [ksf]	0	12.7383
Effective Stress YY [ksf]	0	12.7383
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	21.2
Total Stress YY [ksf]	0	21.2
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0
Pore Water Pressure [ksf]	0	8.59379
Excess Pore Water Pressure [ksf]	0	0
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [ksf]	0.0233266	12.734
Over-consolidation Ratio	1	1
Void Ratio	1.1	1.1
Permeability [ft/y]	2.13054e-07	6.76999
Coefficient of Consolidation [ft ² /y]	0.1	214
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	0

Stage: Dewater = 0.083 y

Figure D11

Data Type	Minimum	Maximum
Total Settlement [in]	0	0.439213
Total Consolidation Settlement [in]	0	0.439213
Virgin Consolidation Settlement [in]	0	0.439213
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	12.7383
Effective Stress XX [ksf]	0	13.8658
Effective Stress YY [ksf]	0	13.8658
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	22.2779
Total Stress YY [ksf]	0	22.2779
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0.00307596
Pore Water Pressure [ksf]	0	8.59379
Excess Pore Water Pressure [ksf]	-0.0831582	1.24863
Degree of Consolidation [%]	0	21.2302
Pre-consolidation Stress [ksf]	0.0233266	12.734
Over-consolidation Ratio	1	1
Void Ratio	1.09354	1.1
Permeability [ft/y]	2.13054e-07	6.76999
Coefficient of Consolidation [ft ² /y]	0.1	214
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.0573911	0.00295798

Stage: Excavation = 0.167 y

Figure D11

Data Type	Minimum	Maximum
Total Settlement [in]	-0.00338936	0.634162
Total Consolidation Settlement [in]	-0.00338936	0.634162
Virgin Consolidation Settlement [in]	0	0.634162
Recompression Consolidation Settlement [in]	-0.00338936	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-8.47868	0
Loading Stress XX [ksf]	-5.94429	0.209555
Loading Stress YY [ksf]	-7.40085	1.06855
Effective Stress ZZ [ksf]	0	12.7383
Effective Stress XX [ksf]	0	13.8118
Effective Stress YY [ksf]	0	13.4706
Total Stress ZZ [ksf]	-1.17756	21.0686
Total Stress XX [ksf]	-4.48184	21.6906
Total Stress YY [ksf]	-5.91602	21.4425
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	-6.94741e-05	0.00315563
Pore Water Pressure [ksf]	-7.02785	8.46242
Excess Pore Water Pressure [ksf]	-7.02785	1.24693
Degree of Consolidation [%]	0	99.1865
Pre-consolidation Stress [ksf]	0.0233266	12.734
Over-consolidation Ratio	1	1.0238
Void Ratio	1.09337	1.10015
Permeability [ft/y]	2.13054e-07	6.76999
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.135256	0.00331203

Stage: Foundation Loading = 0.333 y

Figure D11

Data Type	Minimum	Maximum
Total Settlement [in]	-0.473379	0.777754
Total Consolidation Settlement [in]	-0.473379	0.777754
Virgin Consolidation Settlement [in]	0	0.792671
Recompression Consolidation Settlement [in]	-0.515317	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-1.97868	0.01
Loading Stress XX [ksf]	-1.19468	0.462336
Loading Stress YY [ksf]	-2.0121	1.25459
Effective Stress ZZ [ksf]	0	12.7372
Effective Stress XX [ksf]	0	14.232
Effective Stress YY [ksf]	-0.527259	13.9123
Total Stress ZZ [ksf]	0	21.1767
Total Stress XX [ksf]	0	22.0874
Total Stress YY [ksf]	0	21.7614
Modulus of Subgrade Reaction (Total) [ksf/ft]	-25945.7	3496.6
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-25945.7	3496.6
Total Strain	-0.0200854	0.00316022
Pore Water Pressure [ksf]	0	8.57096
Excess Pore Water Pressure [ksf]	-0.263091	6.5
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.0233266	12.734
Over-consolidation Ratio	1	574.067
Void Ratio	1.09336	1.14088
Permeability [ft/y]	2.13054e-07	6.76999
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.568125	0.0102823

Stage: End of Dewatering = 2 y

Figure D11

Data Type	Minimum	Maximum
Total Settlement [in]	-0.0118447	1.2436
Total Consolidation Settlement [in]	-0.0118447	1.2436
Virgin Consolidation Settlement [in]	0	1.24361
Recompression Consolidation Settlement [in]	-0.0529829	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-1.97868	0.01
Loading Stress XX [ksf]	-1.19468	0.462336
Loading Stress YY [ksf]	-2.0121	1.25459
Effective Stress ZZ [ksf]	0	12.7375
Effective Stress XX [ksf]	0	14.2322
Effective Stress YY [ksf]	0	13.9126
Total Stress ZZ [ksf]	0	21.1767
Total Stress XX [ksf]	0	21.699
Total Stress YY [ksf]	0	21.383
Modulus of Subgrade Reaction (Total) [ksf/ft]	-12677.9	127.99
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-12677.9	127.99
Total Strain	-0.0182679	0.00373734
Pore Water Pressure [ksf]	-4.44089e-16	8.57084
Excess Pore Water Pressure [ksf]	-1.24863	2.35364
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.0233266	12.734
Over-consolidation Ratio	1	1.12472
Void Ratio	1.09215	1.13758
Permeability [ft/y]	2.13054e-07	6.76999
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.123742	0.0448083

Loads

1. Rectangular Load: "Rectangular Load 1"

Length	240 ft
Width	60 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	14400 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	0
240	0
240	60
0	60

2. Rectangular Load: "Rectangular Load 2"

Length	240 ft
Width	80 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	19200 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Excavations

1. Excavation: "Excavation 1"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
240	0
240	60
0	60
0	0

2. Excavation: "Excavation 2"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Soil Layers

Ground Surface Drained: Yes

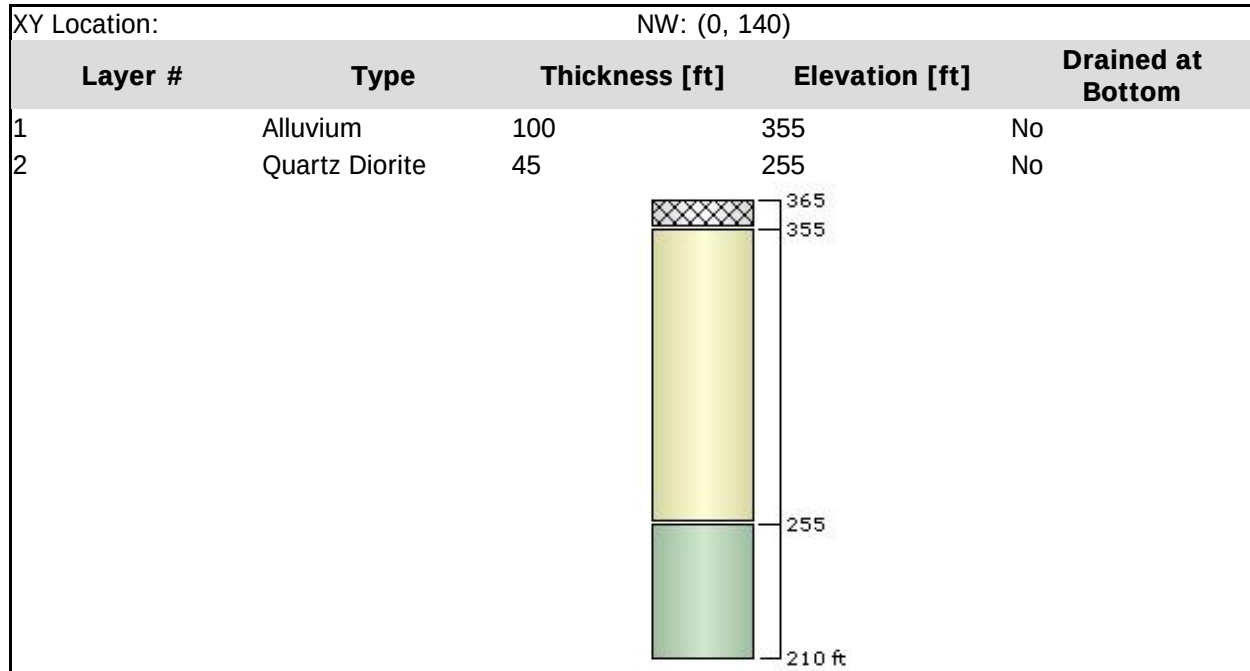
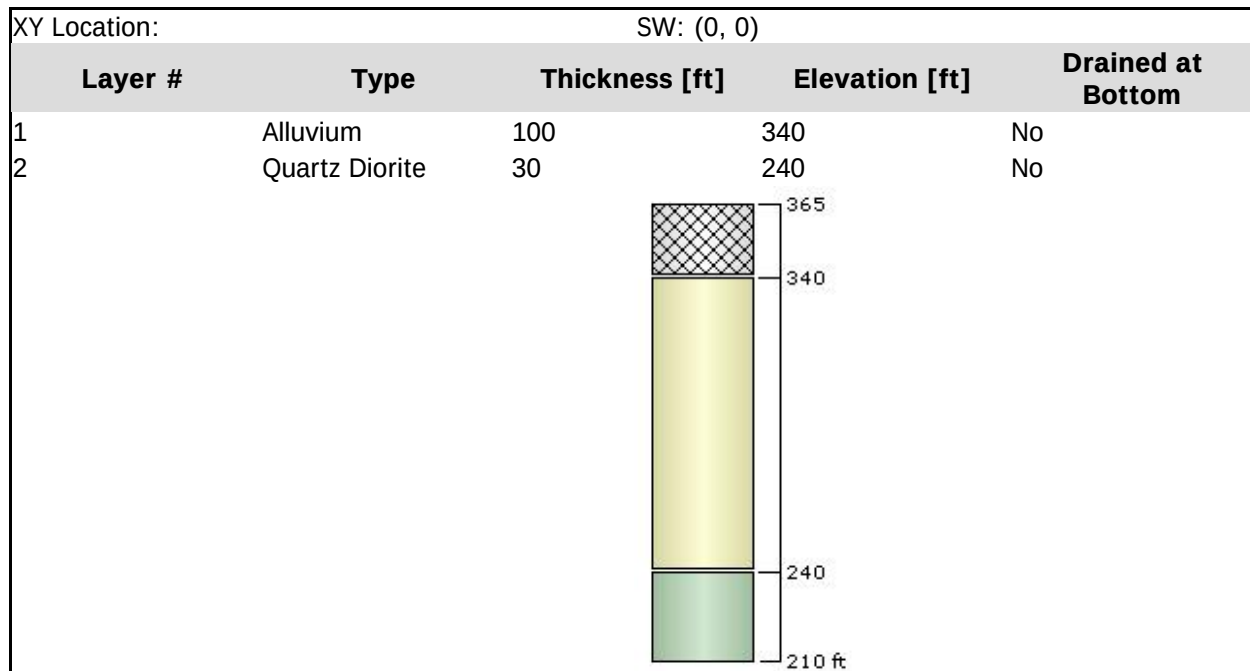
NW

SW

SE

Figure D11

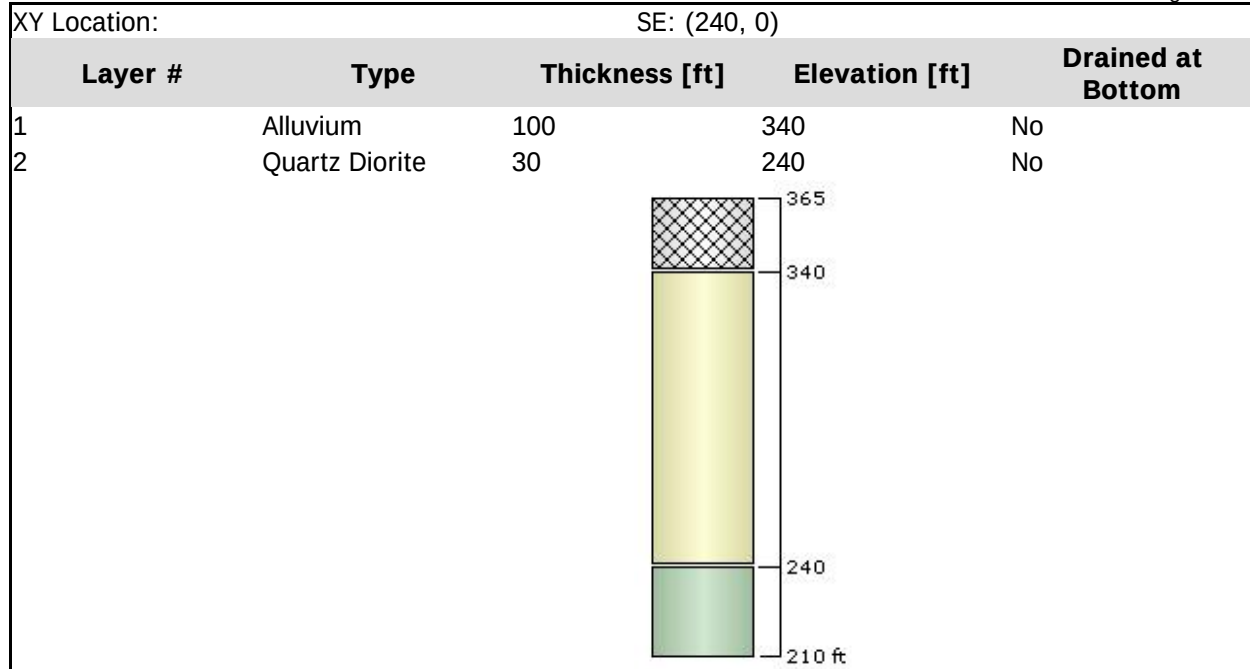
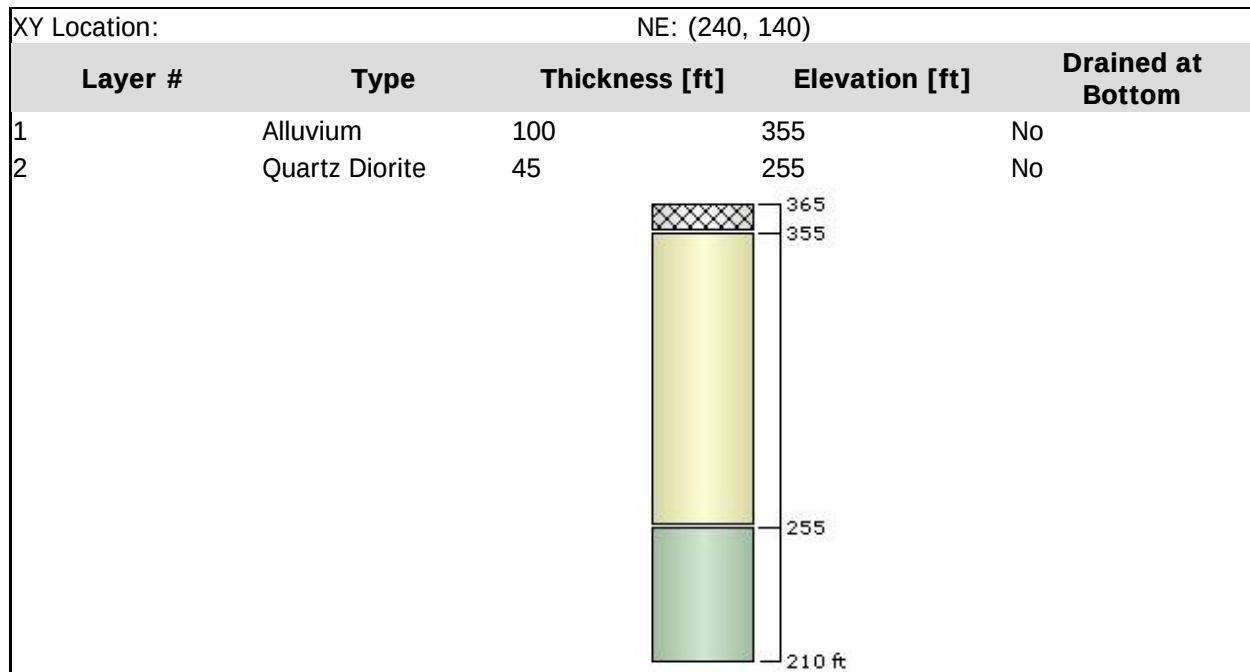
**NE****NW-100**

Figure D11

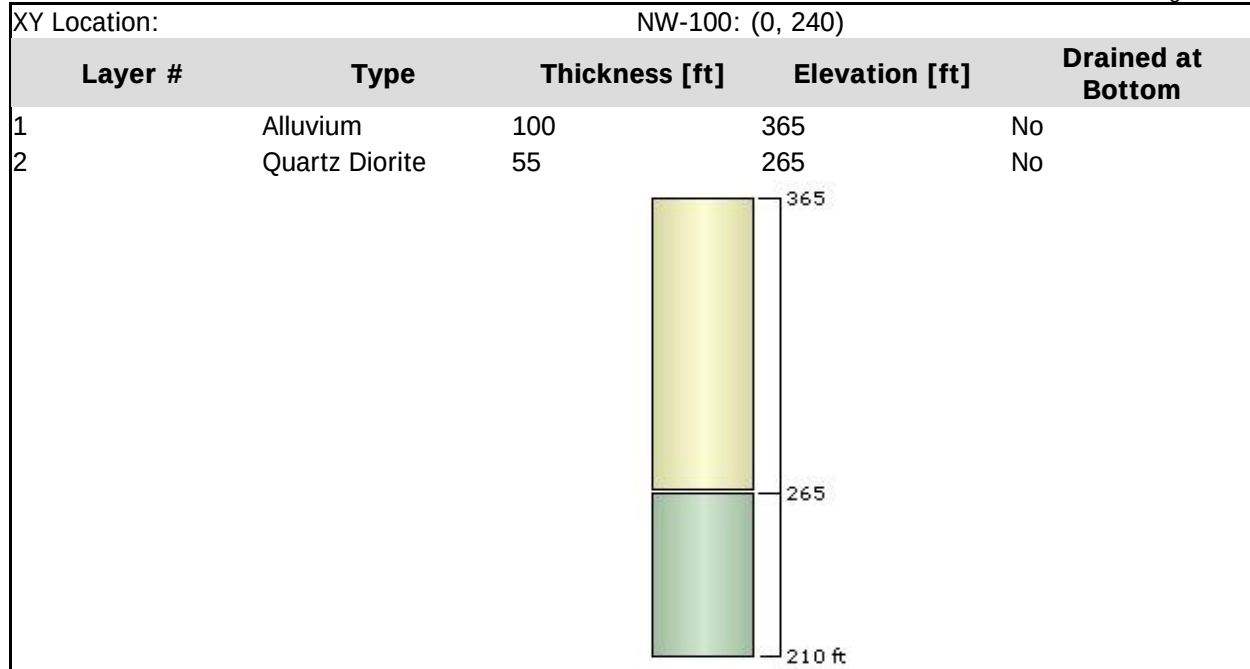
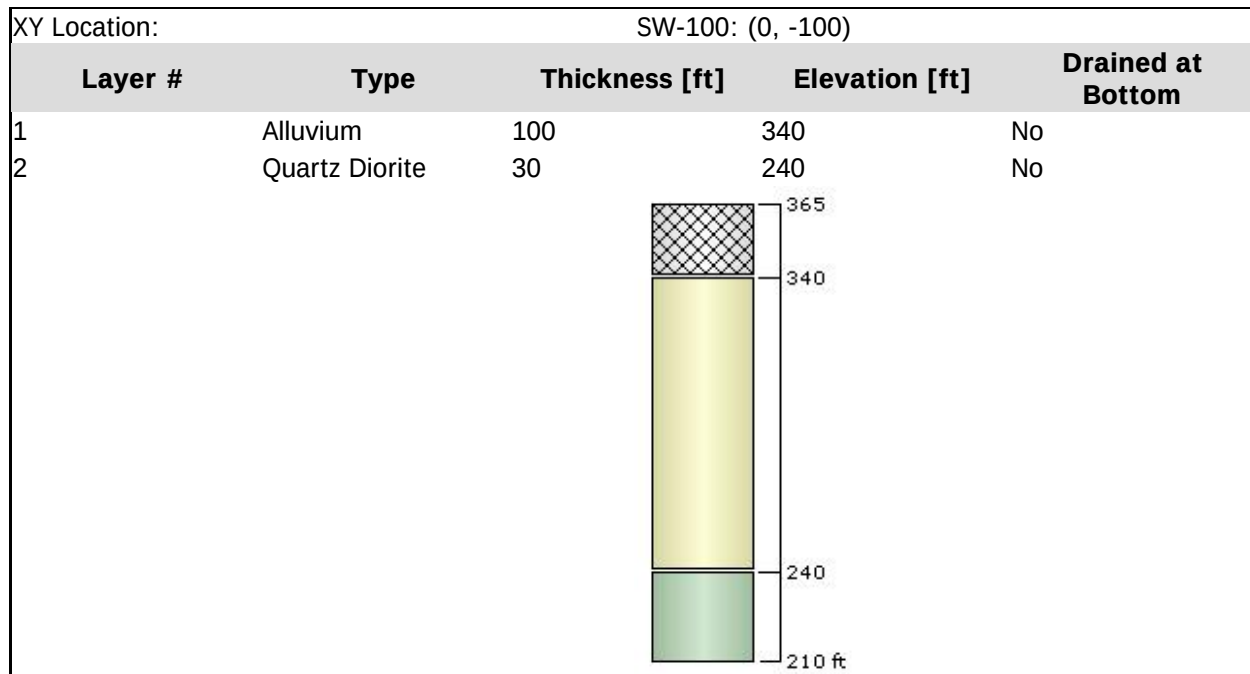
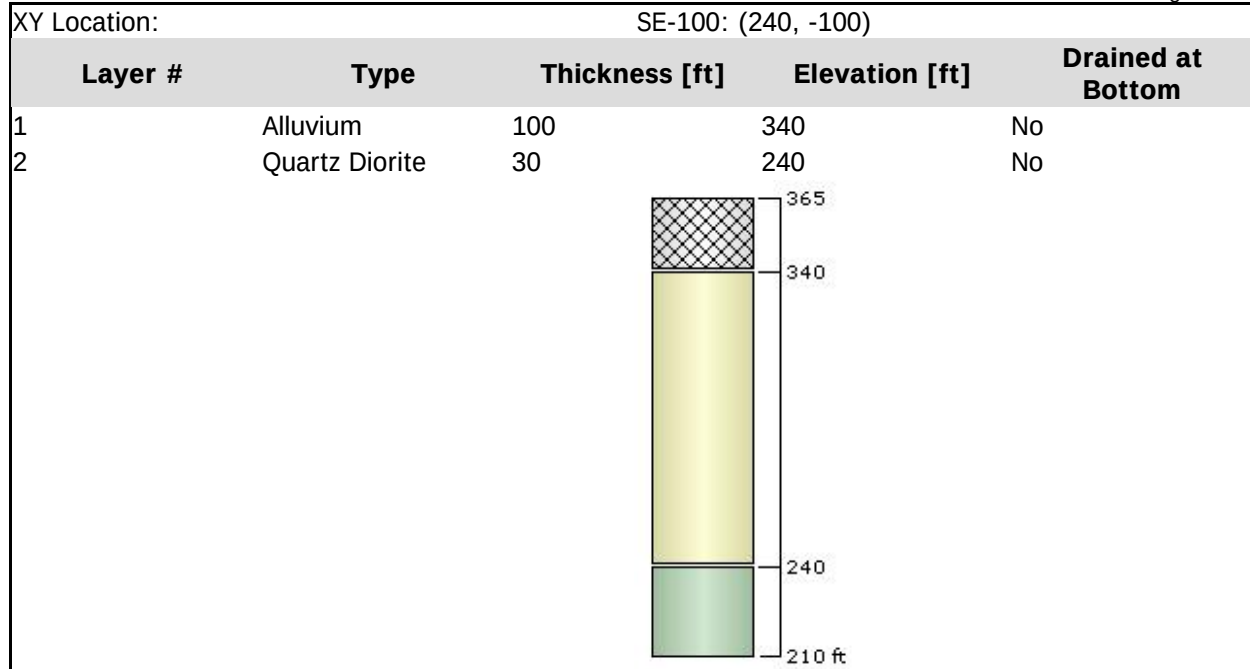
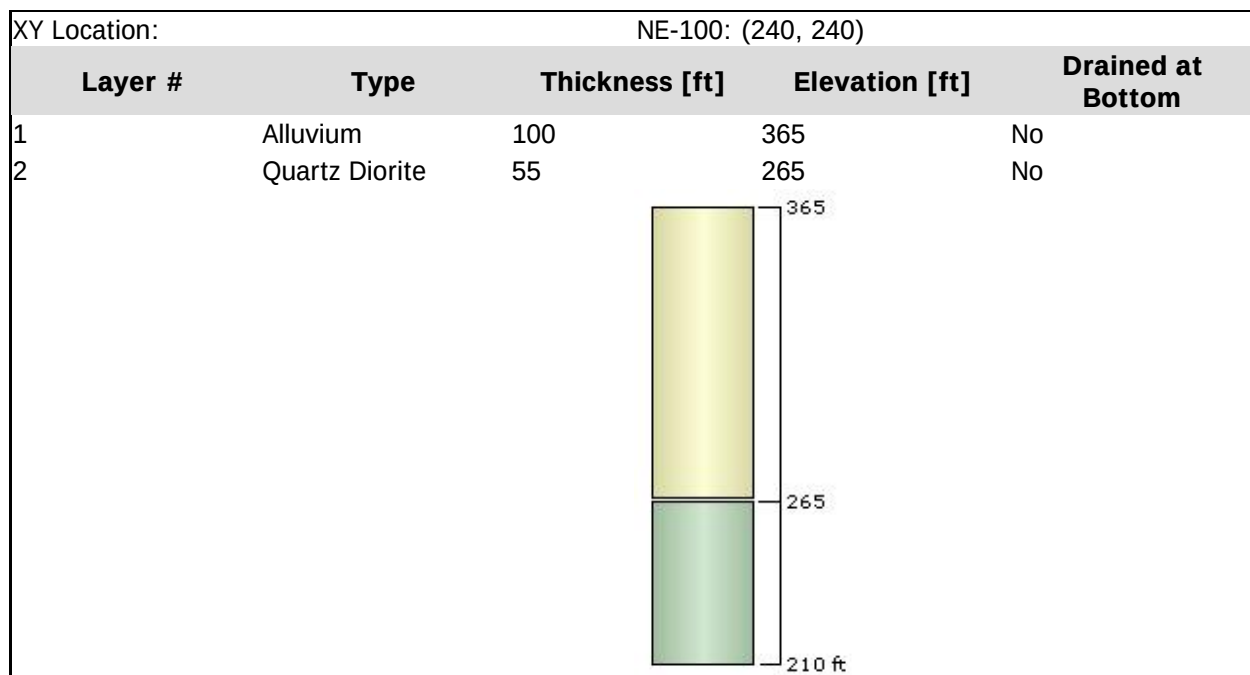
**SW-100****SE-100**

Figure D11

**NE-100**

Soil Properties

Property	Alluvium	Quartz Diorite
Color		
Unit Weight [kips/ft3]	0.135	0.14
Saturated Unit Weight [kips/ft3]	0.135	0.14
K0	1	1
Primary Consolidation	Enabled	Enabled
Material Type	Non-Linear	Non-Linear
Cce	0.0272	0.001
Cre	0.0068	0.001
e0	1.1	1.1
OCR	1	1
Cv [ft2/y]	214	0.1
Cvr [ft2/y]	300	0.1
B-bar	1	1
Undrained Su A [kips/ft2]	0	0
Undrained Su S	0.2	0.2
Undrained Su m	0.8	0.8
Grid Name	Staged	Staged

Groundwater

Groundwater method

Grids

Water Unit Weight

0.0624 kips/ft³

Groundwater Grid: Initial

X	Y	Elevation (ft)
0	140	335
0	0	320
240	0	320
240	140	335
120	140	335
120	0	320
0	240	346
0	-100	320
240	-100	320
240	240	346
-100	140	346
-100	0	320
340	0	320
340	140	346
125	250	346
125	-100	320
-70.7107	210.711	346
-70.7107	-70.7107	320
310.711	-70.7107	320
310.711	210.711	346

Groundwater Grid: Dewatered

Figure D11

X	Y	Elevation (ft)
0	140	316
0	0	320
240	0	320
240	140	316
120	140	316
120	0	320
0	240	328.714
0	-100	320
240	-100	320
240	240	328.714
-100	140	328.714
-100	0	320
340	0	320
340	140	328.714
125	250	328.714
125	-100	320
-70.7107	210.711	328.714
-70.7107	-70.7107	320
310.711	-70.7107	320
310.711	210.711	328.714

Query

Query Points

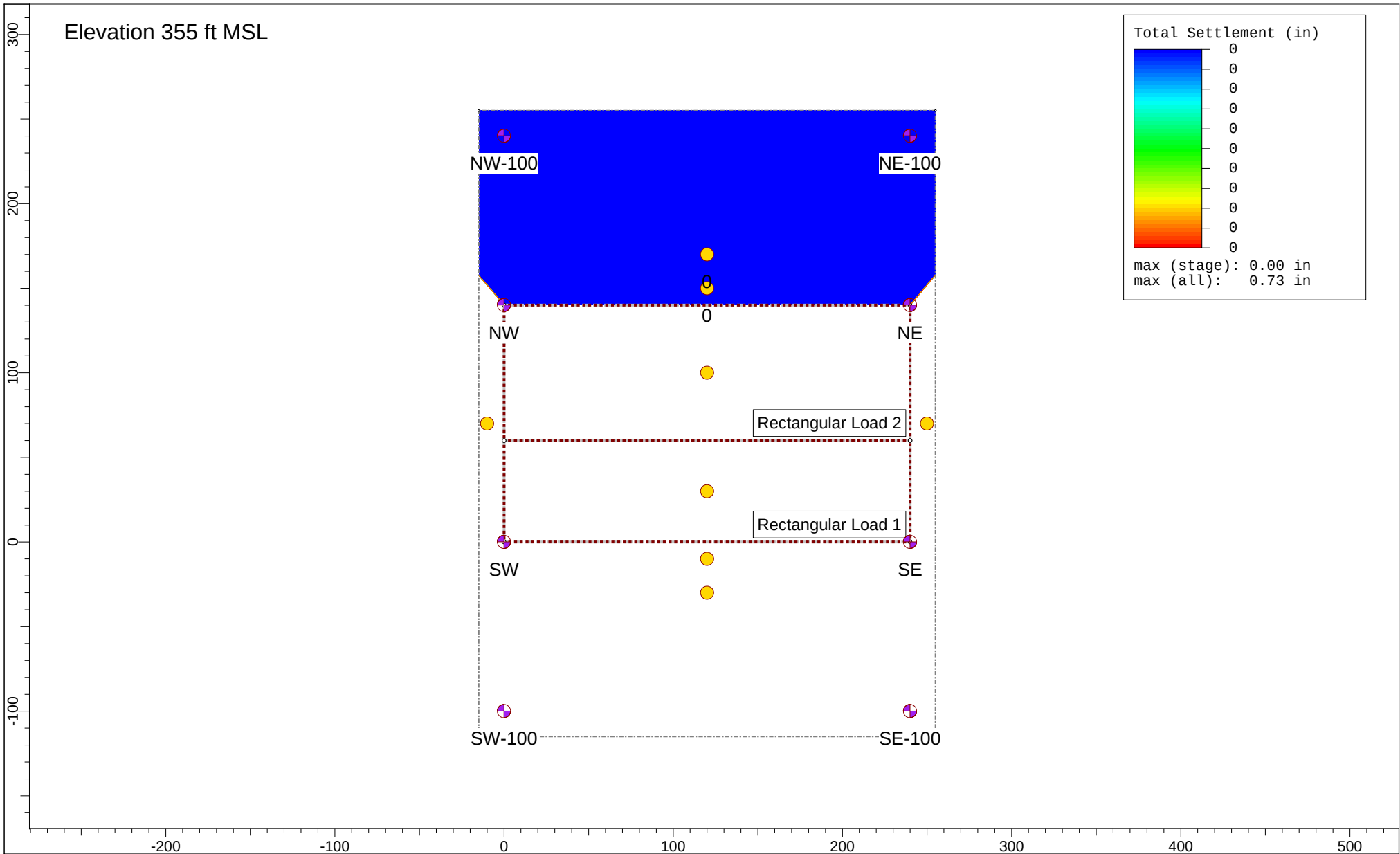
Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	120, 100	Auto: 67
2	Query Point 2	120, 30	Auto: 63
3	Query Point 3	120, 150	Auto: 57
4	Query Point 4	120, -10	Auto: 65
5	Query Point 5	-10, 70	Auto: 53
6	Query Point 6	250, 70	Auto: 53
7	Query Point 7	120, 170	Auto: 57
8	Query Point 8	120, -30	Auto: 65

Field Point Grid

Number of points	361
Expansion Factor	1

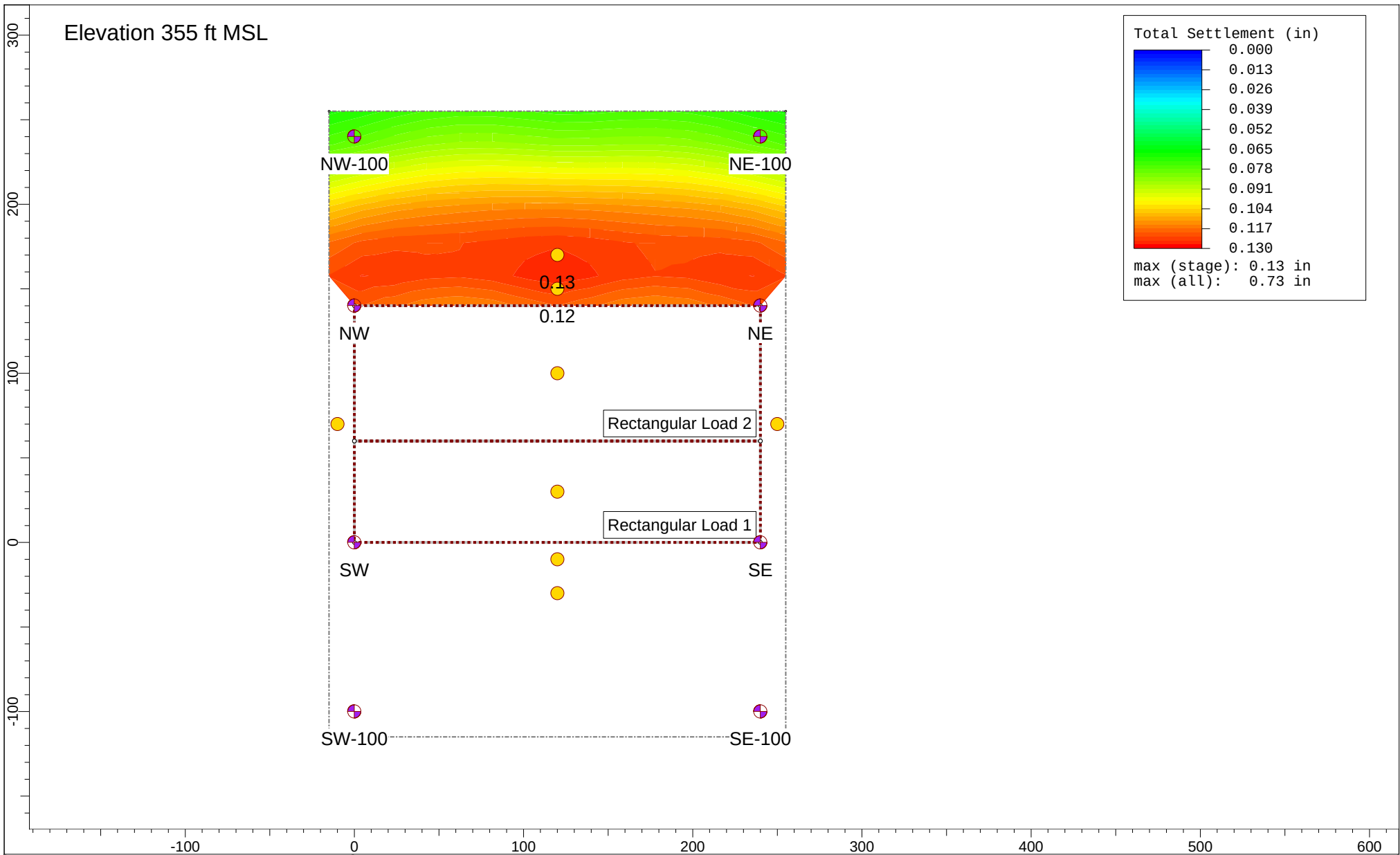
Grid Coordinates

X [ft]	Y [ft]
360	360
360	-220
-120	-220
-120	360



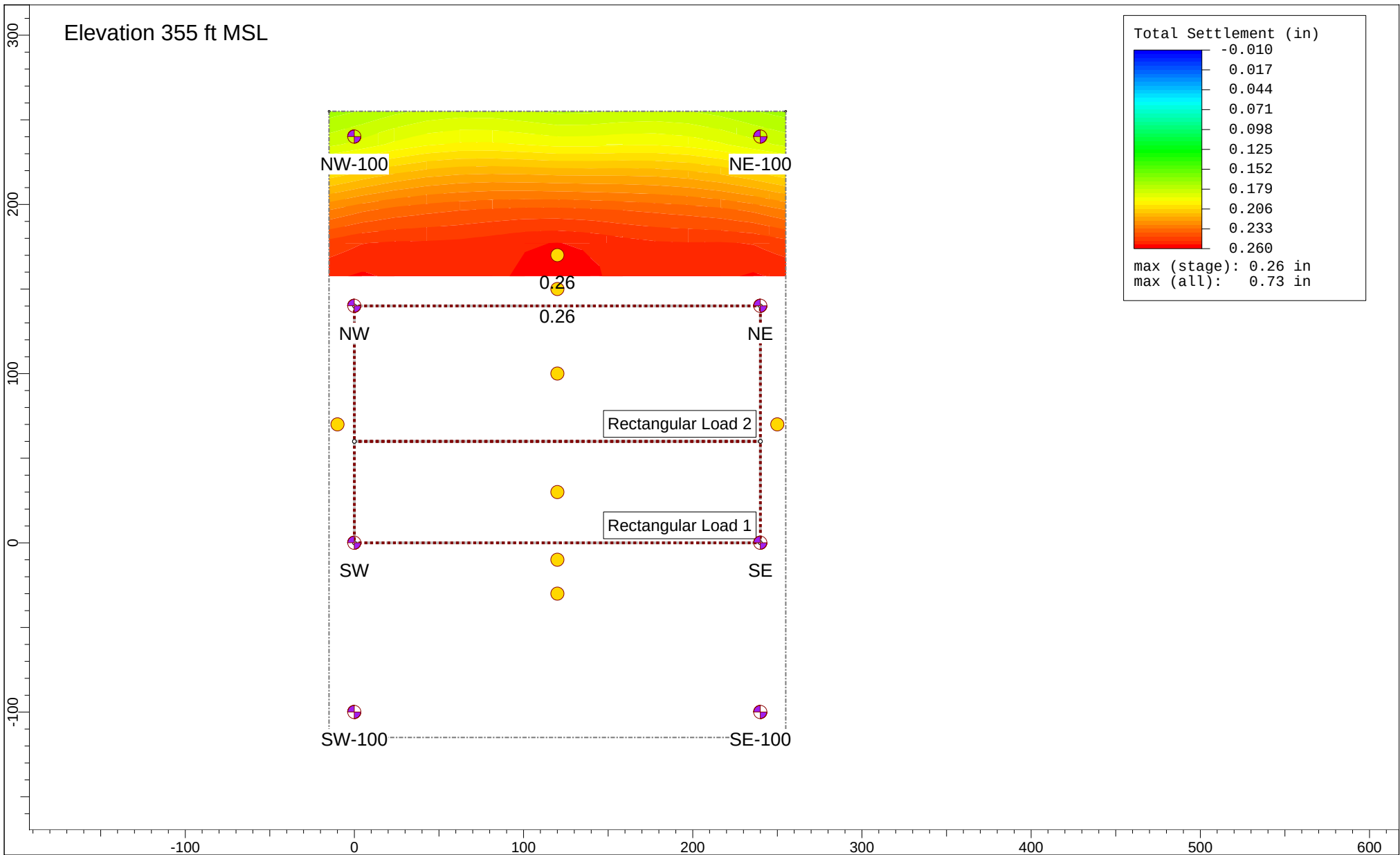
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	Analysis Description		Design Optoin 2 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage Stage 1 - Initial = 0 y
	Date		7/30/2022, 9:33:51 PM	File Name A9899-06-01 V8.s3z

Figure D12



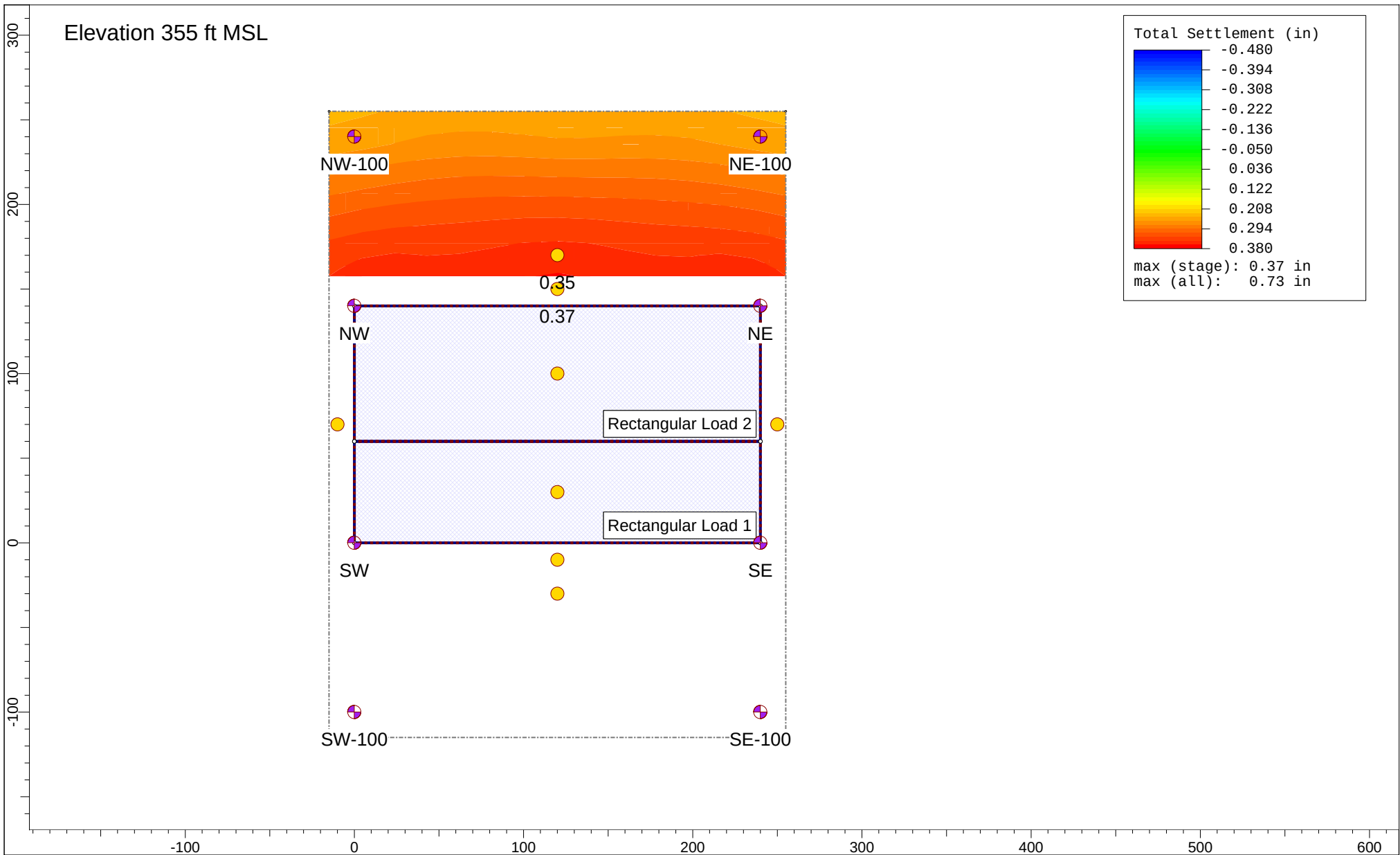
	Project		8850 Sunset	
	Analysis Description		Design Optoin 2 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage Stage 2 - Dewater = 0.083 y
	Date		7/30/2022, 9:33:59 PM	File Name A9899-06-01 V8.s3z

Figure D13



	Project		8850 Sunset	
	Analysis Description		Design Optoin 2 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:34:07 PM	File Name
				Stage 3 - Excavation = 0.167 y
				A9899-06-01 V8.s3z

Figure D14



	Project		8850 Sunset	
	Analysis Description		Design Optoin 2 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage Stage 4 - Foundation Loading = 0.333 y
	Date		7/30/2022, 9:34:15 PM	File Name A9899-06-01 V8.s3z

Figure D15

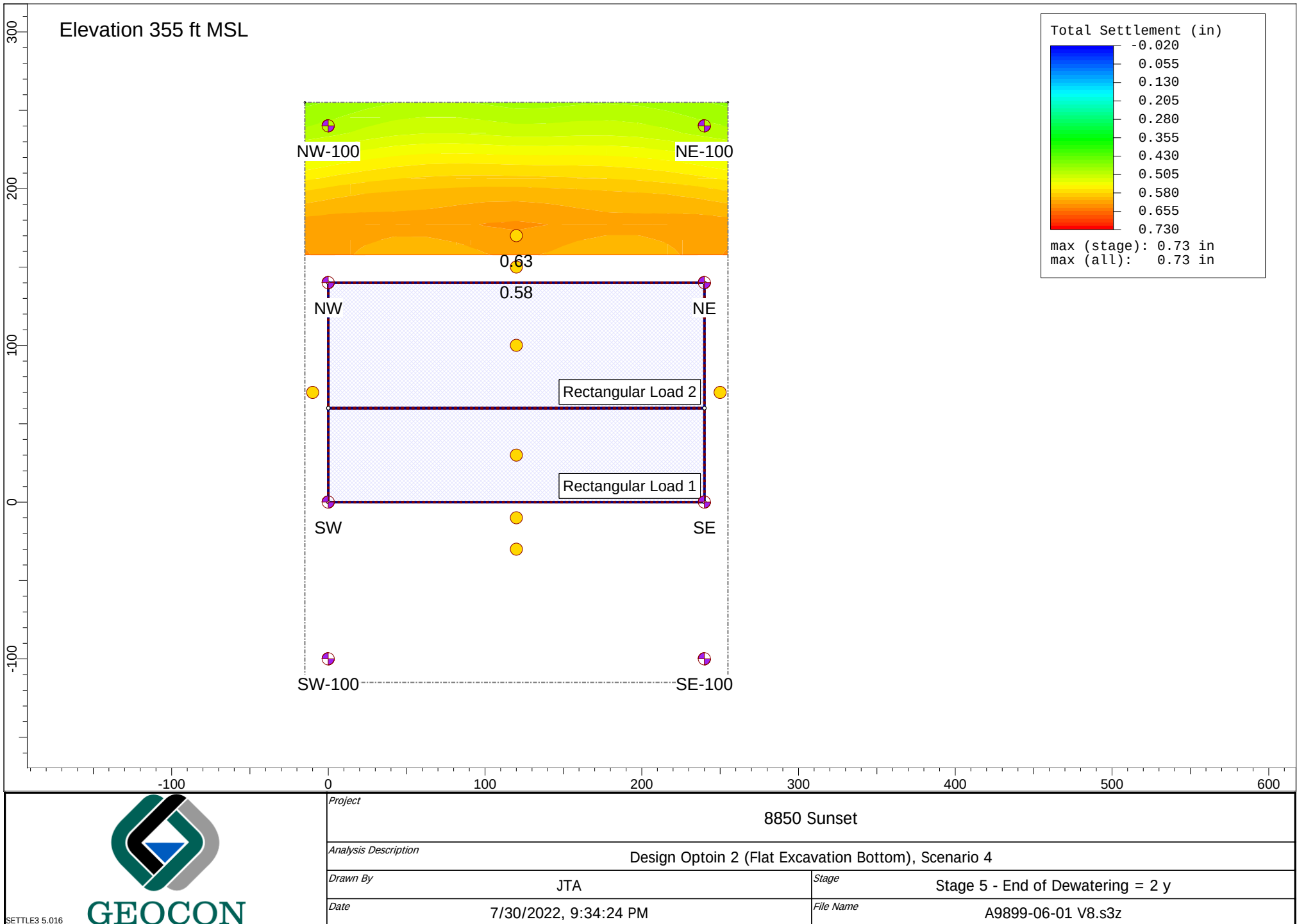
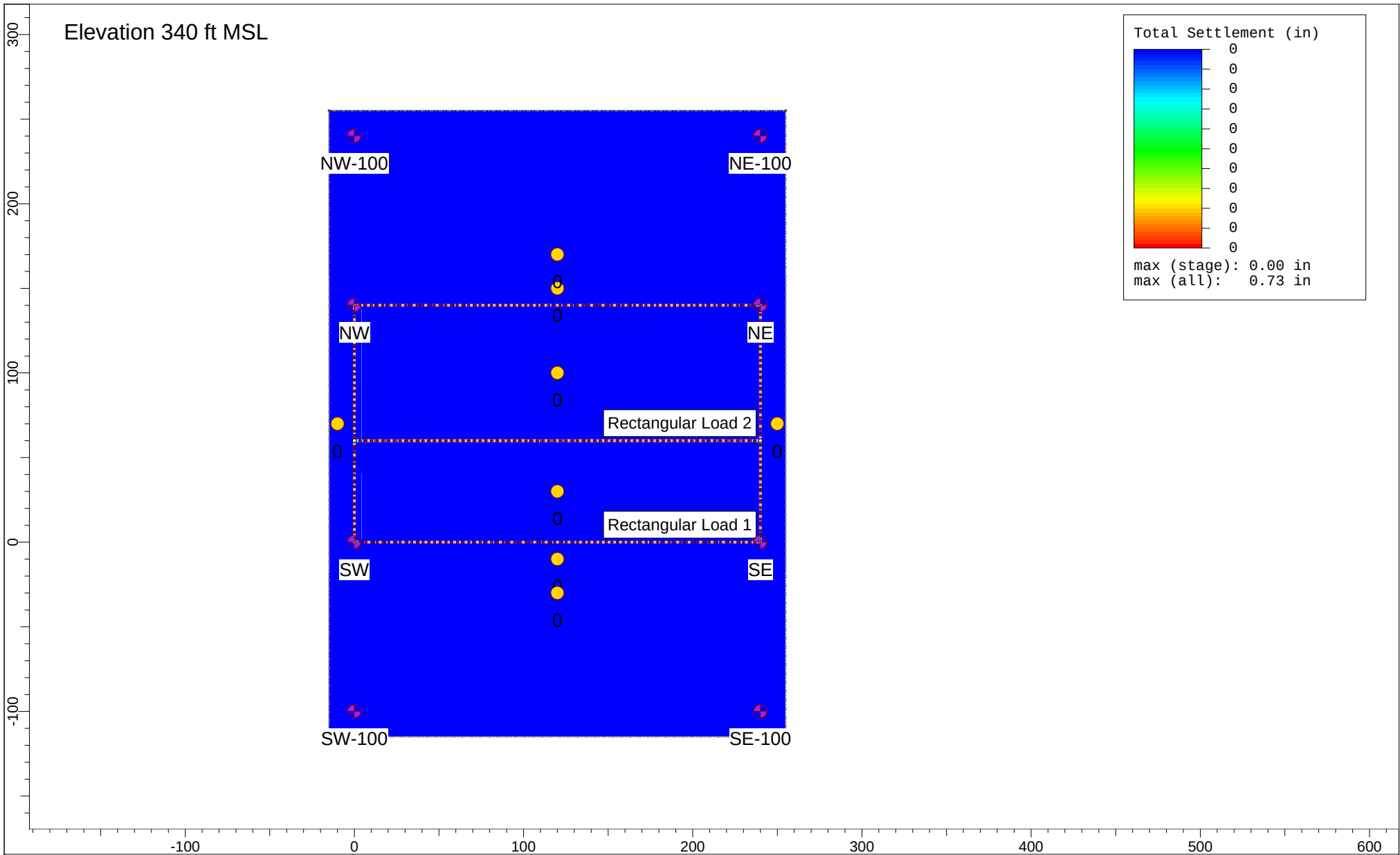
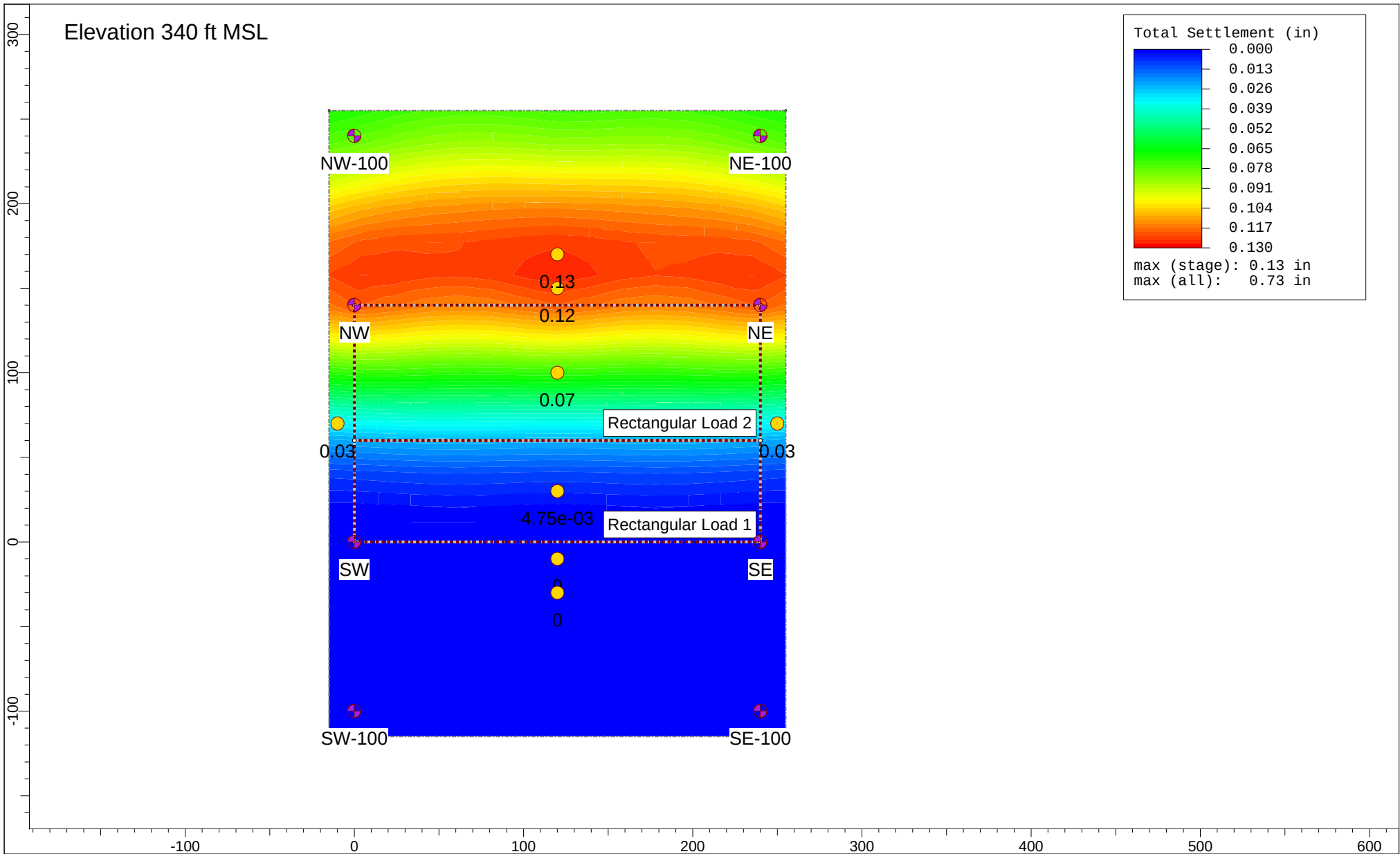


Figure D16



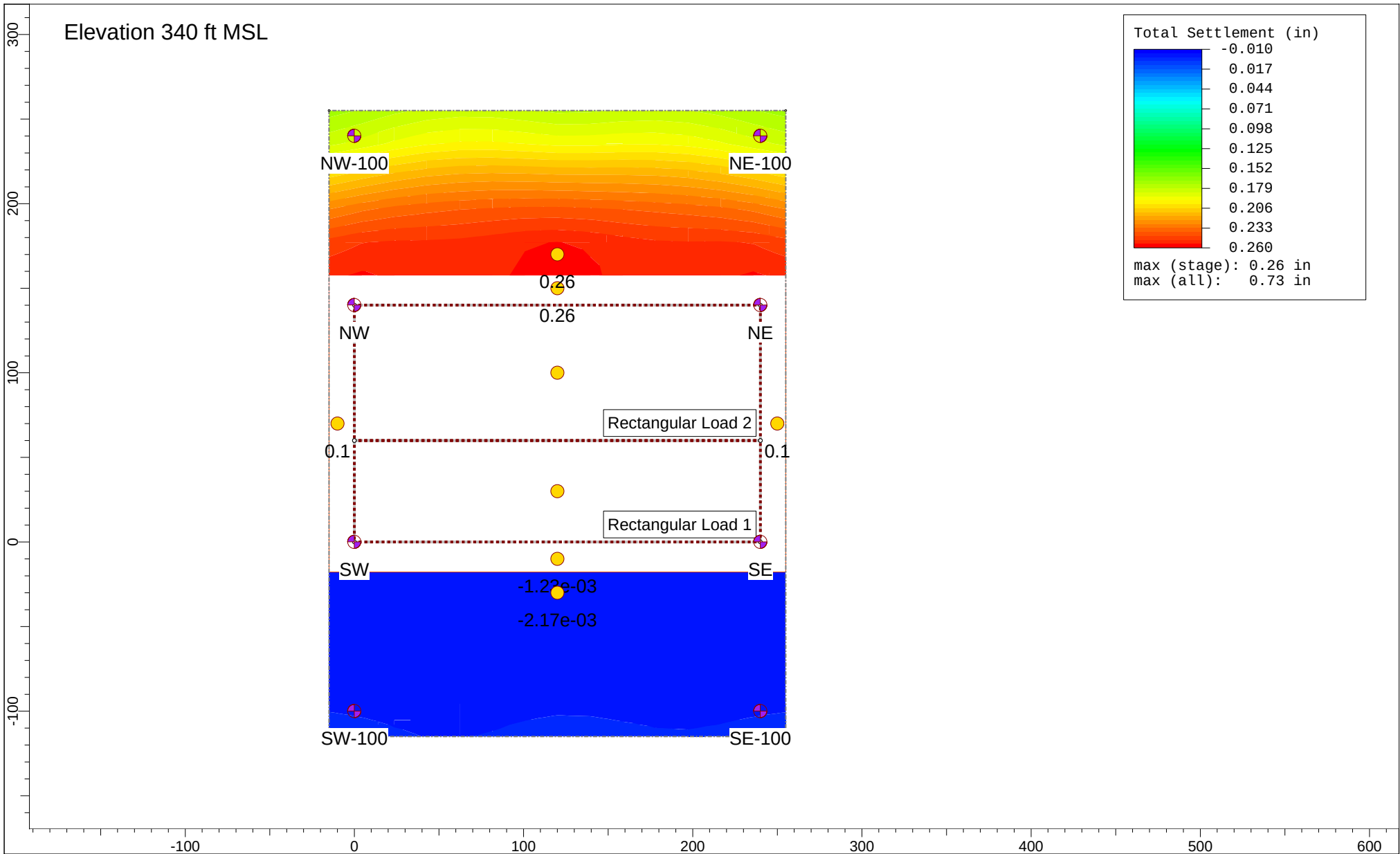
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	Analysis Description		Design Optoin 2 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage Stage 1 - Initial = 0 y
	Date		7/30/2022, 9:34:39 PM	File Name A9899-06-01 V8.s3z

Figure D17



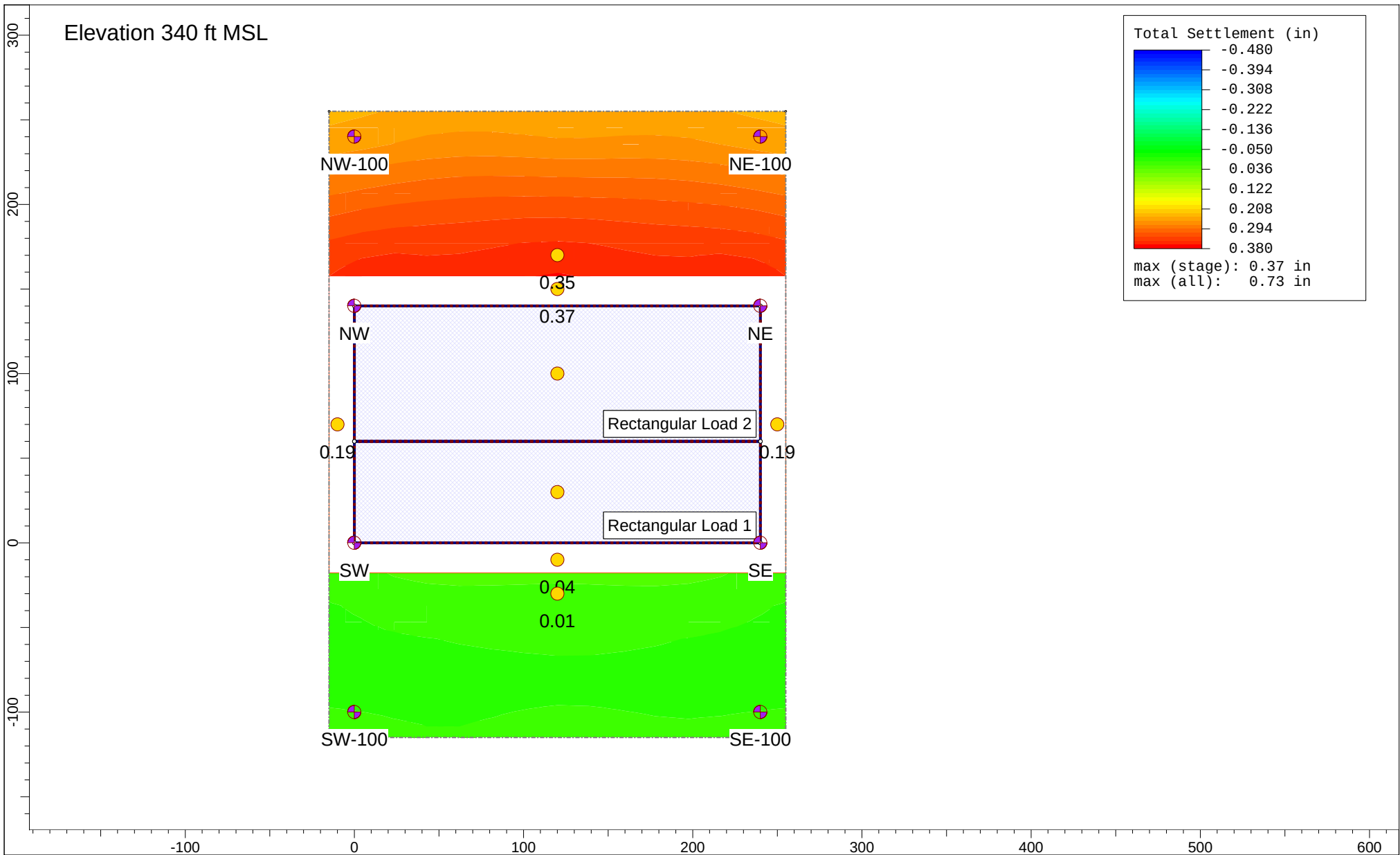
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	Analysis Description		Design Optoin 2 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:34:53 PM	Stage 2 - Dewater = 0.083 y
File Name		A9899-06-01 V8.s3z		

Figure D18



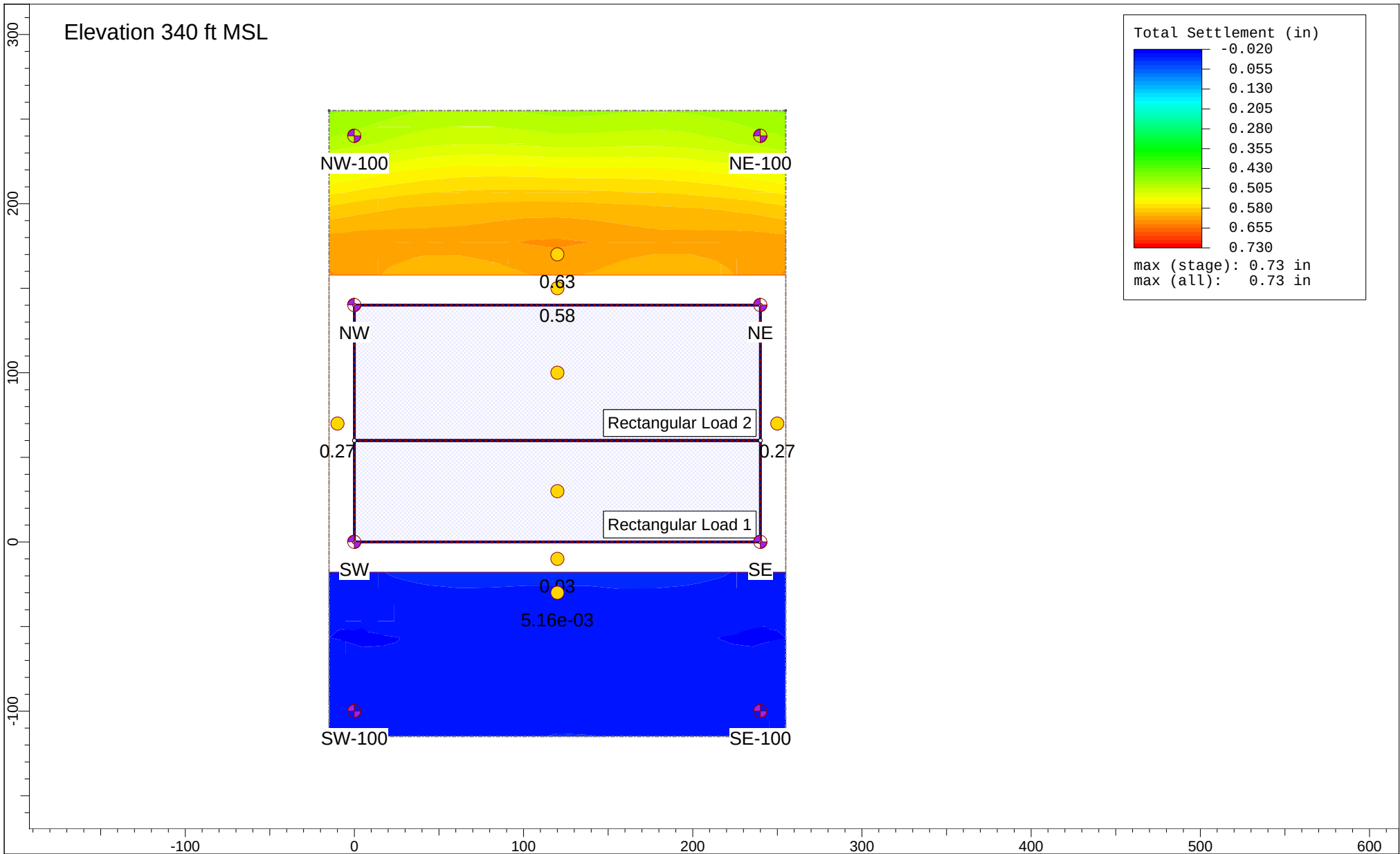
	Project		8850 Sunset	
	Analysis Description		Design Optoin 2 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage
	Date		7/30/2022, 9:35:01 PM	Stage 3 - Excavation = 0.167 y
			File Name	A9899-06-01 V8.s3z

Figure D19



	Project		8850 Sunset	
	Analysis Description		Design Optoin 2 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage Stage 4 - Foundation Loading = 0.333 y
	Date		7/30/2022, 9:35:08 PM	File Name A9899-06-01 V8.s3z

Figure D20



	Project		8850 Sunset	
	Analysis Description		Design Optoin 2 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage Stage 5 - End of Dewatering = 2 y
	Date		7/30/2022, 9:35:16 PM	File Name A9899-06-01 V8.s3z

Figure D21

Settle3 Analysis Information

8850 Sunset

Project Settings

Document Name	A9899-06-01 V8.s3z
Project Title	8850 Sunset
Analysis	Design Optoin 2 (Flat Excavation Bottom), Scenario 4
Author	JTA
Date Created	5/18/2022, 8:38:53 AM
Last saved with Settle3 version	5.016
Stress Computation Method	Boussinesq
Stress Units	Imperial, stress as ksf
Settlement Units	inches
Time-dependent Consolidation Analysis	
Time Units	years
Permeability Units	feet/year

Advanced Settings

Start of secondary consolidation (% of primary)	95
Min. stress for secondary consolidation (% of initial)	1
Reset time when load changes for secondary consolidation	No
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Update Cv in each time step (improves consolidation accuracy)	
Ignore negative effective stresses in settlement calculations	
Add field points to load edges	

Soil Profile

Layer Option	Non-Horizontal Layers
Interpolation Method	Linear By Elevation
Use Non-Horizontal Ground Surface	Yes
Number of Surface Points	200
Vertical Axis	Elevation
Ground Elevation (ft)	355

Stage Settings

Stage #	Name	Time [years]
1	Initial	0
2	Dewater	0.083
3	Excavation	0.167
4	Foundation Loading	0.333
5	End of Dewatering	2

Results

Time taken to compute: 0 seconds

Stage: Initial = 0 y

Data Type	Minimum	Maximum
Total Settlement [in]	0	0
Total Consolidation Settlement [in]	0	0
Virgin Consolidation Settlement [in]	0	0
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	13.3623
Effective Stress YY [ksf]	0	13.3623
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	21.2
Total Stress YY [ksf]	0	21.2
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0
Pore Water Pressure [ksf]	0	7.96979
Excess Pore Water Pressure [ksf]	0	0
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1
Void Ratio	1.1	1.1
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	0

Stage: Dewater = 0.083 y

Data Type	Minimum	Maximum
Total Settlement [in]	0	0.126705
Total Consolidation Settlement [in]	0	0.126705
Virgin Consolidation Settlement [in]	0	0.126705
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	13.988
Effective Stress YY [ksf]	0	13.988
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	21.7739
Total Stress YY [ksf]	0	21.7739
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0.00136823
Pore Water Pressure [ksf]	0	7.96979
Excess Pore Water Pressure [ksf]	-0.0555029	0.770524
Degree of Consolidation [%]	0	12.279
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1
Void Ratio	1.09713	1.1
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.0329539	0.00156185

Stage: Excavation = 0.167 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.00221644	0.258153
Total Consolidation Settlement [in]	-0.00221644	0.258153
Virgin Consolidation Settlement [in]	0	0.258153
Recompression Consolidation Settlement [in]	-0.00221644	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-8.47868	0
Loading Stress XX [ksf]	-5.94429	1.60729
Loading Stress YY [ksf]	-7.40085	0.74413
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	13.8118
Effective Stress YY [ksf]	0	13.4706
Total Stress ZZ [ksf]	-0.741282	21.0686
Total Stress XX [ksf]	-4.71809	21.1881
Total Stress YY [ksf]	-6.11121	20.94
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	-3.36179e-05	0.00169383
Pore Water Pressure [ksf]	-7.23003	7.83842
Excess Pore Water Pressure [ksf]	-7.23003	0.759994
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1.01145
Void Ratio	1.09644	1.10007
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.095229	0.00210292

Stage: Foundation Loading = 0.333 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.474864	0.371274
Total Consolidation Settlement [in]	-0.474864	0.371274
Virgin Consolidation Settlement [in]	0	0.399552
Recompression Consolidation Settlement [in]	-0.527175	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-1.97868	0.067629
Loading Stress XX [ksf]	-1.19468	0.462336
Loading Stress YY [ksf]	-2.0121	1.25459
Effective Stress ZZ [ksf]	0	13.3612
Effective Stress XX [ksf]	0	14.232
Effective Stress YY [ksf]	-0.780127	13.9123
Total Stress ZZ [ksf]	0	21.1767
Total Stress XX [ksf]	0	21.5837
Total Stress YY [ksf]	0	21.2589
Modulus of Subgrade Reaction (Total) [ksf/ft]	-70129.2	248.691
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-70129.2	248.691
Total Strain	-0.019726	0.00170389
Pore Water Pressure [ksf]	0	7.94696
Excess Pore Water Pressure [ksf]	-0.248483	6.5
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	510.487
Void Ratio	1.09642	1.13746
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.66943	0.00975415

Stage: End of Dewatering = 2 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.0120033	0.727518
Total Consolidation Settlement [in]	-0.0120033	0.727518
Virgin Consolidation Settlement [in]	0	0.727518
Recompression Consolidation Settlement [in]	-0.0467546	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-1.97868	0.067629
Loading Stress XX [ksf]	-1.19468	0.462336
Loading Stress YY [ksf]	-2.0121	1.25459
Effective Stress ZZ [ksf]	0	13.3615
Effective Stress XX [ksf]	0	14.2322
Effective Stress YY [ksf]	0	13.9126
Total Stress ZZ [ksf]	0	21.1767
Total Stress XX [ksf]	0	21.075
Total Stress YY [ksf]	0	20.759
Modulus of Subgrade Reaction (Total) [ksf/ft]	-224972	290.859
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-224972	290.859
Total Strain	-0.0162035	0.00254424
Pore Water Pressure [ksf]	-4.44089e-16	7.94684
Excess Pore Water Pressure [ksf]	-0.770524	1.72964
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1.08683
Void Ratio	1.09466	1.13384
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.0913663	0.0290551

Loads

1. Rectangular Load: "Rectangular Load 1"

Length	240 ft
Width	60 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	14400 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	0
240	0
240	60
0	60

2. Rectangular Load: "Rectangular Load 2"

Length	240 ft
Width	80 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	19200 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Excavations

1. Excavation: "Excavation 1"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
240	0
240	60
0	60
0	0

2. Excavation: "Excavation 2"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Soil Layers

Ground Surface Drained: Yes

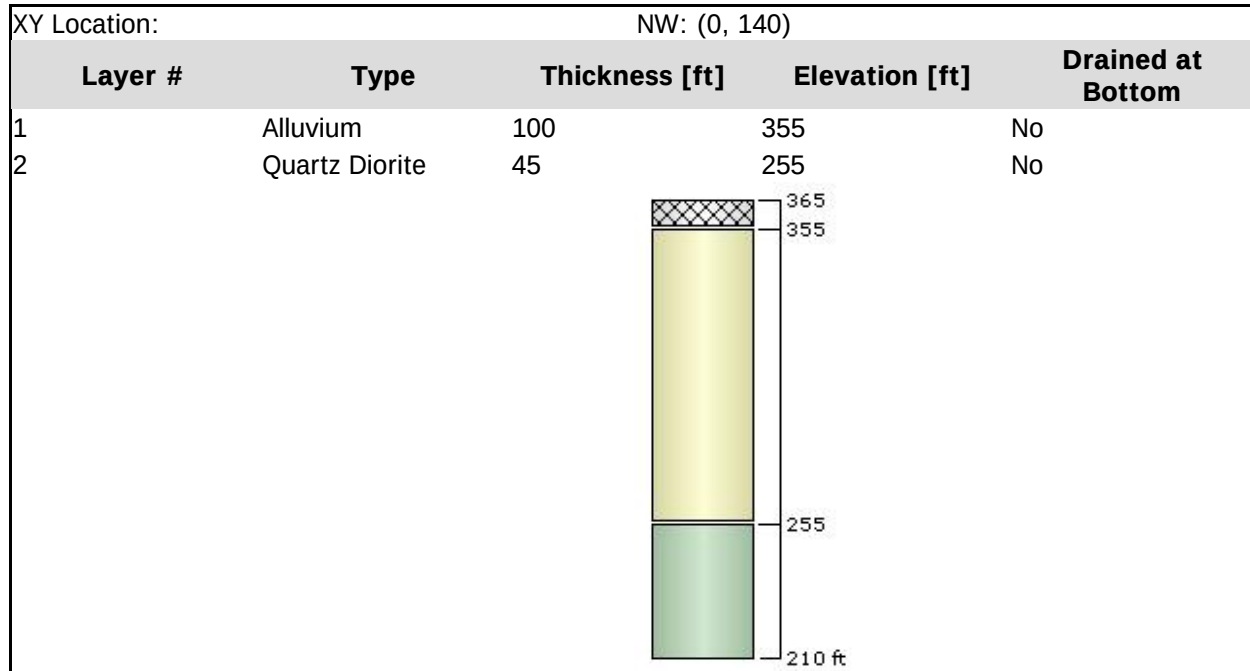
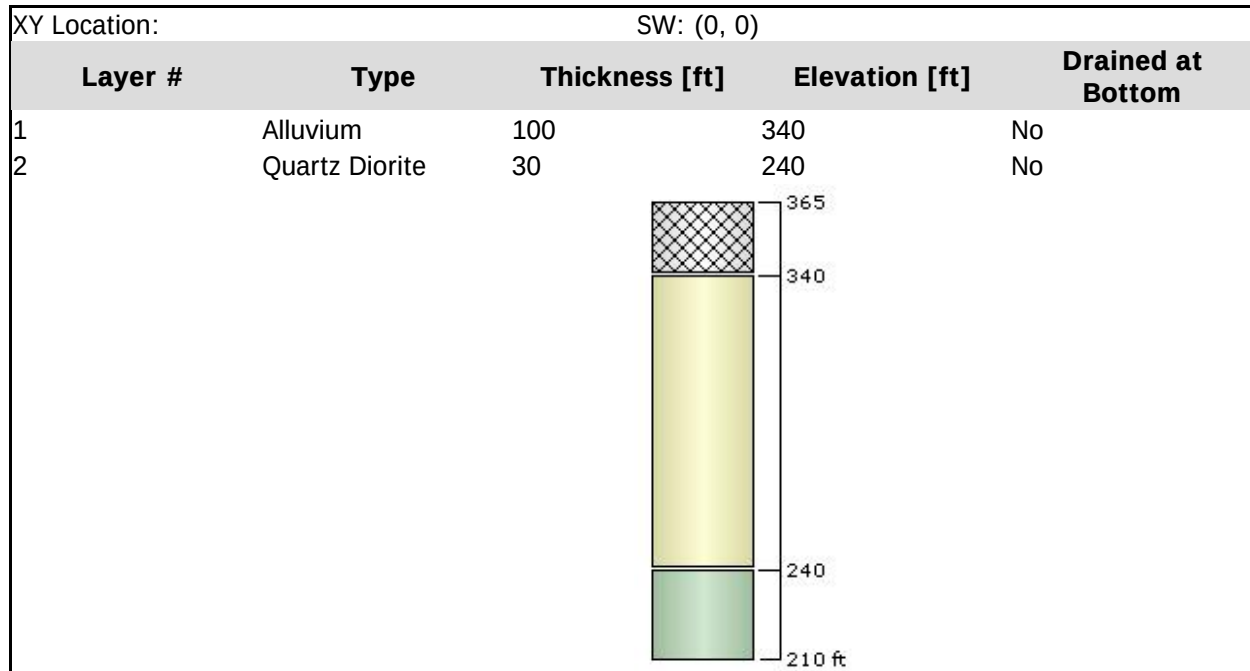
NW

SW

SE

Figure D22

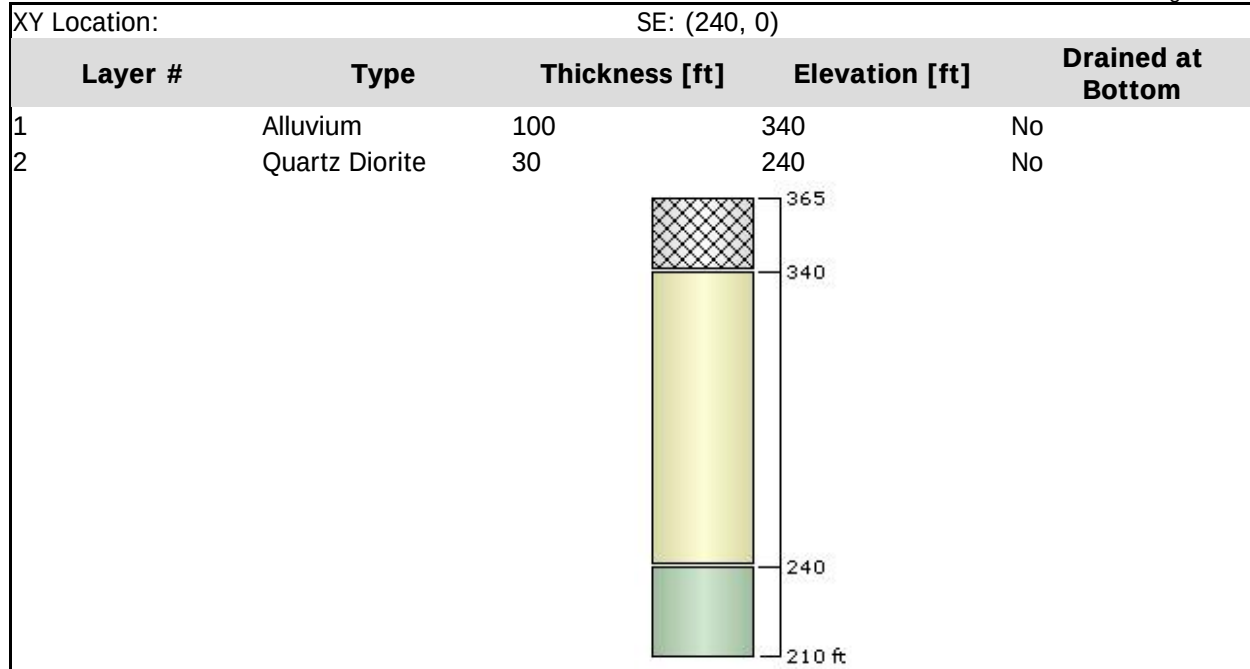
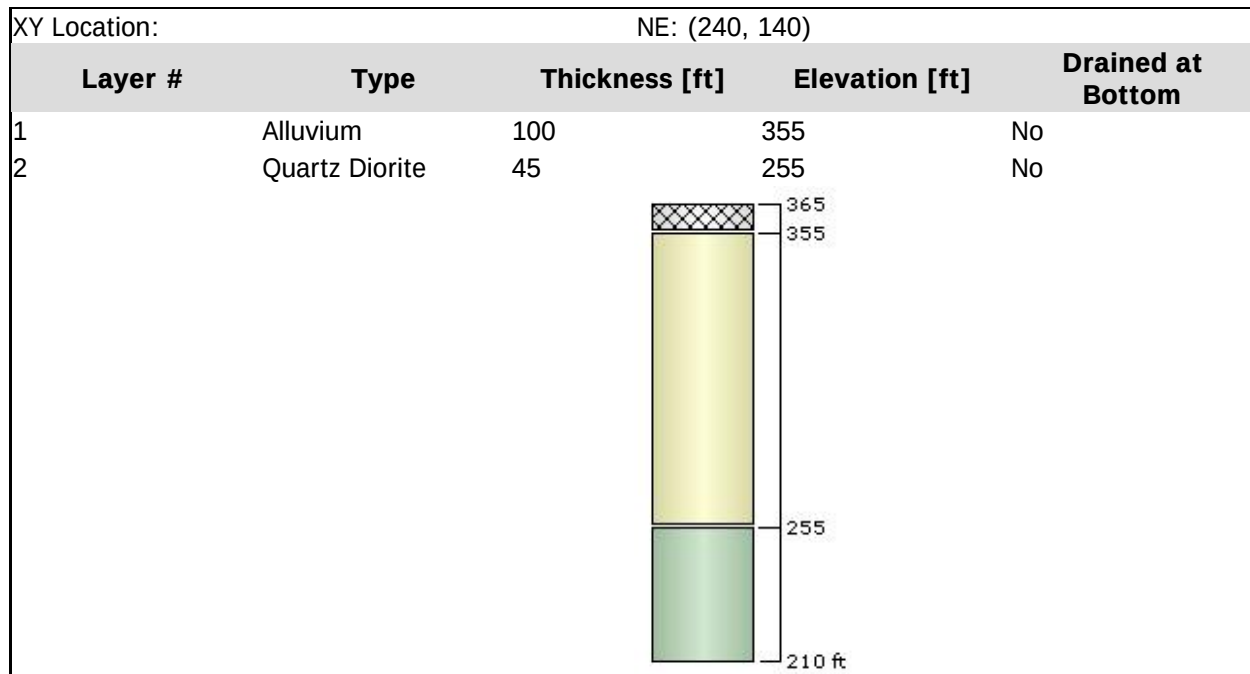
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Figure D22

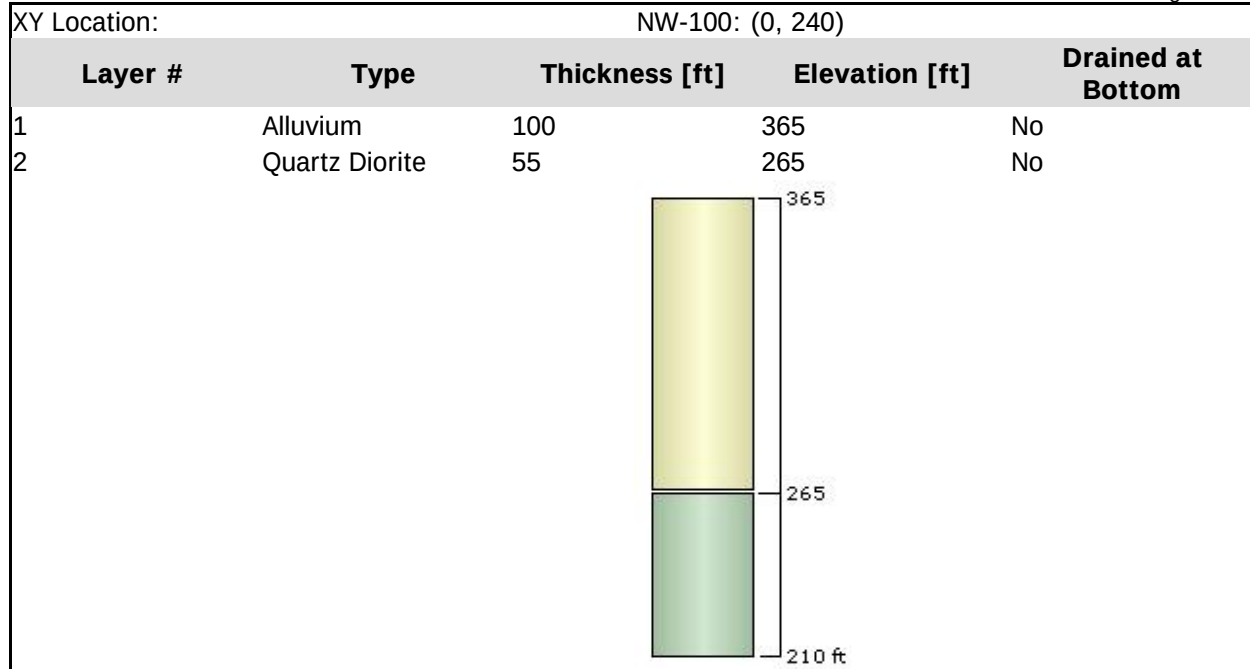
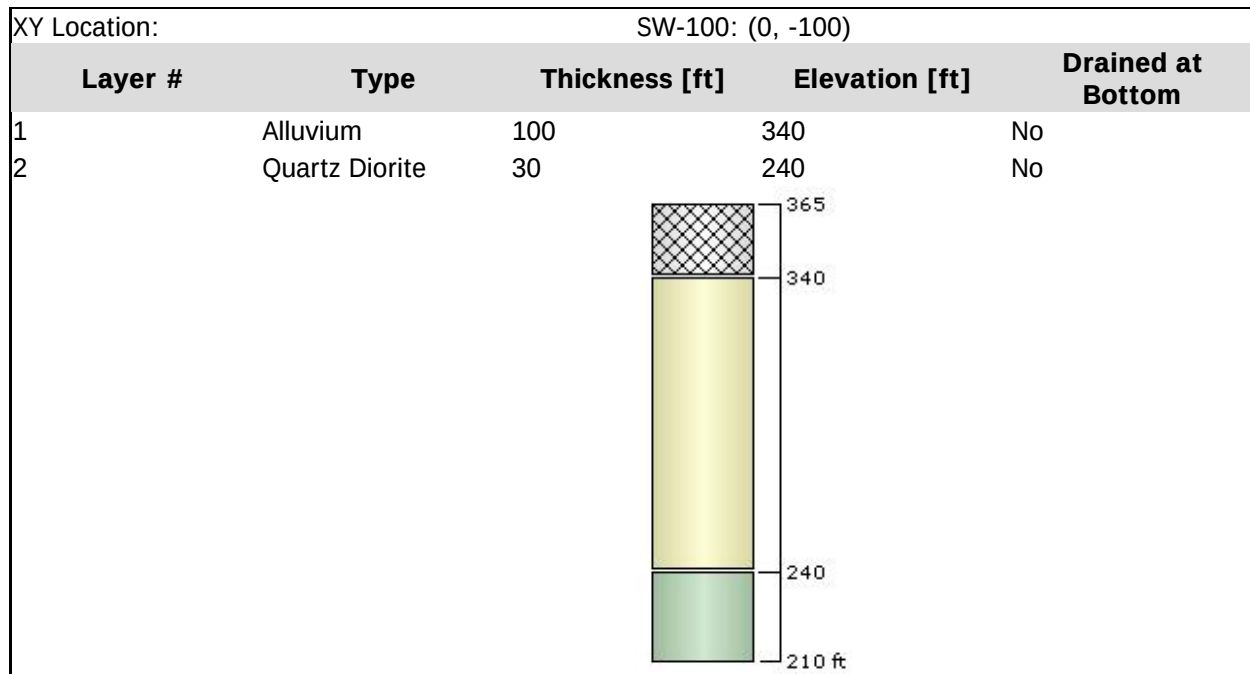
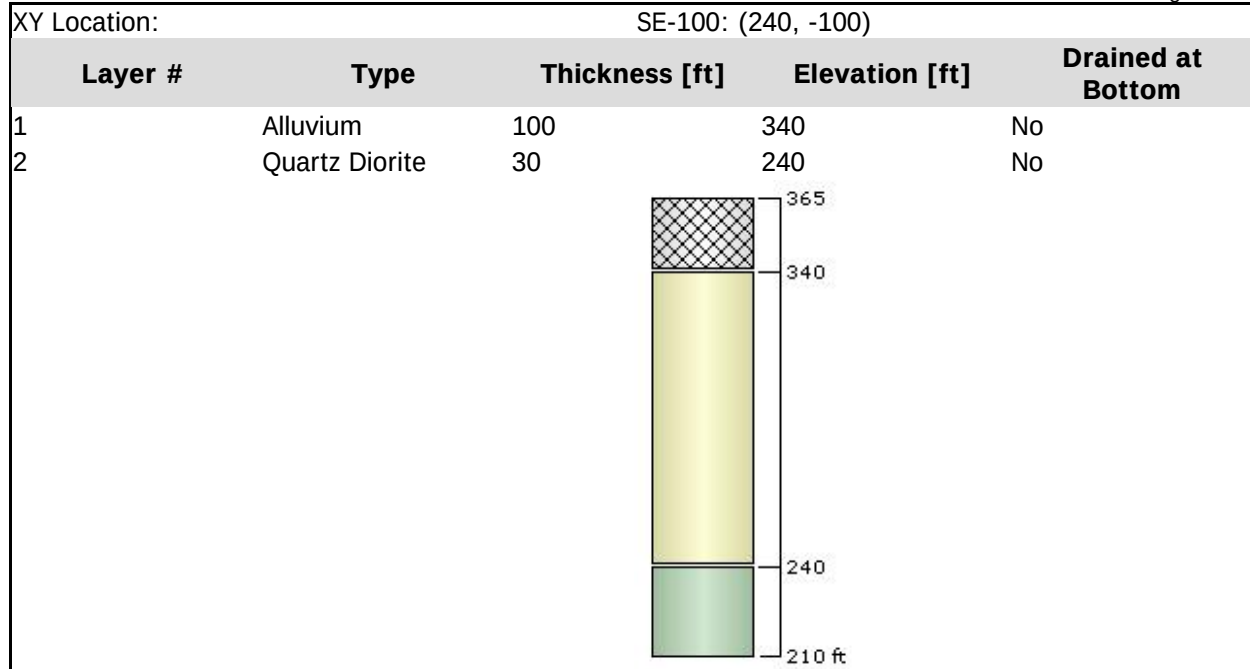
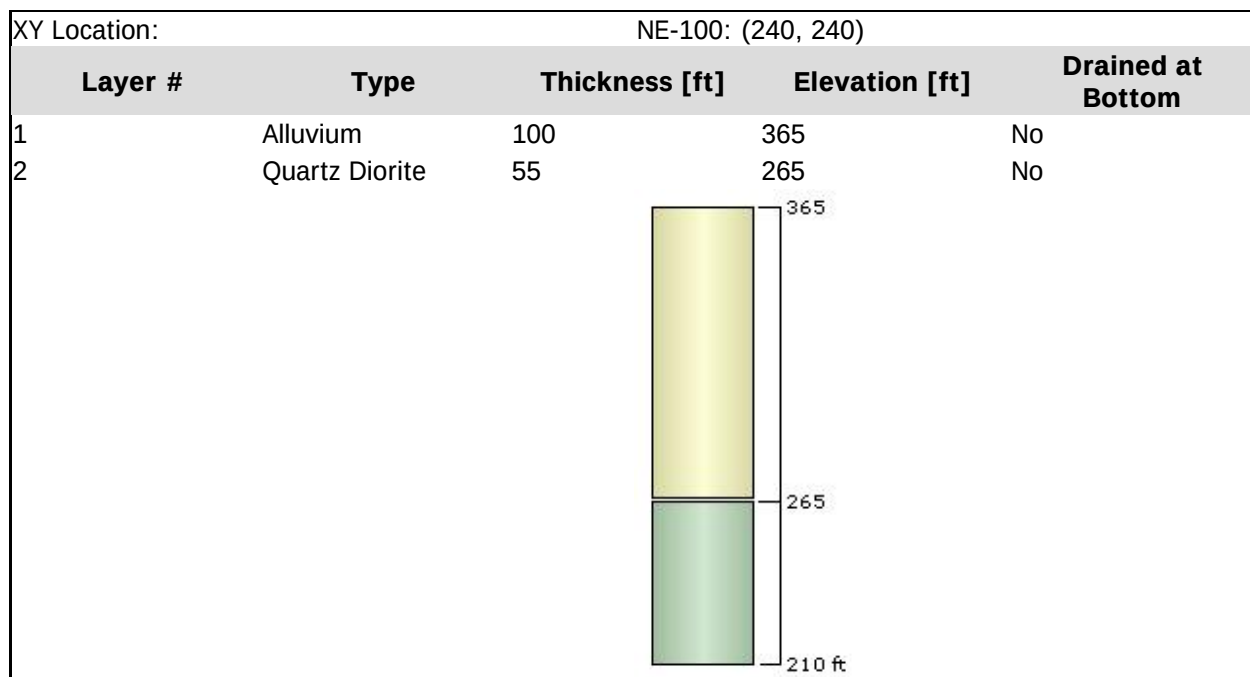
**SW-100****SE-100**

Figure D22

**NE-100**

Soil Properties

Property	Alluvium	Quartz Diorite
Color		
Unit Weight [kips/ft3]	0.135	0.14
Saturated Unit Weight [kips/ft3]	0.135	0.14
K0	1	1
Primary Consolidation	Enabled	Enabled
Material Type	Non-Linear	Non-Linear
Cce	0.0272	0.001
Cre	0.0068	0.001
e0	1.1	1.1
OCR	1	1
Cv [ft2/y]	300	0.1
Cvr [ft2/y]	300	0.1
B-bar	1	1
Undrained Su A [kips/ft2]	0	0
Undrained Su S	0.2	0.2
Undrained Su m	0.8	0.8
Grid Name	Staged	Staged

Groundwater

Groundwater method

Grids

Water Unit Weight

0.0624 kips/ft³

Groundwater Grid: Initial

X	Y	Elevation (ft)
0	140	325
0	0	310
240	0	310
240	140	325
120	140	325
120	0	310
0	240	336
0	-100	310
240	-100	310
240	240	336
-100	140	336
-100	0	310
340	0	310
340	140	336
125	250	336
125	-100	310
-70.7107	210.711	336
-70.7107	-70.7107	310
310.711	-70.7107	310
310.711	210.711	336

Groundwater Grid: Dewatered

X	Y	Elevation (ft)
0	140	313
0	0	310
240	0	310
240	140	313
120	140	313
120	0	310
0	240	326.714
0	-100	310
240	-100	310
240	240	326.714
-100	140	326.714
-100	0	310
340	0	310
340	140	326.714
125	250	326.714
125	-100	310
-70.7107	210.711	326.714
-70.7107	-70.7107	310
310.711	-70.7107	310
310.711	210.711	326.714

Query

Query Points

Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	120, 100	Auto: 71
2	Query Point 2	120, 30	Auto: 71
3	Query Point 3	120, 150	Auto: 61
4	Query Point 4	120, -10	Auto: 61
5	Query Point 5	-10, 70	Auto: 61
6	Query Point 6	250, 70	Auto: 61
7	Query Point 7	120, 170	Auto: 61
8	Query Point 8	120, -30	Auto: 61

Field Point Grid

Number of points	361
Expansion Factor	1

Grid Coordinates

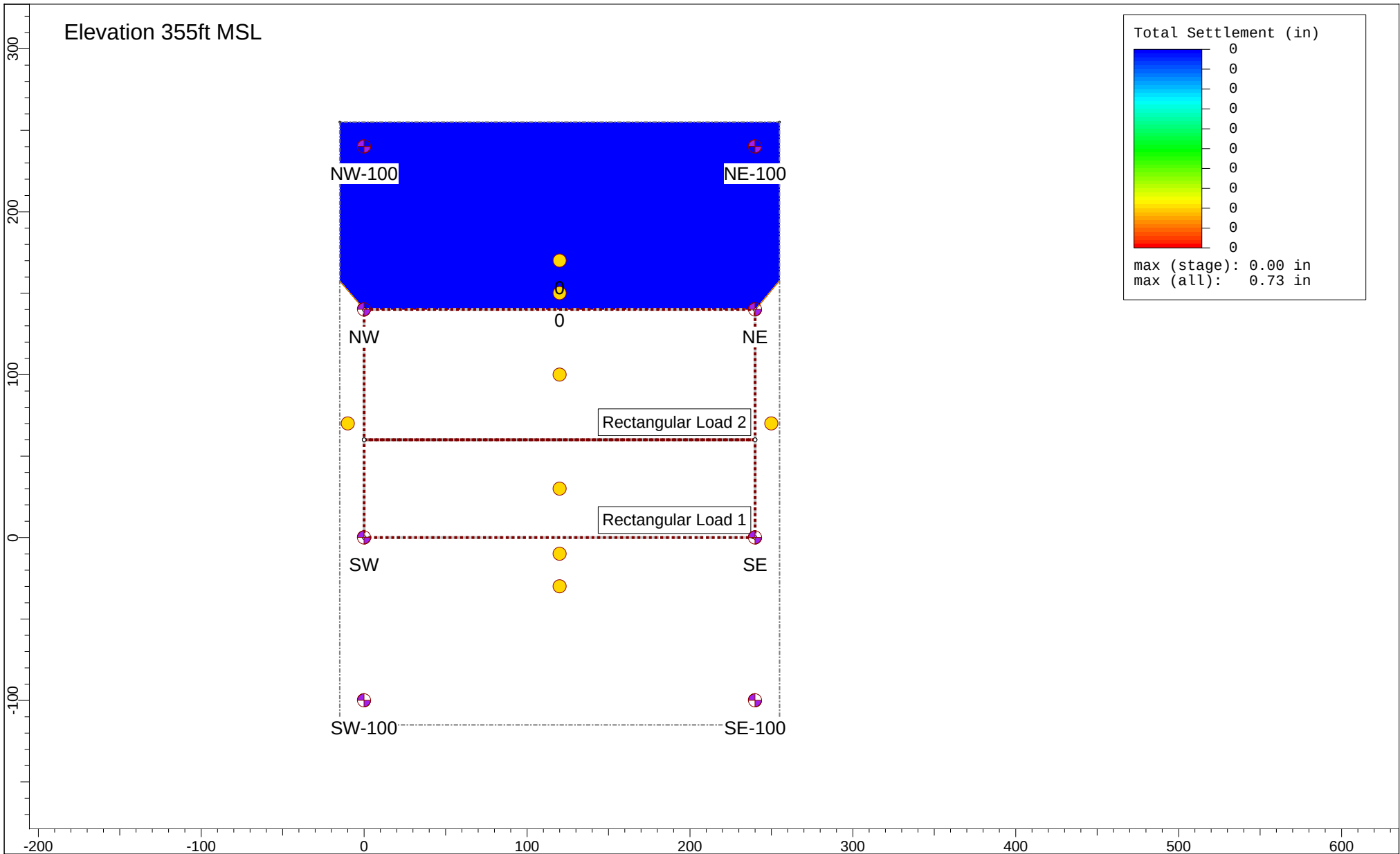
X [ft]	Y [ft]
360	360
360	-220
-120	-220
-120	360

APPENDIX

E

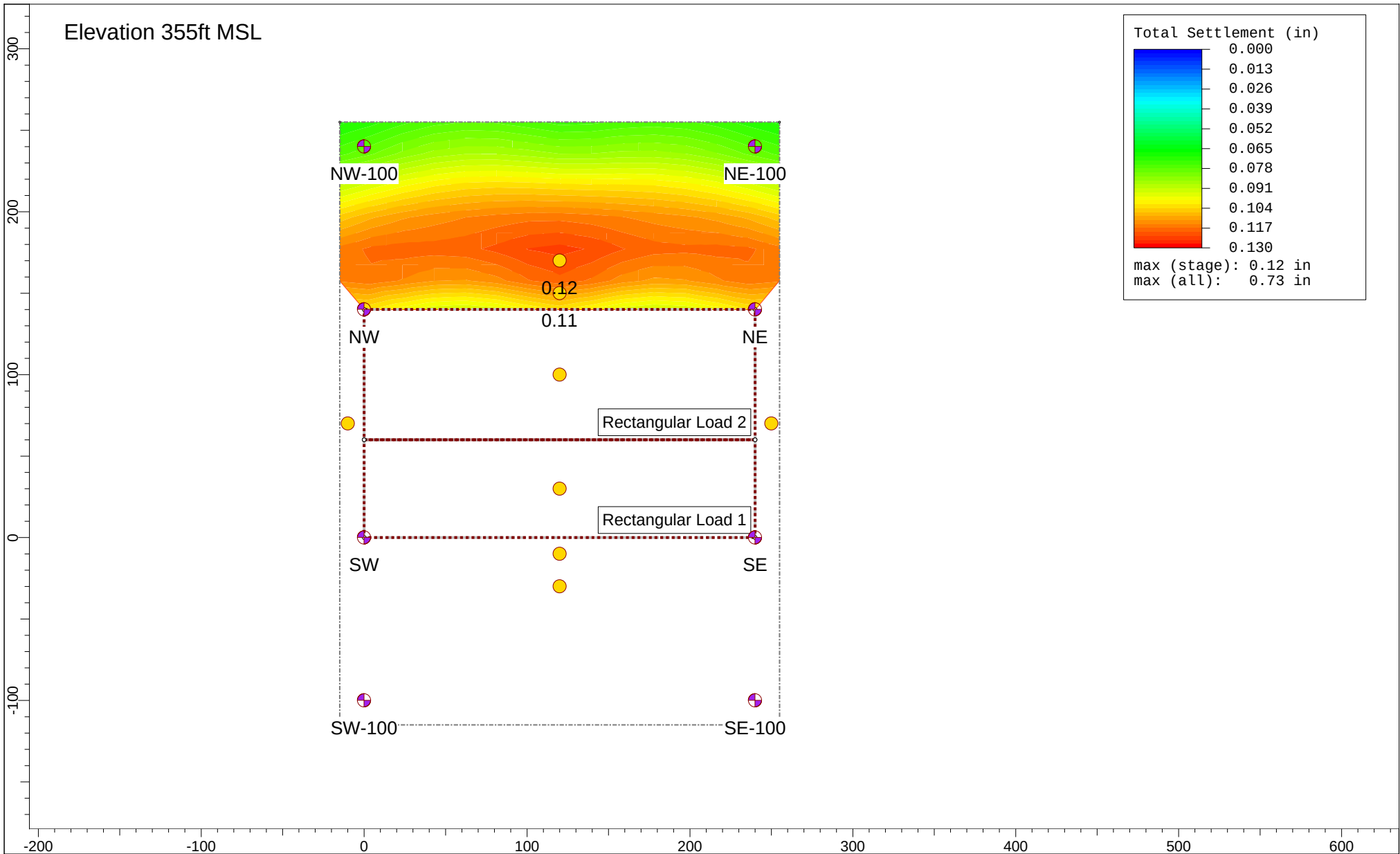
APPENDIX E

DESIGN OPTION 3 (FLAT EXCAVATION DESIGN ELEV 287.5) OUTPUT FROM SETTLE 3



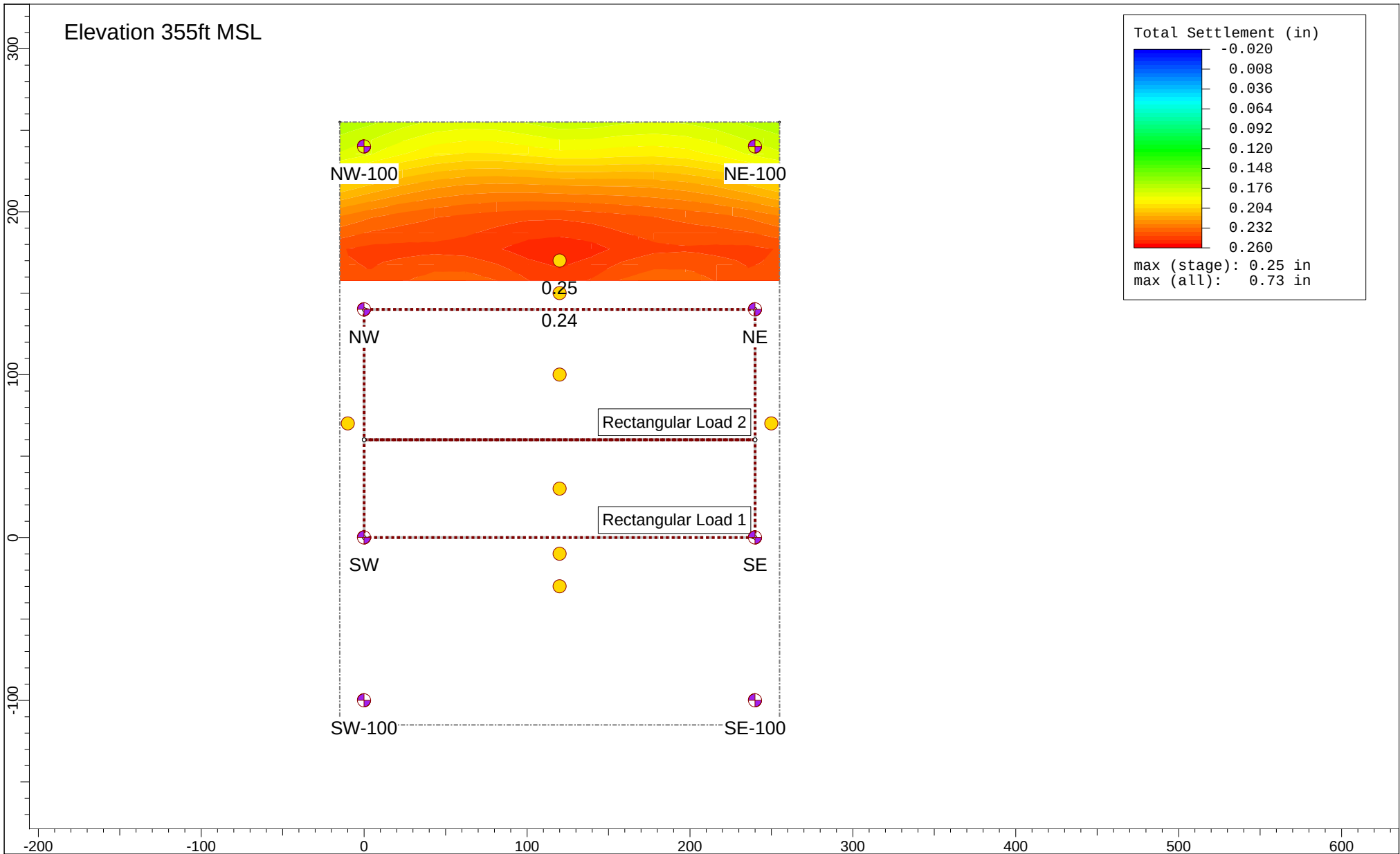
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	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage
	Date		9/14/2023, 4:48:27 PM	Stage 1 - Initial = 0 y
			File Name	A9899-06-01 V10A.s3z

Figure E1



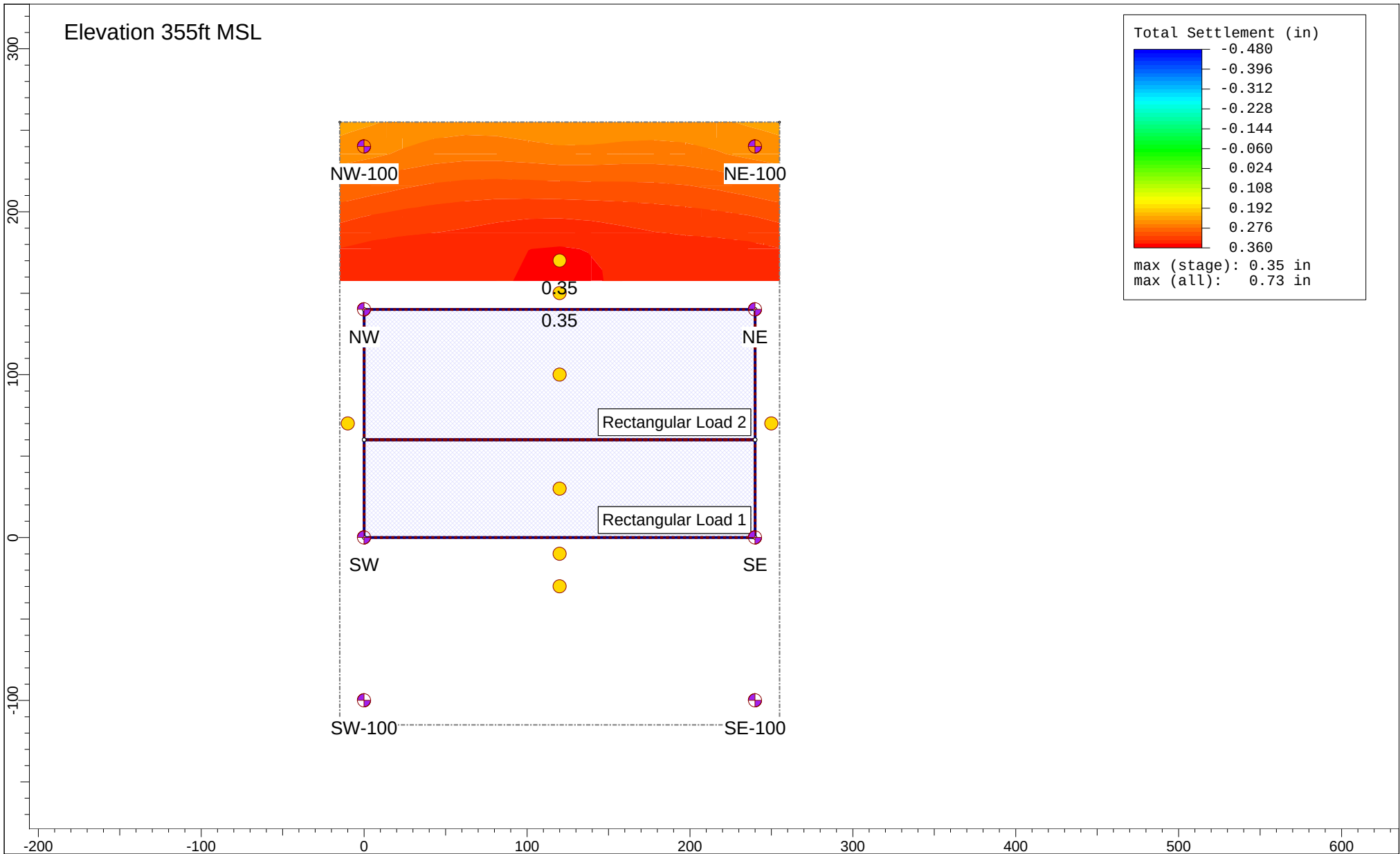
	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage Stage 2 - Dewater = 0.083 y
	Date		9/14/2023, 4:48:45 PM	File Name A9899-06-01 V10A.s3z

Figure E2



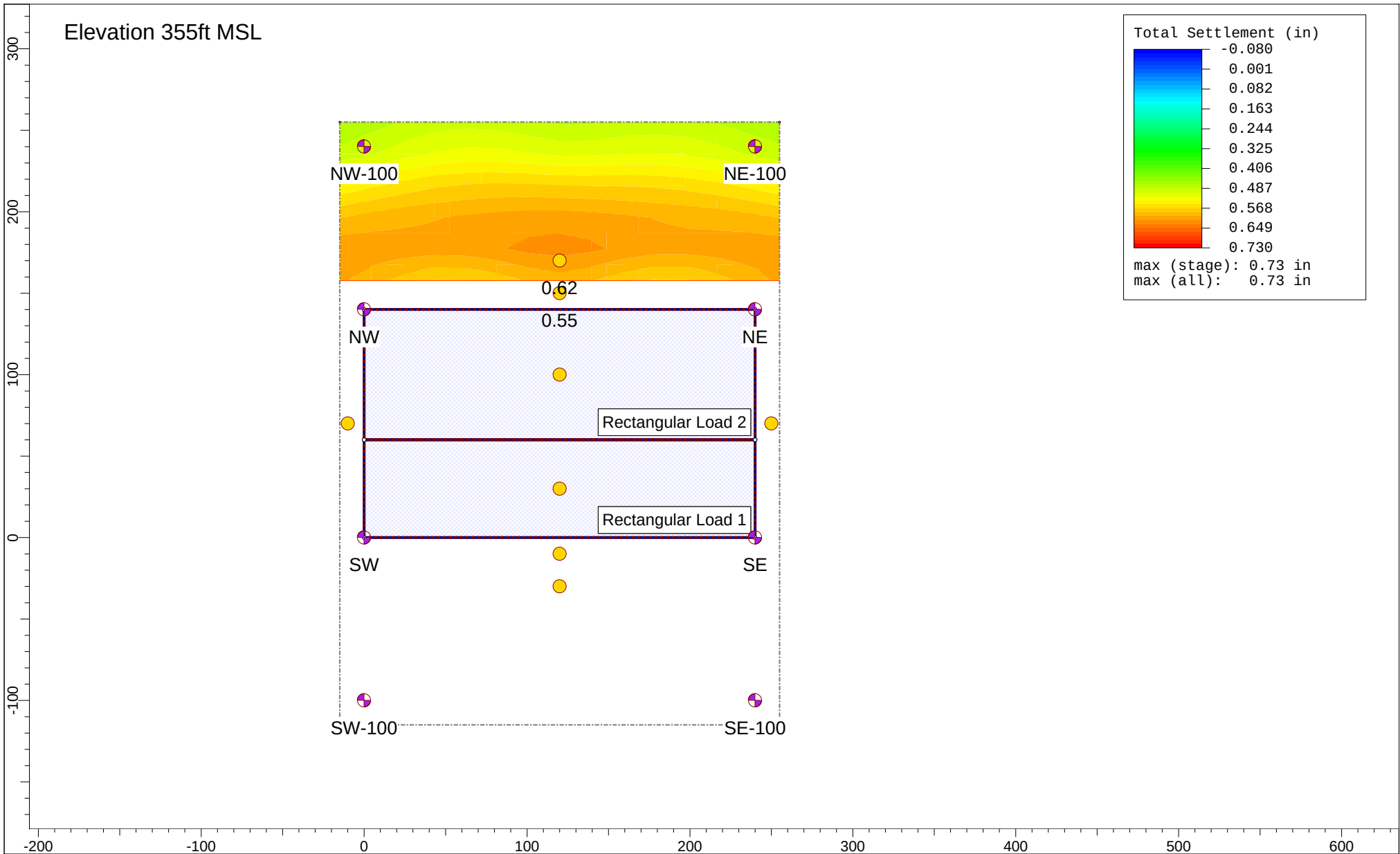
	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage
	Date		9/14/2023, 4:49:01 PM	Stage 3 - Excavation = 0.167 y
			File Name	A9899-06-01 V10A.s3z

Figure E3



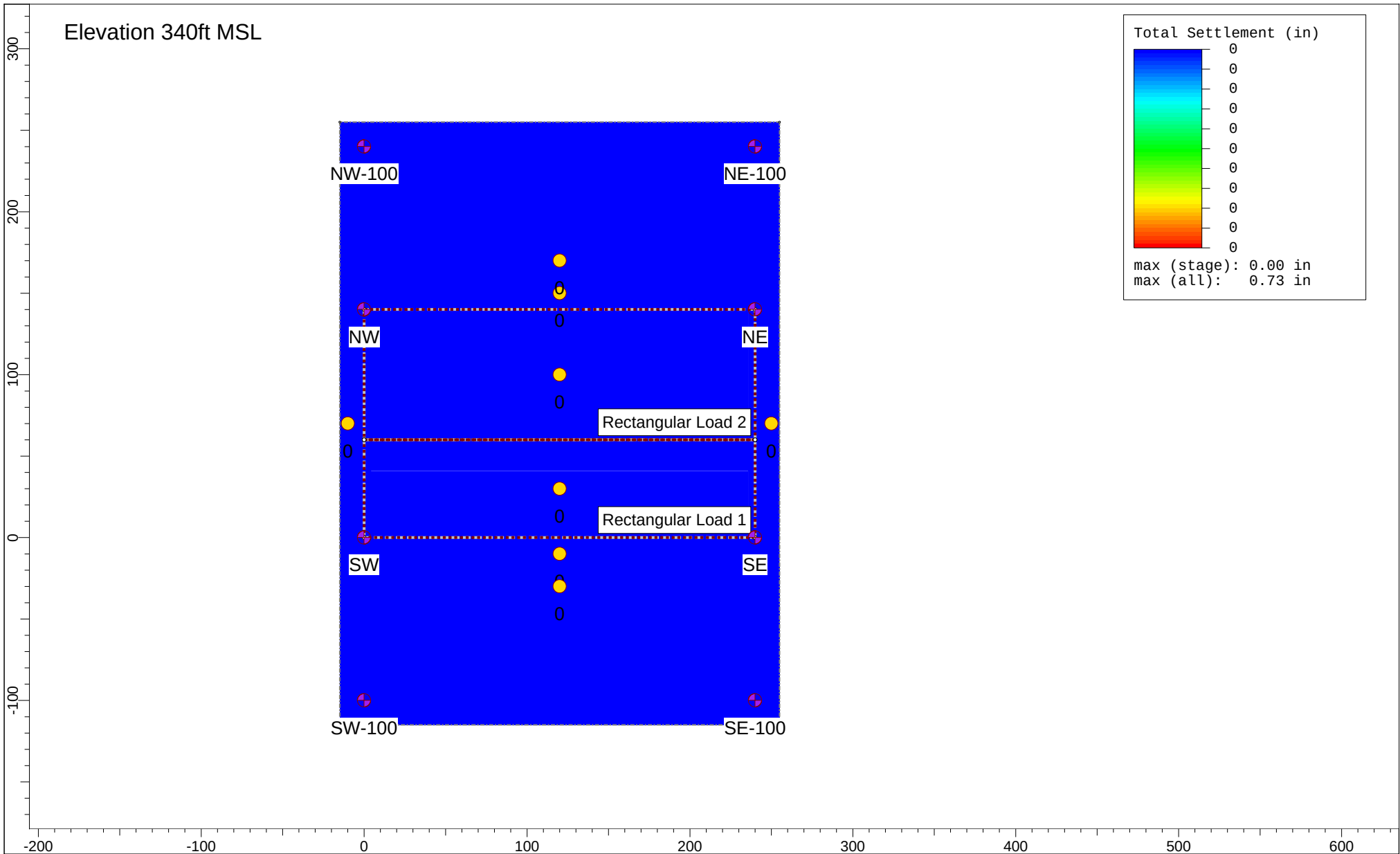
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	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage Stage 4 - Foundation Loading = 0.333 y
	Date		9/14/2023, 4:49:37 PM	File Name A9899-06-01 V10A.s3z

Figure E4



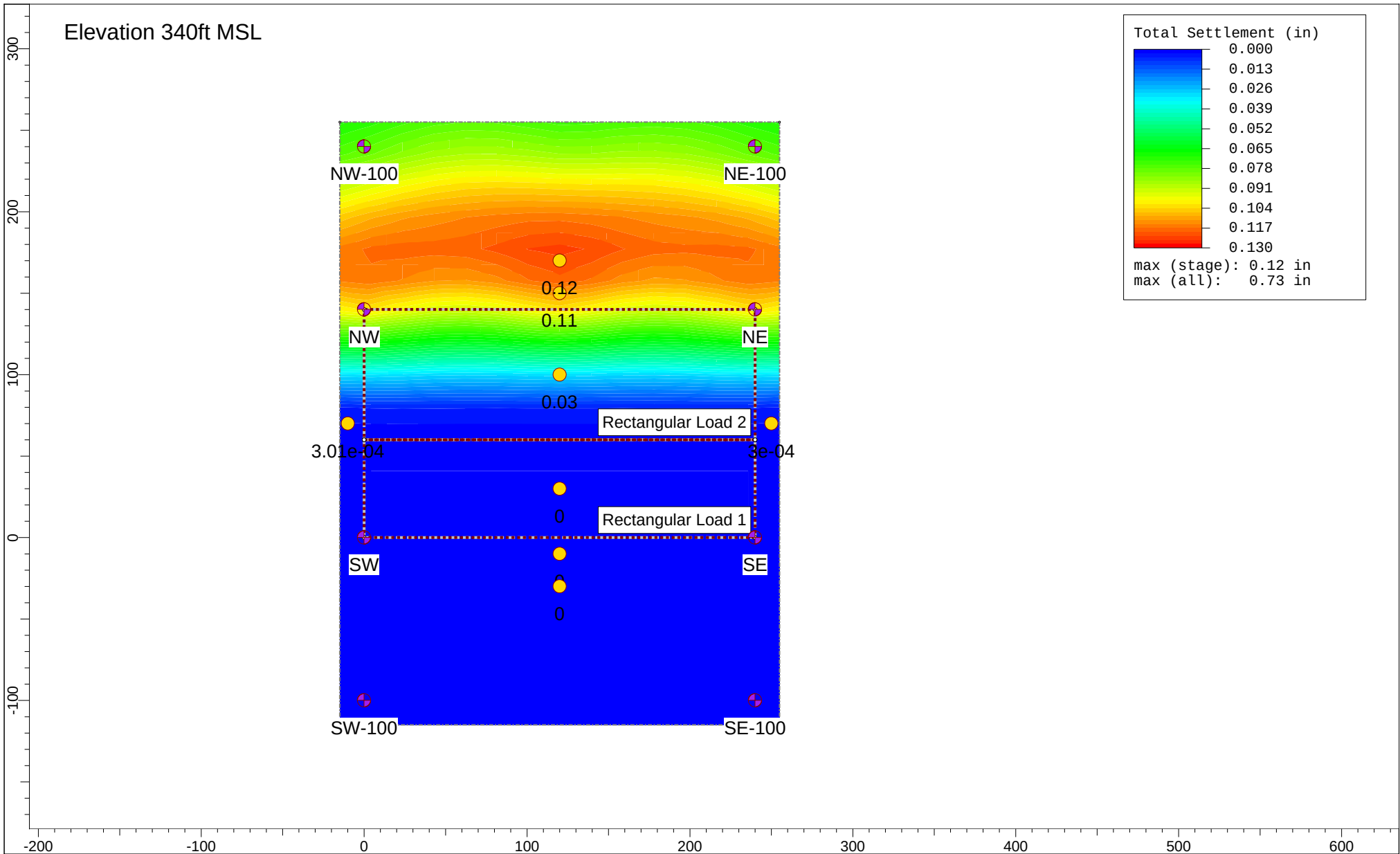
	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage Stage 5 - End of Dewatering = 2 y
	Date		9/14/2023, 4:49:55 PM	File Name A9899-06-01 V10A.s3z

Figure E5



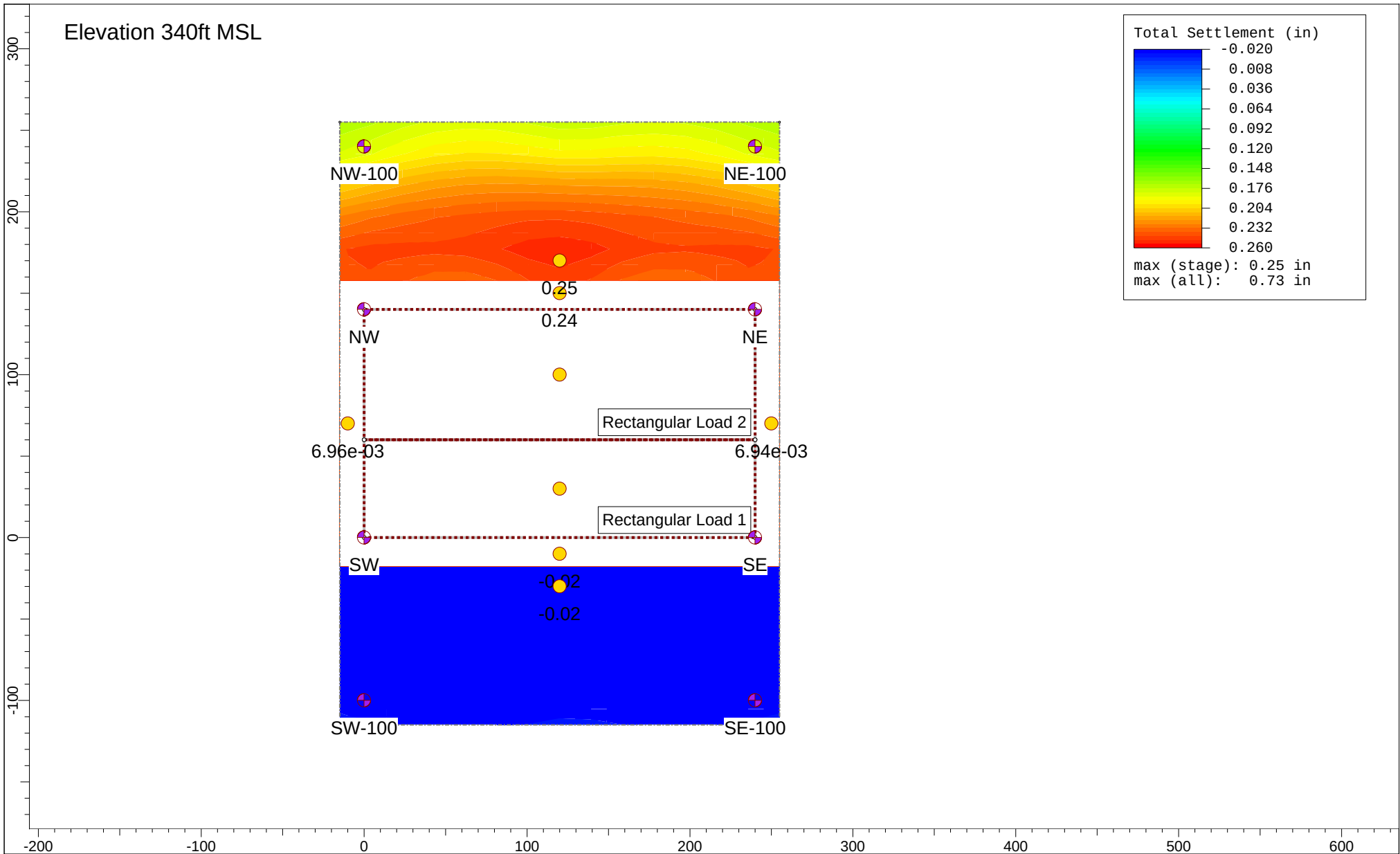
 SETTLE3 5.016	Project		8850 Sunset		
	Analysis Description				
	Design Option 3 (Flat Excavation Bottom), Scenario 3				
	Drawn By		JTA	Stage	
				Stage 1 - Initial = 0 y	
Date		9/14/2023, 4:50:12 PM		File Name	A9899-06-01 V10A.s3z

Figure E6



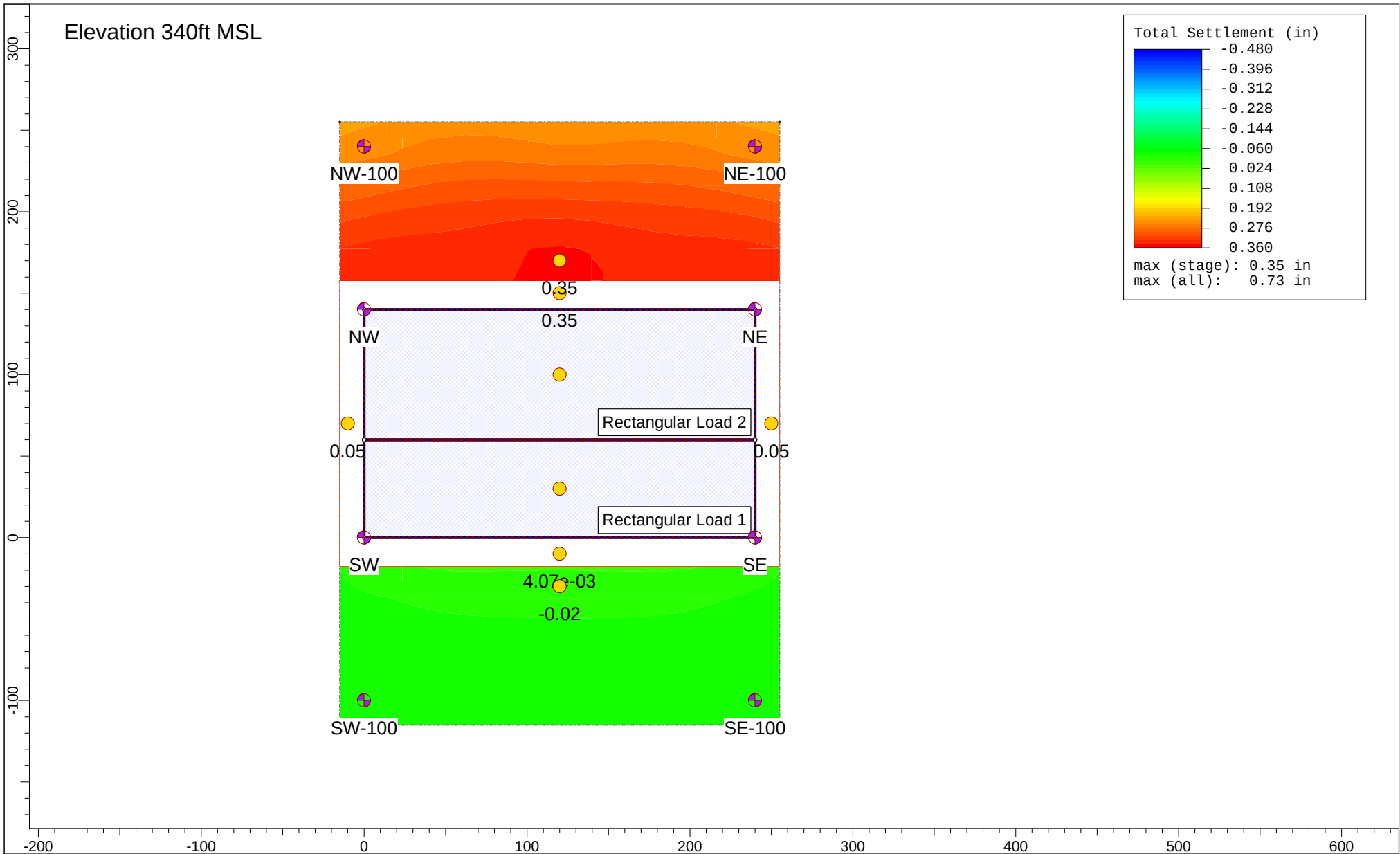
	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage
	Date		9/14/2023, 4:50:22 PM	Stage 2 - Dewater = 0.083 y
File Name		A9899-06-01 V10A.s3z		

Figure E7



	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage Stage 3 - Excavation = 0.167 y
	Date		9/14/2023, 4:50:32 PM	File Name A9899-06-01 V10A.s3z

Figure E8



	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 3	
	Drawn By		JTA	Stage
	Date		9/14/2023, 4:50:40 PM	Stage 4 - Foundation Loading = 0.333 y
File Name		A9899-06-01 V10A.s3z		

Figure E9

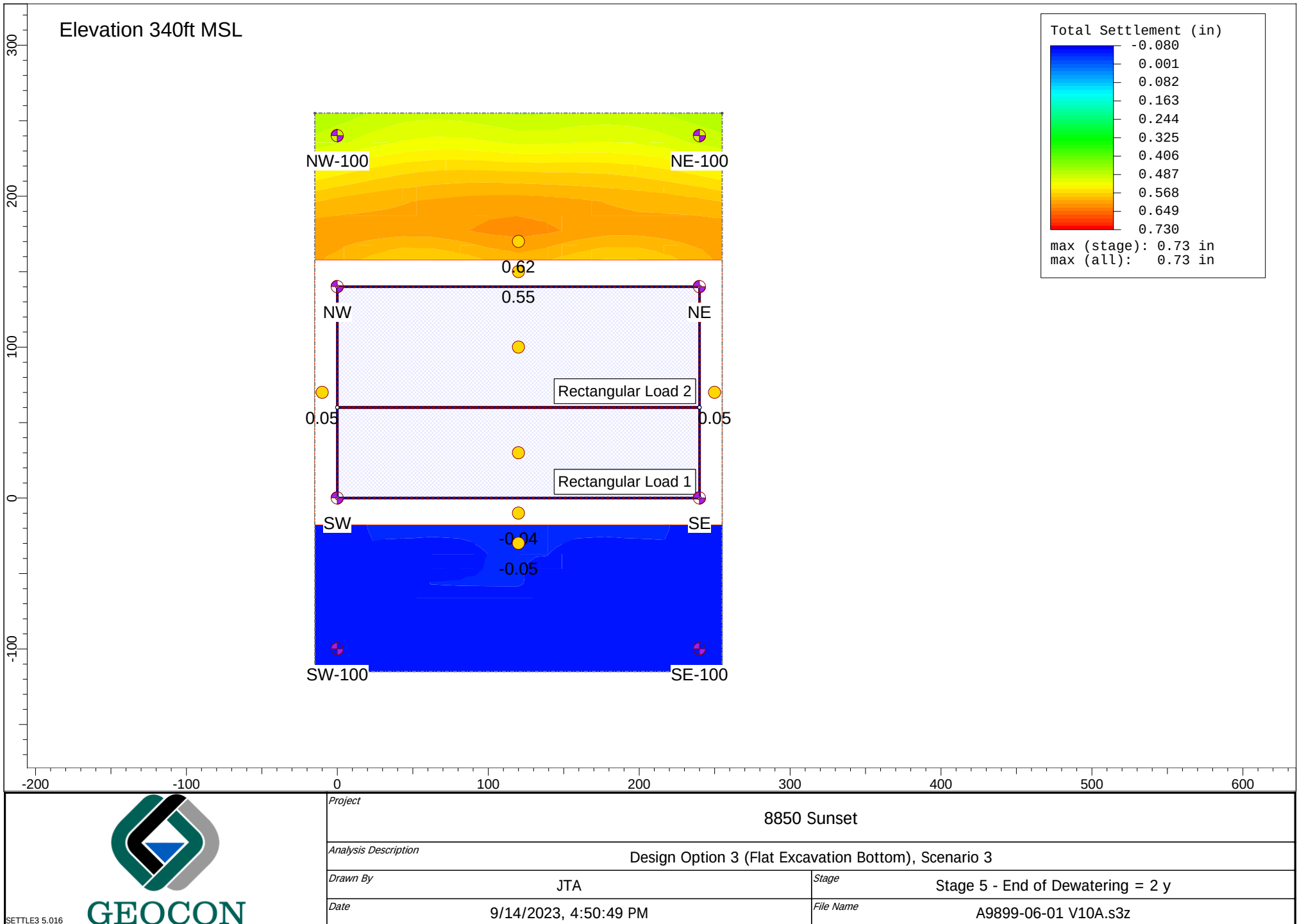


Figure E10

Settle3 Analysis Information

8850 Sunset

Project Settings

Document Name	A9899-06-01 V10A.s3z
Project Title	8850 Sunset
Analysis	Design Option 3 (Flat Excavation Bottom), Scenario 3
Author	JTA
Date Created	5/18/2022, 8:38:53 AM
Last saved with Settle3 version	5.016
Stress Computation Method	Boussinesq
Stress Units	Imperial, stress as ksf
Settlement Units	inches
Time-dependent Consolidation Analysis	
Time Units	years
Permeability Units	feet/year

Advanced Settings

Start of secondary consolidation (% of primary)	95
Min. stress for secondary consolidation (% of initial)	1
Reset time when load changes for secondary consolidation	No
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Update Cv in each time step (improves consolidation accuracy)	
Ignore negative effective stresses in settlement calculations	
Add field points to load edges	

Soil Profile

Layer Option	Non-Horizontal Layers
Interpolation Method	Linear By Elevation
Use Non-Horizontal Ground Surface	Yes
Number of Surface Points	200
Vertical Axis	Elevation
Ground Elevation (ft)	355

Stage Settings

Stage #	Name	Time [years]
1	Initial	0
2	Dewater	0.083
3	Excavation	0.167
4	Foundation Loading	0.333
5	End of Dewatering	2

Results

Time taken to compute: 0 seconds

Stage: Initial = 0 y

Data Type	Minimum	Maximum
Total Settlement [in]	0	0
Total Consolidation Settlement [in]	0	0
Virgin Consolidation Settlement [in]	0	0
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	13.3623
Effective Stress YY [ksf]	0	13.3623
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	21.2
Total Stress YY [ksf]	0	21.2
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0
Pore Water Pressure [ksf]	0	7.96979
Excess Pore Water Pressure [ksf]	0	0
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [ksf]	0.00363754	13.358
Over-consolidation Ratio	1	1
Void Ratio	1.1	1.1
Permeability [ft/y]	2.03102e-07	60.861
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	0

Stage: Dewater = 0.083 y

Data Type	Minimum	Maximum
Total Settlement [in]	0	0.12317
Total Consolidation Settlement [in]	0	0.12317
Virgin Consolidation Settlement [in]	0	0.12317
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	13.9943
Effective Stress YY [ksf]	0	13.9943
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	21.7792
Total Stress YY [ksf]	0	21.7792
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0.00134988
Pore Water Pressure [ksf]	0	7.96979
Excess Pore Water Pressure [ksf]	-0.715582	0.75851
Degree of Consolidation [%]	0	12.0655
Pre-consolidation Stress [ksf]	0.00363754	13.358
Over-consolidation Ratio	1	1
Void Ratio	1.09717	1.1
Permeability [ft/y]	2.03102e-07	60.861
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.032412	0.0276297

Stage: Excavation = 0.167 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.0164944	0.252889
Total Consolidation Settlement [in]	-0.0164944	0.252889
Virgin Consolidation Settlement [in]	0	0.252889
Recompression Consolidation Settlement [in]	-0.0164944	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-8.47868	0
Loading Stress XX [ksf]	-5.94429	0.961559
Loading Stress YY [ksf]	-7.40085	0.74413
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	13.8118
Effective Stress YY [ksf]	0	13.4706
Total Stress ZZ [ksf]	-0.674505	21.0686
Total Stress XX [ksf]	-4.5901	21.1891
Total Stress YY [ksf]	-6.03502	20.941
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	-0.0001166	0.00167296
Pore Water Pressure [ksf]	-7.15036	7.83842
Excess Pore Water Pressure [ksf]	-7.15036	0.755177
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1.04027
Void Ratio	1.09649	1.10024
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.0953179	0.0279365

Stage: Foundation Loading = 0.333 y

Figure E11

Data Type	Minimum	Maximum
Total Settlement [in]	-0.47512	0.350649
Total Consolidation Settlement [in]	-0.47512	0.350649
Virgin Consolidation Settlement [in]	0	0.378892
Recompression Consolidation Settlement [in]	-0.527113	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-1.97868	0.01
Loading Stress XX [ksf]	-1.19468	0.462336
Loading Stress YY [ksf]	-2.0121	1.25459
Effective Stress ZZ [ksf]	0	13.3612
Effective Stress XX [ksf]	0	14.232
Effective Stress YY [ksf]	-0.646263	13.9123
Total Stress ZZ [ksf]	0	21.1767
Total Stress XX [ksf]	0	21.5886
Total Stress YY [ksf]	0	21.2599
Modulus of Subgrade Reaction (Total) [ksf/ft]	-2848.96	8152.66
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-2848.96	8152.66
Total Strain	-0.0197289	0.00168275
Pore Water Pressure [ksf]	0	7.94696
Excess Pore Water Pressure [ksf]	-0.885338	6.5
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	510.34
Void Ratio	1.09647	1.13746
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.669464	0.0333573

Stage: End of Dewatering = 2 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.0764701	0.727545
Total Consolidation Settlement [in]	-0.0764701	0.727545
Virgin Consolidation Settlement [in]	0	0.727545
Recompression Consolidation Settlement [in]	-0.105701	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-1.97868	0.01
Loading Stress XX [ksf]	-1.19468	0.462336
Loading Stress YY [ksf]	-2.0121	1.25459
Effective Stress ZZ [ksf]	0	13.3615
Effective Stress XX [ksf]	0	14.2322
Effective Stress YY [ksf]	0	13.9126
Total Stress ZZ [ksf]	0	21.1767
Total Stress XX [ksf]	0	21.075
Total Stress YY [ksf]	0	20.759
Modulus of Subgrade Reaction (Total) [ksf/ft]	-388.044	579.32
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-388.044	579.32
Total Strain	-0.0162108	0.00281677
Pore Water Pressure [ksf]	-4.44089e-16	7.94684
Excess Pore Water Pressure [ksf]	-0.75851	1.72964
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1.1555
Void Ratio	1.09466	1.13385
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.0913665	0.0333573

Loads

1. Rectangular Load: "Rectangular Load 1"

Length	240 ft
Width	60 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	14400 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	0
240	0
240	60
0	60

2. Rectangular Load: "Rectangular Load 2"

Length	240 ft
Width	80 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	19200 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Excavations

1. Excavation: "Excavation 1"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
240	0
240	60
0	60
0	0

2. Excavation: "Excavation 2"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Soil Layers

Ground Surface Drained: Yes

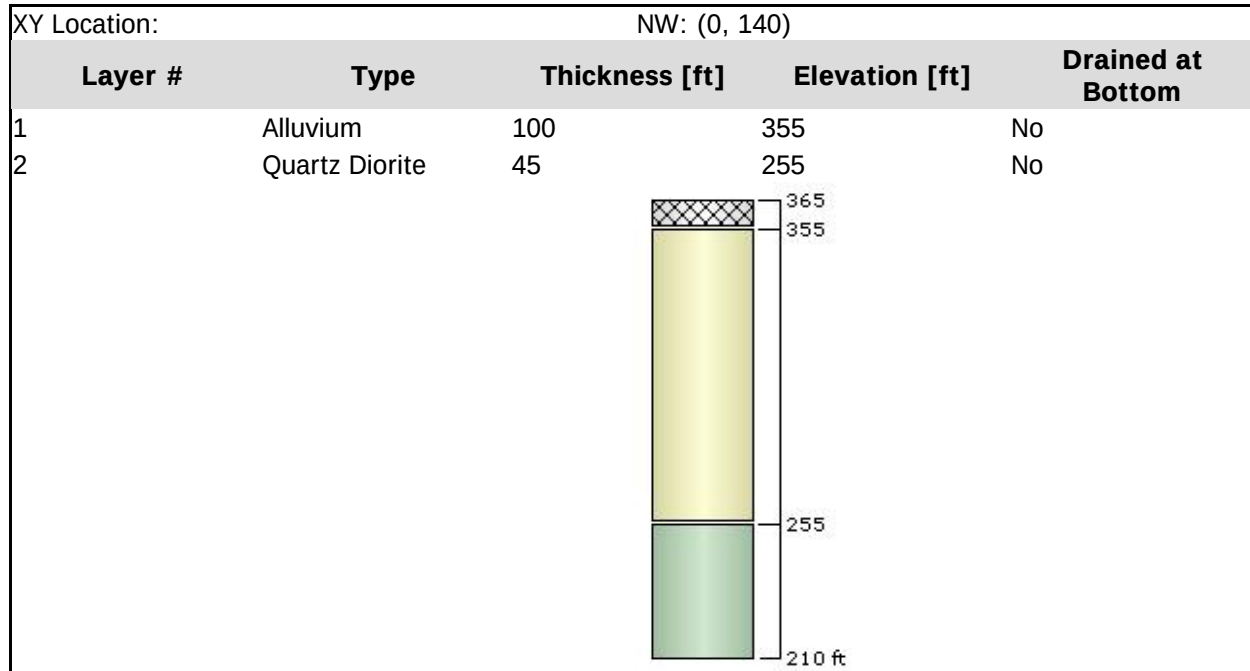
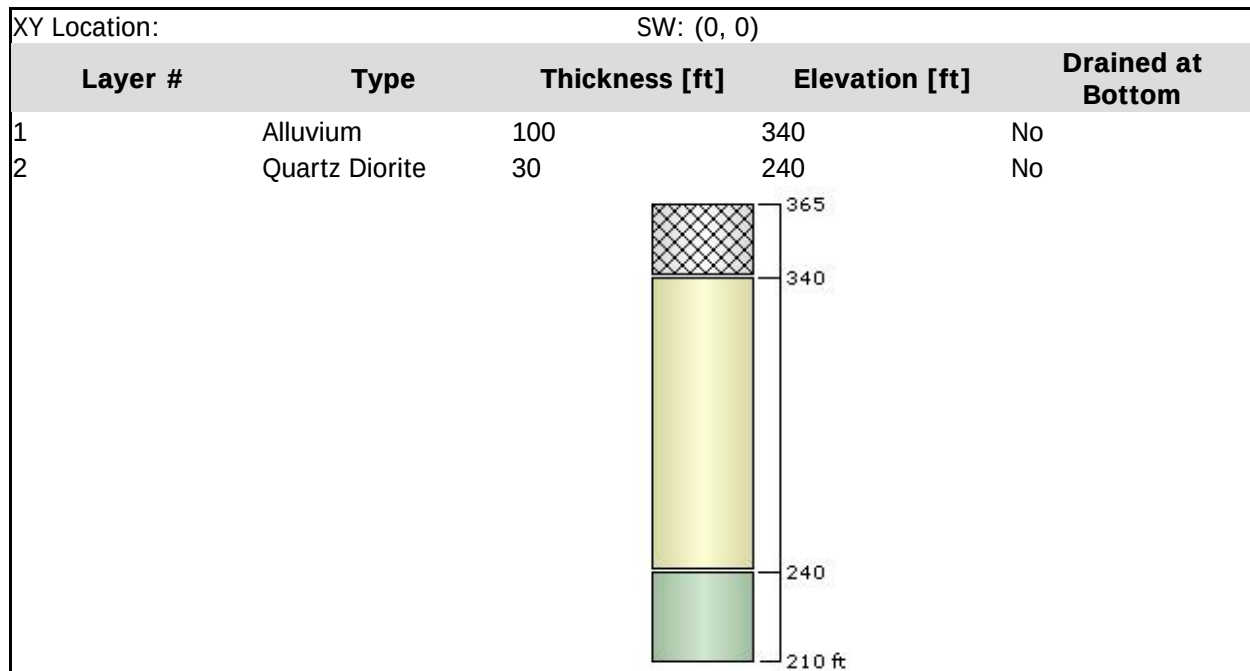
NW

SW

SE

Figure E11

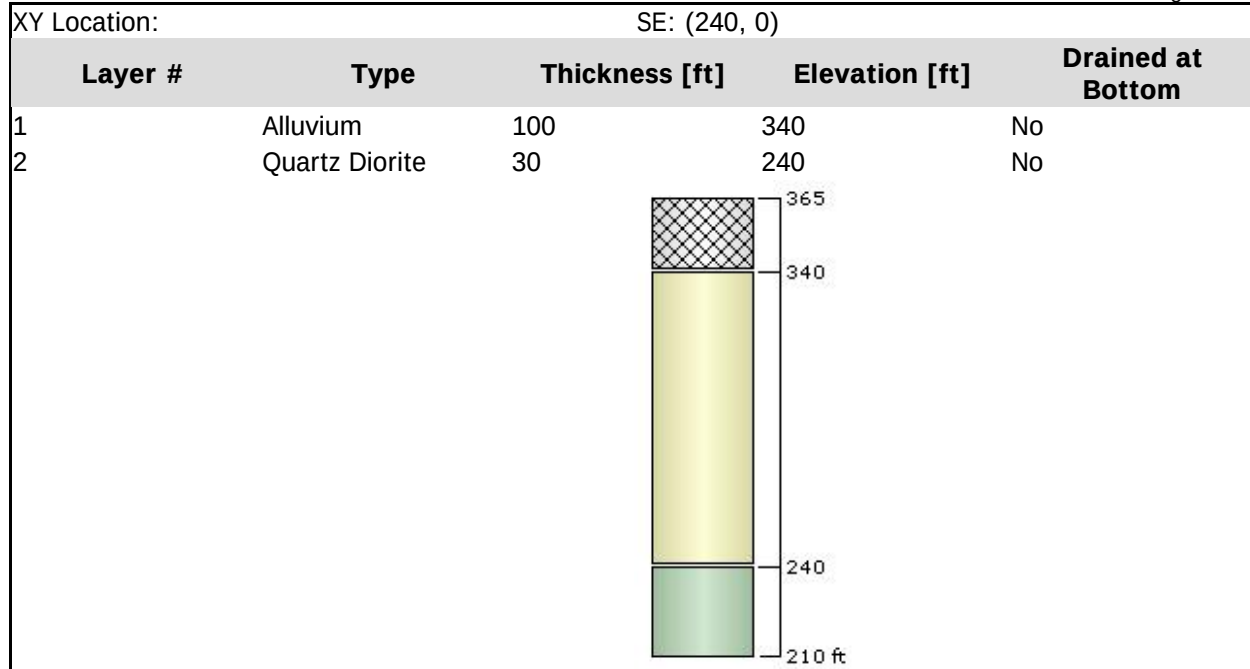
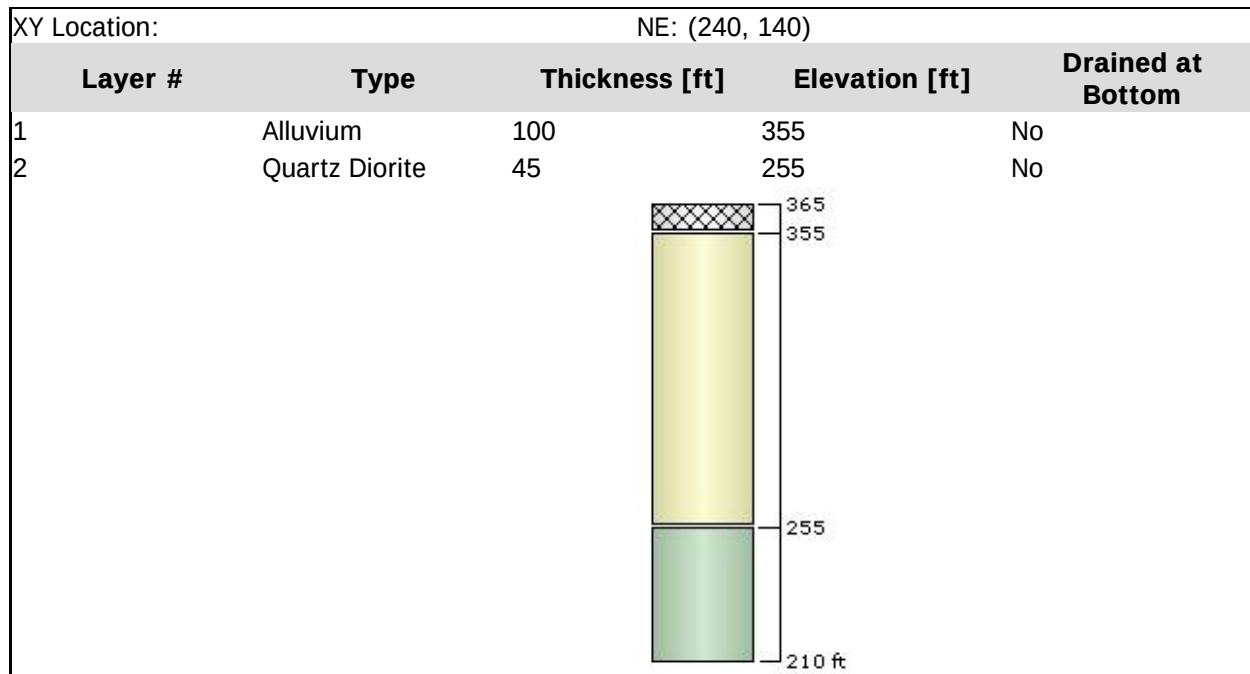
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Figure E11

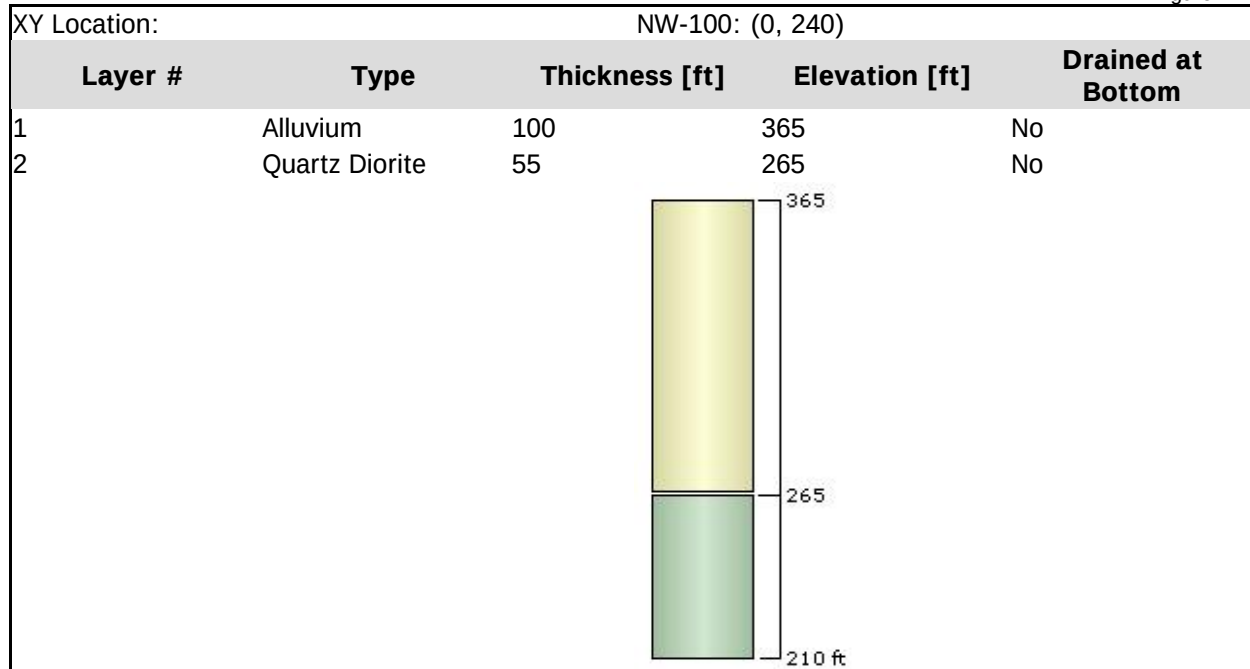
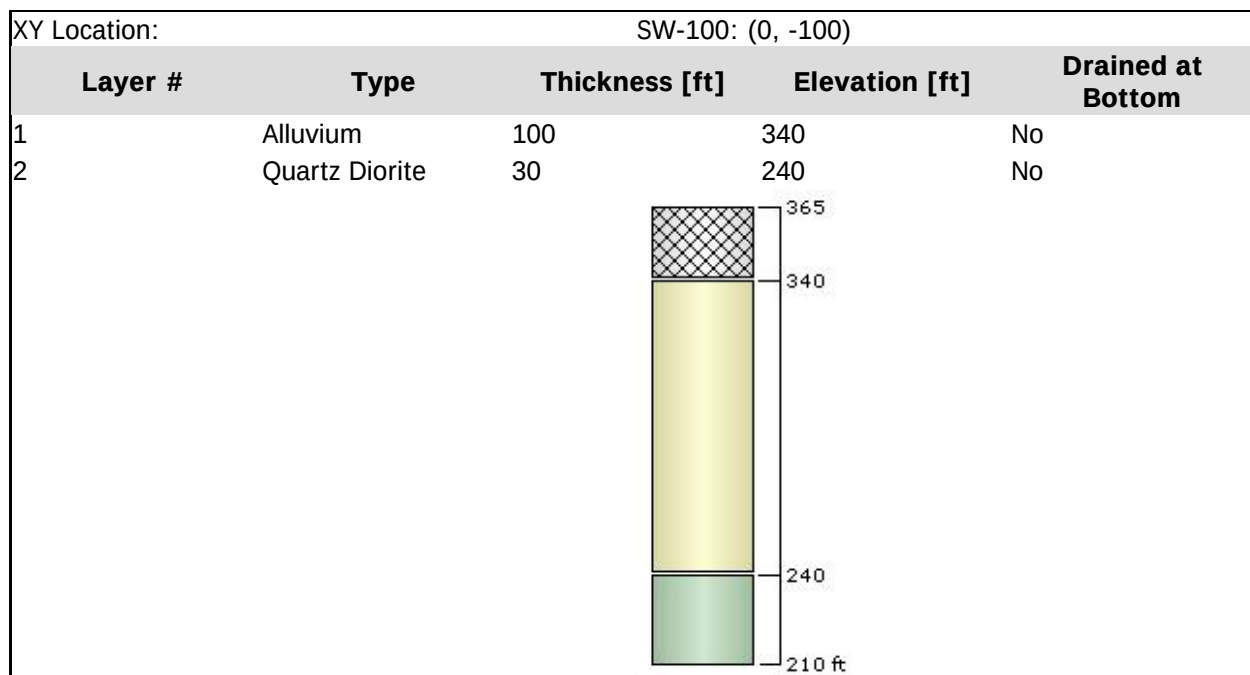
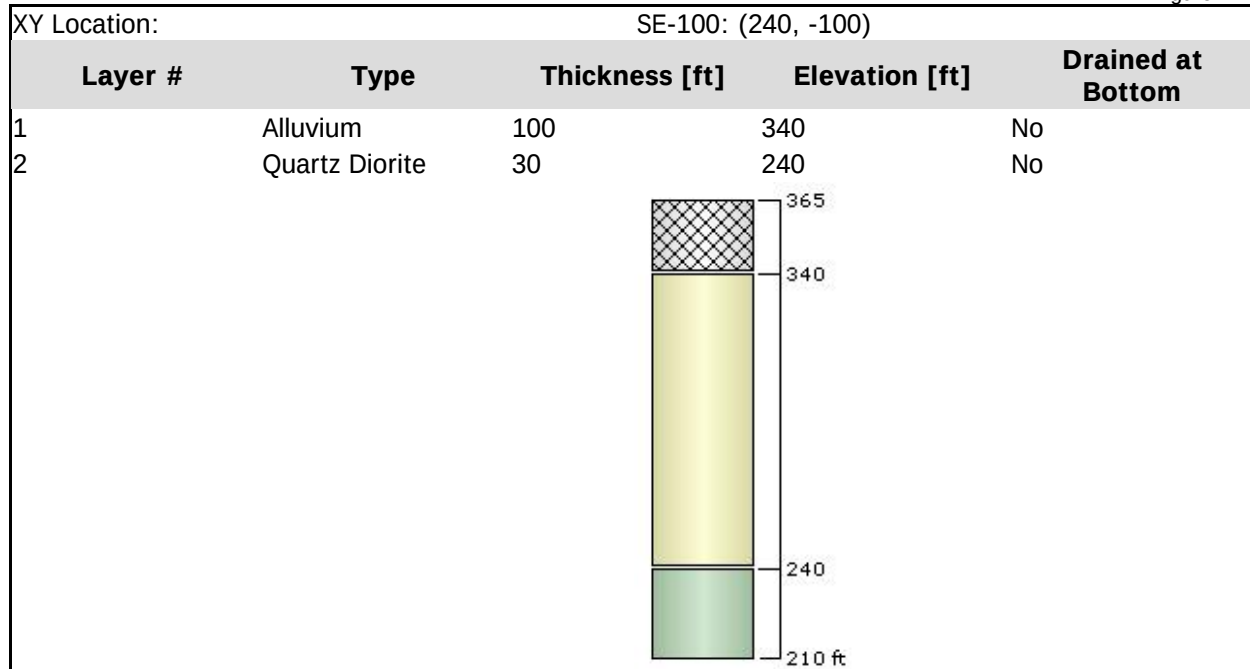
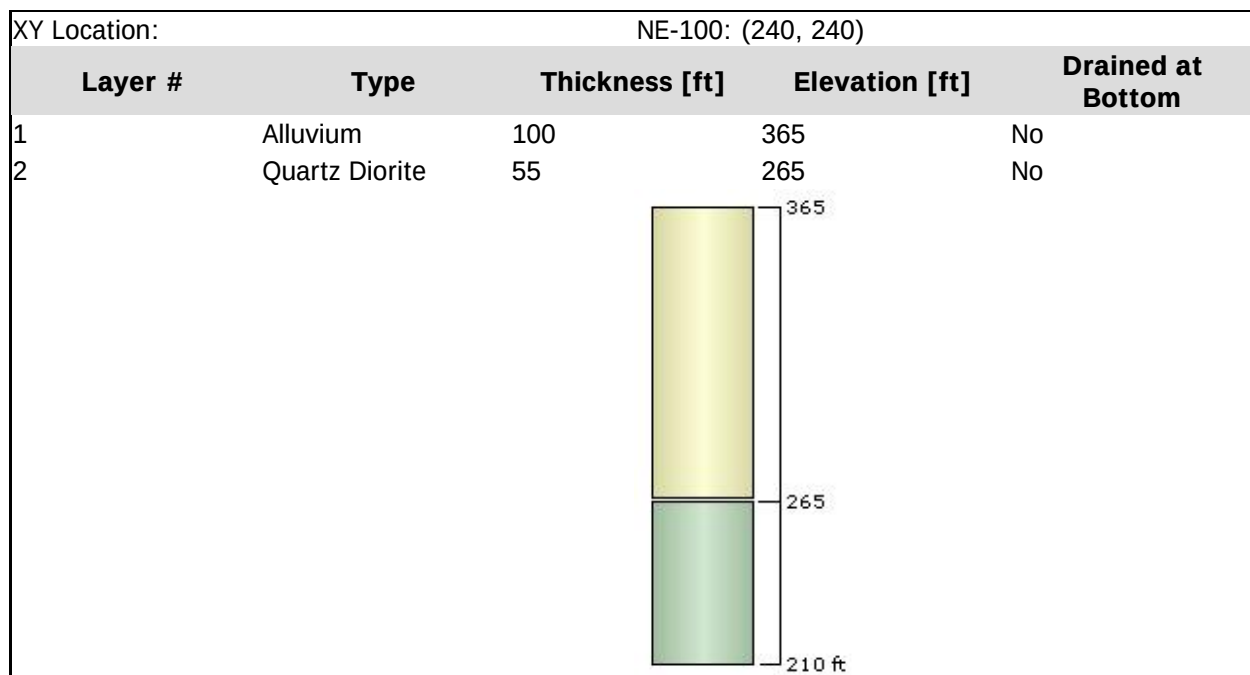
**SW-100****SE-100**

Figure E11

**NE-100**

Soil Properties

Property	Alluvium	Quartz Diorite
Color		
Unit Weight [kips/ft3]	0.135	0.14
Saturated Unit Weight [kips/ft3]	0.135	0.14
K0	1	1
Primary Consolidation	Enabled	Enabled
Material Type	Non-Linear	Non-Linear
Cce	0.0272	0.001
Cre	0.0068	0.001
e0	1.1	1.1
OCR	1	1
Cv [ft2/y]	300	0.1
Cvr [ft2/y]	300	0.1
B-bar	1	1
Undrained Su A [kips/ft2]	0	0
Undrained Su S	0.2	0.2
Undrained Su m	0.8	0.8
Grid Name	Staged	Staged

Groundwater

Groundwater method

Grids

Water Unit Weight

0.0624 kips/ft³

Groundwater Grid: Initial

X	Y	Elevation (ft)
0	140	325
0	0	310
240	0	310
240	140	325
120	140	325
120	0	310
0	240	336
0	-100	310
240	-100	310
240	240	336
-100	140	336
-100	0	310
340	0	310
340	140	336
125	250	336
125	-100	310
-70.7107	210.711	336
-70.7107	-70.7107	310
310.711	-70.7107	310
310.711	210.711	336

Groundwater Grid: Dewatered

X	Y	Elevation (ft)
0	140	314
0	0	320
240	0	320
240	140	314
120	140	314
120	0	320
0	240	326.714
0	-100	320
240	-100	320
240	240	326.714
-100	140	326.714
-100	0	320
340	0	320
340	140	326.714
125	250	326.714
125	-100	320
-70.7107	210.711	326.714
-70.7107	-70.7107	320
310.711	-70.7107	320
310.711	210.711	326.714

Query

Query Points

Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	120, 100	Auto: 71
2	Query Point 2	120, 30	Auto: 63
3	Query Point 3	120, 150	Auto: 61
4	Query Point 4	120, -10	Auto: 53
5	Query Point 5	-10, 70	Auto: 61
6	Query Point 6	250, 70	Auto: 61
7	Query Point 7	120, 170	Auto: 61
8	Query Point 8	120, -30	Auto: 53

Field Point Grid

Number of points	361
Expansion Factor	1

Grid Coordinates

X [ft]	Y [ft]
360	360
360	-220
-120	-220
-120	360

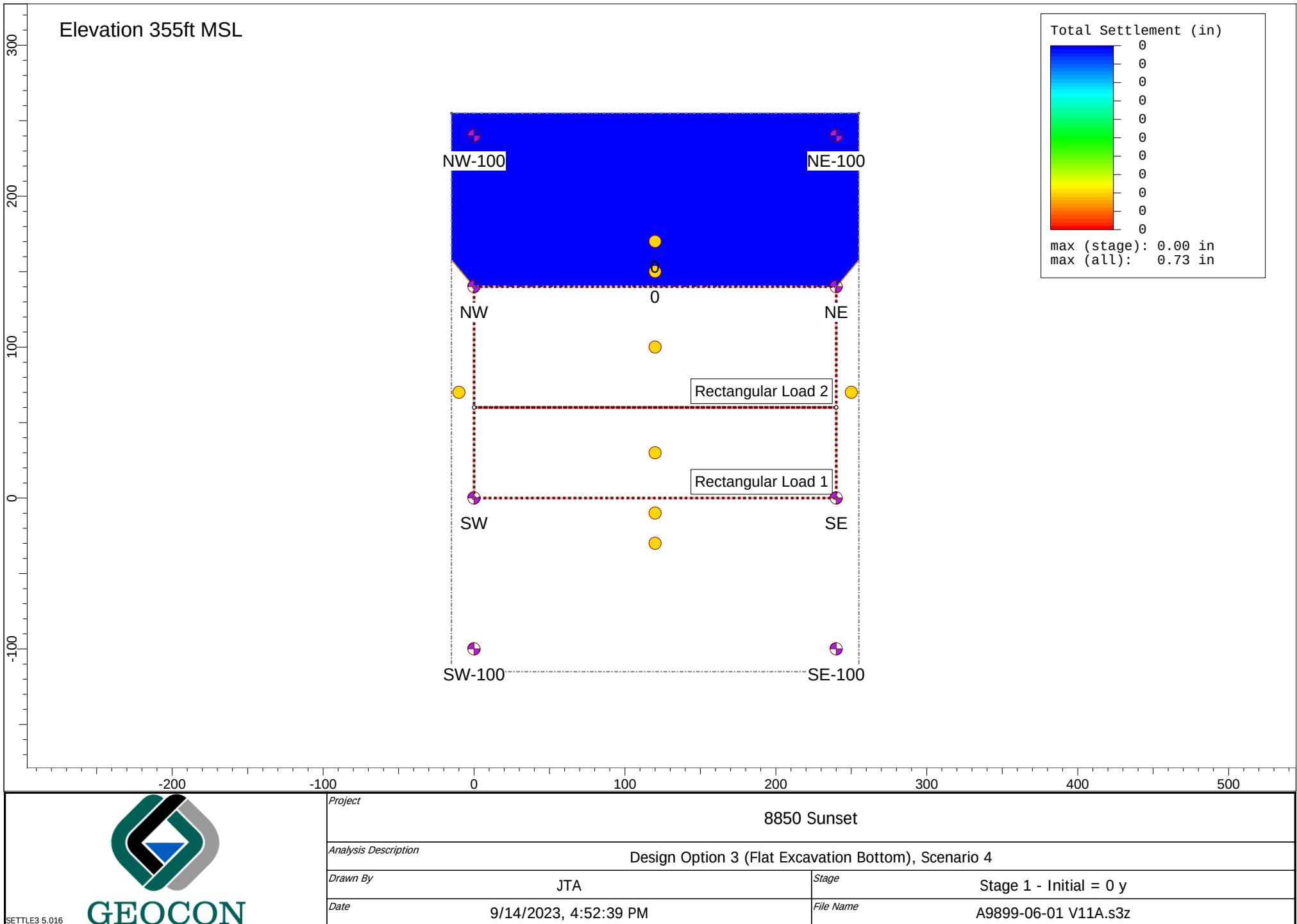
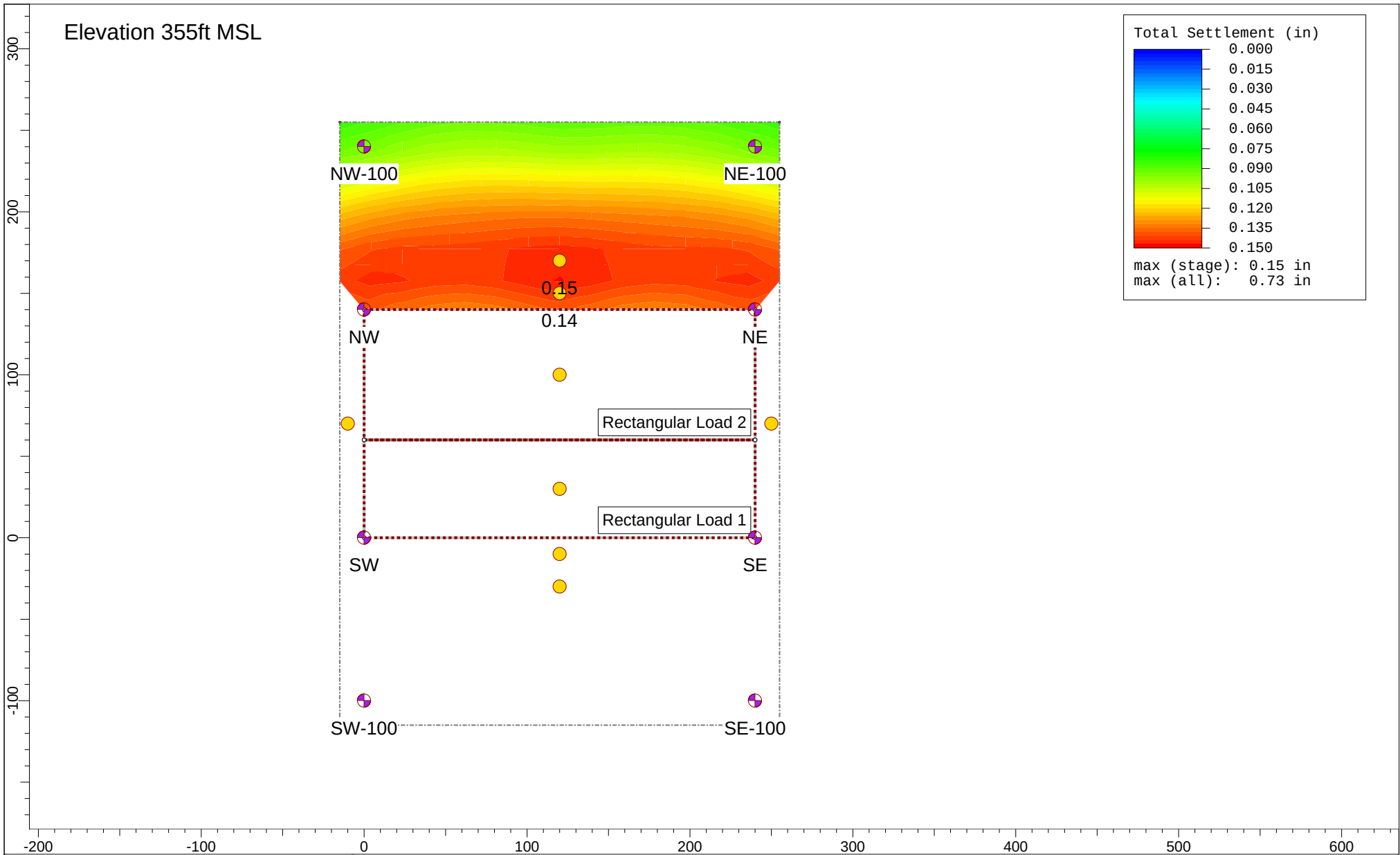
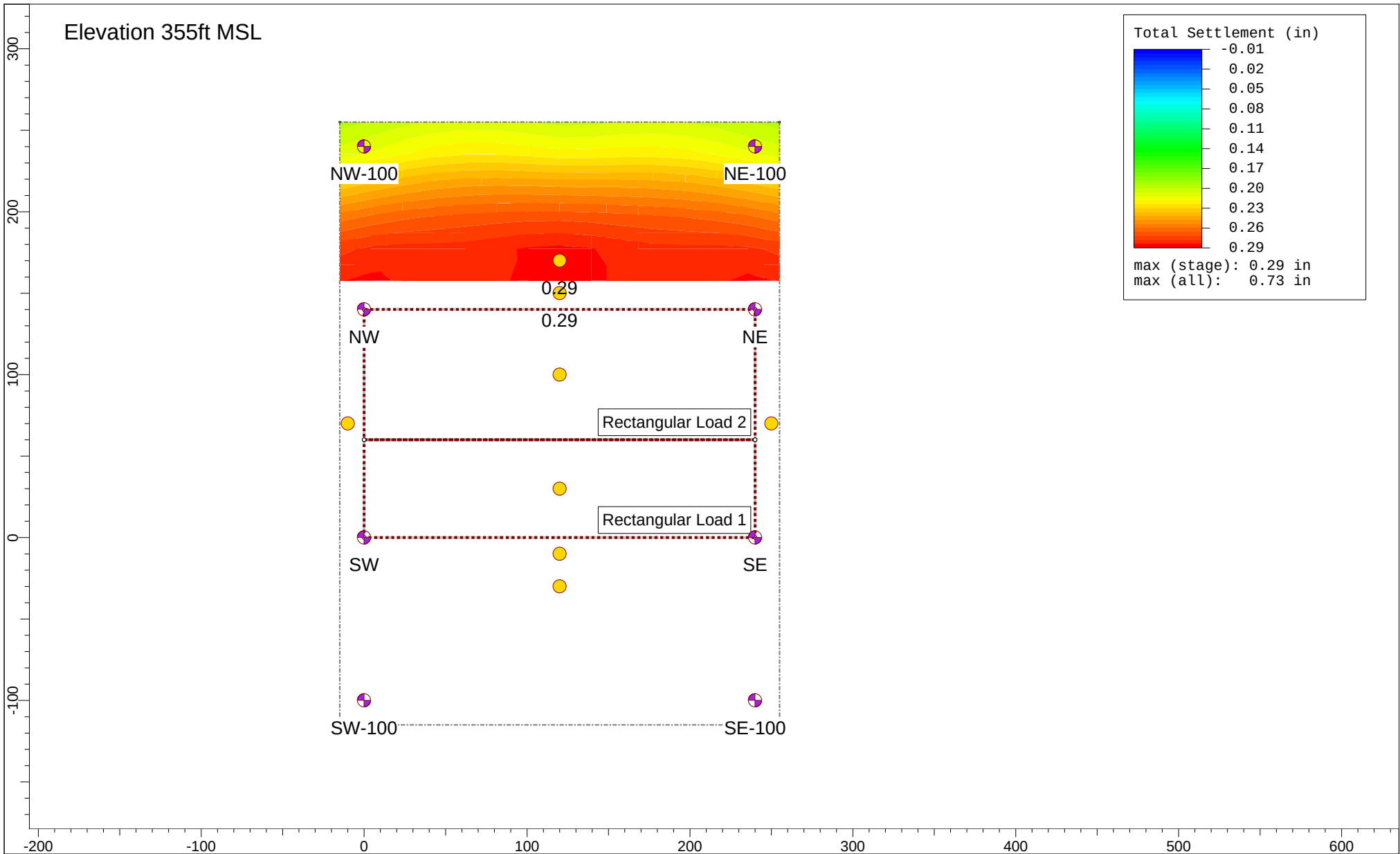


Figure E12



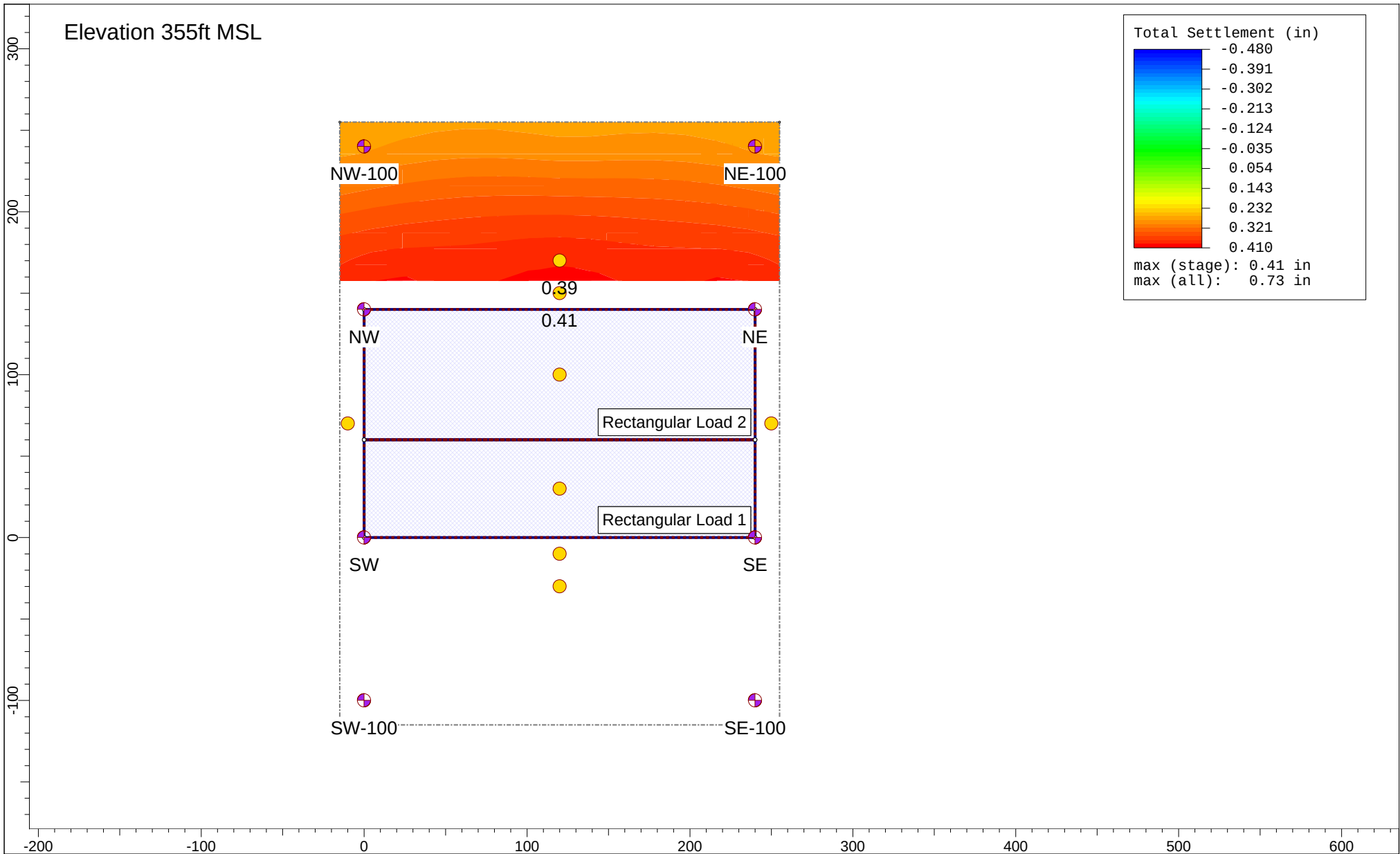
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	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage
	Date		9/14/2023, 4:52:49 PM	Stage 2 - Dewater = 0.083 y
			File Name	A9899-06-01 V11A.s3z

Figure E13



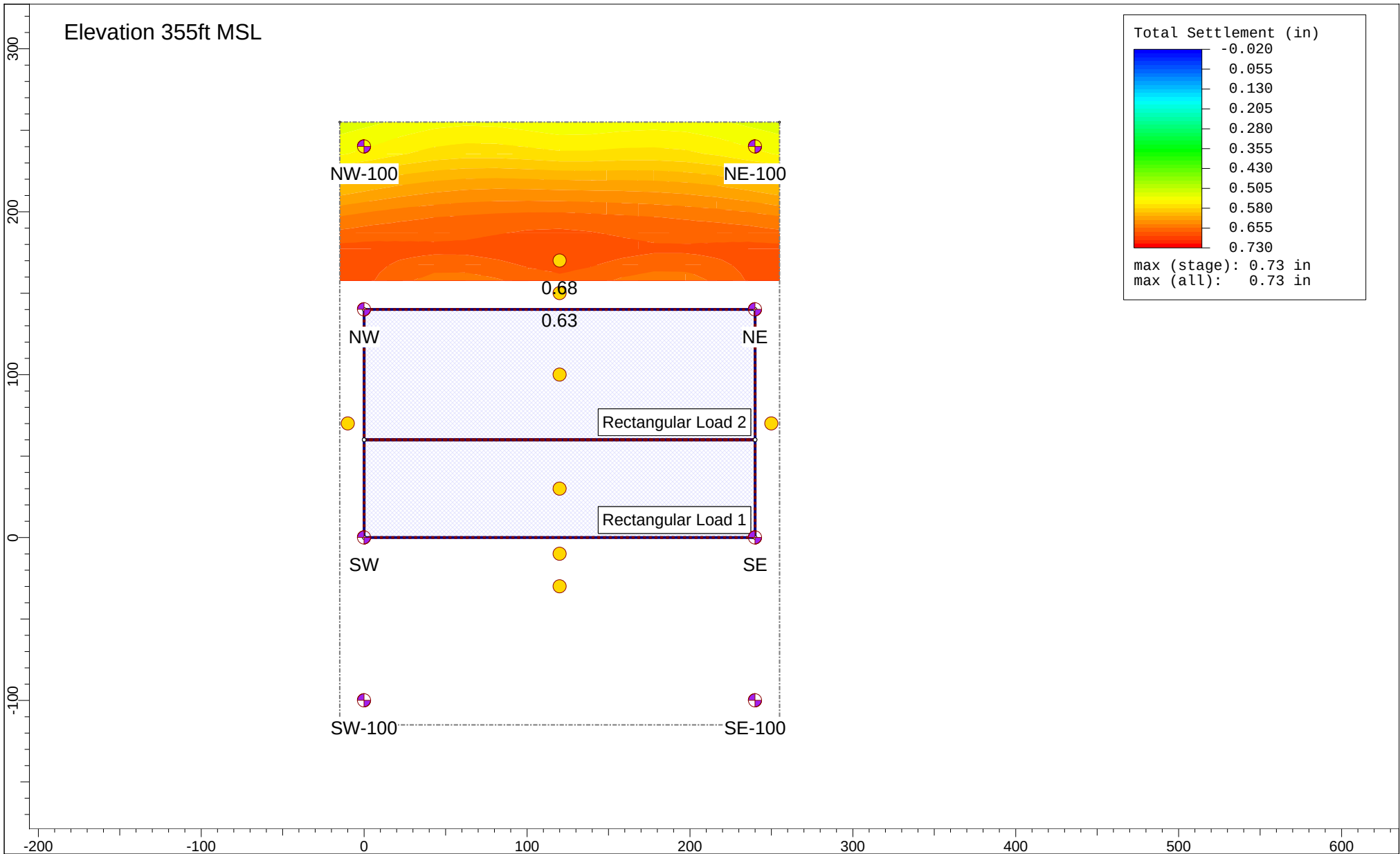
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	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage Stage 3 - Excavation = 0.167 y
	Date		9/14/2023, 4:52:58 PM	File Name A9899-06-01 V11A.s3z

Figure E14



	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage Stage 4 - Foundation Loading = 0.333 y
	Date		9/14/2023, 4:53:08 PM	File Name A9899-06-01 V11A.s3z

Figure E15



	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage
	Date		9/14/2023, 4:53:19 PM	Stage 5 - End of Dewatering = 2 y
SETTLE3 5.016		File Name		A9899-06-01 V11A.s3z

Figure E16

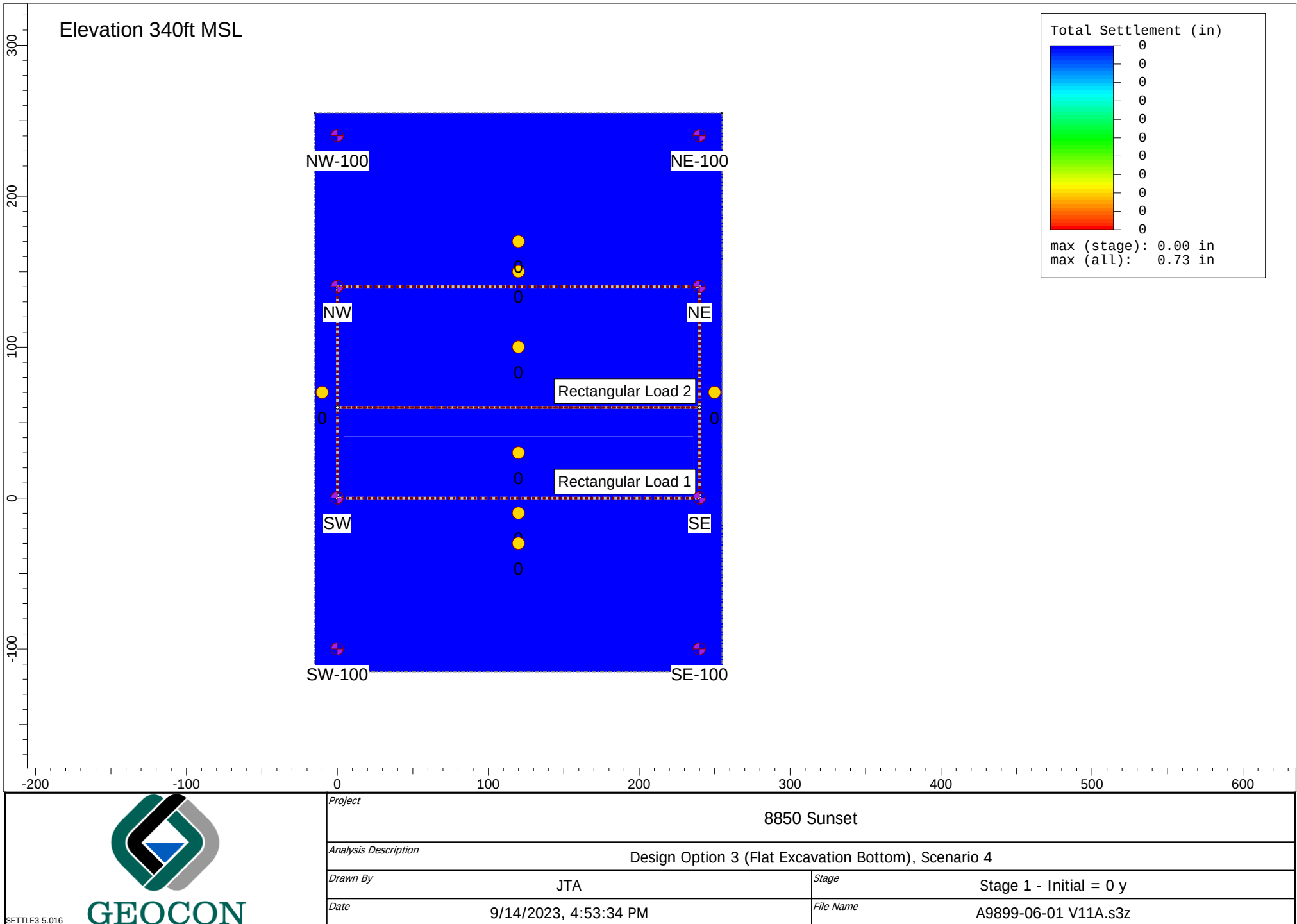
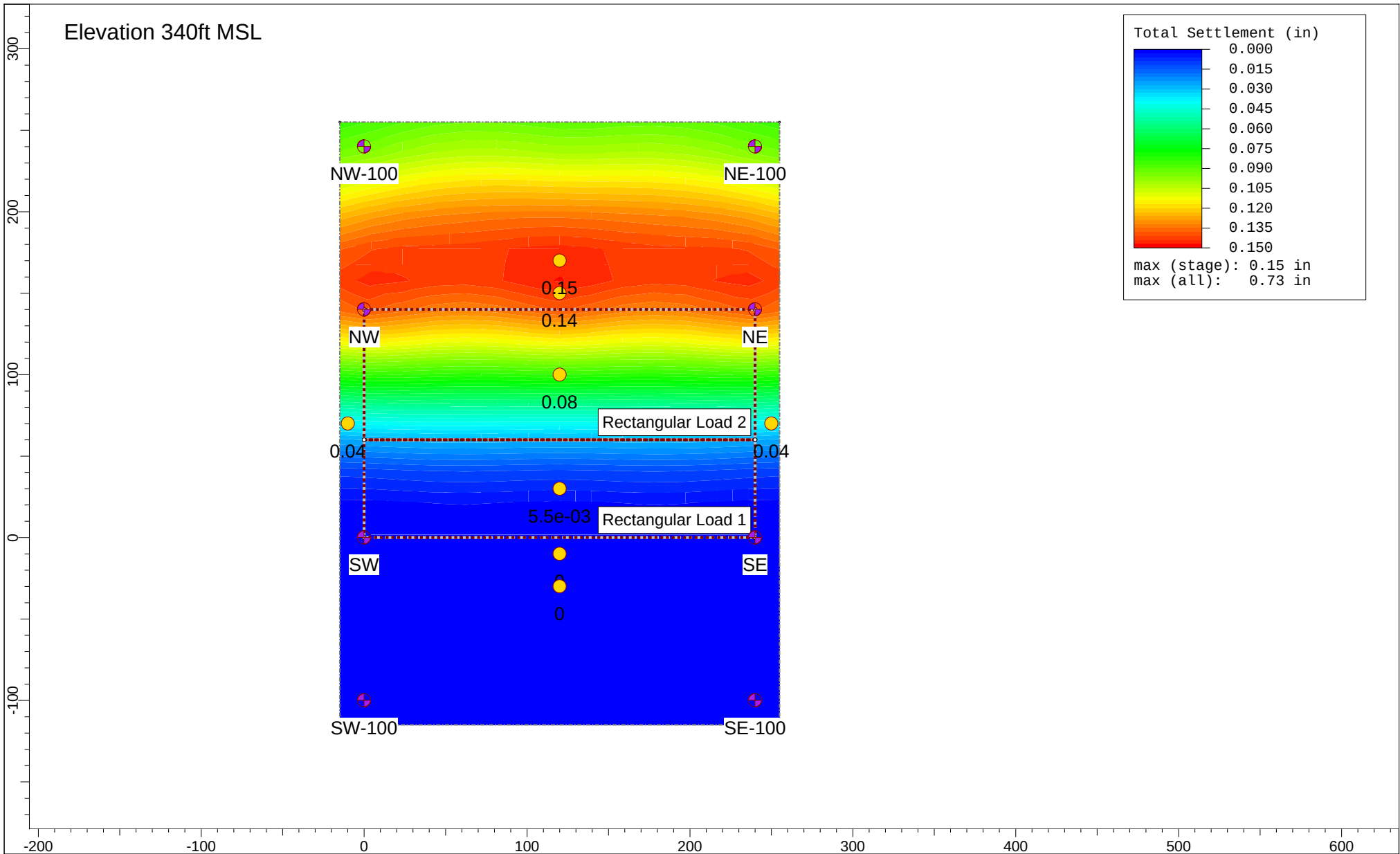
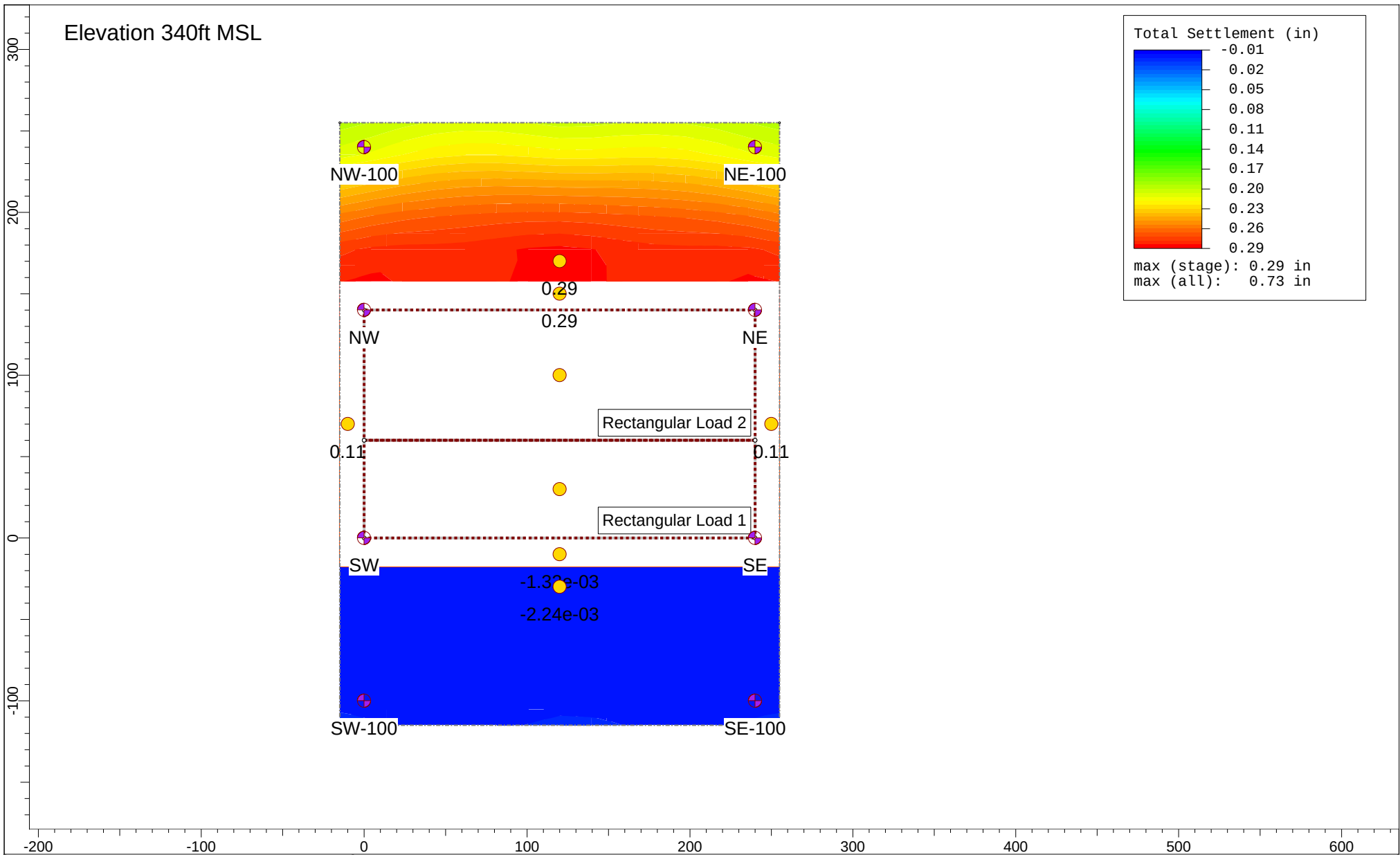


Figure E17



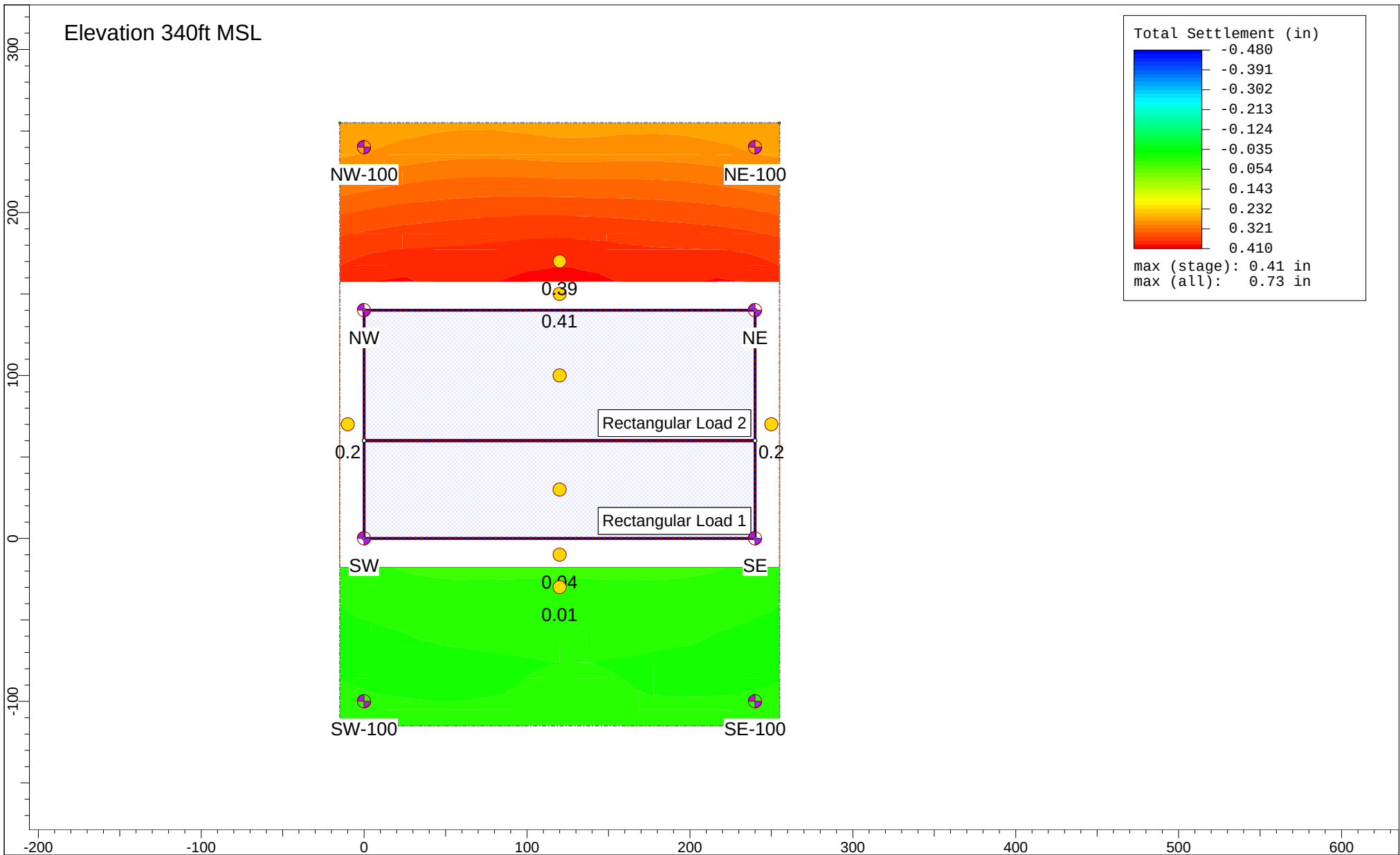
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	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage
	Date		9/14/2023, 4:53:43 PM	Stage 2 - Dewater = 0.083 y
SETTLE3 5.016		File Name		A9899-06-01 V11A.s3z

Figure E18



	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage
	Date		9/14/2023, 4:53:52 PM	Stage 3 - Excavation = 0.167 y
SETTLE3 5.016		File Name		A9899-06-01 V11A.s3z

Figure E19



	Project		8850 Sunset	
	Analysis Description		Design Option 3 (Flat Excavation Bottom), Scenario 4	
	Drawn By		JTA	Stage
	Date		9/14/2023, 4:54:02 PM	Stage 4 - Foundation Loading = 0.333 y
File Name		A9899-06-01 V11A.s3z		

Figure E20

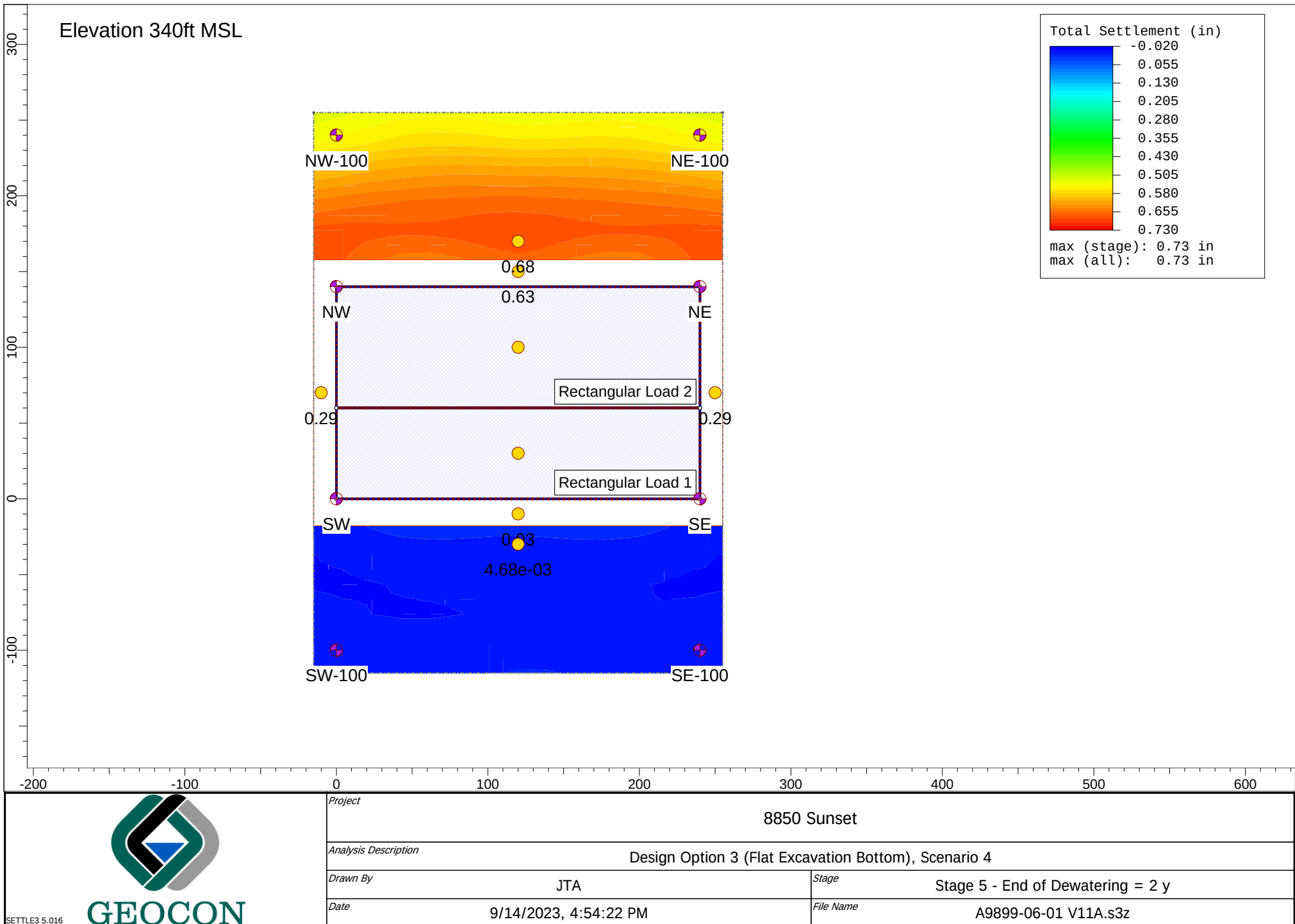


Figure E21

Settle3 Analysis Information

8850 Sunset

Project Settings

Document Name	A9899-06-01 V11A.s3z
Project Title	8850 Sunset
Analysis	Design Option 3 (Flat Excavation Bottom), Scenario 4
Author	JTA
Date Created	5/18/2022, 8:38:53 AM
Last saved with Settle3 version	5.016
Stress Computation Method	Boussinesq
Stress Units	Imperial, stress as ksf
Settlement Units	inches
Time-dependent Consolidation Analysis	
Time Units	years
Permeability Units	feet/year

Advanced Settings

Start of secondary consolidation (% of primary)	95
Min. stress for secondary consolidation (% of initial)	1
Reset time when load changes for secondary consolidation	No
Minimum settlement ratio for subgrade modulus	0.9
Use average poisson's ratio to calculate layered stresses	
Update Cv in each time step (improves consolidation accuracy)	
Ignore negative effective stresses in settlement calculations	
Add field points to load edges	

Soil Profile

Layer Option	Non-Horizontal Layers
Interpolation Method	Linear By Elevation
Use Non-Horizontal Ground Surface	Yes
Number of Surface Points	200
Vertical Axis	Elevation
Ground Elevation (ft)	355

Stage Settings

Stage #	Name	Time [years]
1	Initial	0
2	Dewater	0.083
3	Excavation	0.167
4	Foundation Loading	0.333
5	End of Dewatering	2

Results

Time taken to compute: 0 seconds

Stage: Initial = 0 y

Data Type	Minimum	Maximum
Total Settlement [in]	0	0
Total Consolidation Settlement [in]	0	0
Virgin Consolidation Settlement [in]	0	0
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	13.3623
Effective Stress YY [ksf]	0	13.3623
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	21.2
Total Stress YY [ksf]	0	21.2
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0
Pore Water Pressure [ksf]	0	7.96979
Excess Pore Water Pressure [ksf]	0	0
Degree of Consolidation [%]	0	0
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1
Void Ratio	1.1	1.1
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	0	0

Stage: Dewater = 0.083 y

Data Type	Minimum	Maximum
Total Settlement [in]	0	0.14727
Total Consolidation Settlement [in]	0	0.14727
Virgin Consolidation Settlement [in]	0	0.14727
Recompression Consolidation Settlement [in]	0	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	0	0
Loading Stress XX [ksf]	0	0
Loading Stress YY [ksf]	0	0
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	14.0523
Effective Stress YY [ksf]	0	14.0523
Total Stress ZZ [ksf]	0	21.2
Total Stress XX [ksf]	0	21.8365
Total Stress YY [ksf]	0	21.8365
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	0	0.00146327
Pore Water Pressure [ksf]	0	7.96979
Excess Pore Water Pressure [ksf]	-0.0597148	0.836202
Degree of Consolidation [%]	0	13.3458
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1
Void Ratio	1.09693	1.1
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.0359402	0.0020484

Stage: Excavation = 0.167 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.00232013	0.288513
Total Consolidation Settlement [in]	-0.00232013	0.288513
Virgin Consolidation Settlement [in]	0	0.288513
Recompression Consolidation Settlement [in]	-0.00232013	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-8.47868	0
Loading Stress XX [ksf]	-5.94429	1.46652
Loading Stress YY [ksf]	-7.40085	0.74413
Effective Stress ZZ [ksf]	0	13.3623
Effective Stress XX [ksf]	0	13.8118
Effective Stress YY [ksf]	0	13.4706
Total Stress ZZ [ksf]	-0.800398	21.0686
Total Stress XX [ksf]	-4.77017	21.2493
Total Stress YY [ksf]	-6.16926	21.0013
Modulus of Subgrade Reaction (Total) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	0	0
Total Strain	-3.61877e-05	0.00180491
Pore Water Pressure [ksf]	-7.29075	7.83842
Excess Pore Water Pressure [ksf]	-7.29075	0.825175
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1.01233
Void Ratio	1.09621	1.10008
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.0950987	0.00226251

Stage: Foundation Loading = 0.333 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.474678	0.406061
Total Consolidation Settlement [in]	-0.474678	0.406061
Virgin Consolidation Settlement [in]	0	0.433855
Recompression Consolidation Settlement [in]	-0.527219	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-1.97868	0.01
Loading Stress XX [ksf]	-1.19468	0.462336
Loading Stress YY [ksf]	-2.0121	1.25459
Effective Stress ZZ [ksf]	0	13.3612
Effective Stress XX [ksf]	-0.020227	14.232
Effective Stress YY [ksf]	-0.804535	13.9123
Total Stress ZZ [ksf]	0	21.1767
Total Stress XX [ksf]	0	21.6463
Total Stress YY [ksf]	0	21.3202
Modulus of Subgrade Reaction (Total) [ksf/ft]	-63124.3	39298.8
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-63124.3	39298.8
Total Strain	-0.0197222	0.00181546
Pore Water Pressure [ksf]	0	7.94696
Excess Pore Water Pressure [ksf]	-0.251902	6.5
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	510.683
Void Ratio	1.09619	1.13745
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.669404	0.00988625

Stage: End of Dewatering = 2 y

Data Type	Minimum	Maximum
Total Settlement [in]	-0.0118396	0.727513
Total Consolidation Settlement [in]	-0.0118396	0.727513
Virgin Consolidation Settlement [in]	0	0.727513
Recompression Consolidation Settlement [in]	-0.046752	0
Immediate Settlement [in]	0	0
Secondary Settlement [in]	0	0
Loading Stress ZZ [ksf]	-1.97868	0.01
Loading Stress XX [ksf]	-1.19468	0.462336
Loading Stress YY [ksf]	-2.0121	1.25459
Effective Stress ZZ [ksf]	0	13.3615
Effective Stress XX [ksf]	0	14.2322
Effective Stress YY [ksf]	0	13.9126
Total Stress ZZ [ksf]	0	21.1767
Total Stress XX [ksf]	0	21.075
Total Stress YY [ksf]	0	20.759
Modulus of Subgrade Reaction (Total) [ksf/ft]	-34361.9	218.89
Modulus of Subgrade Reaction (Immediate) [ksf/ft]	0	0
Modulus of Subgrade Reaction (Consolidation) [ksf/ft]	-34361.9	218.89
Total Strain	-0.0162018	0.00254424
Pore Water Pressure [ksf]	-4.44089e-16	7.94684
Excess Pore Water Pressure [ksf]	-0.836202	1.72964
Degree of Consolidation [%]	0	100
Pre-consolidation Stress [ksf]	0.00393093	13.358
Over-consolidation Ratio	1	1.08642
Void Ratio	1.09466	1.13383
Permeability [ft/y]	2.03102e-07	56.3186
Coefficient of Consolidation [ft ² /y]	0.1	300
Hydroconsolidation Settlement [in]	0	0
Average Degree of Consolidation [%]	0	0
Undrained Shear Strength	-0.0913669	0.0314118

Loads

1. Rectangular Load: "Rectangular Load 1"

Length	240 ft
Width	60 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	14400 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	0
240	0
240	60
0	60

2. Rectangular Load: "Rectangular Load 2"

Length	240 ft
Width	80 ft
Rotation angle	0 degrees
Load Type	Flexible
Area of Load	19200 ft ²
Load	6.5 ksf
Elevation	292 ft
Installation Stage	Foundation Loading = 0.333 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Excavations

1. Excavation: "Excavation 1"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
240	0
240	60
0	60
0	0

2. Excavation: "Excavation 2"

Elevation 292 ft
Installation Stage Excavation = 0.167 y

Coordinates

X [ft]	Y [ft]
0	60
240	60
240	140
0	140

Soil Layers

Ground Surface Drained: Yes

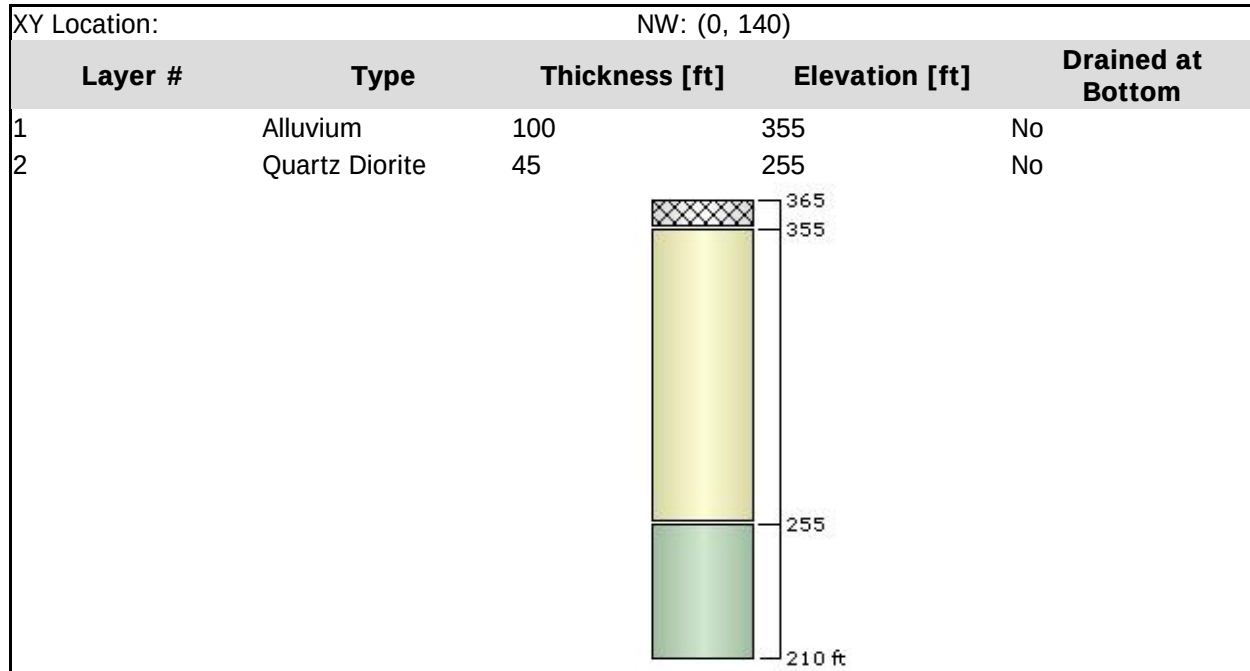
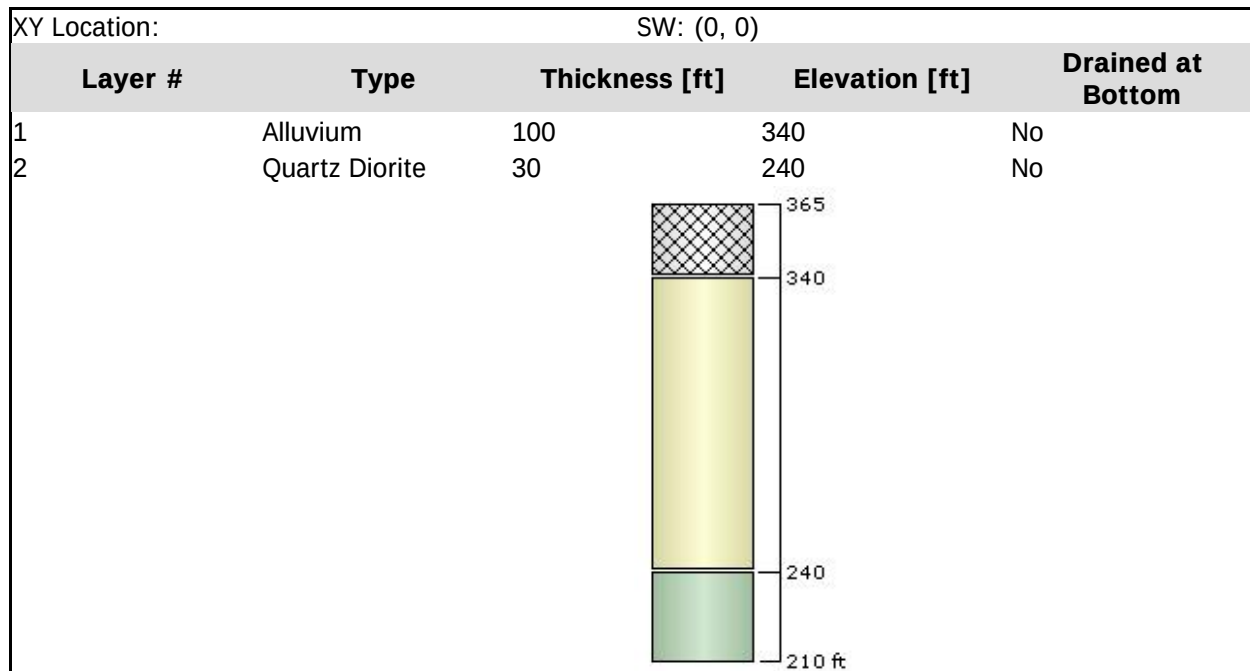
NW

SW

SE

Figure E22

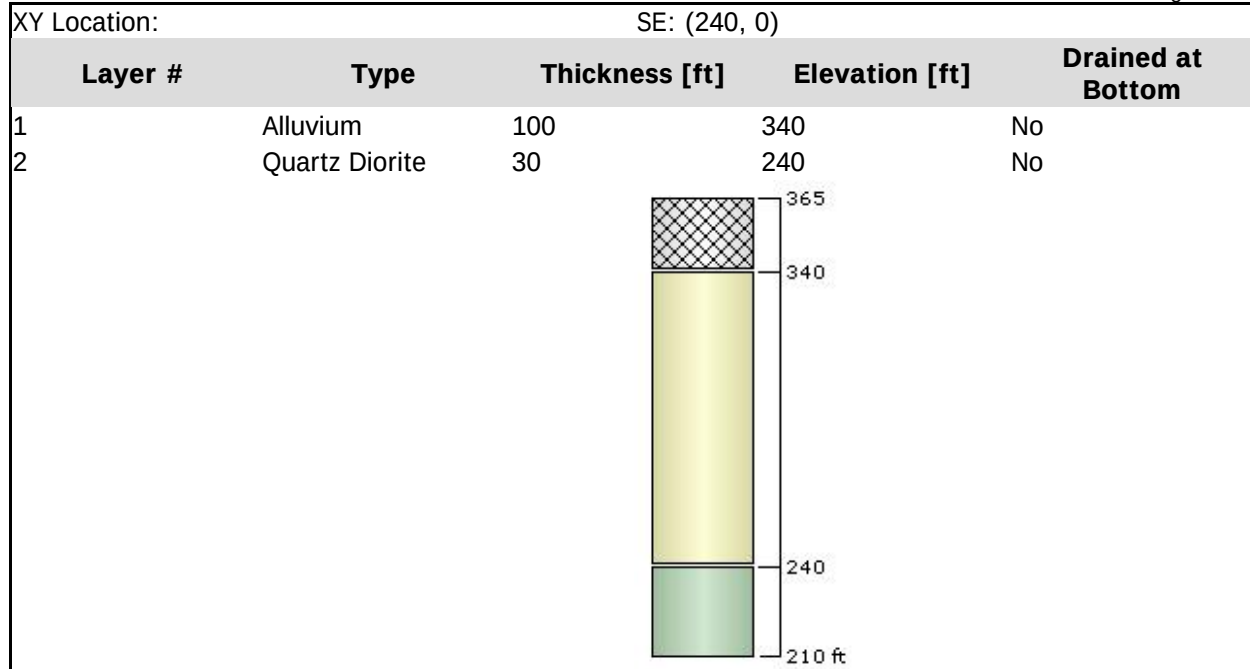
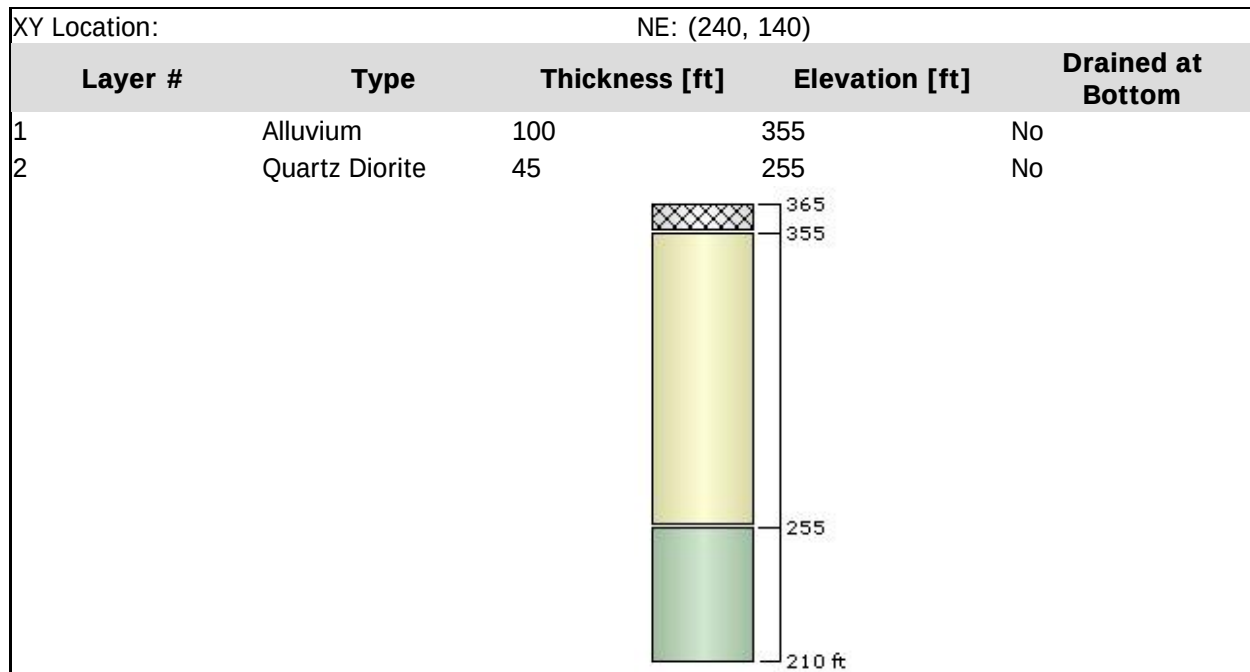
**NE****NW-100**

Figure E22

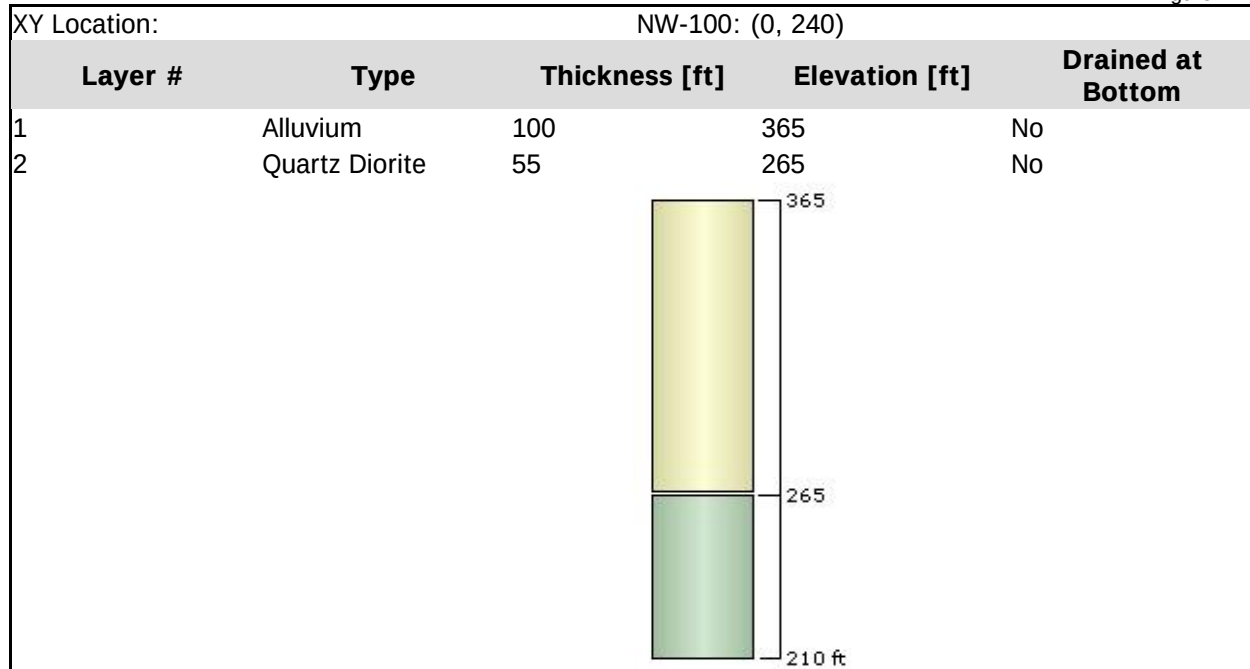
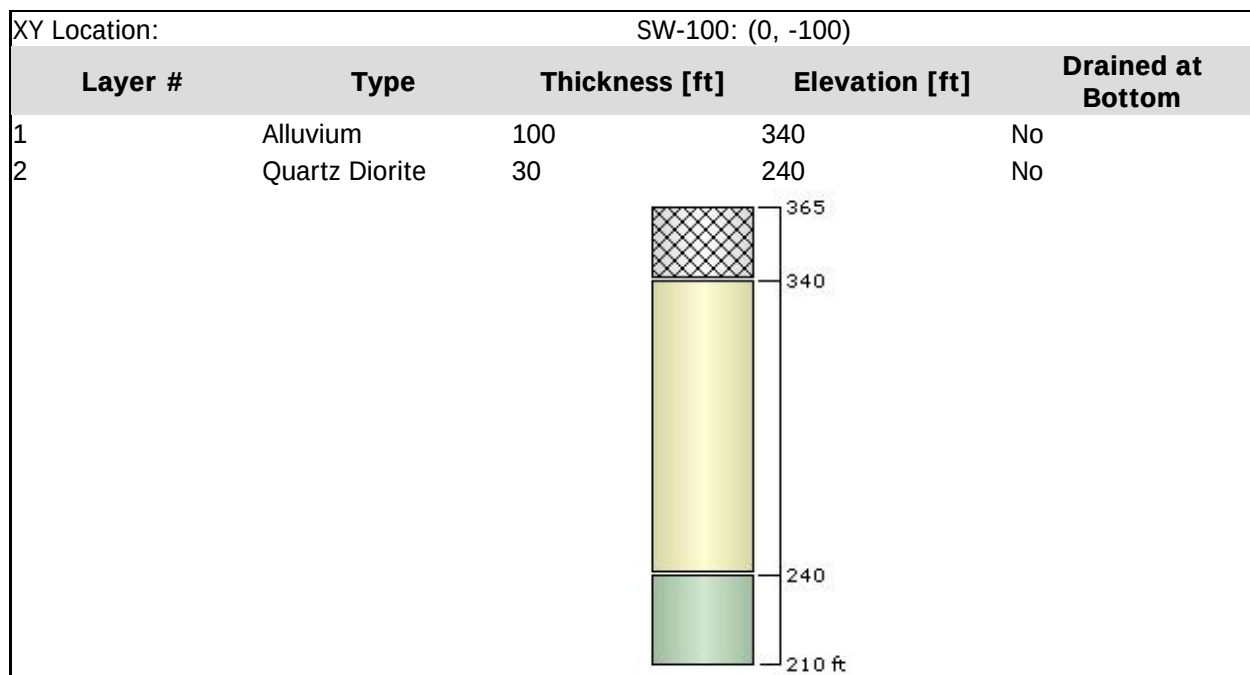
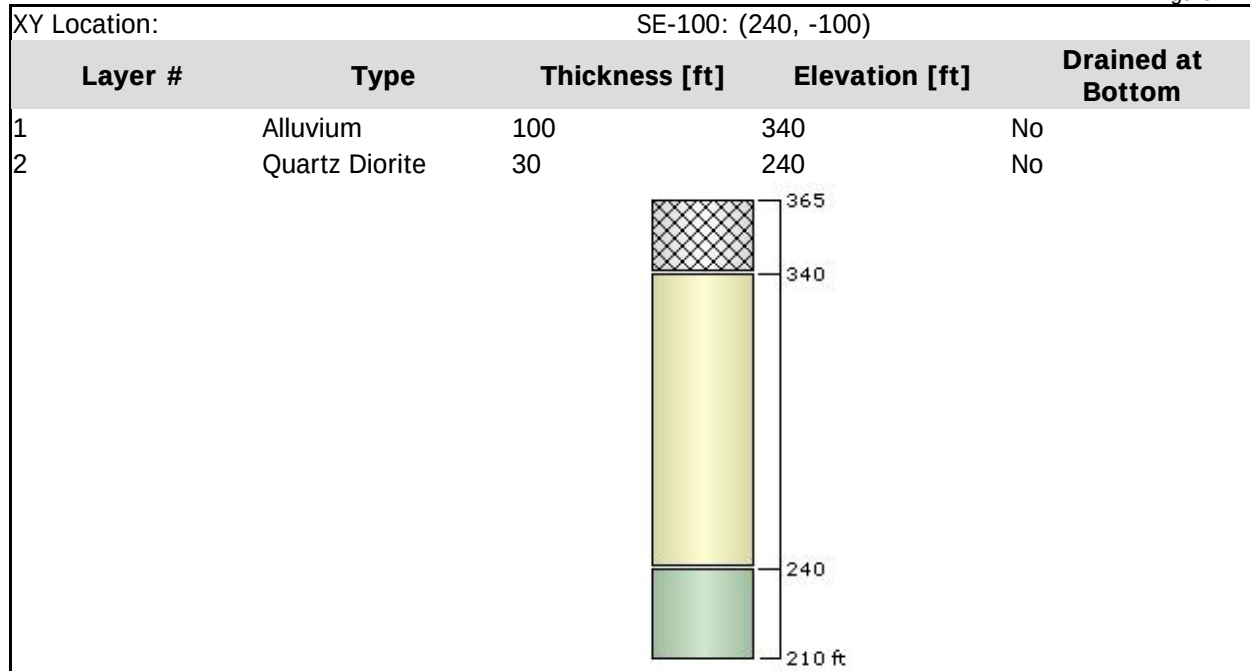
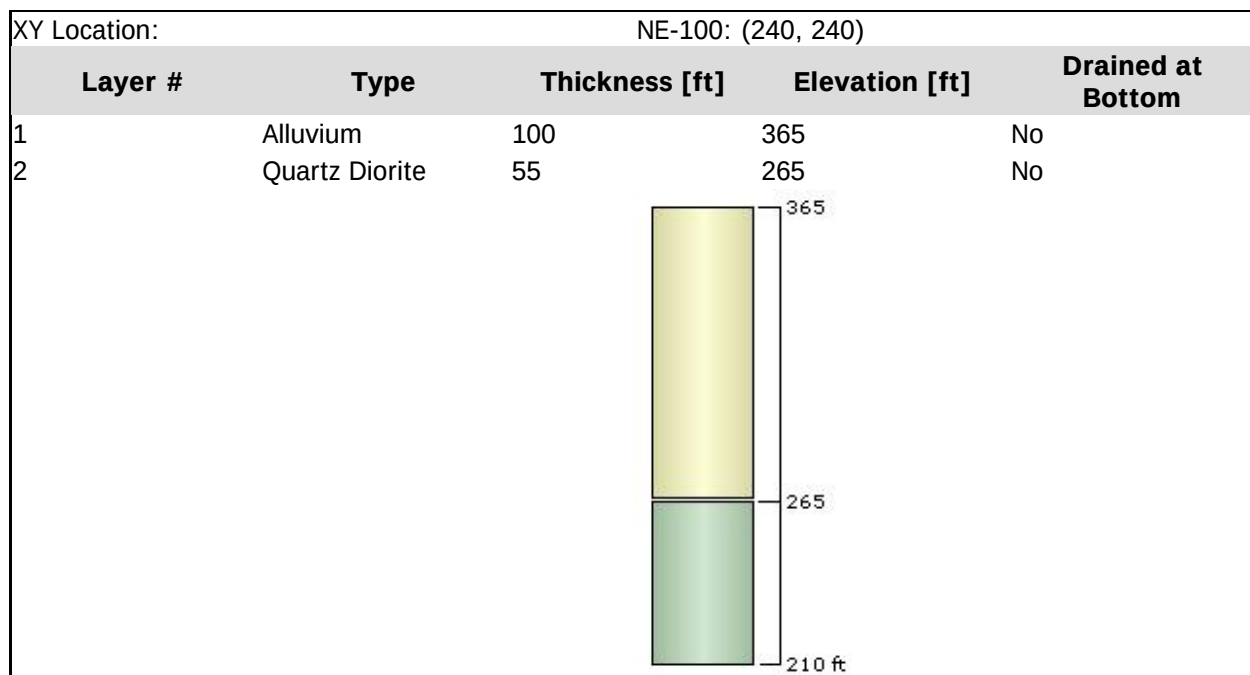
**SW-100****SE-100**

Figure E22

**NE-100**

Soil Properties

Property	Alluvium	Quartz Diorite
Color		
Unit Weight [kips/ft3]	0.135	0.14
Saturated Unit Weight [kips/ft3]	0.135	0.14
K0	1	1
Primary Consolidation	Enabled	Enabled
Material Type	Non-Linear	Non-Linear
Cce	0.0272	0.001
Cre	0.0068	0.001
e0	1.1	1.1
OCR	1	1
Cv [ft2/y]	300	0.1
Cvr [ft2/y]	300	0.1
B-bar	1	1
Undrained Su A [kips/ft2]	0	0
Undrained Su S	0.2	0.2
Undrained Su m	0.8	0.8
Grid Name	Staged	Staged

Groundwater

Groundwater method

Grids

Water Unit Weight

0.0624 kips/ft³

Groundwater Grid: Initial

X	Y	Elevation (ft)
0	140	325
0	0	310
240	0	310
240	140	325
120	140	325
120	0	310
0	240	336
0	-100	310
240	-100	310
240	240	336
-100	140	336
-100	0	310
340	0	310
340	140	336
125	250	336
125	-100	310
-70.7107	210.711	336
-70.7107	-70.7107	310
310.711	-70.7107	310
310.711	210.711	336

Groundwater Grid: Dewatered

X	Y	Elevation (ft)
0	140	312
0	0	310
240	0	310
240	140	312
120	140	312
120	0	310
0	240	325.714
0	-100	310
240	-100	310
240	240	325.714
-100	140	325.714
-100	0	310
340	0	310
340	140	325.714
125	250	325.714
125	-100	310
-70.7107	210.711	325.714
-70.7107	-70.7107	310
310.711	-70.7107	310
310.711	210.711	325.714

Query

Query Points

Point #	Query Point Name	(X,Y) Location	Number of Divisions
1	Query Point 1	120, 100	Auto: 71
2	Query Point 2	120, 30	Auto: 71
3	Query Point 3	120, 150	Auto: 61
4	Query Point 4	120, -10	Auto: 61
5	Query Point 5	-10, 70	Auto: 61
6	Query Point 6	250, 70	Auto: 61
7	Query Point 7	120, 170	Auto: 61
8	Query Point 8	120, -30	Auto: 61

Field Point Grid

Number of points	361
Expansion Factor	1

Grid Coordinates

X [ft]	Y [ft]
360	360
360	-220
-120	-220
-120	360

